



New Zealand Catalogue 2023

Electrical distribution, automation
and control. Service and support.

se.com/nz

Life Is On

Schneider
Electric

> About Schneider Electric

Schneider's purpose is to empower all to make the most of our energy and resources, bridging progress and sustainability for all. We call this Life Is On.

Our mission is to be your digital partner for Sustainability and Efficiency.

We drive digital transformation by integrating world-leading process and energy technologies, end-point to cloud connecting products, controls, software and services, across the entire lifecycle, enabling integrated company management, for homes, buildings, data centers, infrastructure and industries.

We are the most local of global companies. We are advocates of open standards and partnership ecosystems that are passionate about our shared Meaningful Purpose, Inclusive and Empowered values.

All enquiries

Email: customer care.nz@schneider-electric.com

Website: se.com/nz

Tel: 0800 652 999

Fax: 0800 101 152

Main office locations

Auckland head office

Address Level 2, Building 6, 60 Highbrook Drive Highbrook, Auckland 2013

Tel +64 9 829 0490

Fax +64 9 829 0491

Postal address PO Box 259370, Botany, Manukau 2163, Auckland, New Zealand

Napier

Address 2/82 Austin Street, Onekawa 4110

Tel +64 6 843 5855

Christchurch

Address Level 2, 4 Hazeldean Road, Addington Christchurch 8024

Tel +64 3 338 9059

Fax +64 3 338 9842

Postal address PO Box 1367, Addington, Christchurch 8140



Download your interactive
pdf of the catalogue

se.com/nz/a4catalogue

Contents

Speed search index

Power distribution



Automation & control



EVlink

Technical reference charts

Services & training

Product Index and Terms & Conditions

	Speed search index	B
	Low voltage final distribution	C
	Low voltage power distribution	D
	Power management	E
	Enclosures and switchboard systems	F
	Medium voltage distribution	G
	Motor starters and protection components	H
	Variable speed drives & soft starters	I
	Control & signalling	J
	Machine safety	L
	Machine control	M
	Process control, safety, and HMI	N
Electric vehicle charging solutions	O	
Technical reference charts	P	
Services & training	Q	
Alphanumeric listing and conditions	R	

Speed search index

B

A

	Description	Product	Part	Sect	Page
	ARC fault detection device	Acti 9	IDPNV Vigi ARC	C	14
	Bells & buzzers	Acti 9	SO/RO	C	25
	Button holders for harmony 22mm dia devices	Acti 9	M9	C	25
	Chassis	Acti 9		C	29-30
	Circuit breaker accessories	Acti 9	iC60/120	C	16
	Circuit breaker auxiliaries	Acti 9	iC60	C	15
	Comb busbar	Acti 9		C	27
	Contactors	Acti 9	iCT	C	21
	Control transformers	Acti 9	TR	C	25
	Impulse relays	Acti 9	iTL	C	22
	Light sensitive switches	Acti 9	IC200 & IC2000	C	25
Acti 9, 18mm DIN profile devices	MCB, 1 to 3 pole, 1 to 63A – 6kA	Acti 9	iC60N	C	5
	MCB, 1 to 4 pole, 1 to 63A – 10kA	Acti 9	iC60H	C	6
	MCB, 1 to 2 pole, 1 to 63A – DC	Acti 9	iC60H-DC	C	7
	MCB, 1 to 4 pole, 63 to 125A – 10kA	Acti 9	C120N	C	8
	MCB, 1 to 4 pole, 1 to 63A - 15kA	Acti 9	iC60L	C	9
	MCB, 1 to 4 pole, 63 to 125A – 15kA	Acti 9	C120H	C	10
	Pushbuttons, pilot lights & selector switches	Acti 9	iPB & iCM	C	23
	RCBO – combined MCB/RCD – 10kA	Acti 9	iC60H RCBO	C	12
	RCBO – combined MCB/RCD – 6kA	Acti 9	iDPN Vigi	C	11-12
	RCCB – safety switch	Acti 9	iID	C	11-12
	Surge arrester	Acti 9	iPRD	C	17-18
	Time delay relays	Acti 9	iRT	C	24
	Time switches	Acti 9	iH, iHP	C	24
Advantys	Distributed inputs/outputs	Advantys	STB	N	22
Air Circuit Breakers (ACBs)	Low voltage, 630-1600A	Masterpact	MTZ	D	31-35
Altistart 01	Soft starter 0.37 to 15kW	Altistart 01	ATS01	I	6
Altistart 22	Soft starter 7.5 to 315kW	Altistart 22	ATS22	I	7
Altivar Soft Starter ATS480	Soft starter 7.5 to 630kW	Altivar Soft Starter	ATS480	I	11
Altivar 12	Variable speed drive 0.18 to 2.2kW	Altivar 12	ATV12	I	15
Altivar 212	HVAC variable speed drive 0.75 to 75kW	Altivar 212	ATV212	I	27
Altivar 320	Variable speed drive 0.18 to 15kW	Altivar 320	ATV320	I	17
Altivar 340	Variable speed drive 0.75 to 75kW	Altivar 340	ATV340	I	26
Altivar Process ATV600/900	Variable speed drive 0.75 to 315kW	Altivar Process	ATV630/650/930/950	I	30
Altivar Process Drive Systems	Variable speed drives 110 to 2600kW	Altivar Process	ATV660/680/960/980	I	46
Analogue Converters	0...10V, 4...20mA	Zelio	RMC	M	22
Analogue Pressure Sensors	4-20mA or 0-10V output	Telemecanique	XM	K	29-30
	HMI Configuration software			N	49
	Control & signalling units	Harmony		J	1
	Distributed inputs/outputs	Advantys	STB	N	22
	Distributed inputs/outputs	Telefast	ABE7	M	39
	Human machine interface	Harmony	HMI	N	34
	Machine safety devices			L	1
	Motor control gear	TeSys		H	2
Automation & Control	Sensors	Telemecanique	OsiSense	K	3
	Programmable automation controllers	Modicon	M340, M580	N	2,4
	Programmable logic controllers	Modicon	M221	M	28
	Programmable logic controllers	Modicon	M241, 251, 262	M	31
	I/O Expansion Modules	Modicon	TM3	M	36
	Smart relays	Zelio	SR2 & SR3	M	24
	Timers & relays	Zelio		M	13
	Variable speed drives & soft starters	Altivar/Altistart		I	1
	Contactors	TeSys	Model K	H	4
	Contactors	TeSys	Model D	H	12
	Contactors	TeSys	Model D Green	H	14
Auxiliary Contact	Contactors	TeSys	Model F	H	28
	Integrated starter	TeSys	Model U	H	53
	Miniature circuit breaker	Acti 9	iC60/C120	C	5-10
	Motor circuit breakers	TeSys	GV2	H	39
ASCO	Source changeover systems			D	36

Speed search index

	Description	Product	Part	Sect	Page
B					
Bells & Buzzers	Acti 9 system DIN mount 80dB	Acti 9	SO/RO	C	25
	Annunciator 80dB fits 22mm dia hole	Harmony	XB5KS	J	34
	Audible signalling unit 89-97dB	Harmony	XVSV	J	59
Biometric Switch	Fingerprint reader	Harmony	XB5S	J	43
Busbar Systems	for miniature circuit breakers	Acti 9	Comb busbar	C	27
	for miniature circuit breakers – fishbone type	Acti 9		C	29-30
	For motor circuit breakers – fishbone type	TeSys	GV2	H	41
	For motor starters – modular	TeSys	LA9Z	H	77
	For motor starters – panel	TeSys	AK5	H	76
	for moulded case circuit breakers – fishbone type	Powerpact	CNS	D	23-25
Busway	25-6300A	Canalis	I Line	D	43
	lighting 25-40A	Canalis	KB	D	44-48
C					
iC60N	Miniature circuit breakers	Acti 9	iC60N	C	5
iC60H	Miniature circuit breakers	Acti 9	iC60H	C	6
iC60L	Miniature circuit breakers	Acti 9	iC60L	C	9
C120N	Miniature circuit breakers	Acti 9	C120N	C	8
C120H	Miniature circuit breakers	Acti 9	C120H	C	10
Cable Connectors	For miniature circuit breakers	Acti 9		C	27
Cable Duct	Terminal blocks & cable ends		AK2	F	36
Cable Ends	Terminal blocks & cable ends		DZ5	F	35
Cable Pull Switches – Trip Wire Switches	Safety rated	Telemecanique	XY2	L	10
Capacitor Switching	Contactors	TeSys	LC1D	H	16
	Contactors	TeSys	LC1D	E	20
Changeover Relays	Acti 9 system DIN mount	Acti 9	iTLI/ETL	C	22
	for miniature circuit breakers – fishbone type	Acti 9		C	29-30
	for motor circuit breakers – fishbone type	TeSys	GV2	H	41
Chassis	for motor starters – modular	TeSys	LA9Z	H	77
	for motor starters – panel	TeSys	AK5	H	76
	for moulded case circuit breakers – fishbone type	Powerpact	CNS/NS	D	25
	Miniature (MCB)	Acti 9	iC60/C120	C	5-10
Circuit Breaker – low voltage	Moulded case (MCCB) – Intelligent Outlook	Compact	NSX100/630	D	7-24
	Moulded case (MCCB)	Compact	NS630b/1600	D	26-29
	Moulded case (MCCB)	Compact	NS1600b/3200	D	30
Circuit Monitors	Current & voltage measurement relays	Zelio control	RM22	M	25
CNS	Fishbone chassis for moulded case circuit breakers	Powerpact	CNS	D	25
Coded Magnetic Safety Switches	for machine guard interlocking	Telemecanique	XCSDM	L	7
Coils	for contactors	TeSys	Model D	H	34
	for contactors	TeSys	Model F	H	34
Comb Busbar	for miniature circuit breakers	Acti 9		C	27
Communication Modules	AS-i comms module for integrated starter protector	TeSys	Model U	H	63
	Modbus comms module for integrated starter protector	TeSys	Model U	H	64
Compact NSXm	Moulded case (MCCB) – Basic	Compact	NSXm 16-160	D	5-6
Compact NSX	Moulded case (MCCB) – Intelligent Outlook	Compact	NSX100/630	D	7-24
Compact NS	Moulded case circuit breaker (MCCB) – 630 to 1600A	Compact	NS630b/1600	D	26-29
	Moulded case circuit breaker (MCCB) – 1600 to 3200A	Compact	NS1600b/3200	D	30
Configurable Safety Controller		Preventa	XPSMCM	L	31
Contactormaker	Integrated motor starter protector	TeSys	Model U	H	52
	Integrated motor starter protector	TeSys	Integral 63	H	71
Contactormaker	Acti 9 system DIN mount	Acti 9	iCT	C	21
	Air break, 3 & 4 pole – 4 to 75kW	TeSys	Model D	H	12
	Air break, 3 & 4 pole – 4 to 37kW	TeSys	Model D Green	H	14
	Air break, 3 & 4 pole – 59 to 450kW	TeSys	Model F	H	28
	Air break, mini contactors – 2.2 to 7.5kW	TeSys	Model K	H	4
	Capacitor Switching	TeSys	LC1D	H	16
Control and Monitoring Relays	Voltage, current, phase failure, rotation, level		RM22	M	20
	AC & DC coils, low consumption	TeSys	Model D	H	12
Control Relays	AC/DC coils, low consumption	TeSys	Model D Green	H	14
	AC & DC coils	TeSys	Model K	H	5
	Spade connector		RPF	M	11
Control Stations & Enclosures	Empty enclosures		NSYTBP, NSYTBS	F	2
	22mm metal control stations	Harmony	XAP, 9001KY	J	42
	Accessories	Harmony	XAL	J	34
	Dia 22mm, double insulated pre-assembled	Harmony	XAL	J	40
	Emergency stop	Harmony	XAL K	J	40
	Empty enclosures	Harmony	XALD/K	J	40
	Start/stop	Harmony	XAL D	J	40

Speed search index

B

	Description	Product	Part	Sect	Page	
Control & Signalling Units – 22mm dia.	Contact blocks	Harmony	Style 4	J	17	
	Contact blocks	Harmony	Style 5	J	31	
	Illuminated pushbuttons	Harmony	Style 4	J	12	
	Illuminated pushbuttons	Harmony	Style 5	J	27	
	Illuminated selector switches	Harmony	Style 4	J	13	
	Illuminated selector switches	Harmony	Style 5	J	27	
	Joysticks	Harmony	Style 4	J	20	
	Joysticks	Harmony	Style 5	J	34	
	Light sources	Harmony	Style 4	J	19	
	Light sources	Harmony	Style 5	J	33	
	Pilot lights	Harmony	Style 4	J	18	
	Pilot lights	Harmony	Style 5	J	32	
	Potentiometer	Harmony	Style 4	J	20	
	Potentiometer	Harmony	Style 5	J	34	
	Pushbuttons	Harmony	Style 4	J	8	
	Pushbuttons	Harmony	Style 5	J	23	
	Reset pushbuttons	Harmony	Style 4	J	20	
	Reset pushbuttons	Harmony	Style 5	J	34	
	Selector switches	Harmony	Style 4	J	13	
	Selector switches	Harmony	Style 5	J	26	
	Control & Signalling Units – 30mm dia.	Accessories	Class 9001	K	J	50
		Illuminated pushbutton	Class 9001	K	J	47
		Joysticks	Class 9001	K	J	50
		Pilot lights	Class 9001	K	J	49
		Pushbutton heads	Class 9001	K	J	47
		Selector switch heads	Class 9001	K	J	47
Accessories		Harmony	Style 5	J	37	
Illuminated pushbutton		Harmony	Style 5	J	27	
Pilot lights		Harmony	Style 5	J	32	
Pushbutton heads		Harmony	Style 5	J	23	
Selector switch heads		Harmony	Style 5	J	26	
Control & Signalling Units – 16mm dia.		Illuminated pushbuttons	Harmony	Style 6	J	4
		Pilot lights	Harmony	Style 6	J	4
	Pushbuttons	Harmony	Style 6	J	3	
	E Stop pushbuttons	Harmony	Style 6	J	3	
	Selector switches	Harmony	Style 6	J	3	
	Contact blocks	Harmony	Style 6	J	5	
	Accessories	Harmony	Style 6	J	5	
	Control Transformers	Acti 9 system DIN mount	Acti 9	TR	C	25
Counters	Hour run, 45mm DIN profile, 12/24 & 240V	Harmony	Style 5	J	34	
Current Limiter	for motor circuit breaker	TeSys	GV2	H	43	
Current Measurement	Over/undercurrent relay for earth leakage relays		RM22	M	26	
Current Transformers	for power and energy metering			E	3	
D	Contactors	TeSys	Model D	H	8	
	Enclosed motor starter	TeSys	Model D	H	35	
	Reversing kit	TeSys	Model D	H	16	
	Star-Delta starters (open & enclosed)	TeSys	Model D	H	37	
	D Green Model	Contactors	TeSys	Model D Green	H	14
		Reversing kit	TeSys	Model D Green	H	16
		PLC co-ordination chart	TeSys	Model D Green	H	15
	DIN Rail	Metal, various, 2 metre lengths	DIN Rail	AM1/DZ5	F	35
	Diode Peak Limiting	for contactor coils	TeSys	Model D	H	20
	Disconnect Switch	Isolators 12 – 175A, panel mounting	TeSys	Vario	H	83
		Isolators 40 – 2500A	Interpact		D	2-4
		Isolators 18mm DIN mount, 1, 2 & 3 pole, 63 to 125A	Acti 9	Isolator	C	2-4
	DOL Motor Starters	3 pole non reversing (0.25-45kW)	TeSys	Model M & D	H	35
		3 pole non reversing (0.09-15kW)	TeSys	Model U	H	53
		3 pole reversing (0.09-15kW)	TeSys	Model U	H	53
		3 pole reversing / non-reversing (3kW)	TeSys	Model H	H	51
		Door Interlocks	for Isolators 12 – 175A, panel mounting	TeSys	Vario	H
	Double Deck Terminal	Screw, spring and push-in terminal blocks		NSY	F	30-34
	Drives	Variable speed drive 0.18 to 2.2kW	Altivar 12	ATV12	I	15
HVAC variable speed drive 0.75 to 75kW		Altivar 212	ATV212	I	27	
Variable speed drive 0.18 to 15kW		Altivar 320	ATV320	I	17	
Variable speed drive 0.75 to 75kW		Altivar 340	ATV340	I	26	
Variable speed drive 0.75 to 315kW		Altivar Process	ATV630/650/930/950	I	30	
Variable speed drives 110 to 2600kW		Altivar Process	ATV660/680/960/980	I	46	

Speed search index

B

	Description	Product	Part	Sect	Page
E					
Earth Leakage Relays	45mm DIN profile & panel mounting types	Vigirex		E	16
Earth Terminals	Screw, spring and push-in terminal blocks		NSY	F	33-34
Electronic Motor Protection	Multifunction motor protection unit	TeSys	TeSys T	H	73
	TeSys Model U	TeSys	Model U	H	53
	Thermistor protection relay	TeSys	LT3	H	75
Electronic Multifunction Protection Relay	Motor protection unit	TeSys	TeSys T	H	73
	Multifunction control unit	TeSys	Model U	H	60
Electronic Pressure Sensors	4-20mA or 0-10V output	Telemecanique	XML	K	42
Electric Vehicle Charging Solutions	EVLink Electric Vehicle Chargers	EVLink	Wallbox & Parking	O	5-7
Emergency Stop Buttons	22mm black insulated bezel	Harmony	Style 5	J	24
	22mm chromium plated bezel	Harmony	Style 4	J	9
	22mm double insulated control stations	Harmony	XAL K	J	40
	22mm metal control stations	Harmony	XAP J	J	42
Emergency Stop Station	Double insulated – 22mm dia	Harmony	XAL K	J	40
Enclosed Disconnect Switch	Isolators 12 – 175A, panel mounting	TeSys	Vario	H	83
Enclosed Starters	DOL	TeSys	Model D & M	H	35
	Star delta	TeSys	Model D	H	37
Enclosure	Industrial boxes – IP66		NSYTBP & NSYTBS	F	2-3
	Polyester, glass reinforced – IP65		NSYPLS & NSYPLSP	F	4-7
	Polyester, glass reinforced – IP66		NSYPLM	F	8-11
	Polyester, glass reinforced – IP65		NSYPLA	F	12-14
	Metal – IP66		NSYCRN	F	16-18
	Stainless steel – IP66 (304/316)		NSYS3X	F	19-21
	Ventilation, heating devices		NSYCVF	F	22
Energy Meters	Prisma Pack			F	24-29
	Energy meters	iEM3000		E	5-6
	Wireless CT	PowerTag	Acti9	E	6
Ethernet Gateways	Modbus to Ethernet	PowerLogic	Link150 and Com'X 510	E	11
Ethernet Switches	Industrial network switches	Connexium	TCSE	N	29
Explosive Environments	Dust explosion rated products	Zone 21 and 22	Atex/IEC Ex	L	30-34
F					
Fault	Differentiation function module	TeSys	Model U	H	61
	Signalling contact	TeSys	GV2	H	43
Fingerprint Reader	Biometric switch	Harmony	XB5S	J	38
Food and Beverage	Photoelectric sensors	Telemecanique	XU	K	28
	Proximity sensors	Telemecanique	XS/ XT	K	32
	Ultrasonic sensors	Telemecanique	XX	K	35
Foot Switches	Double insulated plastic & metal	Harmony		L	13
	Heavy duty metal enclosure	Class 9002		L	13
Fuse Terminals	Screw, spring and push-in terminal blocks	NSY		F	33
G					
Gateway	Network Remote Masters & Gateway			N	30
GV2	Motor circuit breakers – thermal magnetic	TeSys	GV2	H	39
GV3	Motor circuit breakers – thermal magnetic	TeSys	GV3	H	46
GV4	Motor circuit breakers – thermal magnetic	TeSys	GV4	H	49
H					
Handles	for isolators 12 – 175A, panel mounting	TeSys	Vario	H	83
	for motor circuit breakers	TeSys	GV2/GV3/GV4	H	41,47,50
	Hour run, 45mm DIN profile, 12/24 & 240V	Harmony	Style 5	J	34
H Model	Ultra compact motor starter	TeSys	H	H	51
Harmonic filters	Adaptive passive filters	Altivar		I	39
	Harmonic mitigation solutions	Accusine+		E	23-26
	Harmonic solutions for drives	Altivar		I	39
Human Machine Interface	Electronic display units & graphic terminals	Harmony	HMI	N	34
I					
I/O Expansion Modules	I/O for machine controllers	Modicon	TM3	M	36
I/O Connection System	Distributed inputs/outputs	Advantys	STB	N	22
	Distributed inputs/outputs	Telefast	ABE7	M	39
Illuminated Beacons & Indicator Banks	Visual & audible signalling	Harmony	XVB, XVU	J	61/64
Impulse Relays	Acti 9 system DIN mount for lighting control	Acti 9	iTL	C	22

Speed search index

B

	Description	Product	Part	Sect	Page
Inductive Proximity Sensors	Metal cylindrical – flush or non-flush	Telemecanique	XS	K	29
	Universal ultra flat – flush or non-flush	Telemecanique	XS	K	31
	Plastic cylindrical	Telemecanique	XS	K	30
	Universal block style flush & non-flush	Telemecanique	XS	K	31
	Universal cylindrical flush & non-flush	Telemecanique	XS	K	29
Industrial PC	Industrial PC	Panel PC	IPC	N	40
	Industrial PC	Box PC	IPC	N	44
	Industrial PC Display	iDisplay		N	43
Industrial PC Display	Programmable automation controllers	Modicon	M340	N	2
	Programmable automation controllers	Modicon	M580	N	4
	Programmable logic controllers – low end	Modicon	M221	M	35
	Smart relays	Zelio	SR2 & SR3	M	29
Interface Module	AS-i communication module	TeSys	Model U	H	63
	Modbus communication module	TeSys	Model U	H	64
Interface Relays	Plug-in relays	Zelio	RSL, RSB, RXG	M	6, 7, 8
Interpact	Isolators 40 – 2500A	Interpact	INS40-2500	D	2-3
	12 – 175A, panel mounting	Vario		H	83
Isolators	40 – 2500A, 3 & 4 pole	Interpact		D	2-3
	Acti 9 system DIN mount, 1, 2, 3 & 4 pole, 20 to 125A	Acti 9		C	4

J

Joysticks	22mm black insulated bezel	Harmony	Style 5	J	34
	22mm chromium plated bezel	Harmony	Style 4	J	20
	30mm chromium plated bezel	Class 9001	K	J	50
	Heavy duty joysticks	Harmony	XK	J	51

L

Legend Plates	for 22mm control & signalling units – standard	Harmony	Style 4 & 5	J	36
	for 30mm control & signalling units – standard	Class 9001	K & SK	J	50
	for pendant stations	Harmony	XAC	J	52
Light Sensitive Switches	Acti 9 system DIN mount – twilight lighting control	Acti 9	IC200/2000	C	25
Limit Switch	European		XC	K	6-24
	Safety	Telemecanique	XPS	L	8
Liquid Level Relay	Liquid level control		RM22	M	21
Liquid Level probes	Liquid level control		LA9	M	21
Load Break Switch	12 – 175A, panel mounting	Vario		H	83
Locks	Acti 9 lock	Acti 9		C	16
	Programmable logic controllers – low end	Modicon	M221	M	28
Logic	Smart relays	Zelio	SR2 & SR3	M	24
	Safety controllers	Preventa	XPS	L	19
LT3	Thermistor protection relay	TeSys	LT3	H	75

M

M221	Programmable logic controllers	Modicon	M221	M	28
M241/251	Programmable logic controllers	Modicon	M241/251	M	31
M262	Programmable logic controllers	Modicon	M262	M	33
M340	Programmable automation controllers	Modicon	M340	N	2
M580	Programmable automation controllers	Modicon	M580	N	4
M Model	Motor starter (enclosed non-reversing)	TeSys	M model	H	35
Magelis	Human Machine Interface	Harmony	HMI	N	34
Magnetic Motor Circuit Breakers	Selection guide	TeSys	GV	H	38
Masterpact	Air circuit breakers 630 to 1600A	Masterpact	MFZ1	D	32-35
	Air circuit breakers 630 to 6300A	Masterpact	MFZ 2-3	D	32-35
MCB	Miniature circuit breaker, 18mm DIN mount	Acti 9		C	5-9
	NSXm Moulded case (MCCB) – Basic	Compact	NSXm 16-160	D	5-6
	MTZ 630 to 63000A	Masterpact		D	32-35
MCCB	NSX Moulded case < 630A – Intelligent Outlook	Compact	NSX100/630	D	7-24
	NS Moulded case (MCCB) – 630 to 1600A	Compact	NS630b/1600	D	26-29
	NS Moulded case (MCCB) – 1600b-3200	Compact	NS1600b/3200	D	30
MCCB Chassis	Fishbone busbar for moulded case circuit breakers	Powerpact	CNS	D	25
Mechanical Interlock	for contactors	TeSys	Model F	H	30
	for contactors	TeSys	Model D/ D Green	H	16
Mechanical Latch Block	TeSys add-on latch block	TeSys	Model D/ D Green	H	21
Mini Relay	Plug-in style		Control	M	6

Speed search index

B

	Description	Product	Part	Sect	Page	
Miniature Circuit Breakers	Acti 9 system DIN mount, 1 to 3 pole, 1 to 63A – 6kA	Acti 9	iC60N	C	5	
	Acti 9 system DIN mount, 1 to 4 pole, 1 to 63A – 10kA	Acti 9	iC60H	C	6	
	Acti 9 system DIN mount, 1 to 2 pole, 1 to 63A – DC	Acti 9	C60H-DC	C	7	
	Acti 9 system DIN mount, 1 to 4 pole, 63 to 125A – 10kA	Acti 9	C120N	C	8	
	Acti 9 system DIN mount, 1 to 4 pole, 1 to 63A – 15kA	Acti 9	iC60L	C	9	
	Acti 9 system DIN mount, 1 to 4 pole, 63 to 125A – 15kA	Acti 9	C120H	C	10	
	Auxiliaries	Acti 9	iC60/120	C	15	
	Accessories	Acti 9	iC60/120	C	16	
	Model D/ D Green	Auxiliaries & accessories	TeSys	Model D/ D Green	H	18
	Model F	Auxiliaries & accessories	TeSys	Model F	H	31
Model K	Auxiliaries & accessories	TeSys	Model K	H	6	
Motor Circuit Breakers	up to 15kW	TeSys	GV2	H	39	
	up to 45kW	TeSys	GV3	H	46	
	up to 55kW	TeSys	GV4	H	49	
Motor Protection Relays	Function modules	TeSys	Model U	H	59	
	Motor Management	TeSys	Island	H	71	
Motor Starters	Multifunction motor protection relays	TeSys	TeSys T	H	73	
	Ultra compact motor starter	TeSys	TeSys H	H	51	
	Thermistor protection relay	TeSys	LT3	H	75	
	NSXm Moulded case (MCCB) – Basic	Compact	NSXm 16-160	D	5-6	
Moulded Case Circuit Breakers (MCCBs)	NSX Moulded case (MCCB) – Intelligent Outlook	Compact	NSX 100-630	D	7-24	
	NS Moulded case (MCCB) – 630 to 1600A	Compact	NS630b/1600	D	26-29	
	NS Moulded case (MCCB) – 1600b-3200	Compact	NS1600b/3200	D	30	
	Moulded case circuit breaker (MCCB) – 100 to 630A	Compact	NSX100/630	D	7-24	
	Fishbone busbar for moulded case circuit breakers	Powerpact	CNS/NS	D	23	
MSC Chassis	For miniature circuitbreakers – fishbone type	Acti 9		C	25	
	MTZ	Smart connected circuit breaker	Masterpact	MTZ	D	32-35
N						
Neutral Terminals	DIN rail mounted terminal blocks		NSY	F	30-32	
NCF	timing relay	Compact	NSXm 16-160	M	15	
	Moulded case circuit breaker (MCCB) - 16 to 160A	Compact	NSXm 16-160	D	5-6	
	Moulded case circuit breaker (MCCB) – 100 to 630A	Compact	NSX100/630	D	7-24	
	Moulded case circuit breaker (MCCB) – 630 to 1600A	Compact	NS630b/1600	D	26-29	
NS/NSX	Moulded case circuit breaker (MCCB) – 1600 to 3200A	Compact	NS1600b/3200	D	30	
	O					
Operator Interface	Human Machine Interface	Harmony	HMI	N	34	
Overcurrent Measurement	Measurement control relay		RM22/RM35	M	21	
Overload Alarm	Function modules	TeSys	Model U	H	58	
	Control module – advanced	TeSys	Model U	H	59	
	Control module – multifunction	TeSys	Model U	H	60	
	Multifunction motor protection relays	TeSys	TeSys T	H	73	
	Thermal overload relay	TeSys	Model D / D Green	H	23	
	Electronic overload relay	TeSys	Model D / D Green	H	24	
	Thermal overload relay	TeSys	Model F	H	33	
	Thermal overload relay	TeSys	Model K	H	6	
Overload relay	Thermistor protection relay	TeSys	LT3	H	75	
	Overvoltage Measurement	Measurement control relay	RM22	M	21	
P						
Panel Busbar System	for motor starters	TeSys	AK5	H	76	
Parallel Wiring Module	Control wiring accessory for	TeSys	Model U	H	62	
Parallel Wiring Splitter	Control wiring accessory for	TeSys	Model U	H	63	
Pendant Stations	Insulated pendant stations – 2 to 12 hole	Harmony	XAC	J	52	
	Wireless pendant	Harmony	eXLhoist	J	58	
Phase Rotation	Monitoring relay		RM22	M	20	
Phase failure	Monitoring relay		RM22	M	20	
Phaseo	Regulated power supplies	Phaseo	ABL	M	33	
	Compact 50 x 50 Universal	Telemecanique	XUK	K	27	
Photoelectric Sensors	Cylindrical universal	Telemecanique	XUB	K	26	
	Miniature universal	Telemecanique	XUM	K	27	
	22mm double insulated bezel	Harmony	Style 5	J	32	
Pilot Lights	22mm metal bezel	Harmony	Style 4	J	18	
	30mm double insulated bezel	Harmony	Style 5	J	32	
	30mm metal bezel	Class 9001	K	J	49	
	30mm three phase indicator	Harmony	Style 5	J	35	
	Acti 9 system DIN mount	Acti 9	PL	C	23	
	Plug-in relays	Interface, miniature, signalling, universal		RSL, RSB, RXM, RXG, RUM, RPM	M	4

Speed search index

B

	Description	Product	Part	Sect	Page
Potentiometer	22mm IP69	Harmony	Style 4/5	J	20, 35
Power Factor Correction Capacitors	VarplusCan capacitors	VarplusCan		E	17
Power Monitoring Solutions	PowerLogic			E	7
Power Meters	Power meters	PowerLogic		E	7-8
Power Supplies	Regulated AC to DC	Phaseo	ABL	M	2
Powerpact chassis	for moulded case circuit – fishbone type	Compact NSX	CNS Powerpact	D	25
PowerTag	Wireless CT	PowerTag	Acti 9	E	6
Pressure Sensors	Analogue	Telemecanique	XML	K	42
	Electronic	Telemecanique	XML	K	43
Pressure Switches	Industrial	Telemecanique		K	41
Programmable automation controllers	Programmable automation controllers	Modicon	M340	N	2
	Programmable automation controllers	Modicon	M580	N	4
	Programmable logic controllers	Modicon	M221	M	28
	Smart Relays	Zelio	SR2 & SR3	M	23
Protection Relay	Control module – advanced	TeSys	Model U	H	59
	Control module – multifunction	TeSys	Model U	H	60
	Multifunction motor protection relays	TeSys	TeSys T	H	73
	Thermal overload relay	TeSys	Model D / D Green	H	23
	Thermal overload relay	TeSys	Model F	H	33
	Thermal overload relay	TeSys	Model K	H	6
Proximity Sensors	Thermistor protection relay	TeSys	LT3	H	75
	Inductive	Telemecanique	XS	K	29
Pushbuttons	16mm black insulated bezel	Harmony	Style 6	J	3
	22mm black insulated bezel	Harmony	Style 5	J	24
	22mm chromium plated bezel	Harmony	Style 4	J	9
	30mm black insulated bezel	Harmony	Style 5	J	29
	30mm chromium plated bezel	Class 9001	K	J	47
	Acti 9 system DIN mount	Acti 9	iPB	C	23
Prisma	Metal switchboards	Prisma Plus	PACK	F	23-28
R					
RCBO	Acti 9 system DIN mount 18mm combined MCB/RCD – 10kA	Acti 9	iC60H RCBO	C	12
	Acti 9 system DIN mount combined MCB/RCD – 6kA	Acti 9	iDPN Vigi	C	11-12
RCCB	Residual current devices	Acti 9	iID RCCB	C	11-13
RC Network	TeSys Model D coil	TeSys	Model D	H	19
Residual Current Devices	Add on Vigi blocks for miniature circuit breakers See also "RCCB" & "RCBO"	Acti 9	iC60/120	C	13
Relays	Control	TeSys	Model K	H	5
	Interface plug-in		RSL, RSB, RXG	M	6, 7, 8
	Minature plug-in		RXM	M	9
	Universal plug-in		RUM	M	10
	Power		RPM, RPF	M	11
	Solid state		SSL, SSM, SSP	M	12
RFID safety switches	Smart relays	Zelio	SR2/SR3	M	23
RXG, RUM, RPM	Machine safety devices	Telemecanique	XCS	L	7
Relays	Relays			M	4
Reversing Contactors	TeSys Model K contactors	TeSys	Model K	H	5
Reversing Module	TeSys Model U reverser block	TeSys	Model U	H	56
Reversing Starters	TeSys Model K	TeSys	Model K	H	5
	TeSys Model U	TeSys	Model U	H	56
Rotary Encoders	Incremental and absolute	Telemecanique	XCC	K	36
RJ45 port	22mm black insulated bezel	Harmony	Style 5	J	35
	Cover IP65/67/69	Harmony	Style 5	J	35

Speed search index

	Description	Product	Part	Sect	Page	
S	Control stations, foot switches	Preventa	XPE	L	13	
	Guard switches - metal	Preventa	XCS	L	5	
	Guard switches - plastic	Preventa	XCS	L	6	
	Coded magnetic switches	Preventa	XCS	L	7	
	RFID safety switches	Preventa	XCS	L	7	
	Safeguarding of machine	Safety limit switches	Preventa	XCS	L	8
	Safety light curtains	Preventa	XUSL	L	15	
	Safety trip wire	Preventa	XY2	L	10	
	Safety relays	Preventa	XPSU	L	20	
	Safety controllers	Preventa	XPSMCM	L	27	
	Contactors safety cover	TeSys	Model D/ U	H	18,70	
	Safety Enabling Switches	Validation control	Preventa	XY2AU	L	14
	Safety Functions of a Machine	Technical information	Preventa		L	2
	Type 4 (SIL3/ PLe)	Preventa	XUSL	L	15	
	Safety Modules	Safety relay	Preventa	XPSLI	L	20
Safety configurable controller	Preventa	XPSMCM	L	27		
Safety Switches	for commercial applications 2 & 4 pole, 40 to 125A	Acti 9	iID RCCB	C	11-12	
Safety Validation Control	Enabling switches	Preventa	XY2AU	L	14	
SCADA Software	Supervisory,Control & Data Acquisition Software			N	50	
Screw Terminal Blocks	Terminal blocks		NSY	F	29-34	
Selector Switches	22mm black insulated bezel	Harmony	Style 5	J	26	
	22mm chromium plated bezel	Harmony	Style 4	J	11	
	30mm black insulated bezel	Harmony	Style 5	J	30	
	30mm chromium plated bezel	Class 9001	K	J	47	
	Acti 9 system DIN mount	Acti 9	CM	C	23	
Sensors	Electronic pressure sensors	Telemecanique		K	41	
	Inductive proximity	Telemecanique	XS	K	29	
	Cables (Leads)	Telemecanique	XZ	K	39	
	Photoelectric	Telemecanique	XU	K	26	
	Pressure, pressure switches for power circuits	Telemecanique	XM	K	41	
Shunt Trip	for motor circuit breaker	TeSys	GV2	H	43	
	for motor circuit breaker	TeSys	GV3	H	47	
	for motor circuit breaker	TeSys	GV4	H	50	
Smart Relays	Programmable electronic relay	Zelio	SR2 & SR3	M	23	
Soft starters	Soft starter 0.37 to 15kW	Altistart 01	ATS01	I	7	
	Soft starter 7.5 to 315kW	Altistart 22	ATS22	I	8	
	Soft starter 7.5 to 630kW	Altivar Soft Starter ATS480	ATS480	I	11	
Software	Zelio programming tools	Zelio	SR2 & SR3	M	23	
	M221 programming tools	Modicon	M221	M	30	
Solid State Relays	Interface, compact, panel, power	Zelio	SSL, SSM, SSR, SSP	M	10	
Specialty Sensors	Rotation, capacitive, analogue	Telemecanique	XT/XS	K	33	
Star Delta Starter	Motor starter	TeSys	Model D	H	37	
Suppressor Module	Integral			H	72	
Surge Arrestors	Acti 9 system DIN mount	Acti 9	iPRD	C	17-18	
	Metal switchboards	Prisma Plus	PACK	F	23-28	
Switchboards Disconnectors	Isolators 12 – 175A, panel mounting	TeSys	Vario	H	83	
	Isolators 40 – 2500A	Interpact		D	2-4	
Switch Mode Power Supply	Power supplies	Phaseo	ABL	M	2	
T	Telefast	I/O connection system	Telefast	ABE7	M	39
	Temperature Controllers	Digital panel mount 48x48	Zelio	RTC	M	28
		Cable duct		AK2	F	37
	Terminal Blocks & Cable Ends	Cable ends		DZ5	F	36
		Earth terminal blocks		NSY	F	30-35
		Neutral terminal blocks		NSY	F	30-35
		Screw terminal blocks		NSY	F	30
		Spring terminal blocks		NSY	F	31
		Push in terminal blocks		NSY	F	33
		Double Deck terminal blocks		NSY	F	34
	Thermal Magnetic Motor Circuit Breakers	GV2	TeSys	GV2	H	39
		GV3	TeSys	GV3	H	46
		GV4	TeSys	GV4	H	49
	Thermal Overload	TeSys Model D / D Green	TeSys		H	23
		TeSys Model F	TeSys		H	33
TeSys Model K		TeSys		H	6	

Speed search index

B

	Description	Product	Part	Sect	Page
Thermal Overload Alarm Module	TeSys Model U function module	TeSys		H	58
Thermistor Protection Relays	LT3			H	75
Time Delay Relays	Delay on, single shot, interval timer & multifunction	Acti 9	iRT	C	24
	Delay on/off, flashing, single shot & multifunction		RE22 & RE48	M	17
Time Switches	24 hr/7 day single & multichannel – digital/analogue	Acti 9	IH & IHP	C	24
	Programmable "smart relay"	Zelio	SR2 & SR3	M	29
Timers	Delay on, single shot, interval timer & multifunction	Acti 9	iRT	C	24
	Delay on/off, flashing, single shot & multifunction		RE22 & RE48	M	17
	22mm black insulated bezel	Harmony	Style 5	J	35
	TeSys Model D accessories	TeSys	Model D / D Green	H	21
Toroids	Earth leakage relays	Vigirex		E	16
Tower Lights	Signalling and sound	Harmony	XVB & XVU	J	61,64
Transformers	MV			G	1-5
Transformer Step Down	400/230/24	Phaseo	ABL6	M	2
Triple Deck Terminal Blocks	Terminal blocks		NSY	F	32
Trip Wire Switches	Safety rated	Telemecanique	XY2	L	10

U

Ultrasonics	Flat and cylindrical	Telemecanique	XX	K	34
U Model	TeSys Model U Integrated Starter Protector	TeSys		H	52
Undercurrent Measurement	Measurement control relays		RM22 & RM35	M	21
Undervoltage Measurement	Measurement control relays		RM22	M	20
Undervoltage Trip	GV2 motor circuit breakers	TeSys	GV2	H	43
	GV3 motor circuit breakers	TeSys	GV3	H	47
	GV4 motor circuit breakers	TeSys	GV4	H	50
Unity Control Expert	PLC Programming software	Unity Control Expert		N	25
USB port	22mm black insulated bezel	Harmony	Style 5	J	35
	Cover IP65/67/69	Harmony	Style 5	J	35
Upump	Upump soft starter pump controller	Altistart		I	9

V

Variable Speed Drive	Variable speed drive 0.18 to 2.2kW	Altivar 12	ATV12	I	15
	HVAC variable speed drive 0.75 to 75kW	Altivar 212	ATV212	I	27
	Variable speed drive 0.18 to 15kW	Altivar 320	ATV320	I	17
	Variable speed drive 0.75 to 75kW	Altivar 340	ATV340	I	26
	Variable speed drive 0.75 to 315kW	Altivar Process	ATV630/650/930/950	I	30
	Variable speed drive 110 to 2600kW	Altivar Process	ATV660/680/960/980	I	46
Vario	Load break switches	TeSys	Vario	H	83
Varistor	TeSys Model D coil	TeSys		H	19
Varlogic	Power factor controller	Varlogic RT		E	19
Varpact	Power factor correction module	Varpact		E	20
VarplusCan	Power factor correction capacitors	VarplusCan		E	17
Varplus Logic	Power factor controller	Varplus Logic		E	19
Varset	Automatic PFC units	Varset		E	21-22
Vigirex protection and monitoring	Relays	Vigirex		E	16
Vijeo Designer	HMI Configuration Software	Harmony		N	48
Voltage Measurement	Over & undervoltage relays		RM22	M	20

W

Wall Mounted Enclosure	IP66 steel		NSYCRN	F	16-18
	IP66 stainless steel		NSYS3X	F	19-21
	IP66 insulated		NSYPLM	F	8-11
Wireless Battery Less	Pushbuttons and receivers	Harmony	Style 5	J	44
	Limit switch and receiver		XCKW/XCMW	K	25

Z

Zelio	Logic smart electronic relay	Zelio	SR2 & SR3	M	23
--------------	------------------------------	-------	-----------	---	----

Power Distribution

Low voltage final distribution | C

Low voltage power distribution | D

Power management | E

Enclosures and switchboard systems | F

Medium voltage distribution | G

Index

Low voltage final distribution

Protection and isolation

C

Acti 9 system

Tripping curves, markings and limitation capability	C3
iSW switches	C4
iC60/C60H-DC/C120 miniature circuit breakers (MCBs)	C5-10
STI isolatable fuse-carriers	C10
iID residual current circuit breakers (A, A-Si, B, B-Si type RCCBs)	C11-13
iDPN Vigi residual current devices (A, A-SI type RCBOs)	C11-12
iSPN Vigi residual current devices (A type RCBOs)	C11
iC60H(2) residual current devices (A type RCBOs)	C12
Vigi iC60/C120 add-on residual current devices (A type)	C13
iDPH VigiARC Arc fault detection RCBOs	C14
iC60, C120, C60H-DC .iID, iDPN Vigi, iDPN VigiARC auxiliaries	C15
iC60, C120, C60H-DC,, iID, iDPN Vigi, iSW .accessories	C16
PRD1, iPRD Surge arresters	C17-18

Control and signalling

Acti 9 system

Smartlink communication system	C19
iCT contactors and load-shedding contactors	C20
iTL impulse relays	C21
iPB Push-Buttons	C22
iIL indicator lights	C22
iSSW selector Switches	C23
Time Delay Relays and time switches	C24
Button holders and light sensitive switches	C25
Bells, buzzers and control transformers	C25
Emergency lighting test kit	C26

Connection devices and accessories

Acti 9 system

Horizontal comb busbar	C27
Linery DX - quick distribution blocks	C28
Encapsulated chassis and special MSC chassis	C29-30
Isobar chassis	C31
Linery distribution components and cable running	C32

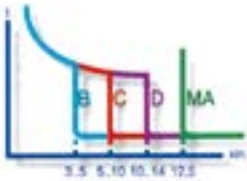
Protection and isolation

Acti 9 system
Miniature circuit breakers
Tripping curves
Markings and limitation capability

Trip unit variations

Circuit protection

A choice of several curves. Whatever circuit has to be protected, a iC60 or C120 circuit breaker provides the perfect solution with a suitable curve.



Curve B (1)

tripping: 3 to 5 times the rated current (I_n); protection of generators, persons, very long cables.



Curve C

tripping: 5 to 10 I_n ; protection of circuits, general applications.



Curve D

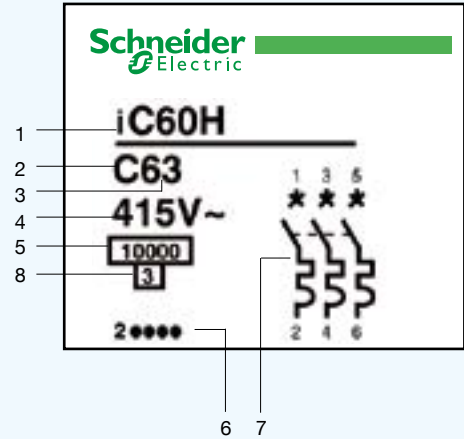
tripping: 10 to 14 I_n ; protection of high surge circuits, welders, transformers, motors.



Curve MA (magnetic only)

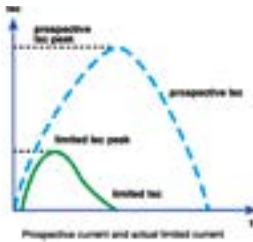
tripping: 12 I_n ; protection of motor starters (+ thermal protection when combined with contactor).

Circuit breaker marking



Key

1. Circuit Breaker Model Number
2. Tripping Curve
3. Circuit Breaker Current Rating
4. Operating Voltage
5. Rated Breaking Capacity
6. Circuit Breaker Part Number
7. Electrical Diagram – No. of Poles
8. I2t classification



Circuit breaker limitation

The limitation capability of a circuit breaker is that characteristic whereby only a current less than the prospective fault current is allowed to flow under short circuit conditions.

This is illustrated by limitation curves which give:

- > The limited peak current in relation to the RMS value of the prospective short circuit current (the short circuit current being that current which would flow continuously in the absence of protection equipment).
- > The limited current stress in relation to the RMS value of the prospective short circuit current.
- > Current limiting capability. The advanced design of the Acti 9 range provides current limitation with far better protection than conventional circuit breakers. For example, on a 6A rating with a prospective short circuit of 5000A, the current will be limited at 350A or 7%.

Installation of current limiting circuit breakers offers several advantages:

- > **Better network protection**
Current limiting circuit breakers considerably reduce the undesirable effects of short circuit currents in an installation.
- > **Reduced thermal effects**
Cable heating is reduced, hence longer cable life.
- > **Reduced mechanical effects**
Electrodynamic forces reduced, thus electrical contacts are less likely to be deformed or broken.
- > **Reduced electromagnetic effects**
Measuring equipment situated near an electrical circuit less affected.

Note

(1) For additional Curve trip units, please contact Schneider Electric.

Protection and isolation

Acti 9 system
iSW – 20 to 32A AS/NZS 60669.2.4
iSW – 40 to 125A AS/NZS 60947.3

Principle of catalogue numbers for IID RCCB, Vigi iC60, iC60 MCB, Switches

A9 R 15 2 63

Range	Family	Code	Internal code	Poles	Code	Rating (A)	Code
Acti 9 (A9)	IID	R		0	0	0	00
	Vigi iC60	V		1P	1	1	01
	iC60	F		2P	2	2	02
	Auxiliaries and accessories	A		3P	3	4	04
	Switches	S		4P	4	6	06
		C		1N	5	10	10
				1P + N	6	16	16
				3P + N	7	20	20
						25	25
						32	32
					40	40	
					50	50	
					63	63	
					80	80	
					100	91	
					125	92	



A9S60120



A9S66163

Control Switches

Model	Current rating	No. of poles	Voltage (VAC)	Width in mod. of 9mm	Reference
iSW	20A	1	250V	2	A9S60120
		2	415V	2	A9S60220
	32A	1	250V	2	A9S60132
		2	415V	2	A9S60232
		3	415V	4	A9S60332

Switch-disconnectors

Model	Current rating	No. of poles	Voltage (VAC)	Width in mod. of 9mm	Reference
iSW	40A	1	250V	2	A9S66140
		2	415V	2	A9S66240
		3	415V	4	A9S66340
		4	415V	8	A9S66440
	63A	1	250V	2	A9S66163
		2	415V	4	A9S66263
		3	415V	6	A9S66363
		4	415V	8	A9S66463
	100A	1	250V	2	A9S66191
		2	415V	4	A9S66291
		3	415V	6	A9S66391
		4	415V	8	A9S66491
125A	1	250V	2	A9S66192	
	2	415V	4	A9S66292	
	3	415V	6	A9S66392	
	4	415V	8	A9S66492	
Auxiliary contact to suit iSW		1 C/O		1	A9A26904



Protection and isolation



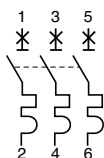
Acti 9 system
iC60N miniature circuit breakers – 1 to 63A
C, D curve
6000A (AS/NZS 60898.1)



A9F44120

iC60N

Compatible with PowerTag 

	Rating (In)	Reference C curve	Reference D curve
1P  Width in mod. of 9mm – 2	1A	A9F44101	A9F45101
	2A	A9F44102	A9F45102
	4A	A9F44104	A9F45104
	6A	A9F44106	A9F45106
	10A	A9F44110	A9F45110
	16A	A9F44116	A9F45116
	20A	A9F44120	A9F45120
	25A	A9F44125	A9F45125
	32A	A9F44132	A9F45132
	40A	A9F44140	A9F45140
	50A	A9F44150	A9F45150
	63A	A9F44163	A9F45163
	2P  Width in mod. of 9mm – 4	1A	A9F44201
2A		A9F44202	A9F45202
4A		A9F44204	A9F45204
6A		A9F44206	A9F45206
10A		A9F44210	A9F45210
16A		A9F44216	A9F45216
20A		A9F44220	A9F45220
25A		A9F44225	A9F45225
32A		A9F44232	A9F45232
40A		A9F44240	A9F45240
50A		A9F44250	
63A		A9F44263	A9F45263
3P  Width in mod. of 9mm – 6		1A	A9F44301
	2A	A9F44302	A9F45302
	4A	A9F44304	A9F45304
	6A	A9F44306	A9F45306
	10A	A9F44310	A9F45310
	16A	A9F44316	A9F45316
	20A	A9F44320	A9F45320
	25A	A9F44325	A9F45325
	32A	A9F44332	A9F45332
	40A	A9F44340	A9F45340
	50A	A9F44350	A9F45350
	63A	A9F44363	A9F45363



A9F44220



A9F44320



Protection and isolation

Acti 9 system
iC60H miniature circuit breakers – 1 to 63A
B, C and D curve
10000A (AS/NZS 60898.1)

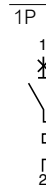
C

iC60H

Compatible with PowerTag



A9F54120



Width in mod.
of 9mm – 2



A9F54220



Width in mod.
of 9mm – 4



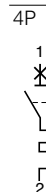
A9F54320



Width in mod.
of 9mm – 6



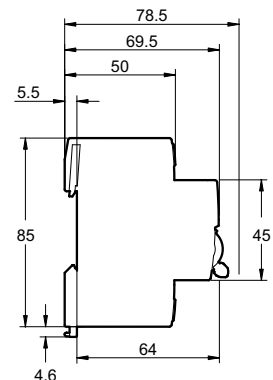
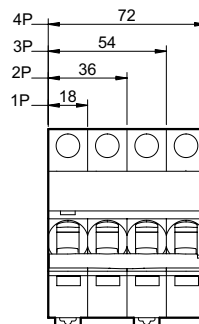
A9F54420



Width in mod.
of 9mm – 8

	Rating (In)	Reference B curve	Reference C curve	Reference D curve
1P	1A	A9F53101	A9F54101	A9F55101
	2A	A9F53102	A9F54102	A9F55102
	4A	A9F53104	A9F54104	A9F55104
	6A	A9F53106	A9F54106	A9F55106
	10A	A9F53110	A9F54110	A9F55110
	16A	A9F53116	A9F54116	A9F55116
	20A	A9F53120	A9F54120	A9F55120
	25A	A9F53125	A9F54125	A9F55125
	32A	A9F53132	A9F54132	A9F55132
	40A	A9F53140	A9F54140	A9F55140
	50A	A9F53150	A9F54150	A9F55150
	63A	A9F53163	A9F54163	A9F55163
2P	1A	A9F53201	A9F54201	A9F55201
	2A	A9F53202	A9F54202	A9F55202
	4A	A9F53204	A9F54204	A9F55204
	6A	A9F53206	A9F54206	A9F55206
	10A	A9F53210	A9F54210	A9F55210
	16A	A9F53216	A9F54216	A9F55216
	20A	A9F53220	A9F54220	A9F55220
	25A	A9F53225	A9F54225	A9F55225
	32A	A9F53232	A9F54232	A9F55232
	40A	A9F53240	A9F54240	A9F55240
	50A	A9F53250	A9F54250	A9F55250
	63A	A9F53263	A9F54263	A9F55263
3P	1A	A9F53301	A9F54301	A9F55301
	2A	A9F53302	A9F54302	A9F55302
	4A	A9F53304	A9F54304	A9F55304
	6A	A9F53306	A9F54306	A9F55306
	10A	A9F53310	A9F54310	A9F55310
	16A	A9F53316	A9F54316	A9F55316
	20A	A9F53320	A9F54320	A9F55320
	25A	A9F53325	A9F54325	A9F55325
	32A	A9F53332	A9F54332	A9F55332
	40A	A9F53340	A9F54340	A9F55340
	50A	A9F53350	A9F54350	A9F55350
	63A	A9F53363	A9F54363	A9F55363
4P	1A	A9F53401	A9F54401	A9F55401
	2A	A9F53402	A9F54402	A9F55402
	4A	A9F53404	A9F54404	A9F55404
	6A	A9F53406	A9F54406	A9F55406
	10A	A9F53410	A9F54410	A9F55410
	16A	A9F53416	A9F54416	A9F55416
	20A	A9F53420	A9F54420	A9F55420
	25A	A9F53425	A9F54425	A9F55425
	32A	A9F53432	A9F54432	A9F55432
	40A	A9F53440	A9F54440	A9F55440
	50A	A9F53450	A9F54450	A9F55450
	63A	A9F53463	A9F54463	A9F55463

Dimensions 18mm pitch



Connection: Tunnel terminals for the following cables

- up to 25A : 25mm² stranded
- 32 to 63A : 35mm² stranded

Protection and isolation

Acti 9 system
iC60L miniature circuit breakers – 1 to 63A
B, C and K curve,
15000A (AS/NZS 60898.1) up to 40A,
15kA to 100kA (AS/NZS IEC 60947.2)

iC60L

Compatible with PowerTag 



A9F94120



A9F94220

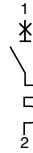


A9F94320



A9F94420

1P



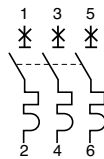
Width in mod. of 9mm – 2

2P



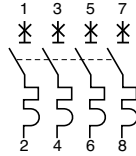
Width in mod. of 9mm – 4

3P



Width in mod. of 9mm – 6

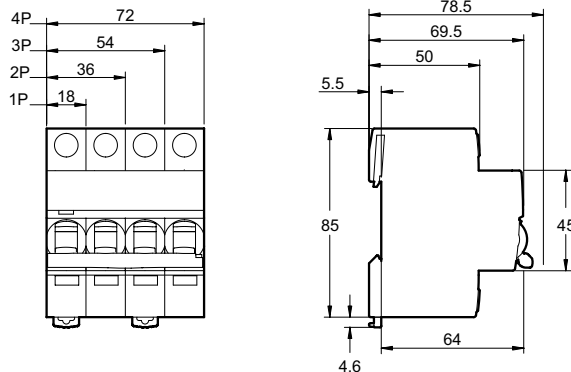
4P



Width in mod. of 9mm – 8

	Rating (In)	Reference B curve	Reference C curve	Reference K curve	
1P	1A	A9F93101	Acti9 iC60L 1P B 1A MCB	A9F94101	A9F95101
	2A	A9F93102	Acti9 iC60L 1P B 2A MCB	A9F94102	A9F95102
	4A	A9F93104	Acti9 iC60L 1P B 4A MCB	A9F94104	A9F95104
	6A	A9F93106	Acti9 iC60L 1P B 6A MCB	A9F94106	A9F95106
	10A	A9F93110	Acti9 iC60L 1P B 10A MCB	A9F94110	A9F95110
	16A	A9F93116	Acti9 iC60L 1P B 16A MCB	A9F94116	A9F95116
	20A	A9F93120	Acti9 iC60L 1P B 20A MCB	A9F94120	A9F95120
	25A	A9F93125	Acti9 iC60L 1P B 25A MCB	A9F94125	A9F95125
	32A	A9F93132	Acti9 iC60L 1P B 32A MCB	A9F94132	A9F95132
	40A	A9F93140	Acti9 iC60L 1P B 40A MCB	A9F94140	A9F95140
2P	1A	A9F93201	Acti9 iC60L 2P B 1A MCB	A9F94201	A9F95201
	2A	A9F93202	Acti9 iC60L 2P B 2A MCB	A9F94202	A9F95202
	4A	A9F93204	Acti9 iC60L 2P B 4A MCB	A9F94204	A9F95204
	6A	A9F93206	Acti9 iC60L 2P B 6A MCB	A9F94206	A9F95206
	10A	A9F93210	Acti9 iC60L 2P B 10A MCB	A9F94210	A9F95210
	16A	A9F93216	Acti9 iC60L 2P B 16A MCB	A9F94216	A9F95216
	20A	A9F93220	Acti9 iC60L 2P B 20A MCB	A9F94220	A9F95220
	25A	A9F93225	Acti9 iC60L 2P B 25A MCB	A9F94225	A9F95225
	32A	A9F93232	Acti9 iC60L 2P B 32A MCB	A9F94232	A9F95232
	40A	A9F93240	Acti9 iC60L 2P B 40A MCB	A9F94240	A9F95240
3P	1A	A9F93301	Acti9 iC60L 3P B 1A MCB	A9F94301	A9F95301
	2A	A9F93302	Acti9 iC60L 3P B 2A MCB	A9F94302	A9F95302
	4A	A9F93304	Acti9 iC60L 3P B 4A MCB	A9F94304	A9F95304
	6A	A9F93306	Acti9 iC60L 3P B 6A MCB	A9F94306	A9F95306
	10A	A9F93310	Acti9 iC60L 3P B 10A MCB	A9F94310	A9F95310
	16A	A9F93316	Acti9 iC60L 3P B 16A MCB	A9F94316	A9F95316
	20A	A9F93320	Acti9 iC60L 3P B 20A MCB	A9F94320	A9F95320
	25A	A9F93325	Acti9 iC60L 3P B 25A MCB	A9F94325	A9F95325
	32A	A9F93332	Acti9 iC60L 3P B 32A MCB	A9F94332	A9F95332
	40A	A9F93340	Acti9 iC60L 3P B 40A MCB	A9F94340	A9F95340
4P	1A	A9F93401	Acti9 iC60L 4P B 1A MCB	A9F94401	A9F95401
	2A	A9F93402	Acti9 iC60L 4P B 2A MCB	A9F94402	A9F95402
	4A	A9F93404	Acti9 iC60L 4P B 4A MCB	A9F94404	A9F95404
	6A	A9F93406	Acti9 iC60L 4P B 6A MCB	A9F94406	A9F95406
	10A	A9F93410	Acti9 iC60L 4P B 10A MCB	A9F94410	A9F95410
	16A	A9F93416	Acti9 iC60L 4P B 16A MCB	A9F94416	A9F95416
	20A	A9F93420	Acti9 iC60L 4P B 20A MCB	A9F94420	A9F95420
	25A	A9F93425	Acti9 iC60L 4P B 25A MCB	A9F94425	A9F95425
	32A	A9F93432	Acti9 iC60L 4P B 32A MCB	A9F94432	A9F95432
	40A	A9F93440	Acti9 iC60L 4P B 40A MCB	A9F94440	A9F95440
50A	A9F93450	Acti9 iC60L 4P B 50A MCB	A9F94450	A9F95450	
63A	A9F93463	Acti9 iC60L 4P B 63A MCB	A9F94463	A9F95463	

Dimensions 18mm pitch



Connection: Tunnel terminals for the following cables
– up to 25A : 25mm² stranded
– 32 to 63A : 35mm² stranded

Protection and isolation

Acti 9 system
C60H-DC miniature circuit breakers – 1 to 63A
C Curve, 6kA at 250/500V (AS/NZS IEC 60947.2)

C60H-DC



A9N61512



Width in mod. of 9mm – 2



A9N61531



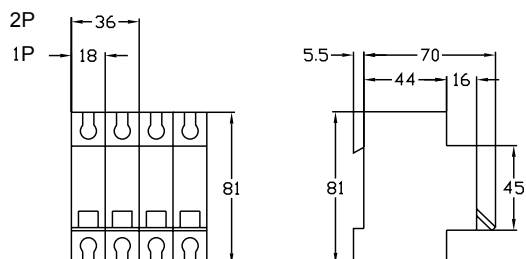
Width in mod. of 9mm – 4

	Rating (In)	Reference C curve	
1P	1A	A9N61501	
	2A	A9N61502	
	3A	A9N61503	
	4A	A9N61504	
	5A	A9N61505	
	6A	A9N61506	
	10A	A9N61508	
	13A	A9N61509	
	15A	A9N61510	
	16A	A9N61511	
	20A	A9N61512	
	25A	A9N61513	
	30A	A9N61514	
	32A	A9N61515	
	40A	A9N61517	
	50A	A9N61518	
	63A	A9N61519	
	2P	1A	A9N61521
		2A	A9N61522
3A		A9N61523	
4A		A9N61524	
5A		A9N61525	
6A		A9N61526	
10A		A9N61528	
13A		A9N61529	
15A		A9N61530	
16A		A9N61531	
20A		A9N61532	
25A		A9N61533	
30A		A9N61534	
32A		A9N61535	
40A		A9N61537	
50A		A9N61538	
63A		A9N61539	

Operating voltage (Ue)	12...250 V DC	12...500 V DC	
Diagrams	<p>Supply from above or below, observing the polarity</p>	<p>Supply from above</p>	<p>Supply from below</p>
Breaking capacity	20 kA / 110 V DC 10 kA / 220 V DC 6 kA / 250 V DC	20 kA / 220 V DC 10 kA / 440 V DC 6 kA / 500 V DC	

Dimensions 18mm pitch

Connection: Tunnel terminals for the following cables
 – up to 25A : 25mm² stranded
 – 32 to 63A : 35mm² stranded






Protection and isolation

Acti9 system
 C120N miniature circuit breakers - 63 to 125A
 C curve 10000A at 230/415V,
 Standard AS/NZS 60898.1

C120N




A9N18356

	Rating (In)	Reference C curve
1P 	63A	A9N18356
	80A	A9N18357
	100A	A9N18358
	125A	A9N18359

Width in mod. of 9mm – 3



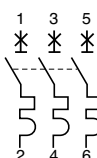
A9N18360

2P 	63A	A9N18360
	80A	A9N18361
	100A	A9N18362
	125A	A9N18363

Width in mod. of 9mm – 6



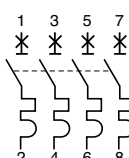
A9N18365

3P 	63A	A9N18364
	80A	A9N18365
	100A	A9N18367
	125A	A9N18369

Width in mod. of 9mm – 9



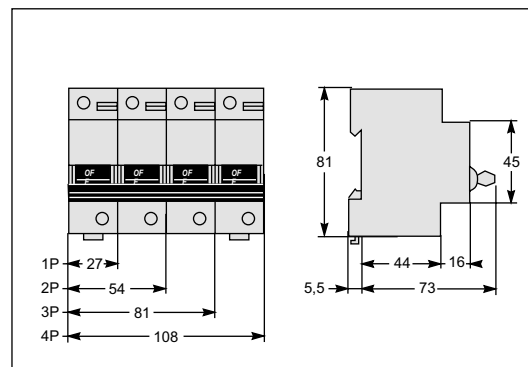
A9N18376

4P 	63A	A9N18371
	80A	A9N18372
	100A	A9N18374
	125A	A9N18376

Width in mod. of 9mm – 12

Dimensions 27mm pitch

Connection: Tunnel terminals for stranded cables up to 50mm²



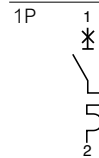
Protection and isolation

Acti 9 system
C120H miniature circuit breakers – 63 to 125A
C, D curve, 15000A (AS/NZS 60898.1)
STI fuse carriers
(AS/NZS IEC 60947.3)

C120H



A9N18446

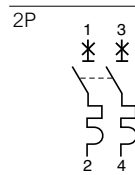


Width in mod. of 9mm – 3

Rating (In)	Reference C curve	Reference D curve
63A	A9N18445	A9N18489
80A	A9N18446	A9N18490
100A	A9N18447	A9N18491
125A	A9N18448	A9N18492



A9N18459

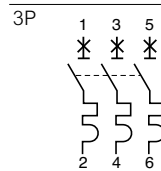


Width in mod. of 9mm – 6

63A	A9N18456	A9N18500
80A	A9N18457	A9N18501
100A	A9N18458	A9N18502
125A	A9N18459	A9N18503



A9N18469

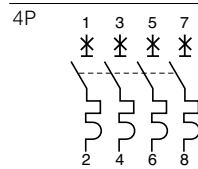


Width in mod. of 9mm – 9

63A	A9N18467	A9N18511
80A	A9N18468	A9N18512
100A	A9N18469	A9N18513
125A	A9N18470	A9N18514



A9N18479



Width in mod. of 9mm – 12

63A	A9N18478	A9N18522
80A	A9N18479	A9N18523
100A	A9N18480	A9N18524
125A	A9N18481	A9N18525



A9N15656

STI fuse-carriers

	Voltage(V)	FuseDia x L (mm)	Width in mod. of 9mm	Reference
1P	500	10.3x38	2	A9N15636
1P+N	500	10.3x38	2	A9N15646
2P	500	10.3x38	4	A9N15651
3P	500	10.3x38	6	A9N15656
3P+N	500	10.3x38	6	A9N15658

To be equipped with aM or gG (gL-gl) type fuse.

25A max, connection 6mm².

Includes housing for spare fuse(s).

Fuse indicator (1x)

15668



Protection and isolation

Acti 9 system – Type A

iID RCCBs (safety switches) - 40A to 100A

iDPN Vigi RCBO (combined MCB/RCD) C Curve – 6000A

iSPN Vigi Slim RCBO (combined MCB/RCD) C curve 6000A

Standards AS/NZS 61008.1, 61009.1

Type A

Tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether suddenly applied or slowly rising.

RCCB (residual current circuit breaker without overcurrent protection)

Compatible with PowerTag 



Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iID	40A	2	30mA	4	A9R51240
	63A	2	30mA	4	A9R51263
	100A	2	30mA	4	A9R21291
	40A	4	30mA	8	A9R51440
	63A	4	30mA	8	A9R51463
	80A	4	30mA	8	A9R21480
	100A	4	30mA	8	A9R21491
	40A	2P	100mA	4	A9R22240
	80A	2P	100mA	4	A9R22280
	40A	4P	100mA	8	A9R22440
63A	4P	100mA	8	A9R22463	
80A	4P	100mA	8	A9R22480	



RCBO (RCCB with overcurrent protection)

Compatible with PowerTag 

Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iDPN Vigi	6A	1P + N	30mA	4	A9D32606
	10A	1P + N	30mA	4	A9D32610
	16A	1P + N	30mA	4	A9D32616
	20A	1P + N	30mA	4	A9D32620
	25A	1P + N	30mA	4	A9D32625
	32A	1P + N	30mA	4	A9D32632
	40A	1P + N	30mA	4	A9D32640



Slimline RCBO (RCCB with overcurrent protection)

Compatible with PowerTag 

Model	Voltage rating (V)	Current rating (A)	No. of poles	Width in mod. of 9mm	Reference 10mA (2)	Reference 30mA
iSPN Vigi	240	6	1P + N	2	A9D40606	A9D73606
		10	1P + N	2	A9D40610	A9D73610
		16	1P + N	2	A9D40616	A9D73616
		20	1P + N	2	A9D40620	A9D73620
		25	1P + N	2	A9D40625	A9D73625
		32	1P + N	2	A9D40632	A9D73632

Note

Please refer to the Schneider Electric Pocketbook for Medilec RCDs – Medical Electrical Equipment Series.
(2) 10mA Type 1 suitable for medical use



Protection and isolation

Acti9 system
 iC60H(2) RCBO (combined MCB/RCD) C Curve - 10000A
 iLD RCCBs (safety switches) - Type A Si
 iDPN Vigi RCBO (combined MCB/RCD) - Type A Si

Type A

Tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether suddenly applied or slowly rising.

RCBO (residual current circuit breaker with overcurrent protection)

Compatible with PowerTag



A9D11216

A9D11816

Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iC60H	6A	1P + Ns	30mA	2	A9D11806
	10A	1P + Ns	30mA	2	A9D11810
	16A	1P + Ns	30mA	2	A9D11816
	20A	1P + Ns	30mA	2	A9D11820
	32A	1P + Ns	30mA	2	A9D11832
	6A	1P + Ns	100mA	2	A9D12806
	10A	1P + Ns	100mA	2	A9D12810
	16A	1P + Ns	100mA	2	A9D12816
	20A	1P + Ns	100mA	2	A9D12820
	25A	1P + Ns	100mA	2	A9D12825
	32A	1P + Ns	100mA	2	A9D12832
	40A	1P + Ns	100mA	2	A9D12840
	45A	1P + Ns	100mA	2	A9D12845
	iC60H2	10A	2	30mA	4
16A		2	30mA	4	A9D11216
20A		2	30mA	4	A9D11220
25A		2	30mA	4	A9D11225
32A		2	30mA	4	A9D11232

*Note: Requires special padlock. Part number A9A27049
 1P + Ns means the neutral is solid and is NOT switched



A9R91440



A9R91240

Type A Si

With all the features of a Type A device, "Si" type super immunised earth leakage protection range has been specially developed to be used with loads or in environments causing disturbances. Examples are lightning or switching surges, harmonics generated by increasing number of loads and constant load leakage current from electronic ballasts, speed drives, computers, etc.

The Si increases safety and allows improved continuity of supply.

RCCB (residual current circuit breaker without overcurrent protection)

Compatible with PowerTag



A9D33620

Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iLD	40A	2	30mA	4	A9R91240
	63A	2	30mA	4	A9R91263
	40A	4	30mA	8	A9R91440
	63A	4	30mA	8	A9R91463

RCBO (RCCB with overcurrent protection)

Compatible with PowerTag

Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iDPN Vigi	10A	1P + N	30mA	4	A9D33610
	16A	1P + N	30mA	4	A9D33616
	20A	1P + N	30mA	4	A9D33620
	25A	1P + N	30mA	4	A9D33625
	32A	1P + N	30mA	4	A9D33632
	40A	1P + N	30mA	4	A9D33640



Protection and isolation

Acti9 system
Add on Vigi blocks for iC60/C120
iID RCCBs (safety switches) Type B, B Si

Type A

Tripping is ensured for residual sinusoidal alternating currents and residual pulsating direct currents, whether suddenly applied or slowly rising.

Add on Vigi blocks for C60/C120 (converts an MCB to an RCBO)

Model	Current rating	No. of poles	Sensitivity	Voltage	Width mod. of 9mm	Reference
Vigi iC60type Type A	≤ 63A	2	30mA	240/415	4	A9V51263
		2	300mA	240/415	4	A9V25263
		3	30mA	415	7	A9V51363
		3	300mA	415	7	A9V25363
		4	30mA	415	7	A9V51463
		4	300mA	415	7	A9V25463
Vigi C120type Type A	≤ 125A	2	63 A	230 - 240 V	4	A9V02663
		4	63 A	400 - 415 V	6	A9V02763
		2	30mA	240/415	7	A9N18572
		2	300mA	240/415	7	A9N18573
		3	30mA	240/415	10	A9N18575
		3	300mA	240/415	10	A9N18576
4	30mA	240/415	10	A9N18578		
4	300mA	240/415	10	A9N18579		

indicates a selective type with time delay for discrimination with downstream devices.

Type B

Provides protection of 3 phase installations and personal protection even in the presence of DC fault currents. Examples are Variable Speed Drives (tested and validated with Schneider Electric VSDs), 3 phase battery chargers and inverters, and 3 phase backed-up power supplies.

Installed where downstream devices are likely to produce a pure DC fault. Also includes the protection of a Type A device.

RCCB for EV (residual current circuit breaker without overcurrent protection)

Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iID	16A	2	30mA	8	A9Z51216
		2	30mA	8	A9Z51225
		2	30mA	8	A9Z51240
		4	30mA	8	A9Z51440
		4	30mA	8	A9Z51463

Type B Si

With all the features of a Type B device, "Si" type super immunised earth leakage protection range has been specially developed to be used with loads or in environments causing disturbances. Examples are lightning or switching surges, harmonics generated by increasing number of loads and constant load leakage current from electronic ballasts, speed drives, computers, etc.

The Si increases safety and allows improved continuity of supply.

RCCB (residual current circuit breaker without overcurrent protection)

Model	Current rating	No. of poles	Sensitivity	Width in mod. of 9mm	Reference
iID	25A	2	30mA	8	A9Z61225
		2	30mA	8	A9Z61240
		2	30mA	8	A9Z61263
	40A	4	30mA	8	A9Z61425
		4	30mA	8	A9Z61440
		4	30mA	8	A9Z61463
	63A	4	30mA	8	A9Z61480
		4	30mA	8	A9Z61480



A9V51263



A9N18572



A9V02663



A9Z51216



A9Z61425



Arc Fault Detection

Acti 9 system
iDPN VigiARC (combined MCB/RCD/AFDD)
C curve, 6000A and 10000A (AS/NZS 61009.1)



A9T26620

Arc Fault Detection Devices (AFDD) + RCBO

Compatible with PowerTag

Description	Rating (In)	kA	Width in mod. of 9mm	Reference
iDPN N VigiARC C 6A 6000A 30mA Type A	6A	6	4	A9T26606
iDPN N VigiARC C 10A 6000A 30mA Type A	10A	6	4	A9T26610
iDPN N VigiARC C 16A 6000A 30mA Type A	16A	6	4	A9T26616
iDPN N VigiARC C 20A 6000A 30mA Type A	20A	6	4	A9T26620
iDPN N VigiARC C 25A 6000A 30mA Type A	25A	6	4	A9T26625
iDPN H VigiARC C 6A 10 000A 30mA Type A	6A	10	4	
iDPN H VigiARC C 10A 10 000A 30mA Type A	10A	10	4	A9T27610
iDPN H VigiARC C 16A 10 000A 30mA Type A	16A	10	4	A9T27616
iDPN H VigiARC C 20A 10 000A 30mA Type A	20A	10	4	A9T27620
iDPN H VigiARC C 25A 10 000A 30mA Type A	25A	10	4	A9T27625

Arc faults

Low cross-section areas, low mechanical protection, and high numbers of derivations and connections can increase the risk of damage to the interior core conductor in the final circuits.

When a cable is damaged, or an electrical connection comes loose, there are two phenomena which could initiate a fire due to an electric arc:

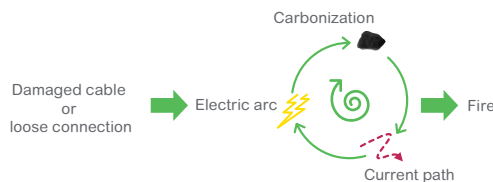


Figure 3.3. Arc fault generation

Carbonization:

This phenomenon is behind the series of arc faults that results from an arc between two parts of the same conductor. Whenever a conductor is damaged or a connection is not properly tightened, a localized hot spot occurs which carbonizes the insulating materials in the vicinity of that conductor.

Because carbon is a conductive material, it enables the flow of the current, which becomes excessive at various points. Since the carbon is deposited in a non-homogeneous manner, the currents which pass through it generate electric arcs to facilitate their paths. Then each arc amplifies carbonization of the insulating materials, a reaction thus occurs which is maintained until the quantity of carbon is sufficient for an arc to inflame it spontaneously.

Resistive short circuit:

This phenomenon is behind the parallel arc that happens between two different conductors. Whenever the insulating materials between two live conductors are damaged, a significant current can be established between the two conductors, but it is too weak to be considered a short circuit by a circuit breaker and is undetectable by residual current protective devices as this current does not go to earth.

When passing through these insulating materials, these leakage currents optimize their paths by generating arcs that gradually transform the insulating materials into carbon. These carbonized insulating materials then amplify the current leak between the two conductors. Thus, a new chain reaction occurs, amplifying the quantity of arc current and carbon until the first flame appears from the carbon lit by one of the arcs.

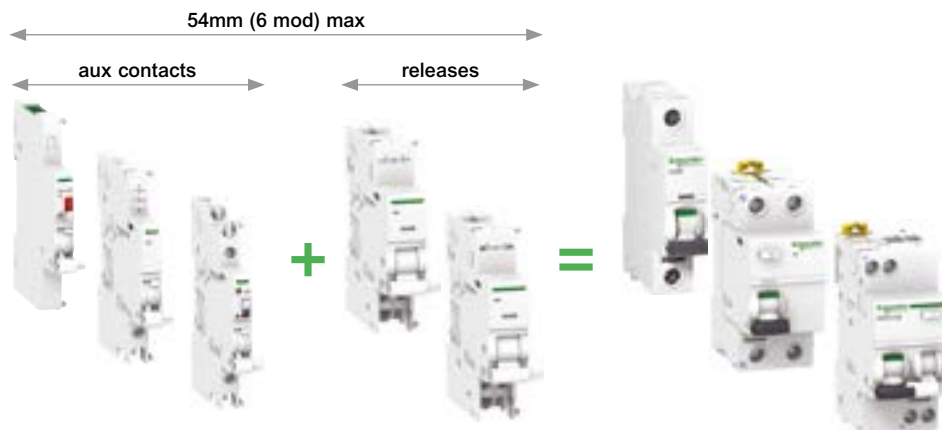
The common feature of these phenomena is the ignition of the fire by arcs which inflame the carbon: that is why detection of the presence of arcs is one way to help prevent fires from occurring.

Detecting the presence of arcs is one way to prevent fires from occurring.

Protection and isolation

Acti 9 system
Auxiliaries to suit MCBs, RCCBs and RCBOs

Auxiliaries



Auxiliaries compatible with iC60, iID, iDPN, iVigi



A9A26897

A9A26924



A9A26946



A9N26500

Description	Rated Voltage VAC	VDC	Width in mod. of 9mm	Reference
iOF+SD24 Comm Ready		24	1	A9A26897
iOF 1OC 100mA to 6A	240...415	24...130	1	A9A26904
iSD 1OC 100mA to 6A fault indication	240...415	24...130	1	A9A26907
iSD+OF 2OC 100mA to 6A	240...415	24...130	1	A9A26909
iOF 1OC 2mA to 100mA	240...415	24...130	1	A9A26914
iSD 1OC 2mA to 100mA fault indication	240...415	24...130	1	A9A26917
iSD+OF 2OC 2mA to 100mA	240...415	24...130	1	A9A26919
iMX+OF Shunt release	100...415	110...130	2	A9A26946
	48	48	2	A9A26947
	12...24	12...24	2	A9A26948
iMSU Overvoltage release	230		2	A9A26500
iMN Undervoltage release	220...240		2	A9A26960
	48	48	2	A9A26961
	24	24	2	A9A27108
iMNs Undervoltage release (0.2sec delay)	220...240		2	A9A26963
iMNx Undervoltage release (emergency stopping with fail-safe principle)	220...240 380...415		2 2	A9A26969 A9A26971

Auxiliaries compatible with C120, DPN, C60H-DC

Description	Rated Voltage VAC	VDC	Width in mod. of 9mm	Reference
OF+SD24 Comm Ready		24	1	A9N26899
OF 1OC 100mA to 6A	240...415	24...130	1	A9N26904
SD 1OC 100mA to 6A fault indication	240...415	24...130	1	A9N26907
OF/SD+OF 2OC 100mA to 6A	240...415	24...130	1	A9N26909
OF 1OC 2mA to 100mA	240...415	24...130	1	A9N26914
SD 1OC 2mA to 100mA fault indication	240...415	24...130	1	A9N26917
MX+OF Shunt release	100...415	110...130	2	A9N26946
	48	48	2	A9N26947
	12...24	12...24	2	A9N26948
MSU Overvoltage release	230		2	A9N26500
MN Undervoltage release	220...240		2	A9N26960
	48	48	2	A9N26961
MNs Undervoltage release (0.2sec delay)	220...240		2	A9N26963
iMNx Undervoltage release (emergency stopping with fail-safe principle)	230 400		2 2	A9N26969 A9N26971

Protection and isolation

Acti 9 system Accessories to suit MCBs, RCCBs and RCBOs



A9A26970



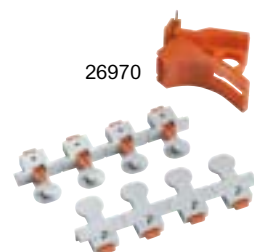
A9A26981



A9A27005



A9A27052



26970

26981

Accessories compatible with iC60, iID, iDPN Vigi, iSW

Description	Qty	Reference
Padlock device	Padlock diameter 3...6mm	10 A9A26970
	Padlock for Slimline RCBO	10 A9A27049
Terminal shield	2x1 pole	1 pair A9A26975
	2x2 poles	2 pair A9A26976
	3P = A9A26975+A9A26976, 4P = A9A26976 x2	
Screw shield	12x1 pole	12 A9A26982
	20x4 poles (splittable)	20 A9A26981
Interpole barrier		10 A9A27001
Spacer	Includes space for cable routing	5 A9A27062
DIN clips for Acti9 iC60		(set of 10) A9A27052
Multi-cable terminal	For 3x copper cables flexible up to 10mm	3 19096
Plug-in base	1 per pole, plug in/out	1 A9A27003
Rotary handle (for 2/3/4 pole)	Complete assembly includes black handle	1 A9A27005
	Complete assembly includes red handle	1 A9A27006

Accessories compatible with C120, DPN, C60H-DC

Description	Qty	Reference
Padlock device	DPN, C60H-DC, SW60-DC, C60PV-DC, C60NA-DC	2 26970
	C120	4 27145
Terminal shield	C60H-DC (1P)	2 26975
	C60H-DC (2P) ...3P = 26975 + 26976, 4P = 26976 x2	2 26976
	C120 (1P)	2 18526
Screw shield	C60H-DC, SW60-DC, C60PV-DC, C60NA-DC	2 26981
	C120	2 18527
Rotary handle	Operating assembly (no handle)	1 27046
	Removable extended handle	1 27047

Protection and isolation

Acti 9 system Type 1 or 1+2 Surge arresters



16332



16363



A9L16632

Type 1 or 1+2 Surge arresters (withdrawable or fixed)

Model	No. of poles	Un (V)	Uc (V)	Iimp 10/350 wave (kA)	I _{max} 8/20 wave (kA)	In (kA)	Remote indicator	Up (kV)	Reference
Type 1+2 Withdrawable									
PRD1 25r	1P	230	350	25	40	25	Yes	1.5	16329
PRD1 25r	1P + N	230/400	350	25/100 N/PE	40	25	Yes	1.5	16330
PRD1 25r	3P	230	350	25	40	25	Yes	1.5	16331
PRD1 25r	3P + N	230/400	350	25/100 N/PE	40	25	Yes	1.5	16332
Type 1 Withdrawable									
PRD1 Master	1P	230	350	25		25	No	1.5	16360
PRD1 Master	1P + N	230/400	350	25/100 N/PE		25	No	1.5	16361
PRD1 Master	3P	230	350	25		25	No	1.5	16362
PRD1 Master	3P + N	230/400	350	25/100 N/PE		25	No	1.5	16363
Type 1+2 Fixed									
iPRD1 12.5r	1P	230	350	12.5	50	25	Yes	1.5	A9L16182
iPRD1 12.5r	1P + N	230	350	12.5/50 N/PE	50	25	Yes	1.5	A9L16282
iPRD1 12.5r	3P	230/400	350	12.5	50	25	Yes	1.5	A9L16382
iPRD1 12.5r	3P + N	230/400	350	12.5/50 N/PE	50	25	Yes	1.5	A9L16482

Un: rated voltage

Uc: maximum continuous operating voltage

Up: voltage protection level

Surge arresters		Spare cartridges		
Model	Reference	Phase Type 1	Phase Type 2	Neutral
PRD1 25r 1P	16329	16315	16316	
PRD1 25r 1P+N	16330	16315	16316	16317
PRD1 25r 3P	16331	3 x 16315	3 x 16316	
PRD1 25r 3P+N	16332	3 x 16315	3 x 16316	16317
PRD1 Master 1P	16360	16314		
PRD1 Master 1P+N	16361	16314		16317
PRD1 Master 3P	16362	3 x 16314		
PRD1 Master 3P+N	16363	3 x 16314		16317
iPRD1 12.5r	A9L16182	A9L16082		A9L16082
iPRD1 12.5r	A9L16282	A9L16082		A9L16082
iPRD1 12.5r	A9L16382	A9L16082		A9L16082
iPRD1 12.5r	A9L16482	A9L16082		A9L16082

Protection and isolation

Acti 9 system iPRD Arrestors



A9L40100



A9L65101



A9L65102

Type 2 iPRD Surge arresters (replaceable cartridge)

Model	No. of poles	I _{max} kA	U _n V	Remote indicator	Up kV	Width in mod. of 9mm	Reference
iPRD20	1P	20	230	No	1	2	A9L20100
	1P + N*	20	230	No	1.2	4	A9L20500
	3P	20	230/400	No	1	6	A9L20300
	3P + N*	20	230/400	No	1.2	8	A9L20600
iPRD 20r	1P + N*	20	230/400	Yes	1.2	4	A9L20501
	3P + N*	20	230/400	Yes	1.2	8	A9L20601
iPRD 40	1P	40	230	No	1.3	2	A9L40100
	1P + N*	40	230	No	1.2	8	A9L40500
	3P	40	230/400	No	1.3	6	A9L40300
	3P + N*	40	230/400	No	1.3	8	A9L40600
iPRD 40r	1P	40	230	Yes	1.3	2	A9L40101
	1P + N*	40	230	Yes	1.3	4	A9L40501
	3P	40	230/400	Yes	1.3	6	A9L40301
	3P + N*	40	230/400	Yes	1.3	8	A9L40601
iPRD 65r	1P	65	230	Yes	1.5	2	A9L65101
	1P + N	65	230	Yes	1.5	4	A9L65501
	3P	65	230/400	Yes	1.5	6	A9L65301
	3P + N	65	230/400	Yes	1.5	8	A9L65601

Cartridges for iPRD

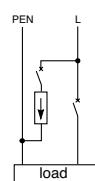
iPRD20 + 20r	20	230	2	A9L20102
iPRD40 + 40r	40	230	2	A9L40102
iPRD65 + 65r	65	230	2	A9L65102
iPRD neutral	230		2	A9L00002

* 1P+N, 3P+N required if no MEN connection U_c = 340V L/N all devices

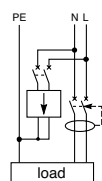
Rated discharge current (I _{max})	Associated disconnection and protection device (kA rating same as installation)
65kA	Very high risk level (Strongly exposed site) 50A C Curve
40kA	High risk level 40A C Curve
20kA	Low risk level 25A C Curve

Surge protection devices have been tested for co-ordination with Schneider Electric circuit breakers to IEC60364.

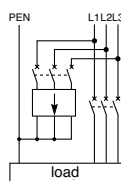
Response time	< 25 ns
End of life indication: by white/red mechanical indicator	White in operation Red at end of life
End of life remote indication (* for models ending with 'r')	by contact NO, NC 250V//0.25A
Type of connection terminals	tunnel terminals, 2.5 to 35mm ²
Operating temperature	-5°C to +40°C



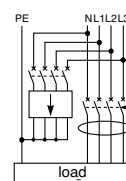
1P



1P + N



3P



3P + N

Control, remote control

Acti 9 communication system Acti 9 Smartlink



The Acti 9 communication system

The Acti 9 Smartlink transmits data from Acti 9 devices to a PLC or a supervision system via the Modbus serial line communication network.

Functions

Data transmission between the Modbus network and Acti 9 devices

- > Circuit breakers, residual current circuit breakers, residual current devices:
 - > open/closed state, tripped state, number of opening/closing cycles, number of tripping actions.
- > Contactors, impulse relays:
 - > opening control, closing control, open/closed state, number of cycles, total period of operation of the load (device closed).
- > Remote controlled circuit breaker/Reflex iC60:
 - > opening control, closing control, open/closed state, tripped state, number of cycles, total period of operation of the load.
- > Power meters:
 - > number of pulses recorded, pulse value setting (e.g. kWh), total consumption recorded, estimate of power consumption.

All the data are stored in memory: number of cycles, consumption, period of operation, even in the event of a power failure.

The Acti 9 Smartlink can also exchange data with any device having 24 V DC digital inputs/outputs.

No configuration of the connected products is required.

When the Acti 9 Smartlink is switched on, communication automatically adjusts to the Modbus Master (PLC, control station) communication parameters.



A9XMSB11



A9XMEA08

Description	Set of	Reference
Acti 9 Smartlink Modbus Slave	1	A9XMSB11
Accessories		
Link USB / Modbus for Acti 9 Smartlink test	1	A9XCATM1
Prefabricated cables		
With 2 connectors	Short: 100 mm	6 A9XCAS06
	Medium-sized: 160 mm	6 A9XCAM06
	Medium-sized: 450 mm	6 A9XCAH06
	Long: 870 mm	6 A9XCAL06
With 1 connector	Long: 870 mm	6 A9XCAU06
Connectors	5-pin connectors (Ti24)	12 A9XC2412
	Mounting kit	DIN rail (4 feet, 4 straps, 4 adapters) 1 A9XMFA04 Multiclip 200 A (4 adapters) 1 A9XM2B04
Spare parts	Lock for Multiclip 80 A (2 clips)	1 A9XMLA02

Connectable devices

With Ti24 interface

Type	Reference	Description
iACT24	A9C15924	Low-level control and indication auxiliary for iCT contactors
iATL24	A9C15424	Low-level control and indication auxiliary for iTL impulse relays
iOF+SD24	A9A26897	Low-level indication auxiliary for iC60, iID, ARA, RCA, iSW-NA
OF+SD24	A9N26899	Low-level indication auxiliary for C60, C120, DPN, RCCB/ID, C60H-DC
RCA		Remote control with Ti24 interface
Reflex iC60		Reflex iC60 with Ti24 interface

Without Ti24 interface

Power meters with pulse output, e.g. IEM2000T Meters complying with the IEC 62053-21 standard 24 V DC indicator lamp, Harmony XVL range. All loads not exceeding 100 mA, 24 V DC IC2000 light sensitive switches, timers, thermostats, time switches, load shedding devices. All 24 V DC auxiliary contacts, IEC 61131-2 type 1.

Note

(1) Maximum of 20 PowerTag devices per concentrator.

Control and signalling

Acti 9 system
Contactors
Contactor auxiliaries and interfaces
Load shedding contactors

C



A9C20731 A9C20842



A9C20884

Contactors

Type	Ratings (AC7a)	No. of contacts	Coil voltage	Width in mod. of 9mm	Reference
iCT	16A	1NC + 1NO	240V	2	A9C22715
		2NO	240V	2	A9C22712
	25A	1NO	240V	2	A9C20731
		2NO	240V	2	A9C20732
		2NC	240V	2	A9C20736
		3NO	240V	4	A9C20833
		4NO	240V	4	A9C20834
		4NC	240V	4	A9C20837
	40A	2NC + 2NO	240V	4	A9C20838
		2NO	240V	4	A9C20842
		3NO	240V	6	A9C20843
		4NO	240V	6	A9C20844
	63A	4NC	240V	6	A9C20847
		2NO	240V	4	A9C20862
3NO		240V	6	A9C20863	
4NO		240V	6	A9C20864	
100A	4NC	240V	6	A9C20867	
	2NC + 2NO	240V	6	A9C20868	
	2NO	240V	6	A9C20882	
	4NO	240V	12	A9C20884	
25A	2NO	24VAC	2	A9C20132	
	4NO	24VAC	4	A9C20134	
	4NC	24VAC	4	A9C20137	
63A	2NO	24VAC	4	A9C20162	
	4NO	24VAC	6	A9C20164	
		4NC	24VAC	6	A9C20167

Note Where group mounting is employed use spacer A9A27062 between every contactor. Ref C21.
Refer to Section R for application and selection notes.

High performance contactors

Description	Reference
iCT + 20A 1NO 230V 2(+1)	A9C15030
iCT + 20A 1NO (manual selector) 230V 2(+1)	A9C15031



A9C15415



A9C15914 A9C15924

Contactor auxiliary/interface

Type	Description	Control voltage	Width in mod. of 9mm	Reference
iACTs	Aux. Contact 5A (1A DC) 1 NO + 1NC	24-240VAC / 24-130VDC	1	A9C15914
	Aux. Contact 5A (1A DC) 1 C/O	24-240VAC / 24-130VDC	1	A9C15915
	Aux. Contact 5A (1A DC) 2 NO	24-240VAC / 24-130VDC	1	A9C15916
iACTc	Impulse/latched control	230-240VAC	2	A9C18308
	Impulse/latched control	24-48VDC	2	A9C18309
iACT24	Control and indication	24VDC (Y3) 230VAC (Y2)	2	A9C15924
Accessories	Spacer (bags of 5)			A9A27062

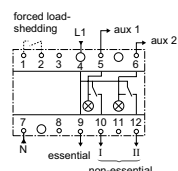


A9C15908

Load-shedding contactor

When consumption exceeds selected threshold supply stops to non-essential circuits.

Description	Threshold	Voltage	Width in mod. of 9mm	Reference
CDSc 1P	5 – 90A	230	16	A9C15906
CDS 1P	5 – 90A	230	10	A9C15908
CDS 3P	5 – 90A	230/400	16	A9C15913



Notes

- CDSc 1P – Cyclic load-shedding of 1 to 4 non-essential circuits.
- CDS 1P – load-shedding and restoration in cascading configuration of 2 non-essential circuits via 2 15A relays, with time delayed action.
- CDS 3P – load-shedding for each phase.

Control and signalling

Acti 9 system Impulse and changeover relays



A9C30811

Impulse relays

Specifically designed for multifunction control or remote control of circuits via impulse orders (\square) e.g. Lighting control

Operation

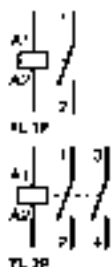
Closing of the impulse relay pole(s) is triggered by an impulse on the coil. Equipped in the factory with two stable mechanical positions, the pole(s) will be opened by the next impulse. Each impulse received by the coil reverses the position of the pole(s).

- > Manual controls on front face:
 - > Direct and priority manual control by O-I toggle.
 - > Disconnection of remote control by selector switch.
- > Indication: mechanical on front face by toggle position.



A9C30812

iTL impulse relay – 16A



Type	Width in mod. of 9mm	Rat. (A)	No. of contacts	Coil voltage (VAC) (VDC)		Reference
TL	2	16	1NO	240	110	A9C30811
				130	48	A9C30311
				48	24	A9C30211
				24	12	A9C30111
				12	6	A9C30011
TL	2	16	2NO	240	110	A9C30812
				130	48	A9C30312
				48	24	A9C30212
				24	12	A9C30112
				12	6	A9C30012

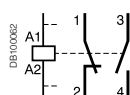
High performance impulse relay

Type	Width in mod. of 9mm	Rat. (A)	No. of contacts	Coil voltage (VAC) (VDC)		Reference
iTL + TL	2(+1)	16	1NO	230V	-	A9C15032



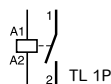
A9C30815

iTLi impulse changeover relay – 16A



Type	Width in mod. of 9mm	Rat. (A)	No. of contacts	Coil voltage (VAC) (VDC)		Reference
TLi	2	16	1NC+1NO	240	110	A9C30815
				130	48	A9C30315
				48	24	A9C30215
				24	12	A9C30115

iTL impulse relay – 32A



Type	Width in mod. of 9mm	Rat. (A)	No. of contacts	Coil voltage (VAC) (VDC)		Reference
TL	2	32	1NO	240	110	A9C30831



A9C15424

iATL24 Control and indication auxiliary

This auxiliary allows an impulse relay to be interfaced with the Acti 9 Smartlink interface or PLC in 24VDC (control, O/C indication).

Type	Width in mod. of 9mm	Coil voltage (VAC) (VDC)		Reference
iATL24	2	240	24	A9C15424

Control and signalling

Acti 9 system Pushbuttons, pilot lights and selector switches



A9E18032

Pushbuttons 20A, 250VAC (1) (2)

Type	Width in mod. of 9mm	Colour	Circuit	Reference
Single PB	2	grey	1NC	A9E18030
		red	1NC	A9E18031
		grey	1NO	A9E18032
		grey	1NO + 1NC	A9E18033



A9E18035



A9E18036

Type	Width in mod. of 9mm	Power light	Colour	Colour	Circuit	Reference
Single PB+ indicator light	2	110...230VAC	green	grey	1NO	A9E18036
			red	grey	1NC	A9E18037
		12...48VAC/DC	green	grey	1NO	A9E18038
			red	grey	1NC	A9E18039
Double PB	2		green/red		1NO/1NC	A9E18034
			grey/grey		1NO/1NO	A9E18035



A9E18326

Pilot lights LED technology, 100,000 hours service life

Type	Width in mod. of 9mm	Colour	Reference 12..48 VAC/DC	Reference 110..230 VAC
Single PL	2	red	A9E18330	A9E18320
		green	A9E18331	A9E18321
		white	A9E18332	A9E18322
		blue	A9E18333	A9E18323
		yellow	A9E18334	A9E18324
Double indicator light	2	green/red	A9E18335	A9E18325
Blinker 2Hz 240VAC	2	red		A9E18326
3 phase indicator light 400VAC (3P)	2	red/red/red		A9E18327



A9E18325



A9E18327

Notes

- (1) Pushbuttons are spring return, used for impulse type controls.
- (2) Resistive load, if you require any other load please consult your Schneider Electric sales representative.

Control and signalling

Acti 9 system iSW switches and iSSW selector switches



A9S60120

Control Switches

Model	Current rating	No. of poles	Voltage (VAC)	Width in mod. of 9mm	Reference
iSW	20A	1	250V	2	A9S60120
		2	415V	2	A9S60220
	32A	1	250V	2	A9S60132
		2	415V	2	A9S60232
		3	415V	4	A9S60332



A9E18070

Selector switches 20A, 250VAC (2)

Type	Width in mod. of 9mm	Contact	Reference
2 positions	2	1 changeover switch I-II	A9E18070
	4	2 changeover switches I-II	A9E18071
	2	1 NO + 1 NC I-II	A9E18072



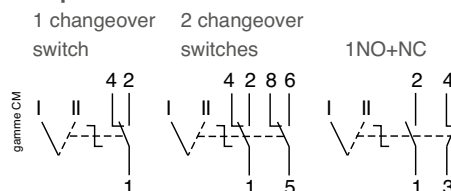
A9SCO263

Model	Current rating	No. of poles	Voltage (VAC)	Reference
3 positions I-O-II	25A	1	230/240V	A9SCO125
		2	400/415V	A9SCO225
	40A	1	230/240V	A9SCO140
		2	400/415V	A9SCO240
63A	4	400/415V	A9SCO440	
	1	230/240V	A9SCO163	
	2	400/415V	A9SCO263	
		4	400/415V	A9SCO463

3 position selector switches



2 position selector switches



Control and signalling

Acti 9 system Time delay relays Time switches – analogue and digital



A9E16065



A9E16070

Time delay relays – 0.1s to 100h (1)

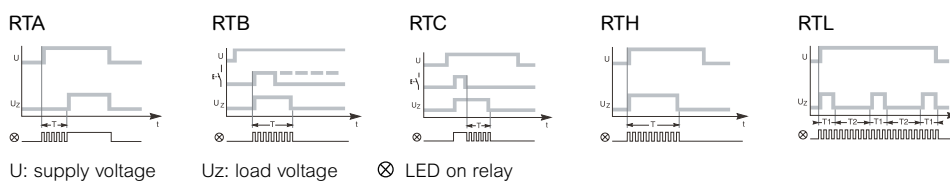
Type	No. of contacts	Rating	Width in mod. of 9mm	Coil voltage	Reference
iRTA	1C/O	8A	2	24VDC or 24–240VAC	A9E16065
iRTB	1C/O	8A	2	24VDC or 24–240VAC	A9E16066
iRTC	1C/O	8A	2	24VDC or 24–240VAC	A9E16067
iRTH	1C/O	8A	2	24VDC or 24–240VAC	A9E16068
iRTL	1C/O	8A	2	24VDC or 24–240VAC	A9E16069
iRTMF	1C/O	8A	2	12–240VAC/DC	A9E16070

Notes

Function and use

RTA delay on make: allows a delay in the energisation of a load (coil of a contactor or relay). The time delay cycle begins at the energisation of the RTA and the load is switched on at the end of the time period.

- > RTB single shot: energises a load at the closing of an auxiliary pushbutton. The time delay starts at the closing of the command pushbutton.
- > RTC delay on break: energises a load as soon as a contact is closed. Mini impulse duration: ≥ 200 ms. At the end on the time delay, the load is de-energised. Able to re-start time period without breaking the load.
- > RTH interval timer: timing of load from the energisation (coil of a contactor or relay). The time delay cycle begins, on the energisation of the RTH, by switching on the load. At the end of the time delay, the load is de-energised.
- > RTL repeat cycle timer: repetitive cycle which alternatively energises and de-energises a load. From the energisation of RTL, the load is switched on.
- > RTMF multifunction timer: one relay providing functions A, B, C and H via a selector switch located in front.



15335

Time switches: analogue (1)

Type	Time	No. of channels	Width in mod. of 9mm	Rating	Reserve	Reference
IH	24Hr	1 N/O	2	16A	—	15335
	24Hr	1 N/O	2	16A	100Hr	15336
	7 day	1 N/O	2	16A	100Hr	15331

Time switches: digital (1)

Type	Channels	Cycle	Width in mod. of 9mm	Rating (cos = 1)	Min time between switching	Number of switching operations	Reserve (Yr)	Reference
IHP + 1c18mm	1NO	24Hr/7 Day	2	16A	1 sec	42	3	CCT15838
IHP 1C w	1C/O	24Hr/7 Day	5	16A	1 min	56	6	CCT15441
IHP 2C w	2C/O	24Hr/7 Day	5	16A	1 min	56	6	CCT15443
ITA 1c	1 C/O	24 h, 7d, year	4	16A	1 min	300	10	CCT15910
ITA 4c	4 C/O	24 h, 7d, year	8	10A	1 min	300	10	CCT15940
Programming Kit	For reference CCT15910 and CCT15940 only - includes software, USB cable and memory key							CCT15950



CCT15838



CCT15441



CCT15910



CCT15940

Note

IHP 1C w and IHP 2C w have screw-less connections (2x2.5mm per connection), holiday mode, input(s) for external override control and compatibility with comb busbar distribution.

(1) Resistive load, if you require any other load please consult your Schneider Electric sales representative.

Control and signalling

Acti 9 system
 Button holders
 Light sensitive switches
 Bells and buzzers
 Control transformers



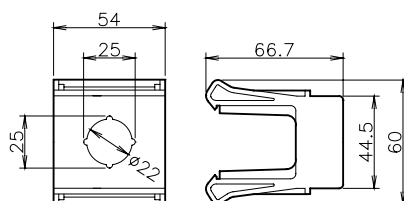
A9A1511



A9A1512

Button holders

Type	Width in mod. of 9mm	Reference
M9 Ø 22 holder	6	A9A1511
M9 universal holder	6	A9A1512



They can be attached to a symmetrical 35mm rail, in modular cabinets or enclosures, for control and indications auxiliaries: pushbuttons, emergency stops, switches, light indicators; for tertiary and industrial applications.

- > For ZB5 plastic buttons, switches and indicators.
- > Depth under rail 60mm (same as products in the Acti 9 range).
- > Drilling diameter: Ø 22.3.
- > Self-extinguishing insulating material.
- > Colour: light grey RAL7035.



CCT15285



CCT15369

Light sensitive switches (PE cell included)

Type	No. of contacts	Width in mod. of 9mm	Rating cos=1 (1)	Reference
Automatic light control 2-2000 lux with switchboard cell IC2000	1 C/O	5	16A	CCT15285
Automatic light control 2-2000 lux with wall-mounted cell IC2000	1 C/O	5	16A	CCT15369

The IC2000 has screwless terminals and a test button to check operation regardless of light level. The light cell can rotate to desired direction.

Note

(1) The use of a CT contactor for higher loads is recommended.



A9A15322

Bells and buzzers

Type	Volt (V) 50-60Hz	Output (1) (dBA)	Consumption (2) (VA)	Width in mod. of 9mm	Reference
SO Bell	240V	80	5VA	2	A9A15320
	8-12V	80	3.6VA	2	A9A15321
iRO Buzzer	240V	70	5VA	2	A9A15322

Notes

(1) At a distance of 60cm.

(2) Max. energisation time = 10 minutes.



A9A15212

Control transformers

Type	Description	Secondary voltage (V)	Power (VA)	Width in mod. of 9mm	Reference
iTR	Bell transformer	8-12	8	4	A9A15216
	Bell transformer	12-24	25	6	A9A15215
	240V primary	8-12	16	4	A9A15212
iTR	Safety transformer	12-24	25	10	A9A15219
	Safety transformer	12-24	40	10	A9A15220
	240V primary	12-24	63	10	A9A15222

Control and signalling

Acti 9 system Emergency lighting kit



PBELKIT4

Emergency lighting test kit

The Emergency Light test kits are designed to perform a discharge test on emergency lighting installations. The Acti 9 test kits are completely pre-wired to provide an "off the shelf" solution to emergency light discharge test requirements.

Operation

Engaging the selector switch to the "test" position will start the timer (2hrs factory setting). During this time the contactors coils are energised – opening the normally closed contacts. While the contacts remain open, power supply to the normal lighting circuits is cut. The simulated power failure initiates the discharge test operation of the emergency lighting. Duration of the test operation is set by the timer and can be reset mid-cycle via the selector switch.

Features

- > 8 pole surface mount enclosure (IP30) – PBELSAKIT only.
- > 2 or 4 N/C contactor, 25A/240VAC.
- > 3 position selector switch (keylockable + 2 keys PBELSAKIT only).
- > Emergency lighting label.
- > Relay timer 0.1–10hrs (2hrs factory setting).

Type	Voltage	Reference
Emergency lighting kit (without enclosure)	2 N/C	PBELKIT2
	4 N/C	PBELKIT4
Stand-alone kit (with enclosure)	4 N/C	PBELSAKIT

Connection devices and accessories

Acti 9 system
Comb busbar up to 100A
Comb busbar accessories

Horizontal comb busbar for 18mm pitch



A9XPH112



Description	Type	Modules of 18mm	Set of	Reference	
Standard comb busbar 100A (grey)	1P	L1...	12	1	A9XPH112
		24	1	A9XPH124	
	2P	L1L2...	12	1	A9XPH212
		24	1	A9XPH224	
	3P	L1L2L3...	12	1	A9XPH312
		24	1	A9XPH324	
	4P	NL1L2L3...	12	1	A9XPH412
			24	1	A9XPH424
		NL1NL2NL3	12	1	A9XPH512
			24	1	A9XPH524
Comb busbar 100A + Aux (grey)	*Aux+1P	AuxL1...	57	1	A9XAH157
	*Aux+2P	AuxL1L2...	57	1	A9XAH257
	*Aux+3P	AuxL1L2L3...	57	1	A9XAH357
	*Aux+4P	AuxNL1L2L3...	57	1	A9XAH457
		AuxNL1AuxNL2AuxNL3	57	1	A9XAH557
*3 (Aux+1P)	AuxL1AuxL2AuxL3...	57	1	A9XAH657	

Accessories

Description	Type	Set of	Reference
End caps	1P	10	A9XPE110
	2P	10	A9XPE210
	3P	10	A9XPE310
	4P	10	A9XPE410
Insulated tooth caps		20	A9XPT920
Insulated connector (up to 35mm cable)		4	A9XPCM04
Connector 100A double terminal		4	A9XPCD04



Horizontal comb busbar for 9mm pitch

Description	Compatible with	Type	Modules of 18mm	Set of	Reference
Standard Comb busbar 80A	iDPN/iDPN Vigi/	1P+N top	12	1	A9XPC612
			24	1	A9XPC624
	iSPN	3P+N top	12	1	A9XPC712
			24	1	A9XPC724
	1P+N bottom	12	1	A9XPH612	
		24	1	A9XPH624	
	3P+N bottom	12	1	A9XPH712	
		24	1	A9XPH724	

Accessories

Description	Type	Set of	Reference		
End caps	1P+N	40	A9X21094		
End caps	3P+N	40	A9X21095		
Insulated tooth caps		20	A9XPT620		
Insulated connector (up to 16mm cable)		4	A9XPC604		
Description	Compatible with	Type	Modules of 18mm	Set of	Reference
Comb busbar 80A + Aux (white)	DPN	1P+N (AuxNL1...)	48	1	A9XPA648
		3P+N (AuxNL1AuxNL2AuxNL3...)	48	1	A9XPA748
	iDPN Vigi	1P+N (AuxNL1...)	48	1	A9XPV648
		3P+N (AuxNL1AuxNL2AuxNL3...)	48	1	A9XPV748



A9X21095



A9XPCD04

Notes

Compatible with the breaking capacity of Schneider Electric modular circuit breakers. *End caps ordered separately.

Connection devices and accessories

Acti 9 system Splitter block

Lineryg DX – quick distribution blocks

Distribloc 63 A is a four pole splitter block installable on a standard DIN rail. Outgoing feeders are connected at the front, without screws, in spring terminals. The appearance of its front panel (45 mm front tip) enables it to fit in on a row perfectly, alongside modular devices.

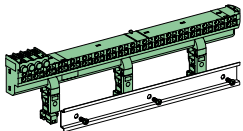
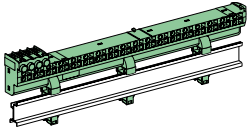
Description	Connection	Width in Mod. of 9mm	Type	Rating	Reference
Distribloc	Top incomer, bottom distribution out	8	4P	63A	LVS04040
	Bottom incomer, top distribution out	8	4P	63A	LVS04041

Notes

63A - Incoming connection 16mm. (flexible) 25mm (rigid)

Outgoing connection: spring terminal (phase) 12 x 2.5...6 mm², spring terminal (neutral) 12 x 2.5...6 mm².

Breaking capacity of Schneider Electric outgoing circuit breakers, even when reinforced by cascading implementation.



LVS04041

Connection devices and accessories

Acti 9 system

Encapsulated chassis for iC60 & C120 MCB's & RCBO's
3 Pole, 250A & 400A, 25kA for 0.1s



SAU25072183

Chassis 250 A 3 Ph, 18 mm for iC60 MCBs, RCBOs & Add-on Vigi block

Description	Pole capacity 18mm	Reference Top or Bottom Feed	Reference Dual Feed
3 phase	12	SAU25012183	SAU25012183DF
	18	SAU25018183	SAU25018183DF
	24	SAU25024183	SAU25024183DF
	30	SAU25030183	SAU25030183DF
	36	SAU25036183	SAU25036183DF
	42	SAU25042183	SAU25042183DF
	48	SAU25048183	SAU25048183DF
	60	SAU25060183	SAU25060183DF
	72	SAU25072183	SAU25072183DF
	84	SAU25084183	SAU25084183DF
	96	SAU25096183	SAU25096183DF
	108	SAU250108183	SAU250108183DF



SAU40024183

Chassis 400 A 3 Ph, 18 mm for iC60 MCBs, RCBOs & Add-on Vigi block

Description	Pole capacity 18mm	Reference Top or Bottom Feed	Reference Dual Feed
	12	SAU40012183	SAU40012183DF
	18	SAU40018183	SAU40018183DF
	24	SAU40024183	SAU40024183DF
	36	SAU40036183	SAU40036183DF
	48	SAU40048183	SAU40048183DF
	60	SAU40060183	SAU40060183DF
	72	SAU40072183	SAU40072183DF
	84	SAU40084183	SAU40084183DF
	96	SAU40096183	SAU40096183DF



SAU40012273

Chassis 400 A 3 Ph, 27 mm for C120 MCBs

Description	Pole capacity 27mm	Rating Reference Top or Bottom Feed	Reference Dual Feed
	12	SAU40012273	SAU40012273DF
	18	SAU40018273	SAU40018273DF
	24	SAU40024273	SAU40024273DF
	36	SAU40036273	SAU40036273DF
	48	SAU40048273	SAU40048273DF
	60	SAU40060273	SAU40060273DF
	72	SAU40072273	SAU40072273DF

Connection devices and accessories

Acti9 system

Encapsulated chassis for iC60 & C120 MCB's & RCBO's

Hybrid & Phase Neutral , 250A & 400A, 25kA for 0.1s

MSC chassis for DPN Vigi, 25kA for 0.1s



SAU2501641NDF

Chassis 250 A Phase Neutral 3*(1 Ph+N), 18 mm for iC60 MCBs, RCBOs & Add-on Vigi block (N. R. N. W. N. B.)

Description	Pole capacity 18mm		Reference Top or Bottom Feed	Reference Dual Feed
	3 phase 27mm pole spacing	16		SAU2501641N
	24		SAU2502441N	SAU2502441NDF
	32		SAU2503241N	SAU2503241NDF
	40		SAU2504041N	SAU2504041NDF
	48		SAU2504841N	SAU2504841NDF
	56		SAU2505641N	SAU2505641NDF
	64		SAU2506441N	SAU2506441NDF
	72		SAU2507241N	SAU2507241NDF



SAU2503243N

Chassis 250 A Phase Neutral 3 Ph+ N, 18 mm for 4P iC60 MCBs & Add-on Vigi block (N. R. W. B.)

Description	Pole capacity 18mm		Reference Top or Bottom Feed
		8	
	16		SAU2501643N
	24		SAU2502443N
	32		SAU2503243N
	40		SAU2504043N
	56		SAU2505643N
	64		SAU2506443N
	72		SAU2507243N



SAU400H723

Chassis 400 A 3 Ph, Hybrid 18 & 27 mm for iC60 and C120 MCBs, iC60 RCBOs & Add-on Vigi block

Description	Pole capacity		Reference Top or Bottom Feed	Reference Dual Feed
	18mm	27mm		
	12	6	SAU400H183	SAU400H183DF
	24	6	SAU400H303	SAU400H303DF
	30	12	SAU400H423	SAU400H423DF
	36	12	SAU400H483	
	60	12	SAU400H723	SAU400H723DF
	72	12	SAU400H843	SAU400H843DF



CD25084N9

MSC 36 for DPN. Vigi (Ph + N)

Description	Pole capacity	Qty of DPNs	Length (mm) L	Rating	Reference
3 phase and neutral (N.R.N.W.N.B)	12	6	110	250A	CD25124N9
	20	10	182	250A	CD25204N9
	24	12	218	250A	CD25244N9
	32	16	290	250A	CD25324N9
	36	18	326	250A	CD25364N9
	48	24	434	250A	CD25484N9
	72	36	650	250A	CD25724N9

Connection devices and accessories

Acti9 system

Encapsulated chassis for iC60 & C120 MCB's & RCBO's

Hybrid & Phase Neutral , 250A & 400A, 25kA for 0.1s

MSC chassis for DPN Vigi, 25kA for 0.1s

Accessories

Reference	Description
400CK2	Chassis Connection kit for SAU400 chassis with INS400/NSX400
LV429516	Short (incoming) terminal shield for ComPact NSX100/160/250
LV429518	Long (incoming) terminal shield for ComPact NSX100/160/250
SAU250TAGCOVER	Busbar Incoming terminal shroud and tag kit for SAU250 and SAU400 chassis
SAUTOFFCAP18	18mm insulation boots for tee-offs, set of 300 pcs for SAU250 and SAU400 chassis
SAUTOFFCAP27	27mm insulation boots for tee-offs, set of 500 pcs for SAU250 and SAU400 chassis
SEA9BP	Blank terminal block 1P (no electrical connection)
SEA9TB1001	Terminal block - 100 A - 1P
SEA9TB1254	Terminal block - 125 A - 4P



400CK2



SEA9TB1254



SAU250TAGCOVER



LV429516



SEA9BP

Connection devices and accessories

Acti 9 system
Isobar chassis for iC60 MCBs & iC60H RCBO



SEA9BN6TNA

TNA Chassis 250 A, 3 Ph, 18 mm for iC60 MCBs, RCBOs & Add-on Vigi block

Description	Pole capacity	Reference
	12	SEA9BN4TNA
	18	SEA9BN6TNA
	24	SEA9BN8TNA
	36	SEA9BN12TNA
	48	SEA9BN16TNA
	54	SEA9BN18TNA
	72	SEA9BN24TNA



SEA9NB4

Distributed neutral kits

Description	Pole capacity	Reference
Distributed neutral kit for 4 way TP&N	12	SEA9NB4
Distributed neutral kit for 6 way TP&N	18	SEA9NB6
Distributed neutral kit for 8 way TP&N	24	SEA9NB8
Distributed neutral kit for 12 way TP&N	36	SEA9NB12
Distributed neutral kit for 16 way TP&N	48	SEA9NB16
Distributed neutral kit for 18 way TP&N	54	SEA9NB18
Distributed neutral kit for 24 way TP&N	72	SEA9NB24
Phase to Neutral conversion kit (pack of 4)		SEA9NKIT



SEA9NKIT



A9TNA250CK

Accessories

Description	Reference
Blank Pole	SEA9BP
Slider padlocking	SEA9ISOPLA
1P 125 A cable connection kit	SEA9TB1001
3P 225 A cable connection kit	SEA9TB2253
3P 250 A Compact NSX and Compact INS connection kit	A9TNA250CK
Set of 20 tooth caps	A9XPT920



SEA9TB2253



SEA9ISOPLA



SEA9BP

SEA9TB1001

Prisma pack wall-mount enclosures

Distribution components and cable running



04040

Linergy DX – 63A quick distribution blocks

Description	Reference
63A, 4 x 6mm per phase (3) & 12 x 6mm neutral, 25mm top incomer	LVS 04040
63A, 4 x 6mm per phase (3) & 12 x 6mm neutral, 25mm bottom incomer	LVS 04041



04000

Linergy FM – multiclip quick device feeders

Description	Reference
63A, 4P, 2 x 4mm & 2 x 6mm per phase (3) & 4 x 4mm & 4 x 6mm for neutral	LVS 04008
80A, 4P, 6 x 6mm per phase (3) & 18 x 6mm for neutral	LVS 04000
160A, 4P, 6 x 10mm per phase (3) & 9 x 10mm for neutral	LVS 04018
200A, 2P, 12 x 10mm per phase (2)	LVS 04012
200A, 3P, 12 x 10mm per phase (3)	LVS 04013
200A, 4P, 12 x 10mm per phase (3) & 18 x 10mm for neutral	LVS 04014
200A, 4P, 18 x 10mm per phase (3) & 27 x 10mm for neutral	LVS 04026



04014

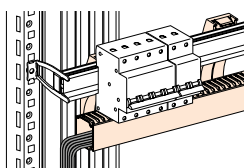
Linergy FH – 100A comb busbars

Description	Reference
24 poles with 18mm pitch for Acti 9 circuit breakers	
One-pole, 24 way	A9XPH124
Two-pole, 12 way	A9XPH224
Three-pole, 8 way	A9XPH324
Comb accessories	
20 insulated tooth caps	A9XPT920
4 insulated connectors for 35mm ² cables	A9XPCM04



Cable running

Description	Reference
Cable straps	
12 horizontal cable straps	LVS04239
4 covers for horizontal cable straps, L = 430mm	LVS04243
Trunking	
4 horizontal sections, 60 x 30mm, L = 450mm + supports	LVS04257
12 horizontal trunking supports	LVS04255
2 fixing brackets, height = 15mm (for vertical trunking)	LVS04206



Notes

C

Index

Low voltage power distribution

InterPact INS

Load break switches	D2
Connections, Auxiliaries and terminal shield	D3
Rotary handle and locking	D4

ComPact NSX and NSXm

NSXm 160 B, F	D5-6
NSX100/160/250 F, N, H	D7-8
NSX100/160/250 Accessories	D9-14
NSX400/630 N, H	D15-16
NSX400/630 Accessories	D17-20
ComPact NSX Communications	D21-22
NSX100/160 1P/2P MCCBs	D23
NSX plug-in and withdrawable	D24
Protection settings for MCCBs and ACBs	D42

PowerPact chassis

PowerPact CNS Encapsulated chassis 630A - 800A	D25
--	-----

ComPact NS

NS630b/800/1000/1250/1600 N/H MCCBs	D26-27
Installation, connection and accessories	D28-29
NS1600b/2000/2500/3200 MCCBs	D30

MasterPact MTZ

MasterPact MTZ	D31
MasterPact MTZ digital modules	D33
MasterPact MTZ digital services	D34-35

Source Change Over

ASCO transfer switches	D36
TransferPact NSX/NS/MTZ	D37

FuPact

FuPact ISFT100, ISFT160	D40
FuPact ISFT250 to ISFT630	D41
FuPact ISFL160, FuPact ISFL250 to ISFL630	D41

Busway Systems

Busway Systems	D43
iBusway for lighting management	D44
Canalis KBA	D45-46
Canalis KBB	D47-48

InterPact INS Load break switches

INS40 to INS2500 Load break switches
Standard AS/NZS 3947.2 (IEC 60947.3)

D



28904



28912



31106



31110



31336

3 pole, front connected

Type	Making capacity kA peak	Withstand current kA r.m.s/1 sec	415V kW rating (for motor switching)	Rating	Reference
INS40	15	3	22	40A	28900
INS63	15	3	33	63A	28902
INS80	15	3	45	80A	28904
INS100	20	5.5	55	100A	28908
INS125	20	5.5	63	125A	28910
INS160	20	5.5	90	160A	28912
INS250 - 100	30	8.5	55	100	31100
INS250 - 160	30	8.5	75	160	31104
INS250 - 200	30	8.5	75	200	31102
INS250 - 250	30	8.5	140	250	31106
INS250	30	8.5	140	250A	31106
INS320	50	20	180	320A	31108
INS400	50	20	220	400A	31110
INS500	50	20	295	500A	31112
INS630	50	20	295	630A	31114
INS630b	105	35 (1)	315	630A	31342
INS800	105	35 (1)	400	800A	31330
INS1000	105	35 (1)	560	1000A	31332
INS1250	105	35 (1)	710	1250A	31334
INS1600	105	35 (1)	710	1600A	31336
INS2000	105	-	-	2000A	31338
INS2500	105	-	-	2500A	31340

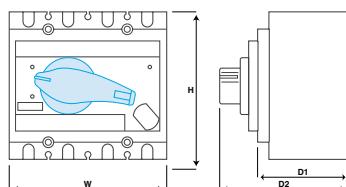
4 pole, front connected

Type	Making capacity kA peak	Withstand current kA r.m.s/1 sec	415V kW rating (for motor switching)	Rating	Reference
INS40	15	3	22	40A	28901
INS63	15	3	33	63A	28903
INS80	15	3	45	80A	28905
INS100	20	5.5	55	100A	28909
INS125	20	5.5	63	125A	28911
INS160	20	5.5	90	160A	28913
INS250	30	8.5	140	250A	31107
INS320	50	20	180	320A	31109
INS400	50	20	220	400A	31111
INS500	50	20	295	500A	31113
INS630	50	20	295	630A	31115

3 pole and 4 pole, front connected – with visible break (consult us)

InterPact load break switches	Poles	H (mm)	W (mm)	D1 (mm)	D2 (mm)
INS40/63/80	3P/4P	85	90	47	79
INS100/125/160	3P/4P	100	135	47	79
INS250	3P/4P	136	140	96	131
INS320/400/500/630	3P/4P	205	185	120	160
INS630b/1600	3P	300	340	141	198
INS630b/1600	4P	300	410	141	198
INS2000/2500	3P	440	348	228	320
INS2000/2500	4P	440	464	228	320

Dimensions



Note

(1) Withstand current 50 kA rms/0.5 sec.

Accessories

InterPact INS Load break switch accessories



OF auxiliary

Accessories

Description	To fit	Reference
Auxiliaries		
Aux switch 1 OF or CAM (early make or break)	INS40 to INS2500	29450
Connection accessories		
Snap-in connectors $S \leq 95\text{mm}^2$	INS100 to INS160 set of 3	28947
Crimp lugs (for 95mm^2 cable with interphase barriers)	INS100 to INS160 set of 3	28951
One-piece spreader	INS250 3/4P	LV431061



Spreaders

Terminal extensions

Type	Reference
INS250 3 x spreaders 45mm	LV431563
INS400/630 3 x spreaders 52.5mm	LV432490
INS400/630 3 x spreaders 70mm	LV432492

Terminal shields



Type	Load break switch	Reference
Terminal shield short (for rear connections)	Short 3P/4P – 1 piece	INS250 LV429516
		INS320 to INS630 LV432592
Terminal shield long (for front connections)	Long 3P/4P – 1 piece	INS40 to INS80 28957
		INS100 to INS160 28958
	Long for 52.5mm spreaders 3P/4P – 1 piece	INS250 LV429518
		INS320 to INS630 LV432594
Phase barriers	3P/4P – 6 pieces	INS100 to INS160 28959
		INS250 29329
	3P/4P – 2 pieces	INS320 to INS630 LV432570
		INS630b to INS1600 31315

Single handle transfer switch

(Complete assembly)	Load break switch	Reference
3P/3P	INS250	31146
3P/3P	INS320	31148
3P/3P	INS400	31150
3P/3P	INS500	31152
3P/3P	INS630	31154
Extended rotary handle	INS250/630	31055

Accessories

InterPact INS Load break switch accessories



LV431050

Rotary handle

		Load break switch	Reference
Extended front rotary handle	Standard black handle	INS40 to INS160	LV428941
		INS250	LV431050
		INS320 to INS630	31052
		INS630b to INS2500	31288
Extended side mounted rotary handle for door mounting (IP55)	Standard black handle	INS40 to INS160	28943
		INS250	31057 *
Spare handle		INS40 to INS160	28962
		INS250	31082
		INS320 to INS630	31084
Direct lateral control support		INS250	31054

* **Note** Ref. 31054 MUST be used in conjunction with extended side mounted rotary handle Ref. 31057.



LV429358



31073

Locking

		Load break switch	Reference
Key locking of handle	Ronis (1 lock, 1 key) *	INS250 to IN2500	41940
	Ronis (2 locks, 1 key) *	INS250 to INS1600	41950
	Locking device for Ronis locks	INS250	31087
		INS320 to INS630	31088
		INS630b to INS1600	31291
Mechanical interlock		INS40 to INS160	28953
		INS250	31073
		INS320 to INS630	31074
Common load bars (for transfer switch)	3P downstream coupling	INS250	LV429358
	3P downstream coupling	INS320 to INS630	LV432619

* **Note** Locking device (Ref. 31087 or 31088) also required with locks.

ComPact NSXm 16 to 160A

Fixed trip moulded case circuit breaker

Product configurator
on se.com/nz

DIN Rail mounted space saving MCCB with EverLink™ connectors



C11B3TM016L

ComPact NSXm B 3 Pole 16 to 160A 25KA Everlink

With thermal-magnetic trip unit TM-D

Rating		Reference
TM16D (25 KA 380/415 V)	3P	C11B3TM016L
TM25D (25 KA 380/415V)	3P	C11B3TM025L
TM32D (25 KA 380/415V)	3P	C11B3TM032L
TM40D (25 KA 380/415V)	3P	C11B3TM040L
TM50D (25 KA 380/415V)	3P	C11B3TM050L
TM63D (25 KA 380/415V)	3P	C11B3TM063L
TM80D (25 KA 380/415V)	3P	C11B3TM080L
TM100D (25 KA 380/415V)	3P	C11B3TM100L
TM125D (25 KA 380/415V)	3P	C12B3TM125L
TM160D (25 KA 380/415V)	3P	C12B3TM160L



C11F3TM016B

ComPact NSXm F 3 Pole 16 to 160A 36KA Everlink

With thermal-magnetic trip unit TM-D

Rating		Reference
TM16D (36 KA 380/415V)	3P	C11F3TM016L
TM25D (36 KA 380/415V)	3P	C11F3TM025L
TM32D (36 KA 380/415V)	3P	C11F3TM032L
TM40D (36 KA 380/415V)	3P	C11F3TM040L
TM50D (36 KA 380/415V)	3P	C11F3TM050L
TM63D (36 KA 380/415V)	3P	C11F3TM063L
TM80D (36 KA 380/415V)	3P	C11F3TM080L
TM100D (36 KA 380/415V)	3P	C11F3TM100L
TM125D (36 KA 380/415V)	3P	C12F3TM125L
TM160D (36 KA 380/415V)	3P	C12F3TM160L

ComPact NSXm ELCB Everlink

With Micrologic 4.1 trip unit with embedded earth leakage protection

Rating	Reference	Reference	Reference	Reference
	25kA	25kA	36kA	36kA
	3P	4P	3P	4P
25A	C11B34V025L	C11B44V025L	C11F34V025L	C11F44V025L
50A	C11B34V050L	C11B44V050L	C11F34V050L	C11F44V050L
100A	C11B34V100L	C11B44V100L	C11F34V100L	C11F44V100L
160A	C12B34V160L	C12B44V160L	C12F34V160L	C12F44V160L

C12B34V160L

ComPact NSXm NA switch disconnecter Everlink

Rating		Reference
50NA	3P	C113050LS
100NA	3P	C113100LS
160NA	3P	C123160LS

Note:

(1) NSXm also available with compression lug/busbar connectors

Accessories compact NSXm 16 to 160A

DIN Rail mounted space saving MCCB



LV426912

Insulation accessories

Description		Reference
1 long Terminal shield	3P	LV426912
	4P	LV426913
Interphase barriers	Set of 6	LV426920



LV426950



LV426900

Electrical auxiliaries

Description	Reference
Auxiliary contacts	
Standard OF or SD	LV426950
Wireless OF or SD	LV429453
SDx module for ELCB Micrologic 4.1, 24-250 V AC/DC (Available Q3 2018)	LV426900



LV426905



LV426950

Locks

Description	Reference
Toggle locking device for 1 to 3 padlocks	
By removable device	29370
By fixed device (OFF or ON)	LV426905



LV426843

Voltage releases

	Voltage	MX (Shunt)	MN (Under voltage)
AC	110...130 V 50/60 Hz	LV426843	LV426803
	220...240 V 50 Hz	LV426844	LV426804
	208...240 V 60 Hz		
	380...415 V 50 Hz	LV426846	LV426806
	440...480 V 60 Hz	LV426846	LV426807
DC	24 V DC	LV426841	LV426801



LV426930T

Rotary handles

Description	Reference
Direct rotary handle, black, IP54	LV426930T
Extended rotary handle, black, IP54	LV426932T
Side mount rotary handle, black, IP54	LV426935T



LV426932

Connection accessories

With thermal-magnetic trip unit TM-D

Rating		Reference
Everlink connectors with voltage tap off	Set of 3	LV426970
Terminal with nuts and screws M6	Set of 3	LV426960



LV426970

NSX100/160/250F/N/H: fixed/FC device based on separate components

Product configurator
on se.com/nz

ComPact: For complete circuit breaker price add trip unit to basic frame



C10F3

Basic frame

Type	Reference
ComPact NSX100	3P
NSX100F (36 kA 380/415 V)	C10F3
NSX100N (50 kA 380/415 V)	C10N3
NSX100H (70 kA 380/415 V)	C10H3
ComPact NSX160	3P
NSX160F (36 kA 380/415 V)	C16F3
NSX160N (50 kA 380/415 V)	C16N3
NSX160H (70 kA 380/415 V)	C16H3
ComPact NSX250	3P
NSX250F (36 kA 380/415 V)	C25F3
NSX250N (50 kA 380/415 V)	C25N3
NSX250H (70 kA 380/415 V)	C25H3

+ Trip unit distribution protection

All trip units compatible with PowerTag 



C103TM100

Type	Reference
Thermal-magnetic TM-D	
Rating	3P 3d
TM16D	C103TM016
TM25D	C103TM025
TM32D	C103TM032
TM40D	C103TM040
TM50D	C103TM050
TM63D	C103TM063
TM80D	C103TM080
TM100D	C103TM100
TM125D	C163TM125
TM160D (for NSX160 only)	C163TM160
TM200D	C253TM200
TM250D	C253TM250



C1032D100

Rating	Reference
Micrologic 2.2 (LSI protection)	3P 3d
Micrologic 2.2 40 A	C1032D040
Micrologic 2.2 100 A	C1032D100
Micrologic 2.2 160 A	C1632D160
Micrologic 2.2 250 A	C2532D250



C1035E100

Rating	Reference
Micrologic 5.2 E (LSI protection, energy meter)	3P 3d
Micrologic 5.2 E 40 A	C1035E040
Micrologic 5.2 E 100 A	C1035E100
Micrologic 5.2 E 160 A	C1635E160
Micrologic 5.2 E 250 A	C2535E250



Commission quickly

With EcoStruxure Power Commission (EPC) software, you can integrate smart devices, commission connected switchboards, and generate comprehensive reports as part of factory and site acceptance tests.

NSX100/160/250/F/N/H: fixed/FC device based on separate components

ComPact

D



C1032M100



C1636M150



LV430521



C2534V250



C2547E250

+ Trip unit (cont.) motor protection

All trip units compatible with PowerTag 

Description	Reference
Magnetic MA (I protection)	
Rating	3P 3d
MA2.5	C103MA003
MA6.3	C103MA007
MA12.5	C103MA013
MA25	C103MA025
MA50	C103MA050
MA100	C103MA100
MA150	C163MA150
MA220	C253MA220
Micrologic 2.2-M (LSI protection)	
Rating	3P 3d
Micrologic 2.2-M 25 A	C1032M025
Micrologic 2.2-M 50 A	C1032M050
Micrologic 2.2-M 100 A	C1032M100
Micrologic 2.2-M 150 A	C1632M150
Micrologic 2.2-M 220 A	C2532M220
Micrologic 6.2 E-M (LSIG protection, energy meter)	
Rating	3P 3d
Micrologic 6.2 E-M 25 A	C1036M025
Micrologic 6.2 E-M 50 A	C1036M050
Micrologic 6.2 E-M 80 A	C1036M080
Micrologic 6.2 E-M 150 A	C1636M150
Micrologic 6.2 E-M 220 A	C2536M220

+ Trip unit distribution + earth leakage protection

Type	Reference	Reference
Micrologic 4.2 (LSIR protection)		
Rating	3P 3d	4P 4d 3d + N/2
Micrologic 4.2 40 A	C1034V040	C1044V040
Micrologic 4.2 100 A	C1034V100	C1044V100
Micrologic 4.2 160 A	C1634V160	C1644V160
Micrologic 4.2 250 A	C2534V250	C2544V250
Micrologic 7.2 E (LSIR protection)		
Rating	4P 4d 3d + N/2	
Micrologic 7.2 E 40 A		C1047E040
Micrologic 7.2 E 100 A		C1047E100
Micrologic 7.2 E 160 A		C1647E160
Micrologic 7.2 E 250 A		C2547E250

ComPact NSX100/160/250NA switch disconnecter (complete unit)

Type	Reference	Reference
	3P	4P
ComPact NSX100NA	C103100S	C104100S
ComPact NSX160NA	C163160S	C164160S
ComPact NSX250NA	C253250S	C254250S

Trip unit accessories

ComPact and NSX100/160/250



LV429489

+ Vigi module or insulation monitoring module

Description	Reference
	4P
MH type for NSX100/160 (200 to 440 V)	LV429489
MH type for NSX250 (200 to 440 V)	LV429493
Connection for a 4P Vigi on a 3P breaker	LV429214

+ VigiPacT RHB



LV481010

LV481011

Description	Reference
B type residual current protection relay	LV481010
Closed toroid VigiPacT B	
Type TB35 (35mm)	LV481011
Type TB60 (60mm)	LV481012
Type TB120 (120mm)	LV481013
Type TB210 (210mm)	LV481014
Wiring kit, VigiPacT RHB, B type 1m length	LV481017
Wiring kit, VigiPacT RHB, B type 2.5m length	LV481018

Trip unit accessories



LV429521

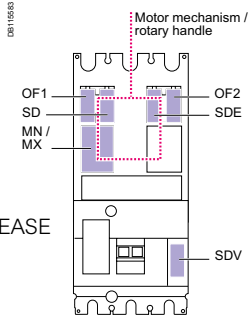
LV434210

Description	Reference
External neutral CT for 3 pole breaker with Micrologic 5/6	
25-100 A	LV429521
150-250 A	LV430563
24 V DC wiring accessory for Micrologic 5/6	
24 V DC power supply connector	LV434210

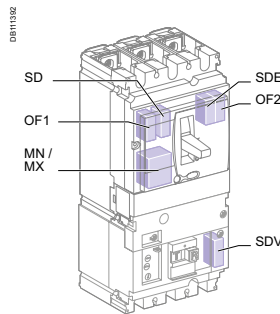
NA, TMD, MA

Standard

- OF 1-2 ON/OFF
- SD TRIP
- SDE FAULT TRIP
- SDV EARTH FAULT
- MN UNDERVOLTAGE RELEASE
- MV SHUNT RELEASE

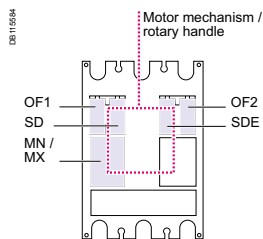


Remote indications via SDx or SDTAM

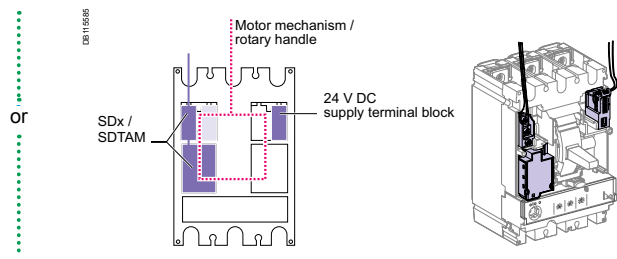


Micrologic 2 / 5 / 6

Standard



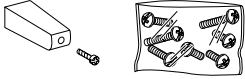
Remote indications via SDx or SDTAM



The SDx or SDTAM uses the OF1 and MN/MX slots.
 External connection is made via a terminal block in the OF1 slot.
 The 24 V DC supply provides for the Micrologic 5 / 6 display when the device is OFF or under low-load conditions.

Accessories

ComPact NSX100/160/250

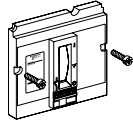


LV429313

LV429312



LV429234



LV429528



LV429502



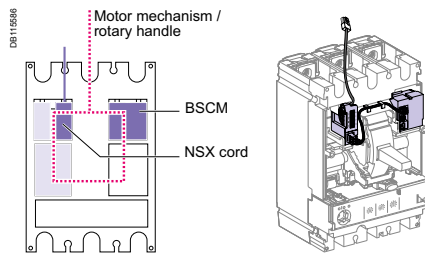
LV429513

Spare parts

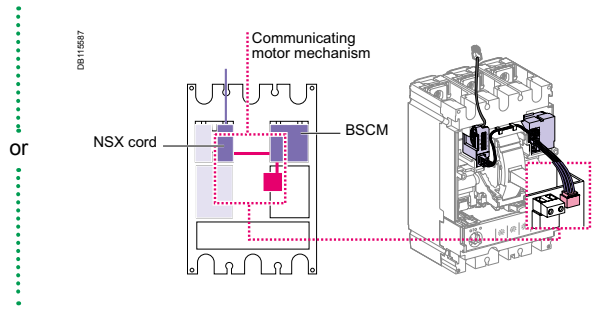
Description	Reference
5 spare toggle extensions (NSX100-250)	LV429313
Bag of screws	LV429312
12 snap-in nuts (fixed/FC)	M6 for NSX100N/H/L LV429234
	M8 for NSX160/250N/H/L LV430554
NS retrofit escutcheon	Small cut-out LV429528
1 base for extended rotary handle	LV429502
Torque limiting screws (set of 12)	3P/4P ComPact NSX100-250 LV429513

NA, TMD, MA, Micrologic 2

Communication of status indications

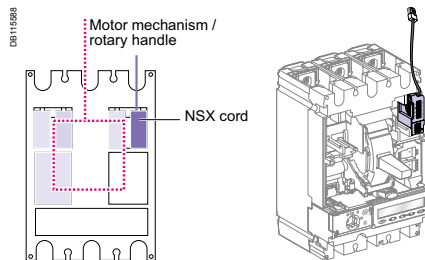


Communication of status indications and controls

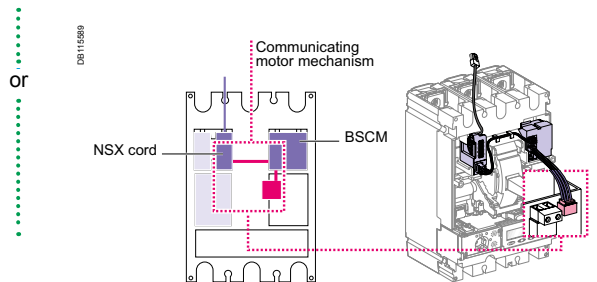


Micrologic 5 / 6

Communication of measurements with or without FDM12 display



Communication of status indications, controls and measurements with or without FDM121 display



Accessories

ComPact NSX100/160/250



29450



LV429454

Electrical auxiliaries

Description	Reference	Reference	
Auxiliary contacts (changeover)			
OF or SD or SDE or SDV		29450	
OF or SD or SDE or SDV low level		29452	
SDE adapter, mandatory for trip unit TM, MA or Micrologic 2		LV429451	
Wireless OF or SD or SDE		LV429454	
SDx output module for Micrologic			
SDx module 24/415 V AC/DC		LV429532	
SDTAM contactor tripping module (early-break thermal fault signal) for Micrologic 2.2-M/6.2 E-M			
SDTAM 24/415 V AC/DC overload fault indication		LV429424	
	Voltage	MX (Shunt)	MN (Under Voltage)
SDE adapter, mandatory for trip unit TM, MA or Micrologic 2	110-130 V 50/60 Hz	LV429386	LV429406
	220-240 V 50/60 Hz and 208-277 V 60 Hz	LV429387	LV429407
	LV429451	LV429388	LV429408
DC	24 V	LV429390	LV429410



LV429424



LV429387

Motor mechanism

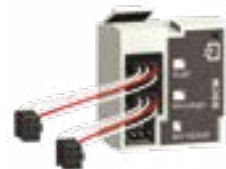
Description	Reference	Reference	
Motor mechanism module supplied with SDE adapter			
	Voltage	MT100/160	MT250
AC	110-130 V 50/60 Hz	LV429433	LV431540
	220-240 V 50/60 Hz and 208-277 V 60 Hz	LV429434	LV431541
	380-415 V 50/60 Hz and 440-480 V 60 Hz	LV429435	LV431542
DC	24-30 V	LV429436	LV431543
Communicating motor mechanism module supplied with SDE adapter			
Motor mechanism module	MTC 100/160	220-240 V 50/60 Hz	LV429441
	MTC 250	220-240 V 50/60 Hz	LV431549
+ Breaker and status communication module	BSCM		LV434205
+ NSX cord	Wire length L = 0.35 m		LV434200
	Wire length L = 1.3 m		LV434201
	Wire length L = 3 m		LV434202



LV429435



LV429441



LV434205



LV434201

Accessories

ComPact NSX100/160/250



LV431567

Indication and measurement modules

Description	Reference	Reference	Reference
Current transformer module			
Rating (A)	100	150	250
3P	LV429457	LV430557	LV431567
Current transformer module and voltage output			
Rating (A)	100	150	250
3P	LV429461	LV430561	LV431569



LV429337T

Rotary handles

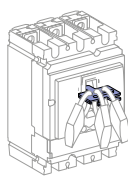
Description	Reference
Direct rotary handle	
With black handle	LV429337T
Extended rotary handle	
With black handle	LV429338T
Accessories for direct or extended rotary handle	
Indication auxiliary	2 early-make contacts LV429346



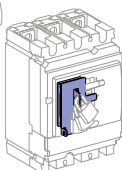
LV429338

Locks

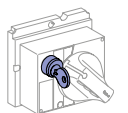
Description	Reference
Toggle locking device for 1 to 3 padlocks	
By removable device	29370
By fixed device	LV429371T
Locking of rotary handle	
Keylock adaptor (keylock not included)	LV429344
Keylock (keylock adaptor not included)	Ronis 1351B.500 41940
Locking of motor mechanism module	
Keylock adapter + Ronis keylock (special)	LV429449



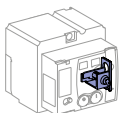
29370



LV429371



LV429344



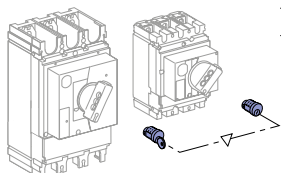
LV429449

Accessories

ComPact NSX100/160/250



LV429369T



LV429344



LV429317



LV429372

Interlocking

Description	Reference
Mechanical interlocking for circuit breakers	
With rotary handles	LV429369T
Interlocking with key (2 keylocks / 1 key) for rotary handles	
Keylock kit (keylock not included) (1)	LV429344
1 set of 2 keylocks	Ronis 1351B.500 41950

Installation accessories

Description	Reference
IP40 escutcheon for all control types	LV429317

60mm busbar adaptor

Description	Reference
3P 60mm busbar adaptor for NSX100/160/250	LV429372
4P 60mm busbar adaptor for NSX100/160/250	LV429373

Note:
(1) For only 1 device.

Accessories

ComPact NSX100/160/250



LV429235 LV429236



LV431563



LV431061



LV429515



LV429517



LV429329

Connection accessories (Cu or Al)

Description		Reference
Rear connections		
2 short (43mm to terminal connection)		LV429235
2 long (88mm to terminal connection)		LV429236
Terminal extensions		
Spreaders from 35 to 45mm pitch (1)	3P	LV431563
One-piece spreader from 35 to 45mm pitch	4P	LV431061

Insulation accessories

Description		Reference
1 short terminal shield for breaker or plug-in base (2)	3P	LV429515
	4P	LV429516
1 long terminal shield for breaker or plug-in base (2)	3P	LV429517
	4P	LV429518
Interphase barriers for breaker or plug-in base	Set of 6	LV429329

Notes

- (1) Supplied with interphase barriers.
- (2) Supplied as one unit.

NSX400/630N/H: fixed/FC device based on separate components

Product configurator
on se.com/nz

ComPact: For complete circuit breaker price add trip unit to basic frame



C40N3

Basic frame

Description	Reference
ComPact NSX400	3P
NSX400N (50 kA 380/415 V)	C40N3
NSX400H (70 kA 380/415 V)	C40H3
ComPact NSX630	3P
NSX630N (50 kA 380/415 V)	C63N3
NSX630H (70 kA 380/415 V)	C63H3

+ Trip unit Distribution protection

All trip units compatible with PowerTag 

Description	Reference
Distribution protection	
Micrologic 2.3 (LSI protection)	
Rating	3P 3d
Micrologic 2.3 250 A	C4032D250
Micrologic 2.3 400 A	C4032D400
Micrologic 2.3 630 A	C6332D630
Micrologic 5.3 E (LSI protection, energy meter)	
Rating	3P 3d
Micrologic 6.3 A 400 A	C4036E400
Micrologic 6.3 A 630 A	C6336E630
Motor protection	
Micrologic 1.3-M (I protection)	
Rating	3P 3d
Micrologic 1.3-M 320 A	C4031M320
Micrologic 1.3-M 500 A	C6331M500
Micrologic 2.3-M (LSI protection)	
Rating	3P 3d
Micrologic 2.3-M 320 A	C4032M320
Micrologic 2.3-M 500 A	C6332M500
Micrologic 6.3 E-M (LSIG protection, energy meter)	
Rating	3P 3d
Micrologic 6.3 E-M 320 A	C4036M320
Micrologic 6.3 E-M 500 A	C6336M500



C4032D400



C4035E400



C6331M500



C6336M500



Commission quickly

With EcoStruxure Power Commission (EPC) software, you can integrate smart devices, commission connected switchboards, and generate comprehensive reports as part of factory and site acceptance tests.

Trip unit accessories

ComPact NSX400/630



C6347E570

+ Trip unit distribution + earth leakage protection All trip units compatible with PowerTag

Type	Reference	Reference
Micrologic 4.3 (LSIR protection)		
Rating	3P 3d	4P 4d 3d + N/2
Micrologic 4.3 400 A	C4034V400	C4044V400
Micrologic 4.3 570 A	C6334V570	C6344V570
Micrologic 7.3 E (LSIR protection)		
Rating	3P 3d	4P 4d 3d + N/2
Micrologic 7.3 E 400 A	C4037E400	C4047E400
Micrologic 7.3 E 570 A	C6337E570	C6347E570



LV432465

+ Vigi module or insulation monitoring module

Description	Reference	Reference
Vigi module	3P	4P
Type MB	200 to 440 V	
	LV432464	LV432465
Connection for a 4P Vigi on a 3P breaker		LV432457

+ VigiPacT RHB



LV481010

LV481011

Description	Reference
B type residual current protection relay	LV481010
Closed toroid VigiPacT B	
Type TB35 (35mm)	LV481011
Type TB60 (60mm)	LV481012
Type TB120 (120mm)	LV481013
Type TB210 (210mm)	LV481014
Wiring kit, VigiPacT RHB, B type 1m length	LV481017
Wiring kit, VigiPacT RHB, B type 2.5m length	LV481018



LV432575

Trip unit accessories

Description	Reference
External neutral CT for 3 pole breaker with Micrologic 5/6	
400-630 A	LV432575

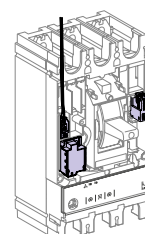
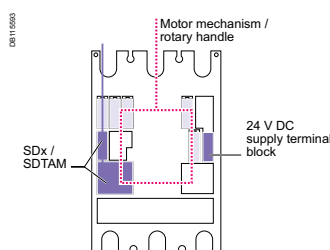
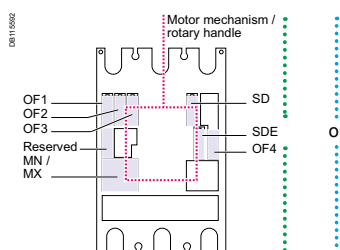
ComPact NSX400/630NA switch disconnector (complete unit)

Type	Reference	Reference
	3P	4P
ComPact NSX400NA	LV432756	LV432757
ComPact NSX630NA	LV432956	LV432957

Micrologic 2 / 5 / 6

Standard

OF1-4	ON/OFF
SD	TRIP
SDE	FAULT TRIP
SDV	EARTH FAULT
MN	UNDERVOLTAGE RELEASE
MV	SHUNT RELEASE



The SDx or SDTAM uses the OF1 and MN/MX slots. External connection is made via a terminal block in the OF1 slot. The 24 V DC supply provides for the Micrologic 5 / 6 display when the device is OFF or under low-load conditions.

Accessories

ComPact NSX400/630



Connection accessories (Cu or Al)

Description	Reference
Rear connections	
2 short (50mm to terminal connection)	LV432475
2 long (115mm to terminal connection)	LV432476



Fixed/FC device with 52.5mm or 70mm pitch = fixed/FC device with 45mm pitch + spreaders

The pitch of all ComPact and VigicomPact NSX400/630 devices is 45mm. Spreaders are available for fixed front, plug-in or withdrawable connection with pitch of 52.5mm or 70mm.

Description	Reference
Upstream or downstream spreaders	
52.5mm	3P LV432490
70mm	3P LV432492



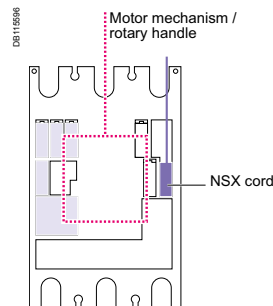
Insulation accessories

Description	Reference
Short terminal shield, 45mm (1 piece)	3 P LV432591
Long terminal shield, 45mm (1 piece)	3 P LV432593
Long terminal shield for spreaders, 52.5mm (1 piece) (supplied with insulating plate)	3 P LV432595
Interphase barriers	Set of 6 LV432570

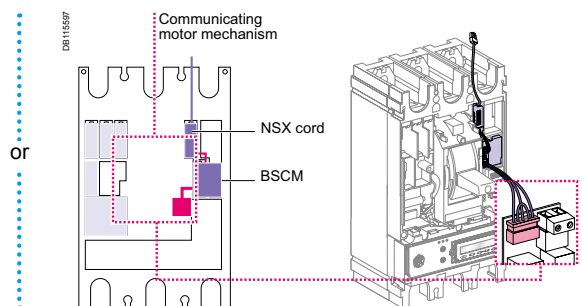


Micrologic 5 / 6

Communication of status indications



Communication of status indications, controls and measurements with or without FDM121 display



Accessories

ComPact NSX400/630

D



29450

LV429454

Electrical auxiliaries

Description	Reference	Reference
Auxiliary contacts (changeover)		
OF or SD or SDE or SDV		29450
OF or SD or SDE or SDV low level		29452
Wireless OF or SD or SDE		LV429454

SDx output module for Micrologic electronic trip unit

SDx module 24/415 V AC/DC		LV429532
---------------------------	--	-----------------

SDTAM contactor tripping module (early-break thermal fault signal) for Micrologic 2.3-M/6.3 E-M

SDTAM 24/415 V AC/DC overload fault indication		LV429424
--	--	-----------------



LV429424

LV429387

Voltage releases

	Voltage	MX (Shunt)	MN (Under voltage)
AC	110-130 V 50/60 Hz	LV429386	LV429406
	220-240 V 50/60 Hz and 208-277 V 60 Hz	LV429387	LV429407
	380-415 V 50 Hz and 440-480 V 60 Hz	LV429388	LV429408
DC	24 V	LV429390	LV429410

Motor mechanism



LV432652

Description	Reference	
Motor mechanism module		
	Voltage	
AC	110-130 V 50/60 Hz	MT400-630
	220-240 V 50/60 Hz and 208-277 V 60 Hz	LV432640
	380-415 V 50 Hz	LV432641
DC	24-30 V	LV432642
		LV432643



LV434205

Communicating motor mechanism module			
Motor mechanism module	MTc 400/630	220-240 V 50/60 Hz	LV432652
+			
Breaker status communication module	BSCM		LV434205
+			
NSX cord	Wire length L = 0.35 m		LV434200
	Wire length L = 1.3 m		LV434201
	Wire length L = 3 m		LV434202



LV434201

Accessories

ComPact NSX400/630



LV432657



LV432653



LV432597T



LV432598T



LV432553



32556



LV432513

Indication and measurement modules

Description	Reference	Reference
Current transformer module		
Rating (A)	400	600
3P	LV432657	LV432857
Current transformer module and voltage output		
Rating (A)	400	600
3P	LV432653	LV432861

Rotary handles

Description	Reference
Direct rotary handle	
With black handle	LV432597T
Extended rotary handle	
With black handle (246-675mm)	LV432598T
Accessories for direct or extended rotary handle	
Indication auxiliary	1 early-break contact LV432605
	2 early-make contacts LV429346

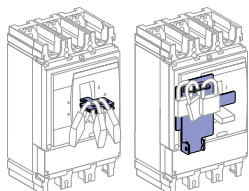
Spare parts

Description	Reference
5 spare toggle extensions	LV432553
Bag of screws	LV432552
ComPact NS retrofit escutcheon	Small cut-out LV432571
IP40 toggle escutcheon	ComPact NS type/small cut-out 32556
Torque limiting screws (set of 12)	3P/4P ComPact NSX400-630 LV432513
1 base for extended rotary handle	LV432498

Accessories

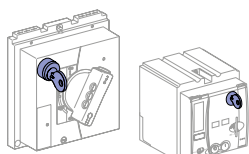
ComPact NSX400/630

D



29370

LV432631

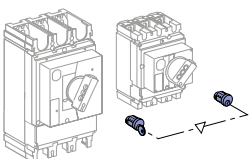


LV432604

LV432649



LV432621



LV432604



LV432558



LV432623

Locks

Description	Reference
Toggle locking device for 1 to 3 padlocks	
By removable device	29370
By fixed device	LV432631
Locking of rotary handle	
Keylock adaptor (keylock not included)	LV432604
Keylock (keylock adaptor not included) Ronis 1351B.500	41940
Locking of motor mechanism module	
Keylock adaptor (keylock not included)	LV432649
Keylock (keylock adaptor not included) Ronis 1351B.500	41940

Interlocking

Description	Reference
Mechanical interlocking for circuit breakers	
With rotary handles	LV432621T
Interlocking with key (2 keylocks / 1 key) for rotary handles	
Keylock kit (keylock not included) (1)	LV432604
1 set of 2 keylocks Ronis 1351B.500 (1 key only, keylock kit not included)	41950

Installation accessories

Description	Reference
Front-panel escutcheons	
IP40 escutcheon for all control types	LV432558

60mm busbar adaptor

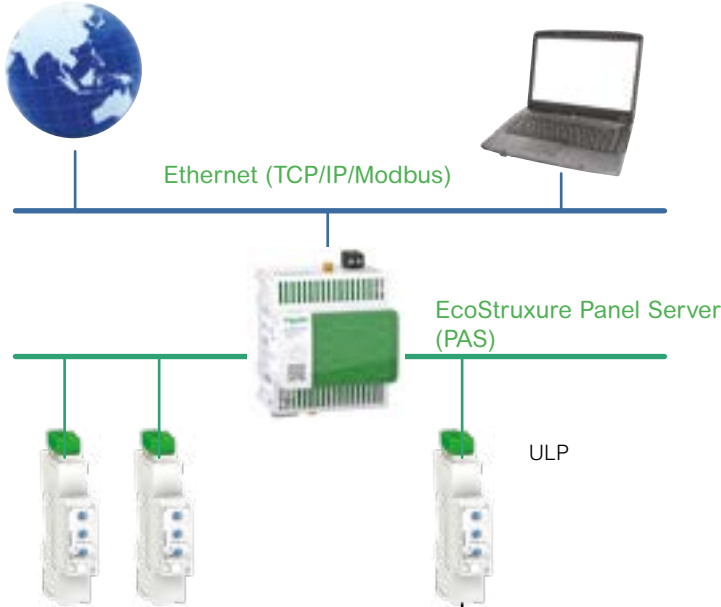
Description	Reference
3P 60mm busbar adaptor for NSX400/630	LV432623
4P 60mm busbar adaptor for NSX400/630	LV432624

Note

(1) For only 1 device.

NSX Local and remote communication with Micrologic 5.2E, 5.3E, 6.2E-M, 6.3E-M

Remote Communication



Phaseo Power Supply

Modbus Interface Module is required to address each NSX breaker.
Reference No: LV434000

Local Communication



Front display module one to one displays power measurement.
OPTIONAL with Remote or Local Communication.
Reference No: TRV00121

NSX Cord plugs into either the FDM121 or ULP module via RJ45 connections.
Reference No: LV434201 = 1.3m length
Reference No: LV434202 = 3.0m length

BSCM module provides open/close and trip control and or communication.
Reference No: LV434205



With EcoStruxure Power Commissioning (EPC) software, commissioning and maintaining your circuit breaker is seamless and intuitive.

Note
RJ45–RJ45 cables available in varying lengths to connect from a FDM121 to ULP and an ULP to a gateway
One 24v DC Phaseo power supply, 30w, 1.2A (ref: ABL8MEM24012) will support many ULP, FDM121 modules.

Communication devices

Product configurator
on se.com/nz

ComPact NSX100/160/250/400/630

D



LV434205



LV434000



TRV00121



LV434201

TRV00217



LV434128



LV434001

LV434063



LV434021

Monitoring and control (remote operation)

Description	Reference
Circuit breaker accessories	
Breaker Status Control Module BSCM	LV434205
ULP display module	
FDM121 switchboard front display module	TRV00121
FDM128 switchboard display module (max 8 devices)	LV434128
FDM mounting accessory (diameter 22mm)	TRV00128
ULP communication module	
Modbus interface Modbus SL communication interface module	LV434000
ULP wiring accessories	
NSX cord L = 0.35 m	LV434200
NSX cord L = 1.3 m	LV434201
NSX cord L = 5 m	LV434198
10 stacking connectors for communication interface modules	TRV00217
5 RJ45 connectors female/female	TRV00870
10 ULP line terminators	TRV00880

Enerlin'X FDM128

- > Full monitoring & control of 8 power devices thanks to LCD touchscreen fitted on the front face of the Smart Panel
- > Access to switchgear settings, status, and measurements
- > Auto discovery of Modbus SL connected devices
- > Simple installation, with just a Ø22 mm hole on the switchboard front panel

Smart Panel connect and control devices

Description	Reference
Input / Output interface for MCCB's & ACB's	LV434063
Ethernet interface for LV breakers	LV434001
Panel Server Advanced 110-277 Vac/dc	PAS800
Panel Server Advanced 24Vdc	PAS800L
Panel Server Advanced PoE	PAS800P
Panel Server Universal 110-277 Vac/dc	PAS600
Panel Server Advanced 24Vdc	PAS600L

PowerTag for NSX

Description	Reference	Reference
	3P	4P
PowerTag NSX250	LV434020	LV434021
PowerTag NSX630	LV434022	LV434023

Wireless to ethernet concentrator

Description	Reference
Acti 9 PowerTag Link, 20 devices	A9XMWD20
Acti 9 PowerTag Link HD, 100 devices	A9XMWD100

Note

(1) Maximum of 20 PowerTag devices per concentrator.

Moulded case circuit breakers

ComPact NSX 1P/2P AC/DC breakers
NSX100/NSX160 moulded case circuit breakers
Standard AS/NZS 3947.2



C10N1TM016

1P front connected AC/DC (Icu = 25kA 240V AC, 50kA 250V DC).

	Trip unit	Rating (fixed)	Reference
ComPacT NSX100N/NSX160N (50kA) Standard thermal-magnetic trip unit 1 pole (1)	TM16D	16A	C10N1TM016
	TM20D	20A	C10N1TM020
	TM25D	25A	C10N1TM025
	TM30D	30A	C10N1TM030
	TM40D	40A	C10N1TM040
	TM50D	50A	C10N1TM050
	TM63D	63A	C10N1TM063
	TM80D	80A	C10N1TM080
	TM100D	100A	C10N1TM100
	TM125D (NS160N)	125A	C16N1TM125
	TM160D (NS160N)	160A	C16N1TM160



C10M2TM016

2P front connected AC/DC (Icu = 25kA 415V AC, 85kA 240V AC, 85kA 250V DC)

	Trip unit	Rating	Reference
ComPacT NSX100M/NSX160M (85kA) Standard thermal-magnetic trip unit 2 pole (1)	TM16D	16A	C10M2TM016
	TM20D	20A	C10M2TM020
	TM25D	25A	C10M2TM025
	TM30D	30A	C10M2TM030
	TM40D	40A	C10M2TM040
	TM50D	50A	C10M2TM050
	TM63D	63A	C10M2TM063
	TM80D	80A	C10M2TM080
	TM100D	100A	C10M2TM100
	TM125D	125A	C16M2TM125
	TM160D	160A	C16M2TM160

Notes

- (1) Number of poles taking part in current interruption
Example. The NSX100N/M DC circuit breaker exists in the follow versions
* 1 pole with an Icu of 50kA, for systems ≤ 250V
* 2 pole with an Icu of 85kA, for systems ≤ 500V; 1 pole can be used in a 250V system.
3/4 POLE DC BREAKERS AVAILABLE ON REQUEST

NSX plug-in and withdrawable

Product configurator
on se.com/nz

Compact NSX 100/160/250/400/630

D



LV429289



LV429282



LV429274

LV429273



LV429272



LV429306

Plug-in Configuration

Description		Circuit breaker	Reference
Plug-in kit	Kit includes plug-in base, safety trip interlock,	NSX100/160/250	LV429289
3 pole	short terminal shields, power connections	NSX 400/630	LV432538

Withdrawable Configuration

Description		Circuit breaker	Reference
Withdrawable kit	Plug-in kit (as above)		LV429289
3 pole	Chassis side plates for base	NSX100/160/250	LV429282
	Chassis side plates for breaker		LV429283
	Plug-in kit (as above)		LV432538
	Chassis side plates for base	NSX400-630	LV432532
	Chassis side plates for breaker		LV432533

Accessories

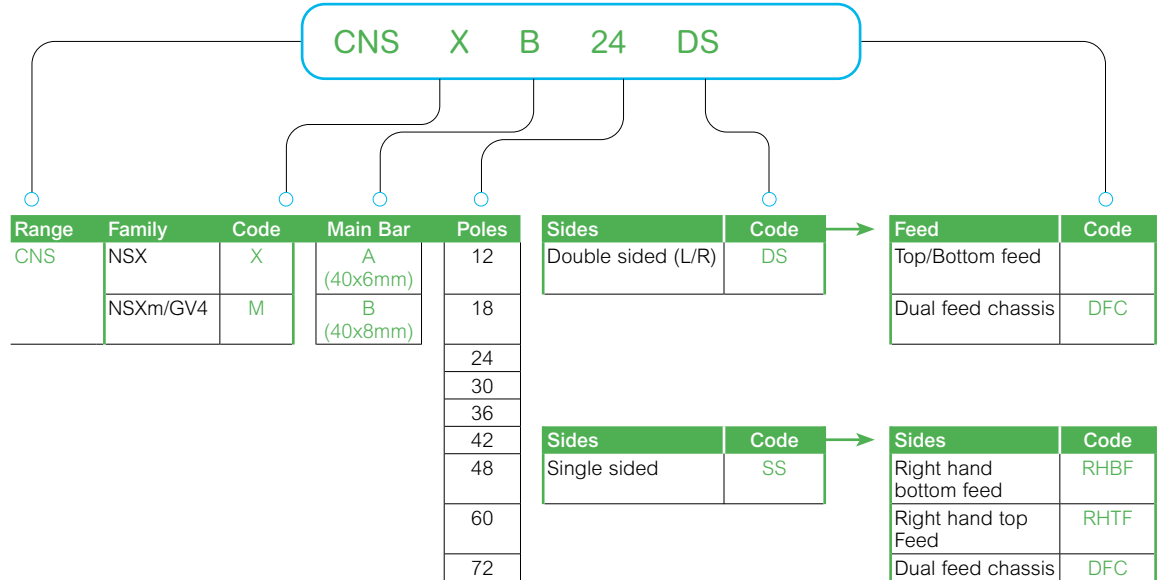
Description		Circuit breaker	Reference
Aux connections (1)	9-wire fixed connector (for plug-in base)	NSX100/630	LV429273
	9-wire moving connector (for plug-in breaker)	NSX100/160/250	LV429274
		NSX 400/630	LV432523
	Support for moving connectors (plug-in)	NSX100/160/250	LV429275
		NSX 400/630	LV432525
Connection adaptor for plug-in base	9-wire manual aux connector (fixed + moving, for withdrawable)	NSX100/630	LV429272
	Adaptor for phase barriers or terminal shields	NSX100/160/250	LV429306
	(3 pole) (for fixed part)	NSX 400/630	LV432584
	6 phase barriers (for fixed part)	NSX100/160/250	LV429329
		NSX 400/630	LV432570
Parts of plug-in kit	1 short terminal shield (3 pole) (for fixed part)	NSX100/160/250	LV429515
		NSX 400/630	LV432591
	3P plug-in base FC/RC	NSX100/160/250	LV429266
		NSX 400/630	LV432516
	Set 2 power connections for MCCB	NSX100/160/250	LV429268
		NSX 400/630	LV432518
	Set 2 power connections for MCCB with Vigi	NSX100/160/250	LV429269
		NSX 400/630	LV432519
	Safety trip lever for advance opening	NSX100/160/250	LV429270
		NSX 400/630	LV432520

Notes

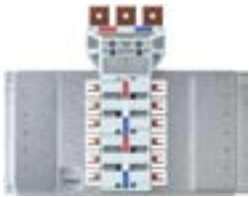
(1) The number of 9-wire fixed/moving connectors used, depends on what combination of auxiliaries are fitted to the breaker.

PowerPact CNSX Encapsulated chassis

For Compact NSX and NSXm breakers



D



CNSX63012DSTBF



CNSX63006SSLRHDFC
Single sided chassis

CNSX and CNSM PowerPact chassis

Description	Poles	Height (mm)	Reference NSX version	Height (mm)	Reference NSXm version
Top /Bottom feed connections 630A	12	373	CNSXB12DS	325	CNSMB12DS
	18	478	CNSXB18DS	406	CNSMB18DS
	24	583	CNSXB24DS	487	CNSMB24DS
	30	688	CNSXB30DS	568	CNSMB30DS
	36	793	CNSXB36DS	649	CNSMB36DS
	42	898	CNSXB42DS	730	CNSMB42DS
	48	1003	CNSXB48DS	811	CNSMB48DS
Dual feed connections 630A	60	1213	CNSXB60DS	973	CNSMB60DS
	12	498	CNSXB12DSDFC	450	CNSMB12DSDFC
	18	603	CNSXB18DSDFC	531	CNSMB18DSDFC
	24	708	CNSXB24DSDFC	612	CNSMB24DSDFC
	30	813	CNSXB30DSDFC	693	CNSMB30DSDFC
	36	918	CNSXB36DSDFC	774	CNSMB36DSDFC
	42	1023	CNSXB42DSDFC	855	CNSMB42DSDFC
	48	1128	CNSXB48DSDFC	936	CNSMB48DSDFC
60	1338	CNSXB60DSDFC	1098	CNSMB60DSDFC	

Accessories

Description	Chassis type	Reference
IP2X NSXm term. shield for CNSM chassis	NSXm	Consult us

Performance

Short circuit withstand: Icw 50kA 1s, Icc 70kA with NSX250H or NSXm160H

Thermal performance:

40x8mm main bar: 630A (Consult SE for reference designs as per AS/NZS 61439.1 testing)

40x6mm main bar: 525A (Consult SE for reference designs as per AS/NZS 61439.1 testing)

Notes

- (1) Phase stickers (supplied) applied by customer, to determine orientation of chassis.
- (2) Single sided chassis available as dual feed and top/bottom feed. Right hand bottom feed (RHBF) is essentially a left hand top feed, etc.
- (3) Busbars extend 125mm at top and bottom of all chassis.

Moulded case circuit breakers

Product configurator
on se.com/nz

ComPact NS system
NS630b/1600 moulded case circuit breakers
Standard AS/NZS 3947.2 (IEC 60947.2)



3 pole - front connected circuit breaker

Trip unit		Type	Rating	Reference
Micrologic 2.0 (50kA and 70kA at 415v)	50kA	NS630bN	252-630A	33460
		NS800N	320-800A	33466
		NS1000N	400-1000A	33472
		NS1250N	500-1250A	33478
		NS1600N	640-1600A	33482
	70kA	NS630bH	252-630A	33461
		NS800H	320-800A	33467
		NS1000H	400-1000A	33473
		NS1250H	500-1250A	33479
		NS1600H	640-1600A	33483
Micrologic 5.0 (50kA and 70kA at 415v)	50kA	NS630bN	252-630A	33546
		NS800N	320-800A	33552
		NS1000N	400-1000A	33558
		NS1250N	500-1250A	33564
		NS1600N	640-1600A	33568
	70kA	NS630bH	252-630A	33547
		NS800H	320-800A	33553
		NS1000H	400-1000A	33559
		NS1250H	500-1250A	33565
		NS1600H	640-1600A	33569

Note: For other options, including extended rotary handle, please use the product configurator.

Moulded case circuit breakers

ComPact NS system with energy metering
NS630b/1600 moulded case circuit breakers
Standard AS/NZS 3947.2 (IEC 60947.2)

Product configurator
on se.com/nz



3 pole - front connected circuit breaker including energy metering

Trip unit		Type	Rating	Reference
Micrologic 2.0E (50kA and 70kA at 415v)	50kA	NS630bN	252-630A	34400
		NS800N	320-800A	34404
		NS1000N	400-1000A	34408
		NS1250N	500-1250A	34412
		NS1600N	640-1600A	34416
	70kA	NS630bH	252-630A	34401
		NS800H	320-800A	34405
		NS1000H	400-1000A	34409
		NS1250H	500-1250A	34413
		NS1600H	640-1600A	34417
Micrologic 5.0E (50kA and 70kA at 415v)	50kA	NS630bN	252-630A	34420
		NS800N	320-800A	34424
		NS1000N	400-1000A	34428
		NS1250N	500-1250A	34432
		NS1600N	640-1600A	34436
	70kA	NS630bH	252-630A	34421
		NS800H	320-800A	34425
		NS1000H	400-1000A	34429
		NS1250H	500-1250A	34433
		NS1600H	640-1600A	34437

Note: For other options, including communication, please use the product configurator.



EcoStruxure Power Commission (EPC) software

- Simplify commissioning and maintenance
- Set up and test switchboards equipped with smart devices
- Reduce commissioning time
- Speed up FAT and SAT delivery
- Improve preventive maintenance with protection settings/checking, warnings and alarms, trip history, and maintenance reports

Moulded case circuit breakers

ComPact NS system
Installation, connection and accessories
NS630b to NS1600 moulded case circuit breakers

D



3 Pole – front connected non auto circuit breaker

Trip Unit	Type	Reference
Non-auto	NS630bNA	33486
	NS800NA	33487
	NS1000NA	33488
	NS1250NA	33489
	NS1600NA	33490



NS630b – NS1600,
Extended rotary handle

Rotary handle for manually operated devices

Type	Reference	
Devices with direct rotary handles		
Handle	Black Product configurator	
Locking by keylocks	Ronis	
	OFF position	33870
	OFF and ON positions	33872
Devices with extended rotary handles		
Handle	Black Product configurator	
Mechanical interlocking		
For 2 devices with extended rotary handles	33890	



Locking for manually operated devices

Type	Reference
Removable toggle locking system	
Locking by 3 padlocks	44936

Locking and accessories for motorised devices

Type	Reference
Transparent cover + padlock (not supplied)	33897
OFF position Ronis keylock	33899 + 41940
Operation counter	33895



33899 + 41940

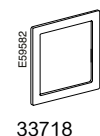
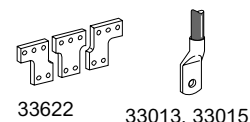
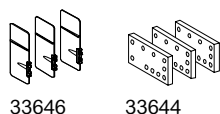
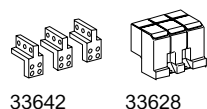
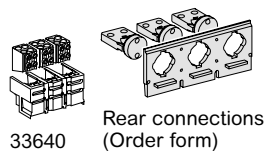
33897



33895

Moulded case circuit breakers

ComPact NS system
Installation, connection and accessories
NS630b to NS1600 moulded case circuit breakers



Connection accessories

Type	Reference
Rear connections	Top (set of 3) Bottom (set of 3)
	Product configurator Product configurator
Bare-cable connectors + 1 connector shield for 4 cables (240mm ²)	3P (3 parts)
	33640
Sealable terminal shield	3P
	33628
Vertical-connection adaptors	3P (3 parts)
	33642
Cable-connection adaptors	3P (3 parts)
	33644
Interphase barriers	3P/4P top (3 parts) 3P/4P bottom (3 parts)
	33646 33646
Spreaders	3P
	33622
Cable lug kits	240mm ² 300mm ²
	3P (6 lug kit) 3P (6 lug kit)
	33013 33015

Electrical auxiliaries

Type	Reference	
Indication contacts		
OF, SD, SDE	6A – 240V	
	29450	
Up to 3 OF, 1 SD and 1 SDE can be connected (the SDE contact is standard for electrically operated devices).		
Type	Reference MX (1)	Reference MN (2)
Instantaneous voltage releases		
24-30VAC/DC	33659	33668
48-60VAC/DC	33660	33669
100-130VAC/DC	33661	33670
200-250VAC/DC	33662	33671
240-277VAC	33663	
380-480VAC	33664	33673

Installation accessories

Description	Reference
Escutcheon (small cutout) for manually operated device with toggle	33717
Escutcheon for:	33718
> Device with toggle (large cutout)	
> Device with rotary handle	
> Electrically operated device	

Notes

- (1) MX – Shunt release
- (2) MN – Under voltage release

Moulded case circuit breakers

ComPact NS system
NS1600b to NS3200 moulded case circuit breakers
Standard: IEC 947-2
Complete device

Product configurator
on se.com/nz



NS1600 – NS3200 Amps

Circuit breakers

Type	Reference
Icu = 85kA to 220/415V	3P
ComPact NS type N	
NS1600b	Product configurator
NS2000	Product configurator
NS2500	Product configurator
NS3200	Product configurator

+ Micrologic control units

Type	Reference with ammeter
Basic protection 2.0A	Product configurator
Selective protection 5.0	Product configurator
Options for Micrologic trip unit	
Ammeter (2)	Product configurator
Earth fault protection (includes ammeter) (1)(2)	Product configurator
External earth fault and neutral sensor	33576
Earth leakage protection (includes ammeter) (1)(2)	Product configurator
External earth leakage sensor	33577
Modbus/Digipact communications (2) (includes ammeter option)	Product configurator

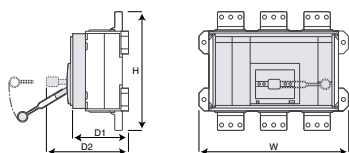
Switch-disconnector (non-auto 40 kA rms/0.5 sec)

Type	Reference
	3P
NS1600b NA	34024
NS2000 NA	34027
NS2500 NA	34030
NS3200 NA	34033

Electrical auxiliaries and connections

Type	Reference
Vertical adaptors (set of 2) NS1600b-2500	33975
Indication contacts	
OF, SD, SDE 6A – 240V (2) Up to 3 OF, 1 SD and 1 SDE can be connected	29450

Dimensions



Product	H (mm)	W (mm)	D1 (mm)	D2 (mm)
NS1600b/3200H	330	420	168.5	222.5
NS1600b/3200N	330	420	168.5	222.5

Notes

- Add to price of Micrologic 5.0. Earth fault and earth leakage protection are not options on the Micrologic 5.0 control unit.
- Function of auxiliaries
OF: Open/closed changeover contact indicates the position of the circuit breaker contacts.
SD: Trip indication: indicates that the breaker has tripped (overload, short circuit, earth fault, earth leakage, shunt trip, undervoltage or push to trip button).
SDE: Fault indication: indicates that the circuit breaker has tripped due to an electrical fault.
Auxiliaries and voltage releases may be field fitted.
Voltage releases have a continuous rating.

NOW, YOU'RE READY...

D

Built on the legendary performance and reliability of the MasterPact range.

MasterPact MTZ circuit breakers prepare you for the future of power distribution with smart connectivity, remote monitoring, and easy customization via digital modules.

- Intuitive EcoStruxure Power Device App smartphone app for easy operation and maintenance
- Precise Class 1 power meter built in for energy-saving capabilities
- Easy customization with digital modules
- Intuitive MicroLogic™ X control unit
- Easy installation using established architectures
- Seamless integration with building and energy management systems with EcoStruxure architectures
- Designed and tested to applicable standards for ANSI, UL, and IEC
- Low migration cost from MasterPact NT/NW to MasterPact MTZ



With MasterPact MTZ breakers, enhanced performance and connectivity equip you for the future of power distribution.

Available from 630 A to 6300 A.



IV schneider-electric.com/masterpact-mtz

Power air circuit breakers

Product configurator
on se.com/nz

MasterPact MTZ
Standard AS/NZS 90947.2 (IEC 60947.2)

MasterPact MTZ

With MasterPact MTZ circuit breakers, you're ready for all the ways power distribution is changing. Smart connectivity gives you real-time data to help avoid downtime. Digital modules allow you to customize the circuit breaker to your specific needs. And proven durability gives you the assurance that you're placing your power distribution on a reliable foundation.

D

MasterPact MTZ circuit breakers are available in three sizes:

**...FUTURE
READY**

MTZ1

From 630 to 1600 A



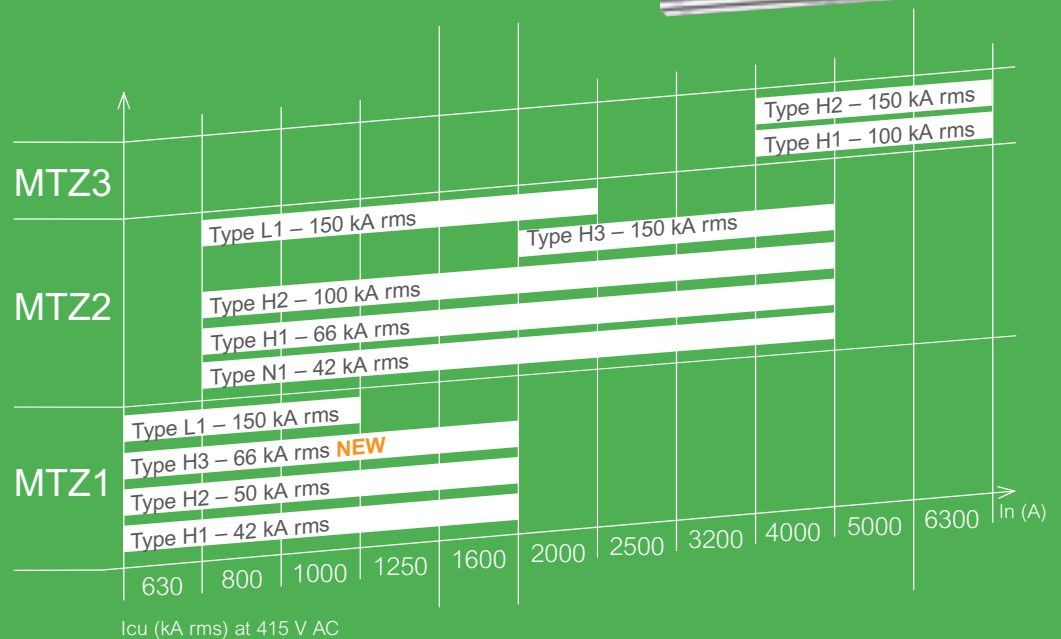
MTZ2

From 800 to 4000 A



MTZ3

From 4000 to 6300 A



Now featuring digital modules to customize Micrologic X control units

2.0 X | 5.0 X | 6.0 X | 7.0 X

Downloadable digital modules provide enhanced:

- Protection: Energy Reduction Maintenance Settings, Ground fault alarm, Under/Over voltage protection, Reverse active power
- Measurement: Energy per phase, Individual harmonics analysis
- Diagnostics and maintenance: Power restoration assistant, MasterPact operation assistant, Wave form capture on trip event, Modbus legacy dataset



Power air circuit breakers

MasterPact MTZ digital modules

Customise Micrologic X control unit anytime

Masterpact™ MTZ

FUTURE READY

D

Measurement

Energy management is the challenge of present & future generations. To meet this requirement Micrologic X incorporates all the measuring functions of a power meter including **Energy Class 1 accuracy** third-party certified.

Protection

Improvement of the reliability of Micrologic X, dual settings and additional facilities **increase the performance and the flexibility** of low voltage systems of protection.

11 Optional 24/7 downloadable digital modules dedicated to upgrading Micrologic X

- Under voltage and over voltage
- Underfrequency and overfrequency
- Reverse active power
- Ground-fault alarm
- Energy Reduction Maintenance Settings
- Energy per phase
- Individual harmonics analysis
- Power restoration assistant
- MasterPact operation assistant
- Waveform capture on trip event
- Modbus legacy dataset

Maintenance & Diagnostics

Optimal continuity of services as well as extended life of equipment is one of customers main concerns. For that purpose **Micrologic X integrates new extended diagnosis** and assistance to maintenance.

Communication

- It is now common practice to make available most of the information processed by a Protection Control Unit, locally for network operations and maintenance, as well as remotely for higher functions of control, monitoring, energy efficiency and assets management.
- To comply with this requirement, Micrologic X control units **incorporate several channels of communications, including Ethernet, Modbus SL and wireless communications facilities.**



A new digital user experience

With the MasterPact MTZ circuit breaker, every stage of the project — from designing and configuring to operating and maintaining — is streamlined using its digital capabilities.

D

DESIGN



EcoStruxure Power Design software

Single-line diagram design software that calculates and sizes your electrical installation.

CONFIGURE AND ORDER



Product Configurator

Configure MasterPact MTZ to save time and ensure accuracy.

MySE

Order your MasterPact MTZ online

BUILD AND COMMISSION



EcoStruxure Power Commission software

Commission and upgrade easily with protection setting and factory-acceptance test.

Monitor with EcoStruxure Power software

Obtain data visualization and reporting for increased efficiency.

OPERATE AND MAINTAIN



EcoStruxure Power monitoring software
Power Monitoring Expert
Power SCADA Operation
Building Operation
Facility Advisor

schneider-electric.com/ecostruxure-facility-advisor

Remote, continuous notifications



The Facility Expert maintenance logbook app. Track facility data and receive alerts in case of power events and scheduled maintenance.

schneider-electric.com/ecostruxure-facility-expert

Operate with MicroLogic X control unit



Locally in the facility room

Status "at a glance"

GoDigital store

Purchase additional digital modules for even more visibility and efficiency over the MasterPact MTZ circuit breaker life cycle.

godigital.schneider-electric.com



Operate with your smartphone

Locally in the facility room



EcoStruxure Power Device App

Android



iOS



A new way of selecting and ordering your circuit breakers

Configuring complex products has now become easier thanks to the new online selector tools on the website, available across many ranges and products. Simply look for the Product Configurator blue button, then select the criteria you require. When complete, the configuration can be sent to Customer Care, or ordered directly through your MySE account.

D

Step 1

Find the configurator button on the range page

Masterpact MTZ

High Current Air Circuit Breakers - from 630 to 6300 A

Part of **Pact Series**

Future Ready

Product configurator



Step 2

Go through the selections until the configuration is complete



Step 3

Send your completed configuration to customer care, or order via MySE

Note

(1) For source-changeovers, 2 configurations need to be submitted.

D

TransferPacT -Automatic Transfer Switching Equipment



TransferPacT Product Family

TransferPacT

TransferPacT is a high speed, compact, modular design intelligent automatic transfer switch that provide maximum scalability and robust performance. It is a PC class ATSE designed according to IEC 60947-6-1. available through 63A to 630A, 2,3,4 pole with rated operating voltage through 220V to 440V.



63A-100A

310 x 155 x 94 mm
3.4kG



250A

370 x 341 x 186 mm
13.3kG



100A-160A

351 x 164 x 95 mm
5.6kG

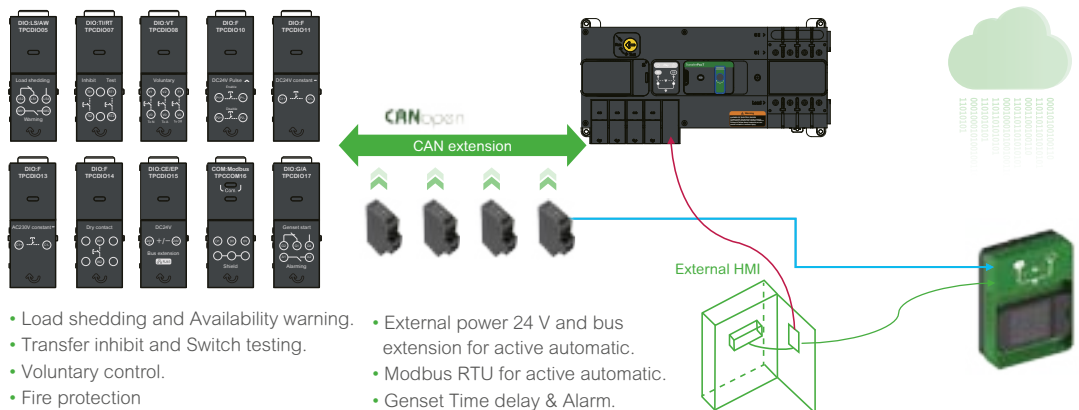


400A-630A

467 x 341 x 186 mm
22.1kG

TransferPacT Function Module

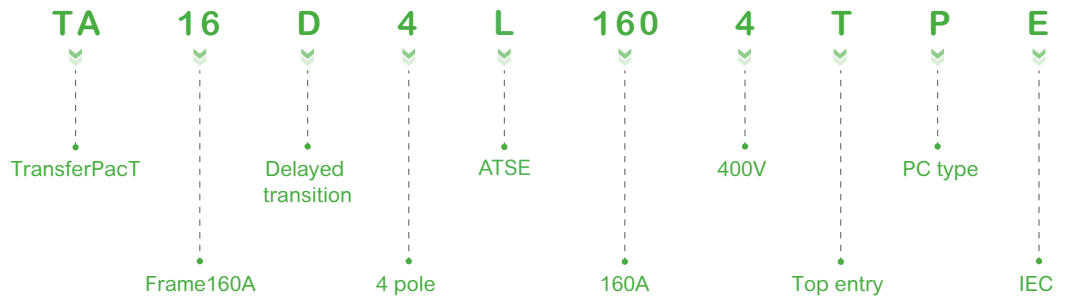
TransferPacT's scalability enables you to extend your source changeover solution. You can add the transfer switch modules as demand grows and enjoy an upgrade without interruption of power.



- Load shedding and Availability warning.
- Transfer inhibit and Switch testing.
- Voluntary control.
- Fire protection
 - 24 VDC pulse
 - 24 VDC constant
 - 230 VAC constant
 - 1 Dry contact input
- External power 24 V and bus extension for active automatic.
- Modbus RTU for active automatic.
- Genset Time delay & Alarm.

TransferPacT Ordering Information

Meaningful Reference



Range	Frame	Transiti on Type	Poles	Controller	Rated current (A)	Rated Voltage (A)	Connections	Type of TSE	Region
TransferPacT Automatic Transfer Switch (ATSE)	10=100A (63-100A)	D=O Delay	2=2p (available only at 63-100A)	L=when ATSE (with LCD display)	100=100A 063=63A	3=230V*	T=Top entry	P=PC Type	E=IEC
TransferPacT Remote Transfer Switch (RTSE), available at 250-630A.	16=160A (100-160A)		3=3p	R=when RTSE (without LCD display)	160=160A 100=100A	4=400V*			
	25=250A		4=4p		250=250A				
	63=630A (400-630A)				400=400A 630=630A				

* factory default value

D

TransferPacT Product Family

TransferPacT



Automatic Transfer Switch Equipment (ATSE)

	2P	3P	4P
63A	TA10D2L0633TPE	TA10D3L0634TPE	TA10D4L0634TPE
100A	TA10D2L1003TPE	TA10D3L1004TPE	TA10D4L10044TPE
100A		TA16D3L1004TPE	TA16D4L1004TPE
160A		TA16D3L1604TPE	TA16D4L1604TPE
250A		TA25D3L2504TPE	TA25D4L2504TPE
400A		TA63D3L4004TPE	TA63D4L4004TPE
630A		TA63D3L6304TPE	TA63D4L6304TPE



Remote Transfer Switch Equipment (RTSE)

	2P	3P	4P
250A		TR25D3R2504TPE	TR25D4R2504TPE
400A		TR63D3R4004TPE	TR63D4R4004TPE
630A		TR63D3R6304TPE	TR63D4R6304TPE

D

TransferPacT accessories



Auxiliary contact module

- > TPSAUX32: Provide the open and closed status indication for both source I and source II (frames 100-160A).
- > TPSAUX33: Provide the open and closed status indication for OFF position (frames 100-160A).
- > TPSAUX43: Provide the open and closed status indication for both source I and source II (frames 250-630A).
- > TPSAUX44: Provide the open and closed status indication for OFF position (frames 250-630A).



Terminal Shield

Optional accessory Provide terminal protection on the cable incoming and output.

- > TPSISO30: Terminal Shield for frame 100(63A-100A) - set of 3
- > TPSISO31: Terminal Shield for frame 160(100A-160A) - set of 3
- > TPSISO42: Terminal Shield for frame (400-630A) - set of 3



Interphase barrier

> Optional accessory Provide protection for the cable incoming and output, effectively avoiding short circuits between phases

- > TPSISO29: Interphase barrier for frame 160(100-160A) - set of 9
- > TPSISO65: Interphase barrier for frame 250-630A - set of 3



Load extension bars

Optional accessory Provide simple connection for the load side terminals.

- > TPSCON35: extension for frame 100(32-100A)
- > TPSCON36: extension for frame 160(80-160A)



IP54 Cover

Optional accessory, Protective cover for external HMI. TPCOTH37



HMI Cable

Used to connect the TSE and external HMI. 2*RJ45 port.

- > TRV00810: cable length is 1m.
- > TRV00820: cable length is 2m.
- > TRV00830: cable length is 3m.



External HMI

Door mounted HMI provide exact same function as TransferPacT active automatic HMI does including status display, settings, event log, control transfer switch.

It consists of an install base and LCD display. TPCCIF04



Function Modules

Type	Reference
Load shedding Availability warning	TPCDIO05
Transfer inhibit Remote testing	TPCDIO07
Voluntary control	TPCDIO08
Fire Protection 24Vdc pulse to off	TPCDIO10
Fire Protection 24Vdc constant to off	TPCDIO11
Fire Protection 230Vac constant to off	TPCDIO13
Fire Protection Dry contact to off	TPCDIO14
Genset time delay and Alarm	TPCDIO17
BUS Extension and 24VDC	TPCDIO15 (native equipped)
Modbus RTU (Serial Port)	TPCCOM16 (native equipped)

Source-changeover systems

7000 Series



ASCO 7000 SERIES Power Transfer Switch

For Mission-Critical Applications

ASCO Power Transfer Switches are the industry standard. High speed transfer of loads between alternative sources of power, regardless of current rating, is achieved using a reliable, field-proven solenoid operating mechanism.

When combined with a programmable microprocessor controller with keypad and LCD display, they offer the most advanced method of transferring all types of loads, such as motors, electronic drives, UPSs and microprocessor-based systems.

For more information on ASCO 7000 Series, please contact Schneider Electric.

D

TransferPact Source-changeover systems

Compact NSX and NS
Masterpact NT and NW

Note: For pricing, please contact your local Schneider Electric representative

D



NSX changeover



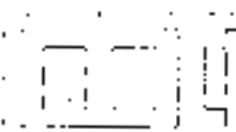
Masterpact Compact changeover



LV429358



UA automatic controller



Source changeover systems (SCO)

An SCO switches the load between two sources, typically to a secondary generator. A system can include two or three circuit breakers or disconnectors. The secondary supply is sized to what is required in a mains loss situation, and can be smaller than the primary.

Manual source-changeover system (1)

This is the most simple type. It is controlled manually by an operator and consequently the time required to switch from the normal to the replacement source can vary.

Remote-operated source-changeover system

Recommended for systems with high ratings (above 400 A). Transfer is controlled electrically and mechanical interlocking prevents electrical malfunctions or incorrect manual operation.

Automatic source-changeover systems

An automatic controller may be added to a remote-operated source-changeover system for automatic source control according to programmable operating modes. This function is sometimes available on the generator, but if not an Automatic Controller is required. This method ensures the minimum amount of time for the transition of power.

Due to the different configuration available, please use the tick sheets provided or contact your Schneider Electric representative for a price.

Common load bars

	Circuit breaker	Reference
3P 250A	NSX100/160/250	LV429358
3P 630A	NSX400/630	LV432619

Logic panels (for automatic operation) (2)

Type	Reference
ACP aux + control unit 380..415VAC	29364
UA automatic controller 380..415VAC	29380
IVE electrical interlocking 48..415VAC	29352

Dimension of basic source changeover

Product	A	B	C
	(mm)	(mm)	(mm)
NSX100/160/250 plate	354	300	222
NSX400/630 plate	470	380	294

Notes

(1) For manual changeover with no protection, see Transfer Switches on page D5

For basic NSX100/160/250 interlocking, see page D14/15

For basic NSX400/630 interlocking, see page D22

(2) Exclude ACP and UA for manual operation (without logic)

Include ACP and UA units to automate SCO units..

Units include : - circuit breakers, motor operators, mechanical interlock

- IVE electrical interlock, auxiliary change over contacts.

Each SCO is fully assembled and tested.

Please contact Technical Support on 0800 652 999

Fuse assembly devices

FuPact ISFT100, ISFT160
Standard : IEC 947-1, 3 and 5



LV480800



LV480801



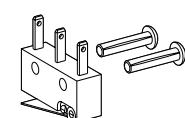
LV480803



49862



49865



49885

ISFT100 3 pole fixed front-connected fuse-switch disconnectors

Description	Reference
Basic device for mounting on backplate (1)	
Connection via 1.5 to 50mm ² bare cable connectors	LV480800

Accessories (ISFT100)

Description	Reference
Comb busbar to supply 3 devices	49862
Comb busbar to supply 4 devices	49863
Incoming connector (25 to 95mm ²) for comb busbars (set of 3)	49865
Din rail mount	49877
Electrical auxiliary contact NO + NC	49885

ISFT160 3 pole fixed front-connected fuse-switch disconnectors

Description	Reference
Basic device for mounting on backplate (2)	
Connection via standard M8 terminals	LV480801
Connection via 1.5 to 50mm ² bare cable connectors	LV480802
Basic device for mounting on busbars (2)	
With hook-on 60mm busbar M8 terminals	LV480803

Accessories (ISFT160)

Description	Reference
Comb busbar to supply 3 devices	LV480812
Comb busbar to supply 4 devices	LV480813
Incoming connector (25 to 95mm ²) for comb busbars set of 3	LV480818
Electrical auxiliary contact NO + NC	LV480755
Terminal shield 3P	LV480819

Notes

- (1) Fuse size for ISFT100 = DIN/NH000
- (2) Fuse size for ISFT160 = DIN/NH00

Fuse assembly devices

FuPact ISFT250 to ISFT630
Standard: IEC 947-1, 3 and 5



LV480804



ISFT250 to ISFT630 3 pole fixed, front-connected fuse-switch disconnectors

Description	Reference
Basic device for mounting on a backplate (1)	
Connection via standard M10 terminals	ISFT250 LV480804
	ISFT400 LV480806
	ISFT630 LV480808
Basic device for mounting on a busbars (1)	
With hook-on 60mm busbar M8 terminals	ISFT250 LV480805
	ISFT400 LV480807

Accessories

Description	Reference
Terminal shields	For ISFT250 set of 1 LV480824
	For ISFT400 set of 1 LV480827
	For ISFT630 set of 1 LV480831

Electrical auxiliaries

Description	Reference
Auxiliary changeover contact NO+NC	49885



LV480852

ISFL160 3 pole fixed, front-connected fuse-switch disconnectors

Description	Reference
Basic device for mounting on busbars (2)	
Direct connection to 100mm busbars	LV480852

ISFL250 to ISFL630 3 pole fixed, front-connected fuse-switch disconnectors

Description	Reference
Basic device for mounting on busbars (3)	
Direct connection to 185mm busbars	ISFL250 LV480863
	ISFL400 LV480864
	ISFL630 LV480865



LV480863

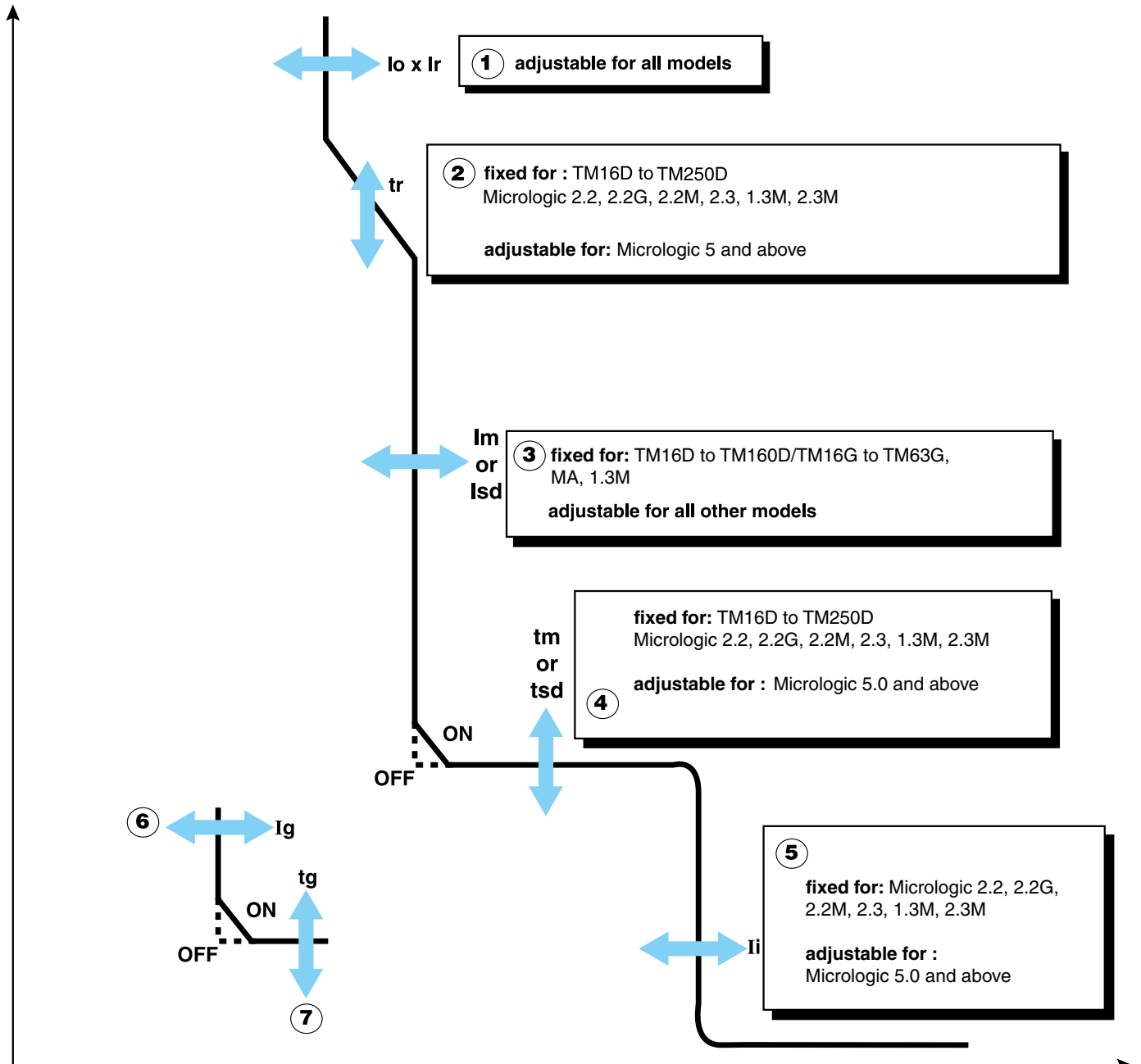
Note

- (1) Fuse sizes ISFT250 = 1
ISFT400 = 2
ISFT630 = 3
- (2) Fuse sizes ISFL160 = 000 or 00
- (3) Fuse sizes ISFL250 = 1
ISFL400 = 2
ISFL630 = 3

Protection settings for MCCBs & ACBs

ComPact NS/NSX MCCBs
MasterPact NT/NW ACBs

Terminology of the overload and short-circuit protection settings



Long time protection against overloads

- ① I_o = coarse adjustment (function of I_n)
- I_r = fine adjustment
- ② t_r = long time delay fixed or adjustable depending on the trip unit

Short circuit protection

- ③ $I_m = I_{sd}$ short circuit threshold, I_2t curve in position ON or OFF (depending on the trip unit)
- ④ $t_m = t_{sd}$ short circuit time delay fixed or adjustable

Instantaneous protection

- ⑤ I_i = instantaneous threshold, fixed or adjustable depending on the trip unit

Earth fault protection

- ⑥ I_g = insulation fault threshold, I_2t curve in position ON or OFF
- ⑦ t_g = earth fault time delay

Busway systems

Schneider Electric Busway systems offers a new path for achieving your electrical installations. It is part of a comprehensive offer of products that are perfectly coordinated to meet all your medium and low voltage distribution requirements. All the products have been designed to work seamlessly together making the electrical installation both optimised and high-performance.

D

High power busways (800 - 6300A)



Canalis KT



Canalis KR



I-Line II

Medium power busways (100 - 1000A)



Canalis KS

Low power busways (40 - 100A)



Canalis KN

Lighting busways (25 - 40A)



KBA Lighting Busway



KBB Lighting Busway

iBusway for lighting management

Canalis lighting

A flexible, expandable busbar trunking system

Canalis is a modular prefabricated busbar trunking system. It is the interface between the equipment and the products.

It provides great flexibility and scalability thanks to the prefabricated tap-off system.

The Canalis KBA and KBB ranges with option T are compatible with the DALI protocol.

A solution which is simple to implement

It is a tried-and-tested solution: more than 70,000 km of Canalis busbar trunking has been installed across the world since 1954.

Simply choosing a DALI-compatible KBA or KBB version and adding one or more DALI controllers in the switchboard results in a device ready for operation.

Canalis busbar trunking is quick and completely safe to install. Connections are made without tools and are designed to avoid any risk of incorrect wiring.



Canalis lighting is a constantly evolving offer compatible with the most efficient lighting management systems. (1)

CanBRASS

Design and quotation software for Canalis busbar trunking system. (2)

Notes

(1) For more information, refer to the Canalis Catalogue DEBU022EN

(2) Free design software, Canbrass, is available for download on se.com/nz website



iBusway for lighting management

Canalis KBA
25A and 40A, IP55, Ue= 230V to 400V



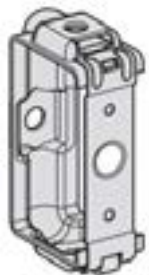
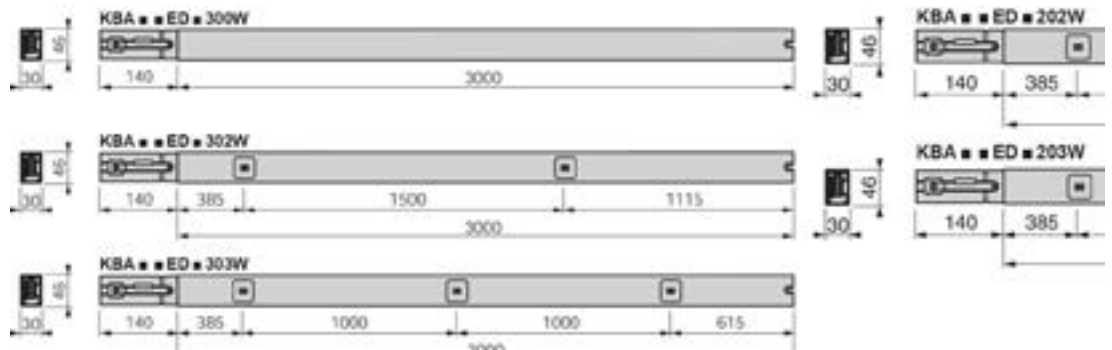
Straight Length Standard, Polarity: Ph + N + PE

Length (m)	No. of tap-offs	Rating (A)	Reference
3	2	25	KBA25ED2302W
	3	25	KBA25ED2303W
		40	KBA40ED2303W
		25	KBA25ED2305W
	40	KBA40ED2305W	
2	2	25	KBA25ED2202W
	3	40	KBA40ED2203W



Straight Length Standard, Polarity: Ph + N + PE

Length (m)	No. of tap-offs	Rating (A)	Reference
3	2	25	KBA25ED4302W
	3	25	KBA25ED4303W
		40	KBA40ED4303W
		25	KBA25ED4305W
	40	KBA40ED4305W	
2	2	25	KBA25ED4202W
	3	40	KBA40ED4203W



Fixing Systems

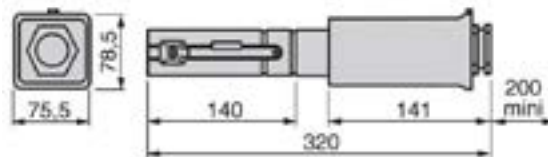
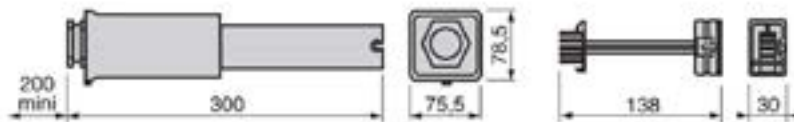
Description	Mounting	Reference
Universal fixing bracket (1)	Suspended on threaded rod or lateral (except wall)	KBA40ZFU

iBusway for lighting management

Canalis KBA
25A and 40A, IP55, Ue= 230V to 400V

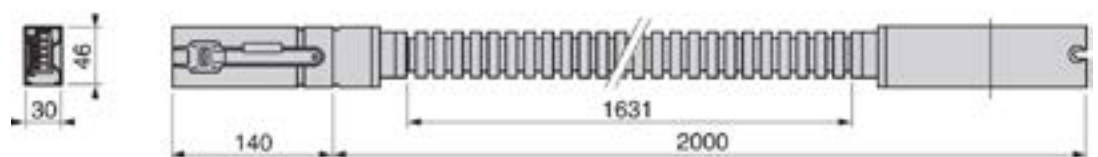
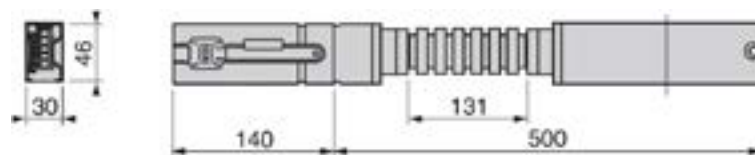
Feed units (supplied with end cover)

Rating (A)/ Mounting	Cable connection		Reference
	Terminals (mm ²)	Cable gland max Ø (mm)	
25/ Left	4	PG 16, Ø 15	KBA25ABG4W
40/ Left	10	PG 21, Ø 19	KBA40ABG4W
25 or 40/ Right	10	PG 21, Ø 19	KBA40ABD4W



Flexible Lengths

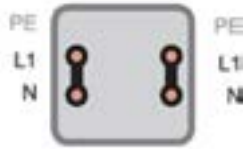
Mounting	Length (m)	Reference
For elbows, changing levels, detours around obstacles, etc.	0	KBA40DF405W
	2	KBA40DF420W





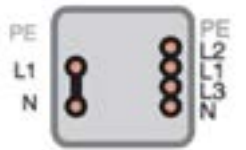
iBusway for lighting management

Canalis KBB, 2 circuits
25A and 40A, IP55, Ue= 230V to 400V



Straight Lengths. Two Circuits: 2 x (1Ph + N) + E

Length (m)	No. of tap-offs	Rating (A)	Reference
3	3 + 2	25	KBB25ED22305W
		40	KBB40ED22305W
2	2 + 1	40	KBB40ED22203W



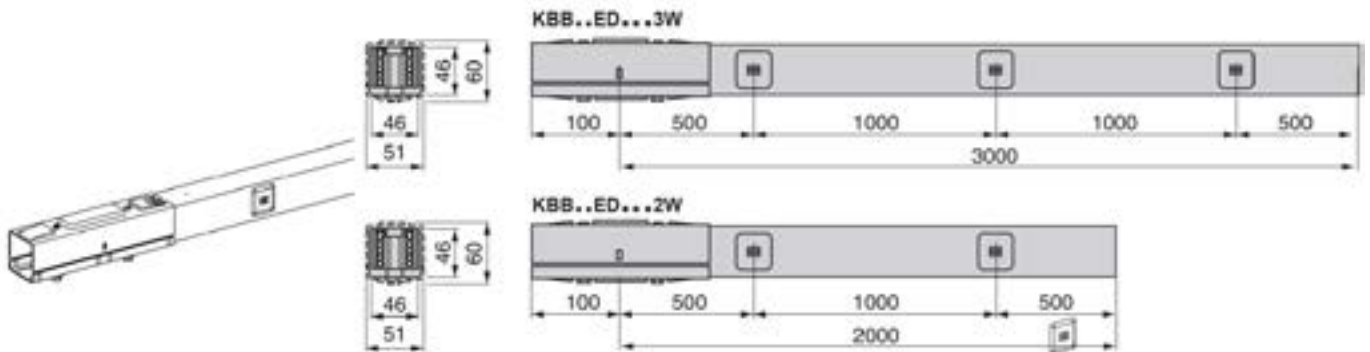
Straight Lengths. Two Circuits: (1Ph + N) + (3Ph + N) + E

Length (m)	No. of tap-offs	Rating (A)	Reference
3	3 + 2	25	KBB25ED42305W
		40	KBB40ED42305W
2	2 + 1	40	KBB40ED42203W



Straight Lengths. Two Circuits: 2 x (3Ph + N) + E

Length (m)	No. of tap-offs	Rating (A)	Reference
3	3 + 2	25	KBB25ED44305W
		40	KBB40ED44305W
2	2 + 1	40	KBB40ED44203W



Flexible Lengths

Mounting	Length (m)	Reference
For elbows, changing levels, detours around obstacles, etc.	0	KBB40DF4405W
changing levels, detours around obstacles, etc.	2	KBB40DF4420W



Feed units (supplied with end cover)

Mounting	Cable connection Terminals (mm ²)	Cable gland max Ø (mm)	Reference
Left/ Right	6 to 10	PG 21, Ø 19	KBB40ABG44W



Fixing Systems

Description	Mounting	Reference
Universal fixing bracket (1)	Suspended on threaded rod or lateral (except wall)	KBB40ZFU



KBB40ABG44W

Notes

(1) Maximum recommended distance between fixings: 5 meters.

iBusway for lighting management

Canalis KDP, KBA and KBB
IP55, Ue= 230V to 400V

Type of busbar trunking



10 A tap-off unit, L + L + PE or L + N + PE, with phase selection

Polarity	Pack Qty	Reference
L1 + N or L2 + N or L3 + N	10	KBC10DCB20
L1 + L2 or L1 + L3 or L2 + L3		
L2 + N2 or L3 + N3		

Type of busbar trunking



10 A tap-off unit, 3L + N + PE

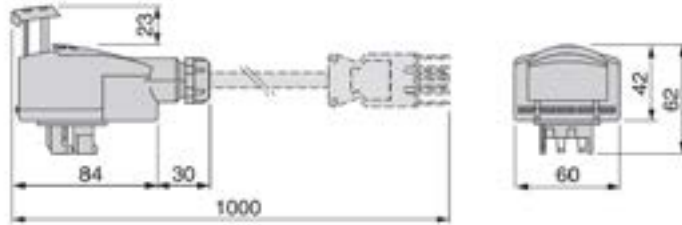
Polarity	Pack Qty	Reference
To be defined for each application (dimmer, emergency lighting, etc.)	10	KBC10DCB40



KBC10DCB20



KBC10DCB40



16 A tap-off unit, L + N + PE, with phase selection

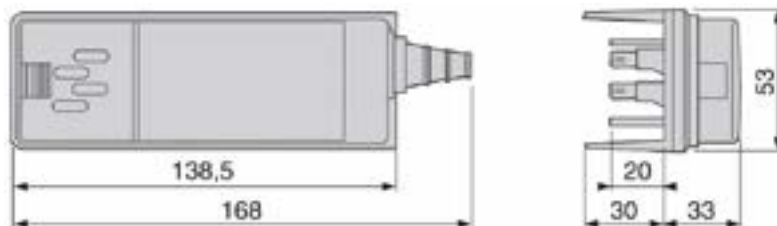
Polarity	Protection	Pack Qty	Reference
L1 + N or L2 + N or L3 + N	None	10	KBC16DCB21
	Cylindrical fuse NF 8.5 x 31.5 16 A gG maximum (not supplied)	10	KBC16DCF21

Single-circuit switching
Balancing on 3 phases or 3-circuit switching

16 A tap-off unit, 3L + N + PE

Polarity	Protection	Pack Qty	Reference
3L + N	None	10	KBC16DCB40
	Cylindrical fuse NF 8.5 x 31.5 16 A gG maximum (not supplied)	10	KBC16DCF40

Type of busbar trunking



Notes

D

Index

Power management

Power management

Hour counters, ammeters, voltmeters, selector switches and panel meters	E2
Current transformers	E3
Energy meters (kWh) - DIN mount	E4
Energy meters (kWh) - PowerTag	E6
Power meters	E7
Low Voltage Current Transformer for iEM34xx	E9
ION meters	E10
Ethernet gateways and energy server	E11
Meter selection chart	E12

Earth leakage relays

Vigirex protection and monitoring	E16
-----------------------------------	-----

Power factor correction and harmonic mitigation

VarPlus Can power factor correction capacitors	E17
Detuned reactors	E18
Contactors for capacitor switching	E18
Varlogic power factor correction controllers	E19
VarPact power factor correction modules	E20
VarSet floor standing automatic power factor correction units	E21
VarSet wall mounted automatic power factor correction units	E22
PowerLogic AccuSine EVC+	E23
AccuSine PFV+	E24
Harmonic mitigation overview	E25
AccuSine PCSn	E26
AccuSine PCS+	E27

Measurement

Hour counters, ammeters and voltmeters
Selector switches
Panel meters



15440

Hour counter

Model	Voltage	Frequency	Width in mod. of 9mm	Reference
CH	240V	50/60Hz	4	15440



16061



15201

Voltmeters VLT

Model	Rating	Scale	Frequency	Accuracy class	Width in mod. of 9mm	Reference
Analogue	500V	0...500V	50/60Hz	1.5	8	16061
Digital	600V	0...600V	50/60Hz	1.5	4	15201



16029



15202

Ammeters AMP

Model	Rating	Scale	Frequency	Accuracy class	Width in mod. of 9mm	Reference
Digital		0...10A	50/60Hz	1.5	4	15202
		*0...5000A	50/60Hz	1.5	4	15209

* connection to CT required and scales required. AMP ammeter consumption = 1.1VA



15126

Voltmeter and ammeter selector switches

Model	Rating	Voltage	To suit	Width in mod. of 9mm.	Reference
CMV	10A	415V	VLT voltmeter	6	15125
CMA	10A	415V	AMP ammeter	6	15126



METSEDM6200

DM6000H panel meters

Description	Reference
DM6000H Panel meter - basic (V, I, f, PF)	METSEDM6000HCL10NC
DM6200H Panel meter - basic with RS485 Modbus	METSEDM6200HCL10RS

Measurement

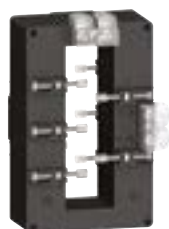
Current transformers



METSECT5CC010



METSECT5MB040



METSECT5DB200

Solid-core current transformers

Rating	Max. diameter/dimensions Cable mm	Bar mm	Power (VA) accuracy class			Form factor	Reference
			0.5	1	3		
50/5	21	–	–	1.25	1.5	CC	METSECT5CC005
75/5	21	–	–	1.5	2.5	CC	METSECT5CC008
100/5	21	–	2	2.5	3.5	CC	METSECT5CC010
150/5	21	–	3	4	5	CC	METSECT5CC015
200/5	21	–	4	5.5	6	CC	METSECT5CC020
250/5	27	10 x 32 15 x 25	6	8	–	MA	METSECT5MA025
300/5	27	10 x 32 15 x 25	8	10	–	MA	METSECT5MA030
400/5	27	10 x 32 15 x 25	10	12	–	MA	METSECT5MA040
400/5	26	12 x 40 15 x 32	6	8	–	MB	METSECT5MB040
600/5	–	32 x 65	8	12	–	DA	METSECT5DA060
800/5	–	32 x 65	12	15	–	DA	METSECT5DA080
1000/5	–	32 x 65	15	20	–	DA	METSECT5DA100
1250/5	–	32 x 65	15	20	–	DA	METSECT5DA125
1250/5	–	38 x 84	12	15	–	DD	METSECT5DD125
1500/5	–	32 x 65	20	25	–	DA	METSECT5DA150
1500/5	–	38 x 84	15	20	–	DD	METSECT5DD150
2000/5	–	38 x 127	15	20	–	DB	METSECT5DB200
2500/5	–	38 x 127	20	25	–	DB	METSECT5DB250
3000/5	–	38 x 127	25	30	–	DB	METSECT5DB300
4000/5	–	52 x 127	30	50	–	DC	METSECT5DC400
Terminal cover for form factors MA and MB							METSECT5COVER

Split-core current transformers



Model	Rating (A)	Inside dimensions (mm)	Accuracy	Burden (VA)	Reference
3090 SCCT	200/5	32 x 38	1%	2.5	3090SCCT022
	300/5	32 x 38	1%	2.5	3090SCCT032
	400/5	62 x 73	1%	5.0	3090SCCT043
	600/5	62 x 73	1%	5.0	3090SCCT063
	800/5	62 x 73	1%	12.5	3090SCCT083
	800/5	62 x 140	1%	5.0	3090SCCT084
	1200/5	62 x 140	1%	22.5	3090SCCT124
	1600/5	62 x 140	1%	45.0	3090SCCT164
	2000/5	62 x 140	1%	45.0	3090SCCT204

Energy monitoring

Kilowatt hour meters – single and three phase



A9MEM2050

iEM2000 Watt hour meters – 1 phase digital (direct connect)

Model	Description	Reference
iEM2000	40A kWh meter	A9MEM2000
iEM2010	40A kWh meter with pulse output	A9MEM2010
iEM2050	45A kWh meter with pulse output and RS485 Modbus	A9MEM2050

Note: Class 1 accuracy



A9MEM2455



iEM2100 Watt hour meters – 1 phase digital (direct connect up to 63A)

Model	Description	Reference
iEM2455	kWh meter, Class 1, RS-485, 2 tariffs, 2 pulse outputs, 4 quadrants, LCD display	A9MEM2455
iEM2435	kWh meter, Class 1, M-Bus, 2 tariffs, 2 pulse outputs, 4 quadrants, LCD display	A9MEM2435

Note: Class 1 accuracy



A9MEM3155

iEM3100 kWh meter – 3 phase digital (direct connect up to 63A)

Model	Description	Reference
iEM3100	kWh meter	A9MEM3100
iEM3110	kWh meter with pulse output	A9MEM3110
iEM3115	kWh meter with multi-tariff capability	A9MEM3115
iEM3150	kWh meter & electrical parameter with RS485 Modbus	A9MEM3150
iEM3155	advanced multi-tariff kWh meter & electrical parameter with RS485 Modbus	A9MEM3155

with BMS communication protocols

iEM3135	advanced multi-tariff kWh meter & electrical parameter with RS485 M-bus	A9MEM3135
iEM3165	advanced multi-tariff kWh meter & electrical parameter with RS485 BACnet	A9MEM3165
iEM3175	advanced multi-tariff kWh meter & electrical parameter with RS485 LON	A9MEM3175

Note: Class 1 accuracy

iEM3200 kWh meter – 3 phase digital (CT connected)

Model	Description	Reference
iEM3200	kWh meter	A9MEM3200
iEM3210	kWh meter with pulse output	A9MEM3210
iEM3215	kWh meter with multi-tariff capability	A9MEM3215
iEM3250	kWh meter & electrical parameter with RS485 Modbus	A9MEM3250
iEM3255	advanced multi-tariff kWh meter & electrical parameter with RS485 Modbus	A9MEM3255

with BMS communication protocols

iEM3235	advanced multi-tariff kWh meter & electrical parameter with RS485 M-bus	A9MEM3235
iEM3265	advanced multi-tariff kWh meter & electrical parameter with RS485 BACnet	A9MEM3265
iEM3275	advanced multi-tariff kWh meter & electrical parameter with RS485 LON	A9MEM3275

Note: Class 0.5s accuracy

Energy monitoring

Kilowatt hour meters – three phase



A9MEM3300

iEM3300 kWh meter – 3 phase digital (direct connect up to 125A)

Model	Description	Reference
iEM3300	kWh meter	A9MEM3300
iEM3310	kWh meter with pulse output	A9MEM3310
iEM3350	kWh meter & electrical parameters with RS485 Modbus	A9MEM3350
iEM3355	advanced multi-tariff kWh meter & electrical parameters with RS485 Modbus	A9MEM3355
iEM3335	advanced multi-tariff kWh meter & electrical parameter with RS485 M-bus	A9MEM3335
iEM3365	advanced multi-tariff kWh meter & electrical parameter with RS-485 BACnet	A9MEM3365
iEM3375	advanced multi-tariff kWh meter & electrical parameter with RS485 LON	A9MEM3375

Note: Class 1 accuracy



A9MEM3455

iEM3400 kWh meters - 3 phase digital (using 0.333V - 1.0V low voltage CTs)

Model	Description	Reference
iEM3455	kWh meter & electrical parameters with pulse output and RS485 Modbus	A9MEM3455
iEM3465	kWh meter & electrical parameters with pulse output and RS485 BACnet	A9MEM3465

Note: Class 0.5s accuracy
Refer to page E9 for the low voltage CTs

iEM3500 kWh meters - 3 phase digital (using Rogowski coils)

Model	Description	Reference
iEM3555	kWh meter & electrical parameters with pulse output and RS485 Modbus	A9MEM3555
iEM3565	kWh meter & electrical parameters with pulse output and RS485 BACnet	A9MEM3565

Note: Class 0.5s accuracy



METSECTR25500

Rope-style current transformers for iEM3500 kWh meters

Current range (A)	CT core length (mm)	Diameter when closed (mm)	Reference
50 to 5000	250	80	METSECTR25500
	300	96	METSECTR30500
	460	146	METSECTR46500
	600	191	METSECTR60500
	900	287	METSECTR90500



EcoStruxure Power Commission (EPC) software

- Simplify commissioning and maintenance
- Set up and test switchboards equipped with smart devices
- Reduce commissioning time
- Speed up FAT and SAT delivery
- Improve preventive maintenance with protection settings/checking, warnings and alarms, trip history, and maintenance reports

PowerTag

Wireless energy sensors

PowerTag - load metering and monitoring



Functions

Combined with an ethernet enabled concentrator by radio-frequency communication, PowerTag sensors measure the following quantities in accordance with the IEC 61557-12 standard.

- > Cumulative active energy (class 1), total and partial (kWh) delivered and received.
- > RMS Values;
 - > phase-to-neutral and phase-to-phase voltages (V).
 - > currents per phase (A).
 - > total active power and active power per phase (W).
 - > power factor

PowerTag Flex

Description	Reference
1P+N Top or bottom 63A	A9MEM1560
3P+N Top or bottom 63A	A9MEM1570
3P / 3P+N Top or bottom 160A	A9MEM1580

PowerTag Monoconnect

Description	Reference
1P Top and bottom	A9MEM1520
1P+N Top	A9MEM1521
Bottom	A9MEM1522
3P Top and bottom	A9MEM1540
3P+N Top	A9MEM1541
Bottom	A9MEM1542

PowerTag PhaseNeutral

Description	Reference
1P+N Top	A9MEM1561
1P+N Bottom	A9MEM1562
1P+N RCBO Bottom	A9MEM1563

A9MEM1561 and A9MEM1562 designed to fit Slimline RCBO.

A9MEM1563 designed to fit RCBO

PowerTag Flex

Description	Reference
	3P/4P
PowerTag Energy R200 3P/3PN 200A	A9MEM1590
PowerTag Energy R600 3P/3PN 600A	A9MEM1591
PowerTag Energy R1000 3P/3PN 1000A	A9MEM1592
PowerTag Energy R2000 3P/3PN 2000A	A9MEM1593

PowerTag for NSX

Description	Reference	Reference
	3P	4P
PowerTag NSX250	LV434020	LV434021
PowerTag NSX630	LV434022	LV434023

Wireless to ethernet concentrator

Description	Reference
Panel Server Entry, 20 devices	PAS400
Panel Server Universal with 24VDC power supply(2)	PAS600L
Panel Server Universal with 230VAC power supply(2)	PAS600
Panel Server Advanced I with 24VDC power supply, Data logger(2)	PAS800L
Panel Server Advanced with 230VAC power supply, Data logger(2)	PAS800
Panel Server Advanced with PoE power supply, Data logger(2)	PAS800P
Acti9 PowerTag link, Din mount, 20 devices(3)	A9XMWWD20
Acti9 PowerTag link, Din mount, 100 devices(3)	A9XMWWD100
Acti9 PowerTag Link Display, Din 20 devices	A9XMWRD

Note: (1)Commission quickly with EcoStruxure Power Commission (EPC) software - Download available through se.com. Or through embedded webpage

(2)Consult the latest versions of the official user guide and firmware release notes for max number of wireless powertag devices and powertag Link display (A9XMWRD) compatibility

(3) To be discontinued in 2023, replacement with Panel Server range

E



A9MEM1560 A9MEM1580



A9MEM1540



A9MEM1563



A9MEM1592



LV434020



PAS600

Power monitoring

Power meters



METSEPM3200

PM3200 power meters (Class 0.5s)

Model	Description	Reference
PM3200	Power meter – basic	METSEPM3200
PM3210	Power meter with pulse output	METSEPM3210
PM3250	Power meter with RS485 modbus	METSEPM3250
PM3255	Power meter with 2 digital inputs, 2 digital outputs, RS485 modbus, memory for load profile	METSEPM3255



METSEPM2110

PM2000 series power meters (Class 1 and 0.5)

Model	Description	Reference
PM2110	Power meter	METSEPM2110
PM2120	Power meter - RS485 Modbus, Class 1	METSEPM2120
PM2130	Power meter - RS485 Modbus, Class 0.5	METSEPM2130



METSEPM5100

PM5000 series power meters (class 0.5s and 0.2s)

Model	Description	Reference
PM5100	Power meter – pulse output	METSEPM5100
PM5110	Power meter – pulse output, RS485 modbus	METSEPM5110
PM5310	Power meter – RS485 modbus, energy logging, 2 digital input, 2 digital output	METSEPM5310
PM5320	Power meter – Ethernet port, energy logging, 2 digital input, 2 digital output	METSEPM5320
PM5330	Power meter – RS485 modbus, energy logging, 2 digital input, 2 digital output, 2 relay outputs	METSEPM5330
PM5340	Power meter – Ethernet port, energy logging, 2 digital input, 2 digital output, 2 relay outputs	METSEPM5340
PM5560	Power meter – RS485 modbus, 2 Ethernet ports, data logging, 4 digital input, 2 digital output, 4th CT input for neutral/ground measurement, internal web server	METSEPM5560
PM5580	Power meter – RS485 modbus, 2 Ethernet ports, data logging, 4 digital input, 2 digital output, 4th CT input for neutral/ground measurement, internal web server, DNP3.0 over Ethernet, 24VDC control power	METSEPM5580
PM5650	Power meter – RS485 modbus, 2 Ethernet ports, data logging, 4 digital input, 2 digital output, 4th CT input for neutral/ground measurement, internal web server, DNP3.0 over Ethernet, Waveform Capture, Sag/Swell	METSEPM5650

Note: PM5560, PM5580 and PM5650 are Class 0.2s, the rest are Class 0.5s (active energy conforming to IEC 62053-22)



METSEPM5350

PM5350 power meter (Class 0.5s)

Model	Description	Reference
PM5350	Power meter with RS485 modbus 4 digital inputs and 2 digital outputs	METSEPM5350



METSEPM8240

PM8000 power meters (Class 0.2s)

Description	Reference
PM8000 advance power meter with integrated display	METSEPM8240
PM8000 advance power meter, DIN rail mount (no display)	METSEPM8243
PM8000 advance power meter, DIN rail mount (with remote display)	METSEPM8244
Remote display with 3m cable and mounting hardware	METSEPM89RD96
Digital I/O module (6 digital inputs & 2 relay outputs)	METSEPM89M2600
Analog I/O module (4 analog inputs & 2 analog outputs)	METSEPM89M0024

Note: Built-in ION Technology frameworks which allow customisable applications

Power monitoring

Power meters

PM53xxR Quick Click power meters

Tool-less, plug and play LVCT connected meters that save up to 75% on installation time!



METSEPM5310R

“Quick Click” Power meter

Model	Description	Reference
PM5310R	Power meter - RS485 modbus, energy logging, 2 digital inputs, 2 digital outputs, RJ45 connection to the LVCT	METSEPM5310R
PM5310R	Power meter - Ethernet port, energy logging, 2 digital inputs, 2 digital outputs, RJ45 connection to the LVCT	METSEPM5320R

Note: Class 0.5 accuracy



METSECTV35006

“Quick Click” Low voltage current transformer (LVCT)

3-in-1 solid core LVCT, 0.3V output with RJ45 connection port

Current rating (A)	Phase to phase center line spacing	Cable entry dimensions	Reference		
60	25mm	15 x 30 mm (aperture)	METSECTV25006		
100			METSECTV25010		
125			METSECTV25013		
160			METSECTV25016		
60			29mm	16 x 20 mm	METSECTV29006
100	METSECTV29010				
120	METSECTV29012				
125	METSECTV29013				
150	METSECTV29015				
160	METSECTV29016				
200	METSECTV29020				
60	35mm	21 x 25 mm			METSECTV35006
100					METSECTV35010
120					METSECTV35012
125			METSECTV35013		
150			METSECTV35015		
160			METSECTV35016		
200			METSECTV35020		
250			METSECTV35025		
250			45mm	31 x 31 mm	METSECTV45025
300					METSECTV45030
400	METSECTV45040				
500	METSECTV45050				
600	METSECTV45060				
630	METSECTV45063				
800	70mm	50 x 54 mm			METSECTV70080
1000					METSECTV70100
1250			METSECTV70125		
1600			METSECTV70160		

Connection cable (between power meter and LVCT)

Description	Length (m)	Reference
Category 5e cable, Patch cord, UTP, RJ45	0.5	DCEPCURJX5GYM
	1	DCEPCURJ01GYM
	2	DCEPCURJ02GYM
	3	DCEPCURJ03GYM
	5	DCEPCURJ05GYM
	10	DCEPCURJ10GYM

Power monitoring

Low Voltage Current Transformer

Low voltage current transformers



LVCT00202S

Model	Description	Accuracy (10-100%)	Current	Outside dimensions (mm)	Inside dimensions (mm)	*Reference
LVCT	0.3V output, split core	1%	0 - 100A	121 x 100	31 x 30	LVCT00102S
LVCT	0.3V output, split core	1%	0 - 200A	121 x 100	31 x 30	LVCT00202S
LVCT	0.3V output, split core	1%	0 - 300A	121 x 100	31 x 30	LVCT00302S
LVCT	0.3V output, split core	1%	0 - 400A	151 x 132	62 x 73	LVCT00403S
LVCT	0.3V output, split core	1%	0 - 600A	151 x 132	62 x 73	LVCT00603S
LVCT	0.3V output, split core	1%	0 - 800A	151 x 132	62 x 73	LVCT00803S
LVCT	0.3V output, split core	1%	0 - 800A	151 x 201	63 x 139	LVCT00804S
LVCT	0.3V output, split core	1%	0 - 1000A	151 x 201	63 x 139	LVCT01004S
LVCT	0.3V output, split core	1%	0 - 1200A	151 x 201	63 x 139	LVCT01204S
LVCT	0.3V output, split core	1%	0 - 1600A	151 x 201	63 x 139	LVCT01604S
LVCT	0.3V output, split core	1%	0 - 2000A	151 x 201	63 x 139	LVCT02004S
LVCT	0.3V output, split core	1%	0 - 2400A	151 x 201	63 x 139	LVCT02404S

Note

* For use ONLY with EM4800, iEM3400



Power monitoring

ION meters



19 Inch rack



Switchboard case



Socket style



DIN size
192mm x 192mm



DIN size
96mm x 96mm

- > Symmetrical Components
- > Flicker
- > EN50160 Compliance Monitoring
- > IEC61000-4-30 Class A
- > GPS Synchronisation
- > IRIG-B Port
- > LCD Display
- > Compact Draw-Out Configuration
- > Transducer Version
- > Real Time Metering
- > Four Quadrant Energy Readings
- > Revenue Class 0.2%, Accuracy
- > Time Of Use/Interval Metering
- > Harmonics, Individual, Total
- > Sag/Swell Monitoring
- > Transient Detection
- > Waveform Capture
- > Data Logging/Recording
- > Memory Capacity: 5 or 10 MegaBytes
- > Date/Time Stamping
- > Alarms, Set-Points and Control
- > Maths, Logic, Other Equations
- > I/O Capabilities
- > Analogue Inputs/Outputs
- > Status Inputs
- > Pulse/KYZ Outputs
- > Transformer Line/Loss Compensation
- > Multiple Communication Ports
- > Ethernet, Serial, Modem, Optical
- > Multiple Protocols
- > Modbus, DNP3, MV-90
- > Web Access Direct From Meter
- > Email Alert Capabilities
- > Alarm Call-outs
- > Outage Dial-Outs/Notification
- > DC Power Supply Options
- > Interface with Third Party Devices (WAGES)
- > Patented disturbance direction detection

- > LCD Display
- > Real Time Metering
- > Transducer version
- > Four Quadrant Energy Readings
- > Revenue Class 0.2%, Accuracy
- > Harmonics, Individual, Total
- > Sag/Swell Monitoring
- > Waveform Capture
- > Data Logging/Recording
- > Date/Time Stamping
- > Alarms, Set-Points and Control
- > Maths, Logic, Other Equations
- > I/O Capabilities
- > Ethernet, Serial, Modem, Optic
- > Modbus, DNP3, MV-90
- > Modbus Master
- > Web Access Direct From Meter
- > Email Alert Capabilities
- > Alarm Call-Outs
- > DC Power Supply Options
- > Interface with Third Party Devices (WAGES)
- > Patented disturbance direction detection

Energy management

EcoStruxure Panel Server
Ethernet gateways
Energy server

EcoStruxure Panel Server

The EcoStruxure™ Panel Server is the next generation of gateway, providing a seamless connection of wired or unwired smart IoT devices to your edge control software or cloud-based applications and analytics.

All-in-one gateway

- > Separates OT / IT network
- > Wireless data concentrator
- > Modbus RS485 to Modbus TCP/IP
- > Supports multiple Ethernet connections for serving information to edge control software and cloud applications

Simple commissioning

- > EcoStruxure™ Power Commission software
- > Device auto discovery
- > Generation of acceptance reports to validate gateway configuration
- > Commission via WiFi

Intuitive operation

- > User-friendly webpages offer first-level monitoring
- > Contextualized data and operational insights
- > Simple alarm setup for email notification
- > Standardized IEC 62974-1 compliant datalogger and energy server

Architecture Overview



PAS600

EcoStruxure Panel Server Gateway (1) (2)

Description	Reference
Panel Server Entry	PAS400
Panel Server Universal with 24VDC power supply	PAS600L
Panel Server Universal with 230VAC power supply	PAS600
Panel Server Advanced with 24VDC power supply, Data logger	PAS800L
Panel Server Advanced with 230VAC power supply, Data logger	PAS800
Panel Server Advanced with PoE power supply, Data logger	PAS800P



A9XMSB11

Acti 9 Smartlink Modbus, Slave Version

Description	Reference
Acti9 Smartlink - Modbus RS485 slave - smart communication I/O module	A9XMSB11

Notes

- (1) Consult the latest versions of the official user guide and firmware release notes for downstream device support and max number of device compatibility.
- (2) Replaces legacy gateway ranges EGX150, COM'X510, COM'X210

Product selection guide

E

Energy meters

Basic multi-function power meters



General selection criteria		DIN rail				Direct	DIN rail		
Installation									
Use on LV distribution systems		■	■	■	■	■	■	■	■
Use on LV and HV distribution systems		-	-	-	-	-	-	-	-
Current/voltage accuracy		-	-	1%	1%	"I=0.5% V=1%"	-	0.3%	-
Power/active energy accuracy		-	-	1% / 0.5%	0.5%	1%	-	0.5%	-
Instantaneous rms values									
Current	■ Phases	-	■	■	■	■	■	■	■
	■ Neutral	-	-	-	-	■ (2)	■	■	■
Voltage		-	■	■	■	■	■	■	■
Frequency		-	■	■	■	■ (1)	■	■	■
Total power	■ Active	-	■	■	■	■	■	■	■
	■ Reactive	-	■	iEM3x55	iEM3x55	■ (1)	■	■	■
	■ Apparent	-	-	-	-	-	■	■	■
Power per phase	■ Active	-	-	-	-	■	■	■	■
	■ Reactive	-	-	-	-	■ (1)	■	■	■
	■ Apparent	-	-	-	-	-	■	■	■
Power factor	■ Total	-	■	■	■	■	■	■	■
	■ Per phase	-	-	-	-	-	■	■	■
Energy values									
Active energy		■	■	■	■	■	■	■	■
Reactive energy		-	■	iEM3x55	iEM3x55	■ (1)	■	■	■
Apparent energy		-	-	-	-	-	■	■	■
User-set accumulation mode		-	-	-	-	-	-	-	-
Demand values									
Current	Present and maximum values	-	-	-	-	-	■ (present)	■	■
Total active power	Present and maximum values	-	-	-	-	-	■ (present)	■	■
Total reactive power	Present and maximum values	-	-	-	-	-	■ (present)	■	■
Total apparent power	Present and maximum values	-	-	-	-	-	■ (present)	■	■
Total predicted demand	kW, kVAR, kVA	-	-	-	-	-	-	-	-
Synchronisation of calculation window		-	-	-	-	-	-	-	-
User-set calculation mode		-	-	-	-	-	■	■	■

Note

- (1) For 2 and 4 pole devices only.
- (2) Available depending on concentrator and PowerTag model.
- (3) Compatible with Panel Server concentrator/gateway.

Product selection guide

Basic multi-function power meters

Advance power meters

Compact NSX

Micrologic trip units



PM5350

PM5100
PM5110

PM5310
PM5320
PM5310R
PM5320R

PM5330
PM5340

PM5560
PM5580
PM5650

PM8000

E

E

P

H

MTZ

Panel mount

Panel mount

Panel mount

Integrated into the circuit breaker

■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	-	-	-	-	-	-
0.3%		0.5%		I = 0.15% V = 0.1%	I = 0.1% V = 0.1%	I = 1% V = 0.5%			1.5%		0.5%
0.5%		0.5%		0.2%	0.2%	2%		2%			1%

■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)
■	■	■	■	■	■	■	■	■	■	■	■ (1)









■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
-	-	-	-	-	■	■	-	■	■	■	■

■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
■	■	■	■	■	■	■	■	■	■	■	■
-	-	-	-	-	■	-	■	■	■	■	■
■	-	-	-	-	■	■	■	■	■	■	■
■	■	■	■	■	■	■	-	■	■	■	■

Note
(1) Requires Digital Module.

Product selection guide

E

		Energy meters				Basic multi-function power meters			
									
		iEM2000 iEM2010	iEM24xx	iEM3100 iEM3200 iEM3300	iEM3400 iEM3500	PowerTag (Acti 9) (NSX)	PM3200	PM3210 PM3250	PM3255
Other measurements									
Hour counter		-	-	■ (iEM3x55)	iEM3x55	■	-	-	■
Power quality measurements									
Total Harmonic Distortion	Voltage	-	-	-	-	-	-	■	■
	Current	-	-	-	-	-	-	■	■
Individual harmonic content (current and voltage)		-	-	-	-	-	-	-	-
Waveform capture		-	-	-	-	-	-	-	-
Detection of voltage sags and swells		-	-	-	-	-	-	-	-
EN50160 compliance checking		-	-	-	-	-	-	-	-
True rms measurement	Maximum harmonic number	-	-	15th	15th	-	-	15th	-
Sampling rate	Points per cycle	-	-	-	-	-	-	32	-
Data recording									
Min/max of instantaneous values		-	-	-	-	-	■	■	■
Data logging		-	-	-	-	-	-	-	■
Event logging		-	-	-	-	-	-	■	■
Trend curves		-	-	-	-	-	-	-	-
Alarms		-	-	-	-	■	-	■	■
Date and time stamping		-	-	-	-	■	-	■	■
Storage capacity		-	-	-	-	-	-	-	64kB
Display, sensors, input/outputs									
Front-panel display		■	■	■	■	-	■	■	■
Built-in current and voltage sensors		40A	100A	63A (iEM31xx) 125A (iEM33xx)	-	■ (1)	-	-	-
Digital or analogue inputs (max. no.)		-	-	2 (iEM3x15) 1 (iEM3x55)	1	-	-	-	2
Pulse output		1 (iEM2010)	2	1 (iEM3x10)	-	-	-	1 (PM3210)	-
Digital or analogue outputs (max. no. including pulse outputs)		1	1	-	1	-	-	-	2
Direct voltage connections without external VT L - L		230V	230V	277V L-N 480V L-L	277V L-N 480V L-L	■	-	277V L-N 480V L-L	-
Power supply									
AC/DC version	AC	230V	230V	100 to 277V	44 to 277V	-	-	20 to 277V	-
	DC	-	-	-	44 to 277V	-	-	100 to 300V	-
Communication									
RS485 port		-	-	-	■	-	-	■ (PM3250)	■
RS232 port		-	-	-	-	-	-	-	-
Modbus protocol		-	-	■ (iEM3x50)	■	-	-	■ (PM3250)	■
Ethernet port (Modbus/TCP/IP Protocol)		-	-	-	-	■ (2)	-	-	-
Embedded web pages		-	-	-	-	■ (2)	-	-	-
Ethernet gateway for other products on an RS485 link		-	-	-	-	-	-	-	-
Zigbee		-	-	-	-	■	-	-	-

Notes

(1) For 2 and 4 pole devices only. (2) Available on concentrator.

Product selection guide

Basic multi-function power meters					Advance power meters	Micrologic trip units				
PM5350	PM5100 PM5110	PM5310 PM5320 PM5310R PM5320R	PM5330 PM5340	PM5560 PM5580 PM5650	PM8000	E	E	P	H	MTZ
■	■	■	■	■	■	■	-	-	-	-
■	■	■	■	■	■	■	-	-	■	■
■	■	■	■	■	■	■	-	-	■	■
-	15th	31st	63rd	63rd	63rd	-	-	-	■	■ 40th
-	-	-	-	■ (PM5650)	■	-	-	-	■	■ (1)
-	-	-	-	■ (PM5650)	■	-	-	-	-	-
-	-	-	-	-	■	-	-	-	-	-
15th	■	■	■	■	63rd	15th	15th	31st		■
32		64		128	256	39	39	64		■
■	■	■	■	■	■	■	■	■	■	■
-	-	■	■	■	■	■	-	-	-	-
-	-	■	■	■	■	■	■	■	■	■
-	-	-	-	-	■	-	-	-	-	-
■	■	■	■	■	■	■	-	■	■	■
■	■	■	■	■	■	■	-	■	■	■
-	-	256kB	1.1MB	512MB	-	-	-	-	-	-
■	■	■	■	■	■	■	■	■	■	■
-	-	-	-	-	-	■	■	■	■	■
4	-	2	4	27DI/16AI	-	-	-	-	-	-
-	1	-	-	1	-	-	-	-	-	-
2	1	2	2	1DO/8RO/8AO	2		6			
400V L-N 690V L-L		400V L-N 690V L-L		57 to 400V L-N 100 to 690V L-L	690V		690V			
85-265V		100 to 277V		100 to 480V (PM5660, PM5650)	90 to 415V	-	-	-	-	-
100-300V		125 to 250V		125 to 250V (PM5660, PM5650) 24V (PM5580)	120 to 300V	-	-	-	-	-
■	■ (PM5110)	■	■ (PM5330)	■	■	-		Optional		-
-	-	-	-	-	-	-	-	-	-	-
■	■	■	■	■	■	■	■	■	■	■
-	-	■ (PM5320)	■ (PM5340)	■	2	-	-	-	-	■
-	-	-	-	■	■	-	-	-	-	-
-	-	-	-	■	■	-	-	-	-	-

Notes
 (1) Requires Digital Module.
 (2) BCM module included in breaker, LV434000 ULP module required for modbus connection.
 (3) Can be achieved with an eIFE or IFE module.

Earth leakage relays

Vigirex protection and monitoring



Vigirex earth leakage protection relays (DIN rail mount)

Type	Power supply	Settings	Reference
RH99M	12 to 24VAC – 12 to 48VDC	30mA to 30A – Inst to 4.5s	56170
	110 to 130VAC	30mA to 30A – Inst to 4.5s	56172
	220 to 240VAC	30mA to 30A – Inst to 4.5s	56173
	380 to 415 VAC	30mA to 30A – Inst to 4.5s	56174

E



Vigirex earth leakage protection relays (front panel mount)

Type	Power supply	Settings	Reference
RH99P	12 to 24VAC – 12 to 48VDC	30mA to 30A – Inst to 4.5s	56270
	110 to 130VAC	30mA to 30A – Inst to 4.5s	56272
	220 to 240VAC	30mA to 30A – Inst to 4.5s	56273
	380 to 415 VAC	30mA to 30A – Inst to 4.5s	56274

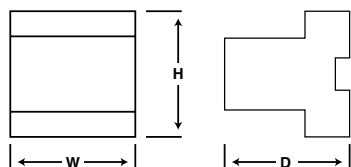
Vigirex sensors (toroidal and rectangular)



504●●

Type	Description	Dimension Ø	Reference
Closed toroid, A-type	PA50	50mm	50438
	IA80	80mm	50439
	MA120	120mm	50440
	SA200	200mm	50441
	GA300	300mm	50442

Dimensions



Product	H (mm)	W (mm)	D (mm)
DIN rail mount	81	54	74
Front panel mount	72	72	78

Power factor correction

Capacitors



VarPlus Can capacitors are specially designed and engineered to deliver a long working life with low losses for heavy-duty conditions.

Constructed internally with three single-phase capacitor elements. Each capacitor element is manufactured with metallized polypropylene film as the dielectric, having features such as heavy edge, slope metallization and wave-cut profile to ensure increased current handling capacity and reduced temperature rise.

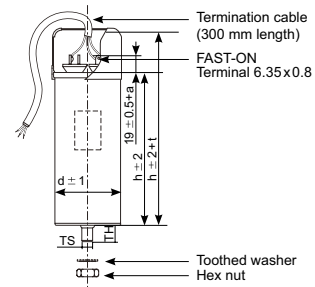
The unique finger-proof CLAMPTITE termination is fully integrated with discharge resistors, allowing suitable access for tightening and ensuring cable termination without any loose connections.

VarPlus Can heavy duty (525V rated voltage)

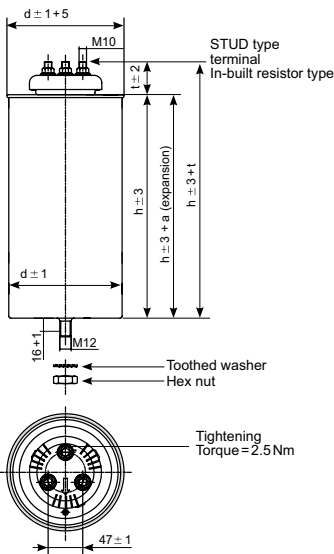
kVAr rating @ 415V	Case code	Reference
5.0	HC	BLRCH080A096B52
6.6	MC	BLRCH106A127B52
10.7	RC	BLRCH172A206B52
12.5	TC	BLRCH200A240B52
15.6	TC	BLRCH250A300B52
25.0	XC	BLRCH400A480B52

Dimensions (in mm)

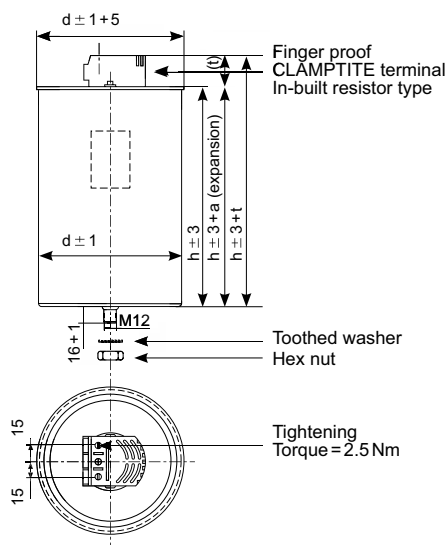
Case code	d	h	h + t
HC	63	195	245
MC	75	203	233
RC	90	212	242
TC	116	212	242
XC	116	278	321



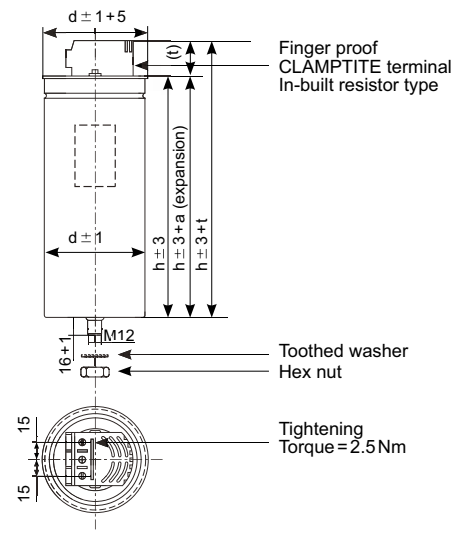
VarPlus Can HC
VarPlus Can HC



VarPlus Can XC



VarPlus Can TC



VarPlus Can MC and RC

Power factor correction

Detuned reactors Contactors for capacitor switching



Detuned reactors

The detuned reactors are designed to protect the capacitors by preventing amplification of the harmonics present on the network.

Description	Reference
6.25 kVAR / 400 V - 50 Hz	LVR07065A40T
12.5 kVAR / 400 V - 50 Hz	LVR07125A40T
25.0 kVAR / 400 V - 50 Hz	LVR07250A40T
50.0 kVAR / 400 V - 50 Hz	LVR07500A40T

Note: Tuning order 3.8 (190Hz)

Dimensions (in mm)

Description	H	W	D
6.25 kVAR / 400 V - 50 Hz	220	240	140
12.5 kVAR / 400 V - 50 Hz	220	240	140
25.0 kVAR / 400 V - 50 Hz	220	240	140
50.0 kVAR / 400 V - 50 Hz	270	260	160



LC1DLK00

Capacitor switching contactors IEC 60831-1 compliance

Mounting Equivalent Contactor	Pole tightening torque (N.m)	kVAR at 415V 40°C	Auxiliary contact fitted as standard		Reference
			N/O	N/C	
LC1D12	1.2	11	1	1	LC1DFK00
LC1D18	1.7	15	1	1	LC1DGK00
LC1D25	1.85	20	1	1	LC1DLK00
LC1D32	2.5	25	1	1	LC1DMK00
LC1D40	5	30	1	2	LC1DPK00
LC1D50	5	40	1	2	LC1DTK00
LC1D80	9	60	1	2	LC1DWK1200

Standard coil voltages

Volts AC	24	110	240	415
50/60Hz	B7	F7	U7	N7

Power factor correction

PFC controllers Combination guide



VarPlus Logic range

Type	Number of step output contacts	Supply voltage (V)	Reference
VL6	6	90-550	VPL06N
VL12	12	90-550	VPL12N

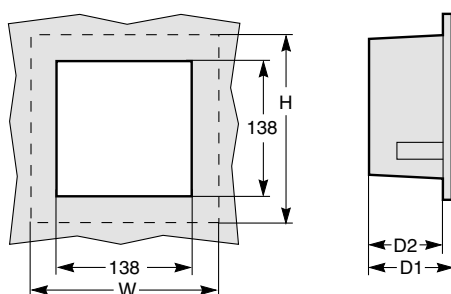


VarLogic RT range

Type	Number of step output contacts	Supply voltage (V)	Reference
RT6	6	320-470	51207
RT8	8	320-470	51209
RT12	12	320-470	51213

Dimensions

	H (mm)	W (mm)	D1 (mm)	D2 (mm)	Weight (kg)
VL6 / 12	144	144	59	47	0.6
RT6 / 8 / 12	143	143	67	57	1



Combination guide

VarPlus Can + Detuned Reactor + Contactor

Effective power (kVar)	Capacitor		Detuned reactor		Contactor	
	Qty	Reference	Qty	Reference	Qty	Reference
6.5	1	BLRCH106A127B52	1	LVR07065A40T	1	LC1DFKU7
12.5	1	BLRCH200A240B52	1	LVR07125A40T	1	LC1DGKU7
25.0	1	BLRCH400A480B52	1	LVR07250A40T	1	LC1DMKU7
50.0	2	BLRCH400A480B52	1	LVR07500A40T	1	LC1DVKU7



Protection options

NSX circuit breakers

kVar rating	Frame	Reference	Trip unit	Reference
6.5	NSX100F	LV429003	TM16D	LV429037
12.5	NSX100F	LV429003	TM25D	LV429036
25.0	NSX100F	LV429003	TM50D	LV429033
50.0	NSX100F	LV429003	TM100D	LV429030



Power factor correction

VarPact PFC modules



VarPact with detuned reactors

For highly polluted network ($25\% < Gh/Sn \leq 50\%$)

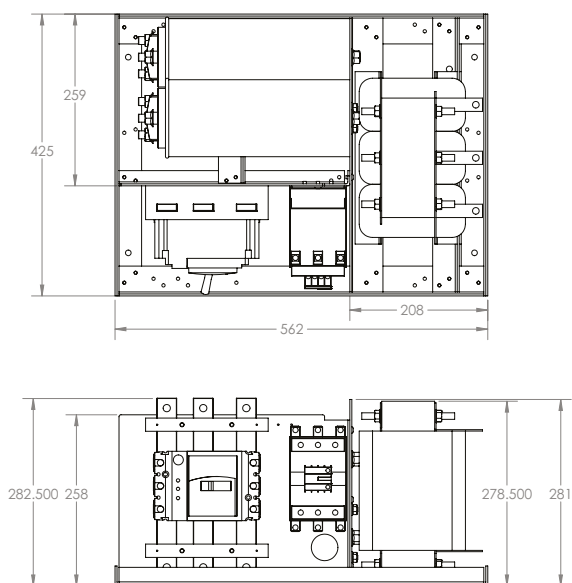
Tuning order	Description	Reference
3.8	12.5kVAr module with circuit breaker protection and detuned reactor	V12C52CR
(190Hz)	25kVAr module with circuit breaker protection and detuned reactor	V25C52CR
	50kVAr module with circuit breaker protection and detuned reactor	V50C52CR

Accessories

Description	Reference
Busbar links (set of 3)	FISHPLATES_VARP
Mounting rails*	MPLTVARSET

* Requires 2 units per VarPact module.

Dimensions



VarPact with detuned reactors

Power factor correction

Floor-standing automatic PFC unit



VarSet capacitor banks are engineered to provide the features and capabilities you need. Choose from a full range of capacitor banks that combine high-performance with easy ordering and reliable delivery. Each VarSet solution is built by utilising the available options to fulfil your requirement.

- > suitable for large commercial buildings, industrial sites and utilities with diverse power factor correction needs
- > customisable with a wide range of optional capabilities and features tailored to your specific requirements
- > suitable heavy duty capacitors for any harmonic level and type of loads
- > automatic compensation for variable and unstable loads up to 250kVAR (up to 500kVAR for a 2-tier solution)

VarSet floor standing unit selection guide

VarSet	kVar @ 415V	12.5kVar steps	25kVar steps	50kVar steps	Reactors	Step protection	Incomer
VS	100	A00: 0 step	B00: 0 step	C00: 0 step	R: w/ detuned reactor	C: Circuit breaker	C: Circuit breaker
	125	A01: 1 step	B01: 1 step	C01: 1 step			
	150	A02: 2 steps	B02: 2 steps	C02: 2 steps			
	175			C03: 3 steps			
	200			C04: 4 steps			
	225			C05: 5 steps			
	250			C06: 6 steps			
	275			C07: 7 steps			
	300			C08: 8 steps			
	325			C09: 9 steps			
	350			C10: 10 steps			
	375						
	400						
	425						
	450						
	475						
500							

Example product reference: VS125A02B02C01RCN

VS	125	A02	B02	C01	R	C	N
----	-----	-----	-----	-----	---	---	---

Notes

Maximum effective power per Prisma cubicle is 250 kVar (500 kVar for 2-cubicle solutions).
Maximum of 5 physical steps per cubicle (10 for 2-cubicle solutions).

Power factor correction

Wall-mounted automatic PFC unit



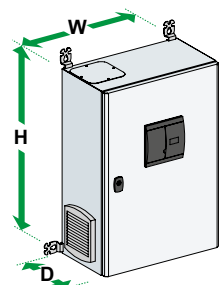
VarSet wall mounted (no detuned reactors)

Description	kVar	Reference
VarSet wall-mounted automatic power factor correction unit with incomer circuit breaker protection	50	VLVAW1N03506AA
	69	VLVAW1N03529AA
	75	VLVAW1N03507AA
	87.5	VLVAW1N03530AA
	100	VLVAW1N03508AA

VarSet wall-mounted (with detuned reactors)

Description	kVar	Reference
VarSet wall-mounted automatic power factor correction unit with detuned reactors and incomer circuit breaker protection	25	VS025WA00B00C02TCC
	37.5	VS037WA00B01C01TCC
	50	VS050WA00B01C02TCC
	75	VS075WA01B01C00TCC
	87.7	VS087WA01B01C01TCC
	100	VS100WA01B02C00TCC

Dimensions



VarSet wall-mounted (no detuned reactors)

kVar	Physical steps	Electrical steps	Dimensions (HxWxD mm)
50	6.25, 6.25, 12.5, 25	8 x 6.25	700 x 600 x 300 (all models)
69	6.25, 12.5, 25, 25	11 x 6.25	
75	25, 25, 25	3 x 25	
87.5	12.5, 25, 25, 25	7 x 12.5	
100	25, 25, 25, 25	4 x 25	

VarSet wall-mounted (with detuned reactors)

kVar	Physical steps	Electrical steps	Dimensions (HxWxD mm)
25	12.5, 12.5	12.5, 12.5	800 x 600 x 400
37.5	12.5, 25	12.5, 25, 37.5	1000 x 600 x 400
50	12.5, 12.5, 25	12.5, 25, 37.5, 50	1200 x 800 x 400
75	25, 50	25, 50, 75	
87.7	12.5, 25, 50	12.5, 25, 37.5, 50, 62.5, 75, 87.5	
100	25, 25, 50	25, 50, 75, 100	

VarSet floor-standing (all models)

kVar	Physical steps	Electrical steps	Dimensions (HxWxD mm)
100 to 250	Will vary depending on step selection		2200 x 700 x 655
250 to 500	(refer to page E25)		2200 x 1400 x 655



Prisma Plus

Electronic VAR Control

PowerLogic AccuSine EVC+



PowerLogic™ EVC+ is a high-speed, step-less reactive power compensation system that keeps power networks efficient, reliable, and healthy. It is designed to keep your power factor stable and voltage balanced even with fast-changing loads, unlike capacitor banks that tend to over- or under-compensate in dynamic environments. Built on the award-winning AccuSine active correction platform, the PowerLogic EVC+ offers superior performance for **power factor correction, phase balancing and harmonic mitigation (limited to 5th, 7th, 11th and 13th orders)** and is well suited for modern electrical networks with a lot of digital loads and distributed power sources.

Power rating 380-480V	Power rating 208V	Mounting	IP rating	Description	Reference
75 kvar	41 kvar	Chassis	IP00	PowerLogic AccuSine EVC+ 75kVAR 208-480V IP00 chassis	EVCP075D5CH00
		Wall	IP20	PowerLogic AccuSine EVC+ 75kVAR 208-480V IP20 wall mount	EVCP075D5W20
			IP31	PowerLogic AccuSine EVC+ 75kVAR 208-480V IP31 wall mount	EVCP075D5W31
100 kvar(1)	55kvar	Chassis	IP00	PowerLogic AccuSine EVC+ 100kVAR 208-480V IP00 chassis	EVCP100D5CH00
		Wall	IP20	PowerLogic AccuSine EVC+ 100kVAR 208-480V IP20 wall mount	EVCP100D5W20
			IP31	PowerLogic AccuSine EVC+ 100kVAR 208-480V IP31 wall mount	EVCP100D5W31

Notes

(1) Marine application offer available in IP00 (EVCM100D5CH00) & IP21 (EVCM100D5W21)



Electronic VAR Control

AccuSine PFV+



AccuSine PFV+ power factor correction & load balancing (380 to 480V)

- > 60A, 120A, 200A and 300A models
- > Wall mount: IP00, IP20 (using wall-mount conversion kit)
- > Floor-standing: IP31, IP54
- > CE certified
- > 1/4 cycle to inject correction
- > Proprietary CAN+ communication bus (master-slave configuration)
- > Provides make-up capacity
- > Modbus RTU, Modbus TCP/IP
- > Full-color Human Machine Interface
- > Current transformers:
 - > Primary – any Amps
 - > Secondary – 1 or 5 Amps
 - > Frequency – 50/60Hz or 400Hz

Rated current	Description	Frame size	Reference
60A	AccuSine PFV+ 60A 380-480V IP00	1	EVCP060D5IP00
	AccuSine PFV+ 60A 380-480V IP31	2	EVCP060D5IP31
	AccuSine PFV+ 60A 380-480V IP54	2	EVCP060D5IP54
120A	AccuSine PFV+ 120A 380-480V IP00	3	EVCP120D5IP00
	AccuSine PFV+ 120A 380-480V IP31	4	EVCP120D5IP31
	AccuSine PFV+ 120A 380-480V IP54	4	EVCP120D5IP54
200A	AccuSine PFV+ 200A 380-480V IP00	5	EVCP200D5IP00
	AccuSine PFV+ 200A 380-480V IP31	6	EVCP200D5IP31
	AccuSine PFV+ 200A 380-480V IP54	6	EVCP200D5IP54
300A	AccuSine PFV+ 300A 380-480V IP00	7	EVCP300D5IP00
	AccuSine PFV+ 300A 380-480V IP31	8	EVCP300D5IP31
	AccuSine PFV+ 300A 380-480V IP54	8	EVCP300D5IP54

Wall mount conversion kits

Description	Reference
60A, IP20	PCSPWMKIT60A
120A, IP20	PCSPWMKIT120A
200A and 300A, IP20	PCSPWMKIT300A

Notes

- 1 Converts IP00 to IP20 wall mounted enclosed assemblies.
- 2 Includes HMI mounting plate and cable entry enclosure for mounting on the bottom of the IP00 assemblies.

Dimensions

Frame size	Exterior dimensions (mm)		
	H	W	D
1	1300/1530 (1)	421	349
2	2092	800	500
3	1400/1730 (1)	421	384
4	2089	800	500
5	1323/1642 (1)	582	438
6	2089	900	600
7	1560/1882 (1)	582	438
8	2092	900	600

Note

- (1) With wall mount conversion kit

Harmonic mitigation



Harmonic Basics and their effects in the electrical system

Harmonics are a growing concern in the management of electrical systems today. Designers are requested to pay more and more attention to energy savings and improved availability of electricity. In this context, the topic of harmonics is often discussed. But there is still a need for more explanation, in order to dissipate confusion and misinterpretation. Power electronic devices have become abundant today due to their capabilities for precise process control and energy savings benefits. However, they also bring drawbacks to electrical distribution systems: harmonics. The presence of harmonics in electrical systems means that current and voltage are distorted and deviate from sinusoidal waveforms.



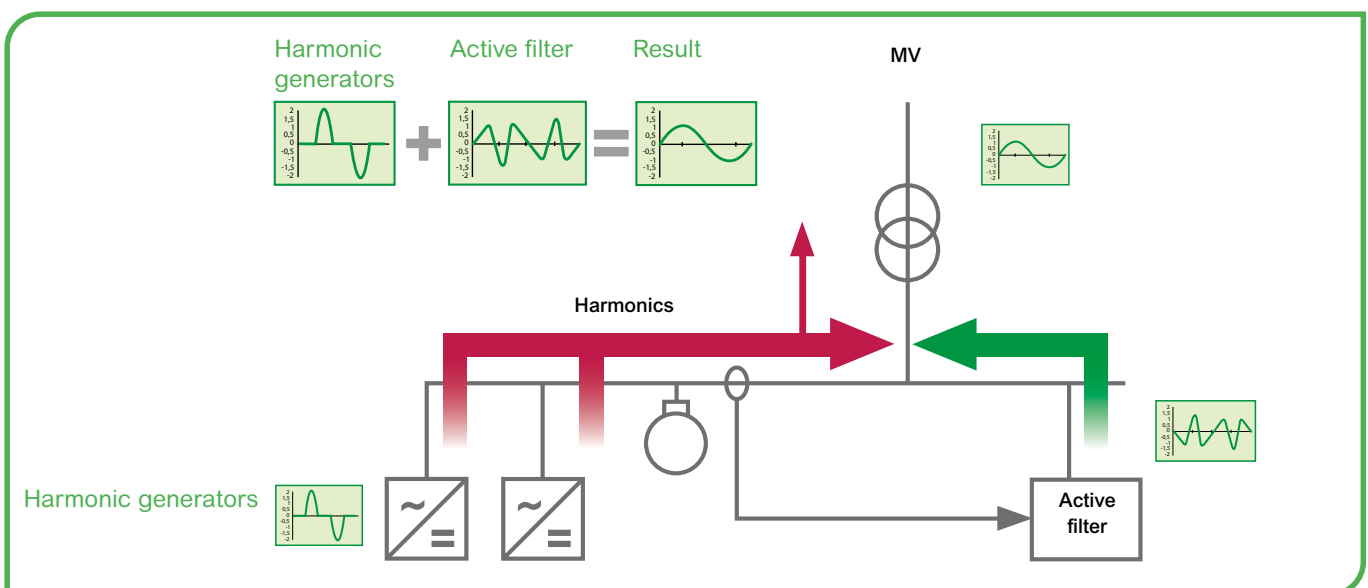
Harmonics: origin, effects and consequences

Harmonic currents are caused by nonlinear loads connected to the distribution system. A load is said to be nonlinear when the current it draws does not have the same wave shape as the supply voltage. The flow of harmonic currents through the system impedances in turn creates voltage distortion which distorts the supply voltage. Equipment consisting of power electronic circuits are typical nonlinear loads. Such loads are increasingly more abundant in all industrial, commercial, and residential installations and their percentage of the total load is growing steadily.

Examples include:

- > Industrial equipment (welders, induction furnaces, battery chargers, DC power supplies)
- > Variable Speed Drives for AC and DC motors
- > Uninterruptible Power Supplies (UPS)
- > Office equipment (PCs, printers, servers, displays, etc.)
- > Household appliances (TVs, microwave ovens, fluorescent lighting, washing machines and dryers, light dimmers)

Harmonic currents increase the rms current in electrical systems and deteriorate the supply voltage quality. They stress the electrical network and potentially damage equipment. They may disrupt normal operation of devices and increase operating costs. Symptoms of problematic harmonic levels include overheating of transformers, motors and cables, thermal tripping of protective devices, and logic faults of digital devices. In addition, the life span of many devices are reduced by elevated operating temperatures.



Harmonic mitigation

AccuSine PCSn

AccuSine PCSn harmonic filters (208 to 415V)

The new AccuSine PCSn series is a scalable and flexible, high performance active harmonic filtering solution that brings reliability and efficiency to your electrical system, resulting in:

- > Increased uptime
- > Greater operational efficiency
- > Prolonged equipment life
- > Improved energy efficiency

Applications:

- > Active Harmonic Mitigation
- > Power Factor Correction
- > Mains Load Balancing

Wall-mounted version



Description	Reference
AccuSine PCSn 20A 208-415Vac 3ph+N wall mount IP20	PCSN020Y4W20
AccuSine PCSn 30A 208-415Vac 3ph+N wall mount IP20	PCSN030Y4W20
AccuSine PCSn 50A 208-415Vac 3ph+N wall mount IP20	PCSN050Y4W20
AccuSine PCSn 60A 208-415Vac 3ph+N wall mount IP20	PCSN060Y4W20
AccuSine PCSn 60A 208-415Vac 3ph+N wall mount IP20 expansion module	PCSN060Y4W20E

Chassis version

Description	Reference
AccuSine PCSn 20A 208-415Vac 3ph+N chassis IP00	PCSN020Y4CH00
AccuSine PCSn 30A 208-415Vac 3ph+N chassis IP00	PCSN030Y4CH00
AccuSine PCSn 50A 208-415Vac 3ph+N chassis IP00	PCSN050Y4CH00
AccuSine PCSn 60A 208-415Vac 3ph+N chassis IP00	PCSN060Y4CH00
AccuSine PCSn 60A 208-415Vac 3ph+N chassis IP00 expansion module	PCSN060Y4CH00E

Rack-mounted version



Description	Reference
AccuSine PCSn 30A 208-415Vac 3ph+N rack mount 19"	PCSN030Y4R19
AccuSine PCSn 60A 208-415Vac 3ph+N rack mount 19"	PCSN060Y4R19
AccuSine PCSn 60A 208-415Vac 3ph+N rack mount 19" expansion module	PCSN060Y4R19E

Note

(1) Includes mounting rails and 1U spacer with holes for power cables

Racks for rack-mounted version



Description	Reference
NetShelter SX 42U x 600mm Wide x 1070mm Deep with doors	AR3100
NetShelter SX 42U x 600mm Wide x 1200mm Deep with doors	AR3300
NetShelter SX 1U toolless snap-in blanking panel, 10 pieces per pack	AR8136BLK
NetShelter SX 1U standard metal blanking panel, 2 pieces per pack	AR8108BLK
NetShelter SX 1U, 2U, 4U, 8U, blanking panel kit	AR8101BLK
NetShelter SX stabilization plate	AR7700
NetShelter SX bolt-down kit — moderate seismic zones	AR7701
NetShelter SX bolt-down kit — high seismic zones	AR7701-S

Note

(1) A maximum of six (6) rack-mounted filters can be fitted on a rack

Harmonic mitigation

AccuSine PCS+



AccuSine PCS+ harmonic filters (380 to 480V)

- > 60A, 120A, 200A and 300A models
- > Wall mount: IP00, IP20 (using wall-mount conversion kit)
- > Floor-standing: IP31, IP54
- > CE certified
- > 1/4 cycle to inject correction
- > Proprietary CAN+ communication bus (master-slave configuration)
- > Provides make-up capacity
- > Modbus RTU, Modbus TCP/IP
- > Full-color Human Machine Interface
- > Current transformers:
 - > Primary – any Amps
 - > Secondary – 1 or 5 Amps
 - > Frequency – 50/60Hz or 400Hz

Rated current	Description	Frame size	Reference
60A	AccuSine PCS+ 60A 380-480V IP00	1	PCSP060D5IP00
	AccuSine PCS+ 60A 380-480V IP31	2	PCSP060D5IP31
	AccuSine PCS+ 60A 380-480V IP54	2	PCSP060D5IP54
120A	AccuSine PCS+ 120A 380-480V IP00	3	PCSP120D5IP00
	AccuSine PCS+ 120A 380-480V IP31	4	PCSP120D5IP31
	AccuSine PCS+ 120A 380-480V IP54	4	PCSP120D5IP54
200A	AccuSine PCS+ 200A 380-480V IP00	5	PCSP200D5IP00
	AccuSine PCS+ 200A 380-480V IP31	6	PCSP200D5IP31
	AccuSine PCS+ 200A 380-480V IP54	6	PCSP200D5IP54
300A	AccuSine PCS+ 300A 380-480V IP00	7	PCSP300D5IP00
	AccuSine PCS+ 300A 380-480V IP31	8	PCSP300D5IP31
	AccuSine PCS+ 300A 380-480V IP54	8	PCSP300D5IP54

Wall mount conversion kits

Description	Reference
60A, IP20	PCSPWMKIT60A
120A, IP20	PCSPWMKIT120A
200A and 300A, IP20	PCSPWMKIT300A

Notes

1. Converts IP00 to IP20 wall mounted enclosed assemblies.
2. Includes HMI mounting plate and cable entry enclosure for mounting on the bottom of the IP00 assemblies.

Dimensions

Frame size	Exterior dimensions (mm)		
	H	W	D
1	1300/1530 (1)	421	349
2	2092	800	500
3	1400/1730 (1)	421	384
4	2089	800	500
5	1323/1642 (1)	582	438
6	2089	900	600
7	1560/1882 (1)	582	438
8	2092	900	600

Note

- (1) With wall mount conversion kit

Notes

E

Index

Enclosures and switchboard systems

Enclosures

Thermoplastic industrial boxes - Thalassa TBS & TBP	F2-3
Modular polyester enclosures - Thalassa PLS	F4-7
Wall mounting polyester enclosures - Thalassa PLM	F8-11
Floor standing polyester cabinets - Thalassa PLA	F12-14
Stainless steel industrial boxes - Spacial SBX (New)	F15
Wall mounting steel enclosures - Spacial CRN	F16-18
Wall mounting stainless steel enclosures - Spacial S3X	F19-21
Ventilation and heating devices - ClimaSys CV	F22
Surface mount enclosures	F23

Linergy Terminal Blocks

Screw and spring terminal blocks	F24-27
Terminal accessories and DIN rail	F28
DZ5 cable ends	F29
Cable duct	F30

F

IP66



Industrial box styrene (1)

- > Material – ABS.
- > Colour grey RAL7035.
- > IEC62208 certified.
- > IP66 / IK07.
- > Temperature range -25... +60°C.
- > Glow wire resistance: 650°C according to IEC 60695-2-11
- > Indoor use.

H (mm)	W (mm)	D (mm)	Lid Height	Pack Qty	Reference with transparent lid	Reference
74	74	54	10	5	(2)	NSYTBS775
89	89	54	10	5	(2)	NSYTBS885
116	74	62	10	5	(2)	NSYTBS1176
116	74	94	40	3		NSYTBS1179H
116	116	62	10	5		NSYTBS11116
116	116	133	80	2		NSYTBS111113H
138	93	72	20	2	NSYTBS1397T	NSYTBS1397
164	121	87	20	2	NSYTBS16128T	NSYTBS16128
192	121	87	20	2	NSYTBS19128T	NSYTBS19128
192	121	105	40	2		NSYTBS191210H
192	164	87	20	1	NSYTBS19168T	NSYTBS19168
192	164	105	40	1	NSYTBS191610HT	NSYTBS191610H
241	194	87	20	1		NSYTBS24198
241	194	105	40	1	NSYTBS241910HT	NSYTBS241910H
241	194	127	60	1		NSYTBS241912H
291	241	88	20	1		NSYTBS29248
291	241	128	20	1	NSYTBS292412T	NSYTBS292412
291	241	128	60	1	NSYTBS292412HT	NSYTBS292412H
291	241	168	60	1		NSYTBS292416H
341	291	128	20	1		NSYTBS342912
341	291	168	60	1		NSYTBS342916H



Industrial box polycarbonate (1)

- > IP66 / IK08.
- > Temperature range -25... +80°C.
- > High UV resistance.
- > Outdoor use
- > High Impact and Temperature Resistance for aggressive environments



H (mm)	W (mm)	D (mm)	Lid Height	Pack Qty	Reference with transparent lid	Reference
74	74	54	10	5	(2)	NSYTBP775
89	89	54	10	5	(2)	NSYTBP885
116	74	62	10	5	(2)	NSYTBP1176
116	116	62	10	5		NSYTBP11116
138	93	72	20	2	NSYTBP1397T	NSYTBP1397
164	121	87	20	2	NSYTBP16128T	NSYTBP16128
192	121	87	20	2	NSYTBP19128T	NSYTBP19128
192	121	105	40	2		NSYTBP191210H
192	164	87	20	1		NSYTBP19168
192	164	105	40	1		NSYTBP191610H
241	194	87	20	1		NSYTBP24198
241	194	105	40	1	NSYTBP241910HT	NSYTBP241910H
241	194	127	60	1		NSYTBP241912H
291	241	88	20	1		NSYTBP29248
291	241	128	20	1	NSYTBP292412T	NSYTBP292412
291	241	128	60	1		NSYTBP292412H
291	241	168	60	1		NSYTBP292416H
341	291	128	20	1		NSYTBP342912
341	291	168	60	1		NSYTBP342916H

Note

- (1) Priced each and sold in Pack quantities
 (2) Zinc plated cover screws

ThermoPlastic industrial boxes Thalassa TBS & TBP

Accessories



Insulating mounting plates (2.5mm thickness)

H (mm)	W (mm)	Reference
192	164	NSYAMPA1916TB
241	194	NSYAMPA2419TB
291	241	NSYAMPA2924TB
341	291	NSYAMPA3429TB



Fixing lugs

Description	Reference
To fit enclosures $\geq 116 \times 116$ mm Vertical or horizontal. Kit comprises of 4x lugs + screws	NSYAEFTB



Hinges

Description	To suit cover height (mm)	Reference
To fit enclosures $\geq 138 \times 93$ mm. Permissible load 10kg/m ² . Kit comprises of 2x hinges + screws. Made of polycarbonate.	20	NSYAEDH20TB
	40	NSYAEDH40TB



NSYAEDH●●●●

F



Modular polyester enclosures Thalassa PLS

IP65



Hot-moulded fibreglass reinforced polyester enclosures

Range of insulated modular boxes with bases made of hot-moulded fibreglass reinforced polyester and lids made of polycarbonate or polyester, depending on models.

Boxes PL 1-0 436843 Custom Fleet Evaluation Rating A4 S are with transparent polycarbonate lid, boxes PLSP with both lid and base made of fibreglass reinforced polyester.

- > Colour grey RAL7035.
- > IEC62208 certified.
- > Modular design that allows the joining of boxes via coupling frames.
- > Fully gasketed lids.
- > Operating temperature between -30°C and 120°C for types PLS and up to 150°C for types PLSP.
- > Suitable for outdoor use.

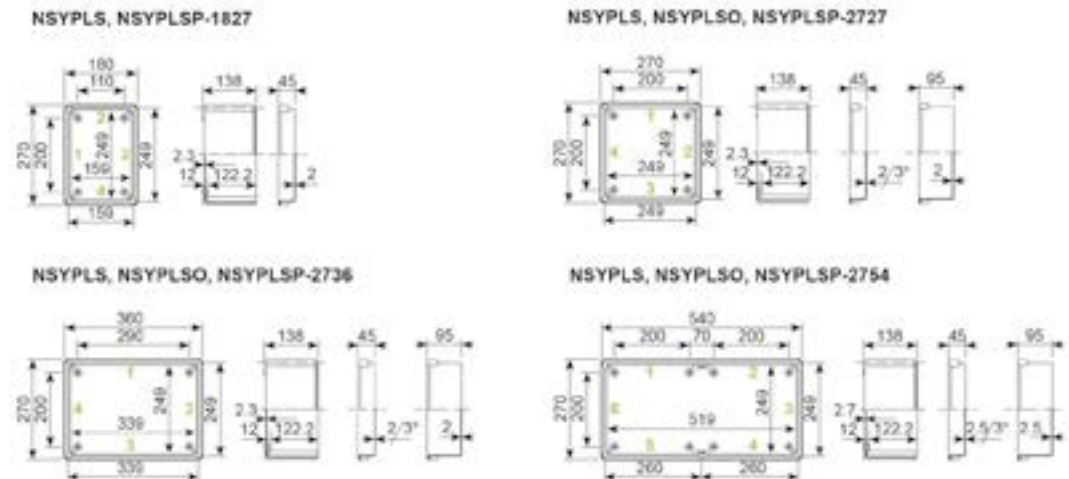
PLS enclosures

H (mm)	W (mm)	D (mm)	Lid (1)			Reference
			T	S	PC	
180	270	180	T	S	PC	NSYPLS1827G
			O	S	PE	NSYPLSP1827G
270	270	180	T	S	PC	NSYPLS2727G
			O	S	PE	NSYPLSP2727G
270	270	230	T	D	PC	NSYPLS2727AG
			O	D	PC	NSYPLSC2727AG
270	360	180	T	S	PC	NSYPLS2736G
			O	S	PE	NSYPLSP2736G
270	360	230	T	D	PC	NSYPLS2736AG
			O	D	PC	NSYPLSC2736AG
270	540	180	T	S	PC	NSYPLS2754G
			O	S	PE	NSYPLSP2754G
270	540	230	T	D	PC	NSYPLS2754AG
			O	D	PC	NSYPLSC2754AG
360	360	180	T	S	PC	NSYPLS3636G
			T	D	PC	NSYPLS3654AG
360	540	180	T	S	PC	NSYPLS3654G
			O	S	PE	NSYPLSP3636G
360	540	180	O	S	PE	NSYPLSP3654G
			O	D	PE	NSYPLSC3654AG
540	540	230	T	D	PE	NSYPLS5454AG
			T	S	PC	NSYPLS5454G
540	720	230	T	D	PC	NSYPLS5472AG
			O	D	PE	NSYPLSC5472AG

Notes

(1) Lids T = transparent, O = opaque, S = shallow, D = deep, PC = polycarbonate, PE = polyester
Spare lids available on request.

Dimensions



Modular polyester enclosures Thalassa PLS

Accessories and mounting plates



Insulated mounting plates (4.0mm thickness)

H (mm)	W (mm)	Reference
135	225	NSYPMA1827G
225	225	NSYPMA2727G
225	315	NSYPMA2736G
225	495	NSYPMA2754G
315	315	NSYPMA3636G
315	495	NSYPMA3654G
315	675	NSYPMA3672G
495	495	NSYPMA5454G
495	675	NSYPMA5472G



Hinged windows (IP65)

H (mm)	W (mm)	D (mm)	Reference
78	165	25	NSYVA278MA
78	200	25	NSYVA2710MA

Note
Polycarbonate

NSYVA27●●



Hinges

Description	Reference
External hinges opening 180 degrees	NSYBE27G

NSYBE27

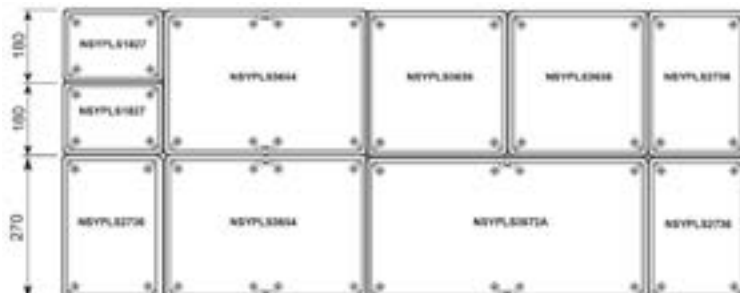


Coupling frames (c/w fixing hardware to join enclosures)

Coupling size	Hole size	Reference
270.0mm x 105mm	200mm x 77mm	NSYUM27270
360.0mm x 105mm	290mm x 77mm	NSYUM27360

NSYUM27●●●

Modular system possibilities



Modular polyester enclosures Thalassa PLS

Locks and accessories



NSYCL27M

Locks

Description	Reference
Cabinet door catch	NSYCL27M
Cabinet door lock	NSYCL27L405
Slotted screw (set of 4)	NSYTCD274
Thumb screw (set of 4)	NSYTCM274



NSYCL27L405



NSYTCD274



NSYTCM274



NSYCAG19LP

NSYCAG33LP

Accessories

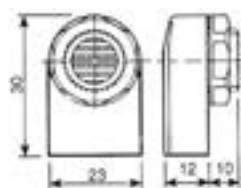
Description	Reference
Air vent, 19mm, external, IP45 (Pack of 2) (1)	NSYCAG19LP
Air vent, 33mm, external, IP44 (Pack of 2) (1)	NSYCAG33LP
Air vent, 35mm, external, IP44 (Pack of 2) (1)	NZYCAG35LP
Air vent, 38mm, external, IP45 (Pack of 2) (1)	
Wall fixing lug (zinc) (set of 4)	NSYPF27N
Wall fixing lug (stainless steel) (set of 4)	NSYPF27X



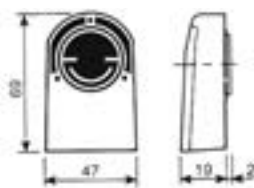
NSYPF●●●

Dimensions

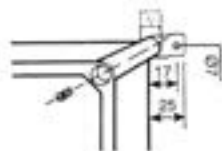
NSYCAG19LP



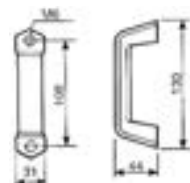
NSYCAG33LP



NSYPF●●



NSYATM27



Note

(1) Priced each and sold in Pack quantity only.



Wall mounting polyester enclosures Thalassa PLM

IP66

Glass-fibre reinforced polyester cabinets



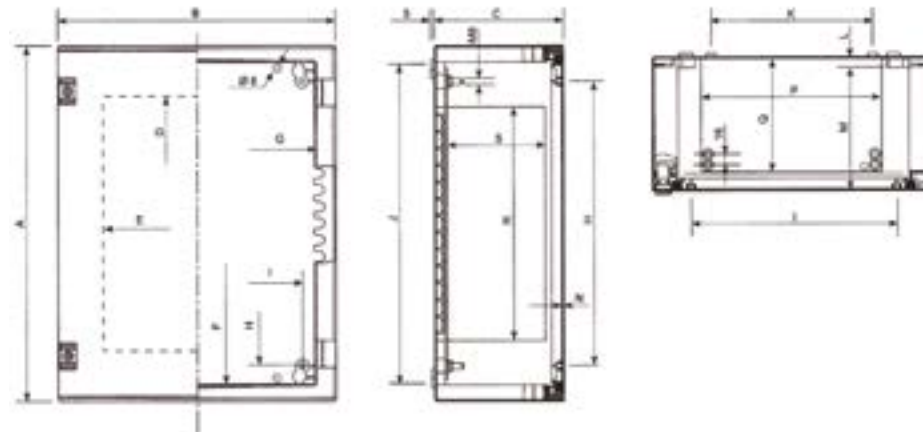
Includes insulated mounting plate

- > One-piece monoblock body.
- > Colour grey RAL7035.
- > Completely reversible.
- > Wide range of accessories, allowing for their use in distribution, control and measurement panels for industrial and recreational installations.
- > Inserts located at the front of the cabinet for fixing of distribution chassis and internal door.
- > Maximum working temperature ranges from -50° to 150°C.
- > Resistant to principal chemical and atmospheric agents.
- > Corrosion resistant.
- > Stable to ultraviolet rays.
- > High resistance to mechanical impacts IK10.
- > Suitable for harsh indoor and outdoor environments.
- > IEC62208 certified.

PLM cabinets

H (A) (mm)	W (B) (mm)	D (C) (mm)	Reference	Reference
			Glazed Door (2)	Plain Door (3)
310	215	160 (1)		NSYPLM32BG
430	330	200	NSYPLM43TG	NSYPLM43BG
530	430	200	NSYPLM54TG	NSYPLM54BG
647	436	250	NSYPLM64TG	NSYPLM64BG
747	536	300		NSYPLM75BG
847	636	300	NSYPLM86TG	NSYPLM86BG
1056	852	350	NSYPLM108TG	NSYPLM108BG

Dimensions



	NSYPLM						
	32	43	54	64	75	86	108
F	270	380	480	580	680	780	980
G	170	260	360	360	460	560	760
H	225	325	425	525	625	725	825
I	125	225	325	325	425	525	725
J	275	375	475	575	675	775	975
K	75	150	250	250	350	450	650
L	8	13	13	13	15	15	15
M	144	181	181	228	278	278	327
N	2.3	2.7	2.9	2.9	3	3	4
P	132	179	279	279	379	479	684
Q	129	168	168	212	261	261	304
R	186	247	347	388	487	587	776
S	121	150	150	192	241	241	291

- (1) Model PLM32 is made of polycarbonate.
- (2) Mounting plate to be ordered separately.
- (3) Includes insulated mounting plate

Wall mounting polyester enclosures Thalassa PLM

Mounting plates and accessories



NSYPLM54

Insulated mounting plates (4.0mm thickness)

H (mm)	W (mm)	To fit enclosure	Reference
265	150	NSYPLM32	NSYMB32
365	250	NSYPLM43	NSYMB43
465	350	NSYPLM54	NSYMB54
565	350	NSYPLM64	NSYMB64
665	450	NSYPLM75	NSYMB75
765	550	NSYPLM86	NSYMB86
965	750	NSYPLM108 (1)	NSYMB108

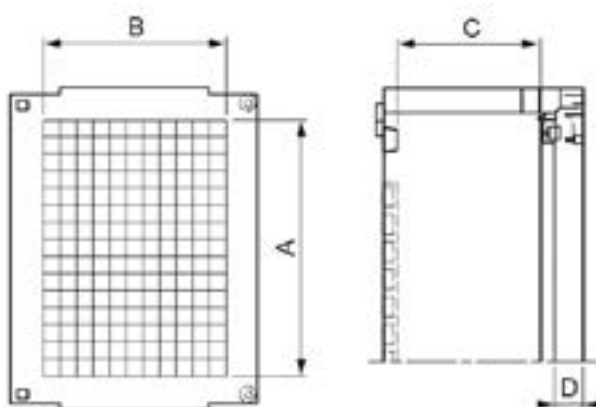
F



NSYPAP●●

Internal doors

(A)	(B)	(C)	(D)	To fit enclosure	Reference
315	205	152	26	NSYPLM43	NSYPAP43G
415	305	152	26	NSYPLM54	NSYPAP54G
515	305	194	32	NSYPLM64	NSYPAP64G
615	405	244	32	NSYPLM75	NSYPAP75G
715	505	244	32	NSYPLM86	NSYPAP86G



NSYDPLM●●●

Depth adjustable supports (slots every 12.5mm)

(A)	(B)	To fit enclosure	Reference
205	105	NSYPLM64	NSYDPLM250
255	205	NSYPLM75 and NSYPLM86	NSYDPLM300
255	205	NSYPLM108	NSYDPLM350



NSYTCSPML

Rail fixing insert

	To fit enclosure	Reference
Plastic nut and self tapping screw	To fit all enclosures	NSYTCSPML
Plastic nut and M6 screw	To fit all enclosures	NSYTCSPML

Note

(1) 5.0mm thickness.

Refer to page F16 for steel mounting plate options (NSYMM●●).

Wall mounting polyester enclosures Thalassa PLM

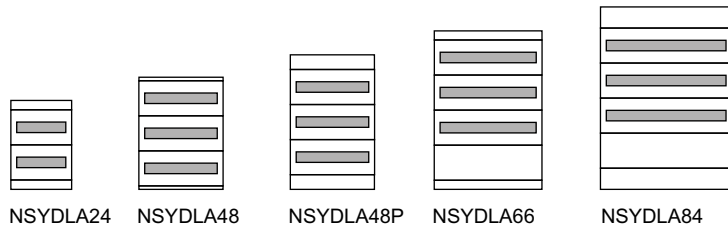
Din rail distribution system

DIN rail distribution chassis

- > Front panels and finish covers: RAL7035 grey.
- > Front panels and finish covers: self-extinguishing, insulating.
- > Front panels and covers installed in the front part, are not depth adjustable.
- > Rigid structure for the installation of modular devices.
- > Rigid structure: galvanised steel.
- > Open front panels with 35mm DIN rail and plain front panels with mounting plate, according to the model.
- > Quick installation with no fixings.
- > Shoulder height adjustable from 40 to 85mm.
- > System for standard circuit marking.
- > Not compatible with internal doors and the step slides.



No. of rows	No. of 18mm mods	(A)	(B)	(C)	(D) min	(E) min	To fit enclosure	Reference
2	24	216	115	137	38	54	NSYPLM43 (1)	NSYDLA24G
3	48	288	90	112	38	54	NSYPLM54 (1)	NSYDLA48G
3	48	288	140	170	80	96	NSYPLM64 (1)	NSYDLA48PG
3	66	395	115	145	129	179	NSYPLM75 (1)	NSYDLA66G
3	84	504	165	195	129	179	NSYPLM86 (1)	NSYDLA84G



Note

E+N bars not supplied.

(1) Also suitable for use with Metal Enclosures: NSYCRN43/54/75/86 and Stainless Steel Enclosures: NSYS3X43/54/64/75/86.

Wall mounting polyester enclosures Thalassa PLM

Locks, accessories and spare parts



NSYKPLM



NSYCDBPLM



NSYCAG35LP



NSYPFPLM



NSYPFXPLM



NSYDPLM43-86



NSYAEDHPLM

Locks

Description	Reference
Standard double bar lock and polymide key (1)	NSYCDBPLM
Key lock and Ronis 405 key (PLM32-86)	NSYTL405PLM
Key lock and Ronis 405 key (PLM108)	NSYTEL405PL
8mm triangle lock insert and key	NSYTT8CRN
Spare 8mm triangle key	NSYLT8
Stainless steel padlockable fitting	NSYKPLM
Spare double bar standard key (metal)	NSYLDB5
Spare double bar standard key (polymide) (1)	NSYDBP

Accessories

Description	To fit enclosure	Reference
Plastic air vent 35mm, internal, IP44 rear of the enclosures	NSYPLM43-86	NSYCAG35LP
Mounting brackets (polymide) (pack of 4) (2)	NSYPLM32	NSYPFPLM32G
Mounting brackets (polymide) (pack of 4) (2)	NSYPLM43-108	NSYPFPLMG
Mounting brackets (s/steel) (pack of 4) (2)	NSYPLM43-108	NSYPFXPLM
Expansion nuts M6 (Pack of 20) (2)	NSYPLM64-108	NSYTEX6
Expansion nuts M8 (Pack of 8) (2)	NSY Enclosure body	NSYTEX8

Spare parts

Description	To fit enclosure	Reference
Replacement door without locking	NSYPLM43	NSYDPLM43G
	NSYPLM54	NSYDPLM54G
	NSYPLM64	NSYDPLM64G
	NSYPLM75	NSYDPLM75G
	NSYPLM86	NSYDPLM86G
	NSYPLM108	NSYDPLM108G
Locking and rods	NSYPLM108	NSYVPLM108G
	NSYPLM108	NSYAEDPLM108
	NSYPLM32	NSYAEDHPLM32
	NSYPLM43-86	NSYAEDHPLM
	NSYPLM108	NSYAEDHPLM108
Rod guides (pack of 4)	NSYPLM108	NSYAEDPLM108
Hinge pins (pack of 2) (2)	NSYPLM32	NSYAEDHPLM32
Hinge pins (pack of 2) (2)	NSYPLM43-86	NSYAEDHPLM
Hinge pins (pack of 3) (2)	NSYPLM108	NSYAEDHPLM108

Notes

- (1) Key can be made captive.
- (2) Priced as Pack quantity.



Floor standing polyester cabinets Thalassa PLA

Mounting plates
IP65

Hot-moulded reinforced polyester cabinets

- > Resistant to principal chemical agents and corrosive atmospheres.
- > UV light stabilised.
- > Reversible door, opening to 120°. Maximum permissible load: 30kg/m2.
- > Door closure system outside the sealed zone. Two closure points for enclosures up to 750mm height, four closure points from 1000mm height, with rod operating mechanism.
- > Colour grey RAL7035.
- > Double bar lock. Other types available.
- > Two-door cabinets include a removable central upright.
- > High degree of resistance to mechanical impacts IK10.
- > Maximum working temperature ranges from -50° to 150°C.
- > Suitable for outdoor environments with canopy.
- > IEC62208 certified.



NSYPLA1573

PLA cabinets

H (mm)	W (mm)	D (mm)	No. of Doors	Reference	Reference
					Plain Door
500	500	320	1		NSYPLA553G
750	500	320	1		NSYPLA753G
750	500	420	1		NSYPLA754G
750	750	320	1		NSYPLA773G
1000	500	320	1		NSYPLA1053G
1000	750	320	1		NSYPLA1073G
1000	1000	320	2		NSYPLA10103G
1000	1000	420	2		NSYPLA10104G
1250	750	320	1		NSYPLA1273G
1250	1000	320	2		NSYPLA12103G
1250	1250	320	2		NSYPLA12123G
1500	750	320	1		NSYPLA1573G
1500	1000	320	2		NSYPLA15103G
1500	1250	320	2		NSYPLA15123G



NSYPMB●●

Insulated mounting plates

H (mm)	W (mm)	To fit enclosure	Reference
390	375	NSYPLA553G	NSYPMB55
640	375	NSYPLA753G	NSYPMB75
640	625	NSYPLA773G	NSYPMB77
890	375	NSYPLA1053G	NSYPMB105
890	625	NSYPLA1073G	NSYPMB107
890	875	NSYPLA10103G	NSYPMB1010
1140	625	NSYPLA1273G	NSYPMB127
1140	875	NSYPLA12103G	NSYPMB1210
1140	1125	NSYPLA12123G	NSYPMB1212
1390	625	NSYPLA1573G	NSYPMB157
1390	875	NSYPLA15103G	NSYPMB1510
1390	1125	NSYPLA15123G	NSYPMB1512

Alternative two-door cabinet 2 mounting plate combinations

To fit enclosure	Reference
NSYPLA10103G	NSYPMB105 + NSYPMB105
NSYPLA12103G	NSYPMB125 + NSYPMB125
NSYPLA12123G	NSYPMB125 + NSYPMB127

Floor standing polyester cabinets Thalassa PLA

Accessories, bases and canopies



NSYDPLA●

Depth adjustable supports

Description	Reference
To fit NSYPLA enclosures 320mm	NSYDPLA3



NSYZNPLA●●

Bases

Description	Reference
To fit NSYPLA enclosures 320mm	
NSYPLA553, 753, 1053, 1253, 1553	NSYZNPLA53G
NSYPLA773, 1073, 1273, 1573	NSYZNPLA73G
NSYPLA10103, 12103, 15103	NSYZNPLA103G
NSYPLA10104G	NSYZNPLA104G
NSYPLA15123	NSYZNPLA123G

Canopies (1)



Description	Reference
To fit NSYPLA enclosures 320mm	
NSYPLA553, 753, 1053, 1253, 1553	NSYTJPLA53G
NSYPLA773, 1073, 1273, 1573	NSYTJPLA73G
NSYPLA10103, 12103, 15103	NSYTJPLA103G
NSYPLA10104G	NSYTJPLA54G
NSYPLA15123	NSYTJPLA123G

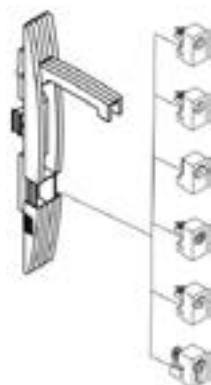


NSYEBMPLAG

Locks (double bar lock comes as standard)

Description	Reference
Transformation handle (2)	
Spare 8mm triangle key (key only)	NSYLT8
Swing handle lock with padlocking device	NSYCBCMPLAG
Spare double bar standard key	NSYLDB5

Transformations of standard lock to other versions



Set of handle locks

Description	Reference
8mm triangular insert with LT8 key	NSYINT81
405 key type insert	NSYIN405E1
Push button insert	NSYTSPLA
3mm double bar insert (standard supply)	NSYINDB31
5mm double bar insert (standard supply)	NSYINDB51

Note

- (1) Essential for outdoor use.
- (2) To obtain the complete lock, inserts must be ordered separately as well as EBMPA.



Wall mounting steel enclosures Spacial CRN

IP66



Steel enclosures

Metal enclosures made from a continuous length of sheet steel double folded at the front, with back welded to the frame. Both externally and internally protected with polyester epoxy resin grey paint to RAL7035 texturised.

- > Concealed and easily removable hinges allowing over 120° door opening.
- > Three welded earth studs.
- > Embedded cable gland plate.
- > Suitable for indoor use or where moisture content is less than 80%.
- > IEC62208 certified.

CRN cabinets

H (A) (mm)	W (B) (mm)	D (C) (mm)	No. of doors	Reference
				Plain Door
250	200	150	1	NSYCRN252150P
300	250	150	1	NSYCRN325150P
300	250	200	1	NSYCRN325200P
300	300	200	1	NSYCRN33200P
400	300	150	1	NSYCRN43150P
400	300	200	1	NSYCRN43200P
500	400	150	1	NSYCRN54150P
500	400	200	1	NSYCRN54200P
500	400	250	1	NSYCRN54250P
600	500	200	1	NSYCRN65200P
600	500	250	1	NSYCRN65250P
700	500	250	1	NSYCRN75250P
800	600	250	1	NSYCRN86250P
800	600	300	1	NSYCRN86300P
800	600	400	1 (1)	NSYCRN86400
800	1000	300	2 (1) (2)	NSYCRN810300D
1000	600	250	1	NSYCRN106250P
1000	800	250	1	NSYCRN108250P
1000	800	300	1	NSYCRN108300P
1000	800	400	1 (1)	NSYCRN108400
1000	1000	300	2 (1) (2)	NSYCRN1010300D
1000	1200	300	2 (1) (2)	NSYCRN1012300D
1200	800	400	1 (1)	NSYCRN128400
1200	1000	400	2 (1) (2)	NSYCRN1210400D

Note

- (1) Mounting plates to be ordered separately.
(2) IP55 for double door enclosures. Replacement doors on request.

Wall mounting steel enclosures Spacial CRN

Mounting plates and accessories



NSYMM54

Steel mounting plates (2.0mm thickness up to CRN75, 3.0mm CRN86 and above)

H (mm)	W (mm)	To fit enclosure	Reference
215	150	NSYCRN2520	NSYMM2520
265	200	NSY325150, 200	NSYMM3025
265	250	NSYCRN33200	NSYMM33
365	250	NSYCRN43150, 200	NSYMM43
465	350	NSYCRN54150, 200, 250	NSYMM54
565	450	NSYCRN65200, 250	NSYMM65
665	450	NSYCRN75250	NSYMM75
765	550	NSYCRN(G)86250, 300, 400	NSYMM86
750	965	NSYCRNG108250, 300, 400, NSYCRNG810300D	NSYMM108
965	550	NSYCRN106250	NSYMM106
950	950	NSYCRNG1010300	NSYMM1010
950	1150	NSYCRNG1012300	NSYMM1210
1150	750	NSYCRNG128400	NSYMM128
1150	950	NSYCRNG1210400	NSYMM1210



NSYMB54

Insulated mounting plates (4.0mm thickness)

H (mm)	W (mm)	To fit enclosure	Reference
265	200	NSY325150, 200	NSYMB3025
265	250	NSYCRN33200	NSYMB33
365	250	NSYCRN43150, 200, 250	NSYMB43
465	350	NSYCRN54150, 200	NSYMB54
565	450	NSYCRN65200, 250	NSYMB65
665	450	NSYCRN75250	NSYMB75
765	550	NSYCRN(G)86250, 300, 400	NSYMB86
965	550	NSYCRN106250	NSYMB106
965	750	NSYCRN(G)108250, 300, 400 (1)	NSYMB108



NSYSDCR●●●

Depth adjustable supports (self-positioning slots every 12.5mm)

To fit enclosure depth	Reference
200	NSYSDCR200
250	NSYSDCR250
300	NSYSDCR300



NSYCAG

Accessories

Description	Reference
Metal Louvre, IP20, 144x62mm	NSYCAG110X46M
Metal Louvre, IP20, 208x90mm	NSYCAG180X62M
Metal Louvre, IP20, 244x90mm	NSYCAG216X62M
Metal Louvre, IP20, 345x118mm	NSYCAG317X91M
Diagram pocket	NSYDPA44
Diagram pocket	NSYDPA5
Set of 4 wall fixing lugs – CRN	NSYPFCR
Set of 4 wall fixing lugs – CRNG	NSYAEFFFC



NSYPFCR

Note

(1) 6.0mm thickness.

Wall mounting steel enclosures Spacial CRN

Locks and spare parts



NSYCDB3

Locks (double bar lock comes as standard)

Description	Reference
Standard double bar lock (1)	NSYCDB3
Key lock insert and wing shaped key (405)	NSYCL405CRN
8mm triangle lock insert and key	NSYTT8CRN
Spare 8mm triangle lock (key only)	NSYLT8
Spare double bar standard key (metal)	NSYLDB5
Spare double bar standard key (polymide)	NSYDBP
Padlock handle (no cam) - CRN/S3X	NSYCBCCRN



NSYSUCR200WM

Mounting Rails*

Description	Reference
Cross rail (set of 2) for CRN enclosure, depth 200	
Cross rail (set of 2) for CRN enclosure, depth 250	
Cross rail (set of 2) for CRN enclosure, depth 300	NSYSUCR300WM
Cross rail (set of 2) for CRN enclosure, depth 400	NSYSUCR400WM

*Max load 6kg

Spare parts

Description	To fit enclosure	Reference
1 Hinge for CRN		NSYBICRN

Note

- (1) Standard double bar lock operated by Wing shaped handle DBP (standard).
Key wing LDB 5 DIN 43668 (optional supply).
When DBP is affixed to lock, the double bar lock is transformed into normal wing lock.



Wall mounting stainless steel enclosures

Spacial S3X

ASI 304L stainless steel
ASI 316L stainless steel
IP66



Stainless steel enclosures

The stainless steel enclosures are specially suitable for corrosive environments and installations where hygiene is essential.

- > Monobloc watertight AISI 304 stainless steel enclosures
- > Scotch Brite (AST) type mechanical polish for an excellent surface quality and improved protection against corrosion.
- > Welded studs for fixing of mounting plates and earthing.
- > Suitable for outdoor environments (excluding salty and chlorinated environments).
- > IEC62208 certified.

304L Stainless steel

H (A) (mm)	W (B) (mm)	D (C) (mm)	Weight (kg)	Reference Plain Door
300	200	150	3.9	NSYS3X3215
300	250	150	4.8	NSYS3X302515
300	300	150	5	NSYS3X3315
400	300	150	5.7	NSYS3X4315
400	300	200	6.7	NSYS3X4320
400	400	200	7	NSYS3X4420
500	400	200	9.2	NSYS3X5420
600	400	200	10.7	NSYS3X6420
600	600	250	14	NSYS3X6625
700	500	250	18.5	NSYS3X7525
800	600	250	23.5	NSYS3X8625
800	800	300	31	NSYS3X8830
1000	800	300	38.5	NSYS3X10830
1200	800	300	44	NSYS3X12830

316L Stainless steel

H (A) (mm)	W (B) (mm)	D (C) (mm)	Weight (kg)	Reference Plain door
300	200	150	3.9	NSYS3X3215H
300	250	150	4.8	NSYS3X302515H
300	300	150	5	NSYS3X3315H
400	300	150	5.7	NSYS3X4315H
400	300	200	6.7	NSYS3X4320H
400	400	200	7	NSYS3X4420H
500	400	200	9.2	NSYS3X5420H
600	400	200	10.7	NSYS3X6420H
600	600	250	14	NSYS3X6625H
700	500	250	18.5	NSYS3X7525H
800	600	250	23.5	NSYS3X8625H
800	800	300	31	NSYS3X8830H
1000	800	300	38.5	NSYS3X10830H
1200	800	300	44	NSYS3X12830H

Wall mounting stainless steel enclosures Spacial S3X

Mounting plates and accessories



NSYMB54

Insulated mounting plates (4.0mm thickness)

H (mm)	W (mm)	To fit enclosure	Reference
265	150	NSYS3X3215	NSYMB32
265	200	NSYS3X302515	NSYMB3025
265	250	NSYS3X3315	NSYMB33
365	250	NSYS3X4315/4320	NSYMB43
465	350	NSYS3X5420	NSYMB54
565	350	NSYS3X6420	NSYMB64
665	450	NSYS3X7525	NSYMB75
765	550	NSYS3X8625	NSYMB86
965	750	NSYS3X10830 (1)	NSYMB108

Note

(1) 5.0mm thickness



NSYMM54

Steel mounting plates (2.0mm thickness up to NSYS3X75 3.0mm NSYS3X86 and above)

H (mm)	W (mm)	To fit enclosure	Reference
265	150	NSYS3X3215	NSYMM32
265	200	NSYS3X302515	NSYMM3025
265	250	NSYS3X3315	NSYMM33
365	250	NSYS3X4315/4320	NSYMM43
365	350	NSYS3X4420	NSYMM44
465	350	NSYS3X5420	NSYMM54
565	350	NSYS3X6420	NSYMM64
565	550	NSYS3X6625	NSYMM66
665	450	NSYS3X7525	NSYMM75
765	550	NSYS3X8625	NSYMM86
765	750	NSYS3X8830	NSYMM88
965	750	NSYS3X10830	NSYMM108
1165	750	NSYS3X12830	NSYMM128



NSYSDCR●●●

Depth adjustable supports (self-positioning slots every 12.5mm)

To fit enclosure depth	Reference
200	NSYSDCR200
250	NSYSDCR250
300	NSYSDCR300



Rear of enclosure with stainless steel mounting plate fixing studs. Wall mounting holes with blanking plugs.



Earthing studs welded to the door for use when electrical devices are mounted on the door.

Wall mounting stainless steel enclosures Spacial S3X

Locks, accessories and spare parts



NSYSTDCXH



NSYCBXHCRN



NSYPFCX



NSYPFCX



NSYHS3X

Locks (double bar lock comes as standard)

Description	Reference
Key lock insert and key	NSYCL405CSX
Triangular male lock insert 8mm (304 stainless steel)	NSYTT8CSX
Metal key for 8mm triangle insert	NSYLT8
Metal key for 5mm double bar insert	NSYLDB5
Replace. round lock, DB 3mm, chrome-plated zamak (1)	NSYSTDCSX
Replace. Round lock, DB 3mm (304 stainless steel) (1)	NSYSTDCXH
Replace. Round lock, DB 3mm (316 stainless steel) (1)	NSYSTDCX2H
Padlockable handle (316 stainless steel)	NSYCBXHCRN

Accessories

Description	Reference
Diagram pocket	NSYDPA44
Diagram pocket	NSYDPA5
Set of 4 wall fixing lugs (stainless steel 304)	NSYPFCX
Set of 4 wall fixing lugs (stainless steel 316)	NSYPFC2X

Fan/Filter Covers IP55

Characteristics	This solution protects the fan or the grille from any direct sprays. The cover is the preferred solution to guarantee the following: > an efficient air flow for cooling, > IP55 rating.
Material	2 materials available: > sheet-steel painted with epoxy-polyester resin (RAL 7035) for outdoor applications > stainless-steel 304L for food and beverage applications
Ingress protection rating	IP55
Mechanical protection rating	IK10
Certifications	UL
Installation	Double insulation maintained if installed in an insulated enclosure. The cover is placed over the fan or the grille with a filter located at the bottom of the cover to prevent the entry of particles. Easy access to the filter: only two screws needed. When mounting: remove the external part of the fan or the grille as well as the filter.
Supply	It is necessary to order 1 fan + 1 grille + 2 covers to have a complete system

Flow rate (m ³ /h)* with cover	Dimensions (mm)	References			
Free	With 1 outlet grille	External	Cut-out	Sheet-steel painted for outdoor applications RAL 7035	Stainless-steel 304L
74	53	240 x 180 x 60	125 x 125		
110	82	350 x 305 x 80	223 x 223		
165	123	350 x 305 x 80	223 x 223		
316	265	430 x 373 x 105	291 x 291		
502	430	430 x 373 x 105	291 x 291		

* Values given for a fan powered at 230 V. For other voltages, the values are similar.

Spare parts

Description	To fit enclosure	Reference
Set of 2 hinges for S3X		NSYHS3X

Note

(1) Standard double bar lock with latch and fixing screw operated by means of LDB5 key supplies as standard.

Ventilation and heating devices

ClimaSys CV



NSYCVF165M230PF

IP54 fans (c/w grill and filter)

External dimensions (mm)			Air flow m ³ /h (1)	Voltage (V)	Power Consumption (W)	Reference
H	W	D				
137	117	49	38m ³ /h	115	3.5	NSYCVF38M115PF
137	117	49	25m ³ /h	230	5	NSYCVF38M230PF
170	150	62	63m ³ /h	230	17	NSYCVF85M230PF
170	150	62	85m ³ /h	115	16	NSYCVF85M115PF
170	150	62	80m ³ /h	24	7.5	NSYCVF85M24DPF
268	248	104	153m ³ /h	230	17	NSYCVF165M230PF
268	248	104	165m ³ /h	115	15.5	NSYCVF165M115PF
268	248	116	260m ³ /h	230	37	NSYCVF300M230PF
336	316	161	473m ³ /h	230	85	NSYCVF560M230PF
336	316	162	718m ³ /h	230	195	NSYCVF850M230PF
336	316	162	798m ³ /h	400	40	NSYCVF850M400PF



NSYAG92LPF

IP54 grill and filter

External dimensions (mm)			Use with	Reference
H	W	D		
137	117	18	NSYCVF38	NSYAG92LPF
170	150	18	NSYCVF85	NSYAG125LPF
268	248	18	NSYCVF165, 300	NSYAG223LPF
336	316	18	NSYCVF560, 850, 850/400	NSYAG291LPF

Hole cut out size (mm)

H	W	Use with
92	92	NSYCVF38, NSYAG92LPF
125	125	NSYCVF85, NSYAG125LPF
223	223	NSYCVF165, 300, NSYAG223LPF
291	291	NSYCVF560, 850, 850/400, NSYAG291LPF

Filter

Use with	Reference
NSYCVF38, NSYAG92LPF	NSYCAF92
NSYCVF85, NSYAG125LPF	NSYCAF125
NSYCVF165, 300, NSYAG223LPF	NSYCAF223
NSYCVF560, 850, 850/400, NSYAG291LPF	NSYCAF291



NSYCCOTH

Control devices

Thermostat range	Control		Reference
	Heat	Fan	
0-60°C	1 NC	10A 250V AC1	NSYCCOTH
	1 NO	10A 250V AC1	NSYCCOTH
	1 NO + 1NC	10A 250V AC1	NSYCCOTH



NSYCR55WU2

Resistance heaters

External dimensions (mm)			Power (W)	Voltage (V)	Reference
H	W	D			
70	50	140	55	250	NSYCR55WU2
70	50	140	90	250	NSYCR100WU2

Note

(1) Air flow with 1 outlet grill.

Surface mount enclosures



MIP0108S

IP40 surface mount enclosure

Description	Reference
Mini Pragma 1 row 6 way	MIP0106S
Mini Pragma 1 row 8 way	MIP0108S
Mini Pragma 1 row 12 way	MIP0112S

Comes with earth and neutral bars, comb bus bar and pole fillers. Entry plates removable top & bottom.



PDL56CB13

IP66 surface mounting enclosure

Description	Reference
56 Series 3 way enclosure (standard grey cover and 56E6 base), DIN rail, N+E bars and links	PDL56CB13
56 Series 4 way cover (fits 56E2 base - not included), includes DIN rail	PDL56CB4LEGY

IP66 metal clad heavy industrial surface mount enclosure

Description	Reference
WilcoROWCO 4 way enclosure (yellow cover and base)	WMDIN2



WMDIN2

Linergy TR terminal blocks

Screw terminal blocks for use on 35mm DIN rail



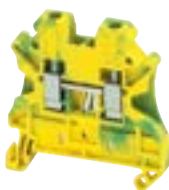
NSYTRV22



NSYTRV352



NSYTRV952BB



NSYTRV42PE



NSYTRV42SC



NSYTRV42SF5



NSYTRV162SF

Screw terminal blocks – passthrough

Description (CSA mm ²)	Rating (A)	Pack qty	Blue reference	Grey reference
2.5 (1)	24	50	NSYTRV22BL	NSYTRV22
4 (1)	32	50	NSYTRV42BL	NSYTRV42
6	41	50	NSYTRV62BL	NSYTRV62
10	57	50	NSYTRV102BL	NSYTRV102
16	76	50	NSYTRV352BL	NSYTRV162
35	125	50	NSYTRV352BL	NSYTRV352
50	150	10		NSYTRV502

Screw terminal blocks – protective earth

Description (CSA mm ²)	Rating (A)	Pack qty	Reference
2.5	–	50	NSYTRV22PE
4	–	50	NSYTRV42PE
6	–	50	NSYTRV62PE
10	76	50	NSYTRV102PE
16	101	50	NSYTRV162PE
35	125	50	NSYTRV352PE

Screw terminal accessories

Description	To fit terminal	Pack qty	Blue reference	Grey reference
End Plate width 2.2mm	2.5-10mm	50	NSYTRAC22BL	NSYTRAC22
	16mm	10	–	NSYTRAC162
Partition Plate width 2mm	2.5-16mm	50	NSYTRAP22BL	NSYTRAP22
	95-150mm	10	–	NSYTRAC952
Cover	95mm	10	–	NSYTRACP1
	150mm	10	–	NSYTRACP2

Description	To fit terminal	Pack qty	Screw to screw reference	Screw to spring reference
Step-down bridge to 2.5/4mm	6mm	10	NSYTRALV62	NSYTRALVR62
	10mm	10	NSYTRALV102	NSYTRALVR102

Screw terminal blocks – disconnect and fuse

Description	Rating (A)	Colour	Pack qty	Reference
4mm ² Disconnect (blade)	20	Grey	50	NSYTRV42SC
4mm ² Disconnect with test points (blade)	20	Grey	50	NSYTRV42ST
4mm ² Disconnect (for removable carrier)	20	Grey	50	NSYTRV42TB
Removable carrier for fuse 5x20mm			10	NSYTRASF520
Removable carrier for component			10	NSYTRASV1
Partition Plate for NSYTRV42SC/ST/STAR/TB		Grey	50	NSYTRAP23
4mm ² Disconnect for 5x20mm Fuse (lever type)	6.3	Black	50	NSYTRV42SF5
16mm ² Disconnect for 5x20mm Fuse (fixed carrier)	10	Black	50	NSYTRV162SF

Note

(1) Other colours available, add suffix to grey reference, AR for Orange, RD for Red, WH for White.

Linergy TR terminal blocks

Spring terminal blocks for use on 35mm DIN rail



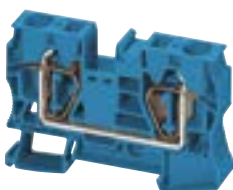
NSYTRR62



NSYTRR43



NSYTRR24



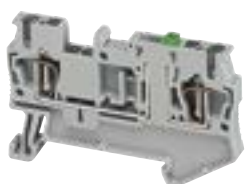
NSYTRR162BL



NSYTRR102PE



NSYTRALR102



NSYTRR22SC

Spring terminal blocks – passthrough

Description (CSA mm ²)	Rating (A)	Connection points	Pack qty	Blue reference	Grey reference
2.5	24	1 x 1	50		NSYTRR22
		1 x 2	50	NSYTRR23BL	NSYTRR23
		2 x 2	50		NSYTRR24
4	32	1 x 1	50		NSYTRR42
		1 x 2	50		NSYTRR43
		2 x 2	50		NSYTRR44
6	41	1 x 1	50	NSYTRR62BL	NSYTRR62
10	57	1 x 1	50	NSYTRR102BL	NSYTRR102
16	76	1 x 1	50	NSYTRR162BL	NSYTRR162

Spring terminal blocks – protective earth

Description (CSA mm ²)	Connection points	Pack qty	Grey reference
2.5	1 x 1	50	NSYTRR22PE
	1 x 2	50	NSYTRR23PE
4	1 x 1	50	NSYTRR42PE
	1 x 2	50	NSYTRR43PE
6	1 x 1	50	NSYTRR62PE
10	1 x 1	50	NSYTRR102PE

Spring terminal accessories

Description	To fit terminal	Pack qty	Blue reference	Grey reference
End Plate width 2.2mm	2.5mm 1 x 1	50	NSYTRACR22BL	NSYTRACR22
	2.5mm 1 x 2	50	NSYTRACR23BL	NSYTRACR23
	2.5mm 2 x 2	50	NSYTRACR24BL	NSYTRACR24
	4mm 1 x 1	50		NSYTRACR42
	4mm 1 x 2	50		NSYTRACR43
	4mm 2 x 2	50		NSYTRACR44
	6mm 1 x 1	50		NSYTRACR62
	6mm 1 x 2	50		NSYTRACR63
	10mm 1 x 1	50		NSYTRACR102
	16mm 1 x 1	50		NSYTRACR162
Partition Plate width 2mm	2.5mm 1x1	50		NSYTRAPR42
	2.5mm 1x2	50		NSYTRAPR23
	2.5mm 1x3	50		NSYTRAPR24
	4mm 1x1	50		NSYTRAPR42

Description	To fit terminal	Pack qty	Spring to spring reference
Step-down bridge to 2.5/4mm	6mm	10	NSYTRALR62
	10mm	10	NSYTRALR102
	16mm	10	NSYTRALR162

Spring terminal – disconnect

Description	Connection points	Rating (A)	Colour	Pack qty	Reference
2.5mm ² Disconnect (blade)	1 x 1	20	Grey	50	NSYTRR22SC
Removable carrier for fuse 5 x 20mm				10	NSYTRASF520
Removable carrier for component				10	NSYTRASV1

Linergy TR terminal blocks

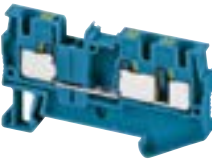
Push-in terminal blocks for use on 35mm DIN rail



NSYTRP22

Push-in terminal blocks – passthrough

Description (CSA mm ²)	Rating (A)	Connection points	Pack qty	Blue reference	Grey reference
2.5	30	1 x 1	50	NSYTRP22BL	NSYTRP22
		1 x 2	50	NSYTRP23BL	NSYTRP23
		2 x 2	50	NSYTRP24BL	NSYTRP24
2.5 double decker	24	1 x 1	50	NSYTRP24DBL	NSYTRP24D
4	38	1 x 1	50	NSYTRP42BL	NSYTRP42
		1 x 2	50	NSYTRP43BL	NSYTRP43
		2 x 2	50	NSYTRP44BL	NSYTRP44



NSYTRP43BL

Push-in terminal blocks – protective earth

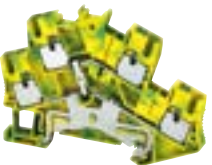
Description (CSA mm ²)	Rating (A)	Connection points	Pack qty	Grey reference
2.5		1 x 1	50	NSYTRP22PE
		1 x 2	50	NSYTRP23PE
		2 x 2	50	NSYTRP24PE
2.5 double decker		1 x 1	50	NSYTRP24DPE
4		1 x 1	50	NSYTRP42PE



NSYTRP24PE

Push-in terminal accessories

Description	To fit terminals	Pack qty	Blue reference	Grey reference
End Plate width 2.2mm	2.5mm 1 x 1	50	NSYTRACR22BL	NSYTRACR22
	2.5mm 1 x 2	50	NSYTRACR23BL	NSYTRACR23
	2.5mm 2 x 2	50	NSYTRACR24BL	NSYTRACR24
	4 mm 1 x 1	50		NSYTRACR42
	4 mm 1 x 2	50		NSYTRACP43
	4 mm 2 x 2	50		NSYTRACP44
Partition Plate width 2mm	2.5mm 1 x 1	50		NSYTRAPR42
	2.5mm 1 x 2	50		NSYTRAPR23
	2.5mm 2 x 2	50		NSYTRAPR24
	4 mm 1 x 1	50		NSYTRAPR42
End Plate width 2.2mm for disconnects	2.5mm 1 x 1	50		NSYTRACPK22
	2.5mm 1 x 2	50		NSYTRACPK23
	2.5mm 2 x 2	50		NSYTRACPK24
	4 mm 1 x 1	50		NSYTRAPR42



NSYTRP24DPE

F

Linergy TR terminal blocks

Screw and Spring multi-level terminal blocks for use on 35mm DIN rail
Marketing accessories



NSYTRV24D



NSYTRACE24



NSYTRV26T



NSYTRACEP24



NSYTRR44D



NSYTRACRE44

Screw terminal – multi-level

Description	Rating (A)	Colour	Pack qty	Reference
2.5mm ² Double deck	24	Grey	50	NSYTRV24D
4mm ² Double deck	30	Grey	50	NSYTRV44D
4mm ² Double deck Protective Earth	30	Grn/Yell	50	NSYTRV44DPE
2.5mm ² Triple deck	20	Grey	50	NSYTRV26T
Partition Plate for NSYTRV24D/44D/44DPE		Grey	50	NSYTRACEP24
End Plate for NSYTRV24D/44D/44DPE		Grey	50	NSYTRACE24
End Plate for NSYTRV26T		Grey	50	NSYTRACE26
Vertical bridge for NSYTRV24D/44D		Grey	50	NSYTRALV24

Spring terminal – multi-level

Description	Rating (A)	Colour	Pack qty	Reference
2.5mm ² Double deck	22	Grey	50	NSYTRR24D
4mm ² Double deck	28	Grey	50	NSYTRR44D
2.5mm ² Triple deck	20	Grey	50	NSYTRR26T
End Plate for NSYTRR24D		Grey	50	NSYTRACRE24
End Plate for NSYTRR44D/44DPE		Grey	50	NSYTRACRE44
End Plate for NSYTRR26T		Grey	50	NSYTRACRE26
Vertical bridge for NSYTRR24D/44D		Grey	50	NSYTRALV24R



NSYTRR26T



NSYTRACRE26

Clip-in marker strips

10 consecutive figures or numbers, printed horizontally

Lateral sides for the NSYTRV and 2.5mm Central shaft for NSYTRR	4mm	6mm	>=10mm (1)
1-10 / 91-100 sold in lots of 10			
L1, L2, L3, N, PE sold in lots of 10			
1-100 sold as each			
1...10	NSYTRAB510	NSYTRAB610	NSYTRAB810
11...20	NSYTRAB520	NSYTRAB620	NSYTRAB820
21...30	NSYTRAB530	NSYTRAB630	NSYTRAB830
31...40	NSYTRAB540	NSYTRAB640	NSYTRAB840
41...50	NSYTRAB550	NSYTRAB650	NSYTRAB850
51...60	NSYTRAB560	NSYTRAB660	NSYTRAB860
61...70	NSYTRAB570	NSYTRAB670	NSYTRAB870
71...80	NSYTRAB580	NSYTRAB680	NSYTRAB880
81...90	NSYTRAB590	NSYTRAB690	NSYTRAB890
91...100	NSYTRAB5100	NSYTRAB6100	NSYTRAB8100
1...100	NSYTRAB51100	NSYTRAB61100	NSYTRAB10100
L1, L2, L3, N, PE	NSYTRAB5L1N	NSYTRAB6L1N	

Note

(1) For 16mm terminal blocks or bigger, the strip must be broken and used individually.

Lineryg TR terminal blocks

Spring terminal blocks for use on 35mm DIN rail



NSYTRAL210

Common accessories

Description	Connection points	To fit terminal	Pack qty	Reference
Plug-in bridge Red	2	2.5	50	NSYTRAL22
		4	50	NSYTRAL42
		6	10	NSYTRAL62
		10	10	NSYTRAL102
		16	10	NSYTRAL162
	3	2.5	50	NSYTRAL23
		4	50	NSYTRAL43
		6	10	NSYTRAL63
		50	10	NSYTRAL503
		4	2.5	50
	4	4	50	NSYTRAL44
		5	2.5	50
	5	4	50	NSYTRAL45
		10	2.5	10
	10	4	10	NSYTRAL410
6		10	NSYTRAL610	
20		2.5	10	NSYTRAL220
20	4	10	NSYTRAL420	

Description		To fit terminal	Pack qty	Reference
End stop for 35mm DIN rail	Clip on, 5.2mm	2.5 - 150	50	NSYTRAAB35
	With screw, 9.5mm	2.5 - 150	50	NSYTRAABV35
Test adaptor	For plug-in bridge shaft	2.5 - 35	10	NSYTRAFT
DIN rail, Perforated, W = 35mm, H = 7.2mm, L = 2000mm			20	NSYSDR200BD
DIN rail, Perforated, W = 35mm, H = 15mm, L = 2000mm			20	NSYDPR200D
Terminal marker carrier for end stop				NSYTRASB4

NSYTRAAB35



NSYTRAABV35



NSYSDR200BD



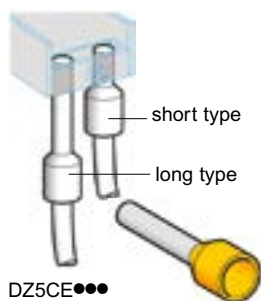
NSYDPR200D

Note

(1) Screw bridge.

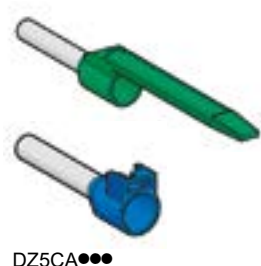
Cable ends

Cable ends and marking accessories



Cable ends with insulation sleeves (1)

Wire size		Pack qty	Colour	Reference
Short type	0.50 sq mm	100	White	DZ5CE005
	0.75 sq mm	100	Blue	DZ5CE007
	1.00 sq mm	100	Red	DZ5CE010
	1.50 sq mm	100	Black	DZ5CE015
	2.00 sq mm	100	Yellow	DZ5CE020
Long type	2.50 sq mm	100	Grey	DZ5CE025
	1.50 sq mm	100	Black	DZ5CE0153
	2.50 sq mm	100	Grey	DZ5CE0253



Cable ends with insulation sleeves and cable marking facility (1)

Wire size		Pack qty	Colour	Reference
Short type	0.50 sq mm	100	White	DZ5CA005
	0.75 sq mm	100	Blue	DZ5CA007
	1.00 sq mm	100	Red	DZ5CA010
	1.50 sq mm	100	Black	DZ5CA015
	2.50 sq mm	100	Grey	DZ5CA025
Short type	4.00 sq mm	100	Orange	DZ5CA042
	6.00 sq mm	100	Green	DZ5CA062
	10.00 sq mm	100	Brown	DZ5CA102
	16.00 sq mm	100	White	DZ5CA162
Long type	4.00 sq mm	100	Orange	DZ5CA043
	10.00 sq mm	100	Brown	DZ5CA103
	16.00 sq mm	100	White	DZ5CA163
	25.00 sq mm	100	Black	DZ5CA253



Double cable ends (1)

Wire size		Pack qty	Colour	Reference
Short type	1.50 sq mm	500	Black	AZ5DE015
	2.50 sq mm	500	Black	AZ5DE025

Notes

(1) Priced each and sold in Pack quantity only.

Clip-in markers and cable duct

Clip-in markers
Cable duct
Standoffs



AK2GD●●●●



AK2GA●●

Cable-duct (L = 2000mm)

Width (mm)	Height (mm)	Colour	Pack qty	Reference
25	50	Grey	8	AK2GD2550
37.5	75	Grey	8	AK2GD3775
50	75	Grey	8	AK2GD5075
100	75	Grey	8	AK2GD10075
125	75	Grey	8	AK2GD12575
30	35	Blue	8	AK2GA33
30	55	Blue	8	AK2GA35
30	90	Blue	8	AK2GA39
60	55	Blue	8	AK2GA65
60	90	Blue	8	AK2GA69



AK2CD●●



AK2CA●

Covers for cable-duct (L = 2000mm)

To fit cable-duct width (mm)	Colour	Pack qty	Reference
25	Grey	8	AK2CD25
37.5	Grey	8	AK2CD37
50	Grey	8	AK2CD50
100	Grey	8	AK2CD100
125	Grey	8	AK2CD125
30	Blue	8	AK2CA3
60	Blue	8	AK2CA6

F

Notes

F

Index

Medium voltage distribution

Medium voltage panorama

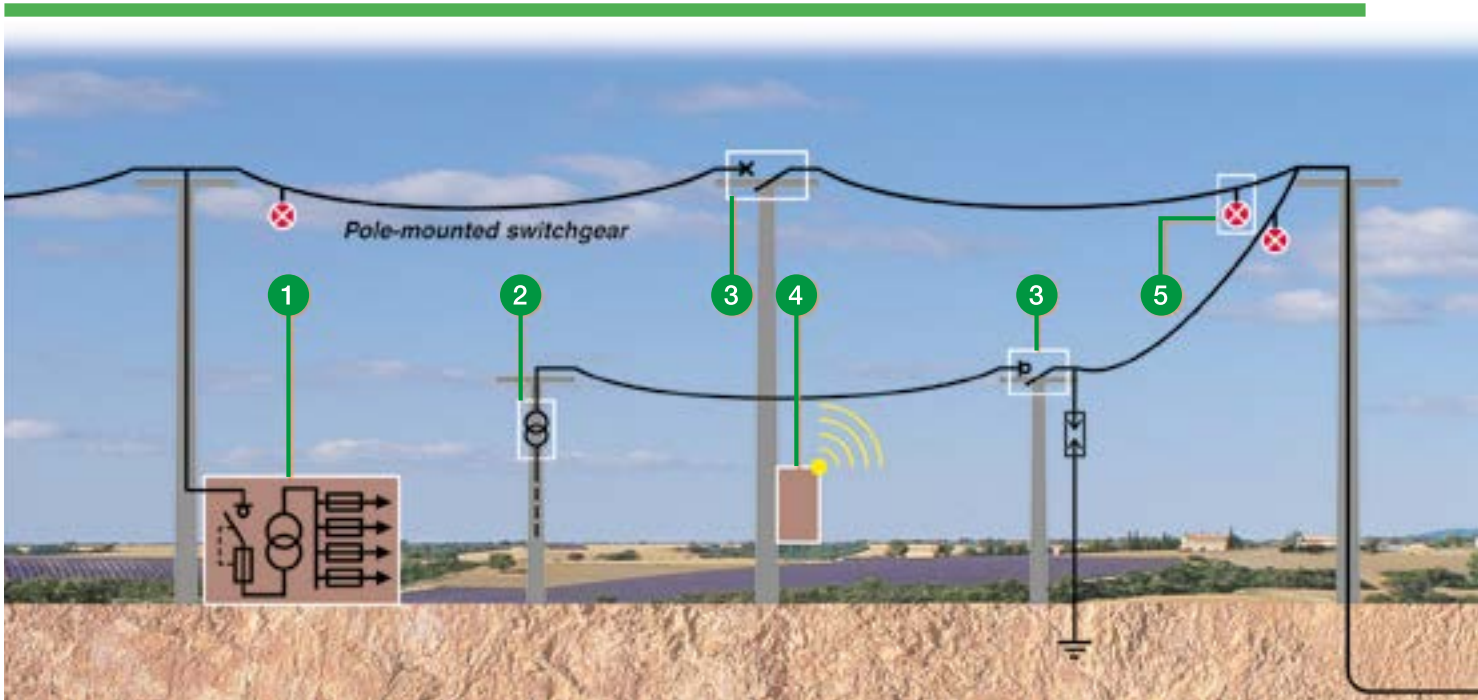
Medium voltage switchgear and transformer panorama

G2

G

Medium voltage panorama

Complete offer ranging from 3kV to 40kV



G

1

Prefabricated MV/LV substation (rectangular)



KPX
Up to 33kV
and 3MVA

Internal arc classification:
IAC-AB according to
AS62271.202

2

Pole-mounted transformers



MINERA
Immersed transformer
Up to 33kV and 500kVA

3

Pole-mounted switchgear



E Series
Up to 38kV/1250VA
Recloser

RL Series
Up to 38kV/630A
Load break switch

U and W Series
Up to 27kV/630A
Recloser

4

5

Overhead network control and monitoring



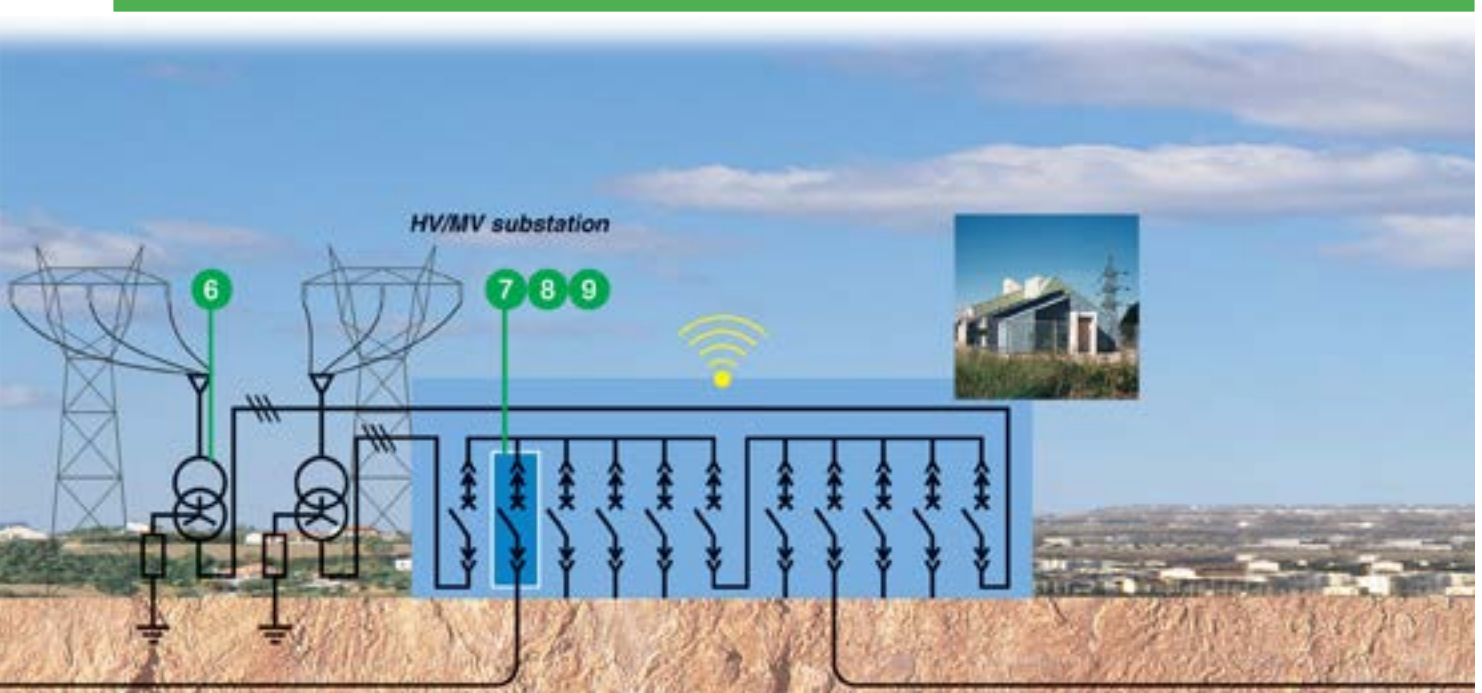
AVDC
Monitoring, control
and protection



Easergy Flite, G200
Communicating fault passage
indicator for overhead MV lines

Medium voltage panorama

Complete offer ranging from 3kV to 40kV



G

6

Power transformer



MINERA
Power transformer
up to 170kV
and 80MVA

7

Primary substation switchgear



Air Insulated Switchgear (AIS)
MCset up to 24kV/4000A
PIX up to 24kV/4000A
GenieEvo up to 13.8kV/2500A
F400 up to 36kV/2500A

8

Digital protection relays and power metering



Sepam Series 10, 20, 40, 60 and 80 protection, metering and control relays



MiCOM Series Px10, Px20, Px30 & Px40 protection and control relays.

PowerLogic Digital Meters
Waveform capture and accurate metering



VAMP series
arc fault detection relays

9



Easergy P1
Easergy P1 Overcurrent and Earth Fault protection relays



Easergy P3
Easergy P3 Universal and Advanced protection relays



Easergy P5
Easergy P5 withdrawable protection relays



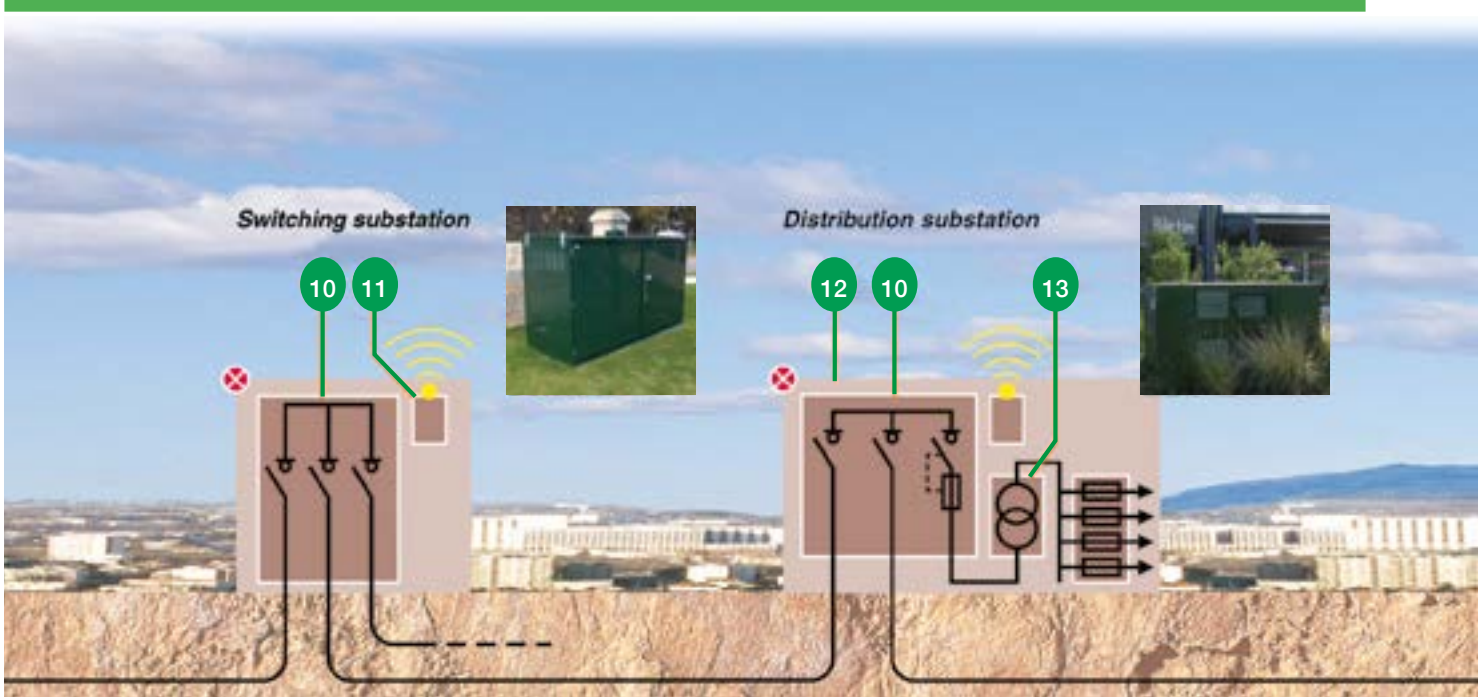
Aurtra Intelligent Sensor
Transformer condition monitoring



Gas Insulated Switchgear (GIS)
GMA up to 24kV/2500A
CBGS up to 36kV/2000A
GHA up to 36kV/2500A
WI up to 52kV/2500A

Medium voltage panorama

Complete offer ranging from 3kV to 40kV



G

10

Ring main unit
"Compact" Secondary
Switchgear



RM6 up to 24kV/630A
DVCAS up to 36kV/630A
RM AirSeT up to 24kV/630A
Ringmaster up to 13.8kV/630A

11

Remote control
and fault tracking



Easergy
T300 and Flair
Remote control, monitoring and
automation using DNP3, Modbus
and IEC61850 protocols

12

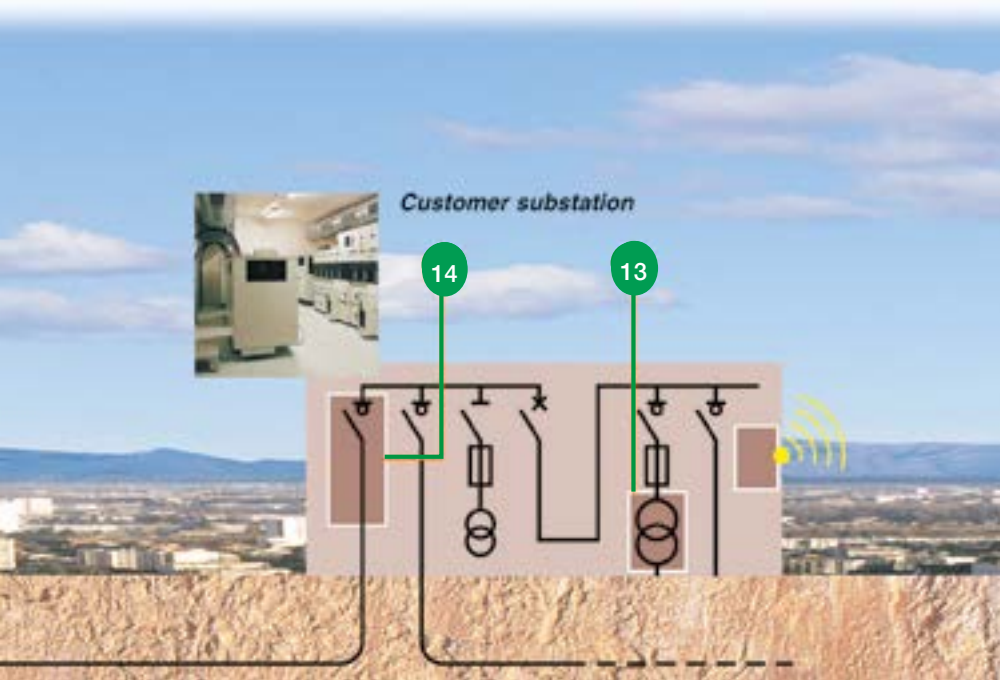
Prefabricated MV/LV
substation (square)



KPX²
Up to 22kV and 2.5MVA
Internal arc classification:
IAC-AB according to
AS62271.202

Medium voltage panorama

Complete offer ranging from 3kV to 40kV



Building a smarter grid with reliable, efficient energy

How Schneider Electric smart grid-ready products and solutions help balance your grid equation.

More and more people are learning to depend on energy as being integral to their daily lives.

Meanwhile, the electricity market is changing. Every day, end users' expectations increase in terms of reliability and quality, and they gain greater awareness of energy's environmental impact.

It's an evolution. But as our reliance on electricity grows globally, the ways in which we produce, distribute, and use energy must also evolve. The solution will not only involve smarter demand, but also smarter supply - and as such, a smarter grid is at the heart of the issue.

As the global specialist in energy management and automation, Schneider Electric is smart grid-ready, enabling the products and solutions that support and connect the five key domains of a smarter grid:

- Flexible distribution
- Smart generation
- Demand-side management
- Efficient homes (including electric vehicles)
- Efficient enterprise (buildings, industrial facilities, and data centres).

Our vision isn't just to connect our customers to the smart grid - but to also connect them with each other, facilitating smarter interactions and leading to increased energy management capabilities.

Our smart grid solutions include:

- Smart medium voltage (MV) / low voltage (LV) equipment
- Substation automation
- Feeder automation
- Enhanced distribution management solutions
- Microgrid control
- Volt/VAr management
- Real-time condition monitoring
- Electric vehicle load management.

13

Distribution transformer



GMX, TESA immersed transformers up to 33kV and 4MVA

Trihal Dry Type transformers up to 36kV and 3.15MVA

14

Modular switchboard



Premset
Up to 17.5kV/1250A

SM6-24
Up to 24kV/1250A

SM AirSeT - 24
Up to 24kV/1250A

SM6-36
Up to 36kV/630A

Notes

G

Automation & control

Motor starters and protection components	H
Variable speed drives & soft starters	I
Control & signalling	J
Sensors	K
Machine safety	L
Machine control	M
Process control, safety, and HMI	N

Motor starters and protection components

Contactors and overloads

TeSys K - Mini contactors and overloads

TeSys K selection guide – contactors (to 16A)	H4
TeSys K mini contactors	H5
TeSys K auxiliaries	H6
TeSys K overloads	H6

TeSys Deca - Contactors and overloads

TeSys Deca selection guide – contactors (to 150A)	H8-11
TeSys Deca 3 pole contactors (to 150A)	H12
TeSys Deca 4 pole contactors	H13
TeSys Deca green AC/DC contactors (to 80A)	H14
TeSys Deca green coordination chart with PLC outputs	H15
TeSys Deca capacitor switching contactors	H16
TeSys Deca reversing kits	H16
TeSys Deca mechanical interlocks	H16
TeSys Deca auxiliary contact block and safety marking	H17-18
TeSys Deca timers, latch blocks and varistors	H19-22
TeSys Deca overloads (to 150A)	H23
TeSys Deca electronic overloads	H24
TeSys Deca overcurrent relays	H25
TeSys Deca overload accessories	H26-27
TeSys Deca spare coils	H34

TeSys Giga - High power contactors and overloads

TeSys Giga selection guide – High power contactors (to 800A)	H28
TeSys Giga contactors (to 800A)	H29
TeSys Giga auxiliary + timer latch blocks	H30-31
TeSys Giga spares	H32
TeSys Giga overloads	H33
TeSys Giga spare coils	H34

Enclosed and open motor starters

Direct on line starters

TeSys K DOL starters (to 7.5kW)	H35
TeSys Deca DOL starters (to 30kW)	H35
56 Series DOL starters (to 7.5kW)	H35

Star delta starters

Star delta starters (to 30kW)	H37
-------------------------------	-----

Index

Motor starters and protection components

Motor circuit breakers

Selection guide – motor circuit breakers (to 220A)	H38
GV2 motor circuit breakers (to 32A)	
GV2ME thermal magnetic P/B (to 32A)	H39
GV2P thermal magnetic rotary switch (to 32A)	H39
GV2L magnetic only rotary switch (to 32A)	H39
GV2 accessories	H40-44
GV3 motor circuit breakers (to 73A)	
GV3P thermal magnetic	H46
GV3L magnetic only	H46
GV3 accessories	H47
GV4 motor circuit breakers (to 115A)	
GV4PEM thermal magnetic with advanced protection	H49
GV4P thermal magnetic	H49
GV4L magnetic only	H49
GV4 accessories	H50

Ultra-compact starters

TeSys H ultra-compact motor starters (to 6.5A)	H51
--	-----

All-in-one motor starters

TeSys Ultra integrated motor starters	
Components overview (to 38A)	H53
Power bases and reversing blocks (to 38A)	H55-56
Contact blocks and auxiliary contact modules	H58
Protection modules (Control units)	H59-60
Communication modules	H62-68
Power connection pre-wired system	H69
Door interlock mechanism	H70
Safety-chain marking for Model U	H70

Advanced motor protection



TeSys Island digital load management system	H71
TeSys T motor management system	H73

Load break switches

TeSys Vario load break switches	
Switches – 3 pole complete (to 175A)	H83
Enclosed load break switches	H83
Operator handles and switch bodies	H84
Add on modules and accessories	H85-86

Busbar systems

Linergy BZ & HK	
AK5 panel busbar system	H76
LA9Z modular busbar system	H77-81

Contactors and overloads

TeSys K contactors 2 and 3 pole mini contactors Selection guide

Applications		Simple automation systems				
						
Rated operational current i.e. maxi AC3 (Ue ≤ 440V) i.e. AC1 (0 ≤ 40°C)		6A	9A	12A	16A	
		–	20A	20A	–	
Rated operational voltage		690 V				
Number of poles		3	3 or 4	3	3	
Rated operational power in category AC3		220/240V 380/400V 415/440V	1.5kW 2.2kW 2.2/3kW	2.2kW 4kW 4kW	3kW 5.5kW 5.5kW	3kW 7.5kW 7.5kW
Add on auxiliary contact blocks		Up to 4 N/C or N/O				
Front		–				
Side		–				
Front time delay		1 N/C				
Front dust and damp protected		–				
Associated manual-auto thermal overload relays		0.11...16A				
Class 10A		–				
Class 20A		–				
Suppressor modules		Varistor or diode + Zener diode or RC circuit				
Contactor type references		~	~	~	~	
		==	==	==	==	
Reversing contactor with mechanical interlock type references		~	~	~	~	
		==	==	==	==	

Contactors and overloads

Product configurator
on se.com/nz

TeSys K
Mini contactors
For motors up to 7.5kW



LC1K0910●7

3 pole contactors AC control

Motor Power rating		Rated operational current		Auxiliary fitted as standard		Reference (1)
230V (kW)	415V (kW)	AC1 (A)	AC3 (A)	N/O	N/C	
1.5	2.2	20	6	1	-	LC1K0610●●
				-	1	LC1K0601●●
2.2	4	20	9	1	-	LC1K0910●●
				-	1	LC1K0901●●
3	5.5	20	12	1	-	LC1K1210●●
				-	1	LC1K1201●●
4	7.5	20	16	1	-	LC1K1610●●
				-	1	LC1K1601●●

3 pole contactors DC control

Motor Power rating		Rated operational current		Auxiliary fitted as standard		Reference (1)
230V (kW)	415V (kW)	AC1 (A)	AC3 (A)	N/O	N/C	
1.5	2.2	20	6	1	-	LP1K0610●●
				-	1	LP1K0601●●
2.2	4	20	9	1	-	LP1K0910●●
				-	1	LP1K0901●●
3	5.5	20	12	1	-	LP1K1210●●
				-	1	LP1K1201●●

3 pole reversing contactor, AC control (2)

Motor Power rating		Rated operational current		Auxiliary fitted as standard		Reference (1)
230V (kW)	415V (kW)	AC1 (A)	AC3 (A)	N/O	N/C	
1.5	2.2	20	6	2	-	LC2K0610●●
				-	2	LC2K0601●●
2.2	4	20	9	2	-	LC2K0910●●
				-	2	LC2K0901●●
3	5.5	20	12	2	-	LC2K1210●●
				-	2	LC2K1201●●
4	7.5	20	16	2	-	LC2K1610●●
				-	2	LC2K1601●●



LC2K0910●7

3 pole reversing contactor, DC control (2)

Motor Power rating 50/60 Hz		Rated operational current		Auxiliary fitted as standard		Reference (1)
230V (kW)	415V (kW)	AC1 (A)	AC3 (A)	N/O	N/C	
1.5	2.2	20	6	2	-	LP2K0610●●
				-	2	LP2K0601●●
2.2	4	20	9	2	-	LP2K0910●●
				-	2	LP2K0901●●
3	5.5	20	12	2	-	LP2K1210●●
				-	2	LP2K1201●●

4 pole contactors, AC control

Number of main poles		Rated operational current	Reference (1)
N/O	N/C	AC1 (A)	
2	2	20	LC1K09008●●
4	-	20	LC1K09004●●

4 pole contactors, DC control

Number of main poles		Rated operational current	Reference (1)
N/O	N/C	AC1 (A)	
2	2	20	LP1K09008●●
4	-	20	LP1K09004●●

Coil voltage code (1)

AC voltage (V)	Volts ~	24	110	220	240	415
50/60Hz		B7	F7	M7	U7	N7
DC voltage (V)	Volts -	24	110			
		BD	FD			

Note

- (1) "●●" Complete reference with coil voltage code, e.g. LC1K0610B7 for 24V 50/60Hz. Indicative prices for common coil voltages
- (2) It is essential to electrically interlock LC2 or LP2 reversing contactors..

Contactors and overloads

Product configurator
on se.com/nz

TeSys K
Auxiliaries and suppressor modules
Thermal overload relays



LA1KN22

Auxiliaries and suppressor modules - Front mount

Clip-on front mounting, 1 block per mini-contactor

Type	Range	Composition			Reference
		N/O	N/C	C/O	
Instantaneous		2	-	-	LA1KN20
		-	2	-	LA1KN02
		1	1	-	LA1KN11
		4	-	-	LA1KN40
		3	1	-	LA1KN31
Delay-on (1 to 30 sec)	24-48VAC/DC	-	-	1	LA2KT2E
	110-240VAC	-	-	1	LA2KT2U
Diode and Zener diode	12-24VDC				LA4KC1B
RC	220-250VAC				LA4KA1U



LR2K0308

Thermal overload relays (Class 10A) ⁽¹⁾

Current setting Range (A)	Reference
0.11 – 0.16	LR2K0301
0.16 – 0.23	LR2K0302
0.23 – 0.36	LR2K0303
0.36 – 0.54	LR2K0304
0.54 – 0.8	LR2K0305
0.8 – 1.2	LR2K0306
1.2 – 1.8	LR2K0307
1.8 – 2.6	LR2K0308
2.6 – 3.7	LR2K0310
3.7 – 5.5	LR2K0312
5.5 – 8.0	LR2K0314
8.0 – 11.5	LR2K0316
10 – 14	LR2K0321
12 – 16	LR2K0322
Terminal block for separate mount	LA7K0064



LA7K0064
Public

Note

(1) Three phase differential protection.

We need to add a page here as the next two pages
have to be together for the catalog
to work in the printed version

H

Contactors and overloads

TeSys Deca & TeSys Deca Green contactors Selection guide

Applications

SAFETY RATED

All Model D / Model D Green Contactors conform to the following standards as required for safety rated contactors

IEC/EN 60947-4-1 Mirror Contacts
IEC/EN 60947-5-1 Mechanically Linked Contacts

All types of control system



Rated operational current I_e max AC-3 (U_e y 440 V)
 I_e AC-1 (q y 60 °C)

9 A	12 A	18 A	25 A	32 A	38 A
25 A		32 A	40 A	50 A	

Rated operational voltage

690 V on --- and \sim

Number of poles

3 or 4	3 or 4	3 or 4	3 or 4	3	
--------	--------	--------	--------	---	--

Rated operational power in AC-3

220/240 V	2.2 kW	3 kW	4 kW	5.5 kW	7.5 kW	9 kW
380/400 V	4 kW	5.5 kW	7.5 kW	11 kW	15 kW	18.5 kW
415/440 V	4 kW	5.5 kW	9 kW	11 kW	15 kW	18.5 kW

Auxiliary contacts

1 N/C and 1 N/O instantaneous incorporated in the contactors, with add-on blocks common to the whole range comprising up to 4 N/C or N/O instantaneous, up to 1 N/O + 1 N/C time delay and up to 2 N/O or 2 N/C protected contacts and 2 screen continuity terminals.

Thermal overload relays manual-auto compatible

Class 10 A	0.10...10 A	0.10...13 A	0.10...18 A	0.10...32 A	0.10...38 A	0.10...38 A
Class 20	2.5...10 A	2.5...13 A	2.5...18 A	2.5...32 A		

Suppressor modules for Standard model D (\sim and low consumption contactors are fitted with a built-in bidirectional peak limiting diode suppressor as standard)

Varistor	●	●	●	●	●	●
Diode	–	–	–	–	–	–
RC circuit	●	●	●	●	●	●
Bidirectional peak limiting diode	●	●	●	●	●	●

Interfaces

Relay output	●	●	●	●	●	●
Relay interface with manual override switch	●	●	●	●	●	●
Solid state	●	●	●	●	●	●

Contactor type references

--- or \sim 3 pole	LC1 D09	LC1 D12	LC1 D18	LC1 D25	LC1 D32	LC1 D38
--- or \sim 4 pole	LC1 DT20/ LC1 D098	LC1 DT25/ LC1 D128	LC1 DT32/ LC1 D188	LC1 DT40/ LC1 D258	–	–

Contactors and overloads

TeSys Deca & TeSys Deca Green contactors Selection guide



40 A	50 A	65 A	80 A	95 A	115 A	150 A
60 A	80 A		125 A		200 A	

690 V --- or \sim

1000 V on --- supply, 690 V on \sim supply

3	4	3	3	4	3	4	3	3	4	3
11 kW	15 kW	18.5 kW	22 kW	25 kW	30 kW	40 kW				
18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW	75 kW				
22 kW	25/30 kW	37 kW	45 kW	45 kW	59 kW	80 kW				

1 N/C and 1 N/O instantaneous incorporated in the contactors, with add-on blocks common to the whole range comprising up to 4 N/C or N/O instantaneous, up to 1 N/O + 1 N/C time delay and up to 2 N/O or 2 N/C protected contacts and 2 screen continuity terminals.

9...40 A	9...50 A	9...65 A	17...104 A	17...104 A	60...150 A	60...150 A
13...40 A	13...50 A	13...65 A	17...80 A		60...150 A	60...150 A

•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•

•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•
•	•	•	•	•	•	•	•	•	•	•

LC1 D40A	LC1 D50A	LC1 D65A	LC1 D80	LC1 D95	LC1 D115	LC1 D150
LC1 DT60A	–	LC1 DT80A	LC1DT80	–	LC1 D115	–
LC1 DT60A	–	LC1 DT80A	–	–	LC1 D115	–

Contactors and overloads

TeSys Deca & TeSys Deca Green low consumption contactors Selection guide

Applications

SAFETY RATED

All Model D / Model D Green Contactors conform to the following standards as required for safety rated contactors

IEC/EN 60947-4-1 Mirror Contacts
IEC/EN 60947-5-1 Mechanically Linked Contacts

Automation systems



Rated operational current I_e max AC-3 ($U_e \leq 440$ V)

I_e AC-1 (≤ 60 °C)

9 A

25 A

12 A

25 A

18 A

32 A

Rated operational voltage

690 V

Number of poles

3 or 4

3 or 4

3 or 4

Rated operational power in AC-3

220/240 V

380/400 V

415/440 V

2.2 kW

4 kW

4 kW

3 kW

5.5 kW

5.5 kW

4 kW

7.5 kW

9 kW

Coil consumption

Model D - 2.4W (100mA, 24V DC); Model D Green - 0.5W (500mA inrush, 100mA stable, 24VDC)

Operating ranges

Model D - 0.7...1.25 U_c ; Model D Green - 0.85...1.1 U_c

Operating time at 20 °C and at U_c

Closing

Opening

70 ms

25 ms

Auxiliary contact block modules

1 N/C and 1 N/O instantaneous contacts incorporated in the contactors, with add-on blocks common to the whole range, comprising up to 2 N/C or 2 N/O instantaneous standard contacts

Interference suppression

Built-in suppression as standard, by bi-directional peak limiting diode

Contactor type

3-pole

4-pole

LC1 D09

LC1 DT20/D098

LC1 D12

LC1 DT25/D128

LC1 D18

LC1 DT32/D188

H

Contactors and overloads

TeSys Deca & TeSys Deca Green low consumption contactors Selection guide

					
					
25 A	32 A	38 A	40A	50A	65A
40 A	50 A	50 A	60A	80A	80A
690 V					
3 or 4	3 or 4	3 or 4	3	3	3
5.5 kW	7.5 kW	9 kW	11kW	15kW	18.5kW
11 kW	15 kW	18.5 kW	18.5kW	22kW	30kW
11 kW	15 kW	18.5 kW	22kW	25kW	37kW

Model D - 2.4W (100mA, 24V DC); Model D Green - 0.5W (500mA inrush, 100mA stable, 24VDC)

Model D - 0.7...1.25Uc; Model D Green - 0.85...1.1Uc

70 ms

25 ms

1 N/C and 1 N/O instantaneous contacts incorporated in the contactors, with add-on blocks common to the whole range, comprising up to 2 N/C or 2 N/O instantaneous standard contacts

Built-in suppression as standard, by bi-directional peak limiting diode

LC1 D25

LC1 D32

LC1 D38

LC1D40A

LC1D50A

LC1D65A

LC1 DT40/D258

Contactors and overloads

Product configurator
on se.com/nz

TeSys Deca
3 pole contactors
For motor control up to 80kW



LC1D09●●



LC1D1156●●/1506●●



LC1D09-D38

3 pole contactor, AC control

Motor power rating		Rated operational current			Reference (1) (2)
230V (kW)	400 V (kW)	AC1 (A)	AC3 (A)	AC4 (A)	
2.2	4	25	9	2.2	LC1D09●●
3	5.5	25	12	3.7	LC1D12●●
4	7.5	32	18	4	LC1D18●●
5.5	11	40	25	5.5	LC1D25●●
7.5	15	50	32	7.5	LC1D32●●
9	18.5	50	38	7.5	LC1D38●●
11	18.5	60	40	9	LC1D40A●● (4)
15	22	80	50	11	LC1D50A●● (4)
18.5	30	80	65	11	LC1D65A●● (4)
22	37	80	66	15	LC1D80A●● (4)
22	37	125	80	15	LC1D80●●
25	45	125	95	15	LC1D95●●
30	55	200	115	18.5	LC1D1156●● (3)
40	75	200	150	22	LC1D1506●● (3)

3 pole contactor, DC control (BD) and Low consumption (BL)

Motor power rating		Rated operational current			Reference (1) (2)
230V (kW)	400 V (kW)	AC1 (A)	AC3 (A)	AC4 (A)	
2.2	4	25	9	2.2	LC1D09●●
3	5.5	25	12	3.7	LC1D12●●
4	7.5	32	18	4	LC1D18●●
5.5	11	40	25	5.5	LC1D25●●
7.5	15	50	32	7.5	LC1D32●●
9	18.5	50	38	7.5	LC1D38●●
11	18.5	60	40	9	LC1D40A●● (6)
15	22	80	50	11	LC1D50A●● (6)
18.5	30	80	65	11	LC1D65A●● (6)
22	37	80	66	11	LC1D80A●● (6)
22	37	125	80	15	LC1D80●●
25	45	125	95	15	LC1D95●●
30	55	200	115	18.5	LC1D1156●● (3)
40	75	200	150	22	LC1D1506●● (3)

Coil voltage code (1)

AC voltage 50/60Hz					
Volts	24	48	110	240	415
LC1D09...D150	B7	E7	F7	U7	N7
(D115 and D150 coils with integral suppression device fitted as standard)					
DC voltage					
Volts	12	24	110	220	440
LC1D09...D38 (0.7...1.25 Uc) (5)	JD	BD	FD	MD	RD
LC1D40A...D80A (0.7...1.25 Uc) (5)					
LC1 D80 ...D95 (0.85...1.1 Uc)					
LC1 D115...D150 (0.75...1.2 Uc) (5)					
LC low consumption – DC voltage					
Volts	24				
LC1D09...D38 (0.8...1.25 Uc) (5)	BL				

Notes

- (1) "●●" Complete reference with coil voltage code, e.g. LC1D09U7 for 240V 50/60Hz. Indicative prices for common coil voltages.
- (2) 1N/O and 1 N/C auxiliary contacts fitted as standard.
- (3) The "6" indicates connection by lugs or bars. Use LA9D115703 if a terminal shroud is required.
- (4) Everlink terminals are not compatible with previous terminal options. For complete range of voltages, see page H34.
- (5) Coils with integral suppression device fitted as standard.
- (6) Contactor also available in TeSys Deca Green range (Page H14).

Contactors and overloads

Product configurator
on se.com/nz

TeSys Deca
4 pole contactors



LC1DT40



LC1D80004

4 pole contactors, AC control

Non Inductive loads AC1 (A)	Number of main poles		Auxiliary contacts fitted as standard (2)		Reference (1)
	N/O	N/C	N/O	N/C	
Connection by screw clamp terminals					
20	4	–	1	1	LC1DT20
	2	2	1	1	LC1D098
25	4	–	1	1	LC1DT25
	2	2	1	1	LC1D128
32	4	–	1	1	LC1DT32
	2	2	1	1	LC1D188
40	4	–	1	1	LC1DT40
	2	2	1	1	LC1D258
Connection by EverLink®, BTR screw connectors (4)					
60	4	–	1	1	LC1DT60A
80	4	–	1	1	LC1DT80A
Connection by screw clamp terminals or connectors					
60	2	2	–	–	LC1D40008 or LP1D40008
80	2	2	–	–	LC1D65008 or LP1D65008
125	4	–	–	–	LC1D80004 or LP1D80004
	2	2	–	–	LC1D80008 or LP1D80008
200	4	–	–	–	LC1D1150046 (3)

4 pole contactor, DC control (BD) and Low consumption (BL)

Non Inductive loads AC1 (A)	Reference (1)
20	LC1DT20/LC1D098
25	LC1DT25/LC1D128
32	LC1DT32/LC1D188
40	LC1DT40/LC1D258
60	LC1DT60A (6)
60	LP1D40008
80	LC1DT80A (6)
80	LP1D65008
125	LP1D80004
125	LP1D80008
200	LC1D1150046

Coil voltage code (1)

AC voltage 50/60Hz					
Volts	24	48	110	240	415
LC1D09...D150, LC1DT20...DT80A (D115 and D150 coils with integral suppression device fitted as standard)	B7	E7	F7	U7	N7
DC voltage					
Volts	24	110	220		
LC1D09...D258, DT20...DT80A, LP1D40...D65 (0.7...1.25 Uc) (5)	BD	FD	MD		
LP1D40...D80 (0.85...1.1 Uc)					
LC1 D115 (0.75...1.2 Uc) (5)					
LC low consumption - DC voltage					
Volts	24				
LC1D09...D258, LC1DT20...DT40 (0.8...1.25 Uc) (5)	BL				

Notes

- (1) "●●" Complete reference with coil voltage code, e.g. LC1D09U7 for 240V 50/60Hz. Indicative prices for common coil voltages.
- (2) For non-standard voltage, add 10% to above prices.
- (3) The "6" indicates connection by lugs or bars. Use LA9D115703 if a terminal shroud is required.
- (4) Everlink terminals are not compatible with previous terminal options. For complete range of voltages, see page H34.
- (5) Coils with integral suppression device fitted as standard.
- (6) Contactor also available in TeSys Deca Green range (Page H14).

Contactors and overloads

Product configurator
on se.com/nz

TeSys Deca Green
AC/DC contactors



TeSys Deca Green : AC/DC coil contactors



- > 80% less energy consumption than standard contactor, reduce panel heat
- > Suitable for direct control by PLC output up to 37 kW (80A, 400V)
- > Wide control voltage band (except low consumption BBE coil-24 V DC).
- > Dimensions similar to TeSys Deca AC contactor, making it fully compatible with all TeSys Deca accessories
- > Embedded surge suppressor, noise free design



LC1D09●●●



LC1D40A●●●

3 pole contactor, AC/DC control and low consumption

Motor power rating		Rated operational current		Reference (1) (2) (3)
230V (kW)	400V (kW)	AC1 (A)	AC3 (A)	
2.2	4	25	9	LC1D09●●●
3	5.5	25	12	LC1D12●●●
4	7.5	32	18	LC1D18●●●
5.5	11	40	25	LC1D25●●●
7.5	15	50	32	LC1D32●●●
9	18.5	50	38	LC1D38●●●
11	18.5	60	40	LC1D40A●●● (4)
15	22	80	50	LC1D50A●●● (4)
18.5	30	80	65	LC1D65A●●● (4)
22	37	80	66	LC1D80A●●● (4)

4 pole contactor, AC/DC control (2) (4)

Non Inductive loads AC1 (A)	Reference (1)
60	LC1DT60A●●●
80	LC1DT80A●●●

Coil voltage code (1)

AC/DC voltage (V)	24 (DC only) Low consumption	24-60	48-130	100-250
LC1D09...D80A and LC1DT60A...DT80A		BNE	EHE	KUE
LC1D40A...D80A	BBE			

Notes

- (1) "●●●" Complete ref. with coil voltage code e.g. LC1D09KUE for 110-250V. Indicative price for common coil voltages.
- (2) 1N/O and 1 N/C auxiliary contacts fitted as standard
- (3) Replace LC1 with LC2 for reversing configuration. E.g. LC1D09●●● to LC2D09●●●. It is essential to electrically interlock LC2 contactors.
- (4) Everlink terminal: Hexagon socket head (Allen key required).

Contactors and overloads

TeSys Deca Green
Co-ordination with PLC output modules

Coil selection

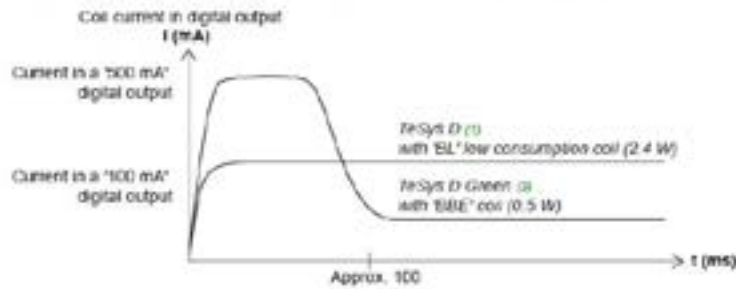
The PLC you are using				>>>	Compatible contactors ⁽¹⁾	Coil code
PLC type	Output type	Output I (A)	Output module commercial reference			
M221 / M241 / M251	Static output: 24 V DC	0.5	TM3DQ8●●● and Q16●●● (T, TG, U, UG)	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	BL, BBE
		0.3 (sealed) 0.8 (inrush)	TM3XTYS4	>>>	LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	BBE, BL, BD, BNE
		0.1	TM3DQ16●● and Q32●● (TK, UK)	>>>	LC1D09●● to LC1D38●●	BL
	Relay output: 24 V DC / 230 V AC	2	TM3DQ8 and DQ16 (R,RG), TM3DM8 and DM24 (R,RG)	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	Code of any DC coil up to 24 V or any AC coil up to 230 V
M340 / M580	Static output: 24 V DC	0.5	BMXDDO1602 and DM16022	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	BL BBE
		0.1	BMXDDO3202, BMXDDM3202K, BMXDDO6402K	>>>	LC1D09●● to LC1D38●●	BL
	Relay output: 24 V DC / 230 V AC	2	BMXDRA0805 and DM16025	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	Code of any DC coil up to 24 V or any AC coil up to 230 V
	Triac output: 230 V AC	0.6	BMXDAO1605	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A●●●, LC1DT60A●●● to LC1DT80A●●●	Code of any AC coil up to 230 V (P7 code = 230 V)
AVANTYS	Static output: 24 V DC	0.5	STBDDO3200	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	BL BBE
	Triac output: 230 V AC	2	STBDAO8210	>>>	LC1D09●● to LC1D38●●, LC1D40A●●● to LC1D80A, LC1DT60A●●● to LC1DT80A●●●	Code of any AC coil up to 230 V (P7 code = 230 V AC)



Coils consumption characteristics

Coil type	Uc DC - min -max	Average consumption at UC DC / 20 °C	
		Inrush	Sealed
BL	24 V - 0.8 Uc to 1.1 Uc	2.4 VA	2.4 W - 2.4 VA
BBE		11 W - 12.5 VA	0.5 W - 0.5 VA

TeSys Deca Green ("BBE" coil) vs TeSys Deca (low consumption "BL" coil)



(1) Up to 30 A
(2) 40 to 80 A

TeSys Deca Green is well adapted to direct control by PLC static outputs, even in its high ratings.

Notes

(1) "●●●" Complete ref. with coil voltage code e.g. LC1D40ABBE for 24V DC.

Contactors and overloads

TeSys Deca
Capacitor switching contactors
Mechanical interlock
Reversing kit



LC1D80

Capacitor switching contactors

kVAR at 415V (60°C)	Mounting Equivalent Contactor	Pole tightening torque (N.m)	Auxiliary contact fitted as standard		Reference (1)
			N/O	N/C	
12.5	LC1D12	1.7	1	2	LC1DFK●●
16.7	LC1D18	2.5	1	2	LC1DGK●●
20	LC1D25	2.5	1	2	LC1DLK●●
25	LC1D32	2.5	1	2	LC1DMK●●
30	LC1D40	5	1	2	LC1DPK●●
40	LC1D50	5	1	2	LC1DTK●●
63	LC1D80	9	1	2	LC1DVK12●●

Standard coil voltages (1)

Volts AC	240	415
50/60Hz	U7	N7

LAD9R1V kit



LAD9R1 kit



LAD9R3 kit

Reversing kits for 3-Pole reversing contactors

With 2 identical frame sizes	Description	Reference
LC1D09...D38	Mechanical interlock with electrical interlocking and set of power links	LAD9R1V
LC1D09...D38	Mechanical interlock, set of power links	LAD9R1
LC1D40A...D65A	Mechanical interlock, set of power links	LAD9R3

Interlocks and power links for 3-Pole Contactors

Contactors	Description	Reference
LC1D09...D38	Mechanical interlock	LAD9V2
LC1D40A...D80A	Mechanical interlock	LAD4CM
LC1D80...D95	Mechanical interlock - AC coil	LA9D50978
LC1D80...D95	Mechanical interlock - DC coil	LA9D80978
LC1D09...D38	Power links	LAD9V5 + LAD9V6
LC1D40A...D80A	Power links (reversing starter wiring set)	LA9D65A69
LC1D80...D95	Power links (reversing starter wiring set)	LA9D8069
LC1D115...D150	Power links (reversing starter wiring set)	LA9D11569

Interlocks and wiring kits for 4-Pole changeover contactors

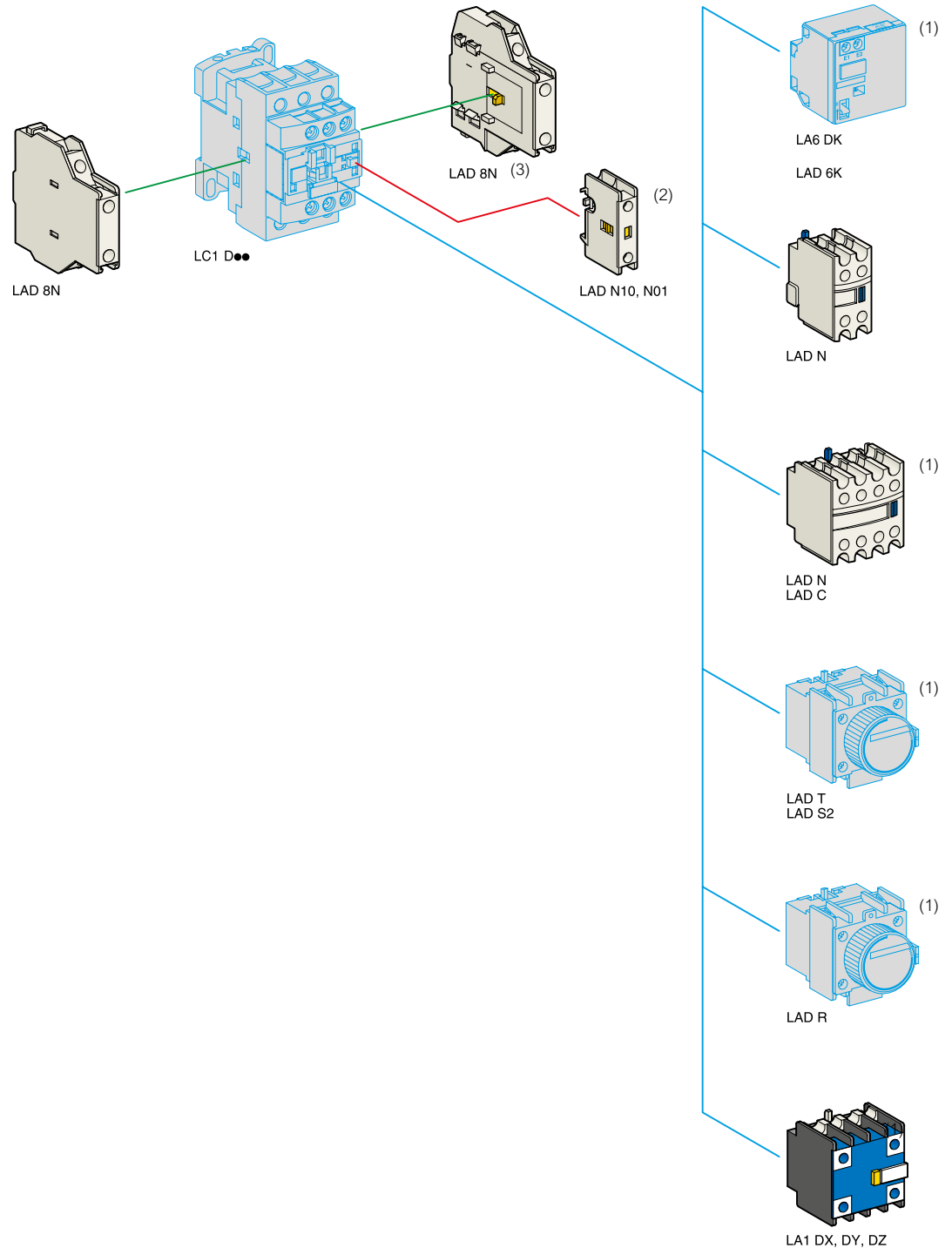
Contactors	Description	Reference
LC1DT20...DT40	Mechanical interlock LAD9V2, electrical links LAD9V1, changeover power links LAD9V7	LADT9R1V
LC1DT20...DT40	Mechanical interlock LAD9V2, changeover power links LAD9V7	LADT9R1
LC1DT20...DT40	Mechanical interlock	LAD9V2
LC1DT60A...DT80A	Mechanical interlock	LAD4CM
LC1D80004	Mechanical interlock	LA9D50978
LP1D80004	Mechanical interlock	LA9D80978
LC1D80004	Power links	LA9D8070(2)
LP1D80004	Power links	LA9D8070(2)
LC1D115004	Power links	LA9D11570

Notes

- (1) "●●" Complete reference with coil voltage code, e.g. LC1DFKU7 for 240V 50/60Hz.
- (2) Two LADN●1 auxiliary contact blocks required to provide electrical interlocking.

Contactors and overloads

TeSys Deca contactors Instantaneous auxiliary contact blocks



Note

Not all combinations are possible. Picture references are indicative only.

(1) Cannot add to low consumption contactors (BL).

(2) Will only suit LC1D80 and above.

(3) Left side mounting for standard TeSys Deca contactors. Right side mounting for TeSys Deca Green (AC/DC) contactors. Please refer to the reference chart on next page to ensure compatibility with selected contactor.

Contactors and overloads

TeSys Deca
Instantaneous auxiliary contact blocks
Safety chain marking



LADN●●
LADC●●

Instantaneous auxiliary contact blocks

For use in normal operating environments.		Composition			Reference
Clip-on mounting	Number of contacts per block	N/O	N/C	Cont	
Front	1	1	-	-	LADN10
		-	1	-	LADN01
	2	1	1	-	LADN11
		2	-	-	LADN20
		-	2	-	LADN02
		2	2	-	LADN22
	4	1	3	-	LADN13
		4	-	-	LADN40
		-	4	-	LADN04
		3	1	-	LADN31
1 N/O and 1 N/C make before break		2	2	-	LADC22
Side	1	1	1	-	LAD8N11
		2	-	-	LAD8N20
	-	2	-	LAD8N02	

Maximum number of auxiliary contacts that can be fitted:

Contactors		Instantaneous auxiliary contacts			Time delay	
Type	No. of poles and size	Side mounted	Front mounted			Front mounted
			1 contact	2 contacts	4 contacts	
AC	3P LC1D09...D38	1 on LH side	and -	1	or 1	or 1
AC/DC	LC1 D40A...D80A (3)	1 on LH or 1 on RH side	and -	1	or 1	or 1
	LC1 D80 and D95 (50/60 Hz)	1 on each side	or 2	and 1	or 1	or 1
	LC1 D80 and D95 (50 or 60 Hz)	1 on each side	and 2	and 1	or 1	or 1
	LC1 D115 and D150	1 on LH side	and -	1	or 1	or 1
4P	LC1 DT20...DT40	1 on LH side	and -	1	or 1	or 1
	LC1 DT60A and DT80A (3)	1 on LH or 1 on RH side	and -	1	or 1	or 1
	LC1 D40008, D65008 and D80	1 on each side	or 1	or 1	or 1	or 1
	LC1 D115	1 on each side	and 1	or 1	or 1	or 1
DC	3P LC1 D09...D38	-	-	1	or 1	or 1
	LC1 D40A...D80A	-	-	1	or 1	or 1
	LC1 D80 and D95	-	1	or 1	or 1	or 1
	LC1 D115 and D150	1 on LH side	and -	1	or 1	or 1
4P	LC1 DT20...DT40	-	-	1	or 1	or 1
	LC1 DT60A and DT80A	-	-	1	or 1	or 1
	LC1 D40008, D65008 and D80	-	2	and 1	or 1	or 1
LC (1) (2)	3P LC1 D09...D38	-	-	1	-	-
	4P LC1 DT20...DT40	-	-	1	-	-

- (1) LC: low consumption
(2) LA1D●●● dust & damp proof auxiliary contact blocks not allowed
(3) For AC and AC/DC coils.

Safety-chain Marking (Red identification cover)

- > Easily customise or adapt the safety chain, at any time.
- > Quickly locate the safety chain at a glance inside the panel, saving maintenance time.

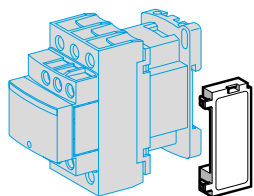


LAD9ET1S

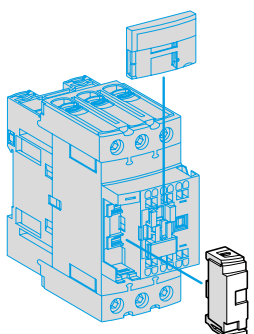
Description	Reference
Red safety cover for TeSys Deca contactor (9A to 65A)	LAD9ET1S
Red safety cover for TeSys Deca contactor (80A to 95A)	LAD9ET3S
Red safety cover for TeSys Deca contactor (110A to 150A)	LAD9ET4S
Auxiliary contact block (2NO + 2NC)	LADN22S

Contactors and overloads

TeSys Deca Suppressor modules



LAD 4RC3



LAD 4RC3, LAD 4V3,
LA4 DE

RC circuits (Resistor-Capacitor)

Effective protection for circuits highly sensitive to "high frequency" interference. For use only in cases where the voltage is virtually sinusoidal, i.e. less than 5% total harmonic distortion. Voltage limited to 3 U_c max. and oscillating frequency limited to 400 Hz max. Slight increase in drop-out time (1.2 to 2 times the normal time).

Mounting	For use with contactor (1)			Reference
	Rating	Type		
		V ~	V ---	
Clip-on side mounting (3)(5)	D09...D38 (3P)	24...48	–	LAD4RCE
	DT20...DT40	50...127	–	LAD4RCG
		110...250	–	LAD4RCU
Clip-on front mounting (3)(5)	D40A...D65A (3P)	24...48	–	LAD4RC3E
		DT60A...DT80A (4P)	50...127	–
	110...240		–	LAD4RC3U
	380...415		–	LAD4RC3N
Screw fixing (4)	D80...D150 (3P)	24...48	–	LA4DA2E
		D40...D115 (4P)	50...127	–
				110...240

Varistors (peak limiting)

Protection provided by limiting the transient voltage to 2 U_c max. Maximum reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times the normal time).

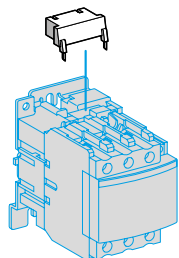
Mounting	For use with contactor (1)			Reference	
	Rating	Type			
		V ~	V ---		
Clip-on side mounting (3)(5)	D09...D38 (3P)	24...48	–	LAD4VE	
		DT20...DT40	110...250	–	LAD4VU
Clip-on front mounting (3)(5)	D40A...D65A (3P)	24...48	24...48	LAD4V3E	
	DT60A...DT80A (4P)	110...250	110...250	LAD4V3U	
Screw fixing (4)	D80...D115 (3P)	50...127	–	LA4DE2G	
		D80...D115 (4P)	110...250	–	LA4DE2U
	D80...D95 (3P)	–	110...250	–	LA4DE3U
		D80 (4P)	–	–	–

Notes

- (1) For satisfactory protection, a suppressor module must be fitted across the coil of each contactor except for TeSys Deca Green (●●E coil), as surge protection is already embedded.
- (2) From D09 to D65A and from LC1 DT20 to DT80A, d.c., low consumption or TeSys Deca Green 3-pole contactors are fitted with a built-in bidirectional peak limiting diode suppressor as standard. This bidirectional peak limiting diode is removable and can therefore be replaced by the user. (See reference above). If a d.c. or low consumption contactor is used without suppression, the standard suppressor should be replaced with a blanking plug (reference LAD 9DL for LC1 D09 to D38 and LC1 DT20 to DT40; reference LAD 9DL3 for LC1 D40A to D65A and LC1 DT60A to DT80A).
- (3) Clipping-on makes the electrical connection. The overall size of the contactor remains unchanged.
- (4) Mounting at the top of the contactor on coil terminals A1 and A2.
- (5) In order to install these accessories, the existing suppression device must first be removed.

Contactors and overloads

TeSys Deca Suppressor modules

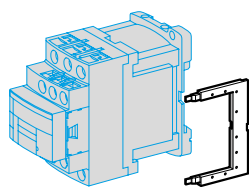


LA4 D●●●

Flywheel diodes

No overvoltage or oscillating frequency. Increase in drop-out time (6 to 10 times the normal time). Polarised component.

Mounting	For use with contactor (1)		Reference
	Rating	Type	
		V ~	
Clip-on side mounting (5)	D09...D38 (3P), DT20...DT40	–	24...250 LAD4DDL
Clip-on front mounting (5)	D40A...D65A (3P), DT60A...DT80A (4P)	–	24...250 LAD4D3U
Screw fixing (4)	D80 and D95 (3P), D40...D80 (4P)	–	24...250 LA4DC3U



LAD 4DDL or LAD 4T●DL

Bidirectional peak limiting diodes

Protection provided by limiting the transient voltage to 2 Uc max. Maximum reduction of transient voltage peaks.

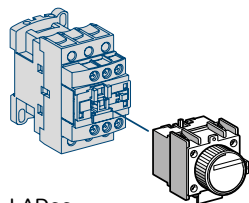
Mounting	For use with contactor (1)		Reference	
	Rating	Type		
		V ~		V =
Clip-on side mounting (3) (5)	D09...D38 (3P) DT20...DT40 (4P) (2)	24	–	LAD4TB
		–	24	LAD4TBDL
		72	–	LAD4TS
		–	72	LAD4TSDL
		–	125	LAD4TGDL
Clip-on front mounting (3)	D40A...D65A (3P) DT60A...DT80A (4P) (2)	12...24	12...24	LAD4T3B
		126...250	126...250	LAD4T3U
		251...440	251...440	LAD4T3R
Screw fixing (4)	D80...D95 (3P) D40...D80 (4P)	–	24	LA4DB3B
		–	72	LA4DB3S

Notes

- (1) For satisfactory protection, a suppressor module must be fitted across the coil of each contactor except for TeSys Deca Green (●●E coil), as surge protection is already embedded.
- (2) From D09 to D65A and from LC1 DT20 to DT80A, d.c., low consumption or TeSys Deca Green 3-pole contactors are fitted with a built-in bidirectional peak limiting diode suppressor as standard. This bidirectional peak limiting diode is removable and can therefore be replaced by the user. (See reference above). If a d.c. or low consumption contactor is used without suppression, the standard suppressor should be replaced with a blanking plug (reference LAD 9DL for LC1 D09 to D38 and LC1 DT20 to DT40; reference LAD 9DL3 for LC1 D40A to D65A and LC1 DT60A to DT80A).
- (3) Clipping-on makes the electrical connection. The overall size of the contactor remains unchanged.
- (4) Mounting at the top of the contactor on coil terminals A1 and A2.
- (5) In order to install these accessories, the existing suppression device must first be removed.

Contactors and overloads

TeSys Deca Time delay auxiliary contact blocks Mechanical latch blocks

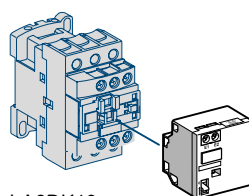


LAD●●

Time delay auxiliary contact blocks

LADS2: with switching time of 40ms ± 15ms between opening of the N/C contact and closing of the N/O contact (break before make) suitable for star-delta starters.

Number of contacts	Max. number of blocks per contactor	Time delay	Reference
1 N/O	2	On-delay	Range
+		0.1...3 (2)	LADT0
1 N/C	Clip-on mounting	0.1...30	LADT2
		10...180	LADT4
		Star-Delta	LADS2
		Off-delay	Range
		0.1...3 (2)	LADR0
		0.1...30	LADR2
		10...180	LADR4



LA6DK10

Mechanical latch blocks (2) (not suitable for use with low consumption (BL) contactors)

Clip-on mounting	Unlatching control	For use on contactor	Reference (1)
Front	Manual or electric	LC1D09...D38 AC or DC	LAD6K10● (2)
		LC1DT20...DT40 AC or DC	
		LC1/LP1-D40, D50, D65	
		LC1/LP1-D80, D115, D150	LA6DK20●

Standard coil voltages

AC Volts 50/60Hz, DC Volts	24	110/127	220/240	380/415
Code	B	F	M	Q

Notes

- (1) "●" Complete reference with coil voltage code. e.g. LAD6K10M for 220/240V 50/60Hz.
- (2) The DC, low consumption contactors (coil code .L) are not compatible with the mechanical latch blocks LAD6K10.

Contactors and overloads

TeSys Deca
Timing and interface modules
Cabling and mounting accessories

Electronic serial timer modules (1)

On-delay type

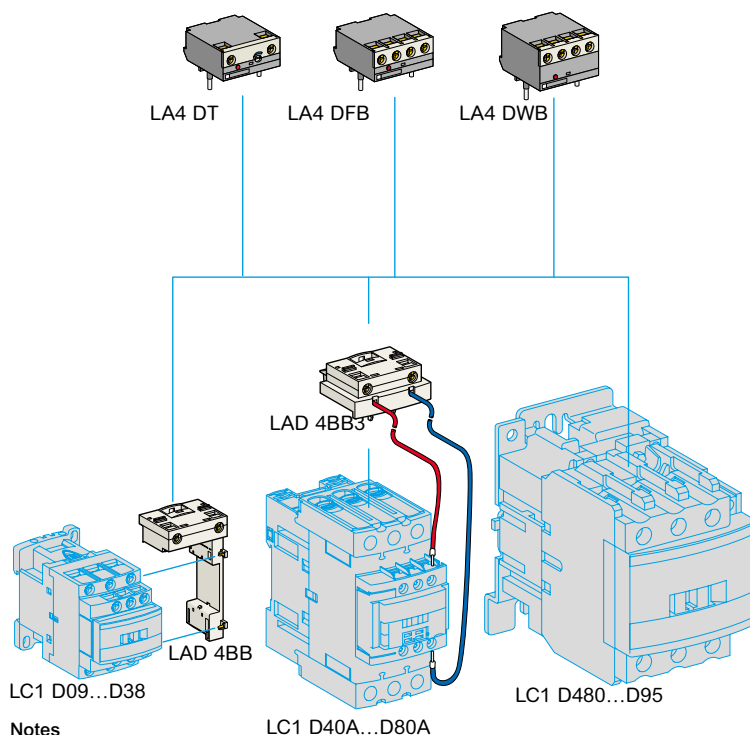
Operational voltage AC		DC	Time	Reference
24...250V	100...250V	24...250V		
LC1-D09...D80A (3P)	LC1-D80...D150 (3P)	LC1-D12 and D25 (4P)	1.5...30s	LA4DT2U (2)
			25...500s	LA4DT4U (2)

Interface modules

Operational voltage AC	Supply voltage	Reference
Relay interface		
24...250V	E1-E2 (DC)	
LC1D09...D150 (3P) and DT20...DT40 (4P)	24V	LA4DFB (2)
Solid state interface		
LC1D09...D38 (3P) LC1D40...D115 (3P)	24V	LA4DWB (2)

Cabling accessories

Description	Reference	
For adapting existing wiring to a new product	LC1D09...D38 Without coil suppression	LAD4BB
	With coil suppression AC 24...48V	LAD4BBVE
	AC 50...127V	LAD4BBVG
	AC 110...250V	LAD4BBVU
Connection kit 3 pole	LC1D09...D38	LAD9P3
Terminal shields 3 pole	LC1D1156 and D1506	LA9D115703
Terminal shields 4 pole	LC1D1156 and D1506	LA9D115704
Cable connections 120mm ²	LC1D115 and D150	LA9D115603
S- Shaped busbar contactor & breaker side by side (GV3 + LC1D40A...65A)		GV3S



Notes

- (1) For 24VAC operation, the contactor must be fitted with a 21V coil (LXD1Z7).
- (2) Requires LAD4BB for connection to TeSys contactors D09 to D38, 3 pole contactors and LAD4BB3 for D40A...D80A contactors.

Contactors and overloads

Product configurator
on se.com/nz

TeSys Deca 3-pole thermal overload relays

Differential thermal overload relays (4)

for use with fuses or magnetic circuit-breakers GV2 L and GV3 L

- > Compensated relays with manual or automatic reset,
- > with relay trip indicator,
- > for A.C. or D.C.

Class 10 A with connection by screw clamp terminals (1)

Relay setting range (A)	DOL (kW)	Star Delta (kW)	For use with contactor LC1	Reference
0.10...0.16	–	–	D09...D38	LRD01
0.16...0.25	–	–	D09...D38	LRD02
0.25...0.40	–	–	D09...D38	LRD03
0.40...0.63	–	–	D09...D38	LRD04
0.63...1	–	–	D09...D38	LRD05
1...1.6	–	–	D09...D38	LRD06
1.6...2.5	1.1	1.5	D09...D38	LRD07
2.5...4	1.5	2.2-3	D09...D38	LRD08
4...6	2.2	3.7-4	D09...D38	LRD10
5.5...8	3.7	5.5	D09...D38	LRD12
7...10	4	7.5	D09...D38	LRD14
9...13	5.5	11	D12...D38	LRD16
12...18	9	15	D18...D38	LRD21
16...24	11	18.5	D25...D38	LRD22
23...32	15	22-25	D25...D38	LRD32
30...38	18.5	30-37	D32...D38	LRD35

Class 10 A (1) for connection by EverLink® BTR screw connectors (2)

9...13	5.5	11	D40A...D65A	LRD313
12...18	9	15	D40A...D65A	LRD318
17...25	11	18.5	D40A...D65A	LRD325
23...32	15	22-25	D40A...D65A	LRD332
30...40	18.5	30-37	D40A...D65A	LRD340
37...50	22	40-45	D40A...D65A	LRD350
48...65	30	51-59	D50A and D65A	LRD365
62...80	55	80-90	D80A	LRD380

Class 10 A (1) for connection by clamp terminals or connectors

17...25	11	17-25	D40...D95	LRD3322
23...32	15	22-30	D40...D95	LRD3353
30...40	22	30-37	D40...D95	LRD3355
37...50	25	40-45	D40...D95	LRD3357
48...65	30	51-59	D50...D95	LRD3359
55...70	37	63	D50...D95	LRD3361
63...80	45	63-75	D65 and D95	LRD3363
80...104	55	80-90	D80 and D95	LRD3365
80...104	55	80-90	D115 and D150	LRD4365 (2)
95...120	63	80-110	D115 and D150	LRD4367 (2)
110...140	80	100-132	D150	LRD4369 (2)
60...100	55	59-90	D115 and D150	LR9D5367 (2)
90...150	80	90-140	D115 and D150	LR9D5369 (2)

Class 10 A (1) for connection by lugs

Select the appropriate overload relay with screw clamp terminals or connectors from the table above and add one of the following suffixes:

- > figure 6 for relays LRD 01 to LRD 35 and relays LRD 313 to LRD 365.
- > **A66** for relays LRD 3322 to LRD 3365.

Relays LRD 43●● are suitable, as standard, for use with lug-clamps.

Class 10/20 A selectable electronic thermal overload relays rated to 690V (3)

Compensated relays for use with balanced or unbalanced loads with separate outputs for alarm tripping.

Relay setting range A	DOL kW	Star Delta kW	For use with contactor LC1	Reference
60...100	55	59-90	D115 and D150	LR9D67
90...160	60	90-140	D115 and D150	LR9D69

Notes

- (1) Standard IEC 60947-4-1 specifies a tripping time for 7.2 times the setting current I_R : class 10 A: between 2 and 10 seconds
- (2) BTR screws: hexagon socket head. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference **LAD ALLEN4**).
- (3) Electronic thermal overload relays for direct mounting beneath contactor LC1, with connectors using bars.
- (4) Class 20 available, please consult your Schneider Electric representative.



LRD●●



LRD 3●●

Contactors and overloads

Product configurator
on se.com/nz

TeSys Deca Electronic overload relays

Electronic thermal overload relays

- > Compensated relays with relay trip indicator, suitable for AC loads.
- > For direct mounting on contactor or separate mounting.
- > Selectable trip classes 5, 10, 20 and 30.
- > 5:1 adjustment range and self-powered.

Electronic thermal overload relays

Relay setting range	For use with contactors	Mounting	Reference
A	A		
0.1...0.5A	LC1D09...38	Direct	LR9D01
0.4...2A			LR9D02
1.6...8A			LR9D08
6.4...32A			LR9D32



LR9D01

Accessories

Description	For use with	Reference
Terminal block for clip-on mounting on 35mm rail (AM1DP200)	LR9D01...32	LAD7B205



LAD 7B205

Contactors and overloads

TeSys Deca Over current relays



LR97D07●●

LR97 D electronic over current relays

Relay setting range	Usable range (1)	For use with contactor	Relay supply voltage	Weight	Reference (2)
A	A			kg	
0.3...1.5	0.3...1.3	LC1 D09...D38	~ 200...240 V	0.172	LR97D015M7
			==/ ~ 24 V	0.172	LR97D015B
1.2...7	1.2...6	LC1 D09...D38	~ 200...240 V	0.172	LR97D07M7
			~ 100...120 V	0.172	LR97D07F7
			==/ ~ 24 V	0.172	LR97D07B
			~ 200...240 V	0.172	LR97D25M7
5...25	5...21	LC1 D09...D38	~ 100...120 V	0.172	LR97D25F7
			==/ ~ 24 V	0.172	LR97D25B
			~ 200...240 V	0.172	LR97D38M7
20...38	20...34	LC1 D25...D38	~ 100...120 V	0.172	LR97D38F7
			==/ ~ 24 V	0.172	LR97D38B



LT4730●●

LT47 electronic over current relays

Relay setting range	Usable range (1)	Relay supply voltage	Weight kg	Reference (2)
A	A			
LT47 relay with manual/electric reset				
0.5...6	0.5...5	~ 200...240 V	0.192	LT4706M7S
		~ 100...120 V	0.192	LT4706F7S
		==/ ~ 24 V	0.192	LT4706BS
3...30	3...25	~ 200...240 V	0.192	LT4730M7S
		~ 100...120 V	0.192	LT4730F7S
5...60	5...50	~ 200...240 V	0.192	LT4760M7S
		~ 100...120 V	0.192	LT4760F7S
		==/ ~ 24 V	0.192	LT4760BS

Accessories (to be ordered separately)

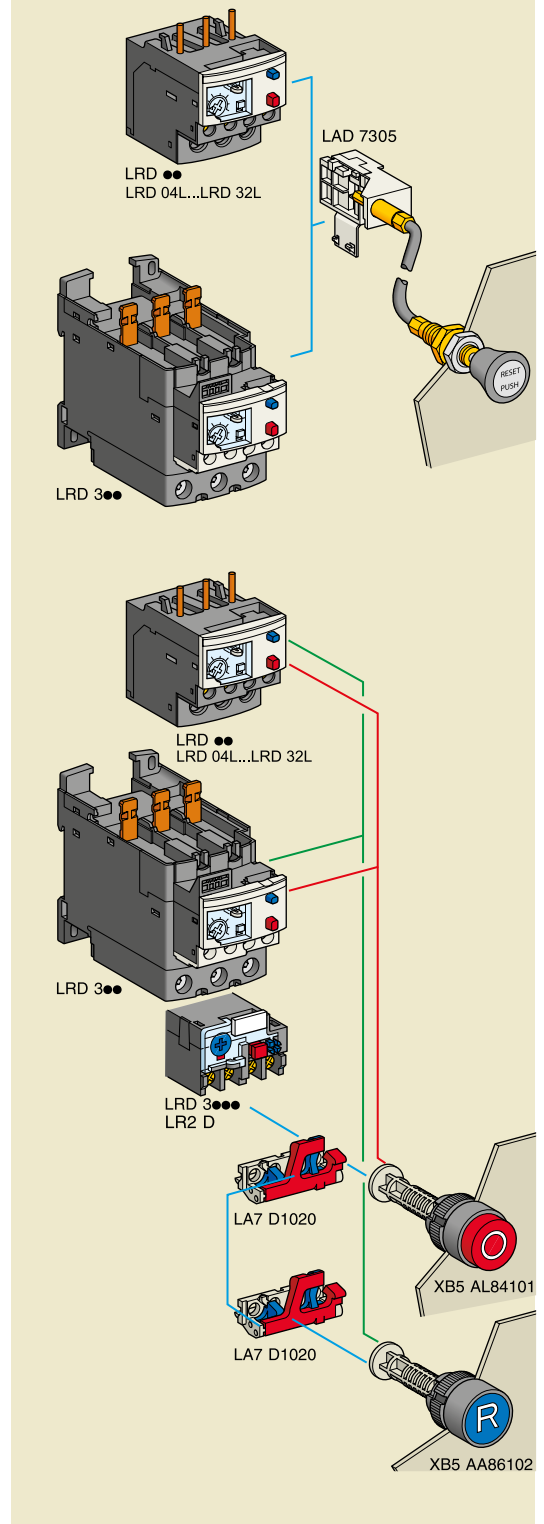
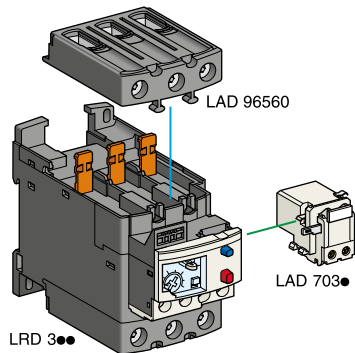
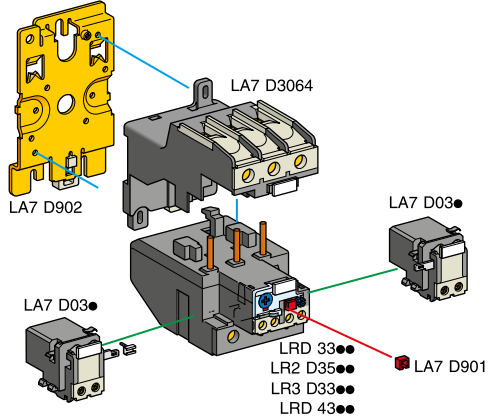
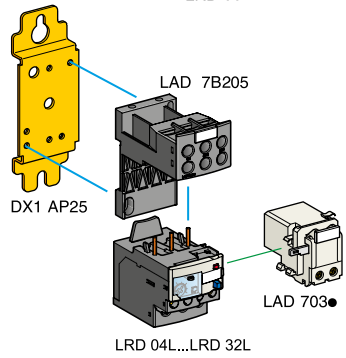
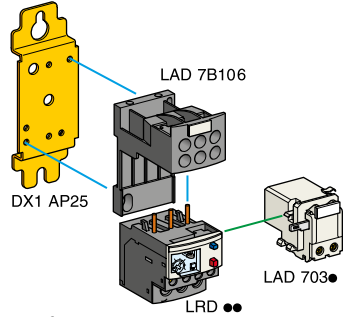
Description	For use with	Sold in lots of	Weight	Reference (2)
Pre-wiring kits allowing connection of the LR97 D relay N/C contact directly to the contactor	LC1 D09...D18	10	0.002	LAD7C1
	LC1 D25...D38	10	0.003	LAD7C2
Terminal block for clip-on mounting on 35 mm rail (AM1 DP200)	LR97 D	1	0.100	LAD7B106

Notes

- (1) To allow adjustment of the tripping sensitivity,
- (2) If a pre-wiring kit is used, it is no longer possible to electrically wire signalling of tripped status.

Contactors and overloads

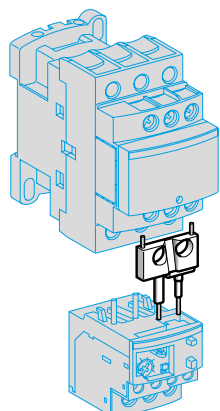
TeSys Deca overload accessories



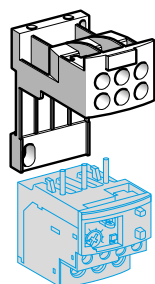
H

Contactors and overloads

TeSys Deca
3 pole thermal overload relays
Pre-wiring kit and accessories
Remote trip/reset



LAD7C●



LAD7B106

Separate components for relays

Description	For use with	Sold in lots of	Unit reference
Pre-wiring kit allowing direct connection of the N/C contact of relay LRD 01...35 or LR3 D01...D35 to the contactor	LC1 D09...D18	10	LAD7C1 (1)
	LC1 D25...D38	10	LAD7C2 (1)
Terminal block (2) for clip-on mounting on 35mm rail (AM1 DP200) or screw fixing; for fixing centres	LRD 01...35 and LR3 D01...D35	1	LAD7B106
	LRD04L...LRD32L, LR3D04L...LR3D32L	1	LAD7B205
	LRD 33●●●, LR3 D33●●●, LR2 D35●●	1	LA7D3064 (3)
EverLink® terminal block for independent mounting	LRD 3●●, LR3 D3●●L and LR3 D3●●	1	LAD96560
Remote Stop or electrical reset device (4)	LRD 01...35, LR3 D01...D35 and LRD 313...LRD 380	1	LAD703● (5) (6)
Remote tripping or electrical reset device (4)	All relays except LRD 01...35, LR3 D01...D35, LRD 3pp, LRD 3●●L and LR3 D3●●	1	LA7D03● (5)
Adapter for door mounting	LR3 D3●●	1	LA7D1020
Operating heads for spring return pushbutton	Stop	1	XB5AL84101
	Reset	1	XB5AA86102

Notes

- (1) These pre-wiring kits cannot be used with reversing contactors.
- (2) Terminal blocks are supplied with terminals protected against direct finger contact and screws in the open, "ready-to-tighten" position.
- (3) To order a terminal block for connection by lugs, the reference becomes **LA7 D30646**.
- (4) The time for which the coil of remote tripping or electrical resetting device **LA7 D03** or **LAD 703** can remain energised depends on its rest time: 1 s pulse duration with 9 s rest time; 5 s pulse duration with 30 s rest time; 10 s pulse duration with 90 s rest time; maximum pulse duration 20 s with a rest time of 300 s. Minimum pulse time: 200 ms.
- (5) Reference to be completed by adding the code indicating the control circuit voltage.
Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Volts	12	24	110	220/230	380/400	415/440
50/60 Hz	–	B	F	M	Q	N

Consumption, inrush and sealed: <100 W

- (6) Not compatible with 3-pole relays fitted with spring terminals.

Contactors and overloads

TeSys Control Giga Contactors Introduction

TeSys Giga

A new Generation series with digital innovation

Over more than 4 decades, the TeSys F range of contactors has built a high reputation for performance, reliability, and quality. The TeSys F range set the industrial standard for high power contactors with an installed base of millions of products. TeSys F contactors were the first choice of many OEMs, control panel builders and industrial users.

But industry requirements have evolved to demand process performance monitoring through data networks and online expert services.

TeSys Giga is Schneider Electric's new range of contactors that answer these evolving needs. TeSys Giga Contactors support the evolution of processes and offer new services to reduce non-production time to a minimum. Replacing TeSys F Contactors, TeSys Giga Contactors address a wide range of demanding applications with built-in advanced features and functionalities.



Futuristic ready...

TeSys Giga Contactors are designed to work with components and accessories with advanced performance. The characteristics of robustness and longevity are maintained, both in the connectors and in the switching.

Continuous local and remote monitoring of contact wear optimizes predictive maintenance by allowing you to replace contacts only when necessary, facilitated by diagnostic visual indicator.

Every customer will benefit from the innovative design and feature, including the compact size, wideband electronic coils, embedded auxiliary contact blocks, ergonomic design, or flexibility in connections.

Quality and Performance aFuturistic ready...

TeSys Giga Contactors are designed to work with components and accessories with advanced performance. The characteristics of robustness and longevity are maintained, both in the connectors and in the switching.

Continuous local and remote monitoring of contact wear optimizes predictive maintenance by allowing you to replace contacts only when necessary, facilitated by diagnostic visual indicator.

Every customer will benefit from the innovative design and feature, including the compact size, wideband electronic coils, embedded auxiliary contact blocks, ergonomic design, or flexibility in connections.

Note

For applications >800Amps please consult your local sales office for custom built solutions.

Contactors and overloads

TeSys Control Giga Contactors Introduction

Applications



AC-3/AC-3e utilization category



AC-1 utilization category

- > TeSys Giga Contactors provide robust control solutions for AC-3/AC-3e applications up to 800 A (1) (450 kW) and AC-1 applications up to 1050 A (1).
- > TeSys Giga Contactors can be part of a direct-on-line motor starter, reversing motor starter or a star-delta motor starter and power switching application.
- > TeSys Giga Contactors provide contact wear diagnostic and wideband AC/DC control.
- > Suitable for type 2 coordination as per IEC60947-4-1.

Right choice for a wide range of demanding applications



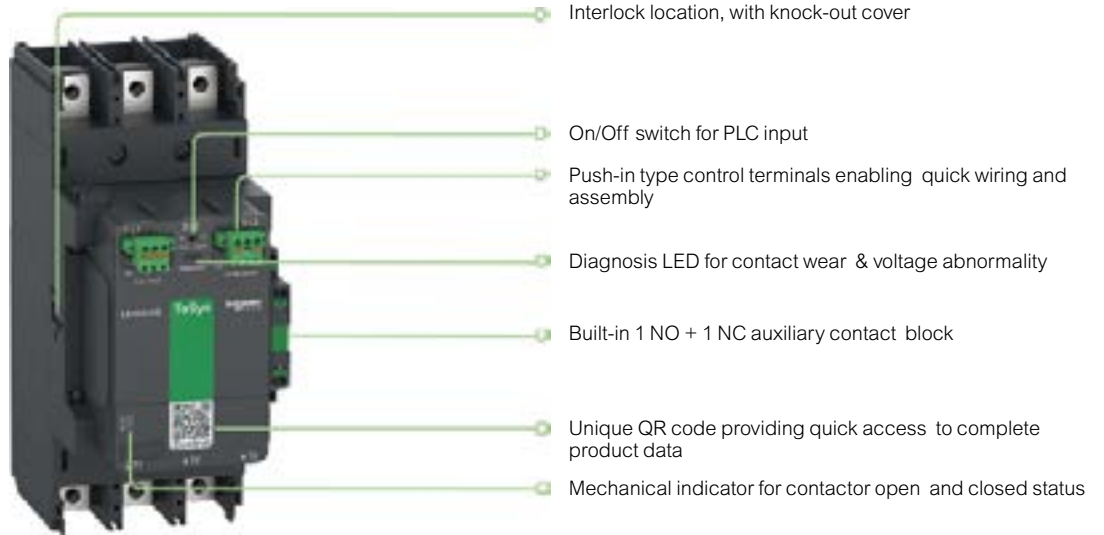
TeSys Giga Contactors' unique design meets the common requirements of demanding high power applications:

- > Conform to multi standards to suit global needs
- > Long life expectancy in harsh environments
- > Suitable for high efficiency motors
- > Very good resistance to vibrations
- > High uptime thanks to predictive maintenance
- > Optimized installation and maintainability.
- > (1) 630 A and 800 A (AC-3) and 1050 A (AC-1) contactors shall be launched in Q1 2022.

Contactors and overloads

TeSys Control
Giga Contactors
Introduction

Intelligent design for greater advantages



H



Higher flexibility

TeSys Giga Contactors can be mounted in different orientation without derating, providing high flexibility of your panel design.

Control wiring, auxiliary contacts and control module are accessible from the front.



Contact wear diagnostic and predictive maintenance

Contact wear is monitored by a dedicated module and shown in the front panel through LED, therefore the, predictive maintenance can be planned for replacing the complete set of switching modules, thus avoiding break-down maintenance. Switching modules (1) can be replaced quickly and easily thanks to their Plug and Play design.

Notes

(1) Refer to page 22 for details on switching modules.

Contactors and overloads

TeSys Control Giga Contactors Description

Intelligent design for greater advantages

Advanced contactor control

- > The electronic control module provides wideband AC/DC coil control voltage, from 24 V to 500 V, allowing quick adaptation of existing industrial processes as well as new projects.
- > The low power consumption of the coils could lead to significant savings on automation equipment. It's now possible to use interface relays with a lower rating, resulting in lower heat emission in the panel.
- > The low power consumption of the coils also takes up less space in the panel and simplifies the diagrams by connecting these coils directly to the output cards of the PLCs.

Simplified wiring

- > The pole pitch of the power terminals allows direct mounting and connection to TeSys Giga Electronic Overload Relays. Standardization of panel mounting and assembly reduces costs and assembly time.
- > Push-in connection for control terminals provides flexibility, ease of connections, and reduced assembly and installation time.

Enhanced durability

- > Durability is a top priority. TeSys Giga Contactors are designed to offer uncompromising robustness and maintenance accessibility to site technicians. The duration of production downtime is reduced, resulting in improved profitability on your investment.

Advanced diagnostic features

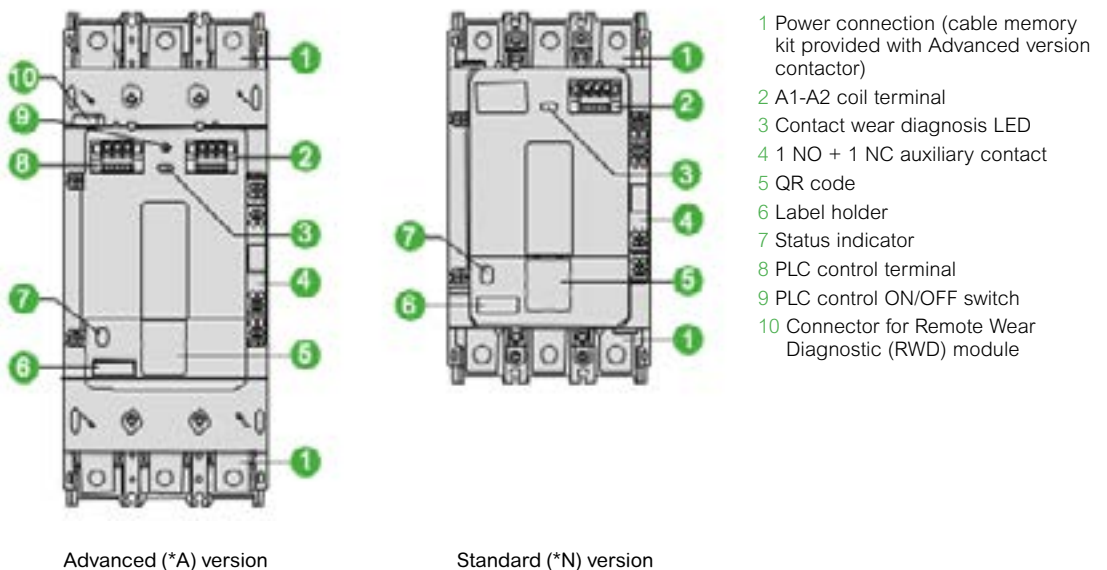
- > On-board diagnostics is a new feature in our latest generation of high power contactors. Counting the number of operations as well as monitoring duration of use and pole condition provides numerous benefits for the customer and improves reliability and maintenance planning.

Compact size

- > Compact size provides easy access to power connections for connecting cables and busbars.

Easy maintenance

- > The poles are designed as replaceable switching modules, so the performance of a used contactor can be fully restored. The modular design allows a quick and long-lasting replacement.
- > Coils are accessible from the front and maintained with very low down times.



*: product references finishing by A or N.

Contactors and overloads

TeSys Control Giga Contactors Description

A comprehensive range of TeSys Giga Contactors that are available in 'Advanced' and 'Standard' versions, in 3 sizes, covering several ratings.

A common range of auxiliary contacts and accessories, enabling high flexibility and simplicity.

TeSys Giga Contactors – Advanced version



115...225 A

265...500 A

Power & control

- > p 3 or 4 power poles
- > p 115 to 800 A (1) (AC-3)
- > p 200 to 1050 A (1) (AC-1)
- > p Embedded 1 NO + 1 NC auxiliary contacts
- > p Push-in type terminals for coils & control

Remote control

- > p 24-48 V, 48-130 V, 200-500 V AC/DC coils
- > p Low consumption coils
- > p Wide voltage range coils (direct coil control)
- > p Digital control input (PLC output digital coil control)
- > p Embedded surge suppressor

Diagnostic

- > p Embedded wear diagnostic
- > p Embedded control voltages diagnostic
- > p Self diagnosis function
- > p Local alarm signaling (LED)
- > p Remote wear diagnostic signaling kit (accessory)

Mounting

- > p 'Cabling memory' adapter enables maintenance without removing power cables and busbar connections.

Standards and Certifications

- > p Multiple standards
- > p International certifications

TeSys Giga Contactors – Standard version



115...225 A

265...500 A

Power & control

- > p 3 or 4 power poles
- > p 115 to 800 A (1) (AC-3)
- > p 200 to 1050 A (1) (AC-1)
- > p Embedded 1 NO + 1 NC auxiliary contacts
- > p Push-in type terminals for coils & control

Remote control

- > p 48-130 V, 100-250 V AC/DC coils
- > p Wide voltage range coils (direct coil control)
- > p Embedded surge-suppressor

Diagnostic

- > p Embedded wear diagnostic
- > p Embedded control voltages diagnostic
- > p Self diagnosis function
- > p Local alarm signaling (LED)

Certifications

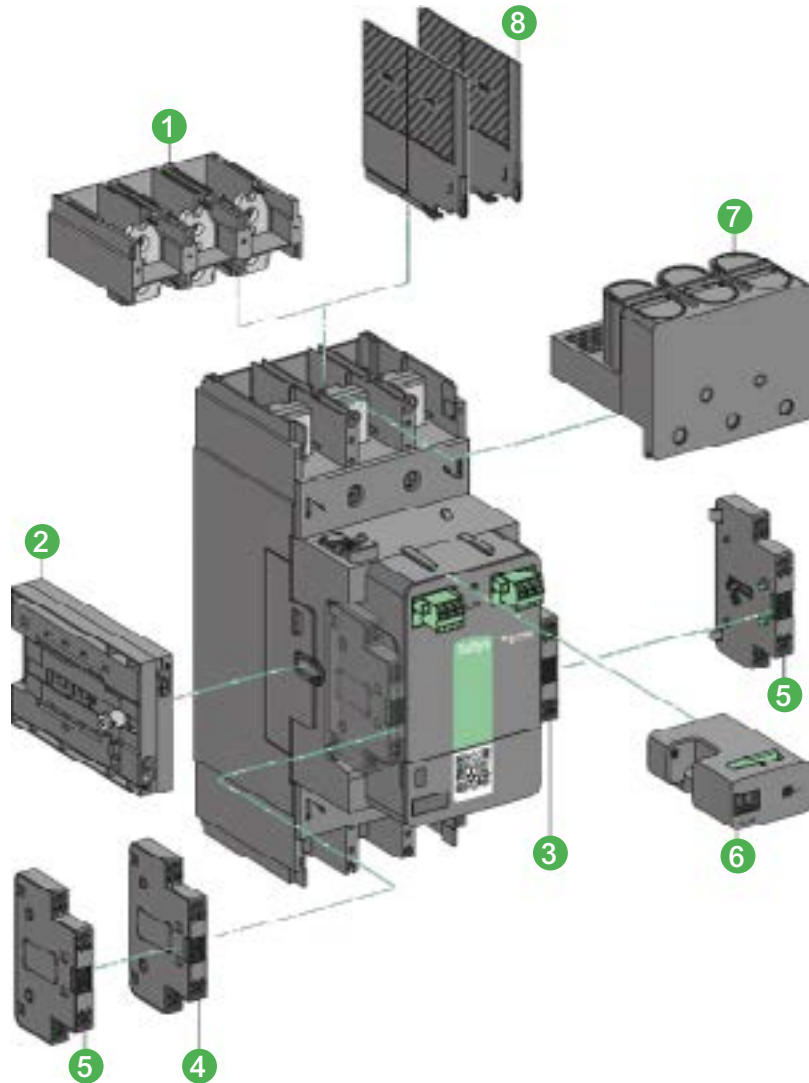
- > p Multiple standards
- > p International certifications

Notes

(1) 630 A and 800 A (AC-3) and 1050 A (AC-1) contactors shall be launched in Q1 2022.

Contactors and overloads

TeSys Control Giga Contactors Description



- 1 Cable memory kit LA9G3102, is always supplied along with Advanced version, and it's an optional accessory for Standard version.
- 2 Mechanical interlock LA9G970, can be installed on either side of the contactor.
- 3 Auxiliary contact module LAG8N113P (1 NO + 1 NC) supplied with LC1G contactor.
- 4 Auxiliary contact modules LAG8N113P/ LAG8N203P, can be installed on the contactor lateral faces (1)
- 5 Auxiliary contact modules LAG8N113 / LAG8N203, can be installed on either side as 2nd set of contacts.
- 6 Remote Wear Diagnostic (RWD) Module LA9GRD01/ LA9GRD10, can be installed and used only in Advanced version.
- 7 IP 20 terminal shroud LA9G3701.
- 8 Phase separators LA9G3801, please refer to pages 16 to 19 for complete details of available accessories.

Note:

a maximum of 2 auxiliary contact modules can be mounted on each side of the contactor.
(1) Does not increase the contactor dimensions even when fitted on both sides.

Contactors and overloads

TeSys Control
Giga Contactors
Product references



LAG8N113

Auxiliary contact modules

Auxiliary contacts give an indication of the contactor status. They can be used for remote visual signaling, alarming, electrical locking, relay activation, etc...

Each contactor is equipped with 1 NO + 1 NC auxiliary contact block as standard.

b Mechanically linked mirror contacts

The NC contact of the auxiliary contact block is mirror contact in conformity to IEC 60947-5-1 and it is mechanically linked to reliably represent the state of the main power contacts and wherever auxiliary contact state reliability is essential. The NC of the auxiliary contact can't be closed at the same time as a normally open power contact.

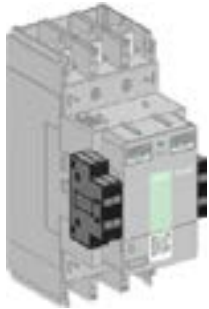
Types of connections:

b Push-in type.

Wide contactor compatibility

TeSys Giga auxiliary contact module is compatible with the whole range of TeSys Giga Contactors.

Each TeSys Giga Contactor can be equipped with up to 4 auxiliary contact modules.



Side mounting – maximum 2 per side

Electrical characteristics

Characteristics

Rated thermal current (A)	10
Minimum load	1 mA at 17 V DC
Contact reliability	Failure rate <10-8

Operational power of contacts conforming to IEC 60947-5-1 - Electrical durability

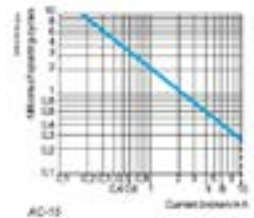
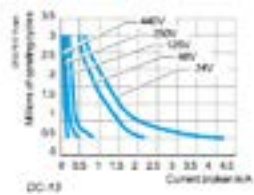
category AC-15

category AC-15

Operating cycles	V	24	48	115	230	400	500
1 million	VA	60	120	280	560	800	500
2 million	VA	24	48	115	230	400	250
3 million	VA	16	32	80	160	280	150

category DC-13

Operating cycles	W	100	100	105	110	88
0.5 million	W	100	100	105	110	88
1 million	W	48	72	54	560	55
2 million	W	24	36	38	230	39
3 million	W	16	24	25	160	33



Contactors and overloads

TeSys Control
Giga Contactors – Power wiring accessories
Product references
Power terminals



LA9G3601

Straight terminal extensions

Description	Suitable for	Compatible with contactors	Sold in lots of	Reference
Straight terminal extension	3P	LC1G115 / LC1G225	3	LA9G3601
		LC1G265 / LC1G500	3	LA9G3602
		LC1G630 / LC1G800	3	LA9G3603
Terminal connections for contactors with larger cables/ busbars	3P	LC1G400 / LC1G500 (50 mm width)	3	LA9G3613
		LC1G630 / LC1G800 (80 mm width)	3	LA9G3614
		LC1G115 / LC1G225	4	LA9G4601
Straight terminal extension	4P	LC1G265 / LC1G500	4	LA9G4602
		LC1G630 / LC1G800	4	LA9G4603
		LC1G400 / LC1G500 (50 mm width)	4	LA9G4613
Terminal connections for contactors with larger cables/ busbars	4P	LC1G630 / LC1G800 (80 mm width)	4	LA9G4614



LA9G3613

Straight terminal extensions

Description	Suitable for	Compatible with contactors	Sold in lots of	Reference
Right angled side terminal extension	3P	LC1G115 / LC1G225	3	LA9G3661
		LC1G265 / LC1G500	3	LA9G3662
		LC1G630 / LC1G800	3	LA9G3663
Right angled large terminal extension	3P	LC1G115 / LC1G225	3	LA9G3671
		LC1G265 / LC1G500	3	LA9G3672
		LC1G630 / LC1G800	3	LA9G3673
Right angled rear terminal extension	3P	LC1G115 / LC1G225	3	LA9G3681
		LC1G265 / LC1G500	3	LA9G3682
		LC1G630 / LC1G800	3	LA9G3683



LA9G3682



LA9G3631

Edgewise terminal extensions

Description	Suitable for	Compatible with contactors	Sold in lots of	Reference
Edgewise terminal extension	3P	LC1G115 / LC1G225	3	LA9G3631
		LC1G265 / LC1G500	3	LA9G3632
		LC1G630 / LC1G800	3	LA9G3633
Edgewise terminal extension	4P	LC1G115 / LC1G225	4	LA9G4631
		LC1G265 / LC1G500	4	LA9G4632
		LC1G630 / LC1G800	4	LA9G4633

Spreader kits and Terminal adapter for Box connector

Description	Suitable for	Compatible with contactors	Sold in lots of	Reference
Spreader kits	3P	LC1G115 / LC1G225 (35-45 mm)	3	LA9G3611
		LC1G265 / LC1G500 (45-70 mm)	3	LA9G3612
Terminal adapter for contactor with Box connectors	3P	LC1G115 / LC1G225 (35-45 mm)	3	LA9G3711
		LC1G265 / LC1G500 (45-70 mm)	3	LA9G3712
		LC1G630 / LC1G800 (70-80 mm)	3	LA9G3714
Spreader kits	4P	LC1G115 / LC1G225 (35-45 mm)	4	LA9G4611
		LC1G265 / LC1G500 (45-70 mm)	4	LA9G4612
Terminal adapter for contactor with Box connectors	4P	LC1G115 / LC1G225 (35-45 mm)	4	LA9G4711
		LC1G265 / LC1G500 (45-70 mm)	4	LA9G4712
		LC1G630 / LC1G800 (70-80 mm)	4	LA9G4714



LA9G3611



LA9G4711

Contactors and overloads

TeSys Control
Giga Contactors – Power wiring accessories
Product references
Power terminal accessories



Phase separators

Description	Suitable for	Compatible with contactors	Sold in lots of	Reference
Compatible with contactors	3P	LC1G115 to LC1G800	4	LA9G3801
	4P	LC1G115 to LC1G800	6	LA9G4801



LA9G4701



LA9G3682

IP20 Lug cover for coupling assembly

Description	Suitable for	Compatible with contactors	Sold in lots of	Reference
IP 20 Lug cover for coupling assembly	3P	LC1G115 to LC1G800	4	LA9G3707
IP 20 Lug cover for coupling assembly	4P	LC1G115 to LC1G800	6	LA9G4707



LV429252

Lugs for cable set

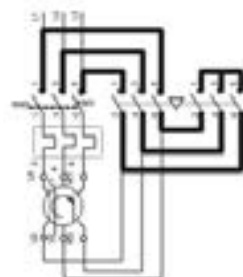
Description	Suitable for	Compatible with contactors	Reference
Lugs for cable	3P	LC1G115 to LC1G800 120 mm ²	LV429252 LV429256
		LC1G115...LC1G225 150 mm ²	LV429253 LV429257
		LC1G115...LC1G225 185 mm ²	LV429254 LV429258
		LC1G265...LC1G500 240 mm ²	LV432500 LV432501
		LC1G265...LC1G500 300 mm ²	LV432502 LV432503



LA9GQQ330

Star-Delta (Wye-Delta) connection kits

Description	Suitable for	for Line /Delta contactor	+ Star contactor	Reference
Connection kit: bars for Line-Delta- Star contactor assembly	3P	LC1G115 / LC1G225	LC1G115 / LC1G225	LA9GQQ330
		LC1G265 / LC1G500	LC1G115 / LC1G225	LA9GSQ330
		LC1G265 / LC1G500	LC1G265 / LC1G500	LA9GSS330
		LC1G630 / LC1G800	LC1G265 / LC1G500	LA9GTS330
		LC1G630 / LC1G800	LC1G630 / LC1G800	LA9GTT330
with cable memory kit	3P	LC1G265 / LC1G500	LC1G115 / LC1G225	LA9GSQ331
		LC1G630 / LC1G800	LC1G265 / LC1G500	LA9GTS331



Note:

RE17RMMWS timer to be used for Star-Delta starter application.

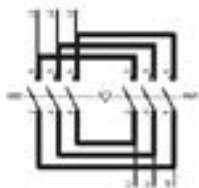
- (1) Either phase separators or terminal shrouds can only be mounted. Phase separators are mandatory for operational voltage, $U_e \geq 690$ V.
- (2) To be used with LA9G3613 and LA9G3614.
- (3) To be used with LA9G4613 and LA9G4614.

Contactors and overloads

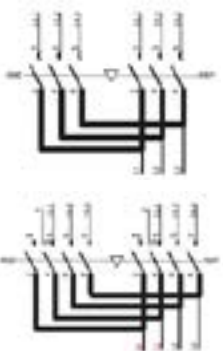
TeSys Control
Giga Contactors – Power wiring accessories
Product references
Power terminal accessories



LA9G3760



LA9G3750



LA9G970



LA9G3101

Reverser connection kits

Description	Suitable for	Compatible with contactors	Reference
Connection kit: bars for reverser contactor assembly	3P	LC1G115 / LC1G225	LA9G3760
		LC1G265 / LC1G500	LA9G3761
		LC1G630 / LC1G800	LA9G3762

Changeover connection kits

Description	Suitable for	Compatible with contactors	Reference
Connection kit: bars for changeover contactor assembly	3P	LC1G115 / LC1G225	LA9G3750
		LC1G265 / LC1G500	LA9G3751
		LC1G630 / LC1G800	LA9G3752
	4P	LC1G115 / LC1G225	LA9G4750
		LC1G265 / LC1G500	LA9G4751
		LC1G630 / LC1G800	LA9G4752

Mechanical interlock

Description	Compatible with contactors	Reference
Mechanical interlock between contactors (1)	Identical contactor frames	LA9G970
	LC1G265 to 500 and LC1G185 to 225	LA9G971
	LC1G630 to 800 and LC1G265 to 500	LA9G972

'Cable Memory' connection block

Cables or busbars can be connected to the contactor by means of the optional cable memory terminal block. When the contactor is removed for maintenance, the cables or busbars remain connected to this terminal block, making reinstallation faster and easier.

'Cable memory'

Description	Compatible with contactors	Reference	For connect with MCCB (3)
'Cable memory' for 3-pole contactors – for holding cables in place when replacing contactor	LC1G115 / LC1G225	LA9G3101	LA9G3111
	LC1G265 / LC1G500	LA9G3102	LA9G3112
	LC1G630 / LC1G800	LA9G3103	LA9G3113
'Cable memory' for 4-pole contactors – for holding cables in place when replacing contactor	LC1G115 / LC1G225	LA9G4101	LA9G4111
	LC1G265 / LC1G500	LA9G4102	LA9G4112
	LC1G630 / LC1G800	LA9G4103	LA9G4113

Note:

- (1) Maximum 3 auxiliary contacts can be installed between 2 contactors with mechanical interlock kit.
- (2) 'Cable memory' connection block is always supplied with Advanced contactor version.
- (3) Launch in Q1 2022.

Contactors and overloads

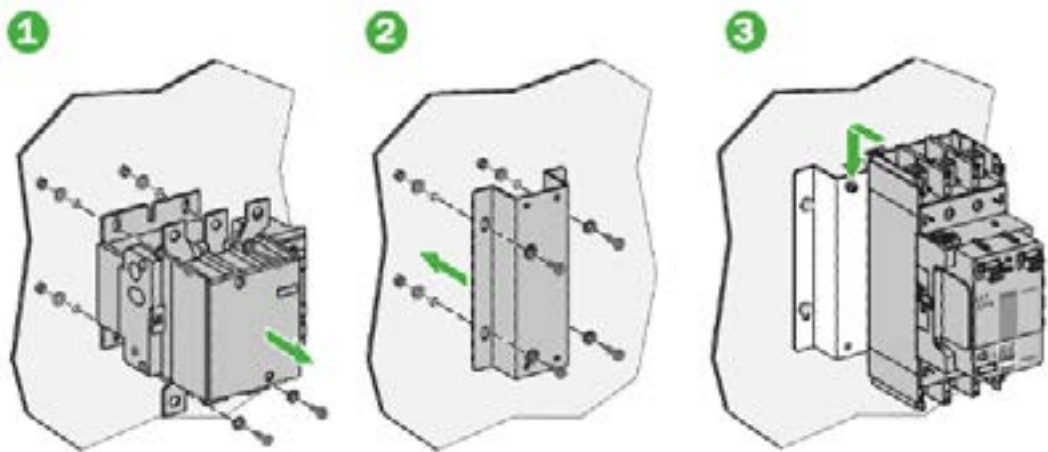
TeSys Control
Giga Contactors – Mounting accessories
Product references



LA9GRFB1

Retrofit bases

- > Suitable for 3 pole contactors
- > Retrofit bases to replace similar ratings of TeSys F contactors with TeSys Giga Contactors
- > Enables quick and simple replacement in the existing installation
- > 2 references to cover ranges from LC1F115 to F500



1 Remove TeSys F contactor

2 Install Retrofit base

3 Mount TeSys Giga Contactor on Retrofit base



LA9GRFB2

TeSys Giga retrofit bases are designed for integrating new TeSys Giga Contactors into installations using TeSys F contactors. The retrofit bases help reduce replacement and reinstallation time when you upgrade your system with the new range of contactors. The bases come in two frame sizes.

Retrofit bases

Description		Reference
Accessory used to replace TeSys F contactors	LC1F115-225 replaced by LC1G115-225	LA9GRFB1
	LC1F265-500 replaced by LC1G265-500	LA9GRFB2
	LC1F630-800 replaced by LC1G630-800	LA9GRFB3 (1)

Note:

(1) Launch in Q1 2022

Contactors and overloads

TeSys Control Giga Contactors – Mounting accessories Product references



LX1G3QLSEA



Control module mounted on a 3-pole contactor

Control module

Wide band electronic control
24 V...500 V 50/60 Hz or DC control input
Advanced and standard versions
Accessible from the front for easy and quick replacement

The control module is needed for the operation of the contactor. It performs the following functions:

- > proper functioning of contactor based on the input control voltage
- > monitoring and diagnostics of the pole condition
- > generation of signaling commands.

The range of control modules is organized:

- > per contactor size and for each rating,
- > per control voltage range.

Each module has connectors for connecting:

- > the coil control A1, A2 circuit & PLC output control (advanced version)
- > pole status and diagnostic signaling circuits.

Control modules

Description	Suitable for	Compatible with contactors	References per voltage range (V AC/DC)		
			24 - 48 (1)	48 - 130 (1)	200 - 500
Lugs for cable	3P	LC1G115 / LC1G225	LX1G3QBEEA	LX1G3QEHEA	LX1G3QLSEA
		LC1G265 / LC1G330	LX1G3RBEEA	LX1G3REHEA	LX1G3RLSEA
		LC1G400 / LC1G500	LX1G3SBEEA	LX1G3SEHEA	LX1G3SLSEA
	4P	LC1G630 / LC1G800	-	LX1G3TEHEA	LX1G3TLSEA
		LC1G115 / LC1G225	LX1G4QBEEA	LX1G4QEHEA	LX1G4QLSEA
		LC1G265 / LC1G330	LX1G4RBEEA	LX1G4REHEA	LX1G4RLSEA
		LC1G400 / LC1G500	LX1G4SBEEA	LX1G4SEHEA	LX1G4SLSEA
		LC1G630 / LC1G800	-	LX1G4TEHEA	LX1G4TLSEA
Control modules for Standard contactors	3P	LC1G115 / LC1G225	LX1G3QEHEN	LX1G3QKUEN	
		LC1G265 / LC1G330	LX1G3REHEN	LX1G3RKUEN	
		LC1G400 / LC1G500	LX1G3SEHEN	LX1G3SKUEN	
	4P	LC1G630 / LC1G800	LX1G3TEHEN (1)	LX1G3TKUEN (1)	
		LC1G115 / LC1G225	LX1G4QEHEN	LX1G4QKUEN	
		LC1G265 / LC1G330	LX1G4REHEN	LX1G4RKUEN	
		LC1G400 / LC1G500	LX1G4SEHEN	LX1G4SKUEN	
		LC1G630 / LC1G800	LX1G4TEHEN (1)	LX1G4TKUEN (1)	



LA9G81

Connector for control module

Description	Reference
Push-in terminal connector for control module	LA9G81



LA9GRD10

Remote wear diagnostic (RWD) module

Description	Reference
Remote wear diagnostic module for TeSys Giga Contactor - 1 NO	LA9GRD10 (2)
Remote wear diagnostic module for TeSys Giga Contactor - 1 NC	LA9GRD01 (2)

Note:

- (1) Available in Q1 2022.
- (2) Remote Wear Diagnostic (RWD) Module, can be installed and used only in Advanced version.

Contactors and overloads

TeSys Control
Giga Contactors – Mounting accessories
Product references



Switching module kits

Replaceable switching modules

- > Innovative contact switching modules for TeSys Giga Contactors
- > Replace worn-out poles with a new switching module in minutes, without having to disassemble the whole product
- > No special tools are needed for the replacement.

TeSys Giga - Switching modules for TeSys Giga Contactors, Advanced and Standard versions

Description	Suitable for	for Line /Delta contactor	Reference
3 or 4 switching module kits	3P	LC1G115 / LC1G225	LA9G3QA
		LC1G265 / LC1G330	LA9G3RA
		LC1G400 / LC1G500	LA9G3SA
		LC1G630 / LC1G800	LA9G3TA (1)
	4P	LC1G115 / LC1G225	LA9G4QA
		LC1G265 / LC1G330	LA9G4RA
		LC1G400 / LC1G500	LA9G4SA
		LC1G630 / LC1G800	LA9G4TA (1)

Note:

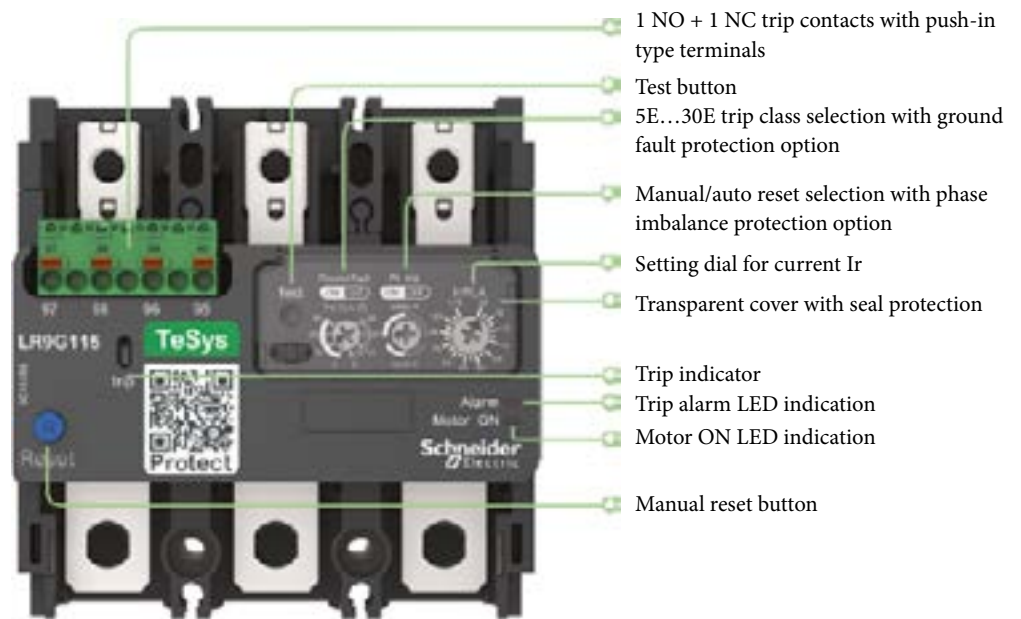
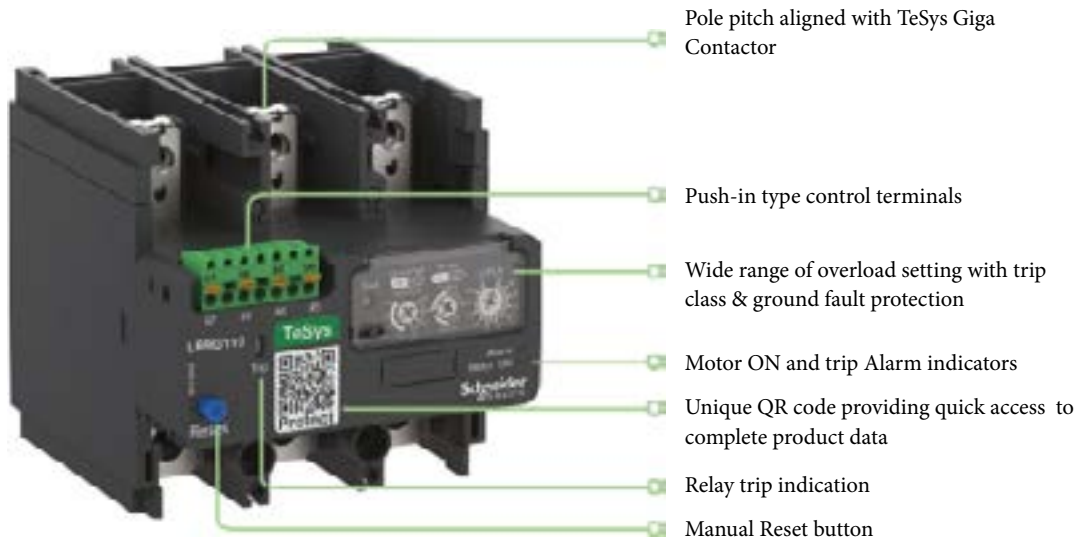
In the event of replacement, replace all switching modules. After replacement, change the position of RESET button on the control module from A to B or B to A.

(1) Available in Q1 2022.

Contactors and overloads

TeSys Control
Giga Electronic Overload Relays
Introduction

Intelligent design for greater advantages



Contactors and overloads

TeSys Control Giga Electronic Overload Relays Introduction



LR9G225

TeSys Giga Electronic Overload Relays

- > Electronic overload relay
- > Suitable for independent mounting or direct mounting with TeSys Giga contactors
- > Ergonomic rotary switches for thermal and protection settings
- > Trip class selection: 5E/10E/20E/30E
- > Overload, phase imbalance, phase loss and ground fault protections
- > Manual and auto reset options
- > LED indicator for Motor ON and pre-trip alarm
- > Thermal memory and compensation
- > Push-in terminals for control connections



Direct mounting
with TeSys Giga Contactor

Relay setting range	Fuses to be used relay aM /gG/aR	with selected kA	For use with contactor LC1G	Reference
A	A			
Class 5...30 A				
28...115	125 aM	100	LC1G115...225	LR9G115
57...225	250 aM	100	LC1G115...225	LR9G225
125...500	630 aM	100	LC1G265...500	LR9G500
	630 gG	80		
	630 aR	25		
160...630	800 aR	100	LC1G630	LR9G630 (1)
	800 aR	80		
	800 aR	25		

Overload Relay accessories

Mounting and wiring accessories

Description	Reference
Mounting base for alignment of LR9G115-225 with LC1G115-225 (2)	LA9G3650
Mounting base for alignment of LR9G500 with LC1G265-330 (2)	LA9G3651
Mounting base for alignment of LR9G500 with LC1G400-500 (2)	LA9G3652
Mounting base for alignment of LR9G630 with LC1G630-800 (2)	LA9G3653
Push-in connection adapter	LA9G82



LA9G3650

Front protection cover

Description	for Line /Delta contactor	Reference
Front protection cover (3)	LR9G115 / LR9G225	LA9G3704
	LR9G500	LA9G3705
	LR9G630	LA9G3706



LA9G82

Remote Reset control device

Description	Sold in lots of	Reference
Remote Reset function control by flexible cable (length = 0.5 m)	1	LAD7305



LA9G3704



LAD7305

Note:

- (1) Launch in Q1 2022.
- (2) Used for independent mounting of Overload Relay beneath contactor to align main power pole connections.
- (3) Used to cover main power connection terminals between contactor and overload with direct mounting option.

Reliability



New TeSys High-Power Contactor up to 2600A (AC1)

TeSys LC1F2600KUE - 100-250V AC/DC coil

Due to evolving segments and customer needs, we have now created a 3 Pole High-Power Contactor rated 2600A in AC-1 with a wide band coil. It is equipped with 3 NO contacts and operates up to 1000V.



Wide band 100...250V AC/DC coil

One reference covers multiple standard coil variants for an easier reference selection and optimized stock



Embedded PLC 24V DC input

Conforming to IEC61131-2 Type 2 standards.

Installed on the right side of the contactor without increasing the overall product dimensions



Type 2 coordination with the new Altivar Soft Starter ATS480 for motors over 630kW

Bypass contactor used with soft starter for high-rated asynchronous motors in combination with a circuit breaker and a fact acting fuse.

Need help finding the correct references for your motor?

Get your complete motor management solution in 2 minutes with our EcoStruxure Motor Control Configurator



Scan or click on the QR code

Direct on line (DOL) enclosed starters

TeSys K, Deca & 56 series enclosed starters
3 pole DOL starters
0.25 to 45kW



LE1M35●●●

Model LE1 M DOL non-reversing starters with overload fitted, IP65 polycarbonate enclosure

Motor power rating 3 phase 50/60Hz AC3		Thermal overload range LR2K (A)	Starter and overload reference (1) (2)
230V (kW)	400V (kW)		
0.12	0.25	0.54...0.8	LE1M35●●05
0.18	0.37	0.8...1.2	LE1M35●●06
0.25	0.55	1.2...1.8	LE1M35●●07
0.37	1.1	1.8...2.6	LE1M35●●08
0.55	1.5	2.6...3.7	LE1M35●●10
1.1	2.2	3.7...5.5	LE1M35●●12
1.5	3	5.5...8	LE1M35●●14
2.2	4	8...11.5	LE1M35●●16
3	5.5	10...14	LE1M35●●21
3.7	7.5	12...16	LE1M35●●22



LE1D1●●

Model LE1 D DOL non-reversing starters without overload fitted, IP65 polycarbonate / IP55 metal enclosure (2) (3)

Motor power rating 3 phase 50/60 Hz AC3		Overload range (A)	Overload reference	Starter reference (1)
230V (kW)	400V (kW)			
3	5.5	9...12	LRD16	LE1D12●●
4	7.5	12...18	LRD21	LE1D18●●
5.5	11	17...25	LRD22	LE1D25●●
7.5	15	23...32	LRD32	LE1D35●●
11	18.5	30...40	LRD340	LE1D40A●●
15	22	30...50	LRD350	LE1D50A●●
18.5	30	48...65	LRD365	LE1D65A●●



PDL56DOL9LOBGY

56 Series DOL motor starters without overload, IP66 (3)

Motor power rating 3 Phase 50Hz AC3	Rated operational current 415V (A)	Control voltage (V)	Overload range (A)	Overload reference	Reference
4	9	240V AC	7...10	LRD14	PDL56DOL9LOBGY
4	9	415V AC	7...10	LRD14	PDL56DOL9LOGY
5.5	12	240V AC	9...13	LRD16	PDL56DOL12LOBGY
5.5	12	415V AC	9...13	LRD16	PDL56DOL12LOGY
7.5	16	240V AC	12...18	LRD21	PDL56DOL16LOBGY
7.5	16	415V AC	12...18	LRD21	PDL56DOL16LOGY

Standard coil voltages (1)

Volts(V) 50/60Hz	230	240	415
LE1M35/LE1D09...LE1D35		U7	N7
LE1D40...LE1D65	P7		

Notes

- (1) "●●" Complete reference with control voltage code. e.g. **LE1D12U7** for 240V 50/60Hz.
- (2) **LE1M/LE1D** starters come complete with a green start button "I" and red stop/reset button "O".
- (3) Overload not included in price of LE1D and 56 series DOL. Add overload to complete selection (see page H23).

Star- delta starters

Open version
Enclosed version
for motor control, up to 132 kW



LC3D090A●●

Open type star delta starters (overload purchased separately)

- > Maximum operating rate: 30 starts/hour
- > Maximum starting time: LC1D: 30 seconds
- > 35mm rail mounted starter
- > Comes with mechanical interlock

Power rating of 3 phase motor 415V (kW)	Recommended overload	Overload range (A)	Reference (1)
22	LRD22	16-24	LC3D180AB7
30	LRD35	30-38	LC1D320AP7



LE3D09●●

Enclosed star delta starters (overload purchased separately)

- > Maximum operating rate: 30 starts/hour
- > Maximum starting time: LC1D: 30 seconds
- > IP65 Polycarbonate enclosure
- > Comes with mechanical interlock

Power rating of 3 phase motor 415V (kW)	Recommended overload	Overload range (A)	Reference (1)
11	LRD21	12-18	LE3D12N7
22	LRD32	23-32	LE3D18N7

Coil voltage code (1)

AC voltage (V) 50/60Hz	Volts 50/60Hz	230 P7	240 U7	415 N7

TeSys Star Delta starters – contactor selection (2)

Mains voltage 400V 415V (kW)	KM2 line	KM3 delta	KM1 star	Interlock kit + timer	Overload
7.5 7.5	LC1D09●●	LC1D09●●	LC1D09●●	LAD 9R1V + LADS2	LRD14
11 11	LC1D12●●	LC1D12●●	LC1D09●●	LAD 9R1V + LADS2	LRD16
18.5 22	LC1D18●●	LC1D18●●	LC1D18●●	LAD 9R1V + LADS2	LRD22
25 30	LC1D32●●	LC1D32●●	LC1D25●●	LAD 9R1V + LADS2	LRD35
37 37	LC1D40A●●	LC1D40A●●	LC1D40A●●	LAD9R3 + LADS2	LRD340
55 59	LC1D50A●●	LC1D50A●●	LC1D40A●●	LAD9R3 + LADS2	LRD365
75 75	LC1D80●●	LC1D80●●	LC1D80●●	LA9D8018	LRD3365
110 110	LC1D115●●	LC1D115●●	LC1D80●●		
132 132	LC1D150●●	LC1D150●●	LC1D115●●		

Star delta kits for 3-Pole contactors

Contactors	Description	Reference
LC1D09 and D12	Star-delta kit (Time delay LADS2 + power connection + mounting accessories)	LAD91217
LC1D18...D32	Star-delta kit (Time delay LADS2 + power connection + mounting accessories)	LAD93217
LC1D40A...D65A	Star-delta kit (Time delay LADS2 + power connection + mounting accessories)	LAD9SD3
LC1D80	Star-delta kit (Time delay LADS2 + power connection + mounting accessories)	LA9D8017
LC1D80	Mounting plate	LA9D80973

Note

- (1) ●● Complete reference with coil voltage code, e.g. LC3D090AB7 for 24V AC. Indicative prices for common coil voltages.
(2) For Type 1 or Type 2 co-ordinated solution refer to technical section of this catalogue.

TeSys Deca Motor Circuit Breaker Motor circuit breakers

Thermal magnetic circuit breakers Selection guide

Applications	Motor protection – Thermal magnetic				Magnetic Protection must be combined with Thermal Overload Relay		Motor protection with advanced features
							
Tripping threshold on short circuit	13 In on average						
Standard motor power ratings in AC3, 415V	Up to 15kW	Up to 15kW	Up to 30kW	Up to 37kW			Up to 55kW
Operational current at 415V	0.1...32A		9...65A	1...80A			1...115A
Breaking capacity at 415V (Icu) to IEC9472	10...100kA	50...100kA	50...100kA	35...100kA	50...100kA	50...100kA	25...100kA
Door interlock mechanism	Without	With	With	Without	With	With	With
Device type references	GV2ME	GV2P	GV3P	GV3ME	GV2L	GV3L	GV4P GV4L GV4PEM

Note

(1) For more information call Schneider Electric customer care team.

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

Product configurator
on se.com/nz

GV2 motor circuit breakers (to 32A)



GV2ME

GV2ME Thermal-magnetic motor circuit breakers (1)

415V (kW)	ICU (kA)	Current setting range – (A)	Associated Contactor		Reference
			Type 1	Type 2	
–	–	0.1-0.16	LC1K06	LC1D09	GV2ME01
0.06	100	0.16-0.25	LC1K06	LC1D09	GV2ME02
0.09	100	0.25-0.4	LC1K06	LC1D09	GV2ME03
0.12	100	0.4-0.63	LC1K06	LC1D09	GV2ME04
0.25	100	0.63-1.0	LC1K06	LC1D09	GV2ME05
0.55	100	1.0-1.6	LC1K06	LC1D09	GV2ME06
0.75	100	1.6-2.5	LC1K06	LC1D09	GV2ME07
1.5	100	2.5-4.0	LC1K06	LC1D09	GV2ME08
2.2	100	4.0-6.3	LC1K06	LC1D09	GV2ME10
4	100	6-10	LC1K09	LC1D09	GV2ME14
5.5	15	9-14	LC1D12	LC1D25	GV2ME16
7.5	15	13-18	LC1D18	LC1D25	GV2ME20
9	15	17-23	LC1D25	LC1D25	GV2ME21
11	15	20-25	LC1D25	LC1D25	GV2ME22
15	10	24-32	LC1D32	LC1D32	GV2ME32

> Local control with stop start pushbuttons > Short circuit and thermal overload protection



GV2P

GV2P Thermal-magnetic motor circuit breakers (1)

415V (kW)	ICU (kA)	Current setting range – (A)	Associated contactor		Reference
			Type 1	Type 2	
–	100	0.1-0.16	LC1D09	LC1D09	GV2P01
–	100	0.16-0.25	LC1D09	LC1D09	GV2P02
–	100	0.25-0.4	LC1D09	LC1D09	GV2P03
–	100	0.4-0.63	LC1D09	LC1D09	GV2P04
–	100	0.63-1.0	LC1D09	LC1D09	GV2P05
0.55	100	1.0-1.6	LC1D09	LC1D09	GV2P06
0.75	100	1.6-2.5	LC1D09	LC1D09	GV2P07
1.5	100	2.5-4.0	LC1D09	LC1D09	GV2P08
2.2	100	4.0-6.3	LC1D09	LC1D09	GV2P10
4	100	6-10	LC1D12	LC1D12	GV2P14
5.5	50	9-14	LC1D25	LC1D25	GV2P16
7.5	50	13-18	LC1D25	LC1D25	GV2P20
9	50	17-23	LC1D25	LC1D25	GV2P21
11	50	20-25	LC1D25	LC1D25	GV2P22
15	50	24-32	LC1D32	LC1D32	GV2P32

> Local control with rotary switch > Short circuit and overload protection

> Visual indication of short circuit trip > Differentiation between short circuit and overload.



GV2L

GV2L Magnetic motor circuit breakers (1)

415V (kW)	ICU (kA)	Associated contactor		Reference
		Type 1	Type 2	
–	100	LC1D09	LRD03	GV2L03
–	100	LC1D09	LRD04	GV2L04
–	100	LC1D09	LRD05	GV2L05
0.55	100	LC1D09	LRD06	GV2L06
0.75	100	LC1D09	LRD07	GV2L07
1.5	100	LC1D09	LRD08	GV2L08
2.2	100	LC1D09	LRD10	GV2L10
4	100	LC1D09	LRD14	GV2L14
5.5	50	LC1D25	LRD16	GV2L16
7.5	50	LC1D25	LRD21	GV2L20
11	50	LC1D25	LRD22	GV2L22
15	50	LC1D50	LRD3355	GV2L32

> Local control with rotary switch > Short circuit protection

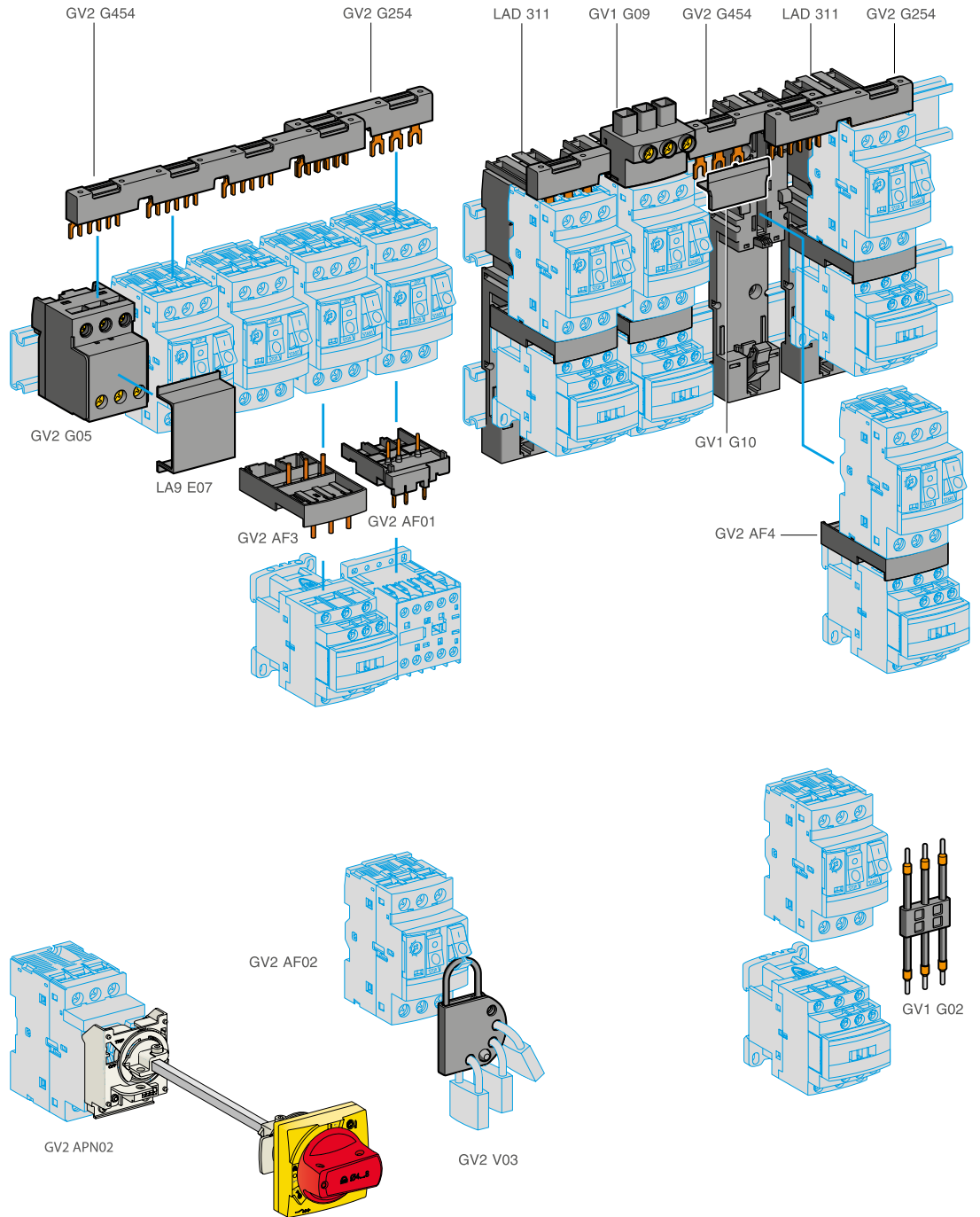
Note

(1) Enclosures for GV2ME and GV2P/L on page H44.

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

GV2 motor circuit breakers (to 32A) connector systems



H

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

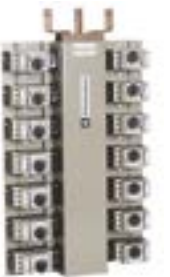
GV2 motor circuit breaker accessories GV2 Accessories & Chassis



Using GV2AF3 with a DC contactor



Using GV2AF4 and LAD31



Accessories

Description	Application	Reference
Adaptor plate	For mounting a GV2ME or GV2P and contactor LC1D09 to D38 with front faces aligned	LAD311
Height compensation plate	7.5mm	GV1F03
Combination block	Between GV2 and contactor LC1K or LP1K	GV2AF01
	Between GV2 and DC contactor	GV2AF3
	Between GV2 mounted on LAD31 and contactor LC1D09...D38	GV2AF4
Sets of 3 pole 63A busbars	2 tap-offs 45mm pitch	GV2G245
	2 tap-offs 54mm pitch	GV2G254
	4 tap-offs 45mm pitch	GV2G445
	4 tap-offs 54mm pitch	GV2G454
Clip-in marker holders (supplied with each circuit breaker)	For GV2P, GV2L (8 x 22mm)	LA9D92
Cover for terminal block	For mounting in modular panels	LA9E07
Flexible 3 pole connection for connecting a GV2 to an LC1D09...D25 contactor	Centre distance between mounting rails: 100...120mm	GV1G02
Protective end cover	For unused busbar outlets	GV1G10
Terminal blocks for supply to one or more GV2G busbar sets	Connection from the top	GV1G09
	Can be fitted with current limited GV1L3 (GV2ME and GV2P)	GV2G05
Padlockable external handle for GV2-P and GV2-L (150 to 290mm)	Padlocking in "Off" position, red handle, yellow legend plate, IP54	GV2APN02

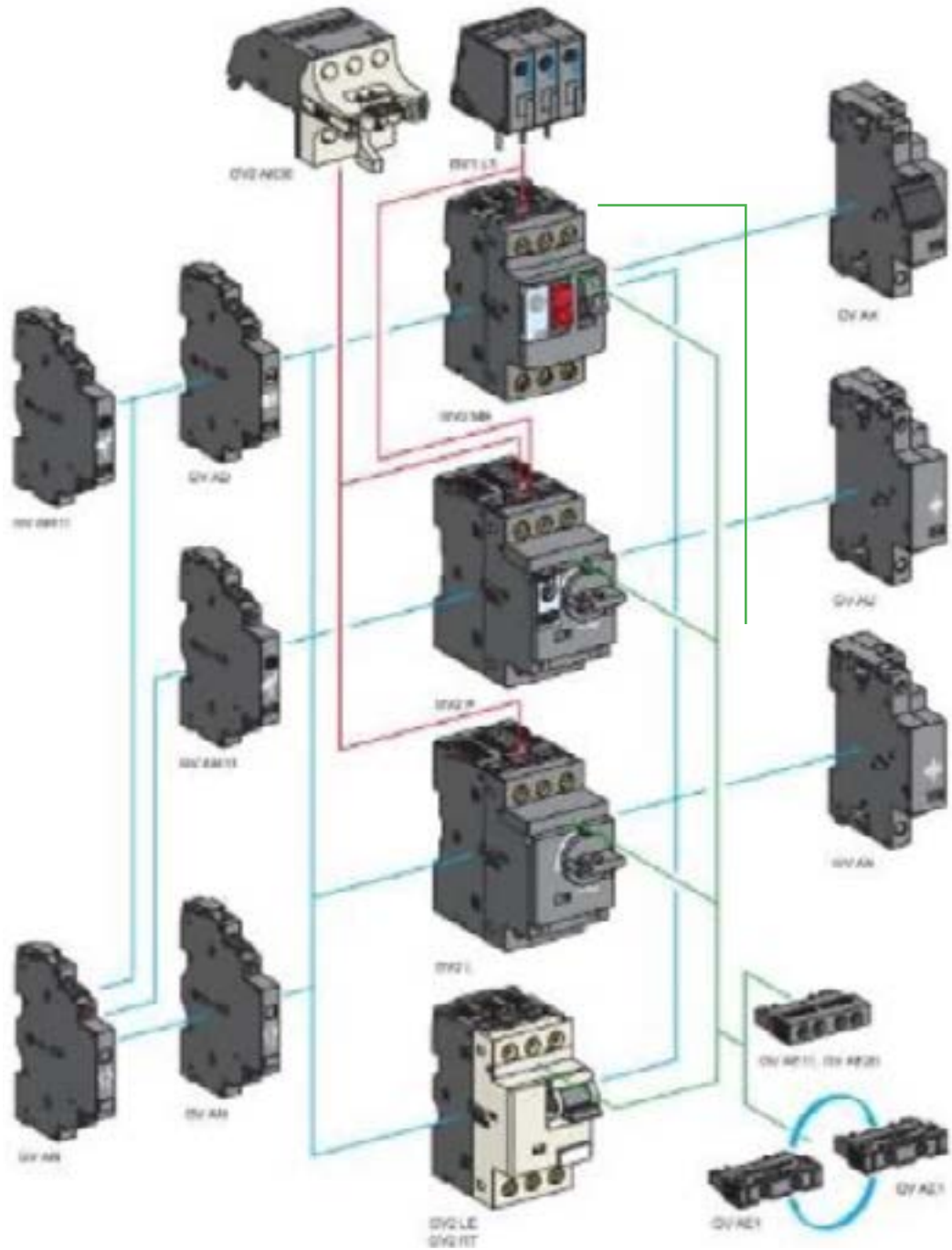
Chassis for GV2P/L (3 phase – 50kA 0.1 sec)

Pole Capacity	Length (mm)	Rating	Reference
42 pole	542	630A	INT_CHGV2/14
78 pole	998	630A	INT_CHGV2/26

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

GV2 Accessories
Undervoltage trips
Shunt trips
Aux switches



H

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

GV2 Accessories
Add on aux blocks
Electric trips
Limiter block



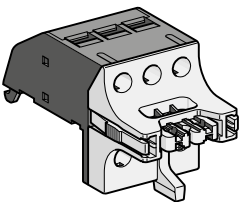
GVAD1010

Contact Blocks

Description	Mounting	Maximum number	Type of contacts	Reference
Instantaneous auxiliary contacts	Front (1)	1	N/O or N/C (2)	GVAE1
			N/O + N/C	GVAE11
			N/O + N/O	GVAE20
	Side (LH)	2	N/O + N/C	GVAN11
			N/O + N/O	GVAN20
Fault signalling contact + instantaneous auxiliary contact	Side (3) (LH)	1	N/O (fault) + N/O	GVAD1010
			N/C (fault) + N/O	GVAD0110
Short circuit signalling contact	Side (LH)	1	C/O common point	GVAM11

Electric Trips

Mounting	Voltage		Reference
Undervoltage or shunt trips (4)			
Side (1 block on RH side of circuit breaker)	24V	50Hz	GVA●025
	110...115V	50Hz	GVA●115
	220V...240V	50Hz	GVA●225
	415V...440V	50Hz	GVA●415
Undervoltage trip INRS (6)			
Side (1 block on RH side of GV2ME●●)	220V...240	50Hz	GVAX225
	415V...440V	50Hz	GVAX415



GV2AK00

Visual Isolation Block – Padlockable

Description	Mounting	Maximum no.	Reference
Visible isolation block (5)	Front (1)	1	GV2AK00
Limiters	At top (GV2ME●● and GV2P●●)	1	GV1L3

Notes

- (1) Mounting of a GVAE contact block or a GV2AK00 visible isolation block on GV2P and GV2L.
- (2) Choice of N/C or N/O contact operation, depending on which way round the reversible block is mounted.
- (3) The GVAD is always mounted next to the circuit breaker.
- (4) To order an undervoltage trip: replace the dot (●) in the reference with a U, e.g. GVAU025. To order a shunt trip: replace the dot (●) in the reference with an S, e.g. GVAS025.
- (5) Visible isolation of the 3 poles upstream of circuit breaker GV2P and GV2L.
- (6) Safety device for dangerous machines, conform to INRS and VDE0113. For GV2ME only.

TeSys Deca before Motor Circuit Breaker Motor circuit breakers

GV2 Enclosures and accessories



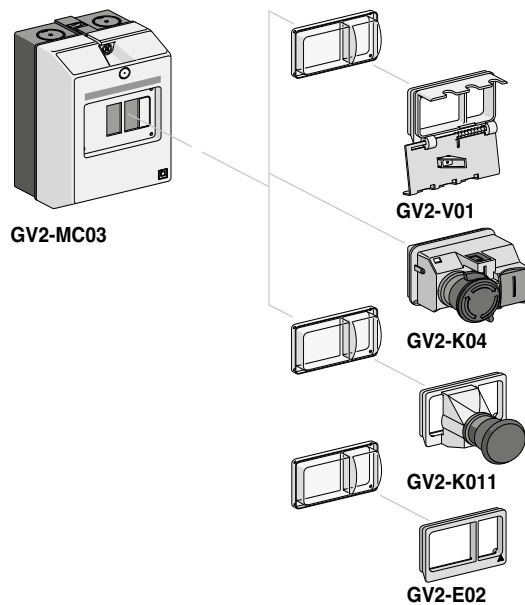
GV2MC03

Enclosures for thermal magnetic motor circuit breakers (3)

Description	Degree of protection	Possible attachments on side of GV2ME		Reference
		Left	Right	
Surface mounting Double insulated with protective sealable cover	IP55	1	1	GV2MC03
Surface mounting enclosure for 0.55 to 5.5kW GV2L/P. Comes with red rotary padlockable handle mounted on the cover	IP65			GV2PC02

Accessories

Description	Application	Reference	
Padlocking device (1) for GV2ME operator (padlocking is only possible in "O" position)	1 to 3 padlocks Ø 4 to 8mm	GV2V01	
Mushroom head "Stop" pushbutton Ø 40mm, red	Spring return (1)	GV2K011	
	Turn to release	GV2K031	
Sealing kit	For enclosures and front plate	Turn to release	GV2K04 (2)
		IP55	GV2E02

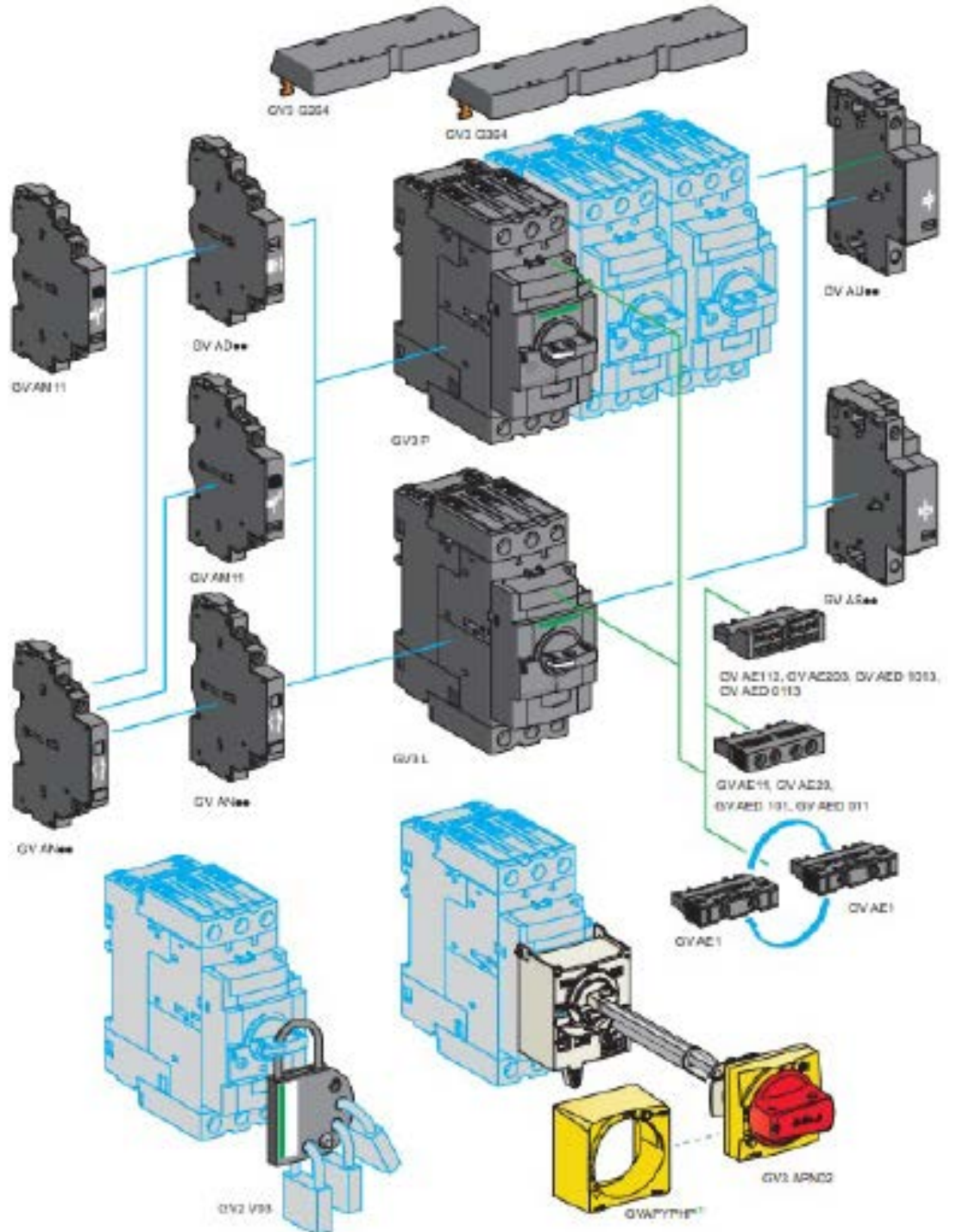


Notes

- (1) Supplied with IP55 sealing kit. For use with GV2M●01.
- (2) Padlockable in "Off" position using Ø 4 to 8mm shank padlocks.
- (3) Circuit breakers to be ordered separately.

TeSys Deca before Motor Circuit Breaker Motor circuit breakers

GV3 Accessories
Undervoltage trips
Shunt trips
Aux switches



H

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

Product configurator
on se.com/nz

GV3 motor circuit breakers (to 73A)



GV3P●●
(except GV3P73 &
GV3P80)

GV3P Thermal-magnetic motor circuit breakers (EverLink connectors) (2)

Control by rotary knob

Standard power ratings of 3 phase motors 50/60Hz in category AC-3			Setting range of thermal trips	Reference
400/415V				
P	I _{cu}	I _{cs} (1)		
kW	kA		A	
5,5	100	100	9...13	GV3P13
7,5	100	100	12...18	GV3P18
11	100	100	17...25	GV3P25
15	100	100	23...32	GV3P32
18.5	50	100	30...40	GV3P40
22	50	100	37...50	GV3P50
30	50	100	48...65	GV3P65
37	50	60	62...73	GV3P73



GV3P73

GV3L Magnetic motor circuit breakers (EverLink connectors) (2)

Control by rotary knob

Standard power ratings of 3 phase motors 50/60Hz in category AC-3			Associated equipment	Circuit	Reference
400/415V (kW)			Thermal	Short circuit overload relay	breaker
P	I _{cu}	I _{cs}		Rating A	
kW	kA				
11	100	100	LRD325	25	GV3L25
15	100	100	LRD332	32	GV3L32
18,5	50	100	LRD340	40	GV3L40
22	50	100	LRD350	50	GV3L50
30	50	100	LRD365	65	GV3L65
37	50	60	LRD380	80	GV3L73



GV3L●●

Accessories for GV3P + GV3L

Description		For circuit breakers	Reference
Remote handle	- red & yellow	GV3P●● and GVL●●	GV3APN02
Set of 3 pole 115A busbars		GV3P●● and GVL●●	GV3G364
3 tap-offs. Pitch: 64mm			

Contact blocks for GV3P + GV3L

Description	Mounting	Maximum number	Type of contacts	Reference
Fault signalling contact + instantaneous auxiliary contact	Front	1	N/O (fault)	GVAED101
			+ N/O + N/C	GVAED011

Notes

- (1) BTR screw of 4mm.
- (2) Requires use of an insulated Allen key.

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

GV3

Add on blocks, accessories and enclosure



GVAD1010

Contact blocks

Description	Mounting	Maximum number	Type of contacts	Reference	
Instantaneous auxiliary contacts	Front	1	N/O or N/C (1)	GVAE1	
			N/O + N/C	GVAE11	
			N/O + N/O	GVAE20	
	Side (LH)	2	N/O + N/C	GVAN11	
			N/O + N/O	GVAN20	
Fault signalling contact + instantaneous auxiliary contact	Side (2) (LH)	1	N/O (fault)	+ N/O	GVAD1010
				+ N/C	GVAD1001
			N/C (fault)	+ N/O	GVAD0110
				+ N/C	GVAD0101
Short circuit signalling contact	Side (LH)	1	C/O common point	GVAM11	

Electric trips

Mounting	Voltage	Reference
Undervoltage or shunt trips (3)		
Side (1 block on RH side of circuit breaker)	24V	50Hz GVA●025
	110...115V	50Hz GVA●115
	220...240V	50Hz GVA●225
	415...440V	50Hz GVA●415

Accessories

Description	For circuit breakers	Reference
Set of 3 pole, 115A busbars 3 tap-offs. Pitch: 64mm	GV3P●● and GVL●●	GV3G364
Padlocking device for use with up to 4 padlocks (not supplied) Ø 6mm shank max.	GV3P●● and GV3L●●	GV2V03

Enclosure for thermal magnetic motor circuit breakers

Description	Degree of Protection	Reference
Metal enclosure for GV3L/P. Comes with red padlockable rotary handle and circuit breaker adapter (4)	IP65/IK09	GV3PC02

Notes

- (1) Choice of N/C or N/O contact operation, depending on which way round the reversible block is mounted.
- (2) The GVAD is always mounted next to the circuit breaker.
- (3) To order an undervoltage trip: replace the dot (●) in the reference with a U, example: GVAU025. To order a shunt trip: replace the dot (●) in the reference with an S, example: GVAS025.
- (4) Assembling possibility: 1 GV3 P or GV3 L alone circuit breaker + 1 LC1D●●A●● contactor + GV3 S S-shape busbar.

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

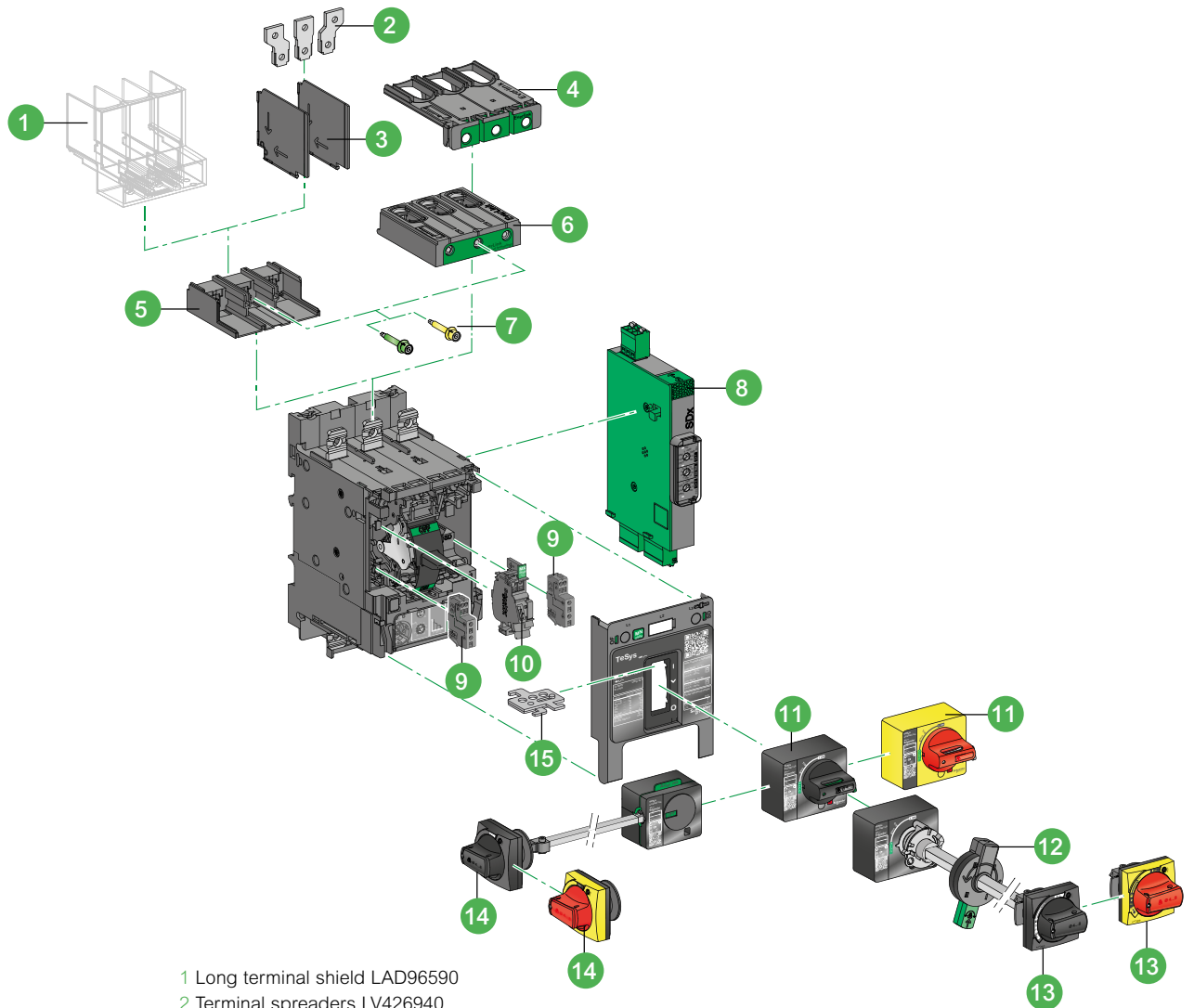
GV4 motor circuit breakers (to 115A) Overview

TeSys GV4 circuit breakers

TeSys GV4 motor circuit breaker covers motor protection from 0.25 to 55 kW at 415 V AC (from 0.8 to 115 A) in one frame and is available in 3 breaking capacities (Icu): 25, 50 and 100 kA at 415 V AC. 3 types of protection available:

- > Magnetic GV4L: to be used with an overload relay or a drive
- > Thermal magnetic GV4P: electronic protection with wide range setting, dual class (10 & 20)
- > Multifunction motor protection GV4PEM: GV4P with adjustable advanced protections (using NFC app or Ecoreach software) and possibility to have a side module SDx for alarming and fault differentiation

In addition to basic short circuit and overload protection, GV4PEM embed protection against long start, jam, ground fault, phase unbalance and phase loss.



- 1 Long terminal shield LAD96590
- 2 Terminal spreaders LV426940
- 3 Interphases barriers LV426920
- 4 Large spacing cover for EverLink connector GV4G66
- 5 Crimp lug connector GV4LUG
- 6 EverLink® connector LAD96595
- 7 Torque limiting breakaway bits LV42699
- 8 SDx alarming/fault differentiation module GV4ADM1111 (only with GV4PEM)
- 9 Auxiliary contact block for OF or SD function GV4AE11
- 10 MN undervoltage release GV4AU●●
- 11 Direct mounting black or red on yellow bezel rotary handle GV4ADN●●
- 12 Open door shaft operator (for front extended rotary handle) LV426937
- 13 Front extended rotary handle kit with red handle on yellow bezel or black handle GV4APN●●
- 14 Side rotary handle kit with red handle on yellow bezel or black handle LV4269●●
- 15 Toggle locking device 29370

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

Product configurator
on se.com/nz

GV4 motor circuit breakers (to 115A)



GV4PEM

GV4PEM Thermal magnetic circuit breaker with advanced protection

Control by toggle disconnecter and connection by EverLink® terminals

Standard ratings of 3-phase motors - 50 / 60 Hz in category AC-3			Thermal setting range	Reference
400/415V				
Power (kW)	Icu (1) (kA)	Ics (%)	Ir (A)	
0.25...0.75	50	100	0.8...2	GV4PEM02N (2)
0.55... 1.5	50	100	1.4...3.5	GV4PEM03N (2)
1.5... 3	50	100	2.9...7	GV4PEM07N (2)
3... 5.5	50	100	5...12.5	GV4PEM12N (2)
5.5... 11	50	100	10...25	GV4PEM25N (1)(2)
11... 22	50	100	20...50	GV4PEM50N (1)(2)
22... 37	50	100	40...80	GV4PEM80N (1)(2)
37... 55	50	100	65...115	GV4PEM115N (1)



GV4P

GV4P Thermal magnetic circuit breaker

Control with rotary handle and connection by EverLink® terminals

Standard ratings of 3-phase motors - 50 / 60 Hz in category AC-3			Thermal setting range	Reference	
400/415V					
Power (kW)	Icu (1) (kA)	Ics (%)	Ir (A)	with rotary handle	with toggle
0.25...0.75	50	100	0.8...2	GV4P02N	GV4PE02N
0.55... 1.5	50	100	1.4...3.5	GV4P03N	GV4PE03N
1.5... 3	50	100	2.9...7	GV4P07N	GV4PE07N
3... 5.5	50	100	5...12.5	GV4P12N	GV4PE12N
5.5... 11	50	100	10...25	GV4P25N	GV4PE25N
11... 22	50	100	20...50	GV4P50N	GV4PE50N
22... 37	50	100	40...80	GV4P80N	GV4PE80N
37... 55	50	100	65...115	GV4P115N	GV4PE115N



GV4PE

GV4L Magnetic circuit breaker

Control with rotary handle and connection by EverLink® terminals

Standard ratings of 3-phase motors - 50 / 60 Hz in category AC-3		Nominal current	Magnetic setting range	Associated equipment	Reference	
400/415V	Icu (1) (kA)	Ics (%)	In (A)	li (A)	Overload	
Power (kW)						
0.25...0.75	50	100	2	12... 28	LRD05 (0.63... 1A), LRD06 (1... 1.6A), LRD07 (1.6... 2.5A)	GV4L02N GV4LE02N
0.55... 1.5	50	100	3.5	21... 49	LRD07 (1.6... 2.5A), LRD08 (2.5... 4A)	GV4L03N GV4LE03N
1.5... 3	50	100	7	42... 98	LRD08 (2.5... 4A), LRD10 (4...6A)	GV4L07N GV4LE07N
3... 5.5	50	100	12.5	75... 175	LRD12 (5.5... 8A), LRD14 (7... 10A), LRD313 (9...13A)	GV4L12N GV4LE12N
5.5... 11	50	100	25	150... 350	LRD318 (12... 18A), LRD325 (17... 25A)	GV4L25N GV4LE25N
11... 22	50	100	50	300... 700	LRD332 (23... 32A), LRD340 (30... 40A), LRD350 (37... 50A)	GV4L50N GV4LE50N
22... 37	50	100	80	480... 1120	LRD365 (48... 65A), LRD3363 (63... 80A)	GV4L80N GV4LE80N
37... 55	50	100	115	690... 1610	LR9F5367 (60... 100A) LR9D5369 (90... 150A)	GV4L115N GV4LE115N



GV4L



GV4LE

Notes

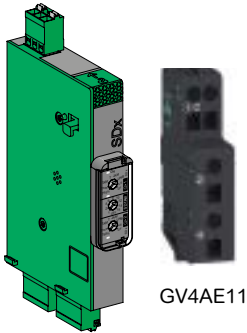
- (1) 25kA Icu version also available (Price variation). Replace the reference last digit 'N' with 'B'. e.g.GV4PEM25N to GV4PEM25B.
- (2) 100kA Icu version also available (Price variation). Replace the reference last digit 'N' with 'S'. e.g.GV4PEM25N to GV4PEM25S.

TeSys Deca before Motor Circuit Breaker

Motor circuit breakers

GV4

Add on blocks and accessories



GV4ADM1111

GV4AE11

Auxiliary contact blocks

Description	Mounting	Maximum number	Type of contact	Reference
Auxiliary contact block for OF(Open/close) or SD (trip alarm) indication	Internal plug in	2 (1OF or SD)	NO + NC	GV4AE11
SDx alarming/ fault differentiation module for GV4PEM version only	Side	2	NO/NC	GV4ADM1111

Electric trips

Description	Mounting	Maximum number	Voltage	Reference
MX Shunt trip	Internal plug in	1	24V AC/DC	GV4AS027
			110VAC/DC	GV4AS137
			230VAC	GV4AS287
			415VAC	GV4AS487
MN undervoltage trip	Internal plug in	1	24V AC/DC	GV4AU027
			110VAC/DC	GV4AU137
			230VAC	GV4AU247
			415VAC	GV4AU415



GV4AS137

Rotary handles

Description	Type	IP degree	Reference
Direct mounting rotary handle	Black	IP40	GV4ADN01
	Red/yellow	IP40	GV4ADN02
GV4 front extended rotary handle kit	Red/yellow	IP65	GV4APN04
	Black	IP54	GV4APN01
GV4 side rotary handle kit	Red/yellow	IP54	LV426936
Open door shaft operator			LV426937
Laser tool for marking			GVAPL01

GV4APN04

Other accessories

Description	Sold in	Reference
Crimped lug connector + screws	1	GV4LUG
Transparent terminal shield for crimped lug connector	1	LAD96590
Interphase barriers	6	LV426920
Spreader 3-pole To increase the pitch to 35 mm	1	LV426940
Limited torque throwaway bits Green - 9 N.m	6	LV426990
Limited torque throwaway bits Yellow - 5 N.m	6	LV426992
Removable toggle locking device for 1 to 3 padlocks		29370
Bag of 6 leads + 6 sealing accessories		LV429375

Software

Description	Reference
Configuration and setting software	Ecoreach

Ultra-compact motor starters

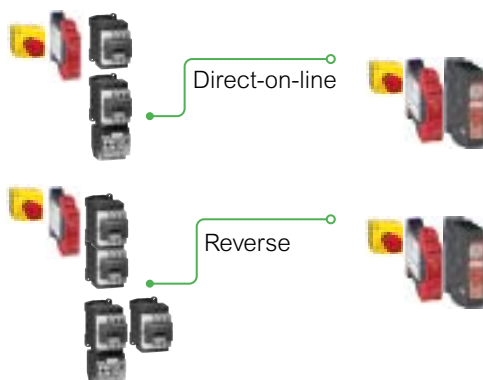
TeSys H motor starters



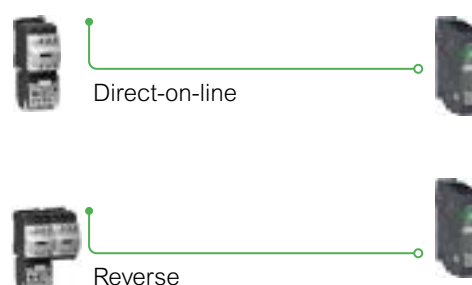
Ultra-compact 3kW/400V motor starter

- > 22.5mm wide starter
- > Reversing starter in the same width
- > Direct mounting on DIN rail
- > 30 000 000 of AC53a (asynchronous motors) electrical cycles
- > Hybrid technology (each contactor is coupled with a power semi conductor for switching)
- > Available in standard and safety versions

Conventional or TeSys H Safety Solutions



Conventional or TeSys H Standard Solutions



LZ1H2X4●●

Standard starters TeSys H

Starters	3- phases motor: max power (KW)		Current range	Reference (1)
	230 V	400 V		
Direct-on-line				
Screw terminals	0.37	0.75	0.18...2.4	LZ1H2X4●●
	1.5	3	1.5...6.5	LZ1H6X5●●
Reverse				
Screw terminals	0.37	0.75	0.18...2.4	LZ2H2X4●●
	1.5	3	1.5...6.5	LZ2H6X5●●



LZ7H2X4●●

Safety starters TeSys H

Starters	3- phases motor: max power (KW)		Current range	Reference (1)
	230 V	400 V		
Direct-on-line				
Screw terminals	0.37	0.75	0.18...2.4	LZ7H2X4●●
	1.5	3	1.5...6.5	LZ7H6X5●●
Reverse				
Screw terminals	0.37	0.75	0.18...2.4	LZ8H2X4●●
	1.5	3	1.5...6.5	LZ8H6X5●●

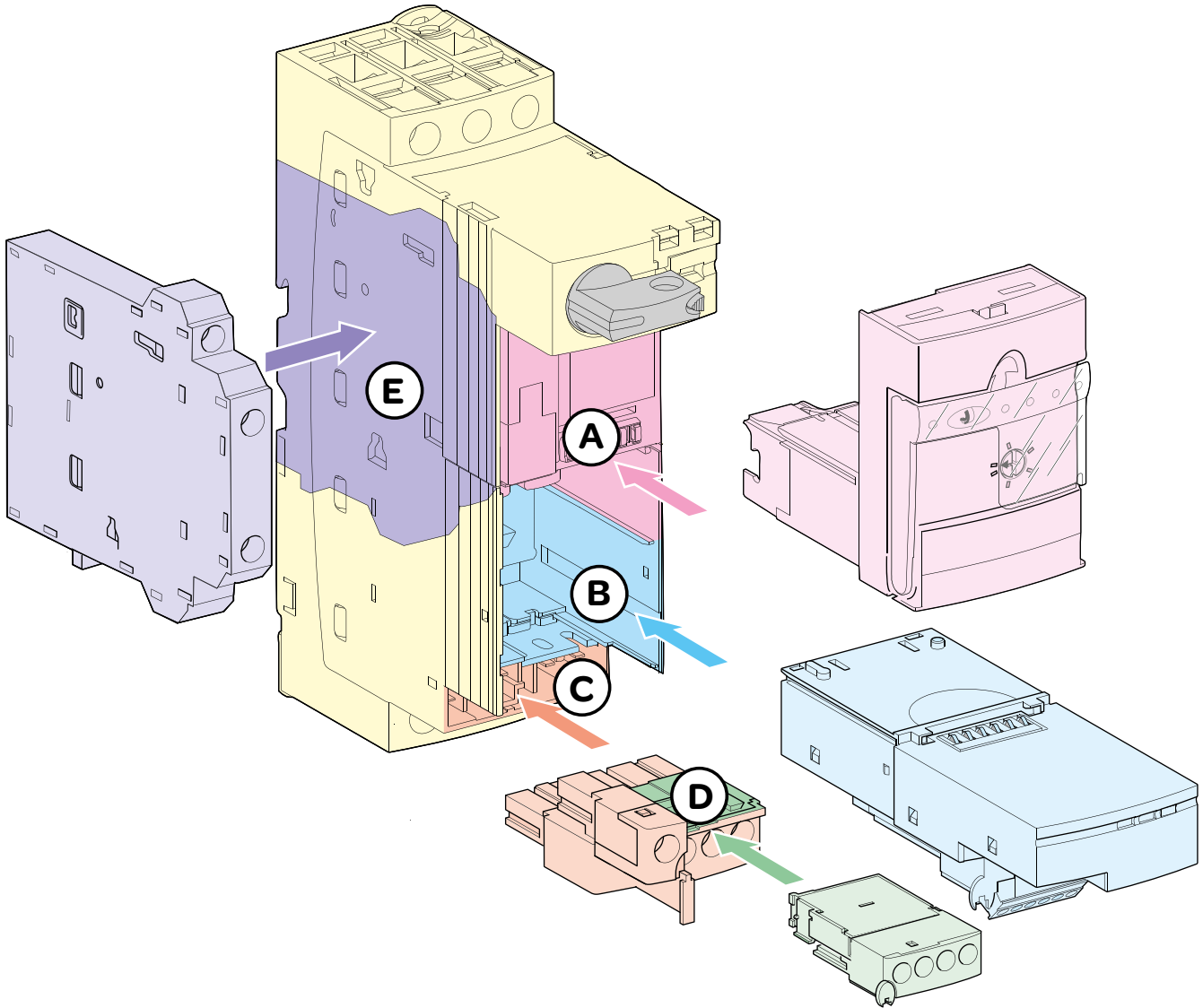
Notes

(1) Replace ●● with voltage code. BD (24V DC) or FU (110-230V AC).

All-in-one motor starters

Product configurator
on se.com/nz

TeSys Ultra integrated starter Principle



- E Power base
- A Cavity for control unit
- B Cavity for auxiliary module

- C Cavity for control terminal block
- D Cavity for additional contact block or shutter
- E Space for additional block fastening

Power Base

This is the basic constituent of the motor starter, it is composed of the power contacts, the control coil, the opening / closing mechanism of the protection device and the control pad.

Additional lateral block

Composed of the protection device signaling contacts.

Control unit

Composed of the power base management processor and setting knobs.

Auxiliary module

Depending on its type, it integrates load status contacts or a communication processor or an alarm processor.

Control terminal block

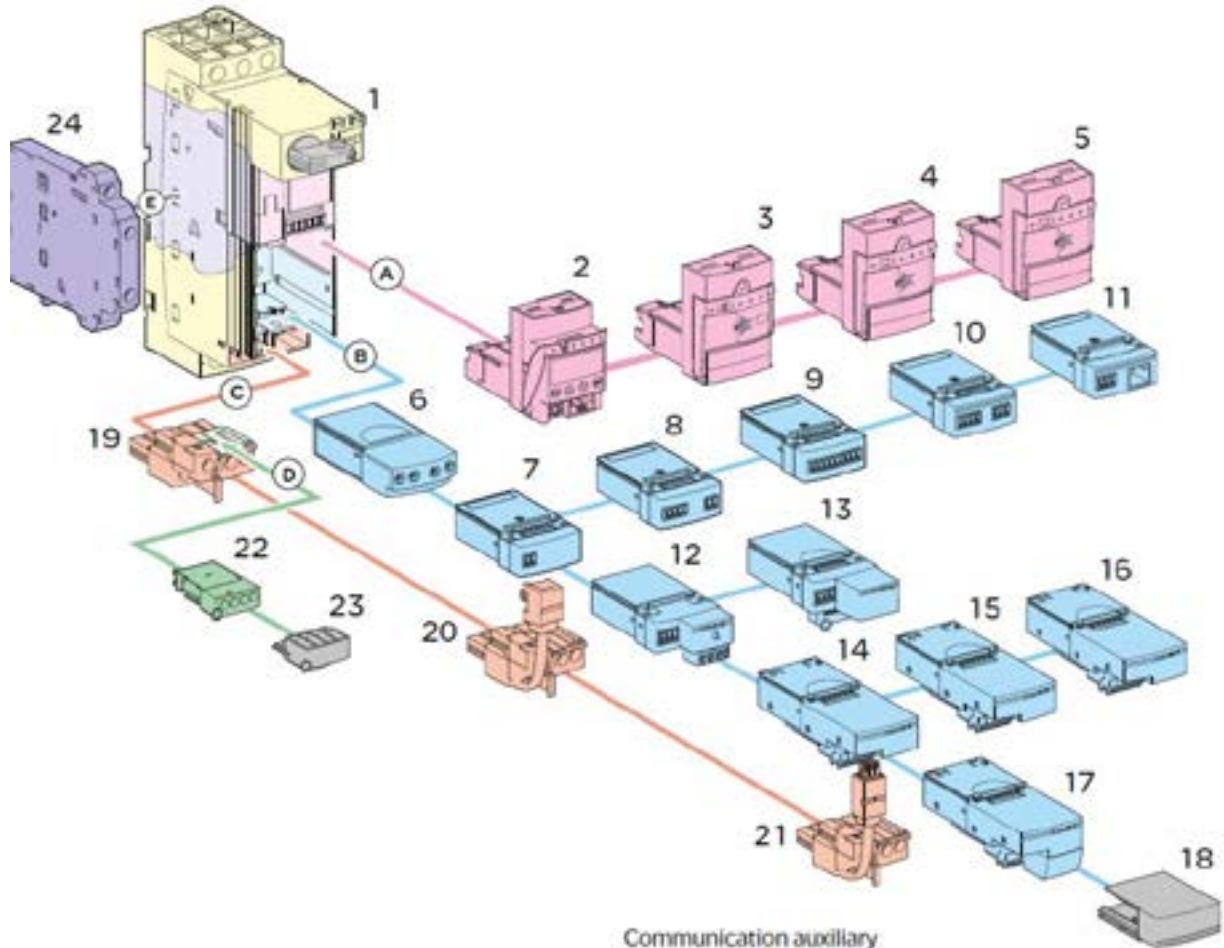
It is composed of two terminals "coil control", 1 NO auxiliary contact, 1 NC auxiliary contact. It can be eventually connected to an auxiliary communication module via a dedicated cable.

Additional block

It includes protection device additional signaling contacts. By default, this is a simple shutter.

All-in-one motor starters

TeSys Ultra integrated starter Components overview



Power base

- 1- LUB
Non reversing power base -
1 rotation direction

Control units

- 2- LUCM
Multifunctional control unit
- 3- LUCB/LUCC/LUCD
Advanced control units
- 4- LUCA
Standard control unit
- 5- LUCL
Magnetic protection
control unit

Auxiliary module

- 6- LUFN
Auxiliary contacts module

Load monitoring auxiliary modules

- 7- LUFW10
Overload alarm module
- 8- LUFDH11
Overload alarm module with
manual reset
- 9- LUFDA01/LUFAD10
Overload alarm module with
automatic reset/remote reset
- 10- LUFV2
Motor load indication module

Communication auxiliary modules

- 11- LUFCC00
Telefast parallel liaison
module, with RJ45 connector
- 12- ASILUFCS/ASILUFCS1
AS-interface c. m.
- 13- LULC031/LULC033
Modbus c. m.
- 14- LULC07 Profibus DP c. m.
- 15- LULC08 CANopen c. m.
- 16- LULC09 DeviceNET c. m.
- 17- LULC15 Advantys STB c. m.

Shutters

- 18- LU9C 1
Shutter for module cavity
- 23- Shutter for contacts
additional block cavity

Control terminal blocks

- 19- LU9BN11
Terminal block for imbedded
auxiliary contacts
- 20- LU9BN11C
Coil terminal block with its
connecting cable
- 21- LU9BN11L
Coil terminal block with its
connecting cable

Additional contacts blocks

- 22- LUA1
Additional contacts
- 24- LUAB
side-mounting additional
contacts

Notes

- (1) Communication modules can only be combined with a ~ 24 V control unit (LUC●●●BL).
- (2) Installation note: Co-ordination between TeSys Ultra and variable speed drive is essential, please confirm your design with our technical team.

All-in-one motor starters

TeSys Ultra integrated starter Control units operating characteristics

Operating characteristics

Control units	Standard				Advanced	Multifunction
	LUCA	LUCB	LUCC	LUCD	LUCM	
Thermal overload protection						
Overcurrent protection	14.2 x the setting current					3 to 17 x the setting current
Short circuit protection	13 x the max. current					
Protection against phase loss						
Protection against phase imbalance						
Earth fault detection (equipment protection only)						
Tripping class	10		10	20	5...30	
Motor type	3 phase		Single-phase	3 phase	Single-phase and 3-phase	
Thermal overload test function						
Overtorque						
No-load running						
Long starting time						
Reset method Manual						Parameters can be set
Automatic or remote			With function module or parameters can be set via the bus with a communication module, see chart below.		Parameters can be set	
					Parameters can be set via the bus with a communication module (see below).	
Alarm			Thermal overload alarm only with function module or communication module, see below.		Possible for each type of fault. Indication on front panel of the control unit, via remote terminal, via PC. With communication modules to make use of these alarms via a bus, see below.	
"Log" function						Log of the last 5 trips. Number of starts, number of trips, number of operating hours.
"Monitoring" function						Display of main motor parameters on front panel of the control unit, via remote terminal, via PC

With function modules (1)

Thermal overload alarm	With module LUF W10	
Thermal overload signalling and manual reset	With module LUF DH11	
Thermal overload signalling and automatic or remote reset	With module LUF DA01 and LUF DA10	
Indication of motor load (analogue)	With module LUF V	

With communication module or via Modbus port on control unit LUCM (1)

Starter status (ready, running, fault)	With any communication module	
Reset mode	Parameters can be set via the bus	
Alarm	With modules LUL C031, LUL C033, LUL C15, LUL C07, LUL C08 and LUL C09 (thermal overload alarm only).	With module LUL C031, LUL C033, LUL C15, LUL C07, LUL C08 and LUL C09 and Modbus port on the control unit (alarm possible for all types of fault).
Remote reset via the bus		
Indication of motor load		
Fault signalling and differentiation		
Remote programming and monitoring of all functions	With modules LUL C031, LUL C033, LUL C15, LUL C07, LUL C08 and LUL C09 and Modbus port on the control unit.	
"Log" function		
"Monitoring" function		

Built-in function
 Function provided with accessory

Note

(1) Mounting possibilities: 1 function module or 1 communication module.

All-in-one motor starters

TeSys Ultra integrated starter
Non-reversing power bases
Chassis 14 + 30 way

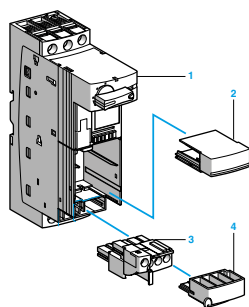


LUB120
LUB380

Power bases for non-reversing D.O.L. starting

Connection Power	Item	Rating ≤ 440V (A)	Reference
These bases have 2 auxiliary contacts: 1 N/O (13-14) and 1 N/C (21-22) which indicate the closed or open position of the power poles. They must be used in conjunction with a control unit.			
Without connections (1)	1 + 2	12	LUB120
		32	LUB320
		38	LUB380

> **Without connection.** This version enables wiring to be prepared in advance and is recommended when a communication module is required (allowing the use of control connection prewiring accessories) or when a reverser block is to be mounted by the customer.



Terminal blocks for power bases without connections

Connection	For base	Item	Reference
Single terminal block for wire remote indication and local coil control	LUB 120 or 320	3 + 4	LU9BN11
Terminal block with status remote indication cable			LU9BN11C



TUC_CH/16

Model U 3 phase chassis: 50kA 630 amp 415V

Amps	No. of starters	Main bus rating	Reference
32	16	630	TUC_CH/16
32	30	630	TUC_CH/30

To fit integral 18 on chassis

Description	Reference
Wings for 16 way chassis	TUCH16W
Wings for 30 way chassis	TUCH30W

Note

(1) These terminals have no auxiliaries and will need to be purchased separately.

All-in-one motor starters

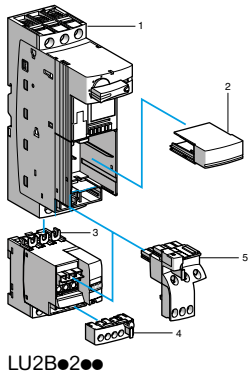
TeSys Ultra integrated starter Reversing power bases



LU22B12B

Power bases for reversing D.O.L. starting, pre-assembled

Connection Power	Control	Item (1)	Rating $\leq 440V$ (A)	Reference to be completed (2)
These bases have two N/O common point contacts (81-82-84) which indicate non-reversing and reversing operating status.				
Screw terminals	Screw terminals	1 + 2 + 3	12	LU2B12●●
		+ 4 + 5	32	LU2B32●●
			38	LU2B38●● (3)



Power bases for reversing D.O.L. starting, mounted by the customer

A reverser block should preferably be combined with a non-reversing power base without connections to create a reversing starter-controller.

The built-in N/O (13-14) and N/C (21-22) contacts are used for electrical interlocking between the reverser block and the base; they are therefore no longer available as output contacts.

The reverser block has two N/O common point contacts (81-82-84) which indicate non-reversing and reversing operating status.

32A reverser block	Connection		Item	Reference to be completed (2)
	Power	Control		
For mounting directly beneath the power base	Screw terminals	Without connections	3	LU2MB0●●
For mounting separately from the base (screw or rail fixing)	Screw terminals	Without connections		LU6MB0●●

Control circuit pre-wiring components

Description	Item	Reference
Pre-wired connector	5	LU9MR1C

Control coil voltage code:

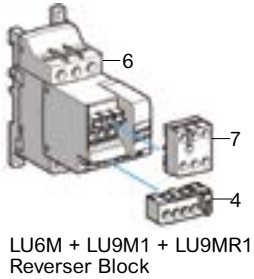
Volts	24	48...72	110...240
≡	BL	-	-
~	B	-	-
≡ or ~	-	ES	FU

Notes

- (1) The various sub-assemblies are supplied assembled but they are easy to separate, as shown in the illustration.
- (2) "●●" Complete reference with coil voltage code.
- (3) With BL or FU code only

All-in-one motor starters

TeSys Ultra integrated starter
Reversing power bases for separate mount










































Accessories

Description	Item	Application	Reference
Control block	4	Non-reversing power base without connections LU2B A0●● or B0●●	LU9M1
		Reverser block LU2M B0●● for direct mounting beneath power base	LU9M1
		Reverser block LU6M B0●● for mounting separately from power base	LU9M1
	7	Reverser block LU6M B0●● for mounting separately from power base	LU9MR1

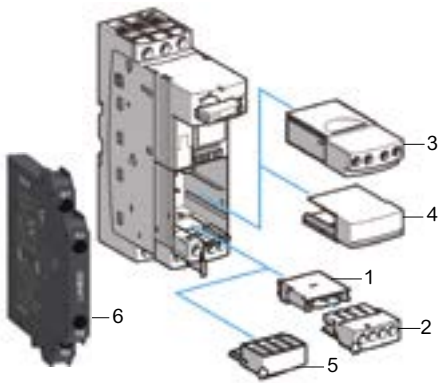
All-in-one motor starters

TeSys Ultra integrated starter
Add on contact blocks and aux contact modules
Function modules

Contact states depending on the product status

	Position of control knob	Indication on front panel	N/O pole contact	N/C pole contact	N/O contact any fault	N/C contact any fault	⊕ N/O contact product ready
References of add on contact blocks and auxiliary contact modules Terminal referencing	–	–	–	LUF N11 31-32	LUA1 C20 97-98	LUA1 C11 95-96	LUA1 C20 17-18
	or	–	–	LUF N02 31-32 41-42	LUA1 C200 No terminal block	LUA1 C110 No terminal block	LUA1 C200 No terminal block
	or	–	LUF N20 33-34 43-44	LU9B N11 21-22	–	–	LUA1 C11 17-18
	or	–	LUF N11 43-44	–	–	–	LUA1 C110 No terminal block
	or	–	LU9B N11 13-14	–	–	–	–
Off	OFF 	0					
Ready to operate		0					
Running		1					
Tripped on short circuit	TRIP 	1>>					
Tripped on thermal overload	Manual reset mode	TRIP 	0				
	Automatic reset on thermal overload mode		0				
	Remote reset mode		0				

N/O contact  in closed position N/C contact  in open position



LUB + LUA1 + LUFN

Signaling module and blocks

Add on contact blocks

Signalling and composition	Connection	Item	Reference
1 N/C fault signalling contact (95-96) + N/O (17-18)	Screw terminals	1 + 2	LUA1C11
1 N/O fault signalling contact (97-98) + N/O (17-18)	Screw terminals	1 + 2	LUA1C20
2 N/O fault signalling - side mount	Screw terminal	6	LUA8E20

Auxiliary contact modules for connection by screw clamp terminals

Module with 2 contacts indicating the state of the starter-controller power poles
Application: a or c 24...250V, Ith : 5A

Composition	Item	Reference
2 N/O contacts (33-34 and 43-44)	3	LUFN20
1 N/C contact (31-32) and 1 N/O contact (43-44)	3	LUFN11
2 N/C contacts (31-32 and 41-42)	3	LUFN02

Accessories

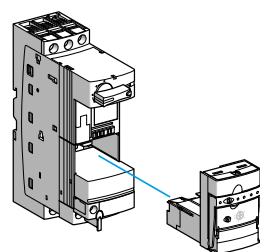
Description	For use on	Item	Reference
Blanking covers	Location for auxiliary contact, communication or function module	4	LU9C1
	Location for add on contact blocks	5	LU9C2

All-in-one motor starters

TeSys Ultra integrated starter Protection modules (control units)



LUCB05B



LUB2000 + LUCB

Advanced control units

Pressing the Test button on the front panel simulates tripping on thermal overload.

Maximum power ratings of standard 3 phase motors 50/60Hz 400/415V (kW)	Setting range (A)	Clip-in mounting on power base rating (A)	Reference to be completed by adding the voltage code (1)
---	----------------------	--	--

Class 10 for 3 phase motors

0.09	0.15...0.6	12 and 32	LUCBX6●●
0.25	0.35...1.4	12 and 32	LUCB1X●●
1.5	1.25...5	12 and 32	LUCB05●●
5.5	3...12	12 and 32	LUCB12●●
7.5	4.5...18	32	LUCB18●●
15	8...32	32	LUCB32●●
18.5	38	38	LUCB38●● (2)

Class 10 for single phase motors

-	0.15...0.6	12 and 32	LUCCX6●●
0.09	0.35...1.4	12 and 32	LUCC1X●●
0.55	1.25...5	12 and 32	LUCC05●●
2.2	3...12	12 and 32	LUCC12●●
4	4.5...18	32	LUCC18●●
7.5	8...32	32	LUCC32●●

Class 20 for 3 phase motors

0.09	0.15...0.6	12 and 32	LUCDX6●●
0.25	0.35...1.4	12 and 32	LUCD1X●●
1.5	1.25...5	12 and 32	LUCD05●●
5.5	3...12	12 and 32	LUCD12●●
7.5	4.5...18	32	LUCD18●●
15	8...32	32	LUCD32●●
18.5	38	38	LUCD38●● (2)

Control coil voltage code:

Volts	24	48...72	110...240
---	BL	-	-
~	B	-	-
--- or ~	-	ES	FU

Notes

- (1) "●●" Complete reference with coil voltage code.
(2) With BL or FU code only.

All-in-one motor starters

TeSys Ultra integrated starter Protection modules (control units)

Magnetic control units

For use when installed upstream of a variable speed controller or a soft start unit where thermal protection is provided by these devices, the control unit LUCL●●, used in conjunction with a LUB120 or LUB320 power base, provides:

- > Isolation
- > Short-circuit protection of the motor starter (variable speed controller-based or soft start unit-based motor starters)

Description

1. Extraction and locking handle
2. Sealing of locking handle
3. Dial for magnetic adjustment of motor current (In)
4. Locking of settings by sealing the transparent cover



LUCL32BL

For single and 3 Phase motors

Maximum power ratings of standard 3 phase motors 50/60Hz 400/415V (kW)	Setting range (A)	Clip-in mounting on power base rating (A)	Reference to be completed by adding the voltage code (1)
0.09	0.15...0.6	12 and 32	LUCLX6●●
0.25	0.35...1.4	12 and 32	LUCL1X●●
1.5	1.25...5	12 and 32	LUCL05●●
5.5	3...12	12 and 32	LUCL12●●
7.5	4.5...18	32	LUCL18●●
15	8...32	32	LUCL32●●



LUCM12BL
Multifunction Control Unit

Multifunction control units – 24VDC only

Maximum power rating. 400/415V (kW)	Setting range (A)	Power base (A)	Reference
0.09	0.15...0.6	12 and 32	LUCMX6BL
0.25	0.35...1.4	12 and 32	LUCM1XBL
1.5	1.25...5	12 and 32	LUCM05BL
5.5	3...12	12 and 32	LUCM12BL
7.5	4.5...18	32	LUCM18BL
15	8...32	32	LUCM32BL

Control coil voltage code:

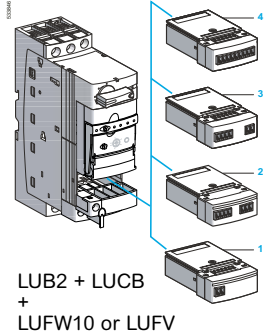
Volts	24	48...72	110...240
—	BL	—	—
~	B	—	—
— or ~	—	ES	FU

Notes

- (1) "●●" Complete reference with coil voltage code.

All-in-one motor starters

TeSys Ultra integrated starter Function modules



LUB2 + LUCB
+
LUFW10 or LUFV



LUFW10
Overload Alarm Module



LUFV2
Motor Load Module

Output	Item	Application	Reference
Thermal overload signalling and manual reset			
Module LUF DH11 makes it possible to differentiate thermal overload and short circuit faults. (The short circuit fault can then be signalled via add on contact blocks LUA1 C). The module includes two contacts for thermal overload signalling, as well as an LED on the front panel. To reset the motor starter, the operator must use the rotary knob on the power base. The module can only be used with an advanced control unit and requires an $\sim/== 24...240V$ external power supply.			
1 N/O + 1 N/C	3	\sim or $== 24...250V$	LUFDH11
Thermal overload signalling and automatic or remote reset			
These modules make it possible to differentiate thermal overload and short circuit faults. (The short circuit fault can then be signalled via add on contact blocks LUA1 C). The modules include one contact for thermal overload signalling, as well as an LED on the front panel. A second contact (terminals Z1-Z2) must be wired in series with terminal A1 of the motor starter. In the event of a thermal overload fault, this wiring allows motor control to be switched off. The rotary knob on the power base will then stay in the "ready position". Resetting of the motor starter is automatic after the required motor cooling time if terminals X1-X2 are linked by a strap, or remote by pulsed closing of a volt-free contact connected to terminals X1-X2. These modules can only be used with an advanced control unit and require an $\sim/== 24...240V$ external power supply.			
Note Terminals X1-X2 are not isolated from the signalling module power supply. For remote resetting, use a volt-free contact specifically for each module to be reset.			
1 N/C	4	\sim or $== 24...250V$	LUFDA01
1 N/O	4	\sim or $== 24...250V$	LUFDA10
Thermal Overload Alarm			
Through load shedding, this module makes it possible to avoid stoppages in operation due to overload tripping. Imminent thermal overload tripping is displayed as soon as the thermal state exceeds the threshold of 105% (hysteresis = 5%). Signalling is possible via an LED on the front panel of the module and externally by an N/O relay output. It can only be used with an advanced control unit, from which it takes its power.			
1 N/O	1	\sim or $== 24...250V$	LUFW10
Indication of motor load			
This module provides a signal which is representative of the motor load status ($I_{average}/I_r$). > $I_{average}$ = average value of the rms currents in the 3 phases, > I_r = value of the setting current. The value of the signal (4-20mA) corresponds to a load status of 0 to 200% (0 to 300% for a single-phase load). It can be used with an advanced or multifunction control unit. Module LUF V2 requires AC 24V external power supply.			
4 - 20mA	2	-	LUFV2



All-in-one motor starters

TeSys Ultra integrated starter Parallel link module and pre-wired coil connection components

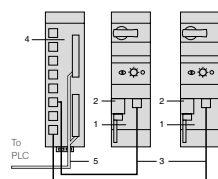


LUFC00
Parallel Wiring Module

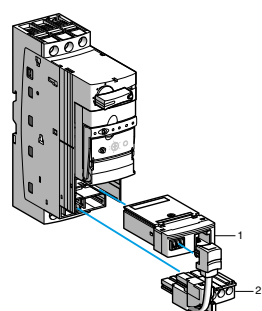
Parallel wiring module

Description	Item	Reference
Parallel wiring module	1	LUFC00

Parallel type connection



1. Parallel wiring module LUFC00
2. Pre-wired coil connection LU9BN11C
3. Connection cable LU9RP with one RJ45 connector at each end
4. Splitter box LU9G02 for 8 motor starters with channel connections on the PLC side by 2 HE10 connectors and on the starter-controller side by 8 RJ45 connectors.
5. Connection cable TSXCDP with one HE10 connector at each end.



LU9B + LUFC00 + LU9B

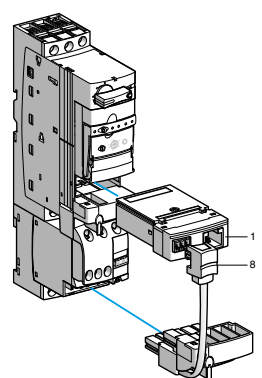
LU9G02

Connection of communication module output terminals to the coil terminals

By pre-wired connector or wire link.

- > Pre-wired connector: pre-wired coil connection
- > The use of a power base without pre-wired connections is recommended.

Description	For use with power base	Item	Reference
Pre-wired	LUB ●●	2	LU9BN11C
coil connection	LU2B ●●	8	LU9MRC



LU2B + LUFC00 + LU9BM

Connection of parallel wiring module to the PLC

By pre-wired connector or wire link. No tools are required to connect the parallel wiring module to the PLC. Connection is via a splitter box which allows up to 8 starter-controllers to be connected; a maximum of 4 reversing starters per splitter box is allowed. The splitter box requires a 24V power supply.

Splitter box

Connectors	Starter-controller side	Item	Reference
PLC side (16I/12O) 20-way	8 x RJ45	4	LU9G02 (1)

Connection cables to the splitter box

Connectors	Item	Length	Reference (m)
2 x RJ45 connectors	3	0.3	LU9R03
		1	LU9R10
		3	LU9R30

Connection cables from splitter box to PLC

Type of connection	Gauge	C.s.a.	Length	Reference
PLC side	Splitter box side	AWG	(mm ²)	(m)
HE 10 20-way	HE 10 20-way	22	0.324	0.5 TSXCDP053
				1 TSXCDP103
				2 TSXCDP203
				3 TSXCDP303
		28	0.080	1 ABFH20H100
				2 ABFH20H200
Bare wires	HE 10 20-way	22	0.324	3 TSXCDP301
				5 TSXCDP501



LU9G02

Note

- (1) Allows "run" and "fault" status of each starter-controller to be fed back to the PLC and transmits commands.

All-in-one motor starters

TeSys Ultra integrated starter AS-i communication module and pre-wired coil connection components

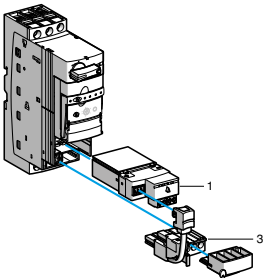


ASILUFC5

AS-i communication module

The AS-i communication module makes it easy to connect starter-controllers to the AS-i wiring system, and therefore allows remote control and command of these starter-controllers.

Description	Addressing	Reference
Communication module	Single 31 slaves	ASILUFC5
	Extended 62 slaves	ASILUFC51



LUB + ASILUFC5 + LU9B

Connection to the ASi-bus (1)

By pre-wired connector or wire link.

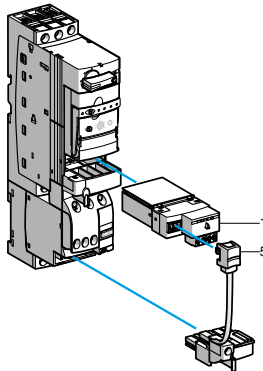
⇔ Pre-wired connector: pre-wired coil connection

The use of a power base without pre-wired control circuit connections is recommended.

Description	For use with power base	Item	Reference
Pre-wired coil connection	LUB ●●	3	LU9BN11C
	LU2B ●●	5	LU9MRC

Software set-up

AS-i configuration is carried out using PL7 Micro/Junior/Pro software. From the module declaration screen, it is possible to configure all the slave devices corresponding to all the AS-i I/O. Configuration is carried out by following the instructions on the screen.



LU2B + ASILUFC5 + LU9MRC

Notes

- (1) Degree of protection IP54. Connection by 4x0.34mm² wires.
 Black wire: +24V.
 White wire: 0V
 Blue wire: AS-Interface (-)
 Brown wire: AS-Interface (+)

All-in-one motor starters

TeSys Ultra integrated starter Modbus communication module and pre-wired coil connection components

LULC033



- 1 Module status signalling LED
- 2 24V supply connection
- 3 RJ45 connector RS485 for Modbus link
- 4 2 discrete inputs
- 5 1 discrete output
- 6 Outputs for starter commands

Modbus communication module

Communication module LULC033 enables the model U starter-controller to be connected to the Modbus network. It must have a \sim 24V supply and must be used in conjunction with a \sim 24V control unit, LUC●●BL. It incorporates a 0.5A, \sim 24V digital output and 2 digital inputs for local command requirements.

Description	Item	Reference
Communication module	7	LULC033

Information carried by the bus

Depends on the type of control unit used.

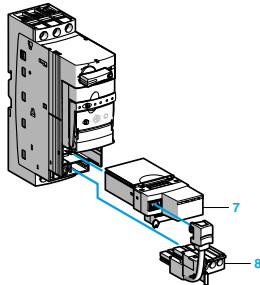
Control unit	Standard	Advanced	Multifunction
Starter status (ready, running, fault)			
Start and Stop commands			
Thermal overload alarm			
Remote reset via the bus			
Indication of motor load			
Fault signalling and differentiation			
Remote programming and monitoring of all functions			
"Log" function			
"Monitoring" function			
Alarms (overcurrent, ...)			
Functions performed			

Description	For use with power base	Item	Reference
Pre-wired coil connection	LUB ●●	8	LU9BN11C
	LU2B ●●	9	LU9MRC

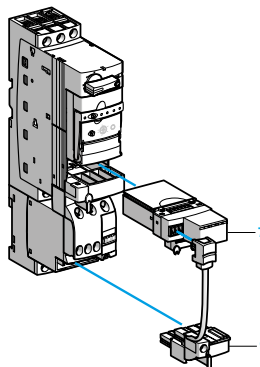
Connection to the Modbus network

Achieved either by means of a Modbus hub or using T-junctions.

Description	Length (m)	Reference
Modbus hub 8 slaves	–	LU9GC3
Cables fitted with two RJ45 connectors	0.3	VW3A8306R03
	1	VW3A8306R10
	3	VW3A8306R30
T-junctions (1)	0.3	VW3A8306TF03
	1	VW3A8306TF10
RS 485 line terminator	–	VW3A8306RC



LUB + LULC031 + LU9B



LU2B + LULC031 + LU9M

Note

(1) Fitted with 2 RJ45 female connectors (bus side) and a 0.3m or 1m length cable supplied with an RJ45 male connector (station side).

All-in-one motor starters

TeSys Ultra integrated starter CANopen communication module and pre-wired coil connection components

LULC08



- 1 LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating 24V supply ON for outputs OA3 and LO1
- 4 SUB-D connector for bus link
- 5 24V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter commands

CANopen communication module

Communication module LULC08 allows direct connection of model U starter-controllers and controllers on a CANopen bus.

The 24V power supply for modules LULC08 is distributed via the bus (up to 25 LULC08 modules).

A 24V supply must be connected to module LULC08 for outputs OA1, OA3 and LO1.

Description	Item	Reference
CANopen Communication module	10	LULC08

Information carried by the bus

Note: The Electronic Data Sheets (EDS) and user manuals are available on the website

Control unit	Standard	Advanced	Multifunction
Starter status (ready, running, fault)			
Start and stop commands			
Thermal overload alarm			
Remote reset via the bus			
Indication of motor load			
Fault signalling and differentiation			
Remote programming and monitoring of all functions			
"Log" function			
"Monitoring" function			
Alarms (overcurrent, ...)			
Functions performed			

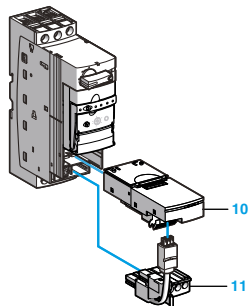
Description	For use with power base	Item	Reference
Pre-wired coil connection	LUB ●●	11	LU9BN11L
	LU2B ●●	12	LU9MRL

Connection to the CANopen Network

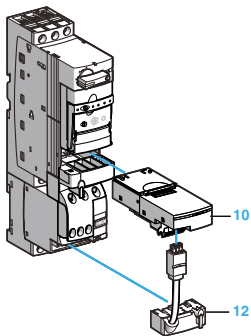
Description	Length (m)	Reference
Standard		
Cables equipped with SUB-D connectors	0.3	TSXCANCADD03
	1.0	TSXCANCADD1
	3	TSXCANCADD3
	5	TSXCANCADD5
Reel of cable	50	TSXCANCA50
	100	TSXCANCA100
UL approved		
Cables equipped with SUB-D connectors	0.3	TSXCANCBDD03
	1.0	TSXCANCBDD1
	3	TSXCANCBDD3
	5	TSXCANCBDD5
Reel of cable	50	TSXCANCB50
	100	TSXCANCB100

Separate components

Description	Reference
Elbowed connector	TSXCANKCDF90T
Straight connector	TSXCANKCDF180T
Junction box	TSXCANTDM4



LUB + LULC08 + LU9BN11L



LU2B + LULC08 + LU9MRL

All-in-one motor starters

TeSys Ultra integrated starter Advantys STB communication module and pre-wired coil connection components

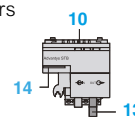
LULC15



- 1 Two-colour LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating \sim 24V supply ON
- 4 Bus connectors
- 5 \sim 24V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter commands

Advantys STB communication module

Communication module LULC15 allows direct connection of TeSys Ultra starter-controllers and controllers on an Advantys STB island, between two segments or at the end of a segment. In the latter case, the segment must be equipped with an EOS (End of segment) module STBXBE1100. For local control requirements, the module is equipped with a configurable, \sim 24V, 0.5A discrete output and two configurable discrete inputs with an LUC ●●●BL or LUC ●T1BL control unit. A \sim 24V supply must be connected to module LULC15, for outputs OA1, OA3 and LO1.



Description	Item	Reference
Advantys STB Communication module	10	LULC15
Line end adapter	13	LU9RFL15

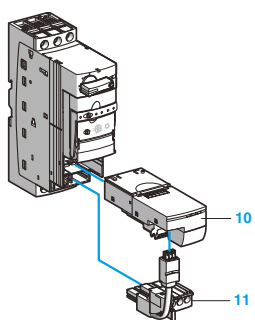
Information carried by the bus

Depends on the type of control unit used.

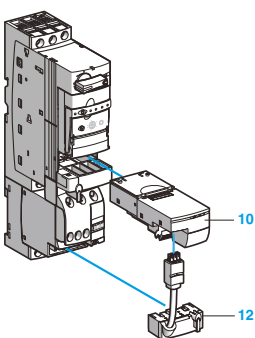
Control unit	Standard	Advanced	Multifunction
Starter status (ready, running, fault)			
Start and stop commands			
Thermal overload alarm			
Remote reset via the bus			
Indication of motor load			
Fault signalling and differentiation			
Remote programming and monitoring of all functions			
"Log" function			
"Monitoring" function			
Alarms (overcurrent, ...)			

Functions performed

Connection of the communication module output terminals to the coil terminals



LUB + LULC15 + LU9N11L



LU2B + LULC15 + LU9MRL

Description	For use with	Item	Reference
Pre-wired coil connection	LUB●●	19	LU9BN11L
	LU2B●●	20	LU9MRL

> Wire link:

Allows insertion, for example, of an emergency stop control or a voltage interface. This type of connection must be used for a reversing starter-controller assembled using an LU6M reverser block for separate mounting. When reverser block LU6M and the power base are mounted side-by-side, a pre-wired coil connection LU9MRL may be used.

Cables

Description	Length (m)	Item	Reference
Cables fitted with connectors, one straight and one elbowed	0.3	12	LU9RCD03
	1	12	LU9RCD10
	5	12	LU9RCD50
Cable fitted with two straight connectors	0.3	17	LU9RDD03

All-in-one motor starters

TeSys Ultra integrated starter DeviceNet communication module and pre-wired coil connection components

LULC09



- 1 LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating 24V supply ON for outputs OA1, OA3 and LO1 and 24V bus
- 4 Devicenet connector for bus link
- 5 24V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter commands (non-reversing and reversing)
- 10 Pin for connection to control unit (advanced or multifunction)

DeviceNet communication module

When used in conjunction with the power base and control unit, communication module LULC09 allows TeSys Ultra starter-controllers and controllers to be controlled via DeviceNet.

Communication module LULC09 is of the slave type and uses the TeSys Ultra system's internal registers which can be accessed via DeviceNet.

Module LULC09 has a configurable 24V (0.5A) discrete output and two configurable discrete inputs.

Description	Item	Reference
DeviceNet Communication module	11	LULC09

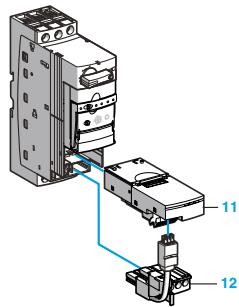
Information carried by the bus

Depends on the type of control unit used with module LULC09.

Compatibility of DeviceNet LULC09 communication module with 24V control units

Information accessible via DeviceNet	LULC09 in conjunction with:		
	LUCA ●●BL Standard control unit	LUCB/C/D ●●BL Advanced control unit	LUCM ●●BL Multifunction control unit
Starter status (ready, running, fault)			
Start and stop commands			
Thermal overload alarm			
Remote reset via the bus			
Indication of motor load			
Fault signalling and differentiation			
Remote programming and monitoring of all functions			
"Log" function			
"Monitoring" function			
Alarms (overcurrent, ...)			

Functions performed



LUB + LUC ●●●BL
+ LULC09 + LU9BN11L

Connection of the communication module output terminals to the coil terminals

Description	For use with	Item	Reference
Pre-wired coil connection	LUB●●	12	LU9BN11L
	LU2B●●●●	13	LU9MRL

Supply

The 24V supply to DeviceNet LULC09 modules is provided via the (V+, V-) terminals.

The 24V supply for the inputs/outputs must be provided separately from the supply to the LULC09 modules.

The 24V Aux terminal is for supply to the LUCM control unit or the LUTM controller.

All-in-one motor starters

TeSys Ultra integrated starter Profibus DP communication module and pre-wired coil connection components



- 1 LED indicating module status
- 2 Fault signalling LED
- 3 LED indicating \approx 24V supply ON for outputs OA1, OA3 and LO1
- 4 SUB-D connector for bus link
- 5 \approx 24V supply connection
- 6 Discrete input
- 7 Discrete input
- 8 Discrete output
- 9 Outputs for starter commands (non-reversing and reversing)
- 10 Pin for connection to control unit (advanced or multifunction)

Profibus DP communication module

When used in conjunction with the power base and control unit, communication module LULC07 allows TeSys Ultra starter-controllers to be controlled via Profibus DP (Deported Periphery).

Communication module LULC07 is of the slave type and uses the TeSys Ultra system's internal registers (which can be accessed via the Profibus DP bus) in cyclic or acyclic mode. This module has a 24V (0.5A) discrete output and two configurable discrete inputs.

Description	Item	Reference
Profibus DP Communication module	11	LULC07

Connection of the communication module output terminals to the coil terminals

Description	For use with	Item	Reference
Pre-wired coil connection	LUB●●	12	LU9BN11L
	LU2B●●●●	13	LU9MRL

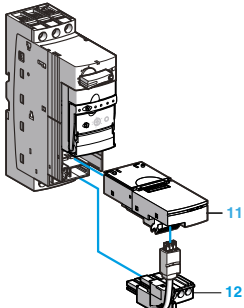
Information carried by the bus

Depends on the type of control unit used with module LULC07.

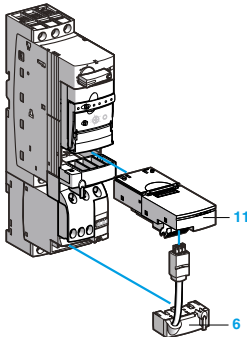
Compatibility of DeviceNet LULC09 communication module with \approx 24V control units

Information accessible via Profibus DP	LULC07 in conjunction with:		
	LUCA ●●BL Standard control unit	LUCB/C/D ●●BL Advanced control unit	LUCM ●●BL Multifunction control unit
Starter status (ready, running, fault)			
Start and stop commands			
Thermal overload alarm			
Remote reset via the bus			
Indication of motor load			
Fault signalling and differentiation			
Remote programming and monitoring of all functions			
"Log" function			
"Monitoring" function			
Alarms (overcurrent, ...)			

■ Functions performed



LUB + LUC ●●BL
+ LULC07 + LU9BN11L



LU2B + LUC ●●●●
+ LULC07 + LU9MRL

Components for connection to the bus and to the installation

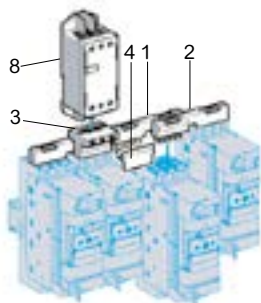
The \approx 24V V-Aux supply to Profibus DP modules LULC07 must pass through power supply module LU9GC7.

LULC07 modules must be connected to the LU9GC7 splitter box in order to be powered.

Description	Length (m)	Reference
Profibus DP power supply module	–	LU9GC7
Profibus DP connector	–	LU9AD7
Profibus DP cables	100	TSXPBSCA100
2-wire	400	TSXPBSCA400
Profibus DP cables	10	LU9RPB010
4-wire	100	LU9RPB100
	400	LU9RPB400

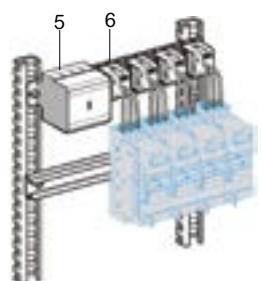
All-in-one motor starters

TeSys Ultra integrated starter
Power connection pre-wired system, limiter blocks and accessories



Pre-wired system for power connections up to 63A

Description	Application	Pitch (mm)	Item	Sold in Lots of	Reference
Sets of 3-pole 63 A busbars	2 tap-offs	45	2	1	GV2G245
		54	–	1	GV2G254
	3 tap-offs	45	–	1	GV2G345
		54	–	1	GV2G354
		45	1	1	GV2G445
4 tap-offs	54	–	1	GV2G454	
	5 tap-offs	54	–	1	GV2G554
Protective end cover	For unused busbar outlets	–	4	5	GV1G10
Terminal block for supply to one or more busbar sets	Connection from the top	–	3	1	GV1G09



Pre-wired system for power connections up to 160A

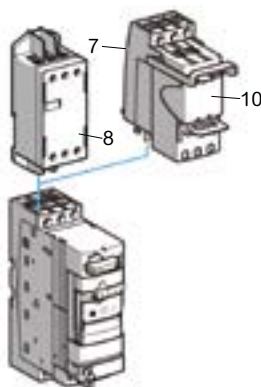
The busbar system can be screw-mounted onto any type of support.

Set of 4-pole busbars: 3-phase + neutral or 3-phase + common

Number of tap-offs at 18mm intervals	Length (mm)	for mounting in enclosure width (mm)	Reference
18	452	800	AK5JB144

Removable 3-phase power sockets

Number of points used on the busbar system	Thermal current	Item	Cable lengths	Sold in lots of	Unit reference
2	16	6	200	1	AK5PC13 (1)
	32	6	250	1	AK5PC33 (1)
	–	–	1000	1	AK5PC33L (1)



Limiter blocks and accessories

Application	Item	Breaking capacity Iq		Mounting	Unit reference
		□ 440V kA	690V kA		
Limiter-disconnector (3) (5)	7 + 10	130	70	Direct on power base	LUALB1 (2)
Current limiter (3)	8	100	35	Separate	LA9LB920
Limiter cartridge	10	130	70	Limiter-disconnector	LUALF1
Clip-in marker holder	–	–	–	On power base, on reverser block, on parallel link splitter box	LAD90 (4)

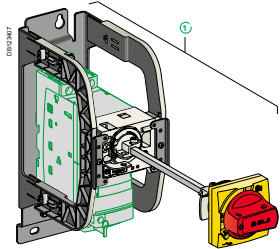
Notes

- (1) The rated peak current for the power sockets AK4 PC●● is 6kA. When used in association with power bases LUB●●, the prospective short-circuit current must not exceed 7kA.
- (2) Supplied with limited cartridge.
- (3) These devices make it possible to increase the breaking capacity of the power base.
- (4) Sold in lots of 100.
- (5) The limiter must be mounted on an LUB or LU2B power base. The limiter can therefore not be common to several motor starters.

All-in-one motor starters

TeSys Ultra integrated starter
Extended rotary handles with door interlocks mechanisms
Safety-chain Marking for TeSys Ultra
Phase Barrier

Door interlock mechanisms



Description	Item	Reference
Door-mounted red handle/yellow front plate, IP54	1	LU9APN22
Door-mounted black handle, IP54		LU9APN21
Handle with mounting kit for MCC drawer		LU9AP20



LU9AP20

Digital load management solution

TeSys island

Concept



TeSys™ island

Concept

TeSys island is an innovative digital load management solution, industry 4.0 ready—providing data for higher machine efficiency and ease of servicing, and allowing faster time to market. TeSys island is a modular, multifunctional system providing integrated functions inside an automation architecture, primarily for the direct control and management of low-voltage loads. After commissioning, TeSys island can switch, help protect, and manage motors and other electrical loads up to 37 kW (80A) installed in an electrical control panel.

This system is designed around the concept of TeSys avatars. These avatars:

- are the functional object representing a logical function of the physical module with pre-defined logic
- determine the configuration of the island. The logical aspects of the island are managed with software tools, covering all phases of product and application lifecycle: design, engineering, commissioning, operation, and maintenance.

Benefits

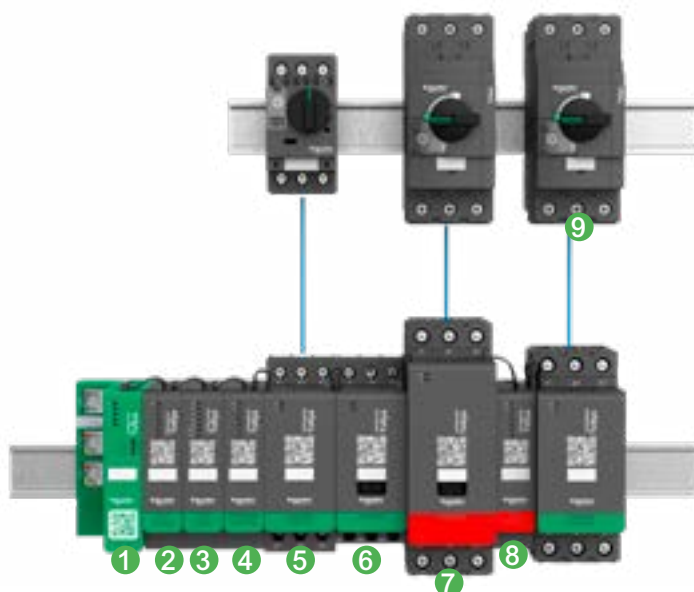
- > Enhanced efficiency through quicker engineering, removal of auxiliary wiring and efficient commissioning can be done remotely.
- > Embedded algorithms detect abnormal load behaviors and generate alarms before machine stoppage.
- > Pre-trip warnings can also be set on the system for scheduled maintenance.
- > With Predictive Alarms, users are now more equipped with application status and can take appropriate actions to avoid machine outage."
- > The Autonomous mode enables TeSys island to control loads independently from the PLC.
- > TeSys island provides energy monitoring at the load level.
- > TeSys island can be easily integrated into Schneider Electric™ EcoStruxure™ Machine architecture and 3rd party automation solutions with open communications via fieldbuses like: EtherNet/IP, Modbus TCP, PROFINET, and PROFIBUS.

Digital load management solution

TeSys island

Product configurator
on se.com/nz

Components



- 1 Bus Coupler
- 2 Analog I/O module
- 3 Digital I/O module
- 4 Voltage interface module
- 5 Power interface module
- 6 Standard Starter
- 7 SIL Starter
- 8 SIL interface module
- 9 GV motor circuit breaker (separately)

TeSys island components (1) (2)

Component	Current rating (A)	Type	Reference
Bus Coupler		EtherNet/IP - Modbus TCP	TPRBCEIP
		PROFINET	TPRBCPFN
		PROFIBUS	TPRBCPFB
Analogue I/O module		2 input & 1 output	TPRAN2X1
Digital I/O module		4 input & 2 output	TPRDG4X2
Voltage interface module			TPRVM001
Power interface module	9 A (AC3)		TPRPM009
	38 A (AC3)		TPRPM038
	66 A (AC3) / 80A (AC1)		TPRPM080
Standard Starter	9 A (AC3)		TPRST009
	25 A (AC3)		TPRST025
	38 A (AC3)		TPRST038
	65 A (AC3)		TPRST065
	66 A (AC3) / 80A (AC1)		TPRST080
Safety Starter (SIL)	9 A (AC3)		TPRSS009
	25 A (AC3)		TPRSS025
	38 A (AC3)		TPRSS038
	65 A (AC3)		TPRSS065
	66 A (AC3) / 80A (AC1)		TPRSS080
Safety interface module			TPRSM001

Assembly & Wiring Kits

Component	Type	Reference
Kit for reversing starter application	for 9, 25, 38 A (size 1 and 2) starters	LAD9R1
	for 65, 80 A (size 3) starters	LAD9R3
Jumper bar 3-pole for Star Delta application	for 9, 25, 38 A (size 1 and 2) starters	LAD9P3
	for 65, 80 A (size 3) starters, a hazard sticker is provided	LAD9SD3S

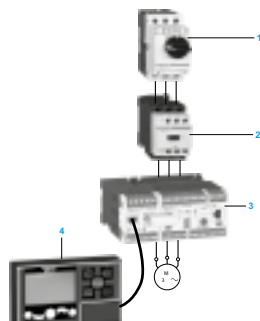
Notes

- (1) Product selection and configuration using free digital tools - 'Ecostruxure Motor Control configurator' or 'SoMove' (available on www.se.com)
- (2) For more details, refer to document 'LVCATISL_EN' (available on www.se.com)



Advanced motor protection

TeSys T Motor management system



- 1 Magnetic Circuit breaker
- 2 Contactor
- 3 Controller with extension module
- 4 Operator control unit

TeSys T is a motor management system that provides protection, metering and monitoring functions for single-phase and 3-phase, constant speed, a.c. motors up to 810 A. TeSys T is used for motor control and protection in harsh industrial applications, in which downtime must be avoided because it is very costly. The base unit covers the following functions:

- > measurement of 3-phase current via integral current transformers from 0.4 to 100 A (up to 810 A by external current transformers)
 - > measurement of earth current by external earth fault toroid
 - > measurement of motor temperature by PTC probe
 - > inputs and outputs for the various motor control modes, fault management and associated functions
 - > connection to the automation system via multiple communication protocols
- Configured with SoMove software



LTM08MBD



LTM08PBD



LTM08EBD



LTMEV40BD

TeSys T motor management base unit – Class 5 to 30

Description	Communication protocol	FLA Range (A)	Control Voltage (V)	Reference	
Base unit provides: – 6 inputs – 4 relay outputs – thermistor input – external ground fault input – current monitoring and protection functions fieldbus communication	Modbus	0.4...8	24V DC	LTM08MBD	
			100–240V AC	LTM08MFM	
		1.35...27	24V DC	LTM027MBD	
			100–240V AC	LTM027MFM	
		5...100	24V DC	LTM100MBD	
			100–240V AC	LTM100MFM	
	CANopen	1.35...27	24V DC	LTM027CBD	
			100–240V AC	LTM027CFM	
		5...100	24V DC	LTM100CBD	
			100–240V AC	LTM100CFM	
		Profibus DP	0.4...8	24V DC	LTM08PBD
				100–240V AC	LTM08PFM
1.35...27	24V DC		LTM027PBD		
	100–240V AC		LTM027PFM		
5...100	24V DC		LTM100PBD		
	100–240V AC		LTM100PFM		
DeviceNet	0.4...8	24V DC	LTM08DBD		
		100–240V AC	LTM08DFM		
	1.35...27	100–240V AC	LTM027DFM		
	5...100	24V DC	LTM100DBD		
		100–240V AC	LTM100DFM		
	Ethernet Modbus TCP Ethernet IP	0.4...8	24V DC	LTM08EBD	
		100–240V AC	LTM08EFM		
1.35...27		24V DC	LTM027EBD		
		100–240V AC	LTM027EFM		
5...100		24V DC	LTM100EBD		
		100–240V AC	LTM100EFM		

TeSys T motor management expansion module

Description	Control voltage (V)	Length (m)	Reference
Expansion unit provides: 0.4...8 – voltage monitoring and protection functions – power monitoring and protection functions – 4 additional inputs	24V DC	–	LTMEV40BD
	100-240V AC	–	LTMEV40FM
Connection cable between base unit and expansion module	–	0.04	LTMCC004
	–	1.0	LTM9CEXP10

Advanced motor protection

TeSys T Motor management system



LTMCUF

Monitoring and configuration

Description	Item	Reference
LTMCUF HMI with Fast Device replacement	Display unit	LTMCUF
LTMCU HMI unit provides: – configuration – monitoring – fault and alarm notification	Display unit	LTMCU
	Connection cable	LTM9CU10
Connection cable		TCSMCNAM3M002P
Kit for portable LTMCU		LTM9KCU



LTM9KCU

External current transformers

Description	Current ratio	Reference
Individual Cts (1 per phase)	100:1	LUTC1001
	200:1	LUTC2001
	400:1	LUTC4001

Earth fault toroids

Description	Type	Diameter (mm)	Reference
Closed toroid, A-type	TA30	30	50437
	PA50	50	50438
	IA80	80	50439
	MA120	120	50440
	SA200	200	50441



504●●

Lineryy Busbar System

AK5 Panel busbar system 160A

Tap-offs

Mounting plates



AK5JB143

Lineryy HK "hot-plug" Busbar system

The busbar system may be screw mounted on to any type of support. If it is intended to be used in conjunction with component mounting plates incorporating a tap-off it is essential that the busbar system be fixed, together with the mounting rail AM1DL201 (see below).

When mounting tap-offs take into account the rated operating current of the busbar system:– 160A at 35°C.

Number of bars	Tap-off outlets polarity and pitch	Max. no.	Length (mm)	Reference
4	2 pole 18mm pitch	12	340	AK5JB143
		24	555	AK5JB145
		54	1100	AK5JB1410
4	3 pole or 4 pole- (1) 36mm pitch	6	340	AK5JB143
		12	555	AK5JB145
		27	1100	AK5JB1410

Tap-offs



AK5PC12

AK5PC34

Polarity	Pitch (mm)	Rated thermal current (A)	Length of output conductors (mm)	Reference
1-phase + neutral	18	16	200	AK5PC12
		32	1000	AK5PC32L
3 phase	36	32	250	AK5PC33
		32	1000	AK5PC33L
		32	250	AK5PC34
3 phase neutral		32	1000	AK5PC34L

Component mounting plates incorporating tap-off



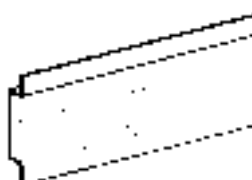
AK5PA231

AK5PA232

Polarity	Pitch (mm)	Rated thermal current (A)	Max. number of plates on busbar system		Reference
			JB143 (A)	AK5-JB145 (A)	
Single plate (height 105mm) (1)					
3 phase	54	25	4	8	AK5PA231
3 phase +- neutral	54	25	4	8	AK5PA241
Double plate (height 190mm) (1)					
3 phase	54	25	4	8	AK5PA232
3 phase + common	54	25	4	8	AK5PA2312
Common: 10A					

Mounting rail for busbar system

Designed to fix and house the busbar system when used in conjunction with mounting plates incorporating tap-off. As the mounting plate clips onto the rail, the tap-off connects to the busbar system.



AM1DL201

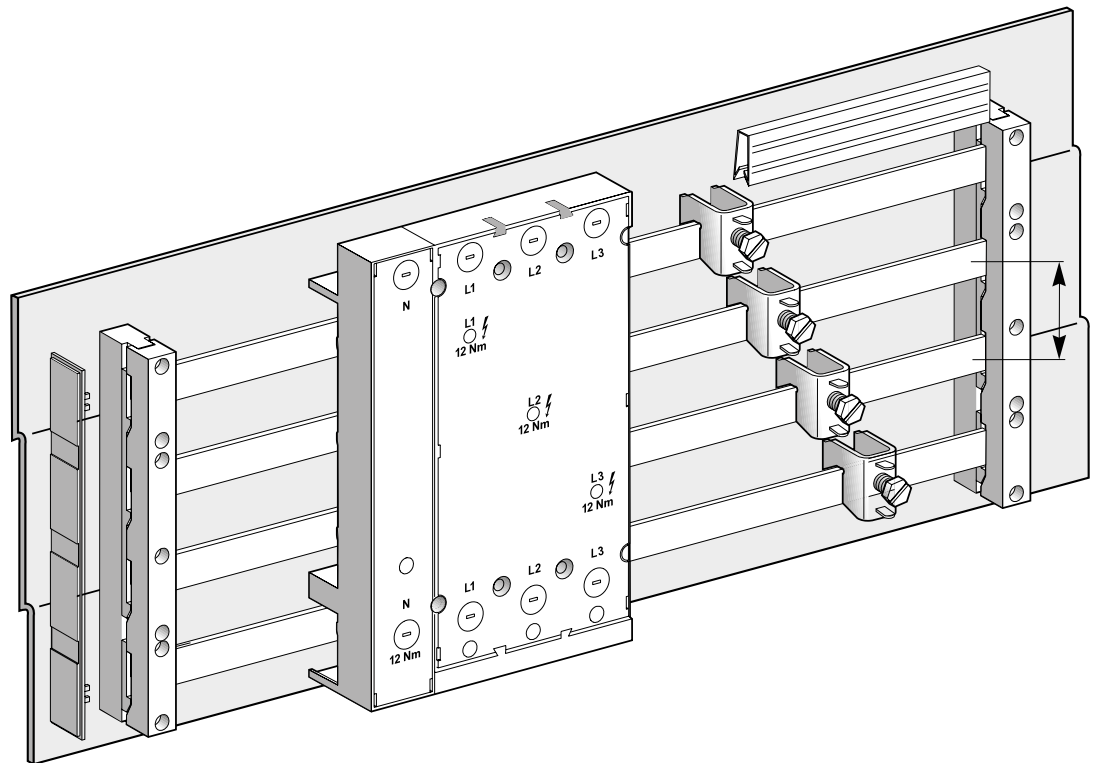
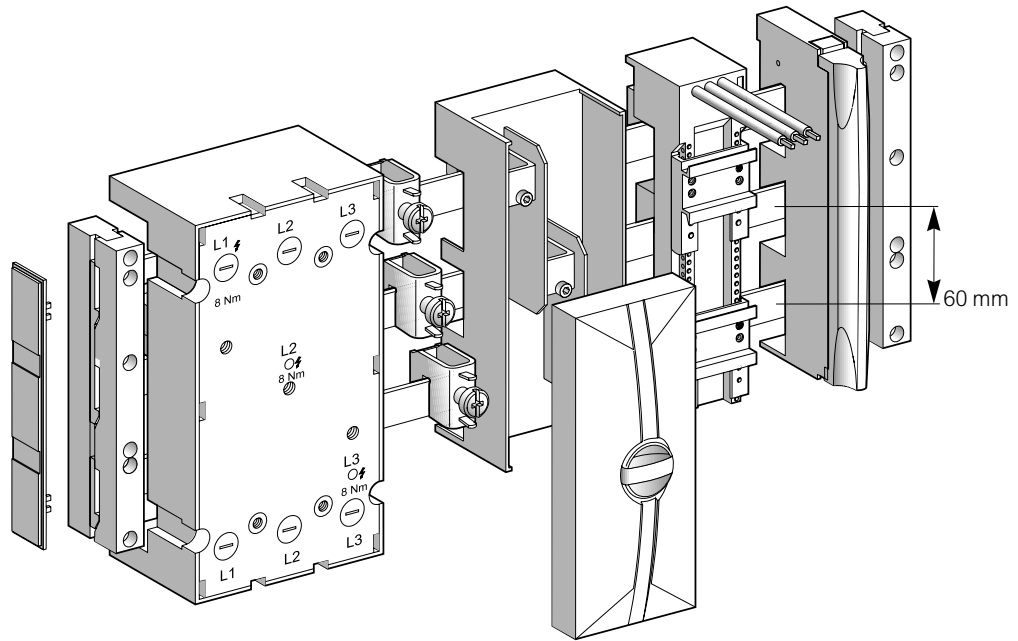
Description	Material and surface treatment	Depth	Length	Unit reference
Omega rail, width 75mm	2mm sheet steel 10 microns zinc chromate	15	2000 (2)	AM1DL201

Notes

- (1) Tap-offs supplied as (N+-L1), (N+-L2) or (N+-L3).
- (2) Cut to length and drill fixing centres to suit.

Linery Busbar System

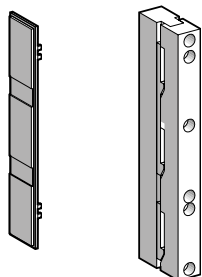
LA9Z modular busbar system
Adaptors for use with busbar systems



H

Linery Busbar System

LA9Z modular busbar system Busbar support

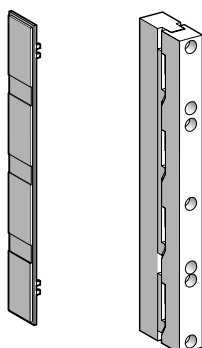


LA9ZX01573 LA9ZX01495

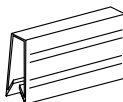
IEC busbar supports and accessories

		Reference
3-pole	For 12, 15, 20, 25, 30 x 5/10 mm ² busbars	LA9ZX01495
	End covers for 3-pole busbar support	LA9ZX01573
4-pole	For 12, 15, 20, 25, 30 x 5/10 mm ² busbars	LA9ZX01485
	End covers for 4-pole busbar support (5 left, 5 right)	LA9ZX01131

Other accessories



LA9ZX01131 LA9ZX01485

		Reference
Covers, length 1 m		
	For 12-30 x 5 mm ² busbars	LA9ZX01244
	For 12-30 x 10 mm ² busbars	LA9ZX01245

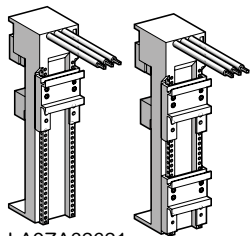
General characteristics

Conformity with	IEC 61439-2, UL508									
Degree of protection	IP20 with cover LA9ZX01244 or LA9ZX01245									
Thermal resistance	°C	120								
Rated current frequency	Hz	50/60								
Rated operating current	Depending on type of busbars and at 35 °C	mm	12x5	15x5	20x5	25x5	30x5	12x10	20x10	30x10
		A	200	250	320	400	450	360	520	630
	K-factor to be applied depending on ambient temperature	°C	35	45	50	60	60	40	55	60
	K	1	0.75	0.65	0.35	0.35	0.9	0.55	0.35	
Rated insulation voltage	V	690 as per IEC 60947-1 and NF C 20-040								
Rated operating voltage	V	690								
Peak permissible rated current	With busbar support	LA9ZX01508 (UL)				LA9ZX01495 and LA9ZX01485 (IEC)				
	Bar dimensions	mm	12x5	12x10	12x5	12x10	20x10	30x5	30x10	
	Rated current	kA	35	35	30	35	35	45	55	
Maximum thermal stress	A ² s	1x10 ⁸	4x10 ⁸	1x10 ⁸	11x10 ⁸	11x 10 ⁸	6.2x10 ⁸	24.8x10 ⁸		
Support fastening by screws	mm	4x6								



Lineryg Busbar System

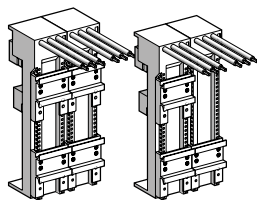
Lineryg BZ:
LA9Z modular busbar system
Choice of mounting plates



LA9ZA32621 LA9ZA32434

For TeSys GV2 motor circuit breakers

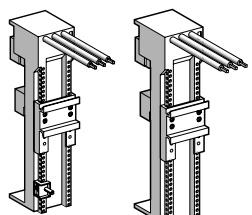
Operating current AC-3 440 V	Protection by motor circuit breaker	For contactor	Mounting plate l x h	Reference
Mounting plate, 1-way				
25 A	GV2 ME	LC1 D	45x200	LA9ZA32621
	GV2 P	LC1 K		
	GV2 LE	LP4 K06-K12		
32 A	GV2 ME	LC1 D	45x200	LA9ZA32434
	GV2 P			
	GV2 LE			
Mounting plate, 2-way (3)				
25 A	GV2 ME	LC1 D	90x200	LA9ZA32622
	GV2 P	LC1 K		
	GV2 LE	LP4 K06-K12		
32 A	GV2 ME	LC1 D	90x200	LA9ZA32623
	GV2 P			
	GV2 LE			



LA9ZA32622 LA9ZA32623

TeSys Ultra starter-controllers

Operating current AC-3 440 V	Protection by power base		Mounting plate l x h	Reference
Mounting plate, 1-way				
32 A	LUB120, LUB320		45x200	LA9ZA32427
Mounting plate, 2-way				
32 A	LUB120, LUB320		45x260	LA9ZA32428

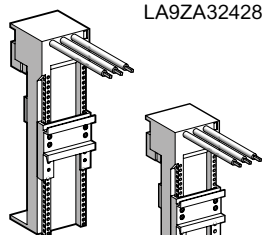


LA9ZA32427

LA9ZA32428

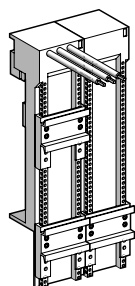
For TeSys GV3 motor circuit breakers

Operating current AC-3 440 V	Protection by power base	For contactor	Mounting plate l x h	Reference
Mounting plate, 1-way (1)				
63 A	GV3 P	–	54x200	LA9ZA32624
	GV3 P	LC1 D40A...65 A	54x260	LA9ZA32625
Mounting plate, 2-way (1) (2)				
63 A	GV3 P	LC1 D40A...65 A	117x260	LA9ZA32626



LA9ZA32624

LA9ZA32625



LA9ZA32626

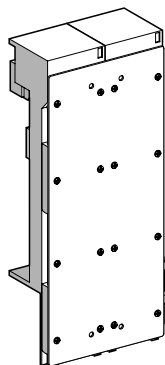
Notes

The mounting plate rails can be shifted vertically in 1.25 mm increments.

- (1) Contactor-circuit breaker combination without additional part.
- (2) Use the LAD 9R3 kit for the execution of changeover contactors.
- (3) Use the LAD 9R1 or LAD 9R1V kit for the execution of changeover contactors.

Lineryg Busbar System

LA9Z modular busbar system Choice of mounting plates



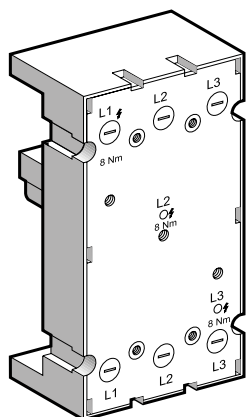
LA9ZA32627

For TeSys integral contactor-circuit breakers

Operating current AC-3 440 V	Protection by contactor-circuit breaker	Mounting plate l x h	Reference
Mounting plate, 1-way			
63 A	LD1, LD4 LD	108x260	LA9ZA32627

For Compact NSX circuit breakers

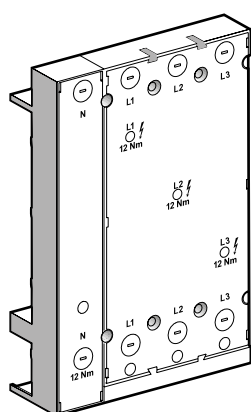
Operating current AC-3 440 V		Mounting plate l x h	Reference
100-250 A	Mounting plate for 3P circuit breakers	104x190	LV429372
	Mounting plate for 4P circuit breakers	139x251	LV429373
400-630 A	Mounting plate for 3P circuit breakers	139x270	LV432623
	Mounting plate for 4P circuit breakers	184x284	LV432624



LV432623

Characteristics of busbar mounting plates

Type of mounting plate	LA9ZA32621 LA9ZA32622	LA9ZA32427 LA9ZA32428 LA9ZA32434 LA9ZA32623	LA9ZA32624 LA9ZA32625 LA9ZA32626 LA9ZA32627
Degree of protection as per IEC 60529	IP 20		
Conductor cross section (colour: black)	mm ² 4 AWG 12	6 AWG 10	10 AWG 8
Type of conductor insulating material	PVC 105 °C		
Permissible current	A 25	32	63
Rated insulation voltage	V 690 as per IEC 60947-1 and NF C 20-040		
Peak rated current	kA 6	6	10
Maximum thermal stress	A ² s 2x10 ⁵	2x10 ⁵	3x10 ⁵

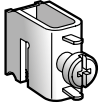


LV432624

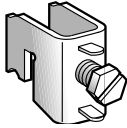


Linergy Busbar System

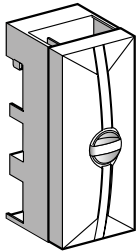
LA9Z modular busbar system Terminals, connection module



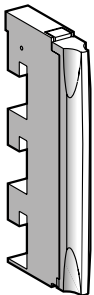
LA9ZX01285



LA9ZX01287



LA9ZX01243



LA9ZX01563

Terminals

	I max	Reference
One-pole for flat bars, 5 mm ²	270 A Capacity 4-35 mm ²	LA9ZX01285
	400 A Capacity 16-70 mm ²	LA9ZX01287
3P cover, width 84 mm		LA9ZX01413

Terminals on mounting plate

	I max	Reference
3P, on mounting plate + cover, for 12 x 5 to 30 x 10 busbars	440 A Capacity 35-120 mm ²	LA9ZX01243

Connection module

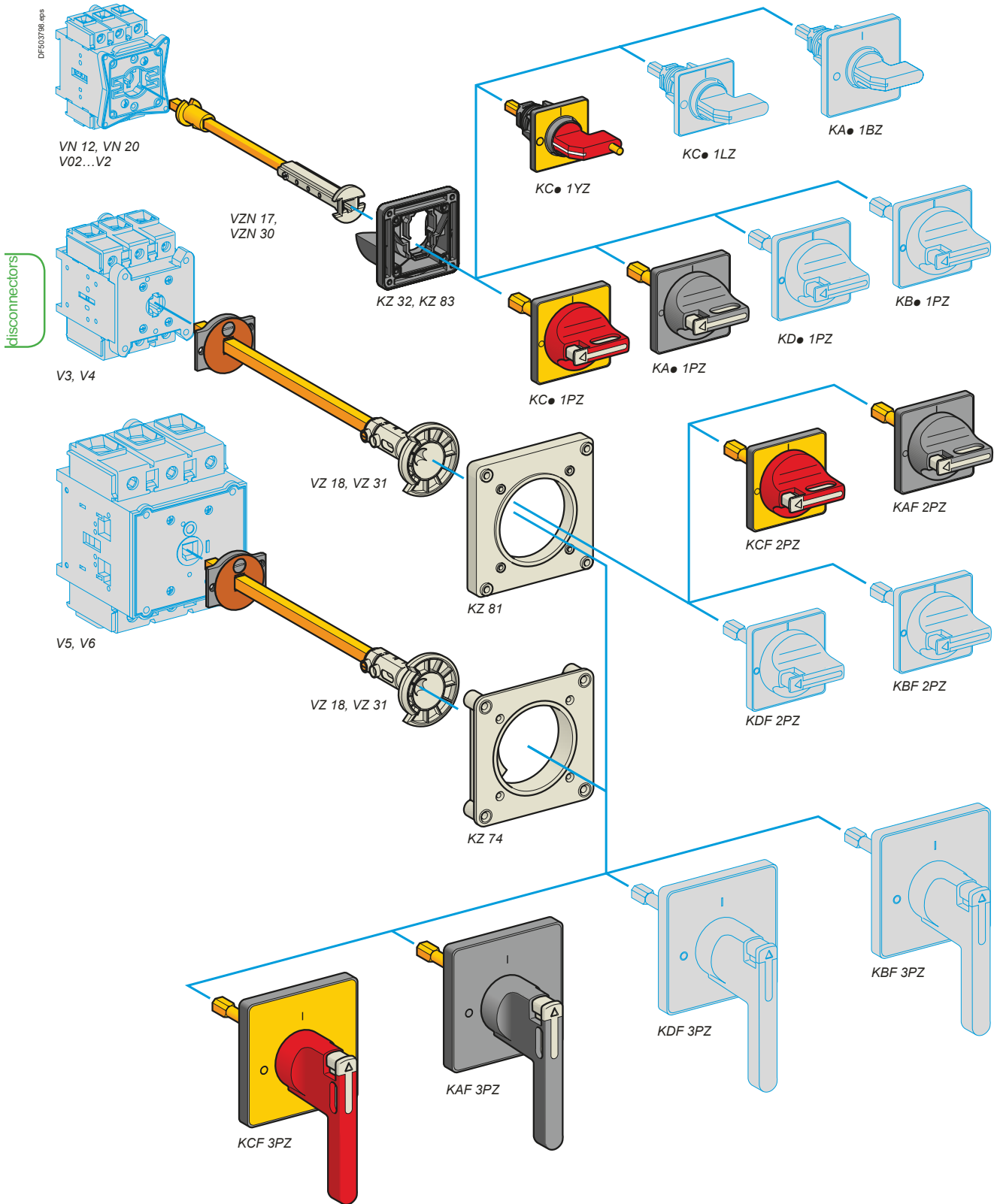
	I max	Reference
3P, spring terminal connection + cover, for busbars of 12 x 5 to 30 x 10	80 A Capacity 1.5-16 mm ²	LA9ZX01563

Connection by connectors

		LA9ZX01285		LA9ZX01287		LA9ZX01243		LA9ZX01563	
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Flexible wire with end-piece	mm ²	4	35	16	70	35	120	1.5	16
Multi-strand wire	mm ²	4	35	16	70	35	120	1.5	16
Rigid wire	mm ²	4	35	–	–	–	–	1.5	16
Tightening torque	N.m	... x 5		... x 10		... x 5-10		... x 5-10	
		Supplied without cover		Supplied without cover					

Load break switches

TeSys Vario switch disconnectors (12 to 175A)



Load break switches

TeSys Vario switch disconnectors

Note: Fitted with reversible contacts making them suitable for DIN rail or panel mounting

Enclosed isolators



VCD01

Main and emergency stop switch disconnectors for door and base mount IP 65

Handle	Front plate	Fixing (mm)	Rating lth (1) (A)	Motor rating AC23 (415V) (2) (A/kW)	Reference	
Red, padlockable with up to 3 padlocks	Yellow 60 x 60	Ø 22.5	20	11/5.5	VCD01	
			25	14/7.5	VCD0	
			32	21/11	VCD1	
			40	28/15	VCD2	
	4 screws			20	11/5.5	VCF01
				25	14/7.5	VCF0
				32	21/11	VCF1
				40	28/15	VCF2
Red, padlockable with up to 3 padlocks	Yellow 90 x 90	4 screws	63	40/22	VCF3	
			80	55/30	VCF4	
			125	66/37	VCF5	
			175	80/45	VCF6	



VCF0GE

Enclosed 3 pole main and emergency stop switch disconnectors

- > 3 pole rotary switch disconnectors, 12 to 175A
- > Padlockable operating handle (padlocks not supplied)
- > IP65 enclosures, sealable and lockable

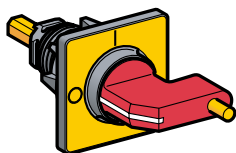
Operator handle	Front plate dimensions (mm)	lth (enclosed) (1) (A)	Power in AC-23 (2) at 415V (A/kW)	No. add on modules possible	Reference
Red, padlockable with up to 3 padlocks	Yellow 60 x 60	10	8/4	2	VCF02GE
		16	11/5.5	2	VCF01GE
		20	14/7.5	2	VCF0GE
		25	21/11	2	VCF1GE
		32	28/15	2	VCF2GE
		50	40/22	3	VCF3GE
		63	55/30	3	VCF4GE
Red, long, padlockable with up to 3 padlocks (Ø4 to Ø8 shanks)	Yellow 90 x 90	100	37	1	VCF5GEN
		140	45	1	VCF6GEN

Notes

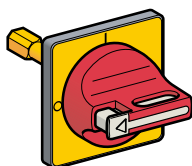
- (1) lth refers to the current a closed switch can sustain without its temperature rise exceeding the limits given in AS39473
- (2) AC23 refers to the switching of motor loads or other highly inductive loads.

Load break switches

TeSys Vario switch disconnectors
 Padlockable operator handles and front plates (for customer assembly) - IP65
 Switch bodies



KCC1YZ



KCD1PZ



V5

Handles and front plates for main and emergency stop switch disconnectors

For switch body	Operator Handle	Front plate Dimensions (mm)	Fixing	Reference
V02...V2	Red, padlockable with 1 padlock	Yellow 45 x 45	Ø 22.5 4 screws	KCC1YZ KCE1YZ
	Red, padlockable with up to 3 padlocks	Yellow 60 x 60	Ø 22.5 4 screws	KCD1PZ KCF1PZ
V3 and V4	Red, padlockable with up to 3 padlocks	Yellow 60 x 60	4 screws	KCF2PZ
V5 and V6 (1)	Red, long, padlockable with up to 3 padlocks	Yellow 90 x 90	4 screws	KCF3PZ

Switch bodies

Handle	Rating A	Reference
3-pole switch-disconnectors	25	V0
	32	V1
	40	V2
	63	V3
	80	V4
	125	V5
	175	V6

Notes

(1) For door mounting of 63 & 80A switch disconnectors, adapter plate KZ106, must be ordered separately.

Load break switches

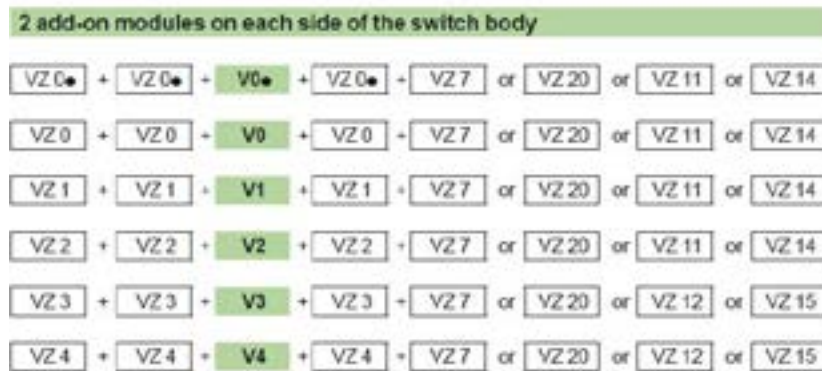
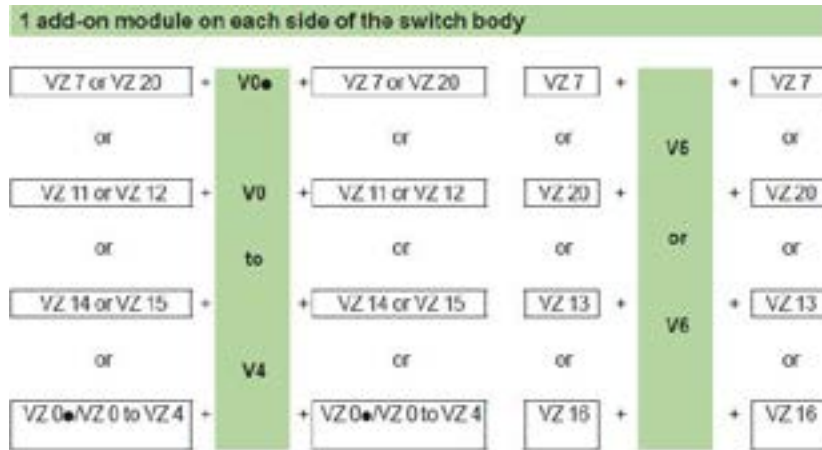
TeSys Vario switch disconnectors
Switch bodies, add on modules, auxiliary contacts
(for customer assembly)



Add on modules (single pole only)

	Rating I _{th} (A)	Motor rating AC-23 (415V) (A/kW)	Reference
Main pole module (1)	12	8/4	VZ02
	20	11/5.5	VZ01
	25	14/7.5	VZ0
	32	21/11	VZ1
	40	28/15	VZ2
	63	40/22	VZ3
Neutral pole module with early make and late break contacts (1)	80	55/30	VZ4
	12 to 40		VZ11
Earthing module (1)	63 and 80		VZ12
	12 to 40		VZ14
	63 and 80		VZ15
Auxiliary contact block module with 2 auxiliary contacts	125 and 175		VZ16
	N/O + N/C (2)		VZ7
	N/O + N/O		VZ20

Maximum number of add on modules which can be fitted on switch body



Note: The add-on modules mounted next to the switch body are main pole modules.
Maximum of 3 main pole modules per switch body.

Notes

- (1) Protection shrouds are available on request.
- (2) Late make N/O, early break N/C contacts.

Load break switches

TeSys Vario switch disconnectors Accessories



VZ18



KZ32



KZ15



VZ8

Components for door interlocking

For rear fixing switch disconnectors mounted at the back of an enclosure, in addition to a direct operator

Description	For use with	Distance enc. back/door (mm)	Reference
Shaft extensions	V02...V2	300...330	VZ17
	V3 and V4	400...430	VZ30
		300...330	VZ18
		400...420	VZ31
	V5 and V6	330...350	VZ18
Door interlock plates	V02...V2	430...450	VZ31
		-	KZ32
	V3...V6	-	KZ74

Accessories for operators

Description	For use on	Front plate dimensions (mm)	Reference
Legend bearer with silver coloured blank legend plate	Front plate	45 x 45	KZ13
		60 x 60	KZ15
Legend bearer without legend plate	Front plate	45 x 45	KZ14
		60 x 60	KZ16
		90 x 90	KZ101

Input terminal protection shrouds

Description	For use with	Reference
For switch bodies (3-pole shroud)	V02...V2	VZ8
	V3 and V4	VZ9
	V5 and V6	VZ10
For add-on pole modules (single-pole shroud)	VZ 02...VZ 2, VZ 11, VZ 14	VZ26
	VZ 3, VZ 4, VZ 12, VZ 15 VZ 13, VZ 16	VZ27
For contact blocks with 2 auxiliary contacts	VZ 02...VZ 2, VZ 11, VZ 14	

Index

Variable speed drives and soft starters

Selection guides

Motor management tools	I2
Soft starters	I3
Variable speed drives	I4
Services for drives	I6

Soft starters

Altistart 01 0.37...15kW	I7
Altistart 22 7.5...315kW	I8
Altivar Soft Starter ATS480 7.5...900kW	I11

Variable speed drives for machines

Altivar 12 0.18...2.2kW	I15
Altivar Machine ATV320 0.18...15kW	I17
Altivar Machine ATV340 0.75...75kW	I26

Variable speed drives for buildings

Altivar 212 0.75...75kW	I27
-------------------------	-----

Variable speed drives for industrial processes

Altivar Process	I28
ATV630 IP21 0.75...315kW	I30
ATV650 IP55/54 0.75...315kW	I31
ATV930 IP21 0.75...315kW	I32
ATV950 IP55/54 0.75...315kW	I33
Options	I34

Altivar Process LV Drive Systems	I46
ATV660 Compact Drive Systems 110...1200kW	I47
ATV680 Low Harmonic Drive Systems 110...1200kW	I48
ATV960 High Performance Drive Systems 110...1200kW	I49
ATV980 Regenerative Drive Systems 110...1200kW	I50

Altivar Process MV Drive Systems	I51
----------------------------------	-----

Motor management tools



Digital tools

to quickly select your motor control solution

Optimised motor management

Electric motors are critical assets for plant operations, but they are also big consumers of energy. With effective design, engineering, and management, efficiently run motors can significantly contribute to a company's sustainability, energy usage, and CO2 emission reductions.

To learn more about our motor management tools and solutions, click the link or scan the QR.



Scan or click on the QR code

EcoStruxure™ Motor Control Configurator

- From your application, select your soft starter reference
- Expand it with coordinated combination, options, and accessories
- Convert into Bill of Material, add the product to the cart
- Directly access product documentation
- Save, rework, share your solution with unique ID



Scan or click on the QR code

EcoStruxure™ Motor Management Design

- From your project, perform electrical design calculation
- Compare direct-on-line, soft starter, and variable speed drive
- Estimate energy savings and pollution reduction
- Verify starting feasibility from mechanical standpoint
- Verify that power factor and harmonics levels objectives are met
- Build a complete Motor Management solution
- Get a summary report with calculations and recommended offers



Scan or click on the QR code

Soft starters

Selection guide

Soft starters

Simple machines

Standard machines

Advanced machines



- Suitable
- ◐ May be suitable but not optimised
- Not Recommended

Application suitability is intended as a guide only. Please contact Schneider Electric for selection, application and engineering advice.

Typical applications		Altistart 01	Altistart 22	Altivar Soft Starter ATS480
Pumps	Centrifugal	●	●	●
	Effluent	◐	●	●
Fans	Piston	◐	◐	●
	Submersible	○	●	●
	Vacuum	◐	●	●
Compressors	Piston	◐	◐	●
	Refrigeration	◐	●	●
	Screw	◐	●	●
	Scroll	◐	●	●
Agitator	○	◐	●	
Blower	◐	●	●	
Centrifuge	○	○	◐	
Conveyor	◐	◐	●	
Crusher	○	○	●	
Extruder	○	◐	◐	
Grinder	○	○	●	
Hoist	○	○	○	
Lift	○	○	◐	
Mixer	◐	●	●	
Press	○	○	●	
Refiner	○	○	●	
Saw	○	◐	●	
Separator	○	○	◐	
Characteristics		Altistart 01	Altistart 22	Altivar Soft Starter ATS480
Supply voltage		1Ø 110 to 230V* 3Ø 380 to 415V*	3Ø 230 to 440V*	3Ø 208 to 690V
Power range		0.37...15kW	4...315kW	4...900kW
Enclosure rating	Standard	IP20	IP20/IP00	IP20/IP00
	With option	-	IP20 wall mount	IP20 wall mount
Motor control features		1-ph or 2-ph control, integrated bypass contactor	3-ph control, start/stop, current limiting, integrated bypass contactor	3-ph control, start/stop/brake, Torque Control System, bypass contactor as option
Motor over-torque (typical)		-	<350% nominal current	<500% nominal current
Number of functions		1	20	36
Number of I/O	Analogue inputs	-	1x PTC probe	1x PTC or PT100 probe
	Digital inputs	3	3	4
	Analogue outputs	-	-	1
	Digital outputs	1	-	2
	Relay outputs	1	2	3
Safety functions	Integrated	-	-	-
	With option	-	-	-
Communication	Integrated	-	Modbus	Modbus
	With option	when combined with TeSys U	-	EtherNet/IP and Modbus TCP dual port, CANopen, PROFIBUS DP V1, PROFINET

Note *Models for other international voltages and specialised applications are available. Please consult your local Schneider Electric representative.

Variable speed drives

Selection guide

Variable speed drives

Altivar Machine

Simple machines

Compact machines

Compact machines



- Suitable
- ◐ May be suitable but not optimised
- Not Recommended

HD Heavy duty rating

Application suitability is intended as a guide only. Please contact Schneider Electric for selection, application and engineering advice.

Typical applications

		Altivar 12	Altivar 320	Altivar 320 IP6x
Pumps	Centrifugal	●	●	●
	Effluent	●	●	●
	Piston	●	●	●
	Submersible	◐	◐	◐
	Vacuum	●	●	●
Fans		●	●	●
Compressors	Piston	●	●	●
	Refrigeration	●	●	●
	Screw	●	●	●
	Scroll	●	●	●
Agitator	●	●	●	
Blower	●	●	●	
Centrifuge	○	◐	◐	
Conveyor	●	●	●	
Crusher	◐	●	●	
Extruder	◐	●	●	
Grinder	◐	●	●	
Hoist	○	◐	◐	
Lift	○	●	●	
Mixer	●	●	●	
Press	◐	●	●	
Refiner	◐	●	●	
Saw	◐	●	●	
Separator	○	◐	◐	





Characteristics

		Altivar 12	Altivar 320	Altivar 320 IP6x
Supply voltage		1Ø 200 to 240V*	1Ø 200 to 240V* 3Ø 380 to 500V*	1Ø 200 to 240V* 3Ø 380 to 500V*
Power range		0.18...2.2kW	0.18...15kW	0.18...7.5kW
Enclosure rating	Standard	IP20	IP20	IP66, IP65 with switch
	With option	-	IP20 wall mount	-
Motor control features		Standard (U/f), Performance (sensor-less flux vector), Pump/fan (U/f quad.)	Standard (U/f), Performance (sensor-less flux vector), Pump/fan (U/f quad.), Energy saving, PM synchronous	Standard (U/f), Performance (sensor-less flux vector), Pump/fan (U/f quad.), Energy saving, PM synchronous
Motor over-torque (typical)		150...170% Tn	170...200% Tn	170...200% Tn
Number of functions		40	150	150
Number of I/O	Analogue inputs	1	3	3
	Digital inputs	4	6	6
	Analogue outputs	1	1	1
	Digital outputs	1	1	1
	Relay outputs	1	2	2
Safety functions	Integrated	-	STO SIL3, SS1, SLS, SMS, GDL	STO SIL3, SS1, SLS, SMS, GDL
	With option	-	-	-
Communication	Integrated	Modbus	Modbus, CANopen	Modbus, CANopen
	With option	-	EtherNet/IP, Modbus TCP, DeviceNet, PROFIBUS DP V1, PROFINET, EtherCAT, POWERLINK	EtherNet/IP, Modbus TCP, DeviceNet, PROFIBUS DP V1, PROFINET, EtherCAT, POWERLINK

Note *Models for other international voltages and specialised applications are available. Please consult your local Schneider Electric representative.

Variable speed drives

Selection guide

Variable speed drives			
Advanced machines	Altivar Building	Altivar Process	Advanced mechanics
			
Altivar 340	Altivar 212	Altivar 600	Altivar 900
High performance drives for complex precision machines	Dedicated drive for HVAC pump and fan applications within buildings	Advanced fluid management and energy optimisation for industrial processes and utilities	High performance drives dedicated to maximum productivity in heavy industrial processes
●	●	●	○
●	○	● HD	○ HD
●	○	● HD	○ HD
○	○	●	○
●	○	● HD	○ HD
●	●	●	○
●	○	● HD	○ HD
●	○	●	○
●	○	●	○
●	○	●	○
●	○	○ HD	● HD
●	○	● HD	○ HD
●	○	○	● HD
●	○	○ HD	● HD
●	○	○	● HD
●	○	○	● HD
●	○	○	● HD
●	○	○	● HD
●	○	○	● HD
●	○	○ HD	● HD
●	○	○	● HD
●	○	○	● HD
●	○	○	● HD
3Ø 380 to 480V*	3Ø 380 to 480V*	3Ø 380 to 480V*	3Ø 380 to 480V*
0.75...75kW	0.75...75kW	0.75...800kW (400V)	0.75...800kW (400V)
IP20	IP21, IP55	IP21...IP55	IP21...IP55
-	IP21 wall mount	IP21 wall mount 110...315kW	IP21 wall mount 110...315kW
Performance (flux vector) open or closed loop, PM synchronous, synchronous reluctance	Standard (U/f), Performance (sensor-less flux vector), Pump/fan (U/f quad.), Energy saving	Standard (U/f), Performance (sensor-less flux vector), Pump/fan (U/f quad.), Energy saving, PM synchronous, reluctance	Performance (flux vector) open or closed loop, PM synchronous, synchronous reluctance
170...220% Tn	120% Tn	120...170% Tn	130...180% Tn
>150	50	>150	>150
2, up to 4 with option	2	3, up to 5 with option	3, up to 5 with option
5, up to 11 with option	3	6, up to 12 with option	8, up to 14 with option
1	1	2	2
2, up to 4 with option	-	0, up to 2 with option	2, up to 4 with option
2, up to 5 with option	2	3, up to 6 with option	3, up to 6 with option
STO SIL3	-	STO SIL3	STO SIL3
SS1, SLS, SMS, SBC, GDL, CIP safety	-	-	SS1, SLS, SMS, SBC, GDL, CIP safety
Modbus, EtherNet/IP and Modbus TCP dual port	Modbus, BACnet, APOGEE FLN, METASYS N2	Modbus, Modbus TCP	Modbus, EtherNet/IP and Modbus TCP dual port
DeviceNet, PROFIBUS DP V1, PROFINET, CANopen, EtherCAT, POWERLINK	LonWorks	EtherNet/IP and Modbus TCP dual port, DeviceNet, CANopen, PROFIBUS DP V1, PROFINET	DeviceNet, PROFIBUS DP V1, PROFINET, CANopen, EtherCAT, POWERLINK

Note *Models for other international voltages and specialised applications are available. Please consult your local Schneider Electric representative.

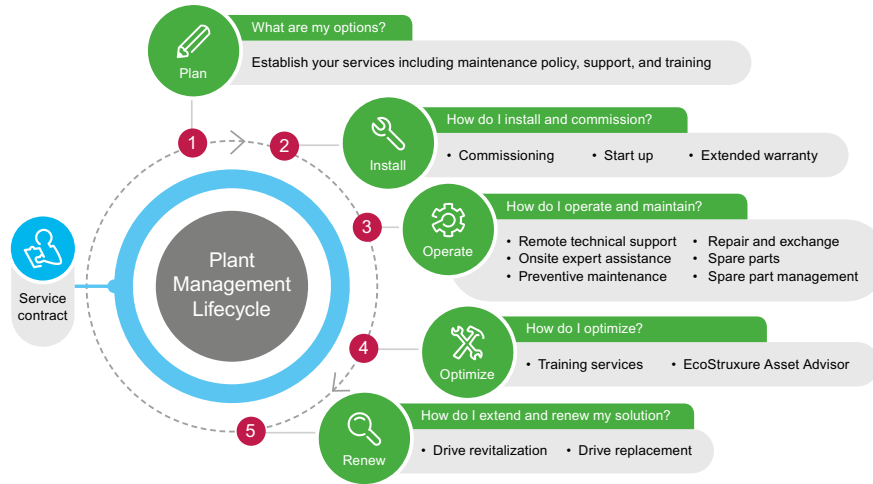
Services for drives



PDL Elite and Ultradrive Elite

Services and lifecycle support

Schneider Electric offers a comprehensive suite of services to assist you throughout the entire lifecycle of your drives installation. We continue to support our legacy PDL Electronics and Telemecanique branded ranges. From the planning stage, right through to renewal, you will find our team are dedicated to providing expert services that ensure the reliability of your plant, control maintenance costs, and keep your process running at peak performance for maximum efficiency.



Extended warranty plan

Warranty + is a tailored extended warranty plan that helps you manage your installation of selected Schneider Electric products. With plans from an additional 6 months up to a total of 5 years warranty, Warranty + helps you improve asset performance while reducing down time and operational costs.

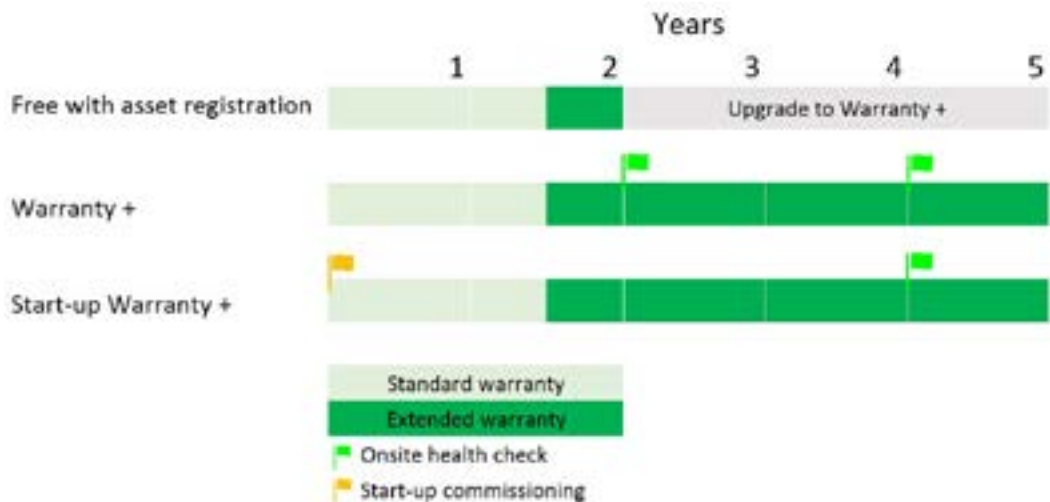
Our extended warranty plan is scalable to fit your business needs:

- > Free 6 months standard warranty extension by simply registering selected products
- > Warranty + with up to 5 years warranty on selected products with onsite asset health check
- > Start-up Warranty + with up to 5 years warranty on selected products with start-up commissioning and onsite asset health check

Warranty + with up to 5 years warranty is at additional cost and is currently available for Altivar Process variable speed drives. Refer to our 5 Year Warranty Terms and Conditions available on request. Warranty extension for other products is available on request. To benefit from manufacturer expertise at preferential service rates with Warranty +, please contact us today to discuss your requirements.

For free 6 month warranty extension visit:

se.com/nz/registermyassets





Product configurator available on se.com/nz

Soft starter for simple machines
For 1-ph and 3-ph motors up to 15kW (1)
Reduced voltage starting, built-in bypass relay.



ATSO1N103FT

Soft start only, 1-phase/3-phase supply voltage: 110-480V 50/60Hz

- > Controls 1 phase to limit the motor torque, soft start only
- > Rated at 20 starts/hr with a maximum start time of 5 sec or equivalent cycle (class 10)
- > For 1-ph connection, connect the GV2 breaker poles in series
- > For 3-ph connection, a line contactor is required to stop the motor
- > Requires an external control voltage (24Vdc or 230Vac)

H (mm)	W (mm)	D (mm)	230V 1-phase kW	400V 3-phase kW	In (A)	Associated motor C/B (2)	Reference
100	22.6	100	0.37	1.1	3	GV2P08	ATSO1N103FT
			0.75	2.2	6	GV2P10	ATSO1N106FT
124	45	130	1.1	4	9	GV2P14	ATSO1N109FT
			1.5	5.5	12	GV2P16	ATSO1N112FT
			2.2	11	25	GV2P22	ATSO1N125FT



ATSO1N206QN

Soft start/soft stop, 3-phase supply voltage: 380-415V 50/60Hz

- > Controls 2 phases to limit the motor torque, soft start and soft stop
- > 6A to 22A starters are rated for a max of 10 starts/hr, with a max start time of 10 sec or equivalent cycle (class 10). The 32A (15kW) starter is rated for 5 starts per hour.
- > For applications requiring controlled start and stop, divide the max possible number of starts/hr by 2
- > Control voltage supply built in to starter

H (mm)	W (mm)	D (mm)	400V 3-phase kW	In (A)	Associated motor C/B (2)	Reference
124	45	130	2.2	6	GV2P10	ATSO1N206QN
			4	9	GV2P14	ATSO1N209QN
			5.5	12	GV2P16	ATSO1N212QN
154	45	130	11	22	GV2P22	ATSO1N222QN
			15	32	GV2P32	ATSO1N232QN

Notes

- (1) May not be suitable for more demanding applications requiring extra protection features e.g. effluent pumps. Use an Altistart 22 for standard duty or Altistart 48 for severe duty applications.
- (2) MCB selected for the motor kW and 400V supply. A GV2ME●● may be used in place of the GV2P●●



Product configurator available on se.com/nz

Soft starters for 3-phase AC motors 7.5kW to 315kW
3-phase control, full protection features built in
Built in bypass contacts

Altistart 22 soft start/soft stop units



The Altistart 22 is a fully-featured range of compact soft start - soft stop soft units for AC motors in the power range 7.5kW to 315kW (400V supply). The range is suitable for all standard applications including:

- > pumps
- > conveyors
- > mixers
- > centrifugal machines
- > fans
- > compressors
- > refiners

Features:

- > Built in bypass contacts reduce heat loss, installation time, enclosure size and complexity
- > 3-phase control ensures optimum motor performance
- > Full protection features built-in
- > Conformal coated electronic cards for resistance to harsh environments
- > Built-in keypad and 4-digit LED display for simple set up without fiddly switches or dials
- > Modbus communication interface

Standard duty:

The nominal rating is for standard class 10 applications with the following duty cycles:

- > 3.5 In (350% nominal motor current) for 40sec from cold with S1 motor duty
- > 3.5 In for 20sec with S4 motor duty, based on a load factor of 90%, or an equivalent thermal cycle

Altistart 22 soft start/stop motor starter

Standard duty, in-line connection (1)

Motor power (2) kW	Nominal current IcL (3) A	IP rating	Required line contactor (4)	Power dissipation (5) W	Frame size	Reference
400V 3-ph supply 230...440V 50/60Hz, control supply 1-ph 220...230V 50/60Hz (6)						
7.5	17	IP20	LC1D18●●	39	1	ATS22D17Q
15	32	IP20	LC1D32●●	44	1	ATS22D32Q
22	47	IP20	LC1D50A●●	48	1	ATS22D47Q
30	62	IP20	LC1D65A●●	59	2	ATS22D62Q
37	75	IP20	LC1D80●●	63	2	ATS22D75Q
45	88	IP20	LC1D115●●	66	2	ATS22D88Q
55	110	IP20	LC1D115●●	73	3	ATS22C11Q
75	140	IP00	LC1F150●●	82	3	ATS22C14Q
90	170	IP00	LC1F185●●	91	3	ATS22C17Q
110	210	IP00	LC1F225●●	117	4	ATS22C21Q
132	250	IP00	LC1F265●●	129	4	ATS22C25Q
160	320	IP00	LC1F330●●	150	4	ATS22C32Q
220	410	IP00	LC1F400●●	177	4	ATS22C41Q
250	480	IP00	LC1F500●●	218	5	ATS22C48Q
315	590	IP00	LC1F630●●	251	5	ATS22C59Q

Refer to section P to complete the motor starter selection with co-ordinated circuit breaker and line contactor.

Dimensions and weight (7)

Frame size	Dimensions H x W x D mm	Weight kg
1	265 x 130 x 169	7
2	295 x 145 x 207	12
3	356 x 150 x 229	18
4	425 x 206 x 299	33
5	455 x 304 x 340	50

Notes

- (1) Inside delta (6-wire) connection also possible. Please consult the product catalogue and your local Schneider Electric representative.
- (2) Motor kW ratings for a 400V supply, in accordance with IEC/EN 60947-4-2, class 10 motor protection (standard application).
- (3) IcL refers to the maximum continuous current for the starter.
- (4) The line contactor has the following functions:
 - Disconnects the motor load under fault conditions
 - Provides isolation when the motor is not running
 - Increases the service life of the installation
 A circuit breaker with shunt trip can be used in place of a line contactor. Refer to the Altistart 22 installation manual (BBV51330) for recommended wiring diagrams, and to Section P for complete motor starter selection with co-ordinated circuit breaker and line contactor.
- (5) Steady state power dissipation at nominal current.
- (6) Models to suit other supply voltages are available.
- (7) Dimensions for the starter only, excluding options. Dimensions and weights are for the largest in the frame size.



ATS22D17Q



ATS22C11Q



ATS22C59Q

Altistart 22

Options



VW3G22400

Fans

Starters ATS22D17Q...C17Q (17A to 170A) can achieve a higher number of starts/hr with additional fan. The fan is foot-print mounted underneath the starter, adding 40mm to the overall depth. It is powered from the starter and has a noise level of less than 60dBA.

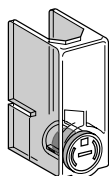
Description	For starter	Number of starts/hr *		Reference
		Without fan	With fan	
Heat sink fan	ATS22D17Q...D47Q	6	10	VW3G22400
	ATS22D62Q...D88Q	6	10	VW3G22401
	ATS22C11Q...C17Q	4	10	VW3G22402

* Based on 3.5 In (350% motor current) starting current for 20 sec, S4 motor duty. For applications requiring soft start and soft stop, divide the possible number of starts per hour by 2.

Wall mounting kit

Terminal box kit that allows the soft starter to be mounted on the wall while maintaining an IP21 enclosure rating. Cable glands and soft starter not included. Dimensions are of the final assembly, excluding optional fan for ATS22D17Q...C17Q (adds 40mm to depth).

Description	For starter	Dimensions	Reference
		H x W x D mm	
Wall mounting kit	ATS22D17Q...D47Q	479 x 130 x 169	VW3G22901NZ
	ATS22D62Q...D88Q	508 x 145 x 207	VW3G22902NZ
	ATS22C11Q...C17Q	542 x 151 x 230	VW3G22903NZ
	ATS22C21Q...C41Q	870 x 206 x 294	VW3G22904NZ
	ATS22C48Q...C59Q	934 x 304 x 340	VW3G22905NZ



LA9F702

Protective shrouds for power terminals

Covers the 6 unprotected power terminals on the ATS22C11Q...C59Q soft starters. To be used with cable lug terminals (eyelet connections).

Description	For starter	Reference
Set of 6 power terminal protection shrouds	ATS22C11Q...C17Q	LA9F702
	ATS22C21Q...C59Q	LA9F703



ABL6TS10U

Control supply isolating transformer

230...400V (+-15%) input, 230V output isolating transformer used to provide increased availability of the soft starter control power supply. Recommended for installations prone to voltage fluctuations and transients, such as rural networks. Can also be used to provide a 230V 1-ph control supply when no neutral connection is available. Refer to Phaseo power supplies in section M for additional ratings.

Description	For starter	Reference
Control isolating transformer	ATS22D17Q...C59Q	ABL6TS10U



VW3G22101

Remote display terminal

Description		Reference
Remote 4-digit LED display terminal	IP54	VW3G22101
	Panel mount, requires remote cable	VW3G22102
Remote display cable	1m	VW3A1104R10
	For connecting the remote LED display to the Altistart 22 Modbus port. Equipped with 2x RJ45 connectors	VW3A1104R30

Options



SoMove setup software

Configuration tools

Description	Reference
SoMove configuration software Free to download from www.schneider-electric.co.nz/somove	-
USB-Modbus RJ45 cable For connecting PC USB port to the starter.	TCSMCNAM3M002P



UPUMP1

Upump touch screen soft starter irrigation pump controller

Upump is the latest generation smart controller for soft starter irrigation pumps. With an animated, full colour touch screen, advanced protection and monitoring functions, plug-n-play functionality, Upump is all you need for pumping. Upump is also ready for web connectivity with a built in Ethernet port, web server and app for mobile devices.

Features:

- > Full colour graphical touch screen, IP65 rated
- > Simple one wire connection to ATS22 soft starter
- > 22mm hole mounting for touch screen
- > Comprehensive fault log with time stamp
- > Full suite of protection features
- > Real-time clock
- > Manual/Auto/Timed Run operating modes
- > Web ready with mobile app (1)

Connection to soft starter:

ATS22: via Modbus RJ45 cable (included). ATS48: via terminal wiring (not included).

Description	Reference
Upump with 3.5" touch screen Controller, 3.5" HMI and 3m connection lead for ATS22	UPUMP1
Upump with 5.7" touch screen Controller, 5.7" HMI and 3m connection lead for ATS22	UPUMP2
Accessories	
Remote mounting cable Allows the touch screen to be mounted separately to the Upump controller	3m 5m HMIZSURDP HMIZSURDP5
Power supply for controller Supply: 1-ph 230VAC Output: 24VDC, 75W	ABLS1A24031



Upump Air mobile app

Notes

- (1) Vijeo Designer Air app for iOS and Android devices is available at additional charge. Web connectivity requires local Wi-Fi or similar network.

Altivar Soft Starter ATS480

Soft starter for industrial processes and infrastructure

For 3-ph AC motors 4 to 900kW, 208 to 690V

High-performance soft start/stop motor starter featuring connectivity and cybersecurity

Direct replacement of ATS48



Presentation

Altivar Soft Starter ATS480 is the new range of soft starters from Schneider Electric designed to digitise the entire life cycle. Powered digitally by EcoStruxure™, ATS480 increases efficiency from selection to maintenance.

Altivar Soft Starter ATS480 had been designed to:

- > Respect cybersecurity requirements and usages according to the IEC 62443 standard
- > Meet the requirements of the most stringent applications in normal and heavy duty
- > Cover the operational voltage range from 208 to 690 V in a single product range up to 1200 A

Extend the service life of ATS48 equipment

ATS480 easily replaces ATS48:

- > Same footprint and fixings, I/O, parameters, and application behaviour
- > Keep the same devices, such as circuit breaker and contactors
- > Transfer an ATS48 configuration to the ATS480 using SoMove Converter

Make way for evolution

- > Connection to the main fieldbuses on the market, including Modbus TCP and Ethernet/IP
- > Firmware update of the product and options
- > Enhanced cybersecurity features
- > Increased robustness: coated boards to class 3C3/3S3, and a powerful combination with TeSys Deca and Giga



Selection criteria:

The soft starter is selected based on the following criteria:

- > Mains supply voltage
- > Motor power and current rating
- > Application duty type: Normal or Heavy duty

Select Normal or Heavy duty according to:

- > Motor service duty type: S1 continuous, or S4 intermittent
- > Service factor - number of starts per hour
- > Required starting current overload and duration

The duty type also corresponds to motor protection class:

- > Normal duty: Class 10E
- > Heavy duty: Class 20E

Service type	Overload (starting)		Service cycle	
	Overcurrent	Duration	No. of starts/h	Conduction
Normal duty				
S1	4 x In	23 s	Continuous operation after starting	
	3 x In	46 s		
S4	4 x In	12 s	10	50%
	3 x In	23 s		
Heavy duty				
S1	4 x In	48 s	Continuous operation after starting	
	3 x In	90 s		
S4	4 x In	25 s	5	50%

Replacement of ATS48 with ATS480

To select the ATS480 commercial reference corresponding to the ATS48 reference:

1. Replace the ATS48 product range with ATS480
2. Keep the same rating
3. Always put Y to represent the operational voltage

Example: ATS48D62Q becomes ATS480D62Y



Note: Check the control supply voltage before connecting ATS480! The maximum control supply for ATS480 is 230V!



Altivar Soft Starter ATS480

Soft starter for industrial processes and infrastructure
For 3-ph AC motors 4 to 900kW, 208 to 690V



ATS480D17Y



ATS480C21Y



ATS480M12Y

ATS480 IP20/IP00, in-line connection (1), without bypass (2)

Normal duty (3)		Heavy duty (3)		Recommended circuit breaker (4)	Power dissipation (5)	Frame size	Reference
Motor power	Nominal current	Motor power	Nominal current				
kW	A	kW	A	W			
400V 3-ph supply: 208...690V 50/60Hz, 230V 1-ph control supply: 110...230V 50/60Hz							
7.5	17	5.5	12	GV2L20	63	A	ATS480D17Y
11	22	7.5	17	GV2L22	79	A	ATS480D22Y
15	32	11	22	GV2L32	109	A	ATS480D32Y
18.5	38	15	32	GV3L40	121	A	ATS480D38Y
22	47	18.5	38	GV3L65	147	A	ATS480D47Y
30	62	22	47	GV3L65	206	B	ATS480D62Y
37	75	30	62	GV4L80N	250	B	ATS480D75Y
45	88	37	75	NSX100N MA	295	B	ATS480D88Y
55	110	45	88	NSX160N MA	327	B	ATS480C11Y
75	140	55	110	NSX160N MA	391	C	ATS480C14Y
90	170	75	140	NSX250N MA	484	C	ATS480C17Y
110	210	90	170	NSX250N MA	585	D	ATS480C21Y
132	250	110	210	NSX400N ML 1.3 M	700	D	ATS480C25Y
160	320	132	250	NSX400N ML 1.3 M	907	D	ATS480C32Y
220	410	160	320	NSX630H ML 1.3 M	1344	E	ATS480C41Y
250	480	220	410	NSX630H ML 1.3 M	1391	E	ATS480C48Y
315	590	250	480	NS630bH ML 5.0	1736	E	ATS480C59Y
355	660	315	590	NS800H ML 5.0	1963	E	ATS480C66Y
400	790	355	660	NS800H ML 5.0	2542	F	ATS480C79Y
500	1000	400	790	NS1000H ML 5.0	2870	F	ATS480M10Y
630	1200	500	1000	NS1250H ML 5.0	3497	F	ATS480M12Y

Dimensions and weight

Frame size	ATS480...	Dimensions H x W x D mm	Weight kg
A	D17Y...D47Y	275 x 160 x 203	4.9
B	D62Y...C11Y	290 x 190 x 247	8.3
C	C14Y...C17Y	340 x 200 x 272	12.4
D	C21Y...C32Y	380 x 320 x 277	18.2
E	C41Y...C66Y	670 x 400 x 314	51.4
F	C79Y...M12Y	890 x 770 x 329	115

Notes

- 1) 'Inside-delta' connection is also possible, please refer to the product catalogue for selection.
- 2) ATS480 is rated for continuous operation without bypass contactor for a maximum ambient temperature of 40°C without derating. With optional bypass the maximum ambient temperature increases to 50°C, or the ATS480 can be sized N+1 for a maximum ambient of 40°C. E.g. for an 11kW motor in Normal duty, select ATS480D17Y if bypassed and the current limit is in accordance with the starting requirement.
- 3) Ratings for standard 4-pole motor, 400V 50Hz supply. Refer to the product catalogue or online configurator for other supply voltage ratings.
- 4) Refer to Section P for complete circuit breaker and line contactor co-ordination information.
- 5) Total power dissipation at nominal load without bypass.

Altivar Soft Starter ATS480

Display and communication options



Components for panel mounting of basic display terminal



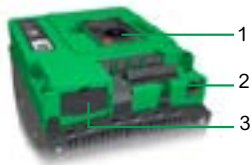
Components for panel mounting of graphic terminal

Remote display terminal

Description	Item number	Length m	Reference
Basic display terminal Supplied with ATS480. IP21, 2x line text, LCD display	1		VW3A1113
Basic display terminal mounting kit IP43, 22.5mm Ø hole mounting	2		VW3A1114
Remote display cable Equipped with 2x RJ45 connectors	3	1	VW3A1104R10
		3	VW3A1104R30
		5	VW3A1104R50
		10	VW3A1104R100
Graphic display terminal IP65, 240x160 pixels red/white backlight, QR code, USB storage	4		VW3A1111
Graphic display mounting kit IP65, 22.5mm Ø hole mounting	5		VW3A1112
USB A/mini-B USB cable For connecting graphic display to PC		3	TCSXCNAMUM3P

Configuration tools

Description	Reference
SoMove configuration software Free to download from www.se.com/nz/somove	-
Programming cable USB-Modbus RJ45 Connects PC USB port to the drive modbus port	TCSMCNAM3M002P
WIFI access point Portable battery powered WIFI access point (1)	TCSEGWB131W



ATS480 communication ports and option slot

Embedded I/O and communication ports

Inputs and Outputs:

- > 4x Digital Inputs
- > 1x Analogue Input for PTC or PT100 2- or 3-wire probe
- > 2x Digital Outputs
- > 3x Relay Outputs

Communication ports:

1. HMI communication port 1x RJ45
2. Modbus serial communication port 1x RJ45
3. Communication module slot x1

Communication cards



VW3A3720

Description	Connector type	Reference
Ethernet Modbus TCP and EtherNet/IP	2x RJ45	VW3A3720
PROFIBUS DP V1	SUB-D9	VW3A3607
PROFINET	2x RJ45	VW3A3647 (2)
CANopen RJ45 daisy-chain	2x RJ45	VW3A3608
CANopen with SUB-D9 connector	SUB-D9	VW3A3618
CANopen with terminal connector	Terminals	VW3A3628

Notes

- 1) Soft starter requires optional Ethernet communication module
- 2) PROFINET card scheduled for release in 2024.

Altivar Soft Starter ATS480

Options and accessories



ATS480C14Y with LA9F702 covers

Power terminal covers

Covers the unprotected power terminals on starters ATS480C14Y...C66Y. To be used with cable lug terminals (eyelets). Supplied in a pack of 6 covers.

Note these starters have 9 power terminals.

Description	For ATS480...	Reference
Terminal covers	C14Y...C17Y	LA9F702
Supplied in pack of 6 pcs	C21Y...C32Y	LA9F703
	C41Y...C66Y	LA9F704

IP20 wall mounting kit

Terminal boxes allowing soft starter to be mounted on the wall. Dimensions are for the final assembly.

Description	For ATS480...	Dimensions	Reference
		H x W x D mm	
IP20 wall mounting kit	D17Y...D47Y	435 x 160 x 203	ATSF1-S
	D62Y...C11Y	485 x 190 x 247	ATSF2-S
	C14Y, C17Y	570 x 200 x 272	ATSF3-S
	C21Y...C32Y	695 x 320 x 277	ATSF4-S
	C41Y...C66Y	1175 x 400 x 314	ATSF5-S

Line chokes

The use of line chokes is recommended in particular when installing several soft starters on the same line supply to limit low frequency interference that may affect low level loads. The inductance values are defined for a voltage drop between 3% and 5% of the nominal line voltage.

Install the line choke between the line contactor and the soft starter.



VZ1L150U170T

Description	For ATS480...	Line choke			Reference
		mH	A	IP	
Line chokes	D17Y	1.7	15	IP20	VZ1L015UM17T
	D22Y	0.8	30	IP20	VZ1L030U800T
	D32Y, D38Y	0.6	40	IP20	VZ1L040U600T
	D47Y, D62Y	0.35	70	IP20	VZ1L070U350T
	D75Y...C14Y	0.17	150	IP00	VZ1L150U170T
	C17Y...C25Y	0.1	250	IP00	VZ1L250U100T
	C32Y	0.075	325	IP00	VZ1L325U075T
	C41Y, C48Y	0.045	530	IP00	VZ1L530U045T
	C59Y...M10Y	0.024	1025	IP00	VZ1LM10U024T
	M12Y	0.016	1435	IP00	VZ1LM14U016T

Replacement parts (1)

Description	For ATS480...	Required Qty	Reference
Replacement fan kit	D32Y, D38Y	1	VZ3V481
	D47Y	1	VZ3V4811
	D62Y...C11Y	1	VZ3V482
	C14Y, C17Y	1	VZ3V483
	C21Y...C32Y	1	VZ3V484
	C41Y...C66Y	1	VZ3V485
	C79Y...M12Y	2	VZ3V485

Notes

1) Refer to Schneider Electric for all soft starter servicing needs.



Altivar 12

Variable speed drives

For 1-ph 230V supplies, 3-ph AC motors 0.18 to 2.2kW
 IP20 enclosure, conformal coating, open loop vector motor control
 Built in level C1 (residential) EMC RFI filter

Product configurator
 available on se.com/nz

Altivar 12 variable speed drives

The Altivar 12 variable speed drive is perfect for small machine applications for AC motors in the power range 0.18 to 2.2kW. Compact, high performance and user friendly, Altivar 12 will give your machines the competitive edge.

- > pumps
- > conveyors
- > mixers
- > automatic gates
- > fans
- > compressors
- > materials handling
- > portable machines

Features:

- > Integrated Category 1 EMC line filter for simple integration in residential environments (5)
- > Conformal coated electronic cards for resistance to harsh environments
- > Can be configured in complete safety with the power off, even in its packaging!
- > High performance Sensorless Flux Vector motor control
- > Modbus communication interface



Small
 Intuitive
 Reliable
 High-
 performance

Altivar 12



ATV12H037M2



ATV12HU22M2

Motor power (1)	Nominal output current (2)	Max. output current for 60sec (2)	Max. line current (3)	Dimensions (5)	Reference
kW	A	A	A	H x W x D mm	
230V 1-ph supply, 50/60Hz, integrated EMC filter (4), IP20					
0.18	1.4	2.1	2.8	143 x 72 x 103	ATV12H018M2
0.37	2.4	3.6	4.9	143 x 72 x 122	ATV12H037M2
0.55	3.5	5.3	6.7	143 x 72 x 132	ATV12H055M2
0.75	4.2	6.3	8.5	143 x 72 x 132	ATV12H075M2
1.5	7.5	11.2	14.9	143 x 105 x 157	ATV12HU15M2
2.2	10	15	20.2	143 x 105 x 157	ATV12HU22M2

Models also available:

- > 1-ph supply: 100...120V, 3-ph 230V 0.18...0.75kW
- > 3-ph supply: 200...240V, 0.18...4kW
- > Version for baseplate mounting: 0.18...4kW

Accessories

Description	For drives		Reference
	kW	ATV12H...	
DIN rail mounting plate	0.18...0.75	075M2...H075M2	VW3A9804
Mounts on a 35mm rail	1.5, 2.2	U15M2, HU22M2	VW3A9805
EMC kit	0.18...0.75	075M2...H075M2	VW3A9523
Includes EMC plate and clamps	1.5, 2.2	U15M2, HU22M2	VW3A9524
Remote speed potentiometer			SZ1RV1202
2.2kΩ, with dial and knob			

Notes

- (1) Typical ratings for a standard AC 3-phase 4-pole motor, 230V supply, at nominal switching frequency, for an ambient temperature of up to 50°C.
- (2) Maximum continuous output current for a nominal switching frequency of 4kHz. Typical overload of 150% nominal output current for 60sec.
- (3) Typical line current at nominal output current, from a 240V supply with a max. prospective line Isc of 1kA.
- (4) Integrated EMC filter for IEC/EN61800-3 category C1 (residential). Additional EMC filters for extended motor cable lengths, and an EMC plate kit are available.
- (5) Dimensions for drive only, excluding EMC plate and accessories.

Altivar 12

Options



VW3A1006

Remote display terminal

Description		Reference
Remote LED display terminal	IP54	VW3A1006
Panel mount, requires remote cable	IP65	VW3A1007
Remote display cable	1m	VW3A1104R10
For connecting remote LED display to the drive	3m	VW3A1104R30



SoMove software

Configuration tools

Description	Reference
SoMove configuration software Free to download from www.schneider-electric.co.nz/somove	–
USB-Modbus RJ45 cable Connects PC USB port to the drive, 2.5m	TCSMCNAM3M002P
Simple Loader tool Duplicates configurations from one drive to another	VW3A8120
Multi-Loader tool Upload/download drive configurations to/from drives and a PC. ATV12 drives do not have to be powered	VW3A8121
Multi-Loader cable Cable with non-locking connector to connect Multi-loader to ATV12 drive still in its packaging	VW3A8126



Altivar 12 configured in packaging with Multi-loader tool

Additional EMC input filter

Extends the maximum permitted motor cable length while maintaining EMC compliance. Refer to the Altivar 12 product catalogue.

Description	For drives		Reference
	kW	ATV12H...	
Additional EMC input filter	0.18...0.75	018M2...075M2	VW3A4416
	1.5, 2.2	U15M2, U22M2	VW3A4417



ATV12H075M2 with additional EMC filter and EMC conformity kit

Replacement fan

Description	For drives		Reference
	kW	ATV12H...	
Replacement fan	1.5, 2.2	U15M2, U22M2	VZ3V1301

Altivar Machine ATV320

Variable speed drives for simple to advanced machines

For 3-ph motors 0.18 to 15kW

IP20 Compact, Book, and IP6x versions to suit the machine enclosure

Safety functions, advanced connectivity, resistant to harsh environments



Altivar 320 Compact



Altivar 320 Book



Altivar 320 IP6x

Altivar 320 sets the new standard for machine performance

What if one drive model could put all of your machines on the leading edge of the industry? What if that model was easy to install and integrate into automation architectures, regardless of cabinet layout or network system?

Altivar 320, part of the new Altivar™ Machine range, is that drive (0.18kW...15kW). Its powerful combination of safety, reliability, and simplicity make it a versatile choice that reduces costs both during installation as well as throughout the machine's life cycle.

Altivar 320 has a number of out-of-the-box features for building more effective machines at optimised build costs, including:

Unprecedented flexibility

- > Simplified installation thanks to the availability of two IP20 form factors, Compact and Book, that allow efficient space usage in various cabinet layouts despite mechanical constraints.
- > New IP6x version with customisable enclosure for harsh environmental conditions.
- > ATV Logic programming allows the drive to perform simple machine control functions without the need for additional devices.

Improved machine performance

- > Reliable motor control for asynchronous and synchronous motors, delivering leading-edge performance with simple, plug-and-play commissioning.

Extended machine availability

- > Continuous machine operation as a result of robust design. Printed circuit boards are coated to class 3C3 in accordance with IEC 61721-3-3 to protect against corrosion in harsh environments, and the drive can provide uninterrupted operation in ambient temperatures of up to 60°C.

Optimal machine safety

- > Comprehensive embedded safety solutions from STO (Safe Torque Off) to advanced safety functions*, compliant with Machinery Directive 2006/42/EC, allow simplified safety integration and machinery certification.

* SS1: Safe Stop 1

SLS: Safe Limited Speed

SMS: Safe Maximum Speed

GDL: Guard Door Locking

Typical applications

- > Materials handling: conveyors, turntables...
- > Packing and packaging machines: bagging, labelling, carton packers...
- > Textile machines: looms, knitting, web cutters...
- > Hoisting: travelling, pick and place, industrial elevators, gantry cranes (open loop)...
- > Mechanical actuators: pumps, fans, compressors...
- > Wood and metal working machines: saws, planers, benders, welders, grinders, presses...
- > Other machines: mixers, kneaders, effluent pumps etc.





Altivar Machine ATV320

Variable speed drives for simple to advanced machines
For 3-ph motors 0.18 to 15kW

IP20 Compact version

Safety functions, advanced connectivity, ATV Logic programmable

Product configurator available on se.com/nz



ATV320U04M2C



ATV320U04N4C



ATV320U22N4C



ATV320U75N4C

ATV320 Compact IP20 0.18...15kW

Motor power (1)	Nominal output current (2)	Max. output current for 60sec (2)	Recommended circuit breaker (3)	Power dissipation (2)	Frame size	Reference
kW	A	A		W		
230V 1-ph supply 200...240V, 50/60Hz, integrated EMC filter (4), IP20						
0.18	1.5	2.3	GV2L08	22	1C	ATV320U02M2C
0.37	3.3	5	GV2L10	32	1C	ATV320U04M2C
0.55	3.7	5.6	GV2L14	42	1C	ATV320U06M2C
0.75	4.8	7.2	GV2L16	48	1C	ATV320U07M2C
1.1	6.9	10.4	GV2L16	66	2C	ATV320U11M2C
1.5	8	12	GV2L20	82	2C	ATV320U15M2C
2.2	11	16.5	GV2L22	110	2C	ATV320U22M2C
400V 3-ph supply 380...500V, 50/60Hz, integrated EMC filter (4), IP20						
0.37	1.5	2.3	GV2L07	28	2C	ATV320U04N4C
0.55	1.9	2.9	GV2L08	33	2C	ATV320U06N4C
0.75	2.3	3.5	GV2L08	38	2C	ATV320U07N4C
1.1	3	4.5	GV2L10	47	2C	ATV320U11N4C
1.5	4.1	6.2	GV2L14	61	2C	ATV320U15N4C
2.2	5.5	8.3	GV2L14	76	3C	ATV320U22N4C
3	7.1	10.7	GV2L16	94	3C	ATV320U30N4C
4	9.5	14.3	GV2L16	112	3C	ATV320U40N4C
5.5	14.3	21.5	GV2L22	232	4C	ATV320U55N4C
7.5	17	25.5	GV3L32	262	4C	ATV320U75N4C
11	27.7	41.6	GV3L40	398	5C	ATV320D11N4C
15	33	49.5	GV3L50	475	5C	ATV320D15N4C

Models also available:

- > 230V 3-ph supply: 200...240V, 50/60Hz, 0.18...15kW
- > 600V 3-ph supply: 525...600V, 50/60Hz, 0.75...15kW

Dimensions and weight (5)

Frame size	Dimensions H x W x D mm	Weight kg
1C	143 x 72 x 138	1.1
2C	142 x 105 x 158	1.6
3C	184 x 140 x 158	2.2
4C	232 x 150 x 178	3.6
5C	330 x 180 x 198	6.9

Notes

- (1) Typical ratings for a standard 3-phase AC 4-pole motor, 230V or 400V supply, at nominal switching frequency, for an ambient temperature of up to 50°C
- (2) Maximum continuous output current for a nominal switching frequency of 4kHz. Typical overload of 150% nominal output current for 60 sec
- (3) Refer to section P for complete circuit breaker and contactor co-ordination information
- (4) Integrated category C2/C3 EMC filter according to IEC/EN61800-3
- (5) Dimensions exclude EMC plate. Dimensions and weights are for the largest in the frame size



Altivar Machine ATV320

Variable speed drives for simple to advanced machines
For 3-ph motors 0.18 to 15kW

IP20 Book version

Safety functions, advanced connectivity, ATV Logic programmable

Product configurator
available on se.com/nz



ATV320U02M2B



ATV320U55N4B



ATV320D11N4B

ATV320 Book IP20 0.18...15kW

Motor power (1)	Nominal output current (2)	Max. output current for 60sec (2)	Recommended circuit breaker (3)	Power dissipation (2)	Frame size	Reference
kW	A	A		W		
230V 1-ph supply 200...240, 50/60Hz, integrated EMC filter (4), IP20						
0.18	1.5	2.3	GV2L08	25	1B	ATV320U02M2B
0.37	3.3	5	GV2L10	38	1B	ATV320U04M2B
0.55	3.7	5.6	GV2L14	42	1B	ATV320U06M2B
0.75	4.8	7.2	GV2L16	51	1B	ATV320U07M2B
1.1	6.9	10.4	GV2L16	64	2B	ATV320U11M2B
1.5	8	12	GV2L20	81	2B	ATV320U15M2B
2.2	11	16.5	GV2L22	102	2B	ATV320U22M2B
400V 3-ph supply 380...500, 50/60Hz, integrated EMC filter (4), IP20						
0.37	1.5	2.3	GV2L07	27	1B	ATV320U04N4B
0.55	1.9	2.9	GV2L08	31	1B	ATV320U06N4B
0.75	2.3	3.5	GV2L08	37	1B	ATV320U07N4B
1.1	3	4.5	GV2L10	50	1B	ATV320U11N4B
1.5	4.1	6.2	GV2L14	63	1B	ATV320U15N4B
2.2	5.5	8.3	GV2L14	78	2B	ATV320U22N4B
3	7.1	10.7	GV2L16	100	2B	ATV320U30N4B
4	9.5	14.3	GV2L16	125	2B	ATV320U40N4B
5.5	14.3	21.5	GV2L22	233	3B	ATV320U55N4B
7.5	17	25.5	GV3L32	263	3B	ATV320U75N4B
11	27.7	41.6	GV3L40	403	4B	ATV320D11N4B
15	33	49.5	GV3L50	480	4B	ATV320D15N4B

Dimensions and weight (5)

Frame size	Dimensions	Weight
	H x W x D mm	kg
1B	317 x 45 x 245	2.5
2B	317 x 60 x 245	3
3B	232 x 150 x 232	7.5
4B	330 x 180 x 232	8.8

Notes

- (1) Typical ratings for a standard 3-phase AC 4-pole motor, 230V or 400V supply, at nominal switching frequency, for an ambient temperature of up to 50°C.
- (2) Maximum continuous output current for a nominal switching frequency of 4kHz. Typical overload of 150% nominal output current for 60 sec.
- (3) Refer to section P for complete circuit breaker and contactor co-ordination information.
- (4) Integrated category C2/C3 EMC filter according to IEC/EN61800-3
- (5) Dimensions exclude EMC plate for ATV320U55N4B...D15N4B. Dimensions and weights are for the largest in the frame size.

Altivar Machine ATV320

Variable speed drives for simple to advanced machines

For 3-ph motors 0.18 to 7.5kW

IP66 version without mains switch (4)

Customisable enclosure, resistant to harsh environments

Product configurator
available on se.com/nz

ATV320 IP66 0.18...7.5kW

Motor power (1)	Nominal output current (2)	Max. output current for 60sec (2)	Recommended circuit breaker (3)	Power dissipation (2)	Frame size	Reference (4)
kW	A	A		W		
230V 1-ph supply 200...240, 50/60Hz, integrated EMC filter (5), IP66						
0.18	1.5	2.3	GV2L08	22	1W	ATV320U02M2W
0.37	3.3	5	GV2L10	32	1W	ATV320U04M2W
0.55	3.7	5.6	GV2L14	42	1W	ATV320U06M2W
0.75	4.8	7.2	GV2L16	48	1W	ATV320U07M2W
1.1	6.9	10.4	GV2L16	66	3W	ATV320U11M2W
1.5	8	12	GV2L20	82	3W	ATV320U15M2W
2.2	11	16.5	GV2L22	110	3W	ATV320U22M2W
400V 3-ph supply 380...500, 50/60Hz, integrated EMC filter (5), IP66						
0.37	1.5	2.3	GV2L07	28	2W	ATV320U04N4W
0.55	1.9	2.9	GV2L08	33	2W	ATV320U06N4W
0.75	2.3	3.5	GV2L08	38	2W	ATV320U07N4W
1.1	3	4.5	GV2L10	47	2W	ATV320U11N4W
1.5	4.1	6.2	GV2L14	61	2W	ATV320U15N4W
2.2	5.5	8.3	GV2L14	76	3W	ATV320U22N4W
3	7.1	10.7	GV2L16	94	3W	ATV320U30N4W
4	9.5	14.3	GV2L16	112	3W	ATV320U40N4W
5.5	14.3	21.5	GV2L22	233	4W	ATV320U55N4W
7.5	17	25.5	GV3L32	263	4W	ATV320U75N4W
EMC plate with cable clamps (5)					1W	VW3A9535
					2W	
					3W	
					4W	VW3A9536



ATV320U07M2W



ATV320U22N4WS IP65
version with mains switch



ATV320U75N4W



ATV320 IP6x customised
with local controls

Dimensions and weight (6)

Frame size	Dimensions H x W x D mm	Weight kg
1W	340 x 250 x 182	5.5
2W	340 x 250 x 200	6.4
3W	340 x 250 x 235	8.2
4W	521 x 320 x 300	22

Customised local control & signalling

Altivar Machine ATV320 IP6x can be customised to your application using Harmony™ 22mm control and signalling devices. There is space for 2x 22mm devices such as push buttons, switches, potentiometer, E-stop, signal lights etc, to be installed by the customer. Some examples are listed below, additional parts required, refer to section J to complete the control and signalling offer. Note that the IP rating of the installed devices impacts the overall IP rating of the drive.

Description	Reference
Double headed push button green "I" red "O" with central pilot light, IP66	ZB5AW7L3741
Triple headed push button white "↑", white "↓", projecting red "STOP", IP66	ZB5AA71114
3 position selector switch stay put, IP69	ZB5AD3
Potentiometer 4.7kΩ single turn, IP66	XB5AD912R4K7
Emergency stop push button, illuminated, with monitoring contacts, IP65	XB5AS86449B4
Graphic display terminal, IP65 (7)	VW3A1111
Remote mounting kit for graphic display terminal	VW3A1112

Notes

- (1) Typical ratings for a standard 3-phase AC 4-pole motor, 230V or 400V supply, at nominal switching frequency, for an ambient temperature of up to 40°C.
- (2) Maximum continuous output current for a nominal switching frequency of 4kHz. Typical overload of 150% nominal output current for 60 sec.
- (3) Refer to section P for complete circuit breaker and contactor co-ordination information.
- (4) Add 'S' to end of reference for IP65 version with mains switch.
- (5) Integrated category C2/C3 EMC filter according to IEC/EN61800-3. Use EMC plate, or metal gland plate with EMC glands for EMC compliant installation.
- (6) Dimensions and weights are for the largest in the frame size, and exclude IP65 version with mains switch.
- (7) Graphic display covers both 22mm holes when mounted on the front panel of ATV320 IP6x.

Altivar Machine ATV320

Accessories



Direct mounting of GV2 on ATV320B

Accessories for ATV320 Book

Description	For drive	Reference
	ATV320...	
Circuit breaker bracket	U02M2B...U22M2B U04N4B...U40N4B	VW3A9921
For direct mounting of GV2 breaker. Min. order qty 10pcs. Requires a GV2AF5		
Circuit breaker adaptor	U02M2B...U22M2B U04N4B...U40N4B	GV2AF5
Adaptor for direct mounting of GV2 breaker		
Control module 90° adaptor	U02M2B...U22M2B U04N4B...U40N4B	VW3A9920
Mounts the control module at 90° when drive is side mounted		
Components for daisy-chain connection of DC bus (1)	DC bus connection kit 0.1m, 5 pcs	VW3M7101R01
	DC bus cable 15m	VW3M7102R150
	U02M2B...U22M2B U04N4B...U40N4B	
	Connectors for VW3M7102R150, 10 pcs	VW3M2207
Terminal box kit	U55N4B, U75N4B D11N4B, D15N4B	VW3A95817 VW3A95819
Allows wall mounting of drive to IP20		



Several ATV320B drives with GV2 circuit breakers directly mounted

Accessories for ATV320 Compact

Description	For drive	Reference
	ATV320...	
DIN rail mounting kit	U02M2C...U07M2C U11M2C...U22M2C U04N4C...U15N4C	VW3A9804 VW3A9805
Kit to mount drive on a 35mm DIN rail		
Terminal box kit	U02M2C...U07M2C	VW3A95811
	U11M2C...U22M2C	VW3A95812
	U04N4C...U15N4C	
	U22N4C...U40N4C	VW3A95814
	U55N4C, U75N4C	VW3A95816
Allows wall mounting of drive to IP20	D11N4C, D15N4C	VW3A95818
Option module adaptor	ATV320C/W	VW3A3600



VW3A95811

Accessories for ATV320 IP6x

Description	For drive	Reference
	ATV320...	
Circuit breaker mounting plate	02M2W...U22M2W 04N4W...U75N4W	VW3A9922
For mounting GV2 breaker within the ATV320 IP6x enclosure. GV2 extended rotary handle to be ordered separately.		
GV2 extended rotary handle	U02M2W...U22M2W U04N4W...U40N4W U55N4W...U75N4W	GVAPB65S GV2APN03
	U02M2W...U22M2W U04N4W...U40N4W U55N4W...U75N4W	VW3A9535 VW3A9536
EMC plate		
Metal plate with clamps for EMC compliant installation		
Metal gland plate	U02M2W...U22M2W U04N4W...U40N4W	VW3A9911
	U55N4W...U75N4W	VW3A9912
Metal gland plate (undrilled) for use with metal EMC glands (not supplied)		
Option module adaptor	ATV320C/W	VW3A3600



VW3A9535

Control accessories (2)

Description	Reference
Speed reference potentiometer IP20	SZ1RV1202
2.2kΩ, with dial and knob	
Speed reference potentiometer IP69 (2)	XB4 metal head
	XB5 plastic head
4.7kΩ Harmony Ø22 mounting with head and base	XB4BD912R4K7 XB5AD912R4K7



XB4BD912R4K7

Notes

- (1) DC bus sharing requires specific installation and set up parameters. Please refer to the product installation manual.
- (2) Refer to section J for our complete range of control and signalling devices.

Altivar Machine ATV320

Remote display and configuration options



VW3A1007



Components for panel mounting of graphic terminal



Download the configuration to the ATV320, even in it's packaging!

Remote display terminal

Description	Item number	Reference
Remote LED display terminal Panel mounted, requires cable (3m max.)	–	IP54 IP65 VW3A1006 VW3A1007
Remote graphic display terminal 240x160 pixels, plain text, IP65. Requires cable and remote mounting kit	1	VW3A1111
Remote mounting kit IP65, 22.5mm Ø hole mounting	2	VW3A1112
Remote display cable Equipped with 2x RJ45 connectors	3	1m 3m 5m 10m VW3A1104R10 VW3A1104R30 VW3A1104R50 VW3A1104R100
USB A/mini-B USB cable For connecting graphic display terminal to PC		TCSXCNAMUM3P

Configuration tools

Description	Reference
SoMove configuration software Free to download from www.se.com/nz/somove	–
USB-Modbus RJ45 cable Connects PC USB port to the drive	TCSMCNAM3M002P
Simple Loader configuration tool Duplicates configurations from one drive to another	VW3A8120
Multi-loader configuration tool Upload/download drive configurations to/from drives and a PC. ATV320 drives do not have to be powered	VW3A8121
Multi-loader connection cable Cable with non-locking connector to connect Multi-loader to ATV320 drive still in its packaging	VW3A8126

Replacement parts

Description	For drive	Reference		
Replacement fan	ATV320C	U11M2C...U22M2C U04N4C...U15N4C U22N4C...U40N4C	VZ3V303S2001 VZ3V303S3001	
		ATV320B	U02M2B...U07M2B U04N4B...U15N4B U11M2B...U22M2B U22N4B...U40N4B U55N4B, U75N4B	VZ3V32A100 VZ3V32B100 VZ3V32C100
			D11N4B, D15N4B	VZ3V32D100
	ATV320W		U11M2W...U22M2W U04N4W...U15N4W U22N4W...U40N4W U55N4W, U75N4W	VZ3V32066S2 VZ3V32066S3 VZ3V32066S4
		Replacement internal fan		

Altivar Machine ATV320

Communication options and accessories

Communication options and accessories

Altivar 320 drives include Modbus serial and CANopen interfaces available on the single RJ45 port. One additional communication card can be installed to interface to a range of fieldbuses.



Assembly of an ATV320C, option module adaptor, and a communication card

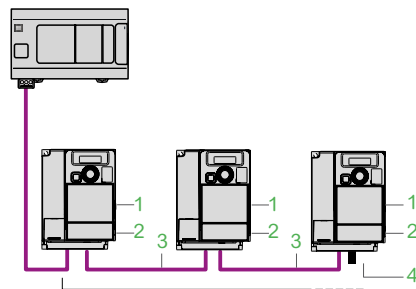


Assembly of an ATV320B and a communication card



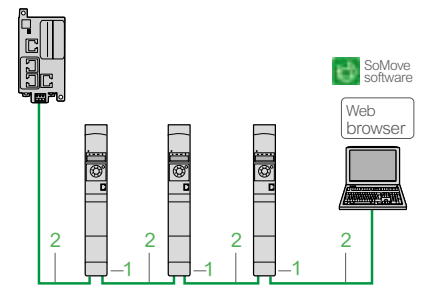
VW3A3608

Description	Connector type	Length m	Reference		
Compact option module adaptor Option card support for ATV320C and ATV320W drives	-	-	VW3A3600		
Speed monitoring card (1) Detects undesirable load slip via a motor encoder. Recommended for hoisting applications.	Terminals	-	VW3A3620		
Communication cards (1)	CANopen RJ45 daisy-chain	2x RJ45	-	VW3A3608	
	CANopen via SUB-D9	SUB-D9	-	VW3A3618	
	CANopen via terminals	Terminals	-	VW3A3628	
	DeviceNet	Terminals	-	VW3A3609	
	EtherCAT	2x RJ45	-	VW3A3601	
	Ethernet Modbus TCP and Ethernet/IP	2x RJ45	-	VW3A3616	
	POWERLINK	2x RJ45	-	VW3A3619	
	PROFIBUS DP V1	SUB-D9	-	VW3A3607	
Modbus serial accessories	Modbus cable	RJ45	0.3	VW3A8306R03	
			1	VW3A8306R10	
			3	VW3A8306R30	
	Modbus tap	RJ45	0.3	VW3A8306TF03	
			1	VW3A8306TF10	
	Modbus 10 way splitter hub	RJ45	-	LU9GC3	
	2x Modbus RC line terminators	RJ45	-	VW3A8306D30	
	Modbus tap	Terminals	-	TSXSCA50	
	Modbus cable	-	100	TSXCSEA100	
	2x Modbus RC line terminators	Terminals	-	VW3A8306DRC	
	CANopen accessories	CANopen cable	RJ45	0.3	VW3CANCARR03
				1	VW3CANCARR1
2x CANopen line terminators		RJ45	-	TCSCAR013M120	
CANopen connector		SUB-D9	-	TSXCANKCDF180T	
CANopen cable standard		-	50	TSXCANCA50	
			100	TSXCANCA100	
			300	TSXCANCA300	
2x CANopen line terminators		Terminals	-	TCSCAR01NM120	
CANopen junction box		2x RJ45	-	VW3CANTAP2	
		2x Terminals	-		
Ethernet accessories (2)	Ethernet ConneXium cable Cat 5 STP	RJ45	2	490NTW00002	
			5	490NTW00005	
			12	490NTW00012	



Example CANopen daisy-chain RJ45 network with ATV320C and components:

- 1 VW3A3600
- 2 VW3A3608
- 3 VW3CANCARR03
- 4 TCSCAR013M120



Example Ethernet/IP daisy-chain RJ45 network with ATV320B and components:

- 1 VW3A3616
- 2 490NTW00002

Notes

- (1) Only one option card can be installed at a time.
- (2) Refer to Section N for ConneXium Ethernet switches and accessories.

Altivar Machine ATV320

Braking and filter options

Braking resistors

For applications requiring rapid deceleration or controlled stopping of high inertia or vertical loads. The braking energy is dissipated by the braking resistor.



VW3A7730



VW3A7608R●●

Description	Supply Voltage	For drives kW	ATV320...	Resistor size (1)	Cable m	Reference
Braking resistor IP20	230V 1-ph	0.18, 0.37	U02M2, U04M2	100Ω, 100W	-	VW3A7730
		0.55...1.5	U06M2...U15M2	60Ω, 160W	-	VW3A7731
		2.2	U22M2	28Ω, 300W	-	VW3A7732
	400V 3-ph	0.37...3	U04N4...U30N4	100Ω, 100W	-	VW3A7730
		4, 5.5	U40N4, U55N4	60Ω, 160W	-	VW3A7731
		7.5, 11	U75N4, D11N4	28Ω, 300W	-	VW3A7732
15		D15N4	16Ω, 960W	-	VW3A7733	
Braking resistor IP65	230V 1-ph	0.18...0.75	U02M2...U07M2	100Ω, 25W	0.75	VW3A7608R07
					3	VW3A7608R30
		1.1, 1.5	U11M2, U15M2	72Ω, 25W	0.75	VW3A7605R07
					3	VW3A7605R30
		2.2	U22M2	27Ω, 50W	0.75	VW3A7603R07
					3	VW3A7603R30
	400V 3-ph	0.37...2.2	U04N4...U22N4	100Ω, 25W	0.75	VW3A7608R07
					3	VW3A7608R30
		3, 4	U30N4, U40N4	72Ω, 50W	0.75	VW3A7606R07
					3	VW3A7606R30
		5.5, 7.5	U55N4, U75N4	27Ω, 100W	0.75	VW3A7604R07
					3	VW3A7604R30

Regenerative braking units

Regenerative braking units direct energy to the grid during braking cycles, reducing heat dissipation and improving energy efficiency compared to braking resistors. Up to three regenerative units can be connected in parallel depending on the required braking power. One or several drives can be connected via the DC bus to the braking unit. Refer to the product manual, sizing tool, and contact Schneider Electric for application advice.



ATVRU75N4

Description	Supply Voltage	kW	Reference
Regenerative braking unit IP20	400V 3-ph	7.5kW	ATVRU75N4
		15kW	ATVRD15N4

Additional EMC input filter

Reduces conducted high frequency emissions on the mains supply in accordance to IEC/EN 61800-3 for category C1 (residential), C2 (residential restricted), or C3 (industrial), depending on the motor cable length. Refer to the product catalogue for maximum cable lengths for each category.



ATV320U04N4B + VW3A4422



ATV320U55N4B + VW3A4424

Description	Supply Voltage	For drives (2)	kW	ATV320...	Reference
Additional EMC input filter IP20	230V 1-ph	ATV320C	0.18...0.75	U02M2C...U07M2C	VW3A31401
			1.1, 1.5	U11M2C, U15M2C	VW3A31403
			2.2	U22M2C	VW3A31405
		ATV320B	0.18...0.75	U02M2B...U07M2B	VW3A4420
			1.1, 1.5	U11M2B, U15M2B	VW3A4421
			2.2	U22M2B	VW3A4426
	400V 3-ph	ATV320C	0.37...1.5	U04N4C...U15N4C	VW3A31404
			2.2...4	U22N4C...U40N4C	VW3A31406
			ATV320B	0.37...4	U04N4B...U40N4B
			5.5, 7.5	U55N4B, U75N4B	VW3A4424
			11, 15	D11N4B, D15N4B	VW3A4425

Notes

(1) Average braking resistor power corresponds to a maximum ambient temperature of 50°C and the following load factors:

- 2 s braking with 60% T_n braking torque for a 40 s cycle
- 0.8 s braking with 150% T_n braking torque for a 40 s cycle

(2) When used with IP6x drives, the EMC filter will have to be mounted inside a separate enclosure of a suitable IP rating for the installation.

Altivar Machine ATV320

Filter options



VW3A4553

Line chokes

Reduces harmonics and RMS line current, helps protect drive from line disturbances. Recommended when the supply I_{sc} is greater than the maximum I_{sc} of the drive. Refer to product catalogue.

Description	Supply Voltage	For drives (1)		Reference
		kW	ATV320...	
Line Choke IP00	230V 1-ph	0.18, 0.37	U02M2, U04M2	VZ1L004M010
		0.55, 0.75	U06M2, U07M2	VZ1L007UM50
		1.1...2.2	U11M2...U22M2	VZ1L018UM20
	400V 3-ph	0.37...1.5	U04N4...U15N4	VW3A4551
		2.2...4	U22N4...U40N4	VW3A4552
		5.5, 7.5	U55N4, U75N4	VW3A4553
		11, 15	D11N4, D15N4	VW3A4554

Output filters

Limits dV/dt and peak voltage at the motor terminals for screened motor cables up to 100m. Helps protect motor insulation for non-inverter rated motors. Refer to product catalogue.

Description	Supply Voltage	For drives (1)		Reference
		kW	ATV320...	
Motor dV/dt choke IP00	230V 1-ph	0.18...1.5	U02M2...U15M2	VW3A4552
		2.2	U22M2	VW3A4553
	400V 3-ph	0.37...4	U04N4...U40N4	VW3A4552
		5.5	U55N4	VW3A4553
		7.5, 11	U75N4, D11N4	VW3A4554
		15	D15N4	VW3A4555

Notes

(1) When used with IP6x drives, the choke/filter will have to be mounted inside a separate enclosure of a suitable IP rating for the installation.

Altivar 340

Variable speed drives for high performance machines
For 3 phase motors 0.75kW to 75kW
Precision motor control in open or closed loop
Embedded Ethernet connectivity

Product configurator
available on se.com/nz

Increase the effectiveness of your machines

Achieve next level performance with
Altivar Machine ATV340



With advanced connectivity and precision control to excel in today's sophisticated automation architectures, Altivar™ Machine ATV340 offers high performance while reducing total machine costs.

- > **Improved performance** with asynchronous, synchronous, servo and reluctance motors with open or closed loop precision
- > **Real time communication** with embedded Ethernet and support of a variety of communication protocols
- > **Reliability and robustness** with coated circuit boards to 3C3 and the ability to operate in high ambient temperatures
- > **Fast integration** with PLCopen compliance and reduced engineering time using Schneider Electric's MachineStruxure™ automation solutions.

Contact your local Schneider Electric representative to discuss your high performance machine application today.

Altivar 212

Variable speed drives for HVAC* applications in buildings

For 3-ph AC motors 0.75kW to 75kW

IP21 and IP55 versions, integrated reduced harmonics technology

Built in EMC filter, building communication protocols, HVAC application functions

Product configurator
available on se.com/nz



The new generation
of dedicated HVAC drives

Altivar 212 variable speed drives for HVAC*

Every aspect of the Altivar 212 range of variable speed drives has been designed to optimise the performance of pump and fan motors in the buildings environment!

- > Embedded BMS (building management system) communication protocols allow access to control, status, and monitoring information
- > Anti-harmonic technology (THDi ~30%) reduces RMS current draw while improving efficiency and extending equipment life
- > Built in HVAC functions including PID controller, fire mode, damper control, sleep/wakeup, skip frequencies etc
- > IP21 and IP55 versions available, both with conformal coating to resist harsh environmental conditions

Contact your local Schneider Electric representative to discuss your HVAC application today.



Notes

*Heating, Ventilation, Air Conditioning. Altivar 212 has been specifically designed for use in heating, ventilation and pumping applications in buildings. It is not intended for use in industrial or infrastructure applications or environments.

Altivar Process

Variable speed drives for 3-phase motors 0.75kW to 2600kW
Embedded digital services to boost industrial and utility process efficiency



Presentation

Altivar Process is the first 'Services Oriented Drive', which thanks to embedded digital services, is designed to improve operational efficiency in process industries such as:

- > Water & waste water - Municipal and irrigation pumping stations, boosting stations, borehole pumps, lifting stations, aeration, blowers, sludge conveying...
- > Food & beverage - dairy (pumping, drying, refrigeration...), sugar (pumping, blowers, refiners, dryers...)
- > Mining, minerals and metals - water pumps, floatation and thickening, de-watering and filtration, kiln fans, blowers, conveyors, rolling mills...
- > Oil & gas - submersible pumps, jack pumps, oil line pumps, water injection pumps, re-gasification compressors...

Applications:

Altivar Process ATV600 series focuses on fluid and gas applications:

Pumps, fans, compressors, blowers etc.

- > Advanced pump control, monitoring and protection functions. Pump curve management, BEP monitoring and sensor-less flow estimation...

Altivar Process ATV900 series focuses on maximum performance of mechanical applications:

Conveyers, separators, grinders, crushers, refiners etc.

- > Superior motor control in open or closed loop, dynamic braking and regenerative solutions, torque control functions, advanced load sharing and safety...

Benefits:

Improves overall equipment efficiency (OEE) and reduces total cost of ownership (TCO). Supports energy management, asset management and improved process performance.

- > Enables sustainable cost savings thanks to predictive condition-based maintenance
- > Reduces down time by up to 20% without additional investment

Energy management services:

- > Better than 5% accuracy energy measurement, dashboards, trends, drift detection...
- > Start and Stop function reduces standby power consumption by up to 60%
- > Reduction of harmonics, in the standard product and with an innovative low harmonics offer

Embedded digital services:

- > Embedded Ethernet, with option for advanced Ethernet functions (dual-port, self-healing networks etc)
- > Integral to Plantstruxure™ automation architecture; configure and monitor the drive via SoMove or Unity automation software suites
- > Advanced, secure web server for access to dashboards, monitoring and configuration from any web device
- > Drift detection, trending, KPIs and alarms enable preventative maintenance actions
- > Dynamic QR codes for dynamic help and application support from the web

Flexible and ready for installation:

- > IP21 and IP55 products to suit the installation. Modular high power floor-standing drives in compact IP23 or IP54 versions
- > Delivered ready for fast and easy installation:
 - > Integrated cable entry terminal box, equipped with cable glands and EMC connections
 - > Removable, colour-coded control terminals
 - > Designed for operation with long motor cables: 150m for screened cables and 300m for unscreened cables without the need for additional options
 - > Unique engineered drives, customised to the application



Water & waste water applications



Food & beverage applications



Mining, minerals & metals applications



Oil & gas applications

Altivar Process

Variable speed drives for 3-phase motors 0.75kW to 2600kW
Embedded digital services to boost industrial and utility process efficiency

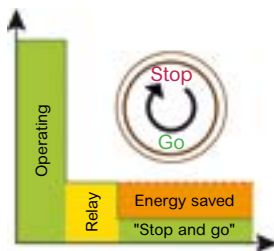


IP21 and IP55 versions

Rugged design:

Operates in the harshest industrial environments:

- > Up to 50°C for IP21 and up to 40°C for IP55 without de-rating
- > High resistance to environmental conditions:
- > Chemical resistance to class 3C3 conforming to IEC/EN 60721
- > Mechanical resistance to class 3S3 conforming to IEC/EN 60721
- > Protective conformal coating on all electronic cards
- > Protection to suit the application:
- > IP21 (UL type 1) for mounting on a wall or within an enclosure
- > IP55 (UL type 12) for mounting near the motor, with protection against dust and water jets
- > High tolerance to supply variations, minimum 50kA supply Isc rating



Stop and Go function reduces standby energy consumption by upto 60%

Green drive

Designed to meet the requirements of environmental protection directives and regulations:

- > RoHS 2
- > REACH + Substitute It Now (halogen-free wiring and plastics)
- > PEP (Product Environmental Profile) eco-passport program for reducing the carbon footprint and conserving raw materials
- > EoL (End of Life Instructions) - greater than 70% recyclable materials (new ruling)
- > Efficient energy management: 30% reduction in consumption

Advanced functions:

Altivar 600

- > Embedded pump curve management
- > Sensor-less estimated flow rate
- > Measurements expressed in engineering units e.g. m³/h, kWh/m³
- > Predictive and preventative maintenance tracking functions e.g. temperature probes, fan operation
- > Embedded process controls – PID regulator, pump management, pump protections

Altivar 900

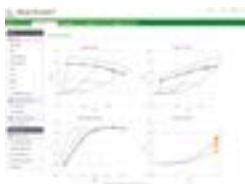
- > Master/slave speed and torque sharing via Ethernet Multi-Drive Link for multi-motor applications
- > Backlash function reduces mechanical stress
- > Precision control of speed and torque in open or closed loop
- > Management of backspin in PCP pumps, ENA control for donkey pumps



Dynamic QR code provide contextual help to your mobile device

Safety and monitoring functions:

- > Integrated STO (Safe Torque Off) function to SIL3/PlE
- > Safety expansion modules: Safety Module Advanced and CIP Safety (ATV900)
- > Conformity to standards EN/IEC 61508, EN/ISO 13849, IEC 61800-5-2
- > Monitoring functions to protect the installation:
 - > monitoring of pump cycles
 - > protection against water hammer
 - > anti-clogging function for pumps
 - > monitoring of temperatures via PT100/PT1000 probes



Embedded web server to access customisable dashboards, trends and process information

Options to adapt to the application:

- > I/O expansion cards
- > Communication cards
- > Encoder interface cards (ATV900)
- > Safety expansion cards (ATV900)
- > Braking resistors (ATV900)
- > Adaptive Passive Filters
- > Additional EMC line filters
- > Output filters
- > Motor starter combination with circuit breakers and contactors



Altivar Process ATV600

Product configurator available on se.com/nz

Variable speed drives for 3-phase motors 0.75kW to 2600kW
 Embedded digital services to boost industrial and utility process efficiency
 Integrated EMC filter, conformal coating, graphic display, Ethernet, and SIL3 safety

ATV630 IP21 wall mounting 0.75...315kW

Normal duty (1)		Heavy duty (2)		Recommended circuit breaker (2)	Power dissipation (3)	Frame size	Reference
Motor power	Nominal output current	Motor power	Nominal output current				
kW	A	kW	A		W		
110% overload for 60s							
150% overload for 60s							
400V 3-ph supply: 380...480V 50/60Hz, integrated EMC filter (4), IP21							
0.75	2.2	0.37	1.5	GV2L07	47	1	ATV630U07N4
1.5	4	0.75	2.2	GV2L08	69	1	ATV630U15N4
2.2	5.6	1.5	4	GV2L10	90	1	ATV630U22N4
3	7.2	2.2	5.6	GV2L14	109	1	ATV630U30N4
4	9.3	3	7.2	GV2L14	130	1	ATV630U40N4
5.5	12.7	4	9.3	GV2L16	182	1	ATV630U55N4
7.5	16.5	5.5	12.7	GV2L20	216	2	ATV630U75N4
11	23.5	7.5	16.5	GV2L22	306	2	ATV630D11N4
15	31.7	11	23.5	GV3L32	425	3	ATV630D15N4
18.5	39.2	15	31.7	GV3L40	527	3	ATV630D18N4
22	46.3	18.5	39.2	GV3L50	573	3	ATV630D22N4
30	61.5	22	46.3	GV3L65	733	4	ATV630D30N4
37	74.5	30	61.5	GV4L80●	902	4	ATV630D37N4
45	88	37	74.5	GV4L115●	1064	4	ATV630D45N4
55	106	45	88	GV4L115●	1048	5	ATV630D55N4
75	145	55	106	NSX160●MA150	1543	5	ATV630D75N4
90	173	75	145	NSX250●MA220	1781	5	ATV630D90N4
110	211	90	173	NSX250●MA220	2820	6	ATV630C11N4 (5)
132	250	110	211	NSX400●ML 1.3-M	3357	6	ATV630C13N4 (5)
160	302	132	250	NSX400●ML 1.3-M	3912	6	ATV630C16N4 (5)
220	427	160	302	NSX630●ML 1.3-M	5481	7a	ATV630C22N4 (5)
250	481	200	387	NSX630●ML 1.3-M	6379	7b	ATV630C25N4 (5)
315	616	250	481	NS800L ML 2 or 5	7868	7b	ATV630C31N4 (5)

For sizes above 315kW, refer to ATV660/680 floor standing drive systems.

IP21 terminal box kit size 6	6	VW3A9704
IP31 terminal box kit size 7	7a	VW3A9112
	7b	VW3A9113

Models also available:

- > 230V 3-ph supply: 200...240V, 0.75...75kW IP21 wall mounting
- > 400V 3-ph supply: 380...415V, 110...800kW IP23/IP54 floor standing drive systems
- > 690V 3-ph supply: 500...690V, 2.2...90kW IP20 wall mounting, and 110...1200kW IP23/IP54 floor standing drive systems

Dimensions and weight (6)

Frame size	Drive	Dimensions H x W x D mm	Weight kg
1	U07N4...U55N4	350 x 144 x 203	4.7
2	U75N4, D11N4	409 x 171 x 233	7.7
3	D15N4...D22N4	546 x 211 x 232	14.3
4	D30N4...D45N4	673 x 226 x 271	28.7
5	D55N4...D90N4	922 x 290 x 323	58.5
6	C11N4...C16N4	1157 x 320 x 390	82
7a	C22N4	1498 x 440 x 380	172
7b	C25N4, C31N4	1498 x 598 x 380	203



ATV630U07N4



ATV630D15N4



ATV630D55N4



ATV630C25N4

Notes

- (1) Normal duty: nominal output current with 110% overload for 60s, suitable for variable torque loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 50°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Refer to Section P for complete circuit breaker and line contactor co-ordination information.
- (3) Total power dissipation at normal duty nominal rating. Flange mounting kit available to reduce power dissipation within an enclosure.
- (4) Integrated EMC filter to IEC/EN61800-3 category C2 (residential) for drives up to 45kW. Category C3 (industrial) for all larger sizes. Refer to additional EMC filter option for permissible motor cable lengths.
- (5) Supplied as IP00, optional IP21 terminal box kit to be ordered separately.
- (6) Dimensions with IP21 top cover and terminal box installed (optional for frame sizes 6 and 7). Weights are for the largest drive in the frame size.



Altivar Process ATV600

Product configurator
available on se.com/nz

Variable speed drives for 3-phase motors 0.75kW to 2600kW
Embedded digital services to boost industrial and utility process efficiency
Integrated EMC filter, conformal coating, graphic display, Ethernet, and SIL3 safety



ATV650D15N4



ATV650D30N4E - version
with Vario disconnect
switch



ATV650C31N4F

ATV650 IP55 wall mounting 0.75...90kW

Normal duty (1)		Heavy duty (2)		Recommended circuit breaker (2)	Power dissipation (3)	Frame size	Reference (4)
110% overload for 60s		150% overload for 60s					
Motor power	Nominal output current	Motor power	Nominal output current				
kW	A	kW	A		W		
400V 3-ph supply: 380...480V 50/60Hz, integrated EMC filter (5), IP55							
0.75	2.2	0.37	1.5	GV2L07	47	A	ATV650U07N4
1.5	4	0.75	2.2	GV2L08	69	A	ATV650U15N4
2.2	5.6	1.5	4	GV2L10	90	A	ATV650U22N4
3	7.2	2.2	5.6	GV2L14	109	A	ATV650U30N4
4	9.3	3	7.2	GV2L14	130	A	ATV650U40N4
5.5	12.7	4	9.3	GV2L16	182	A	ATV650U55N4
7.5	16.5	5.5	12.7	GV2L20	216	A	ATV650U75N4
11	23.5	7.5	16.5	GV2L22	306	A	ATV650D11N4
15	31.7	11	23.5	GV3L32	425	A	ATV650D15N4
18.5	39.2	15	31.7	GV3L40	527	A	ATV650D18N4
22	46.3	18.5	39.2	GV3L50	573	A	ATV650D22N4
30	61.5	22	46.3	GV3L65	733	B	ATV650D30N4
37	74.5	30	61.5	GV4L80●	902	B	ATV650D37N4
45	88	37	74.5	GV4L115●	1064	B	ATV650D45N4
55	106	45	88	GV4L115●	1048	C	ATV650D55N4
75	145	55	106	NSX160●MA150	1543	C	ATV650D75N4
90	173	75	145	NSX250●MA220	1781	C	ATV650D90N4

ATV650 IP54 floor standing 110...315kW

Normal duty (1)		Heavy duty (2)		Recommended circuit breaker (2)	Power dissipation (3)	Frame size	Reference (6)
110% overload for 60s		150% overload for 60s					
Motor power	Nominal output current	Motor power	Nominal output current				
kW	A	kW	A		W		
400V 3-ph supply: 380...440V 50/60Hz, integrated EMC filter (5), IP54 separated airflow							
110	211	90	173	NSX250●MA220	2530	FA	ATV650C11N4F
132	250	110	211	NSX400●ML 1.3-M	3150	FA	ATV650C13N4F
160	302	132	250	NSX400●ML 1.3-M	4030	FA	ATV650C16N4F
200	370	160	302	NSX630●ML 1.3-M	4380	FB	ATV650C20N4F
250	477	200	370	NSX630●ML 1.3-M	5750	FB	ATV650C25N4F
315	590	250	477	NS800L ML 2 or 5	7810	FB	ATV650C31N4F

For sizes larger than 315kW, refer to ATV660/680 floor standing drive systems

Models also available:

- > 400V 3-ph supply: 380...480V, 110...800kW floor standing IP23/IP54 drive systems
- > 690V 3-ph supply: 500...690V, 110...1200kW floor standing IP23/IP54 drive systems

Dimensions and weight (7)

Frame size	Drive	Dimensions	Weight
	ATV650...	H x W x D mm	kg
A	U07N4...D22N4	678 x 264 x 299	20.6
B	D30N4...D45N4	910 x 290 x 340	50
C	D55N4...D90N4	1250 x 345 x 375	87
FA	C11N4F...C16N4F	2350 x 400 x 600	310
FB	C20N4F...C31N4F	2350 x 600 x 600	420

Notes

- (1) Normal duty: nominal output current with 110% overload for 60s, suitable for variable torque loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 40°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Refer to Section P for complete circuit breaker and line contactor co-ordination information.
- (3) Total power dissipation at normal duty nominal rating.
- (4) Wall mounting products are supplied with cable glands. For version with integrated Vario mains disconnect switch, add 'E' to the end of the reference.
- (5) Integrated EMC filter for IEC/EN61800-3 category C2 (residential) for drives up to 45kW. Category C3 (industrial) for all larger sizes. Refer to additional EMC filter option for permissible motor cable lengths.
- (6) Floor standing products include mains disconnection switch, semi-conductor fuses, line reactor, EMC filter, and dV/dt output filter as standard equipment.
- (7) Dimensions and weights are for the largest drive in the frame size.



Altivar Process ATV900

Product configurator available on se.com/nz

Variable speed drives for 3-phase motors 0.75kW to 2600kW
 Embedded digital services to boost industrial and utility process efficiency
 Integrated EMC filter, conformal coating, graphic display, Ethernet, and SIL3 safety

ATV930 IP21 wall mounting 0.75...315kW

Normal duty (1)		Heavy duty (2)		Recommended circuit breaker (2)	Power dissipation (3)	Frame size	Reference
Motor power	Nominal output current	Motor power	Nominal output current				
kW	A	kW	A		W		
120% overload for 60s 150% overload for 60s							
400V 3-ph supply: 380...480V 50/60Hz, integrated EMC filter (4), IP21							
0.75	2.2	0.37	1.5	GV2L07	47	1	ATV930U07N4
1.5	4	0.75	2.2	GV2L08	69	1	ATV930U15N4
2.2	5.6	1.5	4	GV2L10	90	1	ATV930U22N4
3	7.2	2.2	5.6	GV2L14	109	1	ATV930U30N4
4	9.3	3	7.2	GV2L14	130	1	ATV930U40N4
5.5	12.7	4	9.3	GV2L16	182	1	ATV930U55N4
7.5	16.5	5.5	12.7	GV2L20	216	2	ATV930U75N4
11	23.5	7.5	16.5	GV2L22	306	2	ATV930D11N4
15	31.7	11	23.5	GV3L32	425	3	ATV930D15N4
18.5	39.2	15	31.7	GV3L40	527	3	ATV930D18N4
22	46.3	18.5	39.2	GV3L50	573	3	ATV930D22N4
30	61.5	22	46.3	GV3L65	733	4	ATV930D30N4
37	74.5	30	61.5	GV4L80●	902	4	ATV930D37N4
45	88	37	74.5	GV4L115●	1064	4	ATV930D45N4
55	106	45	88	GV4L115●	1048	5	ATV930D55N4
75	145	55	106	NSX160●MA150	1543	5	ATV930D75N4
90	173	75	145	NSX250●MA220	1781	5	ATV930D90N4
110	211	90	173	NSX250●MA220	2820	6	ATV930C11N4 (5)
132	250	110	211	NSX400●ML 1.3-M	3357	6	ATV930C13N4 (5)
160	302	132	250	NSX400●ML 1.3-M	3912	6	ATV930C16N4 (5)
220	427	160	302	NSX630●ML 1.3-M	5481	7a	ATV930C22N4 (6)
250	481	200	387	NSX630●ML 1.3-M	6379	7b	ATV930C25N4C (7)
315	616	250	481	NS800L ML 2 or 5	7868	7b	ATV930C31N4C (7)

For sizes above 315kW, refer to ATV960/980 floor standing drive systems.

IP21 terminal box kit size 6	Without braking unit	6	VW3A9704 (5)
IP31 terminal box kit size 7	-	7a	VW3A9112
	Without braking unit	7b	VW3A9113
	With braking unit	7b	VW3A9114

Models also available:

- > 230V 3-ph supply: 200...240V, 0.75...75kW IP21 wall mounting
- > 400V 3-ph supply: 380...415V, 110...800kW IP23/IP54 floor standing drive systems
- > 690V 3-ph supply: 500...690V, 2.2...90kW IP20 wall mounting, and 110...1200kW IP23/IP54 floor standing drive systems

Dimensions and weight (8)

Frame size	Drive ATV930...	Dimensions H x W x D mm	Weight kg
1	U07N4...U55N4	350 x 144 x 206	4.7
2	U75N4, D11N4	409 x 171 x 236	7.7
3	D15N4...D22N4	546 x 211 x 235	14.3
4	D30N4...D45N4	673 x 226 x 274	28.7
5	D55N4...D90N4	922 x 290 x 326	59.5
6	C11N4...C16N4	1205 x 320 x 393	104
7a	C22N4	1498 x 440 x 380	172
7b	C25N4C, C31N4C	1498 x 598 x 380	203



ATV930U07N4



ATV930D15N4



ATV930D55N4



ATV930C25N4C

Notes

- Normal duty: nominal output current with 120% overload for 60s, suitable for variable torque or light starting loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 50°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- Refer to Section P for complete circuit breaker and line contactor co-ordination information.
- Total power dissipation at normal duty nominal rating. Flange mounting kit available to reduce power dissipation within an enclosure.
- Integrated EMC filter to IEC/EN61800-3 category C2 (residential) for drives up to 45kW. Category C3 (industrial) for all larger sizes.
- Supplied as IP20 with braking unit for wall or cabinet mounting. IP00 version without braking unit available, add 'C' to end of reference. IP21 terminal box kit for IP00 version without braking unit to be ordered separately.
- Supplied as IP00, with embedded braking unit. IP31 terminal box kit for wall mounting to be ordered separately.
- Supplied as IP00, without braking unit. IP31 terminal box kit and braking unit to be ordered separately.
- Dimensions with IP21 top cover and terminal box installed, without additional options. Dimensions for frame size 7 include optional IP31 terminal box kit. Weights are for the largest drive in the frame size.



Altivar Process ATV900

Product configurator
available on se.com/nz

Variable speed drives for 3-phase motors 0.75kW to 2600kW
Embedded digital services to boost industrial and utility process efficiency
Integrated EMC filter, conformal coating, graphic display, Ethernet, and SIL3 safety



ATV950D15N4



ATV950D30N4E - version
with Vario disconnect
switch



ATV950C31N4F

ATV950 IP55 wall mounting 0.75...90kW

Normal duty (1)		Heavy duty (2)		Recommended circuit breaker (2)	Power dissipation (3)	Frame size	Reference (4)
Motor power	Nominal output current	Motor power	Nominal output current				
120% overload for 60s		150% overload for 60s					
kW	A	kW	A	W			
400V 3-ph supply: 380...480V 50/60Hz, integrated EMC filter (5), IP55							
0.75	2.2	0.37	1.5	GV2L07	47	A	ATV950U07N4
1.5	4	0.75	2.2	GV2L08	69	A	ATV950U15N4
2.2	5.6	1.5	4	GV2L10	90	A	ATV950U22N4
3	7.2	2.2	5.6	GV2L14	109	A	ATV950U30N4
4	9.3	3	7.2	GV2L14	130	A	ATV950U40N4
5.5	12.7	4	9.3	GV2L16	182	A	ATV950U55N4
7.5	16.5	5.5	12.7	GV2L20	216	A	ATV950U75N4
11	23.5	7.5	16.5	GV2L22	306	A	ATV950D11N4
15	31.7	11	23.5	GV3L32	425	A	ATV950D15N4
18.5	39.2	15	31.7	GV3L40	527	A	ATV950D18N4
22	46.3	18.5	39.2	GV3L50	573	A	ATV950D22N4
30	61.5	22	46.3	GV3L65	733	B	ATV950D30N4
37	74.5	30	61.5	GV4L80●	902	B	ATV950D37N4
45	88	37	74.5	GV4L115●	1064	B	ATV950D45N4
55	106	45	88	GV4L115●	1048	C	ATV950D55N4
75	145	55	106	NSX160●MA150	1543	C	ATV950D75N4
90	173	75	145	NSX250●MA220	1781	C	ATV950D90N4

ATV950 IP54 floor standing 110...315kW

Normal duty (1)		Heavy duty (2)		Recommended circuit breaker (2)	Power dissipation (3)	Frame size	Reference (6)
Motor power	Nominal output current	Motor power	Nominal output current				
120% overload for 60s		150% overload for 60s					
kW	A	kW	A	W			
400V 3-ph supply: 380...440V 50/60Hz, integrated EMC filter (5), IP54 separated airflow							
110	211	90	173	NSX250●MA220	2530	FA	ATV950C11N4F
132	250	110	211	NSX400●ML 1.3-M	3150	FA	ATV950C13N4F
160	302	132	250	NSX400●ML 1.3-M	4030	FA	ATV950C16N4F
200	370	160	302	NSX630●ML 1.3-M	4380	FB	ATV950C20N4F
250	477	200	370	NSX630●ML 1.3-M	5750	FB	ATV950C25N4F
315	590	250	477	NS800L ML 2 or 5	7810	FB	ATV950C31N4F

For sizes larger than 315kW, refer to ATV960/980 floor standing drive systems

Models also available:

- > 400V 3-ph supply: 380...480V, 110...800kW floor standing IP23/IP54 drive systems
- > 690V 3-ph supply: 500...690V, 110...1200kW floor standing IP23/IP54 drive systems

Dimensions and weight (7)

Frame size	Drive ATV950...	Dimensions H x W x D mm	Weight kg
A	U07N4...D22N4	678 x 264 x 299	20.6
B	D30N4...D45N4	910 x 290 x 340	50
C	D55N4...D90N4	1250 x 345 x 375	87
FA	C11N4F...C16N4F	2350 x 400 x 600	310
FB	C20N4F...C31N4F	2350 x 600 x 600	420

Notes

- (1) Normal duty: nominal output current with 120% overload for 60s, suitable for variable torque or light starting loads.
Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads.
Ratings at nominal switching frequency, for an ambient temperature of up to 40°C.
Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Refer to Section P for complete circuit breaker and line contactor co-ordination information.
- (3) Total power dissipation at normal duty nominal rating.
- (4) Wall mounting products are supplied with cable glands. For version with integrated Vario mains disconnect switch, add 'E' to the end of the reference.
- (5) Integrated EMC filter for IEC/EN61800-3 category C2 (residential) for drives up to 45kW. Category C3 (industrial) for all larger sizes.
- (6) Floor standing products include mains disconnection switch, semi-conductor fuses, line reactor, EMC filter, and dV/dt output filter as standard equipment.
- (7) Dimensions and weights are for the largest drive in the frame size.

Accessories and replacement parts

Accessories



ATV630C11N4 with VW3A9704 IP21 kit



ATV630U15N4 with NSYPTDS1 flange mounting kit inside an enclosure

Description	For drive	kW	ATV630/930...	Use with BU (1)	Reference
Wall mounting terminal box kit IP21 or IP31	ATV630	110...160	C11N4...C16N4	-	VW3A9704
		220	C22N4	-	VW3A9112
		250, 315	C25N4, C31N4	-	VW3A9113
	ATV930	110...160	C11N4...C16N4	-	-
		220	C11N4C...C16N4C	-	VW3A9704
		250, 315	C22N4	-	VW3A9112
Flange mounting kit Reduces heat dissipation within the enclosure, maintains an IP54 rating		0.75...5.5	U07N4...U55N4	-	NSYPTDS1
		7.5, 11	U75N4, D11N4	-	NSYPTDS2
		15...22	D15N4...D22N4	-	NSYPTDS3
		30...45	D30N4...D45N4	-	NSYPTDS4
		55...90	D55N4...D90N4	-	NSYPTDS5
		110...160	C11N4...C16N4	-	VW3A95116
		220	C22N4	-	VW3A9513
		250, 315	C25N4, C31N4	No	VW3A9514
			C25N4C, C31N4C	Yes	VW3A9515
					Yes
Enclosure mounting brackets Enclosure mounting kit for use with flange mounted drive. Kit contains 4x brackets.			NSYPTDS1...S3		NSYAEFPFPTD
Speed reference potentiometer IP20 2.2k Ω , with dial and knob					SZ1RV1202
Speed reference potentiometer IP69 (2) 4.7k Ω Harmony \varnothing 22 mounting with head and base			XB4 metal head		XB4BD912R4K7
			XB5 plastic head		XB5AD912R4K7

Replacement parts (3)



XB4BD912R4K7

Description	For drive	kW		Required qty	Reference
Replacement power fans Wall mounting drives	ATV630/650	0.75...5.5	U07N4...U55N4	1	VX5VPS1001
		7.5, 11	U75N4, D11N4	1	VX5VPS2001
	ATV930/950	15...22	D15N4...D22N4	1	VX5VPS3001
		30...45	D30N4...D45N4	1	VX5VPS4001
		55...90	D55N4...D90N4	1	VX5VPS5001
		110...160	C11N4...C16N4	1	VX5VPS6001
		220	C22N4	1	VZ3V1212
		250, 315	C25N4, C31N4	2	
Replacement internal fans Wall mounting drives	ATV650/950	0.75...22	U07N4...D22N4	1	VX5VP50A001
		30...90	D30N4...D90N4	1	VX5VP50BC001
	ATV630/930	220	C22N4	1	VZ3V1213
Replacement power fans Floor standing drives	ATV650F/950F	110...160	C11N4F...C16N4F	1	VX5VPM001
		200...315	C20N4F...C31N4F	2	
Replacement door fans Floor standing drives	ATV650F/950F	110...315	C11N4F...C31N4F	1	VX5VPM002
Replacement door fan filters Floor standing drives	ATV650F/950F	110...160	C11N4F...C16N4F	2	NSYCAF223
		200...315	C20N4F...C31N4F	2	NSYCAF291

Notes

- (1) When used with Braking Unit.
- (2) Refer to section J for more options.
- (3) Refer to Schneider Electric for all drive servicing needs.

Display and configuration tools



VW3A1111

Remote display terminal

Supplied with the drive, the graphic display terminal has the following characteristics:

- > Mounting options: on the front of the drive, or remotely on a panel using remote mounting accessories
- > Connections: Modbus RJ45 to one drive, or several drives in multi-drop mode. Mini-USB port for connection to PC
- > Uses: configure, control and monitor the drive, display process values and dashboards, store and download configurations, copy configurations from one drive to another or from a PC
- > Display: 240x160 pixels, 8 lines, bi-colour (white/red) backlight, 23 languages, embedded dynamic QR codes for contextual help using web-connected smartphone or tablet, graphic display of trend curves (energy and process data)
- > Other characteristics: IP65, capacitive touch buttons, real-time clock with battery backup, 16MB memory



Components for panel mounting of graphic terminal

Description	Item number	Length m	Reference
Graphic display terminal Supplied with the drive	1		VW3A1111
Remote mounting kit IP65, 22.5mm Ø hole mounting	2		VW3A1112
Remote display cable Equipped with 2x RJ45 connectors	3	1	VW3A1104R10
		3	VW3A1104R30
		5	VW3A1104R50
		10	VW3A1104R100
Graphic display port blanking plate Covers port when graphic display is removed. Pack of 10.			VW3A1116
USB A/mini-B USB cable For connecting graphic display to PC		3	TCSXCNAMUM3P

Configuration tools

Description	For drive ATV630/930...	Length m	Reference
SoMove configuration software Free to download from www.se.com/nz/somove			-
USB-Modbus RJ45 cable Connects PC USB port to the drive modbus port			TCSMCNAM3M002P
Remote IP65 Ethernet port kit RJ45 port for remote Ethernet connection e.g. at drive terminal box. 22.5mm Ø hole mounting, requires remote Ethernet port cable.			VW3A1115
Remote Ethernet port cable Connects drive Ethernet port to remote IP65 Ethernet port kit, mounted in drive IP21 terminal box.	U07N4...D11N4	0.3	VW3CANCARR03
	D15N4...C31N4	1	VW3CANCARR1



VW3A1116



IP65 Ethernet port
VW3A1115

I/O expansion and communication options

Integrated I/O and communication ports

Altivar Process ATV600:

- > 6x Digital Inputs, 24VDC sink or source, multi-function assignable.
- > 2x Safe Torque Off (STO) Inputs, dedicated safety function to SIL3, PL_e.
- > 3x Relay Outputs, R1 with NO and NC contacts, R2 and R3 with NO contacts. Max. 250VAC or 30VDC, 5A resistive or 2A inductive load.
- > 3x Analogue Inputs, configurable as voltage (0...10V) or current (0...20mA/4...20mA). AI2 and AI3 can be configured to monitor sensor probes (PTC, PT100, PT1000, or KTY84).
- > 2x Analogue Outputs, configurable as voltage (0...10V) or current (0...20mA).



Altivar Process ATV600 drives include the following interface ports as standard:

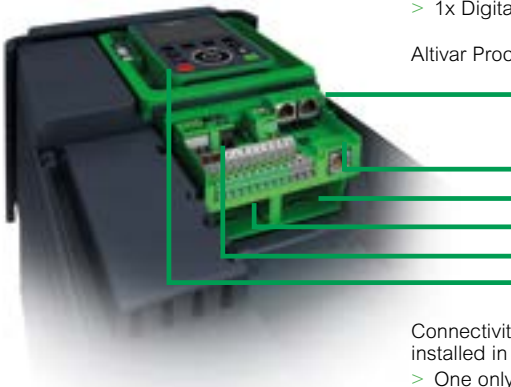
- 1 Ethernet Modbus TCP, 1x RJ45 port for control and monitoring. Supports SNMP, FDR, embedded web server, access security, connection to setup and monitoring tools (SoMove, Unity DTM).
- 2 Serial Modbus RS-485 RTU, 1x RJ45 port. Multi-drop connection to Modbus network
- 3 Slot A for I/O expansion or communication card
- 4 Slot B for I/O expansion card
- 5 Removable terminals for field I/O wiring, colour coded
- 6 Serial Modbus RS-485 RTU, 1x RJ45 port for HMI (graphic display terminal, Magelis etc.), or PC with SoMove or Unity software

Connectivity can be extended with I/O expansion cards and communication cards installed in option Slot A or Slot B:

- > One only communication card in Slot A
- > Up to two I/O expansion cards in Slot A and/or Slot B. The I/O expansion cards must be of a different type, i.e. one logic expansion card and one relay output card

Altivar Process ATV900:

- > 8x Digital Inputs, 24VDC sink or source, multi-function assignable.
- > 2x Safe Torque Off (STO) Inputs, dedicated safety function to SIL3, PL_e.
- > 3x Relay Outputs, R1 with NO and NC contacts, R2 and R3 with NO contacts. Max. 250VAC or 30VDC, 5A resistive or 2A inductive load.
- > 3x Analogue Inputs, configurable as voltage (0...10V) or current (0...20mA/4...20mA). AI1 can be configured as 0...±10V). AI2 and AI3 can be configured to monitor sensor probes (PTC, PT100, PT1000, or KTY84).
- > 2x Analogue Outputs, configurable as voltage (0...10V) or current (0...20mA).
- > 1x Digital Output



Altivar Process ATV900 drives include the following interface ports as standard:

- 1 Ethernet Modbus TCP / EtherNet/IP, 2x RJ45 ports for control and monitoring. Supports EtherNet/IP CIP objects compliant to ODVA specification, RSTP, SNMP, FDR, embedded web server, access security, connection to setup and monitoring tools (SoMove, Unity DTM).
- 2 Serial Modbus RS-485 RTU, 1x RJ45 port. Multi-drop connection to Modbus network.
- 3 Slot A for I/O expansion or communication card
- 4 Slot B for I/O expansion or encoder interface card
- 5 Removable terminal block for field I/O wiring, colour coded
- 6 Serial Modbus RS-485 RTU, 1x RJ45 port for HMI (graphic display terminal, Magelis etc.), or PC with SoMove or Unity software

Connectivity can be extended with I/O expansion cards, communication cards, and encoder cards installed in option Slot A or Slot B:

- > One only communication card in Slot A.
- > Up to two I/O expansion cards in Slot A and/or Slot B. The I/O expansion cards must be of a different type, i.e. one logic expansion card and one relay output card.
- > One only encoder interface card in Slot B.

Safety functions are extended via safety expansion card and additional option module support (Slot C).

Altivar Process

I/O expansion and communication options



VW3A3203

I/O expansion cards

Description	I/O type				Reference
	Logic inputs	Logic outputs	Analogue inputs	Relay outputs	
Logic and analogue I/O card	6	2	2 (1)	-	VW3A3203
Relay output card	-	-	-	3 (2)	VW3A3204



VW3A3204

Communication cards

Description	Compatibility		Connector type	Reference
	ATV600	ATV900		
Ethernet Modbus TCP and EtherNet/IP	●	-	2x RJ45	VW3A3720
Ethernet Modbus TCP and EtherNet/IP with Multi-Drive Link (3)	●	-	2x RJ45	VW3A3721
DeviceNet	●	●	Terminals	VW3A3609
PROFIBUS DP V1	●	●	SUB-D9	VW3A3607
PROFINET	●	●	2x RJ45	VW3A3627
CANopen RJ45 daisy-chain	●	●	2x RJ45	VW3A3608
CANopen with SUB-D9 connector	●	●	SUB-D9	VW3A3618
CANopen with terminal connector	●	●	Terminals	VW3A3628
EtherCAT	-	●	2x RJ45	VW3A3601
BACnet MSTP	●	-	Terminals	VW3A3725



VW3A3720

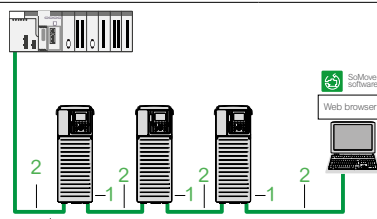


VW3A3725

Communication accessories

Description	Connector type	Length m	Reference
Modbus serial accessories	Modbus cable	RJ45	0.3 VW3A8306R03
			1 VW3A8306R10
			3 VW3A8306R30
	Modbus tap	RJ45	0.3 VW3A8306TF03
			1 VW3A8306TF10
	Modbus 10 way splitter hub	RJ45	- LU9GC3
	2x Modbus RC line terminators	RJ45	- VW3A8306D30
	Modbus tap	Terminals	- TSXSCA50
	Modbus cable	-	100 TSXCSA100
			- VW3A8306DRC
CANopen accessories	CANopen cable 2x RJ45	RJ45	0.3 VW3CANCARR03
			1 VW3CANCARR1
	2x CANopen line terminators	RJ45	- TCSCAR013M120
	CANopen connector SUB-D9	SUB-D9	- TSXCANKCDF180T
	CANopen cable standard	-	50 TSXCANCA50
			100 TSXCANCA100
			300 TSXCANCA300
	2x CANopen line terminators	Terminals	- TCSCAR01NM120
CANopen junction box	2x RJ45 2x Terminals	- VW3CANTAP2	
Ethernet accessories (4)	Ethernet ConneXium cable Cat 5 STP	RJ45	2 490NTW00002
			5 490NTW00005
			12 490NTW00012

Example Ethernet/IP daisy-chain network:
 1 ATV900, or ATV600 with VW3A3720
 2 490NTW00002



Notes

- (1) Configurable as voltage (0...10V, -10...+10V), current (0...20mA, 4...20mA), or probe (PTC, PT100, or 2-wire or 3-wire PT1000, KTY) inputs. PTC input must not be used to protect an ATEX motor in explosive atmospheres. Please refer to the ATEX guide on our website.
- (2) Normally Open (NO) contacts.
- (3) Supports Multi-VSD pump control over Ethernet via Multi-Drive Link.
- (4) Refer to section N for ConneXium Ethernet switches and accessories.

Encoder interface and safety cards (ATV900)



VW3A3420



VW3A3422



VW3A3423



VW3A3802



VW3A3800

Encoder interface cards

Encoder interface cards are used for closed-loop motor control modes, allowing extremely accurate speed regulation, improved torque response, and highly dynamic performance of the drive system. The ATV900 drive can support one encoder card, inserted into option slot B.

Description	Encoder type	Connector type	Reference
Digital encoder card	RS422, RS485 A/B/I SSI	SUB-D15	VW3A3420
	EnDat® 2.2		
Analogue encoder card	SinCos 1 Vpp SinCos Hiperface®	SUB-D15	VW3A3422
Resolver interface card	Resolver	SUB-D9	VW3A3423
HTL encoder card	Push/Pull Open collector	Terminals	VW3A3424
Encoder cable		SUB-D15	VW3M4701
Prefabricated cable with 1x SUB-D15 connector, 1x free end, 1m length			

Safety expansion module (1)

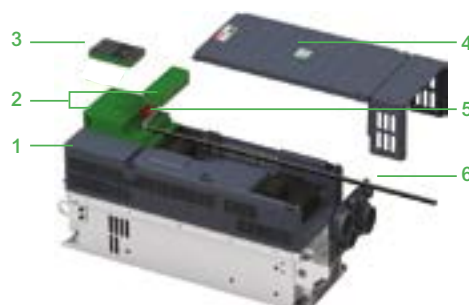
Altivar 900 series drives include STO (Safe Torque Off) function to SIL3/Ple as standard. Two safety expansion modules are available:

- > Safety Module Advanced: hardwired safety functions SS1, SLS, SMS, SBC, GDL
- > CIP Safety Module: Safety Torque Off (STO) SIL3/Ple over Ethernet/IP

Additional module support VW3A3800 is required to accommodate the safety expansion module. Connection cables and a safety module distribution unit supports the wiring of up to 5 drives with Safety Module Advanced.

Note: Specific firmware is required to support the safety module, please contact Schneider Electric to assist with product compatibility and start up support.

Description	Length m	Reference
Safety Module Advanced		VW3A3802
Safety module with safety functions SS1, SLS, SMS, and SBC. 24Vdc supply, 1x 24 way male connector		
CIP Safety Module		VW3A3809
CIP Safety STO SIL3/Ple over Ethernet/IP		
Additional module support		VW3A3800
Provides an option slot for the safety expansion module		
Connection cable 1x 24 way female connector, 1x open end	3	VW3M8801R30
For connection of field wiring to the safety module		
Safety module distribution unit		VW3M8810
Connection base for up to 5 safety modules via 24 way connectors. Spring terminal connectors for common safety wiring. DIN rail mounting within an enclosure.		
Connection cable 2x 24 way female connectors	1.5	VW3M8802R15
For connection between safety module(s) and a safety distribution unit		
Interlock jumper connector	3	VW3M8802R30
24 way connector with interlock jumper, 4 pcs		



- 1 ATV930 drive
- 2 Additional module support VW3A3800
- 3 Graphic terminal
- 4 Front cover
- 5 Safety module
- 6 Connection cable VW3M8801R30

Notes

- (1) Requires specific ATV900 firmware, please refer to the safety module manual for product compatibility and contact Schneider Electric for support.

Altivar Process

Braking options (ATV900)



VW3A7105

Braking units (1)

Braking units allow ATV900 drives to control the motor during braking or 'generator' mode e.g. to stop a high inertia load or when lowering a hoist. The braking power is dissipated via a braking resistor (to be ordered separately). Drives ATV930U07N4...C22N4 and ATV950U07N4...D90N4 include an integrated braking unit. A separate braking unit is required for ATV930C11N4C...C31N4C. Alternatively, Altivar Process ATV980 regenerative drive systems offer 4-quadrant operation and return braking power to the grid.

Description	For drive ATV930...	Power		Braking factor %	Reference
		Cont.	Max.		
Braking unit IP20	C11N4C...C16N4C	100kW	160kW	5% at 320kW 15% at 250kW 50% at 200kW	VW3A7105 (2)
	C25N4C, C31N4C	200kW	420kW	5% at 420kW 15% at 320kW 50% at 250kW	VW3A7101 (3)

Braking resistors (1)

Braking resistors allow the drive to dissipate the energy generated by the motor during a controlled or rapid deceleration of high inertia or vertical loads. The resistors are IP20 or IP23 and have an integrated thermal protection switch. Several duty ratings are available to suit the braking cycle requirements of the application. Tn is nominal motor torque for a heavy duty rated drive, and the average braking power is for an ambient temperature of 50°C.

Motor (4) kW	For drive ATV930/950...	Resistor		IP	Qty per drive	Reference
		kW	Ω			
Light duty: 0.8s braking with 150% Tn braking torque for a 40s cycle						
0.37...3	U07N4...U40N4	0.1	100	IP20	1	VW3A7730
4, 5, 5	U55N4, U75N4	0.16	60	IP20	1	VW3A7731
7.5, 11	D11N4, D15N4	0.3	28	IP20	1	VW3A7732
15...22	D18N4...D30N4	1.1	16	IP20	1	VW3A7733
30, 37	D37N4, D45N4	1.1	10	IP20	1	VW3A7734
45	D55N4	1.1	8	IP20	1	VW3A7735
55, 75	D75N4, D90N4	1.9	5	IP23	1	VW3A7736
90...132	C11N4C...C16N4C	3.2	2.5	IP23	1	VW3A7737
160...200	C22N4, C25N4C	5.1	1.4	IP23	1	VW3A7748
250	C31N4C	3.2	2.5	IP23	2	VW3A7737
Medium duty: 4s braking with 165% Tn braking torque for a 40s cycle						
0.37...0.75	U07N4, U15N4	0.1	100	IP20	1	VW3A7730
1.5...3	U22N4...U40N4	0.26	100	IP20	1	VW3A7740
4, 5, 5	U55N4, U75N4	0.5	60	IP20	1	VW3A7741
7.5, 11	D11N4, D15N4	1.1	28	IP20	1	VW3A7742
15...22	D18N4...D30N4	2.2	16	IP20	1	VW3A7743
30, 37	D37N4, D45N4	3.4	10	IP20	1	VW3A7744
45	D55N4	3.8	8	IP23	1	VW3A7745
55, 75	D75N4, D90N4	6.9	5	IP23	1	VW3A7746
90...132	C11N4C...C16N4C	11	2.5	IP23	1	VW3A7747
160...250	C22N4...C31N4C	29	1.4	IP23	1	VW3A7757
Severe duty: 54s of braking with 100% Tn braking torque and 6s of braking with 165% Tn braking torque for a 120s cycle						
0.37...3	U07N4...U40N4	1.7	100	IP20	1	VW3A7750
4, 5, 5	U55N4, U75N4	3.4	60	IP20	1	VW3A7751
7.5, 11	D11N4, D15N4	5.1	28	IP23	1	VW3A7752
15...22	D18N4...D30N4	14	16	IP23	1	VW3A7753
30, 37	D37N4, D45N4	19	10	IP23	1	VW3A7754
45	D55N4	25	8	IP23	1	VW3A7755
55	D75N4	32	5	IP23	1	VW3A7756
75	D90N4	19	10	IP23	2	VW3A7754
90...132	C11N4C...C16N4C	32	5	IP23	2	VW3A7756
160, 200	C22N4, C25N4C	32	5	IP23	3	
250	C31N4C	32	5	IP23	4	



VW3A7741



VW3A7751

Regenerative braking units

Regenerative braking units direct energy to the grid during braking cycles, reducing heat dissipation and improving energy efficiency compared to braking resistors. Up to three regenerative units can be connected in parallel depending on the required braking power. One or several drives can be connected via the DC bus to the braking unit. Refer to the product manual, sizing tool, and contact Schneider Electric for application advice.

Description	Supply Voltage	kW	Reference
Regenerative braking unit IP20	400V 3-ph	7.5kW	ATVRU75N4
		15kW	ATVRD15N4

Notes

- (1) Not compatible with floor standing drives ATV950F 110...315kW. Refer to ATV960/980 drive systems.
- (2) Only compatible with ATV930C11N4C...C16N4C drives. ATV930C11N4...C16N4 drives include braking unit.
- (3) Braking unit mounts directly on the left side of the drive. If wall mounting, use terminal box IP21 kit VW3A9114.
- (4) Drive sized for heavy duty application.



ATVRU75N4

Additional EMC input filters

Integrated EMC input filters

Altivar Process drives have integrated radio interference input filters allowing the drive to be installed in accordance with EMC standards for power drive products, IEC/EN 61800-3, edition 2. Depending on the environment the drive is to be installed into, it may be necessary to use additional EMC input filters.

Integrated EMC input filter maximum screened cable length for compliance with IEC/EN 61800-3 (1)

Drive	kW		1st environment (residential)		2nd environment (industrial)
			C1	C2	C3
			m	m	m
ATV630/930	0.75...45	U07N4...D45N4	-	50	150
IP21 wall mounting	55...160	D55N4...C16N4	-	-	150
	220...315	C22N4...C31N4	-	-	50
ATV650/950	0.75...45	U07N4...D45N4	-	50	150
IP55 wall mounting	55...90	D55N4...D90N4	-	-	150
	110...315	C11N4F...C31N4F	-	-	300

Guide to EMC compliant installation

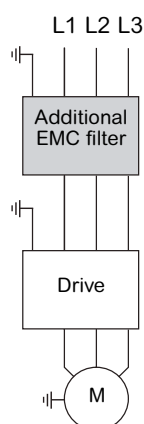
- > Maximum cable lengths are given as a guide only, for screened (shielded) motor cables, at the drive nominal switching frequency. The actual length varies depending on the characteristics of the installation, including the motor, cables and overall EMC plan.
- > Use 'VSD' type screened motor cables, with the screen bonded to both the VSD and the motor chassis ground. Use the supplied cable clamps and/or EMC type metal cable glands for sufficient high frequency bonding of the screen to ground.
- > The drive should be installed as per the installation instructions for EMC compliant installation.
- > If several motors are connected in parallel, it is the sum of the cable lengths that should be taken into account.
- > Stated cable lengths are for EMC purposes only - please refer to the output filters section for maximum operating cable lengths for the drive.

Additional EMC input filters

Additional EMC input filters can be used to meet more stringent EMC requirements, reducing conducted emissions on the line supply according to standard IEC/EN 61800-3 category C1, C2 or C3 for extended cable lengths. Additional filters can be used on TN (MEN) and TT supply networks. For IT systems (isolated or impedance grounded neutral), EMC filters can cause insulation monitors to operate in a random manner.

Additional EMC input filter maximum screened cable length for compliance with IEC/EN 61800-3 (1)

Drive	kW		1st environment (residential)		2nd environment (industrial)
			C1	C2	C3
			m	m	m
ATV630/930	0.75...45	U07N4...D45N4	50	150	300
IP21 wall mounting	55...160	D55N4...C16N4	50	150	300
	220...315	C22N4...C31N4	50	300	300
ATV650/950	0.75...45	U07N4...D45N4	50	150	300
IP55 wall mounting	55...90	D55N4...D90N4	50	150	300



Note

- (1) IEC/EN 61800-3 defines limits for conducted and radiated radio frequency emissions in several types of environments. Categories C1 and C2 are for 1st environment (domestic) installations, connected to a public supply. Category C3 is for 2nd environment (industrial) installations. Lengths given as a guide only, as the actual length varies depending on the characteristics of the installation, including the motor, cables and overall EMC plan.

Additional EMC input filters



VW3A4701



VW3A47901

Additional EMC input filters (continued)

Description	For drive kW	ATV630/930... ATV650/950... (1)	IP rating	Frame size	Reference
Additional EMC input filter IP20 or IP00	0.75...2.2	U07N4...U22N4	20	1	VW3A4701
	3...5.5	U30N4...U55N4	20	2	VW3A4702
	7.5...15	U75N4...D15N4	20	3	VW3A4703
	18.5, 22	D18N4, D22N4	20	4	VW3A4704
	30	D30N4	20	5	VW3A4705
	37, 45	D37N4, D45N4	20	6	VW3A4706
	55	D55N4	20	7	VW3A4707
	75, 90	D75N4, D90N4	20	8	VW3A4708
	110, 132	C11N4, C13N4	00	9	VW3A4709
	160	C16N4	00	10	VW3A4710
	220...315	C22N4...C31N4	00	11	VW3A4411
Protection kit for EMC input filter Terminal cover for IP21 or IP30 protection	For EMC filter				
		VW3A4701	21		VW3A47901
		VW3A4702	21		VW3A47902
		VW3A4703	21		VW3A47903
		VW3A4704	21		VW3A47904
		VW3A4705	21		VW3A47905
		VW3A4706	21		VW3A47906
		VW3A4707	21		VW3A47907
	VW3A4708	21		VW3A47908	

Dimensions and weight (2)

Frame size	Dimensions H x W x D mm	Weight kg
1	230 x 75 x 135	2
2	250 x 75 x 140	2.4
3	290 x 80 x 160	4.1
4	300 x 90 x 170	5.2
5	330x 100 x 180	6.1
6	350 x 130 x 190	6.5
7	400 x 140 x 242	8.5
8	450 x 242 x 320	9.5
9	520 x 260 x 117	15
10	520 x 260 x 117	17
11	261 x 800 x 139	25

Note

- (1) When used with IP55 drives, the additional EMC filter will have to be mounted inside a separate enclosure of a suitable IP rating for the installation.
- (2) Dimensions and weight exclude protection kit option.

Altivar Process

Harmonic mitigation



Altivar Process ATV680
Low Harmonic drive

Harmonics are a growing concern in all aspects of electrical systems engineering and management. Schneider Electric engineers draw on vast experience and a broad range of technologies to offer the optimum harmonics mitigation solution for your application.

Summary of harmonics mitigation solutions:

Installation level	Harmonic technology	Typical THDi performance	Drive model	Typical power
Drive	Reduced capacitor	<35%	Altivar 212	<90kW
Drive	AC/DC choke	<48%	All	All
Drive	Adaptive passive filter	<5%	All	<315kW
Drive	3-Level AFE	<4%	Altivar 680/980	>90kW
Network	Active filter	<5%	All with choke	>22kW
Network/drive*	Multi-pulse	<12%	All/Altivar 600/900	>90kW

* Multi-pulse transformer/drive required. Load staggering configuration also possible.

Altivar Process harmonic solutions

- Standard drives ATV630/650/660/930/950/960:** Integrated AC or DC chokes reduce current harmonic distortion (THDi) in compliance with standard IEC/EN 61000-3-12. The chokes are specifically designed to reduce THDi to <48% for 80% to 100% of the load range, corresponding to most frequent operation. Compatible with additional mitigation solutions e.g. adaptive passive filters, active filters.
- Adaptive passive filters:** Robust filters with simple installation and unique magnetic design to mitigate harmonics while maintaining excellent overall power factor.
- Low Harmonic/regenerative drives ATV680/980:** Embedded 3-level AFE (active front end) technology reduces THDi to <4% while improving efficiency, dimensions, and motor reliability compared to traditional 2-level AFE drives. Refer to Altivar Process ATV680/980 drive systems for more information.
- Active harmonic filters:** AccuSine PCS+ is a flexible, high performance, cost-effective solution to stabilise electrical networks by providing harmonic mitigation, power factor correction and load balancing. Refer to Section E for more information.



AccuSine+ active filter

Adaptive passive filters

Adaptive Passive Filter technology for <5% THDi at full load and <8% THDi at 30% load (1), while maintaining excellent overall power factor and efficiency. Compact IP21 floor mounting enclosure, simple wiring and installation, fan-less operation.



VW3APFD90NZ

Motor kW	ATV630/650... ATV930/950...	Filter A	Frame size	Reference
400V 3-ph 50Hz supply, <5% THDi (2), IP21				
0.75...2.2	075N4...U22N4	6	1	VW3APFU22NZ
3	U30N4	8	1	VW3APFU30NZ
4	U40N4	11	1	VW3APFU40NZ
5.5	U55N4	14	1	VW3APFU55NZ
7.5	U75N4	21	1	VW3APFU75NZ
11, 15	D11N4, D15N4	27	1	VW3APFD15NZ
18.5	D18N4	34	1	VW3APFD18NZ
22	D22N4	44	1	VW3APFD22NZ
30	D30N4	66	2	VW3APFD30NZ
37, 45	D37N4, D45N4	83	2	VW3APFD45NZ
55	D55N4	103	2	VW3APFD55NZ
75, 90	D75N4, D90N4	165	3	VW3APFD90NZ
110	C11N4	208	3	VW3APFC11NZ
132	C13N4	240	3	VW3APFC13NZ
160	C16N4	320	4	VW3APFC16NZ
200, 220	C20N4, C22N4	403	4	VW3APFC22NZ
250	C25N4	482	5	VW3APFC25NZ

Dimensions and weight (2)

Frame size	H x W x D mm	Weight kg
1	610 x 319 x 582	61
2	818 x 464 x 661	103
3	1303 x 704 x 762	222
4	1930 x 704 x 863	306
5	2224 x 1110 x 1120	335

Notes

- Performance data is typical and relative to the passive filter load, for a supply with less than 2.5% THDv and 1% imbalance. Power Factor: +0.95 to -0.95 for 30...100% load.
- Dimensions include lifting lugs. Weight is for the largest unit in the frame size. Please consult the installation manual for full details.

Output filters

Maximum operating cable lengths

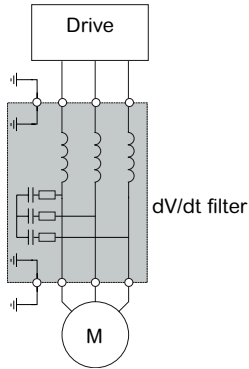
Altivar Process drives have been designed to operate with a maximum motor cable length of 150m for shielded cables and 300m for unshielded cables, without the need for additional output filters when 'inverter' rated (1) motors are used. To limit the impact of dV/dt and peak voltages, especially for cable lengths exceeding 50m, it is recommended to check the motor insulation type and use an output filter if necessary. For further information, please consult our white paper 'An improved approach for connecting variable speed drives and electric motors', available on our website.

dV/dt output filters

dV/dt output filters limit the dV/dt and peak voltage at the motor terminals, with the following benefits:

- > Increases the maximum shielded cable length to up to 300m (up to 500m with unshielded cable)
- > Limits dV/dt to less than 500V/μs
- > Limits peak voltage (for a 400V supply) at the motor terminals to:
 - > 800V for up to 50m of shielded motor cable
 - > 1000V for up to 150m of shielded motor cable
 - > 1500V for up to 300m of shielded motor cable
- > Reduces stress on motor insulation, reducing instances of '1st turn winding' failures, increasing motor life
- > Reduces motor earth leakage current

Floor standing ATV650F/950F drives include dV/dt output filters as standard.



VW3A5301



VW3A53902

Description	For drives kW	ATV630/650... ATV930/950... (2)	IP rating	Max cable length (3) m	Frame Size	Reference
dV/dt output filter	0.75...2.2	U07N4...U22N4	20	300	1	VW3A5301
	3...5.5	U30N4...U55N4	20	300	2	VW3A5302
	7.5, 11	U75N4, D11N4	20	300	3	VW3A5303
	15...22	D15N4...D22N4	20	300	4	VW3A5304
	30...45	D30N4...D45N4	20	300	5	VW3A5305
	55...90	D55N4...D90N4	00	300	6	VW3A5306
	110...160	C11N4...C16N4	00	300	7	VW3A5307
	220	C22N4	00	250	8	VW3A5106
	250, 315	C25N4, C31N4	00	200	9	VW3A5107
Protection kit for dV/dt filter	For dV/dt filter					
Cover for IP21/20 protection	VW3A5301		21			VW3A53902
	VW3A5302					
	VW3A5303					
	VW3A5304		21			VW3A53903
	VW3A5305		21			VW3A53905

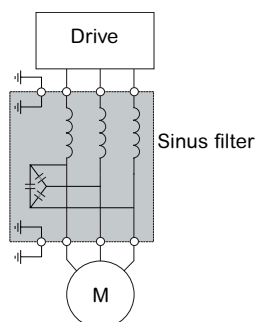
Dimensions and weight (4)

Frame size	H x W x D mm	Weight kg
1	530 x 295 x 215	11
2	530 x 295 x 215	12
3	530 x 295 x 215	12
4	560 x 300 x 245	18
5	610 x 300 x 245	19
6	380 x 350 x 235	22
7	420 x 360 x 270	40
8	3x (250 x 245 x 200)	58
9	3x (250 x 320 x 220)	93

Notes

- (1) Motors that conform to standards for use with inverter drives, such as IEC 6034-25 and NEMA MG1/31.2006.
- (2) When used with IP55 drives, the dV/dt filter may have to be mounted inside a separate enclosure of a suitable IP rating for the installation. Floor standing ATV650/950F drives include dV/dt output filters as standard.
- (3) Maximum cable lengths are given as a guide only as they can vary depending on the application. The values are given for shielded cables, at the nominal drive switching frequency - operating at a higher switching frequency or with longer cable lengths may cause the filter to overheat. When several motors are connected in parallel, the sum of the cable lengths must be taken into account.
- (4) Dimensions and weight exclude protection kit option.

Output filters



Sinus output filters

Sinus filters allow Altivar Process drives to operate with very long motor cables, while greatly reducing electromagnetic interference emissions. The output waveform is close to a sine wave, eliminating effects of dV/dt and peak voltage on the motor.

Sinus filters have the following benefits:

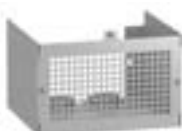
- > Allows the drive to operate with very long motor cable runs (up to 500m screened, up to 1000m unscreened)
- > EMC compliance with unscreened motor cables, especially where mechanical restrictions mean screened cables cannot be used
- > Elimination of dV/dt and peak voltage effects at the motor terminals, meaning 'non-inverter' rated motors can be used reliably
- > Reduction of motor noise, earth leakage and EDM effects
- > Use with a step up transformer between the drive and the motor

Sinus filters are only compatible with V/Hz open loop motor control. They are not compatible with open loop or closed loop flux vector motor control, nor applications requiring highly dynamic torque response e.g. hoists. Refer to the programming manual for programming the drive with sinus filter option.

Some special motors, e.g. submersible borehole pumps, may have special requirements for operation with VSDs, including the mandatory use of sinus filters. Check with the motor manufacturer and Schneider Electric.



VW3A5405



VW3A53904

Description	For drives kW	ATV630/650 ATV930/950 (1)	IP rating	Frame size	Reference
Sinus output filter	0.75...2.2	U07N4...U22N4	20	1	VW3A5401
	3...5.5	U30N4...U55N4	20	2	VW3A5402
	7.5, 11	U75N4, D11N4	20	3	VW3A5403
	15...22	D15N4...D22N4	20	4	VW3A5404
	30...45	D30N4...D45N4	20	5	VW3A5405
	55...90	D55N4...D90N4	00	6	VW3A5406
	110	C13N4 (2)	00	7	VW3A5407
	132	C16N4 (2)			
	160...220	C22N4	00	8	VW3A5209
250, 315	C25N4, C31N4	00	9	VW3A5210	
Protection kit for sinus filter		For sinus filter			
Cover for IP21 protection		VW3A5401	21		VW3A53901
		VW3A5402			
		VW3A5403	21		VW3A53902
		VW3A5404	21		VW3A53903
		VW3A5405	21		VW3A53904

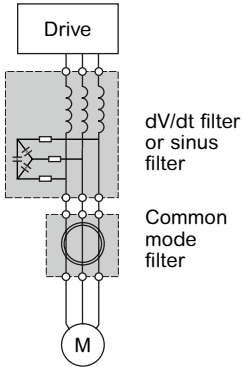
Dimensions and weight (3)

Frame size	H x W x D mm	Weight kg
1	455 x 220 x 210	10
2	455 x 220 x 210	13.5
3	530 x 295 x 215	20
4	560 x 300 x 245	35
5	760 x 375 x 285	60
6	495 x 430 x 350	90
7	565 x 460 x 370	134
8	340 x 480 x 600	190
9	370 x 480 x 710	260

Notes

- (1) When used with IP55 drives, the sinus filter may have to be mounted inside a separate enclosure of a suitable IP rating for the installation.
- (2) The drive is de-rated by one kW size as the sinus filter has a minimum switching frequency of 4kHz.
- (3) Dimensions and weight exclude protection kit option.

Output filters



Common mode filters

Common mode filters (ferrite rings) reduce high frequency common mode currents, therefore reducing RFI (radio frequency interference) emissions, while also reducing currents through the motor bearings. They can be used on their own, or with a dV/dt or sinus filter to offer complete motor protection.

The selection of a common mode filter depends on the type and length of motor cable. Refer to the product catalogue and installation instructions for final selection.

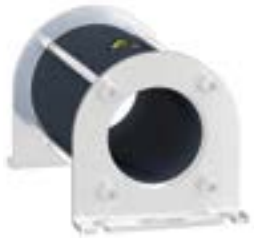
Common mode filters do not significantly reduce dV/dt or peak voltages at the motor terminals, therefore do not replace the function of dV/dt or sinus filters in protecting motor insulation.

For drives	ATV630/650...	ATV930/950...	Screened cable length (1)		
kW	U07N4...U40N4	U55N4...D11N4	150m	300m	500m
0.75...4	U07N4...U40N4		VW3A5501	VW3A5502	2x VW3A5501
5.5...11	U55N4...D11N4		VW3A5502	2x VW3A5501	2x VW3A5502
15...22	D15N4...D22N4		VW3A5503	2x VW3A5503	VW3A5503 + VW3A5504
30...90	D30N4...D90N4		VW3A5504	VW3A5503 + VW3A5504	2x VW3A5504
110	C11N4		VW3A5505	VW3A5506	VW3A5505 + VW3A5506
132, 160	C13N4, C16N4		VW3A5506	2x VW3A5505	2x VW3A5506

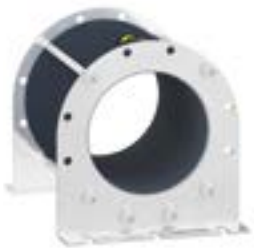
Description	Internal diameter mm	Frame Size	Reference
Common mode filters	37	1	VW3A5501
		2	VW3A5502
	75	3	VW3A5503
		4	VW3A5504
	124	5	VW3A5505
		6	VW3A5506

Dimensions and weight

Frame size	H x W x D mm	Weight kg
1	119 x 66 x 66	0.5
2	164 x 66 x 66	0.7
3	161 x 128 x 128	2.2
4	210 x 128 x 128	3
5	197 x 191 x 196	6
6	256 x 191 x 196	8.3



VW3A5501



VW3A5506

Notes

(1) Lengths provided as a guide only. Lengths longer than 150m require the use of dV/dt or sinus filters. Lengths up to 1000m may be achieved with unscreened cables - refer to the product catalogue. Abnormal temperature rise above 75°C indicates filter saturation, additional filters may be required.

Altivar Process Drive Systems

High power LV drive systems 110...2600kW
Compact, robust and reliable for maximum productivity
Customised factory built options

Life Is On

Schneider
Electric

Customised drive solutions

Low-Voltage Drive Systems
Ready-to-use from 0.75 – 2600kW



Modular and flexible, Altivar Process Drive Systems offer ready to use solutions for your high power motor control needs. With embedded Ethernet connectivity, energy management services, and simplified service concept, our drive systems will increase your process operational efficiency and cut down time.

- > **Modular and compact** design leads to lower installation costs and simplified spare parts concept
- > Innovative cooling system with separated airflow improves reliability while reducing maintenance and air-conditioning costs
- > Low Harmonics option with exclusive **3-level active front end technology** increases efficiency while improving motor life time.
- > **Reliability and robustness** with coated circuit boards to 3C3 , IP54 floor standing enclosure, embedded semi-conductor fuses and dV/dt motor filter as standard equipment.

Contact your local Schneider Electric representative to discuss your high power drive application today.

Altivar Process Drive Systems

Low voltage drive systems 110...2600kW



Standard equipment

Altivar Process Drive Systems include the following equipment as standard:

- > IP54 floor standing enclosure with separated air flow (3)
- > Conformal coating to 3C3/3S3
- > Mains disconnection switch with door handle
- > Modular power section architecture
- > Semi-conductor fuses
- > dV/dt output filter (3)
- > For ATV660/ATV960, AC line reactors for THDi <48% @ 80% load
- > For ATV680/980, 3-level Active Front End for THDi <5%, compliant with IEEE519
- > Cable entry/exit via bottom plinth
- > Graphic display terminal mounted in the front door
- > EMC filter to IEC/EN 61800-3 category C3 (industrial)
- > Standard ATV600/900 control and software functions

Options

Customise your drive with the following pre-engineered options:

- > Top cable entry/exit enclosure
- > STO safety SIL 3 with stop category 0 or 1
- > Enclosure lighting
- > Indicator lamps on front door
- > Enclosure anti-condensation heater
- > Motor and/or bearing temperature monitoring
- > 'Local/Remote' key switch
- > dV/dt output filter 300m
- > Ethernet port on front door
- > Motor heater
- > I/O expansion cards
- > Automated mains disconnection
- > Communication cards

Further engineered options:

- > Modified wiring colours
- > Air intake/exhaust from the back
- > Customised mains voltage
- > Customised enclosure colour
- > Multi-pulse supply (e.g. 12-pulse)
- > Customised documentation
- > Supply Isc increased to 100kA
- > Customised labelling
- > Connection to IT mains
- > Motor contactor
- > And many more...



ATV660 Compact Drive Systems 110...800kW

Normal duty (1)		Heavy duty (1)		Frame size	Reference (2) (3)
110% overload for 60s		150% overload for 60s			
Motor power	Nominal output current	Motor power	Nominal output current		
kW	A	kW	A		
400V 3-ph supply: 380...415V 50/60Hz, IP54 separated air flow (3)					
110	211	90	173	1p	ATV660C11Q4X1●
132	250	110	211	1p	ATV660C13Q4X1●
160	302	132	250	1p	ATV660C16Q4X1●
200	370	160	302	2p	ATV660C20Q4X1●
250	477	200	370	2p	ATV660C25Q4X1●
315	590	250	477	2p	ATV660C31Q4X1●
355	660	280	520	3p	ATV660C35Q4X1●
400	730	315	590	3p	ATV660C40Q4X1●
450	830	355	660	3p	ATV660C45Q4X1●
500	900	400	730	3p	ATV660C50Q4X1●
560	1020	450	830	4p	ATV660C56Q4X1●
630	1140	500	900	4p	ATV660C63Q4X1●
710	1260	560	1020	5p	ATV660C71Q4X1●
800	1420	630	1140	5p	ATV660C80Q4X1●

Models also available:

- > 690V 3-ph supply: 500...690V, 110...1200kW floor standing IP23 or IP54 drive systems

Dimensions and weight (4)

Frame size	Drive ATV660...	Dimensions H x W x D mm	Weight kg
1p	C11...C16Q4X1	2350 x 400 x 600	340
2p	C20...C31Q4X1	2350 x 600 x 600	470
3p	C35...C50Q4X1	2350 x 800 x 600	670
4p	C56...C63Q4X1	2350 x 1200 x 600	880
5p	C71...C80Q4X1	2350 x 1400 x 600	1140

Notes

- (1) Normal duty: nominal output current with 110% overload for 60s, suitable for variable torque loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 40°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Product reference for technical specification only, not a commercial reference. Contact Schneider Electric drives sales specialist for quotation.
- (3) IP54 and embedded dV/dt filter options selected as standard for New Zealand market. Basic unit is IP23.
- (4) Dimensions and weights are for the largest drive in the frame size, including IP54 and dV/dt filter options.



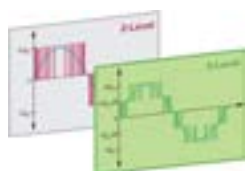
ATV660C16Q4X1

Altivar Process Drive Systems

Low voltage drive systems 110...2600kW



ATV680C16Q4X1



ATV680 Low Harmonic Drive Systems 110...800kW

Normal duty (1)		Heavy duty (1)		Frame size	Reference (2) (3)
Motor power	Nominal output current	Motor power	Nominal output current		
kW	A	kW	A		
110% overload for 60s					
150% overload for 60s					
400V 3-ph supply: 380...415V 50/60Hz, IP54 separated air flow (3), THDi <5%					
110	211	90	173	1a	ATV680C11Q4X1●
132	250	110	211	1a	ATV680C13Q4X1●
160	302	132	250	1a	ATV680C16Q4X1●
200	370	160	302	2a	ATV680C20Q4X1●
250	477	200	370	2a	ATV680C25Q4X1●
315	590	250	477	2a	ATV680C31Q4X1●
355	660	280	520	3a	ATV680C35Q4X1●
400	730	315	590	3a	ATV680C40Q4X1●
450	830	355	660	3a	ATV680C45Q4X1●
500	900	400	730	3a	ATV680C50Q4X1●
560	1020	450	830	4a	ATV680C56Q4X1●
630	1140	500	900	4a	ATV680C63Q4X1●
710	1260	560	1020	5a	ATV680C71Q4X1●
800	1420	630	1140	5a	ATV680C80Q4X1●

Models also available:

> 690V 3-ph supply: 500...690V, 110...1200kW floor standing IP23 or IP54 drive systems

Dimensions and weight (4)

Frame size	Drive ATV680...	Dimensions H x W x D mm	Weight kg
1a	C11...C16Q4X1	2350 x 600 x 600	440
2a	C20...C31Q4X1	2350 x 1000 x 600	730
3a	C35...C50Q4X1	2350 x 1600 x 600	1200
4a	C56...C63Q4X1	2350 x 2000 x 600	1500
5a	C71...C80Q4X1	2350 x 2600 x 600	2000

Notes

- (1) Normal duty: nominal output current with 110% overload for 60s, suitable for variable torque loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 40°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Product reference for technical specification only, not a commercial reference. Contact Schneider Electric drives sales specialist for quotation.
- (3) IP54 and embedded dV/dt filter options selected as standard for New Zealand market. Basic unit is IP23.
- (4) Dimensions and weights are for the largest drive in the frame size, including IP54 and dV/dt filter options.

Altivar Process Drive Systems

Low voltage drive systems 110...2600kW



ATV960C80Q4X1

ATV960 High Performance Drive Systems 110...800kW

Normal duty (1)		Heavy duty (1)		Frame size	Reference (2)(3)
120% overload for 60s		150% overload for 60s			
Motor power	Nominal output current	Motor power	Nominal output current		
kW	A	kW	A		
400V 3-ph supply: 380...415V 50/60Hz, IP54 separated air flow (3)					
110	211	90	173	1p	ATV960C11Q4X1●
132	250	110	211	1p	ATV960C13Q4X1●
160	302	132	250	1p	ATV960C16Q4X1●
200	370	160	302	2p	ATV960C20Q4X1●
250	477	200	370	2p	ATV960C25Q4X1●
315	590	250	477	2p	ATV960C31Q4X1●
355	660	280	520	3p	ATV960C35Q4X1●
400	730	315	590	3p	ATV960C40Q4X1●
450	830	355	660	3p	ATV960C45Q4X1●
500	900	400	730	3p	ATV960C50Q4X1●
560	1020	450	830	4p	ATV960C56Q4X1●
630	1140	500	900	4p	ATV960C63Q4X1●
710	1260	560	1020	5p	ATV960C71Q4X1●
800	1420	630	1140	5p	ATV960C80Q4X1●

Models also available:

> 690V 3-ph supply: 500...690V, 110...1200kW floor standing IP23 or IP54 drive systems

Dimensions and weight (4)

Frame size	Drive ATV960...	Dimensions H x W x D mm	Weight kg
1p	C11...C16Q4X1	2350 x 400 x 600	340
2p	C20...C31Q4X1	2350 x 600 x 600	470
3p	C35...C50Q4X1	2350 x 800 x 600	670
4p	C56...C63Q4X1	2350 x 1200 x 600	880
5p	C71...C80Q4X1	2350 x 1400 x 600	1140

Notes

- (1) Normal duty: nominal output current with 120% overload for 60s, suitable for variable torque loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 40°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Product reference for technical specification only, not a commercial reference. Contact Schneider Electric drives sales specialist for quotation.
- (3) IP54 and embedded dV/dt filter options selected as standard for New Zealand market. Basic unit is IP23.
- (4) Dimensions and weights are for the largest drive in the frame size, including IP54 and dV/dt filter options.

Altivar Process Drive Systems

Low voltage drive systems 110...2600kW



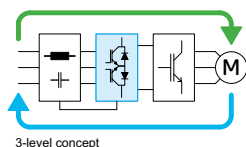
ATV980C16Q4X1

ATV980 Regenerative Drive Systems 110...800kW

Normal duty (1)		Heavy duty (1)		Frame size	Reference (2)(3)
Motor power	Nominal output current	Motor power	Nominal output current		
kW	A	kW	A		
120% overload for 60s					
150% overload for 60s					
400V 3-ph supply: 380...415V 50/60Hz, IP54 separated air flow (3), THDi <5%					
110	211	90	173	1a	ATV980C11Q4X1●
132	250	110	211	1a	ATV980C13Q4X1●
160	302	132	250	1a	ATV980C16Q4X1●
200	370	160	302	2a	ATV980C20Q4X1●
250	477	200	370	2a	ATV980C25Q4X1●
315	590	250	477	2a	ATV980C31Q4X1●
355	660	280	520	3a	ATV980C35Q4X1●
400	730	315	590	3a	ATV980C40Q4X1●
450	830	355	660	3a	ATV980C45Q4X1●
500	900	400	730	3a	ATV980C50Q4X1●
560	1020	450	830	4a	ATV980C56Q4X1●
630	1140	500	900	4a	ATV980C63Q4X1●
710	1260	560	1020	5a	ATV980C71Q4X1●
800	1420	630	1140	5a	ATV980C80Q4X1●

Models also available:

> 690V 3-ph supply: 500...690V, 110...1200kW floor standing IP23 or IP54 drive systems



Dimensions and weight (4)

Frame size	Drive ATV980...	Dimensions H x W x D mm	Weight kg
1a	C11...C16Q4X1	2350 x 600 x 600	440
2a	C20...C31Q4X1	2350 x 1000 x 600	730
3a	C35...C50Q4X1	2350 x 1600 x 600	1200
4a	C56...C63Q4X1	2350 x 2000 x 600	1500
5a	C71...C80Q4X1	2350 x 2600 x 600	2000

Notes

- (1) Normal duty: nominal output current with 120% overload for 60s, suitable for variable torque loads. Heavy duty: nominal output current with 150% overload for 60s, suitable for constant torque loads. Ratings at nominal switching frequency, for an ambient temperature of up to 40°C. Typical kW ratings for a standard AC 3-ph 4-pole motor, 400V 50Hz supply.
- (2) Product reference for technical specification only, not a commercial reference. Contact Schneider Electric drives sales specialist for quotation.
- (3) IP54 and embedded dV/dt filter options selected as standard for New Zealand market. Basic unit is IP23.
- (4) Dimensions and weights are for the largest drive in the frame size, including IP54 and dV/dt filter options.

Altivar Process ATV6000

Medium Voltage drive systems 160kW...20MW

Life Is On

Schneider
Electric

The drive solution for your medium voltage challenges

Altivar Process ATV6000



The Altivar™ Process ATV6000 services-oriented drive completes the Altivar Process line-up with a solution to address your medium voltage operation and maintenance challenges. The ATV6000 improves your process performance and asset management capability to transform data into valuable and actionable business insights. As a result, you get increased overall equipment effectiveness (OEE) and optimized total cost of ownership (TCO).

- > Services-oriented drives for motors 160kW to 20MW, 2.4kV to 13.8kV
- > Clean power with integrated transformer 18-66 pulse operation, IEEE-519 compliant
- > Motor-friendly inverter - multi-level (up to 23 levels), up to 2km motor cable length
- > Robust design - cell bypass function, safety key interlock, enhanced environmental resistance, modular power cell architecture
- > Enhanced HMI, connectivity, and asset management features

Contact your local Schneider Electric representative to discuss your medium voltage drive application today.

Altivar Process ATV6000

Medium Voltage drive systems 160kW...20MW

General specification and features

Input	18-66 pulse diode rectifier bridge
Output	Multilevel PWM with 2 level low-voltage IGBT inverter cells
Input voltage	2.4kV, 3.0 kV, 3.3kV, 4.16kV, 5.5kV, 6.0kV, 6.3kV, 6.6kV, 6.9kV, 10kV, 11kV, 13.8kV
Input frequency	50/60 Hz \pm 5%
Motor power	160kW up to 20000kW
Overload capability	Standard overload: 120% 60s/10 min and 150% 3s/10 min High overload: 150% 60s/10 min, 185% 3s/10 min
Total harmonics THD(i)	THDi <3%, complies with IEEE519
Input power factor	\geq 0.96 from 20% to 100% of load
Cell bypass function	Optional contactless cell bypass
Cable entry	Bottom (others on request)
Trigger signal transmission	Fiber optic transmission
Efficiency at rated power	Inverter efficiency ~98.5% Drive efficiency including input transformer is 96% to 96.5% depending on product
Type of motor	Asynchronous motor, synchronous motor, permanent magnet motor
Output voltage range	0 to input voltage
Output frequency	Up to 120Hz
Control power supply	100...240VAC \pm 10%, (47...63Hz, 120...370VDC, 1kVA capacity, other ratings on request)
Auxiliary power supply	230VAC \pm 10%, capacity depending on auxiliary options
Cooling fan power supply	400VAC \pm 10%, capacity depending on drive reference. Other ratings on request
Communication port protocol	Modbus TCP, Ethernet IP, Modbus serial
HMI	10inch, color graphic, touch screen, multi-languages
Control I/O	8 DI, 3AI, 2AO, 3 relay output (more on request)
Enclosure protection	Standard: IP31, option: IP41, IP42
Paint colour	RAL 7035
Cooling	Forced air ventilation
EMC	C4 for power, C3 for control
Standards	IEC/EN 61800-3, IEC/EN 61800-4, IEC/EN 61800-5-1, IEC/EN 60529, IEEE 519, others on request
Certificates	CE, EAC, UL
Environmental conditions	
Storage temperature	0°C to 50°C
Transportation temperature	25°C to 70°C
Working temperature	0-40°C, up to 50°C with derating
Relative humidity	Up to 95% (without condensation)
Altitude	\leq 1000m without derating. With derating of 1% every 100m up to 2000 meters
Noise level	Approx. 80 dB (A), depending on size
Pollution degree	Pollution degree 2 in accordance with IEC 61800-5-1

Control and signalling devices

Control and signalling units

Ø16 double insulated – Harmony XB6	
Pushbuttons, E-stops, selector switches and key switches	J3
Illuminated pushbuttons and pilot lights	J4
Spares and accessories	J5
Ø22 chromium plated metal bezel – Harmony XB4	J6
Complete units	J7
Pushbutton spring return heads	J8
Pushbutton latching, mushroom head and E-stop switch heads	J9
Multiple headed pushbuttons heads	J10
Selector, toggle and key switch heads	J11
Illuminated spring return and latching pushbutton heads	J12
Illuminated selector switches	J13
Bodies, contact blocks and light sources	J17
Pilot lights and accessories	J18-19
Joysticks, potentiometer and miscellaneous devices	J20
Legends	J36
Accessories	J37
Metal enclosures and base mount accessories	J42
Ø22 black double insulated bezel – Harmony XB5	J21
Complete units	J22
Pushbutton spring return heads	J23
Pushbutton latching, mushroom head and E-stop switch heads	J24
Multiple headed pushbutton head	J25
Selector, toggle and key switch heads	J26
Illuminated spring return and latching pushbutton heads	J27
Illuminated selector switches	J27
Bodies, contact blocks and light sources	J31
Pilot lights and accessories	J32-33
Joysticks, potentiometer and miscellaneous devices	J34-35
Legends	J36
Accessories	J37
Plastic enclosures and base mount accessories	J41
Ø30 built in flush, chromium plated metal bezel – Harmony XB4	
Complete units	J14
Pushbutton spring return heads	J15
Selector, toggle and key switch heads	J16
Illuminated pushbutton heads	J15
Bodies, contact blocks and light sources	J17
Pilot light and accessories	J18-19
Legends	J36

Control and signalling devices

Control and signalling units

Ø30 built in flush, black double insulated bezel -

Harmony XB5

Complete units	J28
Pushbutton spring return heads	J29
Selector, toggle and key switch heads	J30
Illuminated pushbutton heads	J29
Bodies, Contact blocks and light sources	J31
Pilot light and accessories	J32-33
Legends	J36

Square D - Ø30 chromium plated metal bezel – 9001 type K

Pushbutton and selector switch operators	J47
Pilot lights	J49
Joysticks and accessories	J50
Empty enclosures to suit 9001K	J42

Wireless battery-less devices and biometric switches

Biometric switches	J43
Harmony pocket remote - Wireless remote control system	J43
Wireless batteryless pushbuttons	J44-45

Pendant stations and joysticks

XK heavy duty joystick controller	J51
XACA general purpose pendant stations	J52-57
eXLHoist - remote control hoisting station	J58

Tower lights, sounders and beacons

XVSV Panel mount sounder	J59
XVR3 Beacons	J59
XVB Illuminated beacons and banks	J60-62
XVU Illuminated beacons and audible buzzers	J63-66

Control and signalling units

Ø16 black double insulated bezel – Harmony XB6
Pushbuttons, Emergency stops, selector switches and key switches
with faston connectors



XB6CA●●B



XB6DA●●B



XB6AA●●B

Pushbuttons

Shape of head	Type of push	Type of contact		Colour	Reference
		N/O	N/C		
Oblong	Flush, spring return	1	–	Green	XB6DA31B
Square	Flush, spring return	1	–	Green	XB6CA31B
			1	Red	XB6CA42B
Round	Flush, spring return	1	–	Green	XB6AA31B
			1	Red	XB6AA42B



XB6AS8349B



XB6AS9349B

Emergency stop trigger action mushroom head

Shape of head	Type of push	Type of contact		Colour	Diameter	Reference
		N/O	N/C			
Round	Turn to release	1	2	Red	30	XB6AS8349B
Round	Key release (No. 200)	1	2	Red	30	XB6AS9349B

Selector switches and key switches (Switching angle: handle: 60°, key: 70°)



XB6DD●●●B



XB6DG●●●B

Shape of head	Type of push	Type of contact		Reference
		N/O	N/C	
Oblong	Handle, black	1	–	2 – stay put
		1	1	2 – stay put
				3 – stay put
Oblong	Key (1)	1	1	2 – stay put
				3 – stay put

Note

(1) Key No. 200, withdrawal from all positions.

Control and signalling units

Ø16 black double insulated bezel – Harmony XB6
Illuminated pushbuttons and pilot lights



XB6DW●●●B





XB6CW●●●B



XB6A●●●●B

Illuminated Pushbuttons (with 12...24V LED included)

Shape of head	Type of push	Type of contact		Colour	Reference
					
		N/O	N/C		
Oblong	Flush, spring return	1	–	Green	XB6DW3B1B
		–	1	Red	XB6DW4B2B
Square	Flush, spring return	1	–	Green	XB6CW3B1B
		–	1	Red	XB6CW4B2B
Square	Flush, latching	1	–	Green	XB6CF3B1B
		–	1	Red	XB6CF4B2B
Round	Flush, spring return	1	–	Green	XB6AW3B1B

Pilot lights (with 12...24V LED included)

Shape of head	Colour	Reference
Oblong	White	XB6DV1BB
	Green	XB6DV3BB
	Red	XB6DV4BB
	Yellow	XB6DV5BB
Square	White	XB6CV1BB
	Green	XB6CV3BB
	Red	XB6CV4BB
Round	White	XB6AV1BB
	Green	XB6AV3BB
	Red	XB6AV4BB
	Yellow	XB6AV5BB



XB6DV●BB



XB6CV●BB

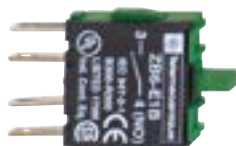


XB6AV●BB

J

Control and signalling units

Ø16 black double insulated bezel – Harmony XB6 Spare and Accessories



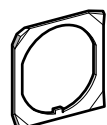
ZB6E●B

Separate contact blocks (1)

Contact material	For use with bodies	Type of contact		Reference
		N/O	N/C	
Silver alloy	Faston connector	1	–	ZB6E1B
		–	1	ZB6E2B
Gold flashed	Faston connector	1	–	ZB6E1E
		–	1	ZB6E2E



ZB6Y009



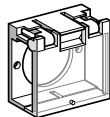
ZB6Y003



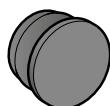
ZB6Y905



ZB6YA001



ZB6YD001



ZB6Y005



ZB6Y7330

Accessories

Description	Application	Reference
Body/fixing collar	For fitting contact blocks	ZB6Y009
Anti-rotation plate	Selector switches	ZB6Y003
Lock nut	Securing head on support	ZB6Y002
Dismantling tool	Removal of contacts blocks from body/fixing collar	ZB6Y018
Extractor	Removal of Pushbutton caps	ZB6Y016
Bezel tightening tool + bulb extractor	Fixing the switch and changing bulbs	ZB6Y905
Dismantling tool kit (3 tools)	Removal of contacts, fixing nuts and Pushbutton caps	ZB6Y019
Adaptor	For flush mounting a circular Pushbutton, switch or pilot light in a Ø22 hole	ZB6YA002
Protective cover	Protection of contacts against accidental touching	ZB6Y001
Protective cover	Circular and square head Pushbuttons and switches	ZB6YA001
Protective cover	Rectangular head Pushbuttons and switches	ZB6YD001
Female Faston connector	–	ZB6Y004
Blanking plug	–	ZB6Y005
Circular legends, Ø45	Yellow colour emergency stop	ZB6Y7330
Spare LED lamps	White	ZB6EB1B
	Green	ZB6EB3B
	Red	ZB6EB4B
	Orange	ZB6EB8B

Protected LED

J

Note

(1) Contact ratings: 1.5A at AC15 230V

Control and signalling units

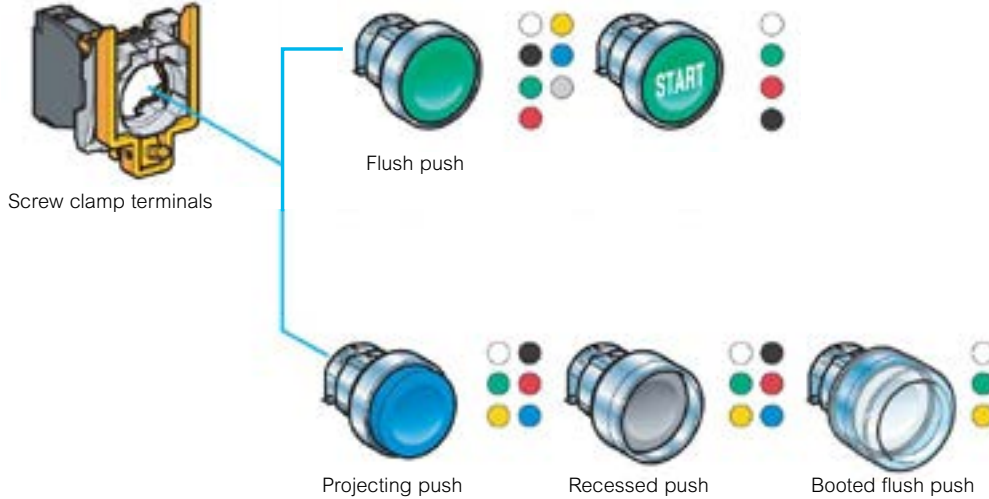
Product configurator
on se.com/nz

Ø22 chromium plated metal bezel – Harmony XB4
Assembly of components

Pushbutton assembly

Body sub-assemblies

Head sub-assemblies



Pilot light assembly

Body sub-assemblies
with integral LED

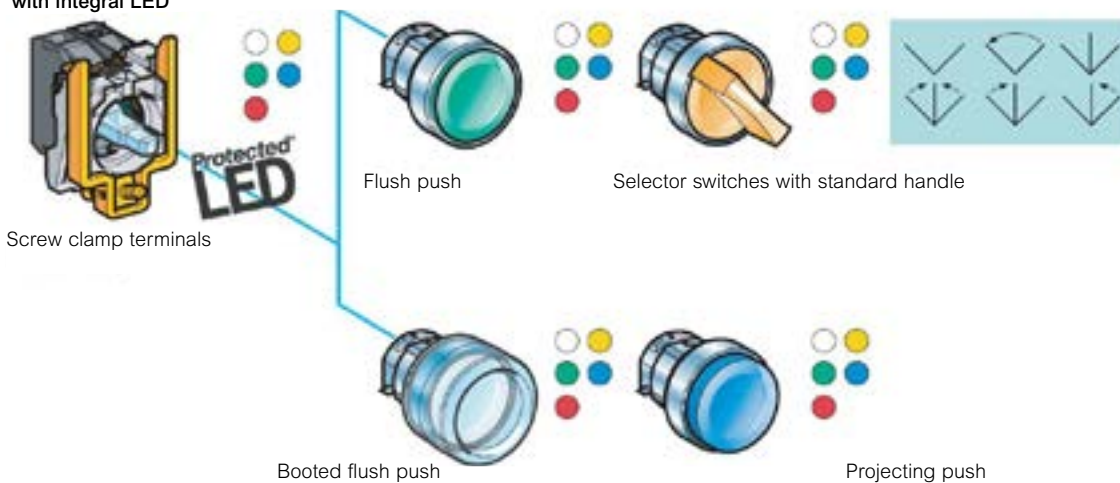
Head sub-assemblies



Illuminated pushbutton assembly

Body sub-assemblies
with integral LED

Head sub-assemblies



Harmony XB4 delivers extremely robust performance even in severe environments.

- > Sealing effectiveness rated up to IP66, IP67, IP68, IP69, IP69K, and type 4X
- > High impact resistance up to IK06 rating
- > Operating temperature ranging from -40 to +70 °C/-40 to +158 °F
- > Compliance with international standards (IEC, UL, CCC, EAC, JIS)
- > Marine certified (BV, LROS, BDNV, GL)
- > Harmony pushbuttons are designed to perform up to 10 million operations.

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Complete pushbuttons and selector switches

Complete spring return pushbuttons



XB4BA51



XB4BP21



XB4BA4322



XB4BT845



XB4BW33B5



XB4BD33

Type	Marking	Contact type		Colour	Reference
		N/O	N/C		
Flush		1		White	XB4BA11
				Black	XB4BA21
				Green	XB4BA31
				Yellow	XB4BA51
				Blue	XB4BA61
Projecting		1	1	Red	XB4BA42
				Red	XB4BL42
Booted, clear silicon		1		Black	XB4BP21
				Green	XB4BP31
				Yellow	XB4BP51
				Blue	XB4BP61
Flush with marking	I	1		Red	XB4BP42
				Green	XB4BA3311
				Red	XB4BA4322
				White	XB4BA3341
				Black	XB4BA3351
Projecting with marking	O	1	1	Black	XB4BA3351
				Red	XB4BL4325
				Red	XB4BL4325

Complete mushroom head pushbutton

Type	Contact type		Colour	Reference
	N/O	N/C		
Mushroom head	1		Black	XB4BC21








Complete emergency stops

Type	Contact type		Colour	Reference
	N/O	N/C		
Push-pull Ø40mm	1	1	Red	XB4BT845
Turn to release Ø40mm	1	1	Red	XB4BS8445
Key release Ø40mm (key no. 455)	1	1	Red	XB4BS9445

Complete illuminated spring return pushbuttons

Type	Marking	Contact type		Supply voltage	Colour	Reference	
		N/O	N/C				
Illuminated Flush		1 N/O + 1 N/C		24V AC/DC	White	XB4BW31B5	
					Green	XB4BW33B5	
					Red	XB4BW34B5	
					Orange	XB4BW35B5	
					Blue	XB4BW36B5	
					230...240V AC	White	XB4BW31M5
						Green	XB4BW33M5
						Red	XB4BW34M5
						Orange	XB4BW35M5
						Blue	XB4BW36M5

Complete selector switches

Type of operator	No. & type of positions	Contacts	Reference
Standard handle, black	2 - stay put 	1 N/O	XB4BD21
	2 - spring return from right to left 	1 N/O	XB4BD41
	3 - Stay put 	2 N/O	XB4BD33
	3 - spring return to center 	2 N/O	XB4BD53
Key switch with key no. 455	2 - stay put 	1 N/O	XB4BG21
	2 - spring return to left 	1 N/O	XB4BG61
	3 - stay put 	2 N/O	XB4BG33

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Pushbutton heads
Spring return type

Spring return pushbutton heads



ZB4BA1



ZB4BA18



ZB4BP6



ZB4BP4S



ZB4BL1



ZB4BA36



ZB4BC580
Harsh environment
-40° to +70°
Larger head for use
with gloves

Type	Colour	Reference
Flush	White	ZB4BA1
	Black	ZB4BA2
	Green	ZB4BA3
	Red	ZB4BA4
	Yellow	ZB4BA5
	Blue	ZB4BA6
	Grey	ZB4BA8
	Flush with transparent cap, for insertion of legend (2) (3)	White
Green		ZB4BA38
Red		ZB4BA48
Yellow		ZB4BA58
Projecting booted (clear) colour of Pushbutton unobscured	Blue	ZB4BA68
	White	ZB4BP1
	Black	ZB4BP2
	Green	ZB4BP3
	Red	ZB4BP4
	Yellow	ZB4BP5
Flush booted (coloured) (1)	Blue	ZB4BP6
	White	ZB4BP1S
	Black	ZB4BP2S
	Green	ZB4BP3S
	Red	ZB4BP4S
	Yellow	ZB4BP5S
Projecting	Blue	ZB4BP6S
	White	ZB4BL1
	Black	ZB4BL2
	Green	ZB4BL3
	Red	ZB4BL4
	Yellow	ZB4BL5
Recessed (high guard)	Blue	ZB4BL6
	White	ZB4BA16
	Black	ZB4BA26
	Green	ZB4BA36
	Red	ZB4BA46
	Yellow	ZB4BA56
	Blue	ZB4BA66

Pushbutton heads with integrated bellows, metal, IP69k (4)

Shape of head	Symbol	Colour of pushbutton	Reference
Head only, without marking Uses ZB4 22mm components		White	ZB4BC180
		Black	ZB4BC280
		Green	ZB4BC380
		Red	ZB4BC480
		Yellow	ZB4BC580
		Blue	ZB4BC680
Head only, with marking	0	Red	ZB4BC48021
	1	Green	ZB4BC38023

Notes

- (1) Boot replaceable from front.
- (2) For legend ordering information, refer to page J36.
- (3) For actuation of outer contact only.
- (4) For guarding accessories see page J37. (ZBZ1902)

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
 Pushbutton heads
 Latching, mushroom head and E-stop switch heads



ZB4BA331



ZB4BL432



ZB4BH02



ZB4BH6



ZB4BC2



ZB4BS844



ZB4BT2

Spring return pushbutton heads - marked

Type	Marking	Symbol colour	Colour	Reference
Flush	I	White	Green	ZB4BA331
	START	White	Green	ZB4BA333
	ON	White	Green	ZB4BA341
	O	White	Red	ZB4BA432
	STOP	White	Red	ZB4BA434
	OFF	White	Red	ZB4BA435
	↑, ↓, ←, → (1)	Black	White	ZB4BA334
Projecting		White	Black	ZB4BA335
	O	White	Red	ZB4BL432
	STOP	White	Red	ZB4BL434

Latching heads (2)

Type	Colour	Reference
Flush	White	ZB4BH01
	Black	ZB4BH02
	Green	ZB4BH03
	Red	ZB4BH04
	Yellow	ZB4BH05
	Blue	ZB4BH06
Projecting	White	ZB4BH1
	Black	ZB4BH2
	Green	ZB4BH3
	Red	ZB4BH4
	Yellow	ZB4BH5
	Blue	ZB4BH6

Mushroom heads for spring return Pushbuttons (5)

Diameter	Colour	Reference
Ø40mm (3)	Black	ZB4BC2
	Green	ZB4BC3
	Red (6)	ZB4BC4
	Yellow	ZB4BC5
	Blue	ZB4BC6

Mushroom heads for emergency stop Pushbuttons (4)

Type	Diameter	Colour	Reference
Trigger action turn to release (6)	30	Red	ZB4BS834
Trigger action turn to release (6)	40	Red	ZB4BS844
Trigger action turn to release (6)	60	Red	ZB4BS864
Trigger action push-pull (6)	40	Red	ZB4BT84
Trigger action push-pull (6)	60	Red	ZB4BX84
Trigger action key release (6)(7)	40	Red	ZB4BS944
Trigger action key release (6)(7)	60	Red	ZB4BS964

Mushroom heads for machine stop Pushbuttons

Type	Diameter	Colour	Reference
Latching action push-pull	40	Black	ZB4BT2

Notes

- (1) Cap supplied not clipped-in, allowing orientation of arrow in 4 directions: ↑, ↓, ← or →.
- (2) Maximum of 1 row of 3 contact blocks on associated body/fixing collar sub-assembly.
- (3) Also available in Ø30 and 60mm.
- (4) Maximum number of contact blocks: 4.
- (5) Not suitable for use as an emergency stop device.
- (6) Conforms to ISO13850-IEC/EN60947-5-5.
- (7) Comes with key no. 455.

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Complete multiple headed pushbuttons
Multiple headed pushbutton heads



XB4BL73415



XB4BW73731●5



ZB4BL7341



ZB4BW7L3741



ZB4BA71114



XB4BW73731

Spring return complete double-headed pushbuttons

Type	Marking	Contact type		Colour	Supply	Reference
		N/O	N/C			
1 flush Black + 1 projecting Red		1	1	White "I" on Green background White "0" on Red background		XB4BL73415
1 flush Black push 1 projecting Red push 1 White central pilot light block		1	1	White "I" on Green background White "0" on Red background	24V AC/DC 240V AC	XB4BW73731B5 XB4BW73731M5

Double-headed pushbutton heads, IP66 (1)

Description	Colour and marking of caps	Reference
1 flush black push	Green + red background, unmarked	ZB4BL7340
1 projecting red push	White "I" on green background White "0" on red background	ZB4BL7341

Double-headed pushbutton heads with central pilot light, IP66 (1)

Description	Colour and marking of caps	Reference
1 flush black push	Green + red background, unmarked	ZB4BW7L3740
1 projecting red push	White "I" on green background	ZB4BW7L3741
1 clear central pilot light (2)	White "0" on red background	

Triple-headed pushbutton heads, IP66 (1)

Description	Colour and marking of caps	Reference
2 flush black pushes	Black "→" on white background	ZB4BA71123
1 central projecting red push marked "STOP" in white text	White "←" on black background	
	Black "↑" on white background White "↓" on black background	ZB4BA71124

Triple headed pushbutton heads + 1 white central pilot light, IP66 (1)

Description	Colour and marking of caps	Voltages	Reference
1 flush black push	White "I" on green background	24V	XB4BW73731B5
1 projecting red push	White "0" on red background	110V	XB4BW73731G5 (1)
1 clear pilot light		230V	XB4BW73731M5 (2)

Note

- (1) For replacement caps use part number ZBA79 for set of ten mixed caps.
(2) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Selector, toggle and key switch heads



ZB4BD4



ZB4BJ3



ZB4BD28



ZB4BG7

Selector switch heads

Type of operator	Number and type of positions	Reference	
Standard – handle, black	2 – stay put	ZB4BD2	
	2 – spring return from right to left	ZB4BD4	
	3 – stay put	ZB4BD3	
	3 – spring return to centre	ZB4BD5	
	3 – spring return from left to centre	ZB4BD7	
	3 – spring return from right to centre	ZB4BD8	
	Long – handle, black	2 – stay put	ZB4BJ2
		2 – spring return from right to left	ZB4BJ4
3 – stay put		ZB4BJ3	
3 – spring return to centre		ZB4BJ5	
3 – spring return from left to centre		ZB4BJ7	
Toggle	stay put	ZB4BD28	
	spring return	ZB4BD48	

Key switch heads


Type of operators	Number and type of positions (1)	Reference
Key (No. 455)	2 – stay put	ZB4BG2
		ZB4BG4
	2 – spring return from right to left	ZB4BG6
	3 – stay put	ZB4BG0
		ZB4BG3
		ZB4BG5
		ZB4BG9
		ZB4BG09
	3 – spring return from left to centre	ZB4BG1
	3 – spring return to centre	ZB4BG7
	3 – spring return from right to centre	ZB4BG8
		ZB4BG08

Other key numbers: P.O.A

- > Key No. 421E: add the suffix 12 to the ref.
- > Key No. 458A: add the suffix 10 to the ref.
- > Key No. 520E: add the suffix 14 to the ref.

Example: the reference for a head with key No. 421E for 2 pos sel sw becomes ZB4BG212.

Note

(1) The symbol  indicates key withdrawal position(s).

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Illuminated pushbutton heads
Spring return and latching type



ZB4BW343



ZB4BW563



ZB4BW133



ZB4BH033



ZB4BH53



ZB4BW443



ZB4BW663

Spring return illuminated heads

Type of push	Colour	Reference
Only for use with bodies comprising a light block with Protected LED		
Flush	White	ZB4BW313
	Green	ZB4BW333
	Red	ZB4BW343
	Orange	ZB4BW353
	Yellow	ZB4BW383
	Blue	ZB4BW363
Flush with clear boot	White	ZB4BW513
	Green	ZB4BW533
	Red	ZB4BW543
	Orange	ZB4BW553
	Yellow	ZB4BW583
	Blue	ZB4BW563
Projecting	White	ZB4BW113
	Green	ZB4BW133
	Red	ZB4BW143
	Orange	ZB4BW153
	Yellow	ZB4BW183
	Blue	ZB4BW163

Latching illuminated heads

Type	Colour	Reference
Only for use with bodies comprising a light block with Protected LED		
Flush	White	ZB4BH013
	Green	ZB4BH033
	Red	ZB4BH043
	Orange	ZB4BH053
	Yellow	ZB4BH083
	Blue	ZB4BH063
Projecting	White	ZB4BH13
	Green	ZB4BH33
	Red	ZB4BH43
	Orange	ZB4BH53
	Yellow	ZB4BH83
	Blue	ZB4BH63

Spring return illuminated Ø40 mushroom head

Type	Colour of push	Reference
Only for use with bodies comprising a light source with integral Protected LED		
	White	ZB4BW413
	Green	ZB4BW433
	Red	ZB4BW443 (1)
	Orange	ZB4BW453
	Blue	ZB4BW463

Latching illuminated Ø40 mushroom head

Type	Colour of push	Reference
Only for use with bodies comprising a light source with integral Protected LED		
Push-pull	White	ZB4BW613
	Green	ZB4BW633
	Red	ZB4BW643 (1)
	Orange	ZB4BW653
	Blue	ZB4BW663

Note

(1) Pushbutton head cannot be used for an Emergency stop function.

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Illuminated selector switch heads



ZB4BK1313

Selector switches illuminated – standard handle heads (1)

Number and type of positions	Colour of handle	Reference
Only for use with bodies comprising a light block with "Protected LED"		
2 – stay put	White	ZB4BK1213
	Green	ZB4BK1233
	Red	ZB4BK1243
	Yellow	ZB4BK1253
	Blue	ZB4BK1263
2 – spring return from right to left	White	ZB4BK1413
	Green	ZB4BK1433
	Red	ZB4BK1443
	Yellow	ZB4BK1453
	Blue	ZB4BK1463
3 – stay put	White	ZB4BK1313
	Green	ZB4BK1333
	Red	ZB4BK1343
	Yellow	ZB4BK1353
	Blue	ZB4BK1363
3 – spring return to centre	White	ZB4BK1513
	Green	ZB4BK1533
	Red	ZB4BK1543
	Yellow	ZB4BK1553
	Blue	ZB4BK1563
3 – spring return from right to centre	White	ZB4BK1813
	Green	ZB4BK1833
	Red	ZB4BK1843
	Yellow	ZB4BK1853
	Blue	ZB4BK1863
3 – spring return from left to centre	White	ZB4BK1713
	Green	ZB4BK1733
	Red	ZB4BK1743
	Yellow	ZB4BK1753
	Blue	ZB4BK1763

Note

(1) See page J17 and J19 for light bodies and contact blocks.

Control and signalling units

Ø30 chromium plated metal bezel – Harmony XB4
Built in flush - Complete pushbuttons and selector switches

Complete spring return pushbuttons - Ø30

Type	Marking	Contact type		Colour	Reference
		N/O	N/C		
Flush		1		White	XB4FA11
				Black	XB4FA21
				Green	XB4FA31
				Yellow	XB4FA51
				Blue	XB4FA61
				Red	XB4FA42
Projecting			1	Red	XB4FL42
Flush with marking	I	1		Green	XB4FA3311
	O		1	Red	XB4FA4322
	↑ (Black)	1		White	XB4FA3341
	↓ (White)	1		Black	XB4FA3351
	O		1	Red	XB4FL4325



XB4FA51



XB4FA4322



XB4FW33B5








Complete illuminated spring return pushbuttons - Ø30

Type	Marking	Contact type		Supply voltage	Colour	Reference
		N/O	N/C			
Illuminated Flush		1		24V AC/DC	White	XB4FW31B5
					Green	XB4FW33B5
					Red	XB4FW34B5
					Orange	XB4FW35B5
					Blue	XB4FW36B5
				230...240V AC	White	XB4FW31M5
					Green	XB4FW33M5
					Red	XB4FW34M5
					Orange	XB4FW35M5
					Blue	XB4FW36M5



XB4FD33

Complete selector switches - Ø30

Type of operator	No. & type of positions	Contacts	Reference
Standard handle, black	2 - stay put	 1 N/O	XB4FD21
	2 - spring return from right to left	 1 N/O	XB4FD41
	3 - Stay put	 2 N/O	XB4FD33
	3 - spring return to center	 2 N/O	XB4FD53
Key switch with key no. 455	2 - stay put	 1 N/O	XB4FG21
	2 - spring return to left	 1 N/O	XB4FG61
	3 - stay put	 2 N/O	XB4FG33

Control and signalling units

Ø30 chromium plated metal bezel – Harmony XB4
Built in flush - Pushbutton heads

Spring return pushbutton heads, unmarked - Ø30



ZB4FA4



ZB4FA38



ZB4FL1



ZB4FA36



ZB4FA334

Type	Colour	Reference
Flush	White	ZB4FA1
	Black	ZB4FA2
	Green	ZB4FA3
	Red	ZB4FA4
	Yellow	ZB4FA5
	Blue	ZB4FA6
Flush with transparent cap for insertion of legend (page J36)	Grey	ZB4FA8
	White	ZB4FA18
	Green	ZB4FA38
	Red	ZB4FA48
	Yellow	ZB4FA58
	Blue	ZB4FA68
Projecting	White	ZB4FL1
	Black	ZB4FL2
	Green	ZB4FL3
	Red	ZB4FL4
	Yellow	ZB4FL5
	Blue	ZB4FL6
Recessed	White	ZB4FA16
	Black	ZB4FA26
	Green	ZB4FA36
	Red	ZB4FA46
	Yellow	ZB4FA56
	Blue	ZB4FA66

Spring return pushbutton heads, marked - Ø30

Type	Marking	Colour	Reference
Flush	Start	Green	ZB4FA333
	I	Green	ZB4FA331
	ON	Green	ZB4FA341
	Stop	Red	ZB4FA434
	O	Red	ZB4FA432
	OFF	Red	ZB4FA435
	↑ (Black)	White	ZB4FA334
	↓ (White)	Black	ZB4FA335
Projecting	O	Red	ZB4FL432
	Stop	Red	ZB4FL434

Latched pushbutton heads, unmarked - Ø30

Type	Colour	Reference
Flush	White	ZB4FH01
	Black	ZB4FH02
	Green	ZB4FH03
	Red	ZB4FH04
	Yellow	ZB4FH05
	Blue	ZB4FH06
Projecting	White	ZB4FH1
	Black	ZB4FH2
	Green	ZB4FH3
	Red	ZB4FH4
	Yellow	ZB4FH5
	Blue	ZB4FH6

Illuminated pushbutton heads, unmarked - Ø30



ZB4FW333

Type	Colour	Reference
Flush	White	ZB4FW313
	Green	ZB4FW333
	Red	ZB4FW343
	Yellow	ZB4FW383
	Blue	ZB4FW363
	Flush for insertion of legend (legend on page J36)	White
	Green	ZB4FA38
	Red	ZB4FA48
	Yellow	ZB4FA88
	Blue	ZB4FA68

Control and signalling units

Ø30 chromium plated metal bezel – Harmony XB4
Built in flush – Selector switch heads

Selector switch heads - Ø30



ZB4FD2M178



ZB4FJ3



ZB4FG0

Type	No. & type of positions		Reference
Standard handle, black	2 - stay put		ZB4FD2
	2 - stay put with 'O' & 'I' marking		ZB4FD2M178
	2 - spring return from right to left		ZB4FD4
	3 - Stay put		ZB4FD3
	3 - spring return to center		ZB4FD5
	3 - spring return from left to center		ZB4FD7
	3 - spring return from right to center		ZB4FD8
	Long handle, black	2 - stay put	
2 - spring return from right to left			ZB4FJ4
3 - Stay put			ZB4FJ3
3 - spring return to center			ZB4FJ5
3 - spring return from left to center			ZB4FJ7
3 - spring return from right to center			ZB4FJ8

Kew switch heads - Ø30

Type	No. & type of positions		Reference
with key no. 455	2 - stay put		ZB4FG2
			ZB4FG4
	2 - spring return from right to left		ZB4FG6
	3 - Stay put		ZB4FG0
			ZB4FG5
			ZB4FG9
			ZB4FG09
	3 - Spring return from left to center		ZB4FG1
	3 - Spring return to center		ZB4FG7
	3 - Spring return from right to center		ZB4FG8

Other key numbers:

- > Key no. 421E: add suffix 12 to the reference.
- > Key no. 458A: add suffix 10 to the reference.
- > Key no. 520E: add suffix 14 to the reference.
- > Key no. 3131A: add suffix 20 to the reference.

Example: For a switch head with key no. 421E, 2-position stay put, with key withdrawal from the left-hand position, the reference becomes: ZB4F G212.

Control and signalling units

Ø22/Ø30 chromium plated metal bezel – Harmony XB4
Bodies, contact blocks and light sources



ZB4BZ101

Pushbutton and selector switch bodies with contacts

Description	Type of contact		Reference
	N/O	N/C	
Screw clamp terminal connections	1	–	ZB4BZ101
	–	1	ZB4BZ102
Spring clamp	1	–	ZB4BZ1015 (2)
Spring clamp	–	1	ZB4BZ1025 (2)
1 early make/1 late break	1	1	ZB4BZ106
1 early make/1 normal	2	–	ZB4BZ107



ZBE101

ZBE1015 (2)

Additional contact blocks (1)

Description	Type of contact		Reference
	N/O	N/C	
Standard single	1	–	ZBE101
	–	1	ZBE102
Early make	1	–	ZBE201
Late Break	–	1	ZBE202
Standard single – Spring clamp terminals	1	–	ZBE1015 (2)
	–	1	ZBE1025 (2)
Special contact blocks (2) (for low power switching)	1	–	ZBE1016
	–	1	ZBE1026
Fixing collar	–	–	ZB4BZ009



ZBVB1

Additional light sources

Description	Supply voltage (V)	Colour	Reference
Integral LED (to combine with heads for integral LED)	≈ 12	White	ZBVJ1
	≈ 24 (3)(4)	White	ZBVB1
	≈ 24 – 120 (3) (5)	White	ZBVBG1
	≈ 110 – 120 (3)	White	ZBVG1
	(4) (5)		
	≈ 230 – 240 (3)	White	ZBVM1
	(4) (5)		

Light Block - Protected

Description	Supply Voltage (V)	Color of light source	Reference
Integral LED (to combine with heads for integral LED)	110..240 ~ (50/60 Hz)	White	ZBVG1M1T



ZBE1015 & ZBV●●5 (2)



ZBVG1M1T

Notes

- (1) Maximum amount of contact blocks to be stacked is three deep. For E-stops see page J9 note (4).
- (2) It is not possible to fit these contact blocks with supplementary contact blocks.
- (3) Add suffix 5 for spring clamp terminals e.g. ZBVJ15.
- (4) For flashing led add 18 to reference e.g. ZBV18B3.
- (5) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.
- (6) For 3 terminal "test" function, add the suffix 156 to the references.

Control and signalling units

Ø22/Ø30 chromium plated metal bezel – Harmony XB4
Pilot light complete and pilot light heads



XB4BVB5

Pilot lights complete with “Protected LED” Ø22

Supply voltage(V)	Colour	Reference
≈ 24	White	XB4BVB1
	Green	XB4BVB3
	Red	XB4BVB4
	Orange / Amber	XB4BVB5
	Blue	XB4BVB6
	~ 110...120 (1)	White
Green		XB4BVG3
Red		XB4BVG4
Orange / Amber		XB4BVG5
Blue		XB4BVG6
~ 230...240 (1)		White
	Green	XB4BVM3
	Red	XB4BVM4
	Orange / Amber	XB4BVM5
	Blue	XB4BVM6



ZB4BV053

Pilot light heads to suit “Protected LED” Ø22

For use with body comprising light source type	Colour of lens	Reference
Integral LED	White	ZB4BV013
	Green	ZB4BV033
	Red	ZB4BV043
	Orange / Amber	ZB4BV053
	Blue	ZB4BV063

Pilot lights complete with “Protected LED” - Ø30

Type	Supply voltage	Colour	Reference
with integral LED	24V AC/DC	White	XB4FVB1
		Green	XB4FVB3
		Red	XB4FVB4
		Orange	XB4FVB5
		Blue	XB4FVB6
		230...240V AC	White
	Green		XB4FVM3
	Red		XB4FVM4
	Orange		XB4FVM5
	Blue		XB4FVM6



XB4FVB5



ZB4FV063

Pilot light heads to suit “Protected LED” - Ø30

For use with body comprising light source type	Colour	Reference
Integral LED	White	ZB4FV013
	Green	ZB4FV033
	Red	ZB4FV043
	Orange	ZB4FV053
	Blue	ZB4FV063

Notes

(1) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Pilot light and illuminated pushbutton accessories



ZB4BV●●

Pilot light bodies to suit “Protected LED”

Description	Supply voltage (V)	Colour	Reference
Integral LED	≈ 12	White	ZB4BVJ1
	≈ 24 (4)	White	ZB4BVB1
	≈ 24...120 (4) (5)	White	ZB4VBVG1
	≈ 110...120 (4) (5) (6)	White	ZB4BVG1
	≈ 230...240 (4) (5) (6)	White	ZB4BVM1

LED suppressors and transformer blocks

For use with	Supply voltage (V)	Reference
Transformer block	400V-24V	ZBV5B (7)
Dummy contact blocks		ZBE000



ZBZG156



ZBZM156

Blocks for “test light” light function

For use with	Supply voltage (V)	Description	Reference
Light blocks	≈ 12 and 24	Single module,	ZBZG156
	≈ 24...120	1 connecting wire	
Light blocks with integral LED	≈ 48...230	Double module, with connecting wires	ZBZM156



ZB4BZ009

Body/fixing collar

For use with	Reference
Electrical blocks (contact or light)	ZB4BZ009

Notes

- (1) Maximum amount of contact blocks to be stacked is three deep. For E-stops see page J9 note (4).
- (2) It is not possible to fit these contact blocks with supplementary contact blocks.
- (3) Add suffix 5 for spring clamp terminals e.g. ZBVJ15.
- (4) For flashing led add 18 to reference e.g. ZBV18B3.
- (5) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.
- (6) For 3 terminal “test” function, add the suffix 156 to the references.
- (7) Select light source LED and transformer plus 2 dummy contact blocks.

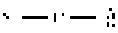

Control and signalling units

Ø22 chromium plated metal bezel – Harmony XB4
Joysticks, potentiometer and miscellaneous devices



XD4PA12

Ø22 complete units type XD4-P for light duty applications (1)

Description	Operation	Spring return to 'Off' position	Bezel	Reference
2 direction 	1 notch 1 N/O contact per direction	Without	Metal	XD4PA12
		With	Metal	XD4PA22
4 direction 	1 notch 1 N/O contact per direction	Without	Metal	XD4PA14
		With	Metal	XD4PA24



XD2GA8241

Ø22 complete units type XD2-G (interchangeable contact blocks) (2) (3) (4)

Description	Operation	Spring return to 'Off' position	Reference
2 direction 90 x 90mm fixing centres	2 notches 2 N/O contacts per direction	With	XD2GA8241
		1st notch stayput 2nd notch with spring return to 1st	XD2GA8251
4 direction 90 x 90mm fixing centres	2 notches 2 N/O contacts per direction	With	XD2GA8441
		1st notch stayput 2nd notch with spring return to 1st	XD2GA8451

J



ZB2BE101

Spare contact blocks

Description	For use with	Reference
1 N/O contact block	XD2-G 2 and 4 direction	ZB2BE101



XB4BA861

Manual overload reset buttons, flush push

Travel	Actuation distance (mm)	Colour	Reference
10	6...16	Blue	XB4BA861
	6...26	Blue	XB4BA862
14	30...130	Blue	XB4BA961
	130...257	Blue	XB4BA962



XB4BD912R1K

Ø22 complete potentiometer (5)

Description	Resistance (kΩ)	Reference
+/- 10% linear mode precision complete potentiometer with screw terminals	1	XB4BD912R1K
	4.7	XB4BD912R4K7
	10	XB4BD912R10K
	47	XB4BD912R47K
	100	XB4BD912R100K
	470	XB4BD912R470K

Notes

- (1) Standard contact blocks cannot be used.
- (2) **ZB2BE101** to be used.
- (3) IP66.
- (4) Other configurations available by request.
- (5) 6mm shaft diameter

Control and signalling units

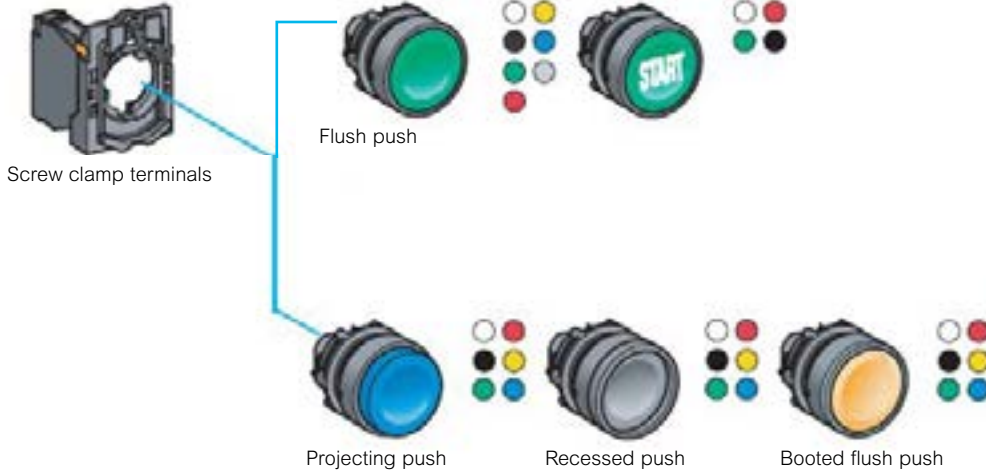
Product configurator
on se.com/nz

Ø22 black, double insulated bezel (Plastic) – Harmony XB5
Assembly of components

Pushbutton assembly

Body sub-assemblies

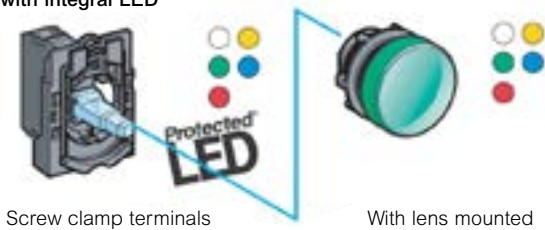
Head sub-assemblies



Pilot light assembly

Body sub-assemblies
with integral LED

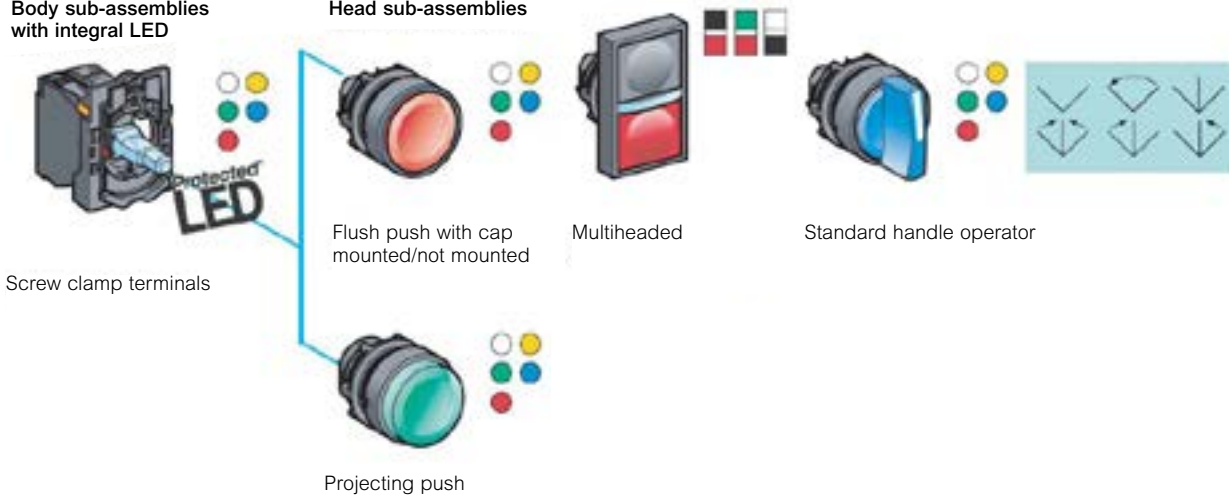
Head sub-assemblies



Illuminated pushbutton assembly

Body sub-assemblies
with integral LED

Head sub-assemblies



Harmony XB5 delivers extremely robust performance even in severe environments.

- > Sealing effectiveness rated up to IP66, IP67, IP68, IP69, IP69K, and type 4X
- > High impact resistance up to IK06 rating
- > Operating temperature ranging from -40 to +70 °C/-40 to +158 °F
- > Compliance with international standards (IEC, UL, CCC, EAC, JIS)
- > Marine certified (BV, LROS, BDNV, GL)
- > Harmony pushbuttons are designed to perform up to 10 million operations.

Control and signalling units

Ø22 black, double insulated bezel (Plastic) – Harmony XB5
Complete pushbuttons and selector switches



XB5AA31



XB5AP51



XB5AA4322

Complete spring return pushbuttons

Type	Marking	Contact type		Colour	Reference
		N/O	N/C		
Flush		1		White	XB5AA11
				Black	XB5AA21
				Green	XB5AA31
				Yellow	XB5AA51
				Blue	XB5AA61
Projecting		1		Red	XB5AA42
				Red	XB4BL42
Booted, clear silicon		1		Black	XB5AP21
				Green	XB5AP31
				Yellow	XB5AP51
				Blue	XB5AP61
				Red	XB5AP42
Flush with marking	I	1		Green	XB5AA3311
	O		1	Red	XB5AA4322
	↑ (Black)	1		White	XB5AA3341
	↓ (White)	1		Black	XB5AA3351
Projecting with marking	O		1	Red	XB5AL4322

Complete mushroom head pushbutton

Type	Contact type		Colour	Reference
	N/O	N/C		
Mushroom head	1		Black	XB5AC21

Complete emergency stops



XB5AS8445

Type	Contact type		Colour	Reference
	N/O	N/C		
Push-pull Ø40mm	1	1	Red	XB5AT845
Turn to release Ø40mm	1	1	Red	XB5AS8445
Key release Ø40mm (key no. 455)	1	1	Red	XB5AS9445

Complete illuminated spring return pushbuttons



XB5AW31B5

Type	Contact type	Supply voltage	Colour	Reference

Complete selector switches



XB5AD33

Type of operator	No. & type of positions	Contacts	Reference
Standard handle, black	2 - stay put	1 N/O	XB5AD21
	2 - spring return from right to left	1 N/O	XB5AD41
	3 - Stay put	2 N/O	XB5AD33
	3 - spring return to center	2 N/O	XB5AD53
Key switch with key no. 455	2 - stay put	1 N/O	XB5AG21
	2 - spring return to left	1 N/O	XB5AG61
	3 - stay put	2 N/O	XB5AG33

Control and signalling units

Ø22 black, double insulated bezel – Harmony XB5
Push-button heads
Spring return, latching and harsh environment type



ZB5AA5

Spring return pushbutton heads

Type – Unmarked	Colour	Reference		
Flush	White	ZB5AA1		
	Black	ZB5AA2		
	Green	ZB5AA3		
	Red	ZB5AA4		
	Yellow	ZB5AA5		
	Blue	ZB5AA6		
	Grey	ZB5AA8		
	Flush with transparent cap, for insertion of legend (1) (for actuation of outer contact only)	White	ZB5AA18	
Green		ZB5AA38		
Red		ZB5AA48		
Yellow		ZB5AA58		
Blue		ZB5AA68		
Projecting clear boot, colour of Pushbutton unobscured (3)		Black	ZB5AP2	
	Green	ZB5AP3		
	Red	ZB5AP4		
	Yellow	ZB5AP5		
	Blue	ZB5AP6		
	Projecting	White	ZB5AL1	
Black		ZB5AL2		
Green		ZB5AL3		
Red		ZB5AL4		
Yellow		ZB5AL5		
Blue		ZB5AL6		
Type – Marked	Marking Text	Colour	Colour of cap	Reference
Flush (4)	START	White	Green	ZB5AA333
	STOP	White	Red	ZB5AA434
	UP	Black	White	ZB5AA343
	DOWN	White	Black	ZB5AA344
	Cap supplied not clipped-in, allowing orientation of arrow in 4 directions: ↑, ↓, ← or →.	Black	White	ZB5AA334
		White	Black	ZB5AA335



ZB5AL3



ZB5AA331



ZB5AH04

Latching pushbutton heads (2)

Type	Colour	Reference
Flush	White	ZB5AH01
	Black	ZB5AH02
	Green	ZB5AH03
	Red	ZB5AH04
	Yellow	ZB5AH05
	Blue	ZB5AH06

Pushbutton heads with integrated bellows, plastic, IP69k

Shape of head	Colour	Reference
Head only, without marking Uses ZB5 22mm components	White	ZB5AC180
	Black	ZB5AC280
	Green	ZB5AC380
	Red	ZB5AC480
	Yellow	ZB5AC580
	Blue	ZB5AC680



ZB5AC680
Harsh environment
-40° to +70°
Larger head for use
with gloves

Notes

- (1) For legend ordering information, see page J36.
- (2) Maximum of 1 row of 3 contact blocks.
- (3) For coloured boot add S to reference.
- (4) For projecting marked button substitute AA with AL in reference.

Control and signalling units

Ø22 black, double insulated bezel – Harmony XB5
Mushroom pushbutton and Emergency stop heads



ZB5AC2

Mushroom heads for spring return pushbuttons

Diameter	Colour	Reference
Ø40mm (1)	Black	ZB5AC2
	Green	ZB5AC3
	Red	ZB5AC4
	Yellow	ZB5AC5



ZB5AS844



ZB5AS944

Emergency stop trigger action mushroom head (2) (3)

Type of reset	Diameter (mm)	Colour	Reference
Trigger action push-pull	40	Red	ZB5AT84
Trigger action turn to release	30	Red	ZB5AS834
Trigger action turn to release	40	Red	ZB5AS844
Trigger action key release	40	Red	ZB5AS944
Trigger action key release	60	Red	ZB5AS964



ZB5AS842Y

Machine safe stop trigger action mushroom head (2)

Type of reset	Diameter (mm)	Colour	Reference
Trigger action turn to release	40	Black	ZB5AS842Y
Trigger action key release	40	Black	ZB5AS942Y
Trigger action push pull	40	Black	ZB5AT82Y



ZB5AT8643M

Emergency stop trigger action illuminated head with mechanical latching and mechanical state indicator for elevator inspection box applications

Type of reset	Push Ø(mm)	Colour	Reference
Push-pull (4)	40	Red	ZB5AT8643M
Legend - Emergency stop			ZB5AT8643M330



ZB5AW743

Head for Ø40 latching mushroom head Pushbuttons illuminated

Type of reset	Colour	Reference
Only for use with bodies comprising a light source with integral LED (4)		
Turn to release	White	ZB5AW713
	Green	ZB5AW733
	Red	ZB5AW743
	Yellow	ZB5AW753
	Blue	ZB5AW763



XB5AS84462

Emergency stop with monitoring contacts, trigger action and mechanical latching (complete with contacts)

Type	Reference
Monitoring contact block, 1 NC with monitoring contact	ZBE302
Plastic emergency stop pushbutton 1NC with monitoring contact	XB5AS8446
Plastic emergency stop pushbutton 1NC + 1NC with monitoring contact	XB5AS84462
Metal emergency stop pushbutton 1NC with monitoring contact	XB4BS8446
Metal emergency stop pushbutton 1NC + 1NC with monitoring contact	XB4BS84462
Plastic emergency stop control station 1NC + 1NC with monitoring contact	XALK1786
Plastic emergency stop control station 1NC + 1NC with monitoring contact, UL/CSA	XALK1786H7



ZB5AS84W2B

Illuminated Emergency stop with trigger action and mechanical latching

Type	Signaling type	Supply voltage	Reference
Turn to release heads	Fixed, red	24V AC/DC	ZB5AS84W2B
	Fixed, red	230V AC	ZB5AS84W2M
	Fixed, white, red, bi-colour	24V AC/DC	ZB5AS84W3B
Contact block with collar	1N/O & 2 N/C		ZB5AZ141
	1N/O & 1 N/C		ZB5AZ105
Ø90 legend			ZBY8L330

Notes

- (1) Ø30 and Ø60mm mushroom heads are also available.
- (2) Maximum of 4 contact blocks fitted to associated body.
- (3) Conforms to EN418, ISO13850-IEC/EN60947-5-5.
- (4) Lamp block not included see pages J31 or J33.

Control and signalling units

Ø22 black, double insulated bezel (Plastic) – Harmony XB5
 Complete multiple headed pushbuttons
 Multiple headed pushbutton heads

Spring return complete double-headed pushbuttons



XB5AL73415



XB5AW73731M5

Type	Marking	Contact type		Colour	Supply	Reference
		N/O	N/C			
1 flush Black + 1 projecting Red		1	1	White "I" on Green background White "0" on Red background		XB5AL73415
1 flush Black push 1 projecting Red push 1 White central pilot light block		1	1	White "I" on Green background White "0" on Red background	24V AC/DC 240V AC	XB5AW73731B5 XB5AW73731M5

Double-headed pushbutton heads, IP66 (1)



ZB5AL7341

Description	Colour and marking of caps	Reference
1 flush black push 1 projecting red push	Green + red background, unmarked White "I" on green background White "0" on red background	ZB5AL7340 ZB5AL7341

Double-headed pushbutton heads with central pilot light, IP66 (1) (2)



ZB5AW7L3741 + ZB5AZ1

Description	Colour and marking of caps	Reference
1 flush black push	Green + red background, unmarked	ZB5AW7L3740
1 projecting red push	White "I" on green background	ZB5AW7L3741
1 clear central pilot light	White "0" on red background	

Triple-headed pushbutton heads, IP66 (1)



ZB5AA71114

Description	Colour and marking of caps	Reference
2 flush black pushes	Black "→" on white background White "←" on black background	ZB5AA71113
1 central projecting red push marked "STOP" in white text	Black "↑" on white background White "↓" on black background	ZB5AA71114

Note

- (1) For replacement caps use part number ZBA79 for set of ten mixed caps.
- (2) Colour of the central pilot lights depends on the colour of the LED light block.

Control and signalling units

Ø22 black, double insulated bezel – Harmony XB5
Selector, toggle and key switch heads



ZB5AD2

Selector switch heads (IP69K)

Type of operator	Number and type of positions	Reference
Standard handle, black	2 – stay put	ZB5AD2
	2 – spring return from right to left	ZB5AD4
	3 – stay put	ZB5AD3
	3 – spring return to centre	ZB5AD5
	3 – spring return from left to centre	ZB5AD7
	3 – spring return from right to centre	ZB5AD8



ZB5AAD28

Toggle switch heads

Description	Lever colour	Type of position	Reference
2 positions	Black	Stay put	ZB5AD28
		Spring return	ZB5AD48



ZB5AG4

Key switch heads (IP69K)

Type of operator	Number and type of positions (1)	Reference
Key (No. 455) (1)	2 – stay put	ZB5AG2
		ZB5AG4
		ZB5AG6
	2 – spring return from right to left	ZB5AG0
		ZB5AG3
		ZB5AG5
	3 – stay put	ZB5AG9
		ZB5AG09
		ZB5AG1
	3 – spring return from left to centre	ZB5AG7
	3 – spring return to centre	ZB5AG08

Other key numbers: P.O.A

- > Key No. 421E: add the suffix 12 to the ref.
- > Key No. 458A: add the suffix 10 to the ref.
- > Key No. 520E: add the suffix 14 to the ref.

Example: the reference for a head with key No. 421E for 2 pos sel sw becomes ZB5AG212.

Note

(1) The symbol indicates key withdrawal position(s).

Control and signalling units

Ø22 black, double insulated bezel – Harmony XB5
Illuminated pushbutton heads and selector switch heads



ZB5AW363



ZB5AW333



ZB5AH043



ZB5AK1233

Spring return illuminated heads – Ø22 (1)

Type	Colour	Reference
Only for use with bodies comprising a light block with “Protected LED”		
Flush	White	ZB5AW313
	Green	ZB5AW333
	Red	ZB5AW343
	Yellow	ZB5AW353
	Blue	ZB5AW363
Flush for insertion of legend (3)	White	ZB5AA18
	Green	ZB5AA38
	Red	ZB5AA48
	Yellow	ZB5AA58
	Blue	ZB5AA68

Latching illuminated heads – Ø22 (1)

Type	Colour	Reference
Only for use with bodies comprising a light block with “Protected LED”		
Flush	White	ZB5AH013
	Green	ZB5AH033
	Red	ZB5AH043
	Yellow	ZB5AH053
	Blue	ZB5AH063
Projecting	White	ZB5AH13
	Green	ZB5AH33
	Red	ZB5AH43
	Yellow	ZB5AH53
	Blue	ZB5AH63

Selector switches illuminated – standard handle heads – Ø22 (1)

Number and type of positions	Colour of handle	Reference
Only for use with bodies comprising a light block with “Protected LED”		
2 – stay put	White	ZB5AK1213
	Green	ZB5AK1233
	Red	ZB5AK1243
	Yellow	ZB5AK1253
	Blue	ZB5AK1263
2 – spring return from right to left	White	ZB5AK1413
	Green	ZB5AK1433
	Red	ZB5AK1443
	Yellow	ZB5AK1453
	Blue	ZB5AK1463
3 – stay put	White	ZB5AK1313
	Green	ZB5AK1333
	Red	ZB5AK1343
	Yellow	ZB5AK1353
	Blue	ZB5AK1363
3 – spring return to centre	White	ZB5AK1513
	Green	ZB5AK1533
	Red	ZB5AK1543
	Yellow	ZB5AK1553
	Blue	ZB5AK1563

Notes

(1) Maximum of 1 row of 2 contact blocks on associated body/fixing collar.

Control and signalling units

Ø30 black, double insulated bezel (Plastic) – Harmony XB5
Built in flush - Complete pushbuttons and selector switches



XB5FA31



XB5FA4322



XB5FW31B5

Complete spring return pushbuttons - Ø30

Type	Marking	Contact type		Colour	Reference
		N/O	N/C		
Flush		1		White	XB5FA11
				Black	XB5FA21
				Green	XB5FA31
				Yellow	XB5FA51
				Blue	XB5FA61
Projecting		1		Red	XB5FA42
		1		Red	XB5FL42
Flush with marking		1		Green	XB5FA3311
	O		1	Red	XB5FA4322
	↑ (Black)	1		White	XB5FA3341
	↓ (White)	1		Black	XB5FA3351
Projecting with marking	O		1	Red	XB5FL4322

Complete illuminated spring return pushbuttons - Ø30

Type	Contact type		Supply voltage	Colour	Reference	
	N/O	N/C				
Illuminated Flush	1	1	24V AC/DC	White	XB5FW31B5	
				Green	XB5FW33B5	
				Red	XB5FW34B5	
				Orange	XB5FW35B5	
				Blue	XB5FW36B5	
	230...240V AC				White	XB5FW31M5
					Green	XB5FW33M5
					Red	XB5FW34M5
					Orange	XB5FW35M5
					Blue	XB5FW36M5

Complete selector switches - Ø30

Type of operator	No. & type of positions		Contacts	Reference
Standard handle, black	2 - stay put		1 N/O	XB5FD21
	2 - spring return from right to left		1 N/O	XB5FD41
	3 - Stay put		2 N/O	XB5FD33
	3 - spring return to center		2 N/O	XB5FD53
Key switch with key no. 455	2 - stay put		1 N/O	XB5FG21
	2 - spring return to left		1 N/O	XB5FG61
	3 - stay put		2 N/O	XB5FG33



XB5FD33

J

Control and signalling units

Ø30 black, double insulated bezel (Plastic) – Harmony XB5
Built in flush - Pushbutton heads



ZB5FA4

Spring return pushbutton heads, unmarked – Ø30

Type Unmarked	Colour	Reference
Flush	White	ZB5FA1
	Black	ZB5FA2
	Green	ZB5FA3
	Red	ZB5FA4
	Yellow	ZB5FA5
	Blue	ZB5FA6
	Grey	ZB5FA8
	Flush with transparent cap, for insertion of legend	White
	Green	ZB5FA38
	Red	ZB5FA48
	Yellow	ZB5FA58
	Blue	ZB5FA68
Projecting	White	ZB5FL1
	Black	ZB5FL2
	Green	ZB5FL3
	Red	ZB5FL4
	Yellow	ZB5FL5
	Blue	ZB5FL6



ZB5FL3



ZB5FA331

Spring return pushbutton heads, marked - Ø30

Type	Marking	Colour	Reference
Flush	Start	Green	ZB5FA333
	I	Green	ZB5FA331
	ON	Green	ZB5FA341
	Stop	Red	ZB5FA434
	O	Red	ZB5FA432
	OFF	Red	ZB5FA435
	↑ (Black)	White	ZB5FA334
	↓ (White)	Black	ZB5FA335
Projecting	O	Red	ZB5FL432
	Stop	Red	ZB5FL434

Latched pushbutton heads, unmarked - Ø30

Type	Colour	Reference
Flush	White	ZB5FH01
	Black	ZB5FH02
	Green	ZB5FH03
	Red	ZB5FH04
	Yellow	ZB5FH05
	Blue	ZB5FH06
Projecting	White	ZB5FH1
	Black	ZB5FH2
	Green	ZB5FH3
	Red	ZB5FH4
	Yellow	ZB5FH5
	Blue	ZB5FH6



ZB5FW313

Illuminated pushbutton heads, unmarked - Ø30

Type	Colour	Reference
Flush	White	ZB5FW313
	Green	ZB5FW333
	Red	ZB5FW343
	Yellow	ZB5FW383
	Blue	ZB5FW363
	Flush for insertion of legend IP69K (legend on page J37)	White
Green		ZB5FA38
Red		ZB5FA48
Yellow		ZB5FA88
Blue		ZB5FA68

Control and signalling units

Ø30 black, double insulated bezel (Plastic) – Harmony XB5
Selector and key switch heads



ZB5FD2

Selector switch heads - Ø30

Type of operator	Number and type of positions		Reference
Standard handle, black	2 – stay put		ZB5FD2
	2 – spring return from right to left		ZB5FD4
	3 – stay put		ZB5FD3
	3 – spring return to centre		ZB5FD5
	3 – spring return from left to centre		ZB5FD7
	3 – spring return from right to centre		ZB5FD8

Key switch heads – Ø30

Type of operator	Number and type of positions (1)		Reference
Key (No. 455) (1)	2 – stay put		ZB5FG2
			ZB5FG4
	2 – spring return from right to left		ZB5FG6
			ZB5FG0
	3 – stay put		ZB5FG3
			ZB5FG5
			ZB5FG9
			ZB5FG09
			ZB5FG1
	3 – spring return from left to centre		ZB5FG7
	3 – spring return to centre		ZB5FG8
	3 – spring return from right to centre		ZB5FG08



ZB5FG2

J

Built in flush, illuminated selector switch heads – Ø30

Number and type of positions	Colour of handle	Reference
Only for use with bodies comprising a light block with "Protected LED"		
2 – stay put	White	ZB5FK1213
	Green	ZB5FK1233
	Red	ZB5FK1243
	Yellow	ZB5FK1283
	Blue	ZB5FK1263
2 – spring return from right to left	White	ZB5FK1413
	Green	ZB5FK1433
	Red	ZB5FK1443
	Yellow	ZB5FK1483
	Blue	ZB5FK1463
3 – stay put	White	ZB5FK1313
	Green	ZB5FK1333
	Red	ZB5FK1343
	Yellow	ZB5FK1383
	Blue	ZB5FK1363
3 – spring return to centre	White	ZB5FK1513
	Green	ZB5FK1533
	Red	ZB5FK1543
	Yellow	ZB5FK1583
	Blue	ZB5FK1563

Note

(1) The symbol indicates key withdrawal position(s).

Control and signalling units

Ø22/Ø30 black, double insulated bezel – Harmony XB5
Bodies, contact blocks and light sources



ZB5AZ101

Pushbutton and selector switch bodies

Description	Type of contact		Reference
	N/O	N/C	
Screw clamp terminal connections	1	–	ZB5AZ101
	–	1	ZB5AZ102
Spring clamp terminals	1	–	ZB5AZ1015
	–	1	ZB5AZ1025
1 early make/1 late break	1	1	ZB5AZ106
1 early make/1 normal	2	–	ZB5AZ107



ZBE101

Additional contact blocks (1)

Description	Type of contact		Reference
	N/O	N/C	
Standard single	1	–	ZBE101
	–	1	ZBE102
Early make	1	–	ZBE201
Late Break	–	1	ZBE202
Standard single – Spring Clamp Terminals	1	–	ZBE1015
Special contact blocks (2) (for low power switching)	–	1	ZBE1025
Fixing collar	1	–	ZBE1016
	–	1	ZBE1026
			ZB5AZ009



ZBE1015



ZBVB1

Additional light sources

Description	Supply voltage (V)	Colour	Reference
Integral LED (to combine with heads for integral LED)	≈ 12	White	ZBVJ1
	≈ 24 (3)(4)	White	ZBVB1
	≈ 24 – 120 (3) (5)	White	ZBVBG1
	~ 110 – 120 (3) (4) (5)	White	ZBVG1
	~ 230 – 240 (3) (4) (5)	White	ZBVM1



ZBE1015 & ZBV005

Light Block - Protected

Description	Supply Voltage (V)	Color of light source	Reference
Integral LED (to combine with heads for integral LED)	110..240 ~ (50/60 Hz)	White	ZBVG1T



ZBVG1T

Notes

- (1) Maximum amount of contact blocks to be stacked is three deep. For E-stops see page J9 note (4).
- (2) It is not possible to fit these contact blocks with supplementary contact blocks.
- (3) Add suffix 5 for spring clamp terminals e.g. **ZBVJ15**.
- (4) For flashing led add 18 to reference e.g. **ZBV18B3**.
- (5) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.

Control and signalling units

Ø22/Ø30 black, double insulated bezel – Harmony XB5
Pilot lights and accessories



XB5AVB5

Pilot lights complete with “Protected LED” – Ø22

Supply voltage (V)	Colour	Reference
≈ 24 (1)	White	XB5AVB1
	Green	XB5AVB3
	Red	XB5AVB4
	Orange / Amber	XB5AVB5
	Blue	XB5AVB6
	~ 110...120 (1) (2)	White
Green		XB5AVG3
Red		XB5AVG4
Orange / Amber		XB5AVG5
Blue		XB5AVG6
~ 230...240 (1) (2)		White
	Green	XB5AVM3
	Red	XB5AVM4
	Orange / Amber	XB5AVM5
	Blue	XB5AVM6



ZB5AV053

Pilot light heads to suit “Protected LED” – Ø22

For use with body comprising light source type	Colour of lens	Reference
Integrated LED only	White	ZB5AV013
	Green	ZB5AV033
	Red	ZB5AV043
	Orange / Amber	ZB5AV053
	Blue	ZB5AV063



J

Pilot lights complete with “Protected LED” – Ø30

Type	Supply voltage	Colour	Reference
with integral LED	24V AC/DC	White	XB5FVB1
		Green	XB5FVB3
		Red	XB5FVB4
		Orange	XB5FVB5
		Blue	XB5FVB6
		230...240V AC	White
	Green		XB5FVM3
	Red		XB5FVM4
	Orange		XB5FVM5
	Blue		XB5FVM6



ZB5FV043

Pilot light heads to suit “Protected LED” – Ø30

For use with body comprising light source type	Colour	Reference
Integral LED	White	ZB5FV013
	Green	ZB5FV033
	Red	ZB5FV043
	Orange	ZB5FV053
	Yellow	ZB5FV083
	Blue	ZB5FV063

LED suppressors and transformer blocks

For use with	Supply voltage (V)	Reference
Transformer block	400V-24V	ZBV5B (3)
Dummy contact blocks		ZBE000

Notes

- (1) For complete bodies with flashing LED light block, e.g. **ZB5AV18B3**.
- (2) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.
- (3) Select light source LED and transformer plus 2 dummy contact blocks.

Control and signalling units

Ø22/Ø30 black, double insulated bezel – Harmony XB5
Pilot lights, sub-assemblies

Blocks for “test light” light function

For use with	Supply voltage (V)	Description	Reference
Light blocks	≈ 12 and 24 ≈ 24...120	Single module, 1 connecting wire	ZBZG156
Light blocks with integral LED	≈ 48...230	Double module, with connecting wires	ZBZM156



ZBZG156



ZBZM156

Body/fixing collar

For use with	Reference
Electrical blocks (contact or light)	ZB5AZ009



ZB5AZ009

Bodies

Screw clamp terminal connections

Light source	Supply voltage (V)	Colour of light source	Reference
Integral	≈ 12	White	ZB5AVJ1
	≈ 24 (1) (3)	White	ZB5AVB1
	≈ 24...120 (1) (2)	White	ZB5AVBG1
	≈ 110...120 (1) (2) (3)	White	ZB5AVG1
	≈ 230...240 (1) (2) (3)	White	ZB5AVM1



ZB5AV●●

J

Notes

- (1) For 3 terminal “test” function, add the suffix 156 to the references selected above, e.g. **ZB5AVB3156**, complete body with integral LED, with “test” function, colour green.
- (2) Use suppressor in conjunction with protected LED when connected in parallel to inductive loads 30VA and above.
- (3) Complete bodies with flashing light block, e.g. **ZB5AV18B3**.

Control and signalling units

Ø22 black, double insulated bezel – Harmony XB5
Joysticks, potentiometer and miscellaneous devices



XD5PA12

Ø22 complete units type XD5-P (1)

Description	Operation	Spring return to 'Off' position	Bezel	Reference
2 direction - - - -	1 notch 1 N/O contact per direction	Without	Double insulated	XD5PA12
		With	Double insulated	XD5PA22
4 direction - - - -	1 notch 1 N/O contact per direction	Without	Double insulated	XD5PA14
		With	Double insulated	XD5PA24



XB5DS●

Hour counters

Characteristics	Supply voltage (V)	Reference
Indication 0...9999.9	~ 12...24 – 50/60Hz	XB5DSB
	~ 230...240 – 50Hz	XB5DSM



XB5KS2B4

Annunciators

Characteristics	Supply voltage (V)	Reference
90dB buzzer continuous or intermittent - Red	~ 24 – 50/60Hz	XB5KS2B4
	~ 230...240 – 50Hz	XB5KS2M4

J



XB5DT1S

Fuse carrier

Description	For use with	Reference
Fuse carrier	5 x 20mm fuse 6.3A – 250V	XB5DT1S



ZB5AD912

Heads and mounting base for potentiometer

Description	Application	Reference
For potentiometer with shaft length 44 to 50mm (potentiometer not included)	For shaft Ø6.35mm (2)	ZB5AD922
	For shaft Ø6.0mm (2)	ZB5AD912



Manual overload reset buttons (travel 10mm)

Actuation distance (mm)	Marking	Colour	Reference
17...120	R	Blue	XB5AA86102
120...257	R	Blue	XB5AA86202

Notes

- (1) Standard contact blocks cannot be used.
- (2) When fitting shaft into potentiometer head back off brass screw at top of head to release the compression and retighten once fitted.

Control and signalling units

Ø22 black double insulated bezel – Harmony XB5
Joysticks, potentiometer and miscellaneous devices

Complete potentiometer (1)



XB5BD912R1K

Description	Resistance (kΩ)	Reference
+/- 10% linear mode precision	1	XB5AD912R1K
complete potentiometer with screw terminals	4.7	XB5AD912R4K7
	10	XB5AD912R10K
	47	XB5AD912R47K
	100	XB5AD912R100K
	470	XB5AD912R470K



XB5DTB22

Panel mounted timers

Description	Supply voltage (V)	Range	Reference
Timer with LED status & 1 static output - delay on energization	24V ---	0.5s - 10s	XB5DTB22
		3s - 60s	XB5DTB23
		3min - 60min	XB5DTB25
	100...240V AC/DC 50/60 Hz	0.5s - 10s	XB5DTGM2
		3s - 60s	XB5DTGM3
		3min - 60min	XB5DTGM5



XB5PUSB3



XB5PRJ45

Panel mounted USB and RJ45 ports

Description	Reference
USB port 3.0 A-A, upto IP69K with protection cover (2)	XB5PUSB3
RJ45 port Cat. 6, upto IP69K with protection cover (2)	XB5PRJ45
Black protection cover IP65/67	ZBSP1
Rigid transparent protection cover IP65/IP67	ZBSP2
Metal protection cover IP65/IP67/IP69K	ZBSP3



XB5EV57K4

3-phase pilot lights with integral LED

Description	Supply voltage (V)	Reference
Red,Green,Yellow LEDs	400V ~ 50/60Hz	XB5EV57K4
White,White,White LEDs	400V ~ 50/60Hz	XB5EV57L4



XBH1AA0G4

Basic displays

Description	Input current	LED colour	Reference
Digital panel meter LED display, 1 current input , -999...9999	4...20 mA	Green	XBH1AA0G4

Notes

- (1) 6mm shaft diameter.
- (2) Protection cover to be ordered separately.

Control and signalling units

Harmony XB4 and XB5 Marking accessories for control and signalling units



ZBY2101



ZBY2304

Standard (30x40mm) legend holders for 8x27mm legends – Ø22

Description	Legend colour	Marking	Reference
With blank legend (for engraving)	Black or red background	–	ZBY2101
	White or yellow background	Extended 30 x 50	ZBY6101
With marked legend (1)	Black or red	O (black background)	ZBY2146
		I	ZBY2147
		II	ZBY2148
		O-I	ZBY2178
		I-II	ZBY2179
		I-O-II	ZBY2186
		Auto	ZBY2115
		Stop	ZBY2304
		Auto-hand	ZBY2364
		Auto-O-hand	ZBY2385
		AUTO-OFF-MAN	ZBY2385M
		AUTO-MAN	ZBY2364M
		Close	ZBY2314
		Down	ZBY2308
		Emergency stop	ZBY2330
		Fast	ZBY2328
		Forward	ZBY2305
		Hand	ZBY2316
		Hand-OFF-AUTO	ZBY2387
		Inch	ZBY2321
		LEFT	ZBY2310
		LOWER	ZBY23LO
		Off	ZBY2312
		Off-on	ZBY2367
		On	ZBY2311
		Open	ZBY2313
		Power on	ZBY2326
		RAISE	ZBY23RA
		Reset (red background)	ZBY2323
		Reset (black background)	ZBY2322
		Reverse	ZBY2306
		Right	ZBY2309
Run	ZBY2334		
Slow	ZBY2327		
Start	ZBY2303		
STOP-Start	ZBY2366		
Up	ZBY2307		

Standard 40x50mm legend holders for 8x27mm legends – for Ø30 built in flush heads

Type	Legend Colour	Marking	Reference
With blank legend	Black or red		ZBYF2101
	White or yellow		ZBYF4101
With marked legend	Black or red	O-I	ZBYF2178
		STOP	ZBYF2304
		START (in white)	ZBYF2303
		OFF-ON	ZBYF2367
		I-O-II	ZBYF2186

Legends for engraving

Description (mm)	For use with	Colour	Reference
8 x 27	30 x 40mm legend holders	Black or red background	ZBY0101
		White or yellow background	ZBY0102

Peel-off labels

Application	Reference
Sheets of 66 circular peel-off transparent self-adhesive legends	ZBY1101
Sheet of 76 8x27mm peel-off legends (30 x 40mm legend holders ZBZ32 with backing board and protective transparent cover)	ZBY4100

Note

(1) "Start" functions: white letters on black background. "Stop" functions: white letters on red background (unless otherwise specified above).

Control and signalling units

Ø22 Harmony XB4 and XB5

Components and accessories for control and signalling units



ZBY9320

Circular legends for emergency stop mushroom heads

Diameter (mm)w	Marking, on yellow background	Reference
90	EMERGENCY STOP	ZBY8330
60	3D Legend EMERGENCY STOP	ZBY9320



ZBY9W2B330

Illuminated circular legends for emergency stop mushroom heads

Diameter (mm)	Signalling	Colour	Supply voltage	Marking	Reference
60	Fixed, Red	Yellow	24V AC/DC	Emergency stop	ZBY9W2B330
	Fixed, White/Red	Yellow	24V AC/DC	Emergency stop	ZBY9W3B330
	Fixed, Red	Yellow	230V AC	Emergency stop	ZBY9W2M330



ZBP0

Boots

Description	For use with	Reference
Clear single boots	Projecting non-illuminated or illuminated Pushbuttons	ZBP0
	Projecting non-illuminated or illuminated Pushbutton in food industry applications	ZBP0A
Boot for control block	Protection against dusty environment ZBE10● and ZBE10●3	ZBZ60



ZBA709

Boots for double-headed and triple-headed Pushbuttons

Description	For Pushbuttons	Reference
Clear silicone boots	Triple-headed	ZBA709
	Double-headed with 1 flush push + 1 projecting push	ZBA710



ZBZ3605

Accessories

Padlocking kit for Emergency Stop

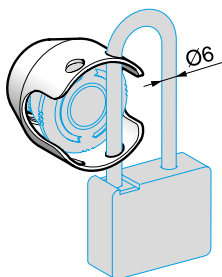
Description	Application	Colour	Reference
Padlocking kit conforming to EN 418/ISO 13850 (1) (2) (padlockable)	For Emergency Stop function only, with the following Ø40 trigger-action Pushbuttons: XB5 AS8● XB4 BT8● XB5 AS9● XB4 BS8● ZB5 AS8● XB4 BS9● ZB5 AS9● ZB4 BT8● ZB4 BS8● ZB4 BS9●	Yellow	ZBZ3605



ZBY9330T

Description	Marking	Colour	Reference
Ø60mm legend for padlocking device	EMERGENCY STOP	Yellow	ZBY9330T

Guards



ZBZ 160●

Description	Application	Colour	Reference
Metal guards (padlockable) (2)	For Emergency Stop function only, with the following Ø40 trigger-action Pushbuttons: XB5 AS8● XB4 BT8● XB5 AS9● XB4 BS8● ZB5 AS8● XB4 BS9● ZB5 AS9● ZB4 BT8● ZB4 BS8● ZB4 BS9●	Red	ZBZ1604
		Blue	ZBZ1606
		Yellow	ZBZ1605
Plastic guard	Selector switches and key switches	Black	ZBZ2102
	For ZB4BC● and ZB5● Harsh environment Pushbuttons		ZBZ1902
Legend for ZBZ16.. guards - Emergency stop			ZBY9330M

Notes

- (1) Standard circular legends are not compatible with this product. Use special legends **ZBY●●T**.
- (2) XB5AT8 and ZB5AT8 are not compatible with these guards.

Control and signalling units

Ø22 Harmony XB4 and XB5

Components and accessories for control and signalling units

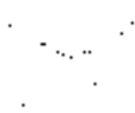


ZBZ58

Accessories

Bellows seals for harsh environments (IP69K)

Description	For use with	Colour Material	Reference
Bellows seals for harsh environments (humidity, dust, high-pressure cleaning)	Any Harmony XB5 plastic, and XB4 metal mushroom head Pushbutton (1) (2), Ø40mm or Ø60mm	Black	ZBZ28
		Yellow Silicone	ZBZ58



ZB4BZ64

Padlockable flaps

Description	For use with	Colour	Reference
Padlockable flaps	Flush Pushbuttons	Black	ZB4BZ62 (3)
		Red	ZB4BZ64

Blanking plugs



ZB5SZ3



ZB4SZ3

Description	For use with	Reference
Metal blanking plug, chromium plated (4)	For Ø22 control and signalling units	ZB4SZ3
Plastic blanking plug, black (5)	For Ø22 control and signalling units	ZB5SZ3

Accessories



ZB5AZ31

Description	Application	Reference
Square insert	To give square appearance to ZB5A round heads	ZB5AZ31
Lock nut	Fixing head	ZB5AZ901
Tool	For tightening lock nut	ZB5AZ905
Plate	Anti-rotation of head	ZB5AZ902



ZB5AZ905

Spare key

Description	Ronis No. 455	Reference
Spare key for key operated units (6)	Ronis No. 455	ZBG455
Spare key for booted selector switches (6)	Ronis No. 455	ZBG455P
Keyhole cover		ZBGP



ZBG455

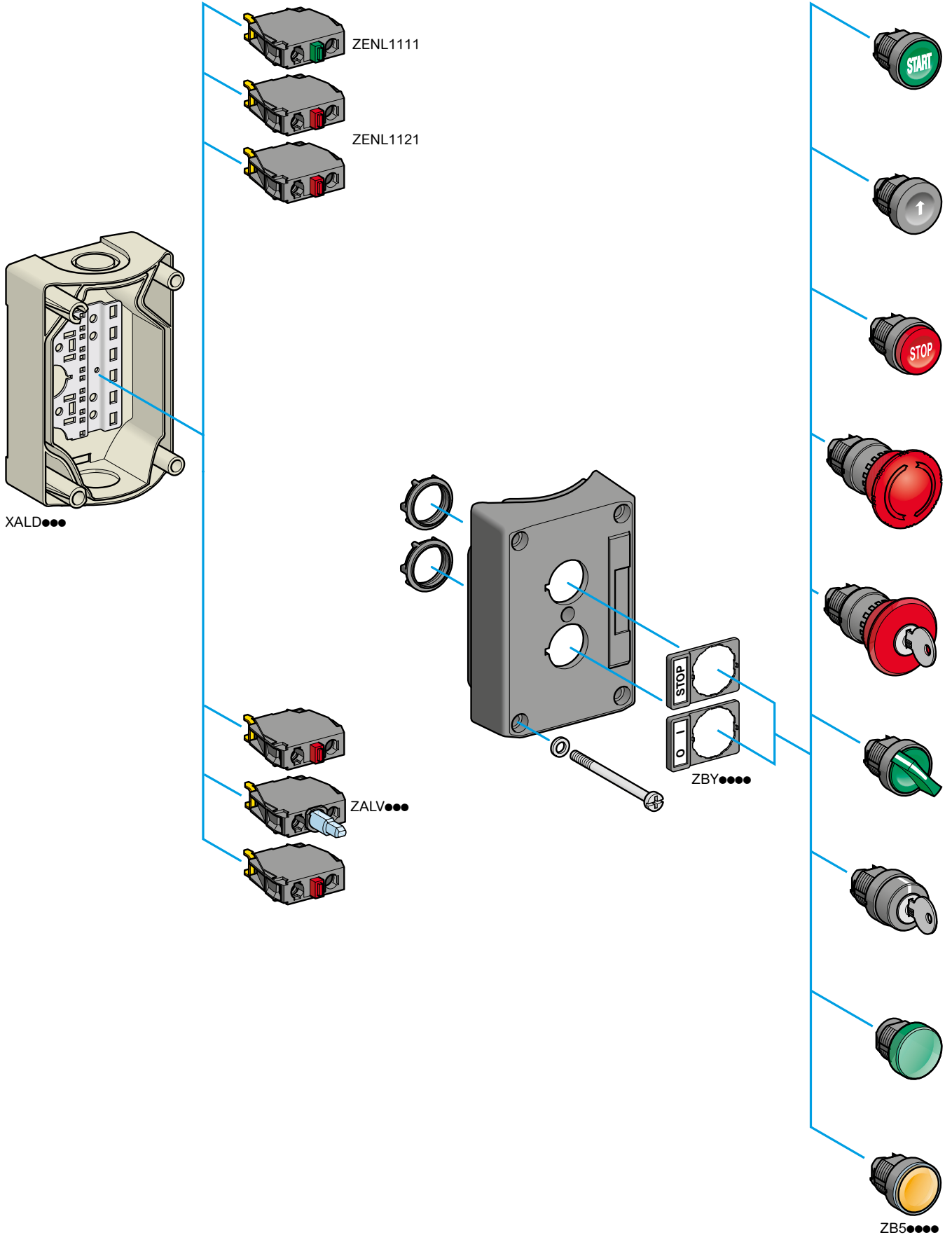
ZBG...P

Notes

- (1) Only when mounted on control stations. Use legends **ZBY 9●●●T**.
- (2) Except ZB5 AR●16 ØZB4BR●16.
- (3) To suit 7mm shank padlock.
- (4) Requires a ZB4BZ009 body/fixing collar.
- (5) Supplied complete with fixing nut.
- (6) Other key types also available reference = **ZBG** followed by key No. e.g. **ZBG421E**.

Control stations and enclosures

Double insulated control stations XAL
To suit Ø22 Harmony XB5 control and signalling units
Variable composition – IP65, NEMA 4X and 13



J

Control stations and enclosures

Double insulated control stations XAL
Complete with Ø22 Harmony XB5 control and signalling units
Factory assembled units – IP65, NEMA 4X and 13



XALK178F



XALK188F



XALK84W3BG



XALK178W3B140G



XALD215



XALD02



XALK01



XALK01H29

Emergency stop trigger action station (1) (2)

Description	Contact	Marking	Reference
1 red mushroom head Pushbutton, Ø40mm latching, turn to release	2 N/C	–	XALK178F
1 red mushroom head Pushbutton, Ø40mm latching, key to release (Ronis key No. 455)	2 N/C	–	XALK188F
Trigger action E-stop turn to release	2 N/C	Emergency Stop	XALK178FH29

Illuminated Emergency stop with trigger action and mechanical latching station

Description	Signalling type	Contacts	Supply voltage (V)	Reference
Turn to release	Fixed white + fixed red, bi-color	1N/O + 2N/C	24V AC/DC	XALK84W3BG
	Fixed white + fixed red, bi-color	1N/O + 2N/C	24V AC/DC	XALK178W3B140G

Start, stop and start/stop stations (3)

Description	Contact	Marking	Reference
1 green flush Pushbutton spring return	1 N/O	Start	XALD103
1 red flush Pushbutton spring return	1 N/C	Stop	XALD114
2 flush Pushbuttons	1 N/O	Start	XALD215
1 green spring return	1 N/C	Stop	
1 red spring return			

Empty enclosures

For normal environments (with stainless steel fixing screws)

Description	Number of ways	Reference
Light grey base "RAL7035"	1	XALD01
Dark grey lid "RAL7016"	2	XALD02
	3	XALD03
	4	XALD04
	5	XALD05
Light grey base "RAL7035"	1	XALK01
Yellow lid "RAL1012"		
Light grey base "RAL7035"	1	XALK01H29
Yellow lid "RAL1012"		
Emergency stop marking		

Notes

- (1) Conform to EN418, ISO13850 – IEC/EN60947-5-5.
- (2) Light grey base RAL7035 yellow lid RAL1012.
- (3) Light grey base RAL7035, dark grey lid RAL7016.

Control stations and enclosures

Double insulated control stations XAL
To suit Ø22 Harmony XB5 control and signalling units



XALG01

Control station enclosures XAL G for severe environments ⁽¹⁾

Description	Number of Ø22 cut-outs	Reference
Black "RAL9005" lid and base	1	XALG01
	2	XALG02
	3	XALG03
	4	XALG04
	5	XALG05



XALG05

Electrical blocks ^(for mounting on metal plate at back of enclosure XALD/K)

Electrical blocks with screw clamp terminal connections

Description	Type	Colour	Reference
Standard contact blocks (2)	N/O contact	–	ZENL1111
	N/C contact	–	ZENL1121
Light blocks with "Protected LED" (2)	≈ 24V	White	ZALVB1
	~ 230V	White	ZALVM1



ZENL1111



ZALV●●

J

Notes

- (1) Use panel mount XB5 / ZB5 Pushbutton components.
- (2) A maximum of 3 electrical blocks may be fitted per associated head.

Control stations and enclosures

Metal control stations XAP, XAM and 9001
To suit Ø22 and Ø30 control and signalling units
Empty enclosures and factory assembled units – IP65, NEMA 4 and 13



XAPD1202



XAPD2203



XAPK1201



9001KY2

Die cast metal enclosures – IP65 (1)

Description	Front face dimensions (mm)	No. of cutouts	No. of rows vertical	No. of rows horizontal	Reference
With two threaded conduit entries (usable depth 49mm)	80 x 80	1 (Ø22)	1	1	XAPD1201
	80 x 80	2 (Ø22)	2	1	XAPD1202
	80 x 130	2 (Ø22)	1	2	XAPD2202
	80 x 130	3 (Ø22)	1	3	XAPD2203
	80 x 175	4 (Ø22)	1	4	XAPD3204
	80 x 175	6 (Ø22)	2	3	XAPD3206
With two threaded conduit entries (usable depth 74.5mm)	80 x 80	1 (Ø22)	1	1	XAPD1501
	80 x 80	2 (Ø22)	2	1	XAPD1502
	80 x 130	3 (Ø22)	1	3	XAPD2503
	80 x 130	4 (Ø22)	2	2	XAPD2504
	80 x 175	4 (Ø22)	1	4	XAPD3504
	80 x 175	6 (Ø22)	2	3	XAPD3506
	80 x 220	6 (Ø22)	1	6	XAPD4506
	80 x 220	8 (Ø22)	2	4	XAPD4508
Yellow lid	80 x 80	1 (Ø22)	1	1	XAPK1201

Die cast metal enclosures – IP66 (2)

Description	Front face dimensions (mm)	Number of cutouts	No. of rows vertical	No. of rows horizontal	Reference
With one threaded conduit entry (usable depth 67mm)	92 x 102	1 (Ø30)	1	1	9001KY1
	92 x 146	2 (Ø30)	1	2	9001KY2
	92 x 191	3 (Ø30)	1	3	9001KY3

Notes

- (1) Recommended for use with Harmony style 4 panel mounted control and signalling units.
- (2) Recommended for use with 9001K panel mounted control and signalling units.

Control and signalling units

Biometric switches

Harmony pocket remote – wireless remote control system



XB5S6B2L2

Biometric switch – fingerprint reader

Description	Output type	Voltage	Connection	Reference
Stand alone operation	PNP, latching	24VDC	2m Lead	XB5S6B2L2
	PNP, momentary	24VDC	2m Lead	XB5S7B2L2
Programmable with database storage	PNP, latching	24VDC	2m Lead	XB5S8B2L2
	PNP, momentary	24VDC	2m Lead	XB5S9B2L2



ZARC620

Control and signalling units

Wireless and batteryless pushbuttons

Maximise freedom of movement with Harmony wireless and batteryless pushbuttons

Save time – no cable connection required between pushbutton and control panel.

Save money – no wiring and cable tray costs.

Minimise post-installation maintenance – no battery to recharge or replace.



ZBR RA

Wireless and batteryless pushbutton and rope pull switch receiver (3)

Programmable receivers

Description	Output type	Receiver voltage V	Reference
Monostable Pulse / On-Off / Start stop / Momentary	4 PNP outputs 200 mA/24V (1) 2 relay outputs type RT 3A (2)	\equiv 24 \sim/\equiv 24...240	ZBRRC (1) ZBRRA (2)



ZBRN1

60 way wireless and batteryless device receiver – interface to PLC / HMI (3)

Description	Reference
Harmony hub - Base for Modbus TCP (5)	ZBRN1
Harmony hub - Base with Modbus RS485 serial	ZBRN2
Modbus/TCP network communication card (2 RJ45)	ZBRCETH



ZBRCETH

Receiver accessories

Product	Application	Description	Reference
Relay-antenna (4)	Between transmitter and receiver Used to increase the range and/or get round obstacles	\sim/\equiv 24...240 - 5m cable - 1 power-ON LED - 2 LEDs	ZBR A1
External-antenna	For use with network interface modules	reception/ transmission	ZBR A2
External antenna	Passive antenna to pass through a wall must be close to a relay antenna or a receiver	1m cable	ZBRA3



ZBR A1

Notes

- (1) One shot output function.
- (2) Stop start, one shot output or mixed output V2.0 allows use with ZBRT2.
- (3) Should not be used for hoisting or safety applications.
- (4) Not wired to the receiver.
- (5) Blank slot for communication card ZBRCETH (should be ordered separately).

Control and signalling units

Wireless and batteryless pushbuttons
Rope pull switch
Enclosure and accessories



ZB5 RTA4

Wireless and batteryless pushbutton transmitters

Emergency stop pushbutton monitoring

Description	Type of push	Cap colour	Reference
Complete Pushbuttons: Transmitter ZBRT1, fixing collar, and head with clipped in cap (1) (2)	Plastic	White	ZB5RTA1
		Black	ZB5RTA2
		Green	ZB5RTA3
		Red	ZB5RTA4
		Yellow	ZB5RTA5
		Blue	ZB5RTA6
	Metal	White	ZB4RTA1
		Black	ZB4RTA2
		Green	ZB4RTA3
		Red	ZB4RTA4
		Yellow	ZB4RTA5
		Blue	ZB4RTA6



ZBRP1



ZBRT2

Other wireless and batteryless transmitters

Description	Colour	Reference
Rope pull switch transmitter		ZBRP1
40mm Mushroom head transmitter (complete)	Black	ZB5RTC2
40mm Mushroom head (pushbutton only)	Black	ZB5RZC2
Momentary action transmitter (3)		ZBRT2

Transmitter accessories IP65

Product	Application	Description	Reference
Mobile box	For mobile wireless and batteryless pushbutton	1 cut-out	ZBRM21
		2 cut-out	ZBRM22
Holster	For mobile box	Holster M21/M22	ZBRACS
Support for ZBRP1			ZBRAUS2



ZBRM22



ZBRM21







ZBRACS

Replacement heads

Type of push	Cap colour	Reference
Plastic		ZB5RZA0
Metal		ZB4RZA0
Set of caps	10 colours	ZBA79

To build momentary transmitter Pushbutton use the following components


+

+

+


ZBRT2

ZB5AZ009 (4)

ZB5RZA0 (4)

ZBA79

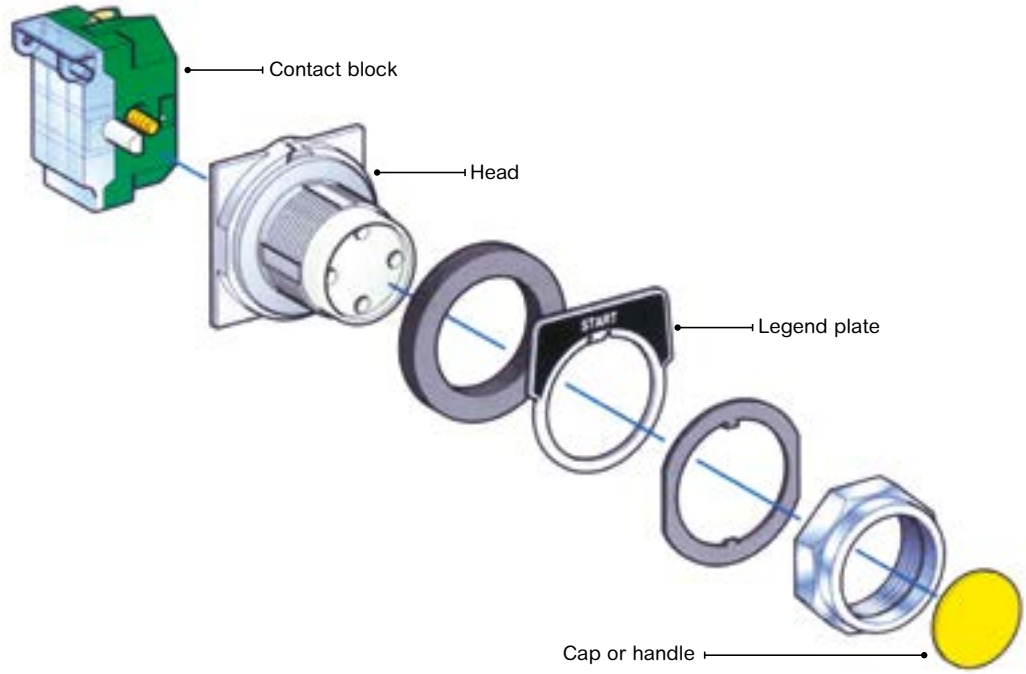
Notes

- (1) This cap is fitted by Schneider Electric and cannot be removed (risk of damage).
- (2) Maintained / one shot or pulse / start stop.
- (3) Use either metal or plastic replacement head and set of caps to complete.
- (4) For metal head substitute ZB5AZ for ZB4BZ and ZB5RZ for ZB4RZ.

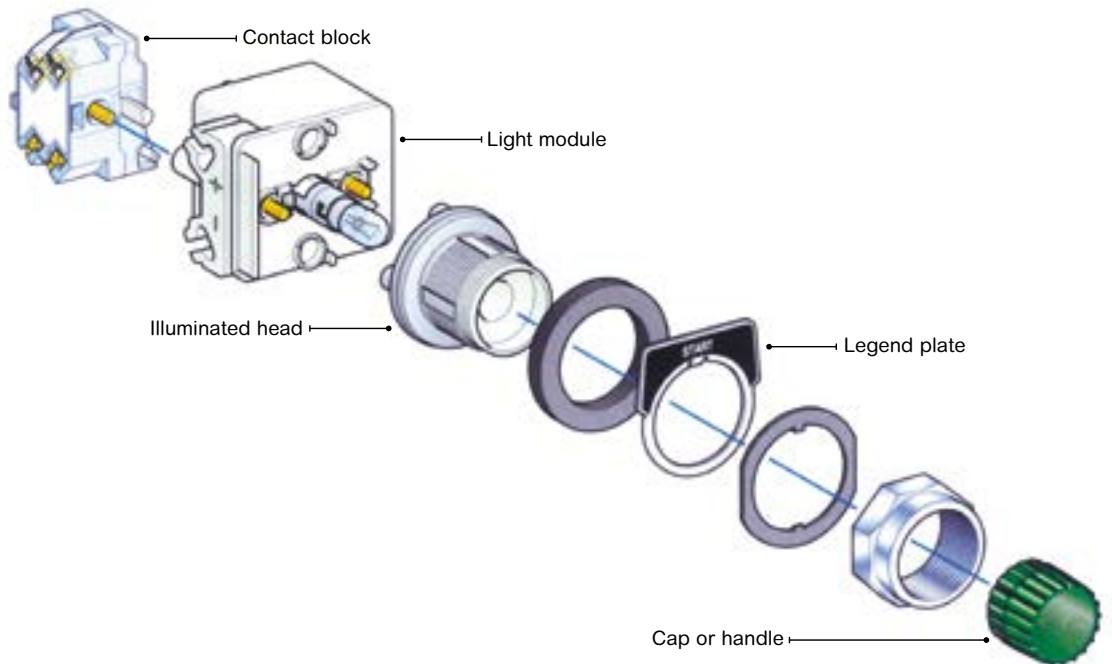
Control and signalling units

Square D
Ø30 chromium plated metal bezel - 9001K, IP66
Assembly of components

Pushbutton assembly



Illuminated Pushbutton assembly



Control and signalling units

Square D
 Ø30 chromium plated metal bezel - 9001K
 Non-illuminated Pushbutton and selector switch heads – IP66,
 NEMA 4 and 13



Spring return heads 30mm

Description	Colour	Reference
Flush	Universal (1)	9001KR1U
Recessed	Universal (1)	9001KR2U
Projecting	Universal (1)	9001KR3U



Mushroom heads (add cap)

Description	Reference
E-Stop trigger action	9001KR16H2
Spring return operator	9001KR20

Caps for spring return and latching non-illuminated mushroom heads



9001K93R

Description	Colour	Reference
35mm mushroom cap	Red	9001K92R
with locking screw	Green	9001K92G
57mm mushroom cap	Red	9001K93R
with locking screw	Green	9001K93G

Selector switch heads



9001KS11B

Type of operator	No. of positions	Operation	Reference
Standard handle, black (2)	2	Stayput	9001KS11B
		Spring return right to left	9001KS34B
3 (with CAM B)	3	Stayput	9001KS42B
		Spring return to centre	9001KS52B
		Spring return left to centre	9001KS62B
		Spring return right to centre	9001KS72B
3 (with CAM C)	3	Stayput	9001KS43B
		Spring return to centre	9001KS53B

CAM B			3 Position selector switch		Contact block guide	
				o	o	1 N/C (left)
	o		o			1 N/O (left)
o	o					1 N/C (right)
		o				1 N/O (right)

CAM C			3 Position selector switch		Contact block guide	
				o	o	1 N/C (left)
o	o		o			1 N/O (left)
	o	o				1 N/C (right)
o	o					1 N/O (right)



9001KA2

Additional contact blocks

Description	Type of contact		Reference
	N/O	N/C	
Standard	1	1	9001KA1
	1	–	9001KA2
	–	1	9001KA3
Early make	1	–	9001KA4
Late break	–	1	9001KA5

Notes

- (1) Includes one of each of the following inserts: red, black, green, yellow, orange, blue and white.
- (2) Reference for long black handle is 9001 B25.

Control and signalling units

Square D
 Ø30 chromium plated metal bezel - 9001K
 Key selector switch heads and illuminated Pushbutton heads – IP66,



9001KS42K10

Key selector switch heads

Type of operator	No. of positions	Operation		Reference
E10 key	2	Stayput		9001KS11K1
				9001KS11K2
				9001KS11K3
	3 (with CAM B) (1)	Stayput		9001KS42K10
				9001KS42K5
				9001KS62K5



9001K1L

Spring return illuminated heads (add cap)

Description	Reference
Flush	9001K1L
Projecting	9001K2L



9001G7

Caps for illuminated spring return pushbuttons

Description	Colour	Reference
Standard illuminated Pushbutton cap	Red	9001R7
	Green	9001G7
	Amber	9001A7
	Blue	9001L7
	Clear	9001C7

Mushroom latching illuminated heads (add cap)

Description	Reference
Push-pull maintained operator	9001KR9



9001KR9

Caps for latching illuminated mushroom pushbuttons

Description	Colour	Reference
35mm mushroom cap	Red	9001R22
	Green	9001G22

Note

(1) For 3 position key selector switch with CAM C replace 2K with 3K e.g. **9001KS42K10** becomes **900KS43K10**.

Control and signalling units

Square D
 Ø30 chromium plated metal bezel - 9001K , IP66
 Contact blocks and pilot lights – IP66, NEMA 4 and 13



9001R6

Caps for pilot lights

Description	Colour	Reference
Glass lens	Red	9001R6
	Green	9001G6
	Amber	9001A6
	Clear	9001C6



9001KP

Pilot light heads (add cap)

Description	Reference
Pilot light operator	9001KP



9001KM40

Light modules for pilot lights and illuminated pushbuttons

Description	Light source	Supply voltage	Reference
Via transformer 6V secondary	BA9s incandescent bulb included	110–120V 50Hz	9001KM1
		220–240V 50Hz	9001KM7
		380–480V 50Hz	9001KM5
Direct through resistor	BA9s incandescent 130V bulb included	240VAC/DC	9001KM25



9001KP40

Pilot lights (add cap)

Description	Light source	Supply voltage	Reference
Direct supply	BA9s globe not included	–	9001KP40
		120VAC/DC	9001KP38
		110–120V 50Hz	9001KP1
Via transformer 6V secondary	BA9s incandescent bulb included	220–240V 50Hz	9001KP7
		380–480V 50Hz	9001KP5
		240VAC/DC	9001KP25
Direct through resistor	BA9s incandescent 130V bulb included	240VAC/DC	9001KP25

J



Control and signalling units

Square D
 Ø30 chromium plated metal bezel - 9001K
 Joysticks and 9001K and SK components and accessories



9001K71

Ø30 joystick operators (add contact blocks)

Description	Operation	Reference
2 direction	 Momentary contact spring return to centre	"Dead man's" 9001K70
		Standard 9001K71
4 direction	 Momentary contact spring return to centre	"Dead man's" 9001K34
		Standard 9001K35



9001KN302

Metal legend plates – 31x44mm

Description	Colour	Reference
Blank	White	9001KN300
Start	Black	9001KN301
Stop	Red	9001KN302



9001KU5

Boots

Description	Colour	Reference
Non-illuminated Pushbuttons	Black	9001KU1
	Red	9001KU2
	Green	9001KU5
For standard handle selector switch	Clear	9001KU17

30mm blanking plugs

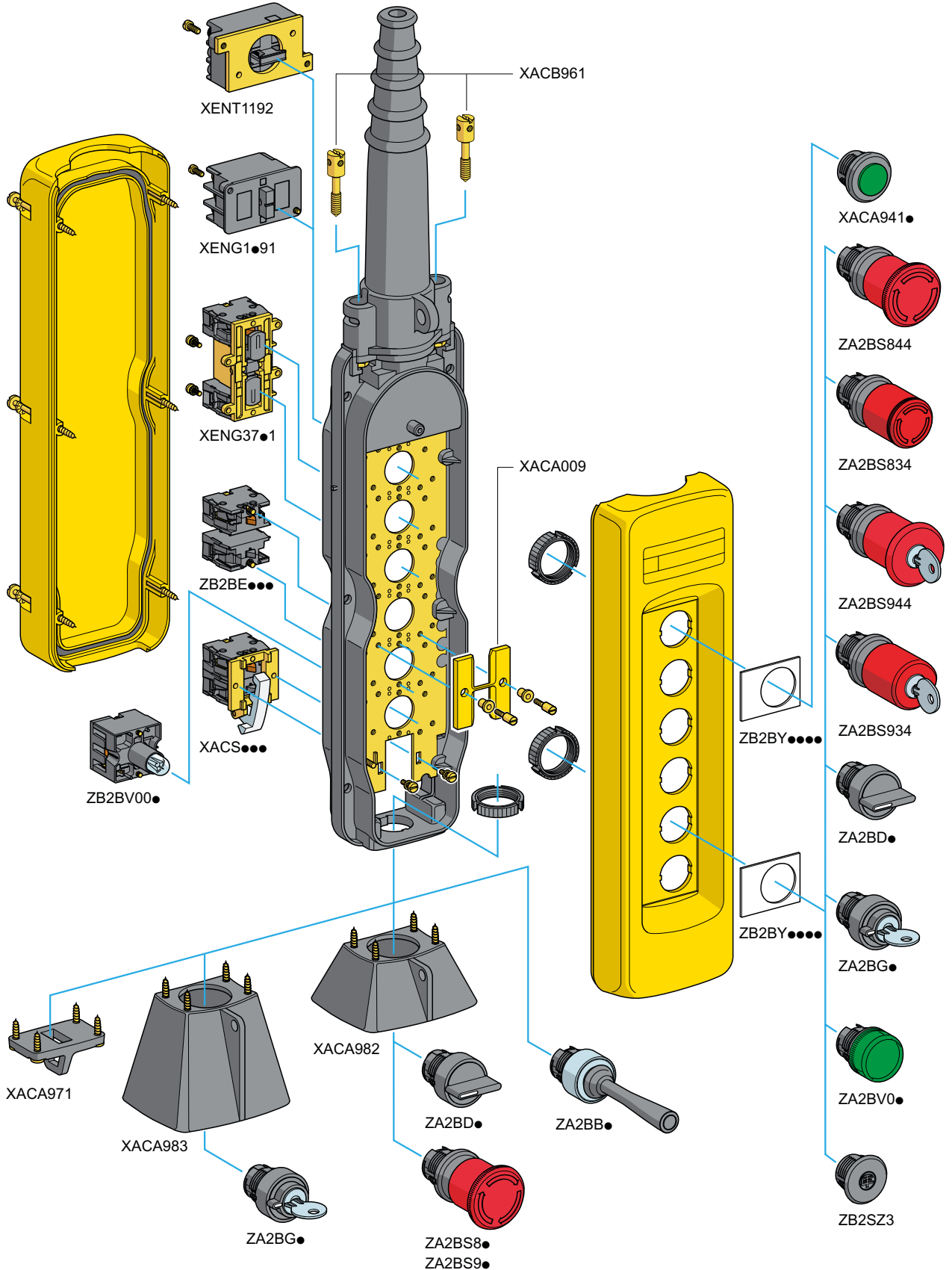
Description	Reference
Metal – grey	9001K51
Metal – chrome plated	9001K52

Adaptor

Description	Reference
Metal – 30mm to 22mm	ZB2BZ4

Pendant stations and joysticks

Double insulated pendant stations XAC
 For Ø22 control and signalling units
 Variable composition units – IP65



J

Pendant stations and joysticks

Double insulated pendant control stations XAC
For control circuits
Complete stations – IP65

Complete stations

Description	Number of operators	Reference
Small hoist	2	XACA211
Small hoist	2+ E-stop	XACA2114 (1)
General purpose	2	XACA271 (2)
General purpose	4	XACA471 (2)
General purpose	6	XACA671 (2)
General purpose	8	XACA871 (2)
Small hoist	2 + E-Stop	XACA2714 (1)
General purpose	4 + E-Stop	XACA4714 (1)
General purpose	6 + E-Stop	XACA6714 (1)



XACA2114



XACA271



XACA471



XACA2714

J

Notes

- (1) Fitted with front mounted trigger action Emergency stop.
- (2) No Emergency stop fitted.

Pendant stations and joysticks

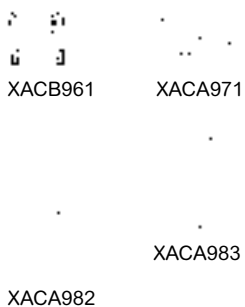
Double insulated pendant stations XAC
For Ø22 control and signalling units
Variable composition units – IP65

Empty enclosures



Description	Number of ways	Reference
These references include:	2	XACA02
– Internal mounting plate	3 (1)	XACA03
– Cable sleeve for cable Ø8 to 26mm	4	XACA04
– Internal cable clamp	5 (1)	XACA05
– Suspension ring	6	XACA06
– Cable tie	8	XACA08
	12	XACA12

Attachments



Description		Reference
Adaptor for self-supporting cable	Adapts to collar fitted with Ø8 to 26mm cable sleeve	XACB961
Lower support ring	–	XACA971
Protective guards mounted in base of enclosure	Selector switch and E-stop	XACA982
	For key switch	XACA983

Legend plates 30x40mm

“Start” function: white letters, black background. “Stop” function: white letters, red background

































Description	Type	Text	Reference
Blank legend plates		Black or red background	ZB2BY2101
Pre-engraved legend plates	Pushbuttons	Start	ZB2BY2303
		Stop	ZB2BY2304
		Forward	ZB2BY2305
		Reverse	ZB2BY2306
		Up	ZB2BY2307
		Down	ZB2BY2308
		Right	ZB2BY2309
		Left	ZB2BY2310
		On	ZB2BY2311
		Off	ZB2BY2312
		Power on	ZB2BY2326
		Slow	ZB2BY2327
		Fast	ZB2BY2328
Selector switches		O-I	ZB2BY2178
		I-O-II	ZB2BY2186

Note

(1) Unable to mount unit in base of enclosure.

Pendant stations and joysticks

Double insulated pendant stations XAC
For Ø22 control and signalling units
Variable composition units – IP65

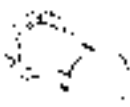
Function Symbol	Reference	Function Symbol	Reference
Raise, slow 	ZB2BY4901	Lower, slow 	ZB2BY2904
Raise, fast 	ZB2BY4902	Lower, fast 	ZB2BY2905
Raise, slow-fast 	ZB2BY4903	Lower, slow-fast 	ZB2BY2906
Right, slow 	ZB2BY4907	Left, slow 	ZB2BY2910
Right, fast 	ZB2BY4908	Left, fast 	ZB2BY2911
Right, slow-fast 	ZB2BY4909	Left, slow-fast 	ZB2BY2912
Forward, slow 	ZB2BY4913	Reverse, slow 	ZB2BY2916
Forward, fast 	ZB2BY4914	Reverse, fast 	ZB2BY2917
Forward, slow-fast 	ZB2BY4915	Reverse, slow-fast 	ZB2BY2918
Slew right, slow 	ZB2BY4919	Slew left, slow 	ZB2BY2922
Slew right, fast 	ZB2BY4920	Slew left, fast 	ZB2BY2923
Slew right, slow-fast 	ZB2BY4921	Slew left, slow-fast 	ZB2BY2924
Slow 	ZB2BY4933	Fast 	ZB2BY2934
Klaxon 	ZB2BY4932	Start-Klaxon 	ZB2BY2935
Start 	ZB2BY4930	Stop 	ZB2BY2931

Pendant stations and joysticks

Double insulated pendant stations XAC
For Ø22 control and signalling units
Variable composition units – IP65



XACA94●●



ZB2SZ3

Operating heads for front mounting – IP66

Description	Colour	Unit Reference
Complete booted operators	White	XACA9411
	Black	XACA9412
	Green	XACA9413
	Red	XACA9414
	Yellow	XACA9415
	Blue	XACA9416
Blanking plug complete with seal and fixing nut	Brown	XACA9419
		ZB2SZ3



ZA2BS844



ZA2BD●

Operating heads for front or base mounting – IP65

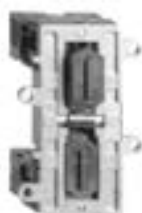
Description	Type	Colour	Reference
Mushroom head latching	Ø30mm	Red	ZA2BS834
Turn to release E-stop (1)	Ø40mm	Red	ZA2BS844
Selector switches use only with ZB2BE10●	2 position stayput	Black	ZA2BD2
	3 position stayput	Black	ZA2BD3
Key switches (No. 455) Key withdrawal from left and right	2 position stayput	Black	ZA2BG4
	3 position stayput	Black	ZA2BG5



ZB2BE10● XACA009



XENG1191



XENG37●1

Contact blocks for front mounting

Description	Contacts	Scheme	Reference
Single block spring return	1 N/O		ZB2BE101
	1 N/C		ZB2BE102
	Mechanical interlock between 2 Pushbuttons		XACA009
Double block latching slow break-(2)	2 step (1 N/O + 1 N/C) +-1 N/O staggered-(1) (2)		XENG1191
	1 N/C + 2 N/O simultaneous-(2)		XENG1491
Double block latching slow break-(2)	1 N/O 1 N/O		XENG3781
	1 N/O 1 N/C		XENG3791



XACS10●

Contact blocks for base mounting

Description	Contacts	Reference
Spring return slow break (2)	1 N/O	XACS101
	1 N/C	XACS102

Note

- (1) Trigger action conforms to ISO13850-IEC/EN60947-5-5/
- (2) For use only with XACA9●●● Pushbuttons.

Pendant stations and joysticks

Double insulated pendant stations XAC
For Ø22 control and signalling units
Variable composition units – IP65



ZA2BV00

Pilot light lenses IP66

Description	Colour	Reference
	Green	ZA2BV03
	Red	ZA2BV04
	Yellow	ZA2BV05
	Blue	ZA2BV06
	Clear	ZA2BV07



ZB2BV006



ZB2BV007

Pilot light bodies for front mounting

Description	Supply voltage	Reference
Direct supply	400V max. (2)	ZB2BV006
Bulb not supplied (1)		

Notes

- (1) Bulb type for direct supply: BA-9s base fitting, incandescent bulb U-<-130V, max. power 2.6W, LED types 24, 28, 48V DC and 6V AC max. Ø11mm, max. length 28mm.
- (2) Incandescent filament lamp may be used up to 130V only.

Pendant stations and joysticks

Wireless remote control system - hoisting application

Remote control devices



ZART8L

ZART12D

Starter kits

Description	Connection type	Reference
ZART8L + ZARB12H + ZARC01 + ZARC02 (1) (2)	Plug	XARSK8L12H
ZART8D + ZARB18H + ZARC01 + ZARC02 (1) (2)	Plug	XARSK8D18H
ZART12D + ZARB18H + ZARC01 + ZARC02 (1) (2)	Plug	XARSK12D18H
ZART8L + ZARB12W + ZARC01 + ZARC02 (1)	Gland	XARSK8L12W
ZART8D + ZARB18W + ZARC01 + ZARC02 (1)	Gland	XARSK8D18W
ZART12D + ZARB18W + ZARC01 + ZARC02 (1)	Gland	XARSK12D18W



ZARB12W

Accessories

	Reference
Software	eXLHoist configuration software
Remote holder	ZARC04
Charger	ZARC01
Shoulder harness	ZARC02
External antenna	ZARC03
Connector cable 3m (2)	ZARC12
Adhesive labels B/W	ZARC07
Adhesive labels colour	ZARC08
Silent block	ZARC09
Configuration cable	TCSMCNAM3M002P

Base station

Relay output	Safety relays	Power supply	Connection type	Reference
12	2	24-48V AC/DC	Plug (3)	ZARB12H
18	2	24-48V AC/DC	Plug (3)	ZARB18H
10	2	48-240V AC	Pre -wired	ZARB10WSP (5)
10	2	48-240V AC	Cable gland	ZARB10WS (5)



ZARB10WS

Wireless remote control (4)

Display	Vibration alert	Motion pushbuttons	Auxiliaries pushbuttons	Reference
No	No	6	2	ZART8L
Yes	Yes	6	2	ZART8D
Yes	Yes	6	6	ZART12D
No	No	6	1	ZART8LS (5)



ZART8D



ZART8LS

Harmony™ eXLhoist

Wireless remote control for hoisting applications

Safety

- > Certified to SIL3 according to IEC 62061 and PL“e” according to ISO 13849-1

Battery

- > 30 run time
- > 15 min charge
- > Up to 5 years life

Ergonomics

- > Intuitive Pushbuttons positioning

Diagnosis

- > Instant alarm notification by vibration
- > Automatic discovering of base station

Universal

- > Unrestricted worldwide use with global frequency

Notes

- (1) Includes configuration cable.
- (2) Connector plug and cable available in 1.5m (ZARC05), 3m (ZARC12), and 5m (ZARC18) lengths.
- (3) For gland version change H to W at the end of the reference. Power supply to gland type units is 24-240V AC/DC.
- (4) Charge for minimum of 4 hours before first use.
- (5) Part of compact range. ZART8LS only compatible with ZARB10WS/ZARB10WSP.

Tower lights, sounders, beacons

XVSV Panel mount sounder SVR3 Beacons



XVSV7BBP

Panel mount sounders

Description	Supply voltage	Input	Colour	Reference
6 Channel with 63 selectable sounds and customised voice SD card	24V DC	PNP (1)	Black Din 72	XVSV7BBP
	24V DC	PNP (1)	Black Din 96	XVSV9BBP

- > Sound editable: Friendly interface, and can change comments on site.
- > Compact design: Thickness, 24.9mm and 50.1mm.
- > High volume: Max 89B (DIN72), Max 97 dB (DIN96), more effective in alerting.
- > More choices and longer playback time: 63 sound output, totally 256 seconds.
- > Up to IP65.

Panel mount accessories

Description	Reference
Wall mount plate for DIN72 and DIN96	XVSZ016



XVR LED
Motorless beacons

Beacon LED IP65

Description	Supply voltage	Buzzer	Reference
Beacon Green	DC12-24V	No	XVR3B03
Beacon Red	DC12-24V	No	XVR3B04
Beacon Orange	DC12-24V	No	XVR3B05
Beacon Blue	DC12-24V	No	XVR3B06
Beacon Green	AC100-230V	No	XVR3M03
Beacon Red	AC100-230V	No	XVR3M04
Beacon Orange	AC100-230V	No	XVR3M05
Beacon Blue	AC100-230V	No	XVR3M06
Beacon Green	DC12-24V	Yes	XVR3B03S
Beacon Red	DC12-24V	Yes	XVR3B04S
Beacon Orange	DC12-24V	Yes	XVR3B05S
Beacon Blue	DC12-24V	Yes	XVR3B06S
Beacon Green	AC100-230V	Yes	XVR3M03S
Beacon Red	AC100-230V	Yes	XVR3M04S
Beacon Orange	AC100-230V	Yes	XVR3M05S
Beacon Blue	AC100-230V	Yes	XVR3M06S
Beacon Multi-functional			XVR3Z001

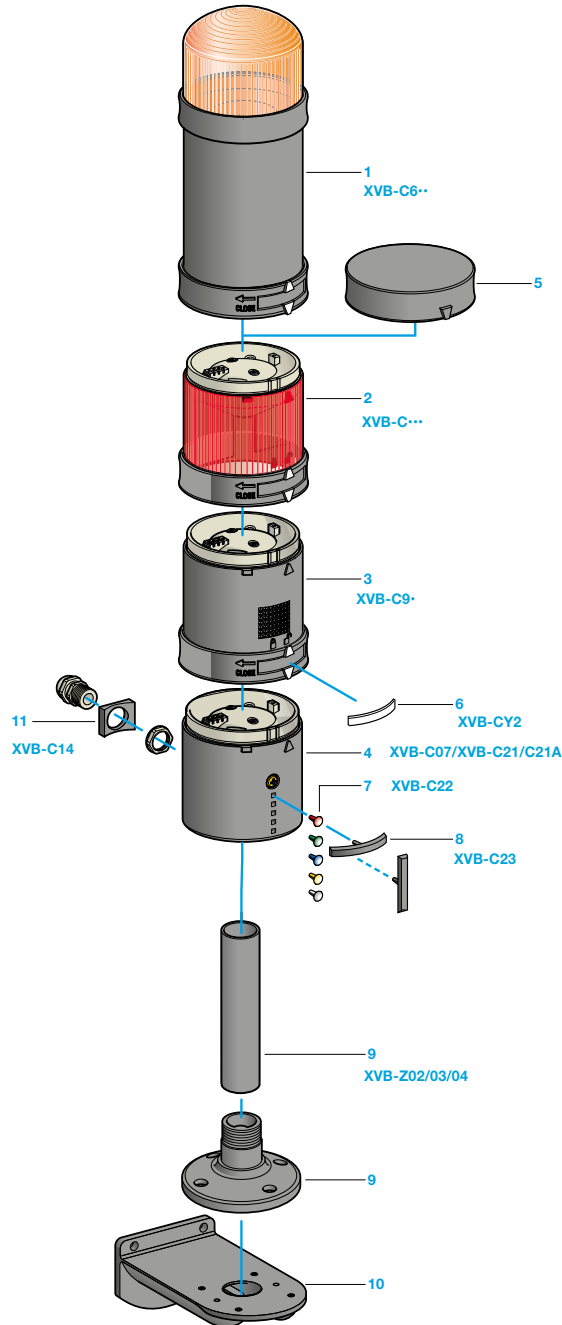
The Schneider Electric Harmony XVR Rotating Mirror Beacons provide long-distance indications of the operation status with lights and buzzers. The new Harmony SVR3 Beacon offer provides you motorless Rotating, Blinking and Flashing modes. The entire XVR3 range meets IP65 (Upright) degree of protection, maintenance free and much longer life time, etc.

Note

(1) Also available by request with NPN input change the last letter from P to N.

Tower lights, sounders, beacons

XVB indicator beacons and banks – IP65 Assembly of components



Key

- 1 Illuminated lens unit with flashing discharge tube
- 2 Steady or flashing lens unit
- 3 Audible signal unit
- 4 Base
- 5 Lid
- 6 Locking ring identification label
- 7 Set of colour markers
- 8 Base unit identification label
- 9 Support tube and horizontal mounting plate
- 10 Vertical mounting adaptor
- 11 Side cable entry adaptor and cable gland

Notes

Combined maximum of five functional units (1-3) can be mounted on one base unit (4).

Only one illuminated lens unit with discharge tube (1) can be mounted per stack and only at the top of the stack.

Base units XBVC21 and 21A are supplied complete with one lid (5).

Base unit XVB-C07 is supplied without lid (5) and used only when an illuminated lens unit (1) is mounted at the top of the stack.

Tower lights, sounders, beacons

XVB indicator beacons and banks – IP65

Illuminated lens units for LED and incandescent light sources and audible units
Variable composition units



XVBC2B3



XVBC5B6



XVBC33



XVBC4B6



XVBC6M4



XVBC9M

**Protected
LED**

Integrated LED illuminated lens units

Description	Supply voltage	Colour	Reference		
Steady integral LED	≈ 24	Green	XVBC2B3		
		Red	XVBC2B4		
		Orange	XVBC2B5		
		Blue	XVBC2B6		
		Clear	XVBC2B7		
		Yellow	XVBC2B8		
		~ 230V	Green	XVBC2M3	
			Red	XVBC2M4	
	Orange		XVBC2M5		
	Blue		XVBC2M6		
	Clear		XVBC2M7		
	Yellow		XVBC2M8		
	Blinking integral LED		≈ 24V	Green	XVBC5B3
				Red	XVBC5B4
		Orange		XVBC5B5	
		Blue		XVBC5B6	
Clear		XVBC5B7			
Yellow		XVBC5B8			
~ 230V		Green		XVBC5M3	
		Red		XVBC5M4	
		Orange	XVBC5M5		
		Blue	XVBC5M6		
		Clear	XVBC5M7		
		Yellow	XVBC5M8		

Incandescent illuminated lens units (1)

Description	Supply voltage	Colour	Reference		
Steady	Up to 250V 7W globe max. (not included)	Green	XVBC33		
		Red	XVBC34		
		Orange	XVBC35		
		Blue	XVBC36		
		Clear	XVBC37		
		Yellow	XVBC38		
		Blinking	~ 24V or = 24...48V 7W globe max. (not included)	Green	XVBC4B3
				Red	XVBC4B4
Orange	XVBC4B5				
Blue	XVBC4B6				
Clear	XVBC4B7				
Yellow	XVBC4B8				
~ 48...230V 7W globe max. (not included)	Green			XVBC4M3	
	Red			XVBC4M4	
	Orange		XVBC4M5		
	Blue		XVBC4M6		
	Clear		XVBC4M7		
	Yellow		XVBC4M8		

Illuminated lens units with 5 joule "flash" discharge tube (2)

Light source/signalling	Colour	Reference	
≈ 24V "high flash" discharge tube	Green	XVBC6B3	
	Red	XVBC6B4	
	Orange	XVBC6B5	
	Blue	XVBC6B6	
	Clear	XVBC6B7	
	Yellow	XVBC6B8	
	~ 230V "high flash" discharge tube	Green	XVBC6M3
		Red	XVBC6M4
Orange		XVBC6M5	
Blue		XVBC6M6	
Clear		XVBC6M7	
Yellow		XVBC6M8	

Audible signalling units

Description	Supply voltage	Reference
Buzzer unit; 90dB at 1m modes: continuous/intermittent	≈ 12...48V	XVBC9B
	~ 120...230V	XVBC9M

Notes

(1) For incandescent globes, see page J56.

(2) 10 joule version also available by replacing "C6" with "C8" e.g. **XVBC6B4** becomes **XVBC8B4**.

Tower lights, sounders, beacons

XVB indicator beacons and banks – IP65

Bases and accessories

Variable composition units



XVBC21

Base units

Description	For use with	Type	Reference
Base unit + lid with bottom or side cable entry	XVBC2 to XVBC5 + XVBC9●	Standard	XVBC21
Indicator bank cover only	XVBC2 to XVBC5 XVBC9●	Standard	XVBC081



XVBZ02



XVUZ12



XVBZ01

Accessories common to beacons and indicator banks

Description	Height under base unit mm	Colour	Reference
Fixing bases comprising: Ø25mm aluminium support tube glued into black plastic fixing plate	80	Black aluminium	XVBZ02
	380	Black aluminium	XVBZ03
	780	Black aluminium	XVBZ04

Description	For use with	Material	Reference
Fixing plate for use on horizontal support	Ø25mm aluminium support tube (to be glued into plastic fixing plate)	Plastic	XVBZ01
Fixing plate for use on vertical support	Base unit (direct mounting), fixing plate XVBZ01 or fixing bases XVBC9●	Aluminium	XVUZ12



DL1BD●●

Protected
LED

Protected
LED

ED globes

Description	Supply voltage	W	Colour	Reference
Steady protected LED BA15d base fitting	≈ 24V		White	DL1BDB1
			Green	DL1BDB3
			Red	DL1BDB4
			Orange	DL1BDB5
			Blue	DL1BDB6
			Yellow	DL1BDB8
Flashing protected LED BA15d base fitting	≈ 24V		White	DL1BKB1
			Green	DL1BKB3
			Red	DL1BKB4
			Orange	DL1BKB5
			Yellow	DL1BKB8

J

Tower lights, sounders, beacons

Product configurator
on se.com/nz

XVU Modular light towers



XVU ASSEMBLY

Presentation

The Harmony® XVU modular range of tower lights are visual and audible signaling units indicating operation sequence of a machine. Their reduced diameter (Ø60 mm/2) makes them suitable for use on small equipment and their aesthetic design distinguishes them from other tower lights. The availability of black and metallic silver body makes them ideal for use in automotive, machine tools, material handling and packaging industry.

This range has an advantage of:

- > "Super Bright" LED,
- > Easy installation and mounting without use of any tools,
- > Simple assembly due to the indicator marks on the units,
- > Steady, blinking, flashing, or rotating multi-coloured LED unit for energy-efficient high priority signaling (colours and light patterns can be selected using 2 dip switches on top of the unit),
- > Height adjustment tube that solves the need to adjust height of the tower light,
- > Flexible mounting option which supports various customer needs for installation (for use on horizontal or vertical support),
- > Power integrated base modules with two voltage solutions (224V and c100 to 240V) which reduces the stock reference for LED units,
- > High degree of protection against dust and water.

Illuminated LED units

The XVU range offers the following benefits for illuminated LED units:

- > These units are visible throughout 360°,
- > Innovative mirror design of LED units improve the brightness,
- > Pure colors of LED units avoid confusion between colors,
- > The ultra bright LED technology consumes low power and has long life,
- > Continuous usage of LEDs up to 40,000 operating hours (1),
- > Ultra brightness in 40° visualization,
- > Homogenous light improves luminosity from side view,
- > The mixture of homogenous light and pure color improves the aesthetics of tower light and machine,
- > Polycarbonate lens material for better shock resistance.

Mounting

- > Height adjustable tube with an adjustment from 210 to 385 mm, mounted on a fixing plate for use on a horizontal support.
- > Flexible mounting option for use on horizontal or vertical support.
- > Direct mounting (with direct mounting plate XVUZ01).

Signaling type

- > For illuminated units with green, red, orange, blue or white color: steady
- > For illuminated units with multi-color: steady, blinking, flashing (slow or fast) and rotating (slow or fast).
- > For audible unit: buzzer sound, 85dB (at 1m, 4 configurations of audible signal).

Environment

- > The degree of protection for XVU tower lights are:
- > IP 65 for illuminated units,
- > IP 54 for audible units,
- > IP 55 for flexible mounting option,
- > Product certifications:UL, CSA, CE.

The whole range conforms with EN/IEC 60947-5-1 standard. Products are, UL and CSA certified.

Note

- (1) Until the brightness reduces to 50% of the initial value when lit at complete direct current of the rated voltage in 25 °C environment.

Tower lights, sounders, beacons

XVU Modular light towers

Tower lights for customer assembly

Intergrated LED illuminated lens unit IP65



XVUC23



XVUC24



XVUC25



XVUC26



XVUC27/9



XVUC9S



XVUC9SQ

Description	Compatible with	Colour	Reference	
Steady LED high brightness	All base units	Green	XVUC23	
	All base units	Red	XVUC24	
	All base units	Orange	XVUC25	
	All base units	Blue	XVUC26	
	All base units	White	XVUC27	
	All base units	Yellow	XVUC28	
Steady / Rotating / Flashing selectable		Multi colour	XVUC29	
	Blinking LED high brightness	All base units	Green	XVUC43
All base units		Red	XVUC44	
All base units		Orange	XVUC45	
All base units		Blue	XVUC46	
All base units		White	XVUC47	
All base units		Yellow	XVUC48	
Pulse signal LED (1)			Multi colour	XVUC29P
		High flashing LED	All base units	Green
All base units	Red		XVUC64	
All base units	Orange		XVUC65	
All base units	Blue		XVUC66	
All base units	White		XVUC67	
All base units	Yellow		XVUC68	

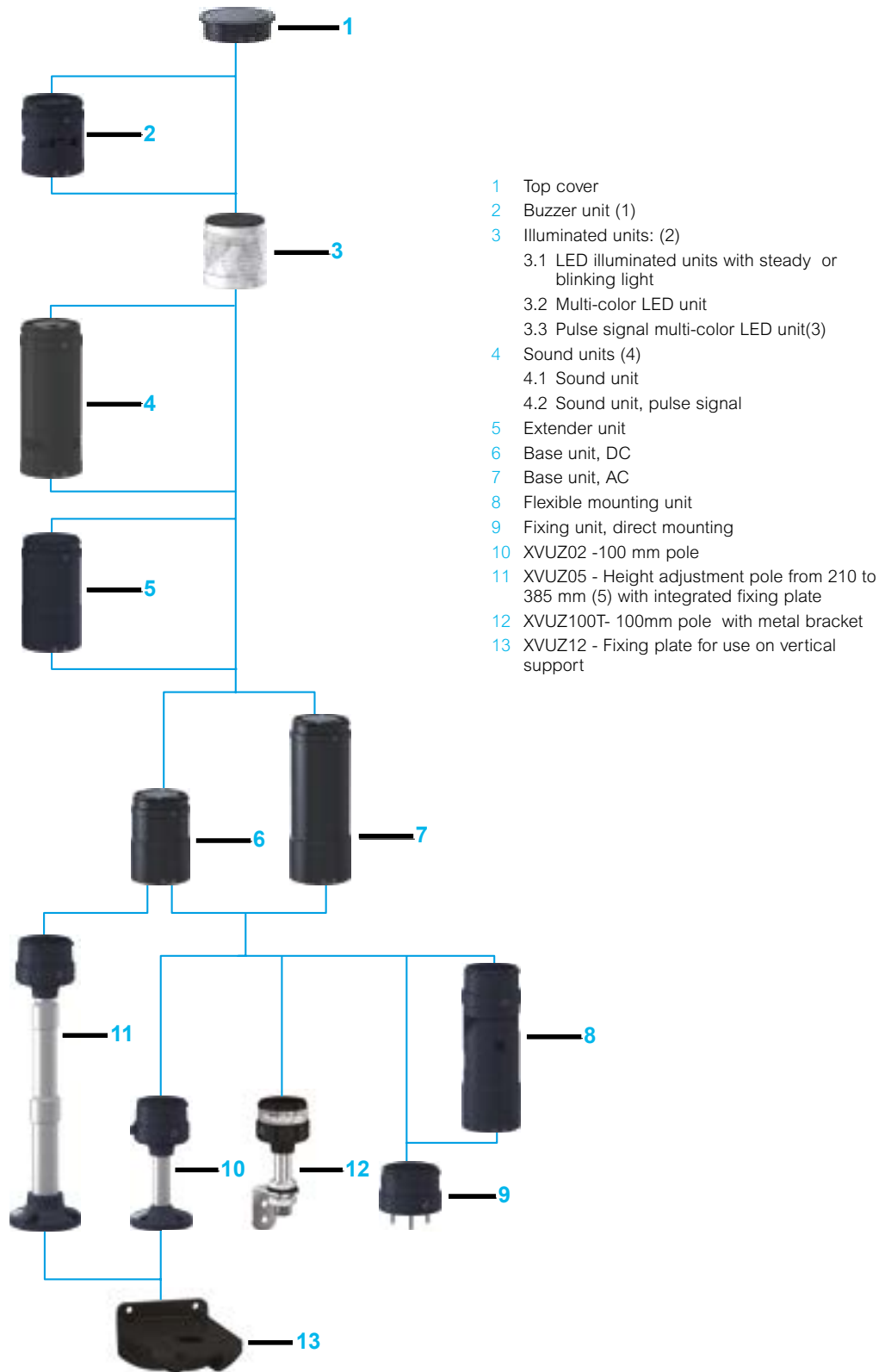
J

Note

(1) 1 signal wire, 2 power wires. Adaptable for both NPN and PNP. Controlled by PLC dynamically.

Tower lights, sounders, beacons

XVU Modular light towers



- 1 Top cover
- 2 Buzzer unit (1)
- 3 Illuminated units: (2)
 - 3.1 LED illuminated units with steady or blinking light
 - 3.2 Multi-color LED unit
 - 3.3 Pulse signal multi-color LED unit(3)
- 4 Sound units (4)
 - 4.1 Sound unit
 - 4.2 Sound unit, pulse signal
- 5 Extender unit
- 6 Base unit, DC
- 7 Base unit, AC
- 8 Flexible mounting unit
- 9 Fixing unit, direct mounting
- 10 XVUZ02 -100 mm pole
- 11 XVUZ05 - Height adjustment pole from 210 to 385 mm (5) with integrated fixing plate
- 12 XVUZ100T- 100mm pole with metal bracket
- 13 XVUZ12 - Fixing plate for use on vertical support

Notes:

- (1) Always mounted on the top
- (2) Up to 5 LED illuminated units without sound unit; Up to 4 LED illuminated units with sound unit
- (3) Pulse signal multi-color LED unit cannot be combined with standard sound unit (XVUC9V)
- (4) Sound unit can work without LED unit
- (5) Only for DC body unit
- (6) Sound unit cannot be combined with buzzer unit at the same time

Tower lights, sounders, beacons

XVU Modular light towers



Tower lights for customer assembly base units

Description	Supply Voltage	Colour	Reference
Base unit + top cover	24V AC/DC	Black	XVUC21B (1)
	24V AC/DC	Silver	XVUC21BQ (1)
	100V-240V AC	Black	XVUC21MP (1)

Accessories



Description	Voltage	Colour	Reference
Body extenders	24VAC/DC	Black	XVUC020
		Silver	XVUC020Q
Direct mounting plate for 3 foot mounting		Black	XVUZ01
		Silver	XVUZ01Q
Fixing plate with 100mm aluminium pole		Black	XVUZ02
		Silver	XVUZ02Q
Aluminium adjustable pole + fixing plate for height adjustment		Black	XVUZ05
Flexible mounting option for use on horizontal or vertical support IP55		Black	XVUZ06
Metal bracket with aluminium pole		Black	XVUZI00T
Fixing plate for use on vertical support		Black	XVUZ12
Fixing plate with aluminium 1/2" NPT adapter		Black	XVUZ00



Audible units IP54 (2)

Description	Compatible with	Colour	Reference
Buzzer adjustable 70...85 db at 1m (4 configurations of audible signal)	All base units	Black	XVUC9S
	All base units	Silver	XVUC9SQ
Voice module 4 channel	All base units	Black	XVUC9V
Sound unit, pulse signal(3)	All base units	Black	XVUC9VP



Note

- (1) XVUZ01 required for direct mounting
- (2) Audible units work with the "Playlist builder" software. This software is free and can be downloaded from www.schneider-electric.com
- (3) 1 signal wire, 2 power wires. Adaptable for both NPN and PNP. 16 channels can be controlled by PLC.



One LED block for all colors!
Simplify design and lower inventory cost

Harmony XB4/XB5



J

Simplified design

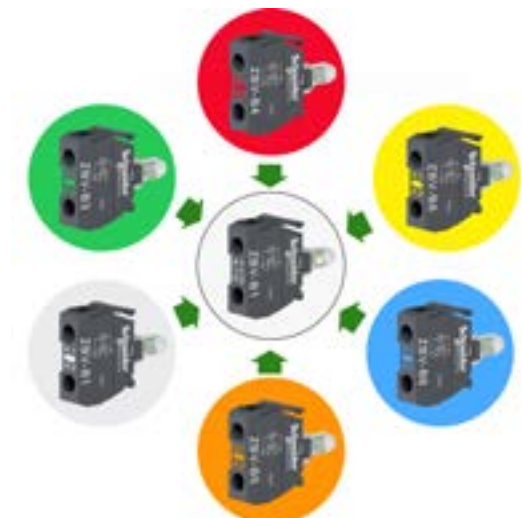
A unique and universal white LED block replaces 6 individually-colored blocks of the Harmony XB4/XB5 offering simplifying product placement during design.

Lower inventory

New white universal LED block design allows partners to simplify their LED block inventory by reducing from 6 references to 1 – up to 79% reduction in LED Block and body references.

Enhanced color saturation

Improved color intensity and reduction of spot effects creates better functional visualization when the product is on or off.



Index

Machine safety

Guide to machine safety chain solutions

L2

Safety HMI

Emergency stop controls

Emergency stop buttons & control stations

Section J

Emergency safety rope pull switches (trip wire)

L10

Operator interface devices

Foot switches

L13

Validation control - Enabling switches

L14

Illuminated beacons, banks & sirens

Section J

Safety Logic

Safety modules (relays)

Selection guide

L19

XPSU safety modules

L14

XPS to XPSU substitution

L15

XPS safety modules

L16

Safety controllers

XPSMCM safety controllers

L17

Safety Output

Variable speed drives with built-in safety inputs (VSD)

Section I

Safety rated contactors with mirrored contacts & red

Section H

indication covers

Safety rated load break switches

Section H

Explosive atmosphere

Ex rated

Pushbuttons and selector switches

L19

Pilot lights and control stations

L20

Foot

L21

HMI's

L22

Terminals

L22

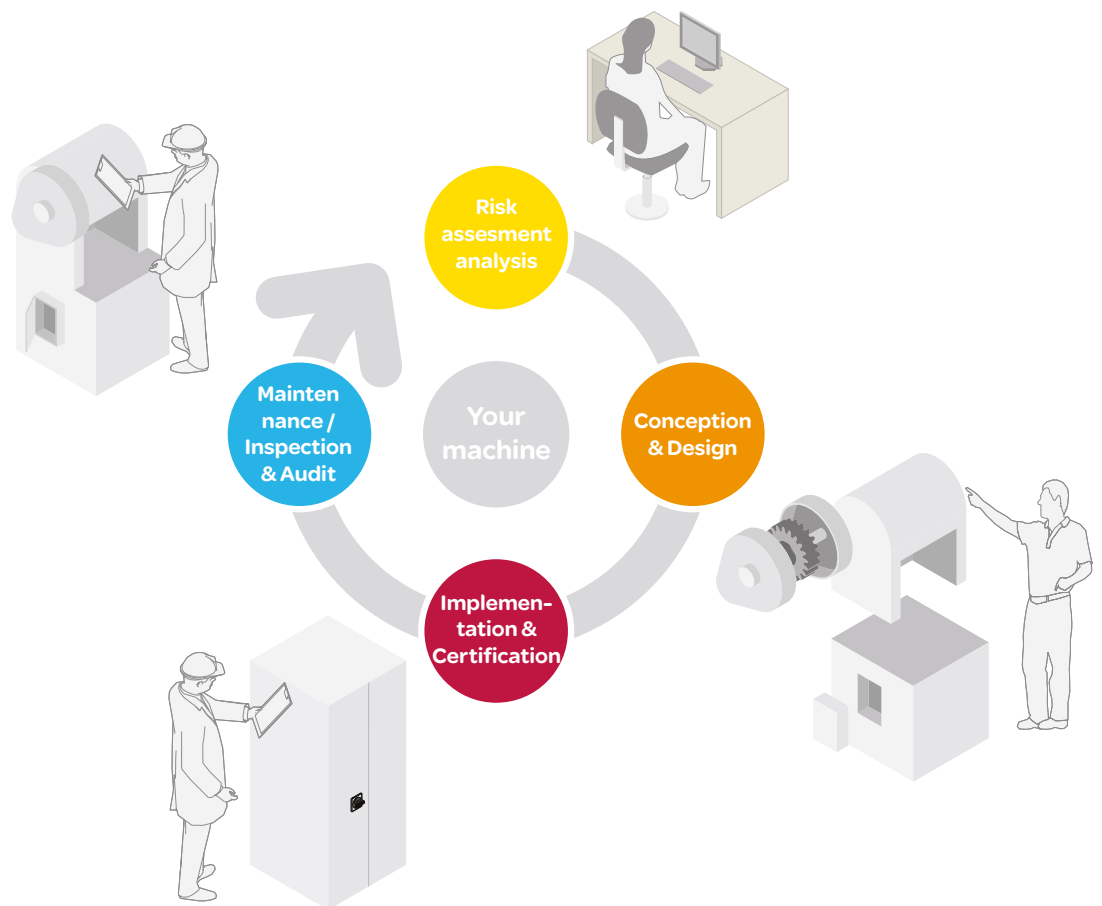
L

Preventa safety functions of a machine

Preventa, the safety attitude around your machine life cycle

The Preventa range enhances safety throughout a machine's entire life cycle from design, manufacture, installation, adjustment, operation and servicing right through to decommissioning.

In addition to moral obligation and economic consequences, the law requires that machinery is safe in the interests of accident prevention. Preventa offers an extensive range of safety products, compliant with international standards, designed to provide the most comprehensive protection for personnel and equipment.



> New machines – the Machinery Directive

The previous Machinery Directive 98/37/EC was elaborated to help manufacturers ensuring a minimum safety level for machinery and equipment sold within the EU (European Union).

From 29 December 2009 on, the new European Machinery Directive 2006/42/EC is effective. Machines must comply with the Essential Health and Safety Requirements (EHSRs) listed in Annex 1 of the Directive, thus setting a common minimum level of protection across the EEA (European Economic Area).

Machine manufacturers, or their authorised representatives within the EU, must ensure that the machine is compliant with all requirements from this Directive. This technical file is available to reinforce authorities requests as well as the CE marking must be affixed and a Declaration of Conformity has been signed before the machine may be placed on the market within the EU.

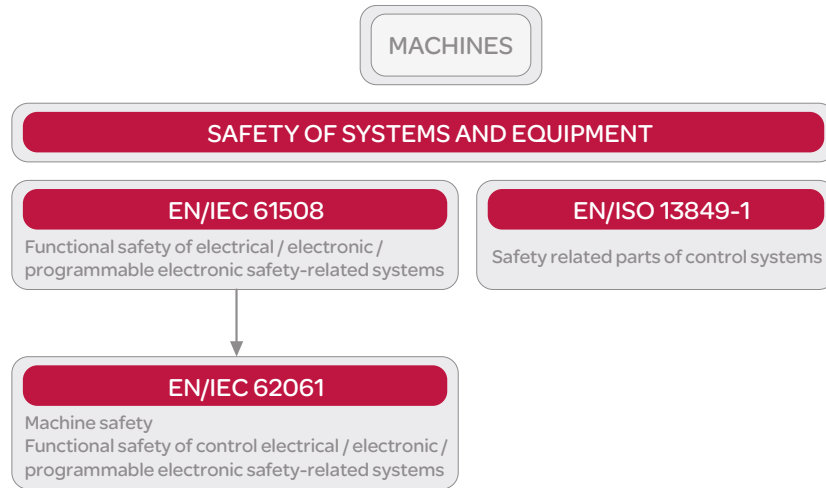
Risk Assessment

Making each risk investigation determines an appropriate level of safety and well being to the operators of the machinery. When considering what standard to use ISO 13849-1 or EN62061, either standard must be used in its entirety and the two systems cannot be mixed in a single system.

Preventa safety functions of a machine

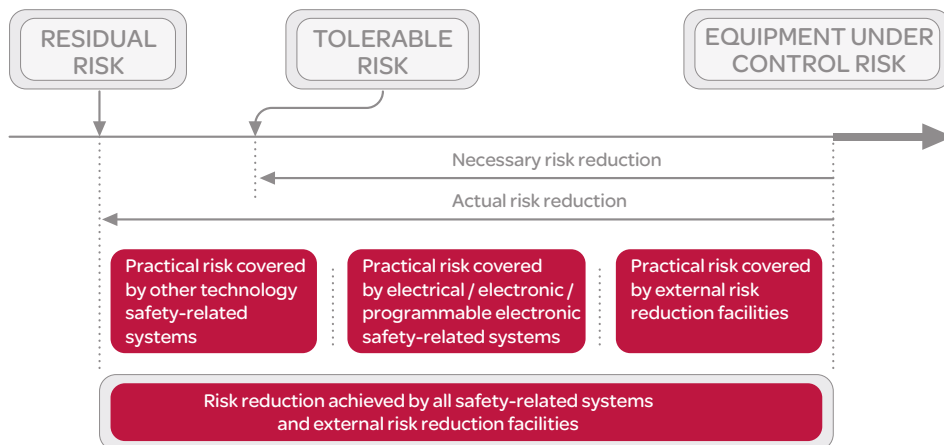
Functional safety

> Safety integrity level (SIL), Performance level (PL)



Risk reduction according to EN/IEC 61508 and EN/ISO 13849-1

- > Safety is achieved by risk reduction (for those hazards that cannot be designed-out).
 - > Residual risk is the risk remaining after protective measures have been taken.
 - > Protective measures realised by E/E/PE* safety related systems contribute to risk reduction.
- * Electric / Electronic / Programmable electronic

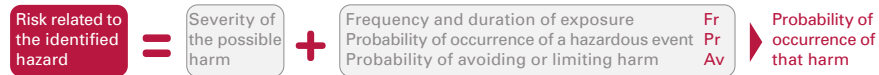


Preventa safety functions of a machine

Functional safety of machinery

> Approach according to EN/IEC 62061

Risk estimation for SIL assignment



Example of SIL assignment

This assignment should be carried by determining the risk parameters that are shown below in an example.

In this example the SIL 3 must be achieved by the safety-related control function intended to reduce the risk related to the identified hazard.

Consequences		Severity (Se)	
Irreversible: death, losing an eye or arm		4	
Irreversible: broken limb(s), losing a finger(s)		3	
Reversible: requiring attention from a medical practitioner		2	
Reversible: requiring first aid		1	

Frequency and duration of exposure (Fr)		Probability of occurrence		Probability (Pr)		Probability of avoiding or limiting harm (Av)	
Frequency of exposure	> 10 min	Very high		5		Impossible	5
1 h		Likely		4		Rarely	3
> 1 h to 1 day		Possible		3		Probable	1
> 1 day to 2 weeks		Rarely		2			
> 2 weeks to 1 year		Negligible		1			
> 1 year							

Serial no.	Hazard	Se	Fr	Pr	Av	CI
1	Hazard X	4	5	4	3	12
2						

Consequences	(Se)	Class Cl					Frequency and duration		Probability of hzd. Event		Avoidance	
		3-4	5-7	8-10	11-13	14-15	Fr	Pr	Pr	Av	Av	
Death, losing an eye or arm	4	SIL 2	SIL 2	SIL 2	SIL 3	SIL 3	<= 1 hour	5	Common	5		
Permanent, losing fingers	3		OM	SIL 1	SIL 2	SIL 3	> 1 h to <= 1 day	5	Likely	4		
Reversible, medical attention	2			OM	SIL 1	SIL 2	> 1 day to <= 2 wks	4	Possible	3	Impossible	5
Reversible, first aid	1				OM	SIL 1	2 wks to <= 1 year	3	Rarely	2	Possible	3
							> 1 year	2	Negligible	1	Likely	1

Determination of the SIL level achieved by the safety-related control function (SRCF)

According to standard EN/IEC 62061 for each safety related control function, the SIL level is linked to:

- > a target failure value for the probability of dangerous failure by hour of the SRCF: PFHD
- > architectural constraints (hardware fault tolerance, diagnosis)
- > a set of requirements related to the lifecycle of the safety related electrical control system
- > The rate of failures λ can be expressed as follows: $\lambda = \lambda_s + \lambda_{ad} + \lambda_{du}$
- > The calculation of the PFHD for a system or subsystem depends on several parameters:
 - > the dangerous failure rate (λ_d) of the subsystem elements
 - > the fault tolerance (e.g. redundancy) of the system

Safety integrity level (SIL)	Probability of a dangerous Failure per Hour PFHD
3	$>10^{-8}$ to $<10^{-7}$
2	$>10^{-7}$ to $<10^{-6}$
1	$>10^{-6}$ to $<10^{-5}$

λ_s = rate of safe failures,
 λ_{ad} = rate of detected dangerous failures,
 λ_{du} = rate of undetected dangerous failures
 $\lambda_d = \lambda_{ad} + \lambda_{du}$

In practice, detected dangerous failure are dealt with by fault

- > the diagnostic test interval (T2)
- > the proof test interval (T1) or lifetime whichever is smaller
- > the susceptibility of common cause failures (β)
- > For each of the four different logical architectures A to D there is a different formula to calculate the PFHD. (See EN/IEC 62061)
- > For a simple system without redundancy and without diagnostic: PFHD = $\lambda_d \times 1/h$

> Tested, Validated, and Documented Architectures

Our safety chain solutions are ready-to use and simple to adapt, architectures provided with the safety calculation and certification. The safety chain solutions are TÜV certified safety architectures based upon the most common safety functions required on and around a machine. The safety chain solutions enable you to save time and costs when designing and manufacturing your machine in accordance with the European Machinery Directive. For more information please visit Safety Chain Solutions Selector at <http://industryproducts.schneider-electric.us/msxselector>

Safety HMI Operator interface devices

Two hand control units Foot switches



XPEA110

Double insulated foot switch

Description	Operation	Contacts	Reference
IP43, unguarded without trigger	1 Step	1 N/C + 1 N/O	XPEA110



XPEM110

Standard duty, metal foot switches

Description	Operation	Contacts	Reference
Unguarded without trigger	1 Step	1 N/C + 1 N/O	XPEM110
Guarded with trigger	1 Step	1 N/C + 1 N/O	XPEM510



9002AW1M11

Heavy duty, oil tight, metal foot switches (1)

Description	Operation	Contacts	Reference
Unguarded without latch 1N/O+1N/C per step	1 Step	1 N/O + 1 N/C	9002AW1M11
	2 Step (2)	2 N/O + 2 N/C	9002AW13M11
Guarded without latch	1 Step	1 N/O + 1 N/C	9002AW2M11
	2 Step (2)	2 N/O + 2 N/C	9002AW6M11
Guarded with latch	1 Step	1 N/O + 1 N/C	9002AW7M11
	2 Step (2)	2 N/O + 2 N/C	9002AW15M11
Latches in second stage only	2 Step (2)	2 N/O + 2 N/C	9002AW10M11



9002AW2M11

Spare parts foot switches

Description	Operation	Contacts	Reference
Contact block	XPE		XE2SP4151
	AW11/12		2620202030
	AW1/2/5/6/7/9/10		9007AO2
	AW13/14/15		9007CO3
	AW21/22		9007CO7
Pedal spring			2502D8X1
Cover			9002AC8














Notes

(1) ISO M20 cable entry.

(2) 1 N/O + 1 N/C per step.

Safety logic Preventa XPSU safety modules Selection guide

Safety functions

Emergency stop	Stop category 0		XPSUAB	-	XPSBAC XPSUAF XPSUAK XPSUDN XPSUS
	Stop category 0+1		-	-	XPSBAT XPSUAT
Control of access to hazardous zones	Interlocking guard with and without guard locking		XPSUAB	-	XPSBAC XPSBAT XPSUAF XPSUAK XPSUAT XPSUDN XPSUS
	Magnetic switch		XPSUAB	-	XPSBAT XPSUAF XPSUAK XPSUAT XPSUDN XPSUS
	RFID safety switch		XPSUAB	-	XPSBAT XPSUAF XPSUAK XPSUAT XPSUDN XPSUS
	Light curtains		XPSUAB	-	XPSBAT XPSUAF XPSUAK XPSUAT XPSUDN XPSUS
	Safety mats		-	-	XPSUAK XPSUAT
	Starting and enabling of dangerous movements	Two-hand control station		XPSUAB	-
Enabling switch (grip switch)			-	-	XPSUS
Proximity safety switch			XPSUAB	-	XPSUAF XPSUAK XPSUAT XPSUDN XPSUS
Safety monitoring functions	Zero speed detection (remanent voltage)		-	XPSUVN	-
	Safety timer		-	XPSUVN	-
	Increasing the number of safety contacts (1)		-	-	XPSUEP

Note

(1) More information in the page xxx

Safety logic Preventa XPSU safety modules

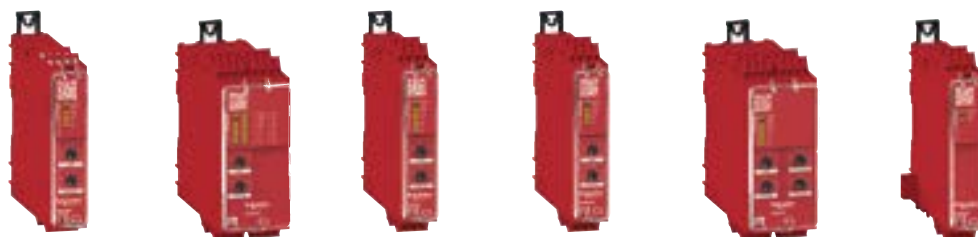
Selection guide



	XPSBAC	XPSBAT	XPSUAB	XPSUVN
Number of safety functions	Via power supply	1	1	-
Number of outputs	Safety - immediate	4 NO	2 NO	1 Single changeover output
	Safety - delayed	-	1 NO (configurable)	-
	Diagnostic	2 NC	1 solid state	1 Pulsed solid state
	Delay time	-	0...900 Sec	-
Input channels	2	2	2	3
Module width	22.5 mm	22.5 mm	22.5mm	22.5mm
Display	5 LEDs	8 LEDs	6 LEDs	5 LEDs
Supply voltage	24V AC/DC and 48-240V AC/DC			
Maximum achievable safety level	<ul style="list-style-type: none"> • PL e/Category 4 conforming to ISO 13849-1 • SILC L 3 conforming to IEC 62061 • SIL 3 conforming to IEC 61508 		<ul style="list-style-type: none"> • PL e/Category 1 conforming to ISO 13849-1 • SILC L 1 conforming to IEC 62061 • SIL 1 conforming to IEC 61508 	
Conformity to standards	<ul style="list-style-type: none"> • IEC 60947-5-1 • IEC 61508-1 (functional safety standard) • IEC 61508-2 (functional safety standard) • IEC 61508-3 (functional safety standard) • ISO 13849-1 (functional safety standard) • IEC 62061 (functional safety standard) 		<ul style="list-style-type: none"> • PL e/Category 4 conforming to ISO 13849-1 • SILC L 3 conforming to IEC 62061 • SIL 3 conforming to IEC 61508 	
Product certifications	<ul style="list-style-type: none"> • cULus • TÜV 			
Replacing previous XPS range	XPAC, XPAXE	XPABV	XPBAE	XPVNE (2)

Note

- (1) Partial substitution, since new XPSUEP cannot be operated standalone
- (2) XPSTSW has no direct substitution, as in normal applications it has been used with XPVNE. The XPSUVN range incorporates the time delay, then XPSTSW is no longer necessary



	XPSUAF	XPSUDN	XPSUS	XPSUAK	XPSUAT	XPSUEP
Number of safety functions	1	6 similar functions	2 similar functions	1	1	-
Number of outputs	Safety - immediate	3 NO	3 NO + 1 NC	2 NO	2 NO + 1 NC	3 NO
	Safety - delayed	-	-	-	-	3 NO + 1 NC
	Diagnostic	1 solid state	1 solid state	1 solid state	1 solid state	2 solid state
	Delay time	-	-	-	-	0.1s...15mins
Input channels	2	12	4	2	3	-
Module width	22.5 mm	45mm	22.5mm	22.5mm	45mm	22.5mm
Display	6 LEDs	16 LEDs	8 LEDs	6 LEDs	8 LEDs	3 LEDs
Supply voltage	24V AC/DC and 48-240V AC/DC					
Maximum achievable safety level	<ul style="list-style-type: none"> • PL e/Category 4 conforming to ISO 13849-1 • SILC L 3 conforming to IEC 62061 • SIL 3 conforming to IEC 61508 					
Conformity to standards	<ul style="list-style-type: none"> • IEC 60947-5-1 • IEC 61508-1 (functional safety standard) • IEC 61508-2 (functional safety standard) • IEC 61508-3 (functional safety standard) • ISO 13849-1 (functional safety standard) • IEC 62061 (functional safety standard) 					
Product certifications	<ul style="list-style-type: none"> • cULus • TÜV 					
Replacing previous XPS range	XPFAF, XPFAFL	XPDMME	XPVVC, XPVBCE, XPVBF, XPVDMB, XPVFB	XPVAK	XPVARS, XPVATE, XPVATR, XPVAV	XPVSECME, XPVSECPE (1)

Note

- (1) Partial substitution, since new XPSUEP cannot be operated standalone.

Safety logic

Preventa XPSUAF, XPSUDN safety modules

Product configurator
on se.com/nz

Category 4/PL e, SILCL 3, SIL 3

Advanced safety diagnostics meets user simplicity

Preventa XPS Universal safety modules (relays) bring smarter diagnostics and preventative maintenance to single-function, hard-wired safety monitoring applications.

More diagnostics and status information without extensive wiring:

Preventa XPS Universal safety modules provide more than 40 different status messages via a single hardwired connection to the digital input of the machine controller. This is in response to the growing demand for more advanced and detailed diagnostic information, even for simple machines.

Ready for use within predictive maintenance:

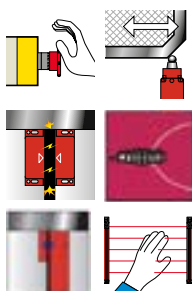
With a smart auxiliary output the safety modules with function blocks provide information about upcoming test cycles and when they will reach the end of their lifetime.

Simplified spare parts logistics:

Multi-functional modules are reducing the number of necessary product references. Set the module function using the rotary dials. Once configured, lock down the front cover with coded sealing strip to prevent tampering. Ultra wide supply tolerances allow full coverage with only two supply variants.

Easy integration/simplified certification:

Certified Safety Chain Solutions – ready-to-use architectures – Preventa XPS Universal safety modules speed up the certification of safety functions. Common form factor in 22.5mm or 45mm widths, and available in removable screw or spring terminal versions.



XPSUAF, XPSUDN safety modules

For monitoring:

- Emergency stop circuits
- Safety switches:
 - Mechanical guard switches
 - Coded magnetic switch with antivalent (1) or 2 NC contacts
 - Proximity safety switch with antivalent (1) contacts
 - PNP sensor
 - RFID safety switch
- Type 4 safety light curtains

Maximum achievable safety level

- PL e/Category 4 conforming to ISO 13849-1
- SIL L 3 conforming to IEC 62061
- SIL 3 conforming to IEC 61508



XPSUAF13AP



XPSUDN33AC

Features	XPSUAF	XPSUDN
Start input	Automatic, manual & monitored start	Automatic, manual & monitored start
Safety inputs	2	6
Control outputs	3 ON/OFF config. pulsed outputs	7 ON/OFF config. pulsed outputs
Safety outputs	3 NO	3 NO + 1 NC
Diagnostic outputs	1 solid state diagnostic output	1 solid state diagnostic output
Connection type	Removable terminal blocks	Removable terminal blocks
Safe expansion connection	Yes	Yes
Module width	22.5 mm	45 mm

References

Description	Supply voltage	Safety inputs	Safety outputs	Type of terminals	Reference
Safety modules conforming to Cat 4, PL e, SILCL3, SIL3, stop cat 0	24V \sim /—	2	3 NO	Spring	XPSUAF13AC
				Screw	XPSUAF13AP
		6	3 NO + 1 NC	Spring	XPSUDN13AC
				Screw	XPSUDN13AP
	48-240V \sim /—	2	3 NO	Spring	XPSUAF33AC
				Screw	XPSUAF33AP
		6	3 NO + 1 NC	Spring	XPSUDN33AC
			Screw	XPSUDN33AP	

Notes

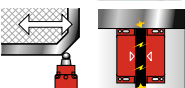
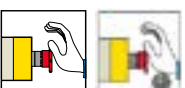
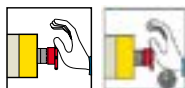
(1) Safety sensors with antivalent (change-over) contacts include both NC and NO contacts.

Safety logic

Preventa XPSBAC & XPSBAT safety modules

Product configurator
on se.com/nz

Category 4/PL e, SILCL 3, SIL 3
Stop category 0 for XPSBAC, stop category 0+1 for XPSBAT (time delay)



XPSBAC, XPSBAT safety modules

	XPSBAC	XPSBAT safety modules
For monitoring:	<ul style="list-style-type: none"> - Emergency stop circuits - Mechanical guard switches 	<ul style="list-style-type: none"> - Emergency stop circuits - Safety switches: <ul style="list-style-type: none"> - Mechanical guard switches - Coded magnetic switch - Proximity safety switch - RFID safety switch - Type 4 safety light curtains
Maximum achievable safety level	<ul style="list-style-type: none"> • PL e/Category 4 conforming to ISO 13849-1 • SILCL 3 conforming to IEC 62061 • SIL 3 conforming to IEC 61 	

Features	XPSBAC	XPSBAT
Start input	Automatic, manual & monitored start	Automatic, manual & monitored start
Safety inputs	-	2
Control outputs	1	3
Safety outputs	4 NO	2 NO Immediate, 1NO (configurable)
Diagnostic outputs	2 NC	1 solid state
Connection type	Removable terminal blocks	Removable terminal blocks
Safe expansion connection	No	No
Module width	22.5 mm	22.5 mm
Time delay setting	No	0...900 S

References

Description	Supply voltage	Safety inputs	Safety outputs (1)	Time delayed safety outputs (2)	Type of terminals	Reference
Safety modules conforming to Cat 4, PL e, SILCL3, SIL3, stop cat 0 or cat 1 (time delay)	24V $\sim/\text{---}$	-	4 NO	-	Spring	XPSBAC14AC
		2	2 NO	1 NO	Screw	XPSBAC14AP
	48-240V $\sim/\text{---}$	-	4 NO	-	Spring	XPSBAT12A1AC
		2	2 NO	1 NO	Screw	XPSBAT12A1AP
					Spring	XPSBAC34AC
					Screw	XPSBAC34AP

Notes

- (1) Outputs switch immediately
(2) Outputs switch after configurable time delay

Safety logic

Preventa XPSUAB safety modules

Product configurator
on se.com/nz

Category 4/PL e, SILCL 3, SIL 3

XPSUAB safety modules

For monitoring:

'Type XPSUAB, for monitoring Emergency stop, Antivalent contact, Guard switch, Magnetic switch, Proximity safety switch, PNP sensor, RFID safety switch, Safety light curtain or Two-hand control station (1) : Single contact Emergency stop conforming to standard ISO 13850

- Switches activated by protection devices conforming to standard ISO 14119:
- Antivalent contact pair
- Mechanical guard switch
- Magnetic switch with Antivalent contact
- Proximity safety switch with Antivalent contact
- PNP sensor
- RFID safety switch
- Type 4 light curtains conforming to IEC 61496-1 which have solid-state safety outputs with test function

Maximum achievable safety level

- PL e/Category 4 conforming to ISO 13849-1
- SILCL 3 conforming to IEC 62061
- SIL 3 conforming to IEC 61

Features

XPSUAB

Start input	Automatic, manual & monitored start
Safety inputs	1
Control outputs	2 ON/OFF config. pulsed outputs
Safety outputs	1 Change Over (C/O)
Diagnostic outputs	1 solid state diagnostic output with complete status information
Connection type	Removable terminal blocks
Safe expansion connection	Yes
Module width	22.5 mm

References

Description	Supply voltage	Safety inputs	Safety outputs	Type of terminals	Reference
Safety modules conforming to Cat 1, PLe, SILCL1, SIL1, stop cat 0	24V ~/---	1	1 C/O	Spring	XPSUAB11CC
	48-240V ~/---	1	1 C/O	Screw	XPSUAB11CP
				Spring	XPSUAB31CC
				Screw	XPSUAB31CP

Notes

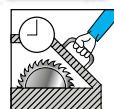
(1) With automatic start only, XPSUAB safety modules are used for monitoring two-hand control IIIA.

Safety logic

Preventa XPSUVN safety modules

Product configurator
on se.com/nz

Category 3/PL e, SILCL 3, SIL 3 & Stop Category 1
Zero speed monitoring with delayed access to dangerous area



XPSUVN safety modules

For monitoring: XPSUVN provides for sensorless standstill monitoring of a motor, and measures the residual voltage that is generated by remanent magnetization after power to the motor is removed and while it coasts down. The voltage is measured via an analog voltage measuring input to determine when standstill has actually been reached. This can be used to implement a safety related function such as controlling an interlocking device with guard locking. The following types of motors which generate a measurable residual voltage when coasting down after power supply has been removed can be connected to the safety-related input of the device:

- Three-phase AC motors
- Single-phase AC motors
- DC motors
- Three-phase AC motors with star-delta wiring

Maximum achievable safety level

- PL e/Category 3 conforming to ISO 13849-1
- SILCL 3 conforming to IEC 62061
- SIL 3 conforming to IEC 61508

Features	XPSUVN
Start input	Automatic
Safety inputs	3
Control outputs	-
Safety outputs	1 NO (1) Configurable 0.5...60 s
Diagnostic outputs	1
Connection type	Removable terminal blocks
Safe expansion connection	Yes
Module width	22.5 mm

References					
Description	Supply voltage	Safety inputs	Safety outputs	Type of terminals	Reference
Safety modules conforming to Cat 3, PL e, SILCL3, SIL3, stop cat 1	24V ~/DC	3	1 NO	Spring	XPSUVN11AC
	48-240V ~/DC	3	1 NO	Screw	XPSUVN11AP
				Spring	XPSUVN31AC
				Screw	XPSUVN31AP

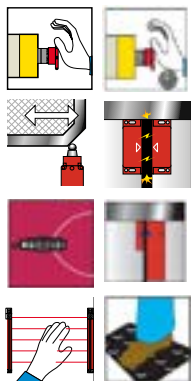


Safety logic

Preventa XPSUAK, XPSUAT safety modules

Product configurator
on se.com/nz

Category 4/PL e, SILCL 3, SIL 3
Stop category 0 for XPSUAK, stop category 1 for XPSUAT (time delay)



XPSUAK, XPSUAT safety modules

For monitoring:

- Emergency stop circuits
- Safety switches:
 - Mechanical guard switches
 - Coded magnetic switch with antivalent (1) or 2 NC contacts
 - Proximity safety switch with antivalent (1) contacts
 - Sensor pair 1 PNP + 1 NPN sensor
 - RFID safety switch
- Type 4 safety light curtains
- 4-wire sensing mats or edges

Maximum achievable safety level

- PL e/Category 4 conforming to ISO 13849-1
- SILCL 3 conforming to IEC 62061
- SIL 3 conforming to IEC 61508

Features	XPSUAK	XPSUAT
Start input	Automatic, manual & monitored start	Automatic, manual & monitored start
Safety inputs	2	2 positive safety inputs, 1 negative safety input
Control outputs	3 ON/OFF config. pulsed outputs	4 ON/OFF configurable pulsed outputs
Safety outputs	2 NO + 1 NC	3 NO immediate + 3 NO configurable delay + 1 NC configurable delay
Diagnostic outputs	1 solid state diagnostic output	1 solid state output to indicate end of time delay 1 solid state diagnostic output
Connection type	Removable terminal blocks	Removable terminal blocks
Safe expansion connection	Yes	Yes
Module width	22.5 mm	45 mm
Time delay setting	No	0.1 s to 15 min by 10 steps of 0.1 s which can be multiplied by 1, 10, 100 and 1000



XPSUAK12AC



XPSUAT33A3AC

References

Description	Supply voltage	Safety inputs	Safety outputs (2)	Time delayed safety outputs (3)	Type of terminals	Reference
Safety modules conforming to Cat 4, PL e, SILCL3, SIL3, stop cat 0 or cat 1 (time delay)	24V \sim /DC	2	2 NO + 1 NC	-	Spring	XPSUAK12AC
		3 (4)	3 NO	3 NO + 1 NC	Screw	XPSUAK12AP
	48-240V \sim /DC	2	2 NO + 1 NC	-	Spring	XPSUAT13A3AC
		3 (4)	3 NO	3 NO + 1 NC	Screw	XPSUAT13A3AP
					Spring	XPSUAK32AC
					Screw	XPSUAK32AP
					Spring	XPSUAT33A3AC
					Screw	XPSUAT33A3AP

Notes

- (1) Safety sensors with antivalent (change-over) contacts include both NC and NO contacts.
- (2) Outputs switch immediately
- (3) Outputs switch after configurable time delay
- (4) 2x positive safety inputs 24 VDC, 1x negative safety input

Safety logic

Preventa XPSUAS safety modules

Product configurator
on se.com/nz

Category 4/PL e, SILCL 3, SIL 3



XPSUS safety modules

- For monitoring:
- 2x emergency stop circuits
 - Safety switches:
 - 2x mechanical guard switches
 - 2x coded magnetic switches with antivalent (1) or 2 NC contacts
 - 2x proximity safety switch with antivalent (1) contacts
 - 2x independent PNP sensors
 - 2x RFID safety switches
 - Type 4 safety light curtains
 - With automatic start only: a two-hand control station (type IIIA, type IIIC) or enabling switch

Maximum achievable safety level

- PL e/Category 4 conforming to ISO 13849-1
- SILCL 3 conforming to IEC 62061
- SIL 3 conforming to IEC 61508

Features	XPSUAS
Start input	Automatic, manual & monitored start
Safety inputs	2
Control outputs	3 ON/OFF config. pulsed outputs
Safety outputs	2 NO
Diagnostic outputs	1 solid state diagnostic output
Connection type	Removable terminal blocks
Safe expansion connection	Yes
Module width	22.5 mm

References

Description	Supply voltage	Safety inputs	Safety outputs	Type of terminals	Reference
Safety modules conforming to Cat 4, PLe, SILCL3, SIL3, stop cat 0	24V ~/---	2	2 NO	Spring	XPSUS12AC
	48-240V ~/---	2	2 NO	Screw	XPSUS12AP
				Spring	XPSUS32AC
				Screw	XPSUS32AP



XPSUS12AC

Notes

(1) Safety sensors with antivalent (change-over) contacts include both NC and NO contacts.

Safety logic

Preventa XPSU safety modules accessories

Product configurator
on se.com/nz



XPSUEP14AC

XPSUEP safety expansion modules

Maximum achievable safety level	<ul style="list-style-type: none"> • PL e/Category 4 conforming to ISO 13849-1 • SILC L 3 conforming to IEC 62061 • SIL 3 conforming to IEC 61508
Start input	Follows the host module
Safety inputs	0
Safety outputs	4 NO + 2 single NC
Diagnostic outputs	1 solid state diagnostic output
Connection type	Connector to base module, removable terminal blocks
Module width	22.5 mm
Time delay	When connected to XPSUAT base module, configurable to follow immediate or time delayed outputs

References

Description	Supply voltage	Safety inputs	Safety outputs	Type of terminals	Reference
Safety expansion modules conforming to Cat 4, PLe, SILCL3, SIL3	24V $\sim/\text{---}$	-	4 NO + 2 single NC	Spring	XPSUEP14AC
				Screw	XPSUEP14AP
	48-240V $\sim/\text{---}$	-	4 NO + 2 single NC	Spring	XPSUEP34AC
				Screw	XPSUEP34AP



XPSEC

Accessories

Description	Reference
Terminal block coding bit For coding the terminal blocks, sold in lots of 30.	XPSEC
Sealing strips A set of uniquely coded sealing strips, used to seal the transparent cover of XPSU safety modules. Sold in lots of 10.	XPSES



XPSES

Safety logic

Preventa XPSMCM safety controller

Modular safety controller - XPSMCM

The Preventa modular safety controller – XPSMCM is a modular configurable safety controller able to monitor multiple safety functions on and around a machine to minimise the risk of people accessing the dangerous moving parts of the machine.

This modular safety controller is designed for monitoring safety functions such as:

- > Emergency Stop
- > Position Monitoring
- > Guard Monitoring
- > Speed Monitoring
- > Perimeter Guarding
- > Enabling Movement

with input devices such as emergency stop pushbuttons, safety guard and limit switches, safety foot switches, safety light curtains and laser scanners, safety mats, safety encoders and proximity sensors, two-hand control stations and enabling switches. The XPSMCM system is certified by TÜV SÜD meeting the industrial safety standards of Category 4, PL e according to EN/ISO 13849-1 and SILCL 3 according to IEC/EN 61508 and IEC/EN 60261

The modular safety controller XPSMCM is supported by a completely intuitive software: SoSafe Configurable.

The software follows a simple drag and drop function block approach to configuration and is completed with a library of configurable safety functions and logical functions as well as easy to use tools.

Safety Controller

Description	Inputs	Outputs	Reference
Safety Controller CPU	8 digital + 2 for start/stop interlock	2 OSSD pairs + 4 test + 2 Status	XPSMCMCP0802
Safety Controller CPU Opt 2	8 Digital with 4 start/restart interlock, 4 single channel OSSD	4.0 safety outputs OSSD, 4.0 test for line control outputs 4.0 configurable for diagnostic connection	XPSMCMC10804



XPSMCMCP0802

Safe expansion modules

Description	Inputs	Outputs	Reference
Safe mixed I/O	8 digital + 2 for start/stop interlock	2 OSSD pairs + 4 test + 2 Status	XPSMCMMX0802
Safe input	8 digital	4 test outputs	XPSMCMDI0800
	16 digital	4 test outputs	XPSMCMDI1600
	12 digital	8 test outputs	XPSMCMDI1200MT
Safe output	2 for start/restart interlock	2 OSSD pairs + 2 Status	XPSMCMDO0002
	4 for start/restart interlock	2 OSSD pairs + 4 Status	XPSMCMDO0004



XPSMCMMX0802

Safe relay output modules

Safe output (without backplane expansion connection)	1 for start/restart interlock	2 relays (2NO + 1NC)	XPSMCMER0002
	2 for start/restart interlock	4 relays (2NO + 1NC)	XPSMCMER0004
Safe output (wiring with the expansion bus connector)	4 for start/restart interlock	4 relays	XPSMCMCRO0004
	4 for start/restart interlock	4 relays with 8 status outputs	XPSMCMCRO0004DA



XPSMCMER0004

Safe speed monitoring modules

Safe speed monitoring	1 Sin/Cos encoder and 2 proximity		XPSMCMEN0100SC
	1 RJ45 (ENC1)		
	Proximity sensor via terminal block		
	Up to 2 Sin/Cos encoders and 2 proximity		XPSMCMEN0200SC
	2 x RJ45 (ENC1)		
	Proximity sensor via terminal block		
	2 inputs for proximity		XPSMCMEN0200
	Proximity sensor via terminal block		



XPSMCMEN0100SC

Safe communication modules

Safe RS485 bus expansion module for remote extension	1 connection interface:		XPSMCMCO0000S1
	1 input or 1 output network connection		
	2 connection interface:		XPSMCMCO0000S2
	1 input and 1 output network connection		



XPSMCMCO0000S2

Safety logic Preventa XPSMCM safety controller Accessories

Modular safety controller – XPSMCM Accessories



XPSMCMCO0000EI

Non-safe fieldbus

Description	Field bus / Network type connector	Reference
Non-safe communication modules	Ethernet IP 1 RJ45 (in/out)	XPSMCMCO0000EI
	Universal Serial Bus Mini USB	XPSMCMCO0000UB
	Modbus TCP 1 x RJ45 (in/out)	XPSMCMCO0000EM

Accessories

Description	Application	Reference
Memory card	For saving configuration data for subsequent transfer to a new device without using a PC	XPSMCMME0000
Configuration cable	To be used for software configuration between a PC and the safety controller CPU Equipped with 2 x USB (And mini B)	TCSXCNAMUM3P
RS 485 sheilded cable	To be used between two communication expansion modules	10 metre TSXSVMCN010
		25 metre TSXSVMCN025
		50 metre TSXSVMCN050
Encoder splitter cable	To be used between safe speed monitoring modules and PacDrive M	1 metre TSXESPPM001
		3 metre TSXESPPM003
		5 metre TSXESPPM005
Expansion bus connector	For connecting expansion modules to the safety controller CPU	XPSMCMCN0000SG
Software	SoSafe configurable	XPSMCMMSW0000V10 (1)

Note

(1) Download free software from Schneider website
https://www.schneider-electric.co.nz/en/download/document/SoSafe_Configurable/



Ex, IEC explosive atmospheres zone 0, 1, 2, 20, 21 and 22

Explosive atmosphere and ignition sources

A potentially explosive atmosphere is the mixture of air with flammable substances in the form of gas, vapour, and/or dust, that when exposed to an ignition source under normal atmospheric conditions can completely or partially catch fire and explode.

The types of ignition sources that can create an explosive atmosphere are:

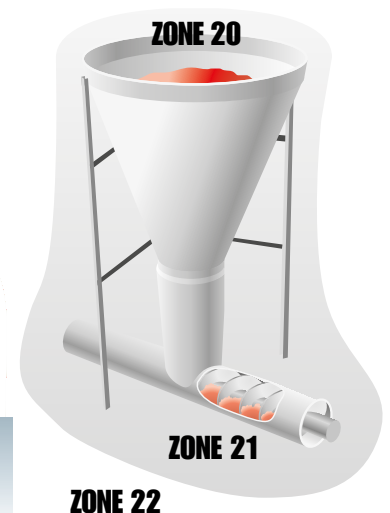
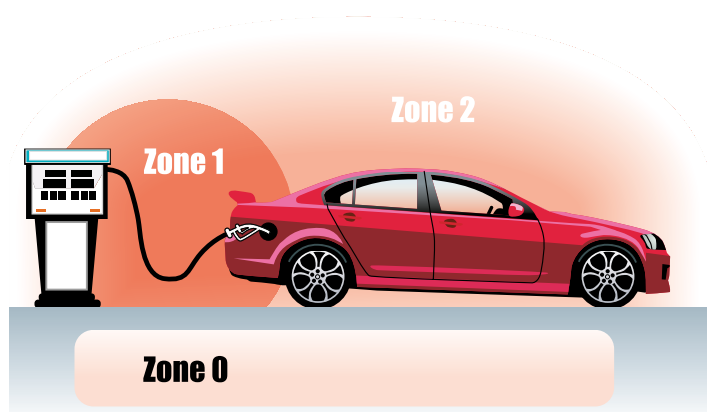
- > Hot surfaces
- > Flames and hot gases
- > Mechanically produced sparks
- > Electrical equipment
- > Transient currents
- > Static electricity
- > Lightning strikes
- > Electromagnetic waves
- > Optical radiation
- > Ultrasound
- > Chemical reactions
- > People (indirectly)

Explosive atmospheres are found in areas like:

- > Metal surface grinding, especially aluminium dust and particles
- > Oil refineries, rigs and processing plants
- > Gas pipelines and distribution centres
- > Printing industries, paper and textiles
- > Aircraft refuelling and hangars
- > Chemical processing plants
- > Grain handling and storage
- > Sewage treatment plants
- > Surface coating industries
- > Underground coal mines
- > Wood working areas
- > Sugar refineries
- > Vessels/ships
- > Power plants

Categories and zones

Category		Group	Level of protection	Zones
Gas	Ga	II	Very high	0
	Gb		High	1
	Gc		Enhanced	2
Dust	Da	III	Very high	20
	Db		High	21
	Dc		Enhanced	22





Ex, IEC explosive atmosphere Dust (zone 21 & 22) & Gas (zone 1 & 2)

Product configurator
on se.com/nz

Control and signalling units
Pushbuttons and selector switches - metal



XB4BPS●●GEX

22mm pushbuttons

Type	Colour	Output function	Reference
Booted flush, clear silicon	Black	N/O	XB4BPS21GEX
	Green	N/O	XB4BPS31GEX
	Red	N/C	XB4BPS42GEX
	Yellow	N/O	XB4BPS51GEX
	Blue	N/O	XB4BPS61GEX



XB4BS8445GEX

Emergency stop

Type	Colour	Output function	Reference
Emergency stop trigger action 40mm red turn to release (1)		N/C+NO	XB4BS8445GEX



XB4BD●●GEX

Selector switches

Type	Colour	Output function	Reference
Selector switches black (1)	2 - stay put	N/C + N/O	XB4BD25GEX
	3 - stay put	N/O + N/O	XB4BD33GEX
	3 spring return	N/O + N/O	XB4BD53GEX



XB4BP●83●5GEX

Illuminated pushbuttons

Type	Colour	Output function	Reference
Illuminated pushbuttons 24-254 VAC/DC	White	N/O	XB4BP183BM5GEX
	Green	N/O	XB4BP383BM5GEX
	Red	N/C	XB4BP483BM5GEX
	Yellow	N/O	XB4BP583BM5GEX
	Blue	N/O	XB4BP683BM5GEX

Notes

(1) Also available as key switch.



Ex, IEC explosive atmosphere Dust (zone 21 & 22) & Gas (zone 1 & 2)

Control and signalling units Pilot lights and control stations



XB4BV●●●GEX

22mm pilot lights

Type	Colour	Reference
Plain lens Voltage 24...254VAC/DC	White	XB4BVBM1GEX
	Green	XB4BVBM3GEX
	Red	XB4BVBM4GEX
	Yellow	XB4BVBM5GEX
	Blue	XB4BVBM6GEX



XAWF210EX

Control stations (For Dust - zone 21-22)

Type	Colour	Contact	Reference
Metal	Green	N/O	XAWF100EX
	Stop start	N/O + N/C	XAWF210EX
	3 Function	N/O + N/C + NO	XAWF310EX
	Selector (1)	N/O + N/C	XAWF130EX
	E-Stop trigger	N/C + N/C	XAWF178EX
Plastic	Green	N/O	XAWG100EX
	Red	N/C	XAWG110EX
	Stop start	N/O + N/C	XAWG210EX
	3 Function	N/O + N/C + NO	XAWG310EX
	Selector (1)	N/O + N/C	XAWG130EX
	E-Stop trigger	N/C + N/C	XAWG178EX



XAWF178EX

Note

(1) Keyed version available.



Ex, IEC explosive atmosphere Dust (zone 21 & 22)

Foot switches
Trip wire
Coded magnetic switches
Safety switches



XPEM110EX

Foot switches IP66

Colour	Contacts	step	Reference
Blue	1NC+NO	1 step	XPEM110EX
	2NC+NO	1 step	XPEM111EX
	2NC+NO	2 step	XPEM211EX



Ex, IEC explosive atmosphere Dust (zone 21 & 22)

Human-machine interface Touch sensitive graphic terminals



HMIGTO1300



HMIGTO3510



HMIGTO6315

Advance panels

Description / Display type version	Display type	App Mem	Flash card slot	Multi-media video	Comm ports	Reference
3.5"	Function keys QVGA (320x240)	64MB		No	2 serial 2 USB	HMIGTO1300
3.5"	Function keys QVGA (320x240)	96MB		No	2 serial 2 USB 1 ethernet	HMIGTO1310
5.7"	Function keys QVGA (320x240)	64MB		No	2 serial 2 USB	HMIGTO2300
5.7"	Function keys QVGA (320x240)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO2310
7.0"	Wide screen function keys WVGA (800x400)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO3510
7.5"	Wide screen function keys VGA (640x480)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO4310
10.4"	Wide screen function keys VGA (640x480)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO5310
12.1"	Wide screen function keys SVGA (800x600)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO6310
Stainless steel bezel	Food grade panel					
5.7"	Function keys QVGA (320x240)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO2315
10.4"	Wide screen function keys VGA (640x480)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO5315
12.1"	Wide screen function keys SVGA (800x600)	96MB	SD Card	No	2 serial 2 USB 1 ethernet	HMIGTO6315

Linergy TR terminal blocks

IEC Ex rated 2.5mm-16mm for spring terminals
IEC Ex rated 2.5mm-50mm for screw terminals
For reference information see section F



Notes

L

Index

Machine control

Power supplies

Regulated power supplies

Modular 1-ph power supplies 0.3...4A	M2
Optimum 1-ph power supplies 3...5A	M2
Universal 1-ph/3-ph power supplies 3...40A	M2
Dedicated 1-ph power supplies 4.2...10A	M3

Power supply function modules

DC/DC convertors	M3
Protection modules	M3
Redundancy and battery back-up modules	M3

Relays, timers & analogue converters

Electromechanical and solid state relays

Selection guide	M4
Electromechanical relays	M6
Solid state relays	M12

Timers

Selection guide	M15
Timing relays	M17
Counters	M19

Measurement and control relays

Phase monitoring	M20
Voltage monitoring	M20
Current monitoring	M21
Level monitoring	M21
Analogue converters	M22

Smart relays

Zelio Logic smart relays

SR2 & SR3 Zelio Logic smart relays	M23
------------------------------------	-----

Machine controllers

Modicon machine controllers

Selection guide	M27
Modicon M221 logic controllers	M28
Modicon M241 logic controllers	M31
Modicon M251 logic controllers	M31
Modicon M262 logic/motion controllers	M33

Modicon TM3 I/O expansion modules

Digital I/O modules	M36
Analogue I/O modules	M37
Expert modules	M38
Bus coupler modules	M38

Modicon ABE7 pre-wiring system	M39
--------------------------------	-----

Modicon power supplies

Modicon power supplies
 Modular power supplies 10W to 60W
 Optimum power supplies 50W, 480W
 Universal power supplies 72W to 960W

Product configurator
 on se.com/nz



ABLM1A05036



ABLM1A12010



ABLM1A12042



ABLS1A24021



ABLS1A24100



ABL8RPS24100

Modicon ABLM Modular power supply (1)

Input voltage 50/60Hz	Secondary			Reset after overload or short circuit (4)	Output voltage adjustment potentiometer	Width 18mm modules	Reference
	Output voltage (2)	Nominal power (3)	Nominal current				
100...240 Vac +/- 10%	5 Vdc	18 W	3.6A	Automatic	With	1	ABLM1A05036
	12 Vdc	12 W	1A	Automatic	Without	1	ABLM1A12010
		25 W	2.1A	Automatic	With	2	ABLM1A12021
		50 W	4.17A	Automatic	With	3	ABLM1A12042
	24 Vdc	10 W	0.42A	Automatic	Without	1	ABLM1A24004
		15 W	0.625A	Automatic	Without	1	ABLM1A24006
30 W		1.25A	Automatic	With	2	ABLM1A24012	
	60 W	2.5A	Automatic	With	3	ABLM1A24025	

Modicon ABLS Optimized power supply (1)

Input voltage 50/60Hz	Secondary			Reset after overload or short circuit (4)	Output voltage adjustment potentiometer	Reference
	Output voltage (2)	Nominal power (3)	Nominal current			
100...240 Vac 140...340 Vdc (5) -15%, +10%	12 Vdc	75 W	6.25A	Automatic	With	ABLS1A12062
		120 W	10A	Automatic	With	ABLS1A12100
	24 Vdc	50 W (2)	2.1A	Automatic	With	ABLS1A24021
		75 W (2)	3.13A	Automatic	With	ABLS1A24031
		91.2 W (2)	3.8A	Automatic	Without	ABLS1A24038
		120 W	5A	Automatic	With	ABLS1A24050
48 Vdc	240 W	10A	Automatic	With	ABLS1A24100	
	480 W	20A	Automatic	With	ABLS1A24200	
		120 W	2.5A	Automatic	With	ABLS1A48025

Modicon ABL8RP/WP Universal power supply

Input voltage 50/60Hz	Secondary			Reset	Reference
	Output voltage (2)	Nominal power (3)	Nominal current		
Single-phase (N-L1) or 2-phase (L1-L2) connection					
100...120 Vac/	24 Vdc	72 W	3A	Auto/man	ABL8RPS24030
200...500 Vac		120 W	5A	Auto/man	ABL8RPS24050
-15%, +10%		240 W	10A	Auto/man	ABL8RPS24100
100...120 Vac/ 200...240 Vac -15%, +10%	24Vdc	480 W	20A	Auto/man	ABL8RPM24200
3-phase connection (L1-L2-L3)					
380...500 Vac		480 W	20A	Automatic	ABL8WPS24200
+/- 10%		960 W	40A	Automatic	ABL8WPS24400

Note

- (1) Refer to datasheet for recommended Acti9 protection
- (2) Limited Power Source conforming IEC 62368-1 and NEC Class 2.
- (3) Nominal power given for mounting on horizontal rail and +55°C (131°F) ambient temperature. For other temperatures and mounting positions, Consult the product data sheet.
- (4) In case of overtemperature or overvoltage the input power must be cycled to reset the detected error.
- (5) Except ABLS1A24021 and ABLS1A24038.

Modicon power supplies

Product configurator
on se.com/nz

Panel Mount power supplies 100W to 240W
DC to DC converters for ABL8RPS24 and ABL8WPS24 power supplies
Function modules

Modicon ABLP Panel mount single phase regulated power supply



ABLP1A24100




ABLPA02


Input voltage 50/60Hz	Secondary			Reset after overload or short circuit	Output voltage adjustment potentiometer	Reference
	Output voltage (VDC)	Nominal power (W)	Nominal current (A)			
100...240 Vac +/- 10%	12 Vdc	100 W	8.5 A	Automatic	With	ABLP1A12085
	24 Vdc	100 W	4.5 A	Automatic	With	ABLP1A24045
		150 W	6.2 A	Automatic	With	ABLP1A24062
		240 W	10 A	Automatic	With	ABLP1A24100
Mounting Accessories			ABLP1A12085, ABLP1A24045, ABLP1A24062			ABLPA01
Mounting plate for Din Rail 35mm			ABLP1A24101			ABLPA02


DC to DC converters for ABL8RPS4 and ABL8WPS24 power supplies

Input voltage (VDC)	Output voltage (VDC)	Nominal power (W)	Nominal current (A)	Reference
24	5 – 6.5	30	6	ABL8DCC05060
	7 – 15	30	2	ABL8DCC12020

Function modules for ABL8 power supplies

Selective protection	Tripping current	Remote diagnostics	Reset	Breaking	Reference
	0.5 – 10A (4 channels)	Yes	Auto/manual	Two pole	ABL8PRP24100
	Use in conjunction with any power supply up to 40A to split the supply 4 ways and individually protect / isolate each circuit				


Redundancy module	Automatic change over between two power supplies, in the event of power supply failure	Total output current (A)	Reference
		40	ABL8RED24400

Battery back-up solution	Interface between supply and battery module in the event of power failure. Battery optimiser to condition and monitor battery life. Use with ABL8 power supply and ABL8 batteries	Output current (A)	Reference
		40	ABL8BBU24400

Control module



Batteries

	Discharge load (A)	Time (S)	Battery Capacity	Reference
	5	20	3.2Ah	ABL8BPK24A03
		50	7Ah	ABL8BPK24A07
		120	12Ah	ABL8BPK24A12

Battery back up solutions



ABL8RPS24100



Control module



Batteries

Zelio electromechanical relays

Selection Guide

Electromechanical Plug-In Relays

Reference family	RSL Slim Relay	RSB Interface Relay	RXG Interface Relay	RXM Miniature Relays	RUM Universal Relays	RPM Power Relays
------------------	----------------	---------------------	---------------------	----------------------	----------------------	------------------



Number of contacts	1 CO	1 or 2 CO	1 or 2 CO	2, 3 or 4 CO	2 or 3 CO	1, 2, 3 or 4 CO
Current	6A	8-16A	5-10A	6-10-12A	10A	15A
Mounting	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail	DIN rail or Panel
Width	6.2mm	15.5 mm	16mm	27 mm	38 mm	<41 mm
Option for test button & LED	LED	No	Test Button & LED	Test Button & LED	Test Button & LED	Test Button & LED

Benefits

- > Wide choice of number of contacts (up to 4CO).
- > Simplicity of installation and maintenance.
- > Standardization of relay pin arrangement on its socket.
- > "Test" button for checking the relay functions, even in a remote enclosure.
- > Clear indication of contact status via mechanical indicator and LED indicator.
- > Suitable input/output currents and switching voltages.

Zelio solid state relays

Selection Guide

Solid State Relays

Reference family	SSL Slim SSR	SSM Modular SSR	SSP Panel mount SSR
			
Phase	1	1 or 3	1 or 3
Number of contacts	1 NO	1 or 2 NO	1 or 3 NO
Load current	up to 2A	up to 12A	up to 125A
DC Load voltage	1...48V DC	1...100VDC	1...150VDC
AC Load voltage	24...250VAC	24...600VAC	24...660VAC
Mounting	DIN rail	DIN rail	Panel Mount
Width	6.2mm	12mm / 18mm	Refer to individual model

Benefits

- > Unlimited service life.
- > Insensitive to vibration.
- > Wide supply voltage range and high breaking current (up to 125A), suited to packaging and textile machines.
- > Completely silent switching, providing suitability for building and hospital applications.

Zelio electromechanical relays

Product configurator
on se.com/nz

RSL slim interface relays



RSLZ2

Slim interface relays, pre-assembled (1)

Type of contacts	Ith	Socket type	Operating voltage	Control voltage	Part contains	Reference
1 C/O	6A	Screw connector	12VAC/DC	12VDC	RSL1AB4JD + RSLZVA1)	RSL1PVJU
			24VAC/DC	24VDC	(RSL1AB4BD + RSLZVA1)	RSL1PVBU
			48VAC/DC	48VDC	(RSL1AB4ED + RSLZVA2)	RSL1PVEU
			110VAC/DC	60VDC	(RSL1AB4ND + RSLZVA3)	RSL1PVFU
			230VAC/DC	60VDC	(RSL1AB4ND + RSLZVA4)	RSL1PVPU
		Spring terminal	12VAC/DC	12VDC	(RSL1AB4JD + RSLZRA1)	RSL1PRJU
			24VAC/DC	24VDC	(RSL1AB4BD + RSLZRA1)	RSL1PRBU
			48VAC/DC	48VDC	(RSL1AB4ED + RSLZRA2)	RSL1PREU
			110VAC/DC	60VDC	(RSL1AB4ND + RSLZRA3)	RSL1PRFU
			230VAC/DC	60VDC	(RSL1AB4ND + RSLZRA4)	RSL1PRPU



RSLZ3

Accessories

Description	use with	Reference
Clip in legends (2 sheets of 64 legends)	All sockets	RSLZ5
Bus jumper (20-pole jumper)	All sockets	RSLZ2
Partition plate (10 partition plates)	All sockets	RSLZ3

Notes

(1) Separate relays and sockets also available, see Zelio Relay catalogue for details.

Zelio electromechanical relays

Product configurator
on se.com/nz

RSB interface relays



RSB2A080F7PV

RSB relays, pre-assembled with sockets

Type of contacts	Ith	Reference (1)
1 C/O	16A	RSB1A160●●PV
2 C/O	8A	RSB2A080●●PV



RSB2A080P7

RSB relays

Type of contacts	Ith	Reference (1)
1 C/O	16A	RSB1A160●●
2 C/O	8A	RSB2A080●●



RSZE1S48M

Sockets

Relay to suit	Reference
RSB1A160 / RSB2A080	RSZE1S48M

Accessories

Description	Use with	Voltage	Reference
Plastic Maintaining Clamp	RSB Sockets		RGZR215
Diode	RSB Sockets	6-230 VDC	RZM040W
RC Circuit	RSB Sockets	24-60 VAC	RZM041BN7
	RSB Sockets	110-240 VAC	RZM041FU7
Diode + Green Light	RSB Sockets	6-24 VDC	RZM031RB
	RSB Sockets	24-60 VDC	RZM031BN
	RSB Sockets	110-230 VDC	RZM031FPD
Varistor + Green LED	RSB Sockets	6-24 VAC/DC	RZM021RB
	RSB Sockets	24-60 VAC/DC	RZM021BN
	RSB Sockets	110- 240 VAC/DC	RZM021FP
Legends	RSB Sockets		RSZL300
Bus Jumper (8 pole jumper)	For inputs(A1,A2) of RSZE socket		RGZS08

Standard coil voltage code (1)

AC Supply 50/60Hz	Volts	24	110	230
	Code	B7	F7	P7
DC Supply	Volts	12	24	110
	Code	JD	BD	FD

Notes

- (1) "●●" Complete reference with coil voltage code. e.g. **RSB2A080BD** for 24VDC.
- (2) See "Wiring diagrams" on www.schneider-electric.com.
- (3) All sockets have an attached carrier.

Zelio electromechanical relays

Product configurator
on se.com/nz

RXG interface relays



RXG12BDPV

RXG relays, pre-assembled with sockets

Type of contact	Ith	Reference (1)
1 C/O	10A	RXG12●●PV
2 C/O	5A	RXG22●●PV



RXG12●●

RXG relays

Type of contact	Ith	Reference (1)
1 C/O	10A	RXG12●●
2 C/O	5A	RXG22●●



RGZE1S35M

Sockets

Use with	Ith	Reference
RXG12●●	10A	RGZE1S35M
RXG22●●	5A	RGZE1S48M

Accessories

Description	Use with	Voltage	Reference
Replacement hold down clamp	RGZ Sockets		RGZR215
Diode	RGZ Sockets	6-230 VDC	RZM040W
RC Circuit	RGZ Sockets	24-60 VAC	RZM041BN7
	RGZ Sockets	110-240 VAC	RZM041FU7
Diode + Green Light	RGZ Sockets	6-24 VDC	RZM031RB
	RGZ Sockets	24-60 VDC	RZM031BN
	RGZ Sockets	110-230 VDC	RZM031FPD
Varistor + Green LED	RGZ Sockets	6-24 VAC/DC	RZM021RB
	RGZ Sockets	24-60 VAC/DC	RZM021BN
	RGZ Sockets	110- 240 VAC/DC	RZM021FP
Legends	RGZ Sockets		RSZL300
Bus Jumper (8 pole jumper)	For inputs(A1,A2) of RSZE socket		RGZS08

Standard coil voltage code (1)

AC Supply	Volts	24	110	230
50/60Hz	Code	B7	F7	P7
DC Supply	Volts	12	24	110
	Code	JD	BD	FD

Notes

- (1) Complete reference with coil voltage e.g. RXG12BD for 24VDC.
- (2) All relays have LED on indication and lockable test button.

Zelio electromechanical relays

Product configurator
on se.com/nz

RXM miniature relays



RXM4AB1BDPVS



RXM2AB2●●



RXZE2S108M



RXZS2



RXZE2DA

RXM relays, pre-assembled with sockets (segregated terminal)

Type of contacts	Ith	Reference (1)(5)
2 C/O	12A	RXM2AB2●●PVS
4 C/O	6A	RXM4AB2●●PVS

RXM relays

Type of contacts	Ith	Reference (1)
2 C/O	12A	RXM2AB2●●
3 C/O	10A	RXM3AB2●●
4 C/O	6A	RXM4AB2●●
4 C/O (2)	3A	RXM4GB2●●

Sockets

Relay to suit	Terminals	Contact terminal arrangement (3)	Reference
RXM2	Screw	Segregated	RXZE2S108M
RXM3	Screw	Segregated	RXZE2S111M
RXM4	Screw	Segregated	RXZE2S114M
RXM2/RXM4	Spring clamp	Mixed	RXZE2M114
RXM2/RXM4	Screw	Mixed	RXZE2M114M
RXM2/RXM4	Spring clamp	Segregated	RXZE2S114S

Accessories

Description	Use with	Voltage	Reference
Relay retaining clip - metal	RXM sockets		RXZ400
Relay retaining clip - plastic	RXM sockets		RXZR335
Diode	RXM sockets	6-250 VDC	RXM040W
RC circuit	RXM sockets	24-60 VAC	RXM041BN7
	RXM sockets	110-240VAC	RXM041FU7
Varistor	RXM sockets	6-24 VAC/DC	RXM021RB
	RXM sockets	24-60 VAC/DC	RXM021BN
	RXM sockets	110-240 VAC/DC	RXM021FP
Legend (sheet of 108 legends)			RXZL520
2-pole bus jumper (Ith: 5 A)	Segregated contact sockets only		RXZS2
Mounting adapter with panel mounting lugs	RXM relay		RXZE2FA

Standard coil voltages (1)

AC supply	Volts	24	110	230
50/60Hz	Code	B7	F7	P7
DC supply	Volts	12	24	110
	Code	JD	BD	FD

Notes

- (1) "●●" Complete reference with coil voltage code, e.g. **RXM2AB2BD** for 24VDC.
- (2) Low level contacts for signal level switching as low as 2mA 5V.
- (3) Segregated terminal bases have coil terminals separated on one side. Mixed have control and signalling terminals evenly distributed.
- (4) All relays have LED on indication and lockable test button. All sockets have an attachment carrier.
- (5) To order relay with mixed terminal sockets replace "PVS" to "PVM" eg: **RXM2AB2BDPVM**.

Zelio electromechanical relays

Product configurator
on se.com/nz

RUM universal relays



RUMC22BD



RUZC2M

RUM relays

Type of contacts	Ith	No of Pins	Reference (1)
2 C/O	10A	8	RUMC22●●
3 C/O	10A	11	RUMC32●●

Sockets

Relay to suit	Contact arrangement (2)	Reference
RUMC22●●	mixed	RUZC2M
RUMC32●●	mixed	RUZC3M

Accessories

Description	Use with	Voltage	Reference
Relay retaining clip - metal	RUM sockets		RUZC200
Diode	RUM sockets	6-250 VDC	RUW240BD
RC circuit	RUM sockets	110-240VAC	RUW241P7
Multifunction timer	RUM sockets	24-240 VAC/DC	RUW101MW
Varistor	RUM sockets	24V AC/DC	RUW242B7
	RUM sockets	240V AC/DC	RUW242P7

Standard coil voltages (1)

AC supply	Volts	24	110	230
	Code	B7	F7	P7
DC supply	Volts	12	24	110
	Code	JD	BD	FD

Notes

- (1) "●●" Complete reference with coil voltage code, e.g. RUMC22BD for 24VDC.
- (2) Segregated terminal bases have coil terminals separated on one side. Mixed have control and signalling terminals evenly distributed.
- (3) All relays have LED on indication and lockable test button.

Zelio electromechanical relays

Product configurator
on se.com/nz

RPM universal relays
RPF power relay



RPM22F7



RPZF1



RPF2BP7

RPM relays

Type of contacts	Ith	Reference (1)
1 C/O	15A	RPM12●●
2 C/O	15A	RPM22●●
4 C/O	15A	RPM42●●

Sockets

Relay to suit	Contact arrangement (2)	Reference
RPM1	mixed	RPZF1
RPM2	mixed	RPZF2
RPM4	mixed	RPZF4

Accessories

Description	Use with	Voltage	Reference
Relay retaining clip - metal	RPZF1		RPZR235
Diode	RPZF1/2	6-250 VDC	RXM040W
	RPZF4	6-250 VDC	RUW240BD
RC circuit	RPZF1/2	110-240VAC	RXM041FU7
	RPZF4	110-240VAC	RUW241P7
Multifunction timer	RPZF4	24-240 VAC/DC	RUW101MW
Varistor	RPZF1/2	24-60V AC/DC	RXM021BN
		110-240V AC/DC	RXM021FP
	RPZF3/4	24V AC/DC	RUW242B7
		240V AC/DC	RUW242P7
Clip-in 108 legends	All RPM relays		RXZL520
Mounting adapters for panel	RPM12 relay		RPZ1FA
	RPM22 relay		RXZE2FA
	RPM42 relay		RPZ4FA

RPF relays

Type of contacts	Ith	Reference (1)
2 C/O	30A (2)	RPF2B●●

Standard coil voltages

AC supply	Volts	24	110	230
50/60Hz	Code	B7	F7	P7
DC supply	Volts	12	24	
	Code	JD	BD	

Standard coil voltages (1)

AC supply	Volts	24	110	230
50/60Hz	Code	B7	F7	P7
DC supply	Volts	12	24	110
	Code	JD	BD	FD

Notes

- (1) "●●" Complete reference with coil voltage code, e.g. RPM12BD for 24VDC.
RPZF4 socket has attachment carrier for multifunction timer only.
- (2) Segregated terminal bases have coil terminals separated on one side. Mixed have control and signalling terminals evenly distributed.
- (3) All relays have LED on indication and lockable test button.

Zelio solid state relays

Product configurator
on se.com/nz

SSL slim relays



SSL1A12JDRPR

SSL1 Slim solid state relays, pre-assembled, screw terminals

Switching	Voltage control input	Load output	Load current	Part contains	Reference
DC switching	4...12VDC	1...24VDC	3.5A	SSL1D03JD + SSLZVA1	SSL1D03JDPV
		1...48VDC	0.1A	SSL1D101JD+SSLZVA1	SSL1D101JDPV
	16...30VDC	1...24VDC	3.5A	SSL1D03BD+SSLZVA1	SSL1D03BDPV
		1...48VDC	0.1A	SSL1D101BD+SSLZVA1	SSL1D101BDPV
Zero voltage switching	4...12VDC	24...250VAC	2A	SSL1A12JD+SSLZVA1	SSL1A12JDPV
	16...30VDC	24...250VAC	2A	SSL1A12BD+SSLZVA1	SSL1A12BDPV
Random switching	4...12VDC	24...250VAC	2A	SSL1A12JDR+SSLZVA1	SSL1A12JDRPV
	16...30VDC	24...250VAC	2A	SSL1A12BDR+SSLZVA1	SSL1A12BDRPV

SSL1 Slim solid state relays, pre-assembled, spring terminals

Switching	Voltage control input	Load output	Load current	Part contains	Reference
DC switching	4...12VDC	1...24VDC	3.5A	SSL1D03JD+SSLZRA1	SSL1D03JDPR
		1...48VDC	0.1A	SSL1D101JD+SSLZRA1	SSL1D101JDPR
	16...30VDC	1...24VDC	3.5A	SSL1D03BD+SSLZRA1	SSL1D03BDPR
		1...48VDC	0.1A	SSL1D101BD+SSLZRA1	SSL1D101BDPR
Zero voltage switching	4...12VDC	24...250VAC	2A	SSL1A12JD+SSLZRA1	SSL1A12JDPR
	16...30VDC	24...250VAC	2A	SSL1A12BD+SSLZRA1	SSL1A12BDPR
Random switching	4...12VDC	24...250VAC	2A	SSL1A12JDR+SSLZRA1	SSL1A12JDRPR
	16...30VDC	24...250VAC	2A	SSL1A12BDR+SSLZRA1	SSL1A12BDRPR

Accessories



RSLZ2



RSLZ3

Description	Compatibility	Reference
Clip in legend (2 sheets of 64)	SSL socket	RSLZ5
Bus jumper (20 pole)	SSL socket	RSLZ2
Partition plate	SSL socket	RSLZ3

Zelio solid state relays

Product configurator
on se.com/nz

SSM modular solid state relays



SSM1A36BD

SSM1 DIN rail mount single phase solid state relays (12 and 18mm)

Switching	Voltage control input	Load output	Load current	Reference
DC switching	4...32VDC	1...60VDC	6A	SSM1D26BD
			12A	SSM1D212BD
Zero voltage switching for AC resistive loads*	4...32VDC	1...100VDC	6A	SSM1D36BD
			12A	SSM1D312BD
	24...280VAC	6A	6A	SSM1A16BD
		12A	12A	SSM1A112BD
	48...600VAC	6A	6A	SSM1A36BD
		12A	12A	SSM1A312BD
	18...36VAC	24...280VAC	6A	SSM1A16B7
		48...600VAC	12A	SSM1A312B7
	90...140VAC	24...280VAC	6A	SSM1A16F7
		48...600VAC	12A	SSM1A112F7
200...265VAC	24...280VAC	6A	SSM1A16P7	
		12A	SSM1A112P7	

*For random switching SSR, add "R" at the end of the part number i.e. SSM1A16BDR



SSM1A120M7

SSM1 single phase solid state relays (22.5 and 45mm)

Switching	Voltage control input	Load output	Load current	Reference
Zero voltage switching for AC resistive loads	4...32VDC	24...280VAC	20A	SSM1A120BD
			30A	SSM1A130BD
	3...32VDC	24...280VAC	45A	SSM1A145BD
		48...660VAC	30A	SSM1A430BD
	48...600VAC	45A	45A	SSM1A445BD
		55A	55A	SSM1A455BD
	90...280VAC	24...280VAC	20A	SSM1A120M7
			30A	SSM1A130M7
	48...660VAC	30A	30A	SSM1A430M7
		55A	55A	SSM1A455F7

SSM2 single phase solid state relays, dual channel

Switching	Voltage control input	Load output	Load current	Reference
Zero voltage switching for AC resistive loads	4...32VDC	24...280VAC	6A	SSM2A16BD
		48...600VAC	6A	SSM2A36BD
Random switching for AC inductive loads	4...32VDC	24...280VAC	6A	SSM2A16BDR
		48...660VAC	6A	SSM2A36BDR



SSM1A445BD

SSM3 three phase solid state relays

Switching	Voltage control input	Load output	Load current	Reference
Zero voltage switching for AC resistive loads	4...32VDC	48...600VAC	25A	SSM3A325BD
		48...600VAC	25A	SSM3A325F7
		180...280VAC	25A	SSM3A325P7
Random switching for AC inductive loads	4...32VDC	48...660VAC	25A	SSM3A325BDR



SSM3A325F7

Zelio solid state relays

Product configurator
on se.com/nz

SSP panel mount solid state relays

SSP1 panel mount single phase solid state relays with embedded thermal pad



SSP1D425BDT



SSP1A125BDS



SSP3A225P7T



SSRHP07



SSRAL1

Switching	Voltage control input	Load output	Load current	Reference
DC switching	3...32VDC	1...150VDC	12A	SSP1D412BDT
			25A	SSP1D425BDT
			40A	SSP1D440BDT
Zero voltage switching for AC resistive loads	3...32VDC	24...300VAC	10A	SSP1A110BDT
			25A	SSP1A125BDT
			50A	SSP1A150BDT
			75A	SSP1A175BDT
			50A	SSP1A450BDT
			75A	SSP1A475BDT
	4...32VDC	48...600VAC	90A	SSP1A490BDT
			125A	SSP1A4125BDT
			10A	SSP1A110M7T
			25A	SSP1A125M7T
			50A	SSP1A150M7T
			75A	SSP1A175M7T
90...280VAC	24...300VAC	50A	SSP1A450M7T	
		75A	SSP1A475M7T	
		90A	SSP1A490M7T	
		125A	SSP1A4125M7T	
		25A	SSP1A125BDS	
		50A	SSP1A150BDS	
4...32VDC	48...600VAC	50A	SSP1A450BDS	
		75A	SSP1A475BDS	
		90A	SSP1A490BDS	
		125A	SSP1A4125BDS	

SSP3 panel mount three phase solid state relay

Switching	Voltage control input	Load output	Load current	Reference
Zero voltage switching for AC resistive loads	4...32VDC	48...530VAC	25A	SSP3A225BDRT
			50A	SSP3A250BDRT
	18...36VAC	48...530VAC	50A	SSP3A250B7RT
			25A	SSP3A225F7RT
	90...140VAC	48...530VAC	50A	SSP3A250F7RT
			25A	SSP3A225P7RT
180...280VAC	48...530VAC	25A	SSP3A225P7RT	
		50A	SSP3A250P7RT	

Heat Sink for SSP Relays

Mounting	Number and type of relays supported	Surface area cm ²	Thermal °C/W	Reference
Panel mount	Up to 3 units of SSP1	4406	0.5	SSRHP05
	1 unit of SSP3			
	1 unit of SSP1	1640	0.7	SSRHP07
	Up to 3 units of SSP1	1640	1	SSRHP10
DIN rail mount	1 unit of SSP3			
	Up to 3 units of SSP1	1425	1	SSRHD10
	1 unit of SSP3			

Accessories

Description	Type of relay supported	Reference
Copper terminal lug for AWG 6 (13.3 mm ²) to AWG 0 (53.5 mm ²)	SSP1	SSRAL1 *
Copper terminal lug for AWG 14 (2.1 mm ²) to AWG 6 (13.3 mm ²)	SSP1	SSRAL2 *

*in lots of 10pcs

Zelio timing relays

Selection Guide

Timing Relays

Reference family	RE22 Industrial	RENF NFC configured	RE48 Plug in
------------------	--------------------	------------------------	-----------------



Time range	0.6s...300h	0.1s...999h	1.2s...300h
No. of functions	24	28 in single product	10
Width	22.5mm	22.5mm	48mm
Display type	Mechanical & LED	LED	Mechanical
Supply	24VDC, 24...240VAC		

Benefits

- > Single or multifunction ranges.
- > Wide power supply range.
- > High autonomy and low power consumption.
- > Dial pointer LED indicator and diagnostic button to assist setup and troubleshooting

Zelio timing relays

Function definitions

Main timing functions	Complementary functions(1)(4)	Definitions
A		Power on-delay relay
	Ac	On-delay and off-delay relay with control signal
	Act	On-delay and off-delay relay with control signal and pause/summation control signal
	Ad	Pulse delayed relay with control signal
	Ah	Pulse delayed relay (single cycle) with control signal
	Ak	Asymmetrical on-delay and off-delay relay with control signal
	Akt	Asymmetrical on-delay and off-delay relay with control signal and pause/summation control signal
	At	Power on-delay relay with pause/summation control signal
	Aw	Power on-delay relay with retrigger/restart control signal
	B	
Bw		Double interval relay with control signal
C		Off-delay relay with control signal
	Ct	Off-delay relay with control signal and pause/summation control signal
D		Symmetrical flashing relay (starting pulse-off)
	Di(2)	Symmetrical flashing relay (starting pulse-on)
	Dit	Symmetrical flashing relay (starting pulse-on) with pause/summation control signal
	Diw	Symmetrical flashing relay (starting pulse-on) with retrigger/restart control signal
	Dt	Symmetrical flashing relay (starting pulse-off) with pause/summation control signal
	Dw	Symmetrical flashing relay (starting pulse-off) with retrigger/restart control signal
H		Interval relay
	He	Pulse-on de-energization
	Ht	Interval relay with pause/summation control signal
	Hw	Interval relay with retrigger/restart control signal
K		Delay on de-energization (without auxiliary supply)
L		Asymmetrical flashing relay (starting pulse-off)
	Li(2)	Asymmetrical flashing relay (starting pulse-on)
	Lt	Asymmetrical flashing relay (starting pulse-on) with pause/summation control signal
		Asymmetrical flashing relay (starting pulse-off) with pause/summation control signal
N		Safe-guard relay
O		Delayed Safe-guard relay
P		Pulse delayed relay with fixed pulse length
	Pt	Pulse delayed relay with fixed pulse length and pause/summation control signal
Q		Star-delta relay (2 NO outputs with same common)
	Qc	Star-delta relay (1 CO output)
	Qe	Star-delta relay (1 NC + 1 NO outputs with split common)
	Qg	Star-delta relay (2 CO outputs with same common)
	Qgt	Star-delta relay (2 CO outputs with same common) with pause/summation control signal
	Qt	Star-delta relay (2 CO outputs with split common)
	Qtt	Star-delta relay (2 CO outputs with split common) with pause/summation control signal
T	Ti	Bistable relay with control signal on
	Tt	Retriggerable bistable relay with control signal on
W		Interval relay with control signal off
	Wt	Interval relay with control signal off and pause/summation control signal

Notes

- "(1) Complementary functions enhance the main timing functions. Example: AC: timing after closing and opening of control contact."
 (2) The most commonly used timing functions.
 (3) If the letter i is in the timing function then the timer starts with pulse on.
 (4) To view timing functions refer to se.com or DIA5ED2130103EN global catalogue.

Zelio timing relays

Product configurator
on se.com/nz

RE22 Modular relays & NFC timer relay



RE22R1MAMR

On delay timer

Function	No. of relay outputs	Timing range	Supply voltages	Reference
A, At, Aw	1 C/O 8A	0.05s - 300h	24...240 VAC/DC	RE22R1MAMR
A, Aw	2 C/O 8A	0.05s - 300h	24...240 VAC/DC	RE22R2AMR



RE22R2MYMR

Off delay timer

Function	No. of relay outputs	Timing range	Supply voltages	Reference
C, Ct	1 C/O 8A	0.05s - 300h	24...240 VAC/DC	RE22R1CMR
C	2 C/O 8A	0.05s - 300h	24...240 VAC/DC	RE22R2CMR
K	2 C/O 5A	0.05s - 10min	24...240 VAC/DC	RE22R2KMR



RE22R2KMR

On/Off delay timer

Function	No. of relay outputs	Timing range	Supply voltages	Reference
Ak, Akt	1 C/O 8A	0.05s - 300h	24...240 VAC/DC	RE22R1AKMR
Ac	2 C/O 8A	0.05s - 300h	24...240 VAC/DC	RE22R2ACMR



RENF22

Multifunction timer

Function	No. of relay outputs	Timing range	Supply voltages	Reference
A, At, B, C, H, Ht, Di, D, Ac, Bw	2 C/O 8A	0.1s - 100h	24VDC / 24...240 VAC	RE22R2MMU
Ad, Ah, N, O,P, Pt, Ti, Tt, W	2 C/O 8A	0.1s - 100h	24VDC / 24...240 VAC	RE22R2MXMU
A, At, Aw, Ac, Act, C, Ct, D, Dt, Dw, Di, Dit, Diw, H, Ht, Hw, W, Wt,	2 C/O 8A	0.05s - 300h	24...240 V AC/DC	RE22R2MYMR
K, He	2 C/O 5A	0.05s - 300h	24...240 VAC/DC	RE22R1MKMR

Star Delta relay

Function	No. of relay outputs	Timing range	Supply voltages	Reference
Qc	1 C/O 8A	1s - 300s	24VDC / 24...240 VAC	RE22R1QCMU
Qe	2 C/O 8A	0.3s-30s	380...415VAC	RE22R2QEMT

Asymmetrical flashing relay

Function	No. of relay outputs	Timing range	Supply voltages	Reference
L, Li, Lt, Lit	1 C/O 8A	1s - 300h	24...240 VAC/DC	RE22R1MLMR

NFC timing relay (1)

Function	No. of relay outputs	Timing range	Supply voltages	Reference
A, Ac, Ad, Ah, Ak, At, B, Bw, C, D, Di, Dt, Di, H,Ht, L, Li, Lt, Lit, N, O, P, Pt, Qt, Qtt, Ti, Tt,W	2 C/O 8A	0.1s - 999h	24...240 VAC/DC	RENF22R2MMW

Notes (special features)

(1) Configured using an Android phone (Version 4.1 and above). Download Zelio NFC app from Google Play to configure.

Acti9 time delay relays

Acti9 time delay relays

Time delay relays – 0.1s to 100h⁽¹⁾



A9E16065



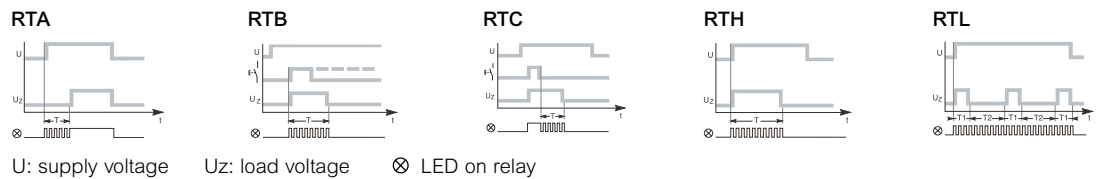
A9E16070

Type	No. of contacts	Rating	Width in mod. of 9mm	Coil voltage	Reference
iRTA	1C/O	8A	2	24VDC or 24–240VAC	A9E16065
iRTB	1C/O	8A	2	24VDC or 24–240VAC	A9E16066
iRTC	1C/O	8A	2	24VDC or 24–240VAC	A9E16067
iRTH	1C/O	8A	2	24VDC or 24–240VAC	A9E16068
iRTL	1C/O	8A	2	24VDC or 24–240VAC	A9E16069
iRTMF	1C/O	8A	2	12–240VAC/DC	A9E16070

Notes

Function and use

- > RTA delay on make: allows a delay in the energisation of a load (coil of a contactor or relay). The time delay cycle begins at the energisation of the RTA and the load is switched on at the end of the time period.
- > RTB single shot: energises a load at the closing of an auxiliary pushbutton. The time delay starts at the closing of the command pushbutton.
- > RTC delay on break: energises a load as soon as a contact is closed. Mini impulse duration: $\geq 200\text{ms}$. At the end on the time delay, the load is de-energised. Able to re-start time period without breaking the load.
- > RTH interval timer: timing of load from the energisation (coil of a contactor or relay). The time delay cycle begins, on the energisation of the RTH, by switching on the load. At the end of the time delay, the load is de-energised.
- > RTL repeat cycle timer: repetitive cycle which alternatively energises and de-energises a load. From the energisation of RTL, the load is switched on.
- > RTMF multifunction timer: one relay providing functions A, B, C and H via a selector switch located in front.



Note

(1) Resistive load, if you require any other load please consult your Schneider Electric sales representative.

Zelio timing relays

Analogue electronic relays Counters



RE48A●●●

RE48 panel or base mount timer 1.2s...300h

Functions	Contact type	Pins	Supply voltages	Reference
A	1 C/O 5A	8	24-240V AC/DC	RE48ATM12MW
L, Li	2 C/O 5A	11	24-240V AC/DC	RE48ACV12MW
A, B C, Di	2 C/O 5A	11	24-240V AC/DC	RE48AML12MW
A1, A2 H1, H2	2 C/O 5A	8	24-240V AC/DC	RE48AMH13MW
Bases to suit		8		RUZC2M
		11		RUZC3M



RUZC2M

Electronic counters, 48x48, 6 digit, LCD

Supply Voltage (V)	No. of display digits	Counting frequency (kHz)	Number of presets	Reference
24V DC	6	5	2	XBKP61230G30E
230V AC	6	5	2	XBKP61230G32E



XBKP61230G30E

Zelio measurement and control relays

Product configurator
on se.com/nz

Rotational direction
Presence of phases
Overvoltage and undervoltage



RM17TG20 RM22TG20

Rotational direction and presence of phases (1)

Time Delay	Rated mains voltage	Output relay	Reference
None	208...480V AC 50/60Hz	2 C/O 5A	RM17TG20
		2 C/O 8A	RM22TG20

Rotational direction and presence of phases and undervoltage (1)

Time Delay	Rated mains voltage	Control threshold	Output relay	Reference
None	380...480V AC 50/60Hz	Undervoltage 300...430	2 C/O 8A	RM22TU23



RM22TR33

Rotational direction and presence of phases and undervoltage and overvoltage (1)

Relays with adjustable voltage thresholds

Time Delay	Rated mains voltage	Control threshold	Output relay	Reference
0.1...30s	380...480V AC 50/60Hz	Undervoltage 300...430 Overvoltage 420...580	2 C/O 8A	RM22TR33

Rotational direction and presence of phases and asymmetry (2)

Time Delay on de-energisation	Rated mains voltage	Control threshold	Output relay	Reference
Adjustable 0.1...30s	380...480V AC 50/60Hz	Asymmetry 5...15%	2 C/O 8A	RM22TA33



RM22TU23

Voltage measurement: overvoltage without memory (3)

Adjustable Time Delay	Rated mains voltage	Measurement range	Output relay	Reference
0.05...30s	24-240 AC/DC	1...100V AC/DC	2 C/O 8A	RM22UA32MR

Voltage measurement: overvoltage and undervoltage (4)

Adjustable Time Delay	Rated mains voltage	Measurement range	Output relay	Reference
0.1...30s	380-415V AC	15...500V AC	2 C/O 8A	RM22UA33MT



RM22UA33MT

Phase fail = presence of phases
Rotational direction = phase sequence
Phase asymmetry = phase unbalance

Notes

- (1) Non-motor applications.
- (2) Motor application.
- (3) Single phase sensing.
- (4) Overvoltage and undervoltage with/without memory.

Zelio measurement and control relays

Product configurator
on se.com/nz

Overcurrent and undercurrent Liquid level



RM22JA21MR

RM35JA32MR

Current measurement: overcurrent without memory (1)

Time Delay	Supply voltage	Measurement range	Output relay	Reference insert volt code
0.1...30s	24...240V AC/DC	4mA...1A	2 C/O 8A	RM22JA31MR
0.1...30s	24...240V AC/DC 380...415V AC/DC	150mA...15A	2 C/O 8A	RM35JA32MR RM35JA32MT

Over current measurement: relay with integrated current transformer

Rated supply voltage	Measurement range	Output	Reference insert volt code
24...240V AC/DC	2...20A	1 C/O 5A	RM17JC00MW



RM17JC00MW

Liquid level control relays (Level 1/level 2, Fill/empty operation)

Time Delay	Supply voltage	Sensitivity scale Ohms	Output relay	Reference insert volt code
None	24...240V AC/DC	5...100k	1 C/O 8A	RM22LG11MR
None	380...415V AC	5...100k	1 C/O 8A	RM22LG11MT
Adjustable				
0.1...30s	24...240 AC/DC	250...1M	2 C/O 8A	RM22LA32MR
On/Off delay	380-415 AC		2 C/O 8A	RM22LA32MT



RM22LA32MT



LA9RM201

Liquid level control probe

	Maximum operating temp.	Reference
Suspended by cable	100°C	LA9RM201



RM35BA10

Pump control relay

Function	Current range controlled A	Supply voltage V	Output	Reference
3-phase:	1...10		1 CO 5A	RM35BA10
Phase sequence		208...480 ~, 3-phase		
Phase loss		230 ~, 1-phase		
Overcurrent and undercurrent control				
1-phase:				
Overcurrent and undercurrent control				



RMNF22TB30

Multifunction 3 Phase monitoring relay - NFC (2)

Function	No. of relay outputs	Measurement range	Time Delay	Reference
Sequence of phases (L1, L2, L3, N), Phase loss, Asymmetry, Undervoltage, Overvoltage, Under-frequency, Over-frequency	2 C/O 8A	208-480 AC	0.1s-60min (Phase loss & Phase sequence instant trigger)	RMNF22TB30

Note

(1) Single phase sensing.

(2) Configured using an Android phone (Version 4.4 and above). Download Zelio NFC app from Google Play to configure.

Zelio analogue converters

Universal analogue converters



RMCN22BD

Universal analogue converters

Input range	Output range	Voltage	Reference
0...10V or 4...20mA	0..10V or 4...20mA	24VDC non isolated	RMCN22BD
0...10V / -10...+10V 0...20mA 4...20mA	0...10V /-10...+10V 0...20mA 4...20mA switchable	24VDC isolated	RMCL55BD
0...1.5A / 0...5A 0...15A	0...10V or 0...20mA 4...20mA 0...20mA 4...20mA 0...10V / -10...=10V 0...20mA 4...20mA switchable	24VDC isolated	RMCA61BD (1)

Zelio Logic smart relays

Compact SR2 and Modular SR3 Simply smart!



Simple to select, install and program, Zelio Logic smart relays provide a unique combination of value and ease of use for simple automation systems up to 40 I/O. Two ranges are available in a range of supply voltages, programmed using Zelio Soft 2 PC software in FBD (function block diagram) or ladder languages:

- > Compact SR2 range with fixed configurations 10...20 I/O
- > Modular SR3 range with 10...26 I/O allows the use of extension modules for up to 40 I/O

A range of extension modules for the Modular SR3 range are available:

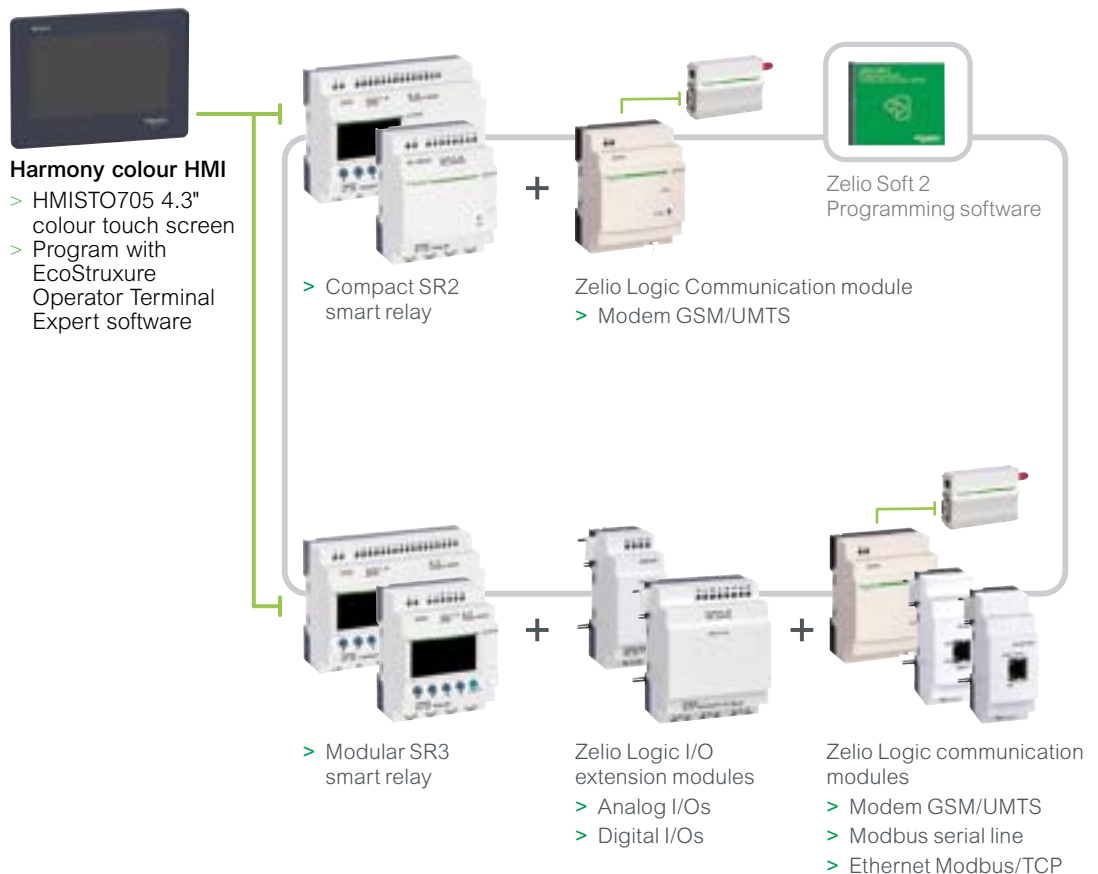
- > Discrete I/O extension modules with 6, 10, or 14 I/O
- > Analogue I/O extension module with 4 I/O
- > Modbus serial or Ethernet Modbus/TCP communication extension modules

Both SR2 and SR3 ranges include an LCD display for basic visualisation and programming (ladder only). A remote HMI can be connected for improved visualisation, while remote connection is available using the 2G/3G modem communication option.

Recent updates (1):

- > **2x more program memory:** up to 240 ladder lines or up to 500 FBD blocks. +75% more timers (up to 28), counters (up to 28), and internal bits (up to 56) can be used
- > New **PID** function blocks (analogue or PWM output)
- > Expanded modem with 2G and **3G** connectivity
- > New remote HMI in monochrome or colour touch screen options
- > PC software compatible with Windows® 7, 8, and 10, 32 or 64 bit OS

System components



Notes:

- (1) Requires Zelio Soft 2 V5.1 or higher, free to download. Compatible with older Zelio smart relays - firmware update will be required.

Zelio Logic smart relays

Product configurator
on se.com/nz

Compact SR2 and Modular SR3



SR2B121BD



SR2B201BD

Compact SR2 smart relays with display

Total discrete I/O	Discrete inputs	Analogue inputs 0-10V $\overline{\text{---}}$	Relay outputs	Transistor outputs	Clock	Reference
12V $\overline{\text{---}}$ supply						
12	8	4	4	0	Yes	SR2B121JD
20	12	6	8	0	Yes	SR2B201JD
24V $\overline{\text{---}}$ supply						
10	6	0	4	0	No	SR2A101BD (1)
12	8	4	4	0	Yes	SR2B121BD
			0	4	Yes	SR2B122BD
20	12	2	8	0	No	SR2A201BD (1)
		6	8	0	Yes	SR2B201BD
			0	8	Yes	SR2B202BD
24V \sim supply						
12	8	0	4	0	Yes	SR2B121B
20	12	0	8	0	Yes	SR2B201B
100...240V \sim supply						
10	6	0	4	0	No	SR2A101FU (1)
12	8	0	4	0	Yes	SR2B121FU
20	12	0	8	0	No	SR2A201FU (1)
					Yes	SR2B201FU

Models also available:

- > Compact SR2 smart relay with display 48V \sim supply 20 I/O
- > Compact SR2 smart relays without display, 24V $\overline{\text{---}}$ supply 10...20 I/O, 24V \sim supply 12 or 20 I/O, 100...240V \sim supply 10...20 I/O



SR3B101B



SR3B262BD

Modular extendable SR3 smart relays with display

Total discrete I/O	Discrete inputs	Analogue inputs 0-10V $\overline{\text{---}}$	Relay outputs	Transistor outputs	Clock	Reference
12V $\overline{\text{---}}$ supply						
26	16	6	10 (2)	0	Yes	SR3B261JD
24V $\overline{\text{---}}$ supply						
10	6	4	4	0	Yes	SR3B101BD
			0	4	Yes	SR3B102BD
26	16	6	10 (2)	0	Yes	SR3B261BD
			0	10	Yes	SR3B262BD
24V \sim supply						
10	6	0	4	0	Yes	SR3B101B
26	16	0	10 (2)	0	Yes	SR3B261B
100...240V \sim supply						
10	6	0	4	0	Yes	SR3B101FU
26	16	0	10 (2)	0	Yes	SR3B261FU

Notes

- (1) Programming in ladder language only
- (2) Including 8 outputs at maximum current of 8A and 2 outputs at maximum current of 5A.

Zelio Logic smart relays

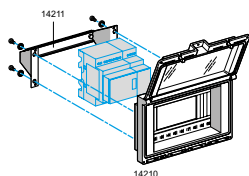
Accessories



SR2USB01



SR2MEM02



Door mounting enclosure + bracket



SR3XT43BD

Programming accessories (1)

Description	Reference
Zelio Soft 2 programming software – free to download For PC Windows 7, 8.1, and 10, 32 or 64 bit operating system. Available to download for free from our website.	SR2SFT01
USB programming cable PC USB port to smart relay programming port, length: 3m	SR2USB01
Back-up memory cartridge EEPROM back-up memory	SR2MEM02

Mounting accessories

Description	Reference
Door mounting enclosure IP55 Enclosure with hinged window and split blanking plate for mounting through an enclosure door. Compatible with various smart relay configurations up to 170mm in width: <ul style="list-style-type: none"> • Up to 2x SR2 10 or 12 I/O smart relays • 1x SR2 20 I/O smart relay • 1x SR3 10 I/O smart relay + 1x 6...14 I/O extension • 1x SR3 26 I/O smart relay + 1x 6 I/O extension 	14210
Enclosure mounting bracket Mounting bracket and DIN rail support for mounting enclosure 14210	14211

SR3 I/O extension modules

Total I/O	Discrete inputs	Analogue inputs	Relay outputs	Analogue outputs 0-10V $\ddot{=}$	Reference
12V $\ddot{=}$ supply (for smart relay SR3B261JD)					
6	4	-	2	-	SR3XT61JD
10	6	-	4	-	SR3XT101JD
14	8	-	6 (3)	-	SR3XT141JD
24V $\ddot{=}$ supply (for smart relays SR3B$\bullet\bullet\bullet$BD)					
4	-	2 (2)	-	2	SR3XT43BD (4)
6	4	-	2	-	SR3XT61BD
10	6	-	4	-	SR3XT101BD
14	8	-	6 (3)	-	SR3XT141BD
24V \sim supply (for smart relays SR3B$\bullet\bullet\bullet$B)					
6	4	-	2	-	SR3XT61B
10	6	-	4	-	SR3XT101B
14	8	-	6 (3)	-	SR3XT141B
100...240V \sim supply (for smart relays SR3B$\bullet\bullet\bullet$FU)					
6	4	-	2	-	SR3XT61FU
10	6	-	4	-	SR3XT101FU
14	8	-	6 (3)	-	SR3XT141FU

Notes

- (1) Only one device can be connected to Zelio smart relay communication slot at a time
- (2) 2x analogue inputs 0-10V or 0-20mA, including 1x PT100 input for temperature sensor (-25°C...125°C)
- (3) Including 4 outputs at maximum current of 8A and 2 outputs at maximum current of 5A
- (4) Can only be used in FBD language

Zelio Logic smart relays

Modular smart relays SR3



SR3NET01BD



TWDXCAISO

SR3 communication modules

Description	Reference
24V --- supply (for smart relays SR3B●●●BD)	
Modbus RS485 communication extension module RJ45	SR3MBU01BD
Ethernet Modbus/TCP extension module RJ45	SR3NET01BD

Connection accessories

Description	Length m	Reference
Modbus serial link		
Modbus tap with 2x RJ45 female, 1x RJ45 on lead	0.3	VW3A8306TF03
	1	VW3A8306TF10
Junction with isolation, screw terminals for trunk, 2x RJ45 for tap, 24V DC supply		TWDXCAISO
Modbus cable, 2x RJ45	0.3	VW3A8306R03
	1	VW3A8306R10
	3	VW3A8306R30
RC line terminator RJ45		VW3A8306RC
Modbus splitter box, screw terminals for trunk, 10x RJ45		LU9GC3
Ethernet network		
Ethernet patch lead, STP, 2x RJ45	2	490NTW00002
	5	490NTW00005
	12	490NTW00012

Modem communication modules (1)

Description	Reference
Modem communication interface	
Provides communication link between SR●B●●●●● smart relays to GSM/UMTS modem, 12...24V --- supply. Includes connection cable to modem, length 0.5m	
GSM (2G) / UMTS (3G) modem	
Modem and antenna for remote communications via 2G/3G network (excludes SIM card). Refer to product catalogue and manual for compatible functions depending on network connection. 12...24V --- supply, includes antenna cable, length 2.5m	

Remote HMI accessories (1) (3)

Description	Reference
Harmony small panel with colour TFT touch screen	
4.3" colour screen, 26 MB memory, programmed using EcoStruxure Operator Terminal Expert	HMISTO705 (4)
HMI STO connection cable	
Connection cable Harmony HMISTO501 or HMISTO705 9-way terminal block to smart relay programming port, length 2.5m	SR2CBL09



HMISTO705
Small Panel



Zelio Logic compact smart
relay + SR2CBL09 cable

Notes

- (1) Only one device at a time can be connected to Zelio smart relay communication slot.
- (2) 2G/3G modem capability from modem hardware version HW1103B4 onwards which includes a SUB-D15 connector instead of a SUB-D9 connector on old 2G modem (connection cable included with modem). Check with network provider for 2G/3G area coverage. Modem automatically detects available 2G or 3G network. Full functionality (including remote program transfer, monitoring, firmware update) requires 2G network and data enabled SIM. Functions on 3G only network are limited to send alarm/receive command via SMS to mobile phone.
- (3) Refer to section N for selection of Harmony HMI screens.
- (4) The SR2CBL09 cable used to connect an HMISTO705 must be equipped with a shunt between terminals marked CTS and RTS (included from date code 1722).

Machine controllers

Selection Guide

Logic controllers	Logic/motion controllers
-------------------	--------------------------



Modicon M221



Modicon M241



Modicon M251



Modicon M262

		For hardwired architectures, simple machines	For performance-demanding machines	For distributed architectures	IIoT ready high-performance machines with motion
Characteristics	Performance	0.2 µs/inst	22 ns/inst	22 ns/inst	3...5 ns/inst
	Memory	640 KB RAM, 2 MB Flash	64 MB RAM, 128 MB Flash	64 MB RAM, 128 MB Flash	256 MB RAM, 256 MB Flash
	Synchronised axis	-	-	-	Up to 16
	Supply Voltage	24 V $\overline{\text{DC}}$ or 100...240 V \sim	24 V $\overline{\text{DC}}$ or 100...240 V \sim	24 V $\overline{\text{DC}}$	24 V $\overline{\text{DC}}$
Embedded I/O	Input types	Up to 40 logic inputs inc. 4 high-speed inputs Up to 2 analogue inputs	Up to 24 logic inputs, inc. 8 high-speed inputs	-	4 fast digital inputs
	Output types	Up to 16 relay outputs Up to 16 transistor outputs inc. 2 high-speed outputs	Up to 16 outputs, inc. 4 high-speed outputs	-	4 fast digital outputs
Communication fieldbus and networks	Embedded	<ul style="list-style-type: none"> EtherNet/IP Modbus TCP Serial link USB mini-B programming port 	<ul style="list-style-type: none"> Ethernet Modbus TCP CANopen (master) 2x serial links USB mini-B programming port 	<ul style="list-style-type: none"> Ethernet/IP Modbus TCP CANopen (master) 2x serial links USB mini-B programming port 	<ul style="list-style-type: none"> EtherNet/IP Sercos III Modbus TCP Serial link USB mini-B programming port
	With option	<ul style="list-style-type: none"> 1x serial link 	<ul style="list-style-type: none"> Ethernet Profibus DP 	<ul style="list-style-type: none"> Ethernet Profibus DP 	<ul style="list-style-type: none"> Ethernet CANopen
Configuration software		EcoStruxure Machine Expert-Basic (1)	EcoStruxure Machine Expert (2)	EcoStruxure Machine Expert (2)	EcoStruxure Machine Expert (2)
Compatible ranges of I/O expansion modules	Local I/O	Modicon TM3	Modicon TM3	Modicon TM3	Modicon TM3
	Remote I/O	Modicon TM3	Modicon TM3	Modicon TM3	Modicon TM3
	Distributed Ethernet I/O	Modicon TM3	Modicon TM3, TM5	Modicon TM3, TM5	Modicon TM3, TM5
	Distributed CANopen I/O	-	-	-	Modicon TM5, TM7
	Distributed SERCOS I/O	-	-	-	Modicon TM5
	Safety I/O	Modicon TM3	Modicon TM3	Modicon TM3	Modicon TM3, TM5, TM7

Notes

- (1) Formerly known as SoMachine Basic
- (2) Formerly named SoMachine, EcoStruxure Machine Expert merges both former software ranges, SoMachine and SoMachine Motion

Modicon M221 logic controllers



Modicon M221 Compact

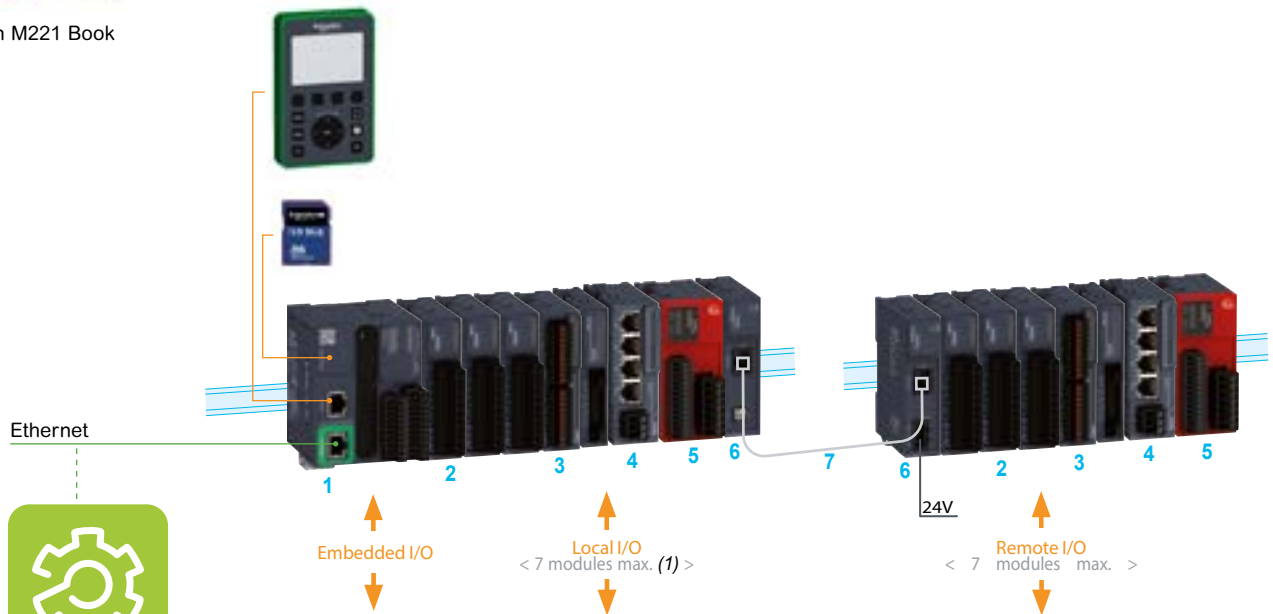


Modicon M221 Book

Part of the next-generation EcoStruxure™ Machine automation platform, Modicon M221 logic controllers offer best in class performance for simple, connected smart machines. Available in two formats with embedded Ethernet, Modicon M221 requires minimal installation and yet offers tremendous flexibility and versatility with a complete range of expansion modules. Intuitive machine programming software EcoStruxure™ Machine Expert - Basic (formerly know as SoMachine Basic), is free to download and provides intuitive navigation, configuration and visualisation, delivering a more efficient engineering process.

The Modicon M221 range consists of:

- > M221 Compact controllers (TM221C••• references) offer excellent connection capacity and customisation options without increasing the controller size, using I/O, communication, or application cartridges. Versions for 230VAC and 24VDC supply voltages are available.
- > M221 Book controllers (TM221M••• references) offer very small dimensions and a wide choice of connections options. Supply voltage 24VDC
- > TM3 I/O expansion modules for various I/O functions:
 - > Digital I/O expansion modules with 8...32 inputs/outputs
 - > Analogue I/O expansion modules with 2...8 inputs/outputs
 - > Expert module for control of up to 4x TeSys motor starters
 - > Functional safety modules up to SIL3
 - > Bus expansion modules



EcoStruxure Machine Expert - Basic

- 1 Modicon M221/M221 Book logic controller
- 2 Modicon TM3 digital I/O modules
- 3 Modicon TM3 analog I/O modules (2)
- 4 Modicon TM3 expert module: control of TeSys motor-starters
- 5 Modicon TM3 functional safety modules
- 6 Modicon TM3 bus expansion modules (transmitter and receiver)
- 7 TM3 bus expansion cable

Note

- (1) Depending on the type of TM3 expansion modules used
- (2) The majority of previous generation TM2 modules can also be used - refer to the M221 product catalogue for compatibility

Modicon M221 logic controllers

Product configurator
on se.com/nz

Compact and Modular logic controllers



TM221CE16R



TM221CE40T



TM221M16RG



TM221ME32TK

Compact M221 logic controllers

Total logic I/O	Logic inputs (1)	Analogue inputs (2)	Logic outputs (3)	Communication ports (4)		Reference
				Ethernet	Serial	
100...240V ~ supply						
16	9	2	7 relay	-	1	TM221C16R
				1	1	TM221CE16R
24	14	2	10 relay	-	1	TM221C24R
				1	1	TM221CE24R
40	24	2	16 relay	-	1	TM221C40R
				1	1	TM221CE40R
24V --- supply						
16	9	2	7 source	-	1	TM221C16T
				1	1	TM221CE16T
			7 sink	-	1	TM221C16U
				1	1	TM221CE16U
24	14	2	10 source	-	1	TM221C24T
				1	1	TM221CE24T
			10 sink	-	1	TM221C24U
				1	1	TM221CE24U
40	24	2	16 source	-	1	TM221C40T
				1	1	TM221CE40T
			16 sink	-	1	TM221C40U
				1	1	TM221CE40U

Modular M221 logic controllers

Total logic I/O	Logic inputs (1)	Analogue inputs (2)	Logic outputs (3)	Communication ports (4)		I/O connector type	Reference
				Ethernet	Serial		
24V --- supply							
16	8	2	8 relay	-	2	Screw	TM221M16R
						Spring	TM221M16RG
				1	1	Screw	TM221ME16R
						Spring	TM221ME16RG
			8 source	-	2	Screw	TM221M16T
						Spring	TM221M16TG
				1	1	Screw	TM221ME16T
						Spring	TM221ME16TG
32	16	2	16 source	-	2	HE10	TM221M32TK (5)
				1	1	HE10	TM221ME32TK (5)

I/O expansion modules

Description	Function	Reference
I/O expansion modules	Refer to Modicon TM3 I/O expansion modules	-

Note

- (1) Sink/source 24V ---, including 4 high-speed inputs
- (2) 0...10V analogue input
- (3) Sink/source transistor output versions include 2 high-speed outputs
- (4) Each M221 logic controller also has an embedded USB mini-B programming port
- (5) Supplied without HE10 I/O connectors. Refer to Telefast Modicon ABE7 pre-wired connection cables and sub-bases

Modicon M221 logic controllers

Accessories



TMC2AI2

Cartridges for Compact M221 logic controllers (1)

Description	Function	Reference
I/O	2x analogue inputs 0...10V or 4...20mA	TMC2AI2
	2x analogue outputs 0...10V	TMC2AQ2V
	2x analogue outputs 4...20mA	TMC2AQ2C
	2x temperature inputs type K, J, R, S, B, E, T, N, C, PT100, PT1000, NI100, NI1000	TMC2TI2
Communication	1x serial link	TMC2SL1 (2)
Specific application	Hoisting with 2x analogue inputs	TMC2HOIS01
	Packaging with 2x analogue inputs	TMC2PACK01
	Conveyor with 1x serial link	TMC2CONV01 (2)



TMASD1

Programming accessories

Description	Reference
EcoStruxure™ Machine Expert - Basic Formerly known as SoMachine Basic. For Windows® Professional Edition 7,8, 8.1, and Windows 10, 32 or 64 bit operating system. Available to download for free from our website www.se.com/nz/en/download/document/Machine_Expert_Basic/	-
Programming cable PC USB Type A to M221 USB Mini-B port, 3m	TCSXCNAMUM3P
Memory card 256Mb SD memory card for application backup and program transfer	TMASD1



TMH2GDB

Remote graphic display (3)

Description	Length	Reference
Remote graphic display Multi-function HMI for M221 controller via SL/SL1 serial port. Backlit monochrome LCD display, 5 lines of 20-35 characters or graphics, 4x service keys, up to 100 HMI pages. Panel mount via 22mm hole IP65, or inside a panel with accessory.		TMH2GDB (4)
Connection cables	1m	VW3A1104R10
Used between TMH2GDB remote display unit and M221 controller	2.5m	XBTZ9980
Base for mounting graphic display inside a panel Base with 22mm hole for mounting graphic display on 35mm DIN rail		A9A15151



A9A15151

Accessories and replacement parts

Description	Qty	Reference
Panel mounting kit for M221 or TM3 modules	10 pcs	TMAM2
Replacement terminal blocks	Power supply terminals	8 pcs TMAT2PSET
	M221 Compact I/O terminals	8 pcs TMAT2CSET
	M221 Modular and TM3 I/O screw terminals	8 pcs TMAT2MSET
	M221 Modular and TM3 I/O spring terminals	8 pcs TMAT2MSETG
Spare battery holder	2 pcs	TMAHOL02
Replacement battery - replace with Panasonic BR2032 only	-	-



TMAM2

Notes

- (1) Maximum of one cartridge for 16 and 24 I/O controllers, and two cartridges for 40 I/O controllers, only one of which can be a communication cartridge.
- (2) One cartridge per controller.
- (3) Also refer to Section N for Magelis HMIs.
- (4) Remote graphic display must be connected to embedded serial link SL/SL1 port on M221 controller - no other serial devices can be connected to this port at the same time. Neither the serial link on the TMC2SL1 cartridge, nor the SL2 embedded serial link, can be used to connect the graphic display unit.

Modicon M241/251 logic controllers

Product configurator
on se.com/nz

Dedicated high performance machine controllers
Programming via EcoStruxure Machine Expert software

M241 logic controllers



TM241CE24R



TM241CE40T

Total logic I/O	Logic inputs (1)	Analogue inputs	Logic outputs (2)	Communication ports (3)			Reference
				Ethernet	CANopen	Serial	
100...240V ~ supply							
24	14	-	4 source, 6 relay	-	-	2	TM241C24R
				1	-	2	TM241CE24R
				1	1	2	TM241CEC24R
40	24	-	4 source, 12 relay	-	-	2	TM241C40R
				1	-	2	TM241CE40R
				1	1	2	
24V = supply							
24	14	-	10 source	-	-	2	TM241C24T
				1	-	2	TM241CE24T
				1	1	2	TM241CEC24T
			10 sink	-	-	2	TM241C24U
				1	-	2	TM241CE24U
				1	1	2	TM241CEC24U
40	24	-	16 source	-	-	2	TM241C40T
				1	-	2	TM241CE40T
				1	1	2	
			16 sink	-	-	2	TM241C40U
				1	-	2	TM241CE40U
				1	-	2	TM241CE40U

M241 options and replacement parts



TMC4AI2

Description	Function	Reference
I/O cartridges	2x analogue inputs 0...10V or 4...20mA	TMC4AI2
	2x analogue outputs 0...10V or 4...20mA	TMC4AQ2
	2x temperature inputs RTD, TC temperature probes	TMC4TI2
Specific application	Hoisting with 2x analogue inputs	TMC4HOIS01
	Packaging with 2x analogue inputs	TMC4PACK01
Memory card	Industrial SD memory card 256MB	TMASD1
Replacement terminal blocks	M241 I/O connectors	TMAT4CSET
	M241 power supply terminals	TMAT2PSET
Replacement battery	Replace with Panasonic BR2032 only	-

M251 logic controllers



TMASD1

Total logic I/O	Logic inputs	Analogue inputs	Logic outputs	Communication ports (4)			Reference
				Ethernet	CANopen	Serial	
24V = supply							
-	-	-	-	3	-	1	TM251MESE
				2	1	1	TM251MESC

M251 options and replacement parts



TM251MESC

Description	Function	Reference
Memory card	Industrial SD memory card 256MB	TMASD1
Replacement terminal blocks	M251 power supply terminals	TMAT2PSET
Replacement battery	Replace with Panasonic BR2032 only	-

Notes

- (1) Sink/source 24V=, including 8 high-speed inputs.
- (2) Sink/source transistor output versions include 4 high-speed outputs.
- (3) Each M241 logic controller also has an embedded USB mini-B programming port.
- (4) Ethernet 1 (2x RJ45 ports with switch). For TM251MESE: Ethernet 2 (1x RJ45). For TM251MESC: CANopen (1x SUB-D9). Each M251 logic controller also has an embedded USB mini-B programming port.

Modicon M241/251 logic controllers

Dedicated high performance machine controllers
Programming via EcoStruxure Machine Expert software



EcoStruxure
Machine Expert

Programming software

Description	Reference
EcoStruxure™ Machine Expert Licenses Please contact Schneider Electric to discuss your licensing requirements	-
Programming cable PC USB Type A to USB Mini-B port, 3m	TCSXCNAMUM3P

I/O expansion modules

Description	Function	Reference
I/O expansion modules	Refer to Modicon TM3 I/O expansion modules	-

Communication modules

Description	Function	Reference
Ethernet switch module	Ethernet switch 4x RJ45 ports	TM4ES4
Profibus DP slave module	Profibus DP slave with 1x SUB-D9 connector	TM4PDPS1



TM4ES4

Modicon M262 logic/motion controllers

IIoT ready machine controllers for high performance machines Programming via EcoStruxure Machine Expert software

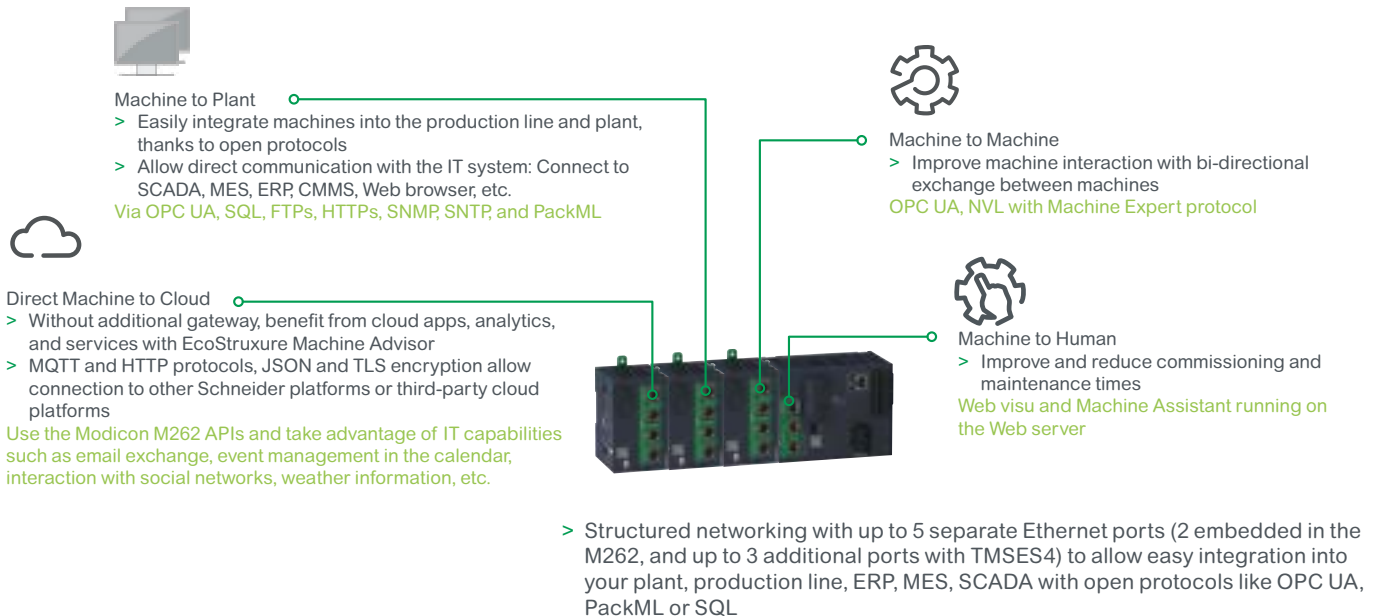


As a Machine Builder, manufacturing machines with logic or motion control and moving into the Industry 4.0 era, you are looking for a controller with embedded cloud connectivity that offers cybersecurity capability and supports monitoring, analytics, and predictive maintenance.

As the latest polyvalent controller for Logic and Motion with cloud protocols (MQTT, HTTP, JSON, OPC UA) and encryption (TLS), the Modicon M262 is made for you. Modicon controllers are a key part of our EcoStruxure Machine that provides complete architecture from Connected Products, Edge Control to Apps, Analytics, and services. Modicon M262 controllers embed Industrial Internet of Things (IIoT) protocols and encryption to provide direct cloud connectivity and digital services.

Digitisation

- > Integrate your machine in any cloud and on-premise environment
- > Structured networking with up to 5 separate Ethernet ports (2 embedded in the M262, and up to 3 additional ports with TMS4) to allow easy integration into your plant, production line, ERP, MES, SCADA with open protocols like OPC UA, PackML or SQL.

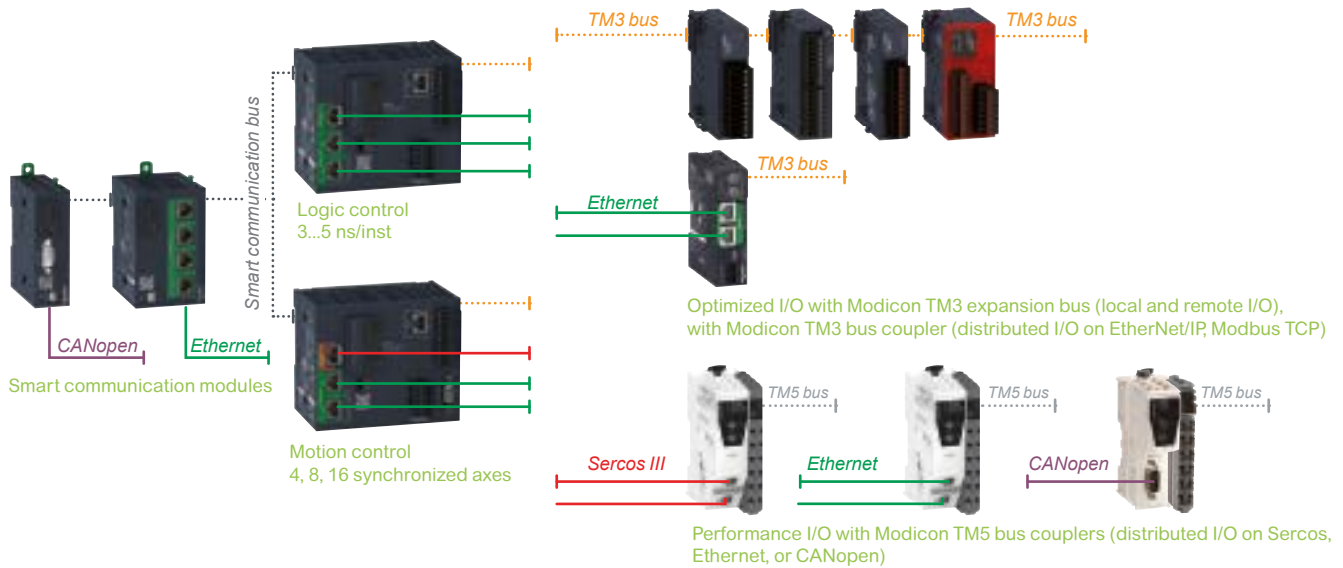


Modicon M262 logic/motion controllers

IIoT ready machine controllers for high performance machines
Programming via EcoStruxure Machine Expert software

Flexibility and scalability

- > Automation 'à la carte' with smart communication modules
- > Scalable performance - manage logic applications, synchronised motion, embedded safety, and cloud connectivity all in one controller
- > I/O system adjusted to your needs, Optimised (Modicon TM3) for just enough architecture, or Performance (Modicon TM5) with high resolution, hot swap capability, etc.



Efficiency through smart engineering design

- > Benefit from real-time automation fieldbus with Sercos for fast motion control, safety functions, and openness to other devices.
- > One cable simplifies the architecture and fieldbus wiring. Manage EtherNet/IP and Sercos devices on the same cable.
- > Simplified commissioning and diagnostics without software installation – “Machine Assistant”.



Protection, safety, and security

- > Meet safety regulations with embedded safety motion controller and safety logic controller.
- > Cybersecurity, including encrypted communications, network separation, Achilles certification, user access/rights management, etc.
- > Green Premium certified, our ecolabel compliant with environmental regulations.

Modicon M262 logic/motion controllers

IIoT ready machine controllers for high performance machines
Programming via EcoStruxure Machine Expert software



TM262L•0MESE8T



TM262M•5MESE8T



TMSES4 TMSCO1



EcoStruxure
Machine Expert

M262 logic/motion controllers

I/O	Execution speed ns/bool.inst. (1)	Synchronised axes (2)	Communication networks (3)			Reference
			Ethernet	Sercos	Serial	
Logic controllers 24V --- supply						
4 fast inputs,	5	-	2	-	1	TM262L01MESE8T
4 fast outputs	5	-	2	-	1	TM262L10MESE8T
	3	-	2	-	1	TM262L20MESE8T
Motion controllers 24V --- supply						
4 fast inputs,	5	4 axes	2	1	1	TM262M05MESS8T (2)
4 fast outputs,	5	4 axes	2	1	1	TM262M15MESS8T (2)
1 encoder input (4)	3	8 axes	2	1	1	TM262M25MESS8T (2)
	3	16 axes	2	1	1	TM262M35MESS8T (2)

M262 options and replacement parts

Description	Function	Reference
Memory card	Industrial SD memory card 256MB	TMASD1
Replacement terminal blocks	M262 set of screw connectors	TMA262SET8S
	M262 set of spring connectors	TMA262SET8G

TMS smart communication modules

Description		Reference
Ethernet smart communication module	For adding an Ethernet network. Equipped with 4x RJ45 switched ports: -- IIoT-ready -- Network isolation -- Ethernet Gigabyte exchange -- Cybersecurity Achilles L1	TMSES4
CANopen smart communication module	For adding a CANopen master network, 1x SUB-D9 connector	TMSCO1

I/O expansion modules

Description		Reference
Modicon TM3 I/O expansion modules	Refer to Modicon TM3 I/O expansion modules	-
Modicon TM5 high-performance and safe IP20 modular I/O system (5)	Refer to Modicon TM5 catalogue	-
Modicon TM7 high-performance and safe IP67 distributed I/O system (5)	Refer to Modicon TM7 catalogue	-

Programming software

Description	Reference
EcoStruxure™ Machine Expert Licenses	-
Please contact Schneider Electric to discuss your licensing requirements	
Programming cable	TCSXCNAMUM3P (6)
PC USB Type A to USB Mini-B port, 3m	

Notes

- (1) Execution speed: nano seconds / boolean instruction.
- (2) Contact Schneider Electric for motion control applications, not all offers are available in New Zealand. Servo axes co-ordinated over Sercos III motion bus, 4 axes (1ms), 8 or 16 axes (2ms).
- (3) For Logic models: Eth. 1 (1x RJ45) 100 Mb/s with EtherNet/IP and Modbus TCP. Eth. 2 (2x RJ45) 1 Gb/s with EtherNet/IP and Modbus TCP. For Motion models: Eth. 1 (1x RJ45) 100 Mb/s with EtherNet/IP, Modbus TCP, and Sercos III (one cable), Eth. 2 (2x RJ45) 1 Gb/s with EtherNet/IP and Modbus TCP. For EtherNet/IP and Modbus TCP only one master allowed. Each M262 logic controller also has an embedded USB mini-B programming port.
- (4) Incremental/SSI, 5 VDC/24 VDC encoder interface.
- (5) Contact Schneider Electric. Not all TM5/TM7 offers are available in New Zealand.
- (6) Unshielded, non-grounded cable, for temporary connections only. For permanent connections, use cable reference BMXXCAUSBH018.

Modicon TM3 I/O expansion modules

Digital I/O modules



TM3DI8

TM3DI8

TM3 digital input modules

Number of inputs	Input type	I/O connector type	Reference
8	24V $\overline{\text{sink}}$ /source	Screw	TM3DI8
		Spring	TM3DI8G
	120V \sim	Screw	TM3DI8A
16	24V $\overline{\text{sink}}$ /source	Screw	TM3DI16
		Spring	TM3DI16G
	HE10	TM3DI16K (1)	
32	24V $\overline{\text{sink}}$ /source	HE10	TM3DI32K (1)



TM3DQ8R

TM3DQ32TK

TM3 digital output modules

Number of outputs	Output type	Output current	I/O connector type	Reference
8	Relay	2A	Screw	TM3DQ8R
			Spring	TM3DQ8RG
	Transistor source	0.5A	Screw	TM3DQ8T
			Spring	TM3DQ8TG
	Transistor sink	0.5A	Screw	TM3DQ8U
			Spring	TM3DQ8UG
16	Relay	2A	Screw	TM3DQ16R
			Spring	TM3DQ16RG
	Transistor source	0.5A	Screw	TM3DQ16T
			Spring	TM3DQ16TG
	Transistor sink	0.5A	Screw	TM3DQ16U
			Spring	TM3DQ16UG
32	Transistor source	0.1A	HE10	TM3DQ16TK (1)
			HE10	TM3DQ16UK (1)
	Transistor sink	0.5A	Screw	TM3DQ16U
			Spring	TM3DQ16UG
	Transistor source	0.1A	HE10	TM3DQ16UK (1)
			HE10	TM3DQ16UK (1)
Transistor sink	0.1A	HE10	TM3DQ32TK (1)	
		HE10	TM3DQ32UK (1)	



TM3DM24R

TM3 mixed digital I/O modules

Number of I/O	Input type	Output type	I/O connector type	Reference
8	4x 24V $\overline{\text{sink}}$ /source	4x relay 2A	Screw	TM3DM8R
			Spring	TM3DM8RG
24	16x 24V $\overline{\text{sink}}$ /source	8x relay 2A	Screw	TM3DM24R
			Spring	TM3DM24RG

M

Notes

(1) Supplied without HE10 I/O connectors. Refer to Telefast Modicon ABE7 pre-wired connection cables and sub-bases.

Modicon TM3 I/O expansion modules

Analogue I/O modules



TM3AI4

TM3 analogue input modules

Type of input	Input range	Number of inputs	Resolution	I/O connector type	Reference	
V/mA	-10...+10VDC	2	16 bit	Screw	TM3AI2H	
	0...10VDC			Spring	TM3AI2HG	
	0...20mA, 4...20mA		4	12 bit	Screw	TM3AI4
					Spring	TM3AI4G
Temperature or V/mA (1)	Thermocouple (2)	4	16 bit	Screw	TM3AI8	
				Spring	TM3AI8G	
	Thermistor			Screw	TM3TI4	
				Spring	TM3TI4G	
Differential temperature	Thermocouple (non-isolated)	4	16 bit	Screw	TM3TI4D	
				Spring	TM3TI4DG	
Temperature	Thermocouple (2)	8	16 bit	Screw	TM3TI8T	
				Spring	TM3TI8TG	
	PTC and NTC thermistors					



TM3AQ4

TM3 analogue output modules

Type of output	Output range	Number of outputs	Resolution	I/O connector type	Reference
V/mA	-10...+10VDC	2	12 bit	Screw	TM3AQ2
	0...10VDC			Spring	TM3AQ2G
	0...20mA, 4...20mA	4	12 bit	Screw	TM3AQ4
				Spring	TM3AQ4G



TM3AM6

TM3 mixed analogue I/O modules

Type of I/O	Input range	Output range	Resolution	I/O connector type	Reference
2x inputs: temp. or V/mA (1),	Thermocouple (2)	-10...+10VDC	16 bit input,	Screw	TM3TM3
	Thermistor	0...10VDC	12 bit output	Spring	TM3TM3G
1x output: V/mA	-10...+10VDC	0...20mA,			
	0...10VDC	4...20mA			
	0...20mA, 4...20mA				
4x inputs: V/mA,	-10...+10VDC	-10...+10VDC	12 bit	Screw	TM3AM6
	0...10VDC	0...10VDC		Spring	TM3AM6G
2x outputs: V/mA	0...20mA, 4...20mA	0...20mA,			
		4...20mA			

Notes

- (1) Each input can be configured independently for temperature or voltage/current.
- (2) For use with isolated thermocouples only. Use differential temperature input module TM3TI4D for non-isolated thermocouples.

Modicon TM3 I/O expansion modules

Expert modules



TM3XHSC202

TM3 expert counter modules (M262)

Description	Inputs	Outputs	"I/O connector type"	Reference
High speed counter module	10 fast inputs	8 fast outputs	Screw	TM3XHSC202
			Spring	TM3XHSC202G
High speed counter module with event management	10 fast inputs	8 fast outputs	Screw	TM3XFHSC202
			Spring	TM3XFHSC202G



TM3XTYS4

TM3 expert TeSys motor starter module (1)

Description	Reference	
TM3 TeSys motor starter expert module RJ45	TM3XTYS4	
Expert module for control of up to 4x TeSys motor starters via RJ45 cables to TeSys U parallel wiring modules		
Parallel wiring module for TeSys U	LUFC00	
Connection cables RJ45	0.3m	LU9R03
	1m	LU9R10
	3m	LU9R30



TM3SAFL5R

TM3 functional safety modules

Number of safety functions	Functions	Maximum safety level	I/O connector type	Reference
1	E-stop, guard/limit switches	Cat 3, PLd, SIL2	Screw	TM3SAC5R
			Spring	TM3SAC5RG
1	E-stop, guard/limit switches	Cat 4, PLe, SIL3	Screw	TM3SAF5R
			Spring	TM3SAF5RG
2	E-stop, guard/limit switches, light curtains (without muting)	Cat 3, PLd, SIL2	Screw	TM3SAFL5R
			Spring	TM3SAFL5RG
3	E-stop, guard/limit switches, light curtains, safety mats/edges	Cat 4, PLe, SIL3	Screw	TM3SAK6R
			Spring	TM3SAK6RG



TM3XTRA1



TM3XREC1

TM3 bus expansion modules

Description	Reference	
TM3 bus transmitter module	TM3XTRA1	
TM3 bus receiver module	TM3XREC1	
TM3 bus expansion cables	2m	490NTW00002
	5m	490NTW00005

M



TM3BCEIP

TM3 bus coupler modules (2)

Description	Reference
TM3 Ethernet bus coupler module	TM3BCEIP
Create remote TM3 I/O islands via EtherNet/IP or Modbus TCP network. Embedded webserver with cybersecurity Achilles L1. Compatible with TM3 expansion modules, except counter modules. Compatible controllers: M221 (2), M241/251/262 controllers configured via EcoStruxure Machine Expert.	



Remote Ethernet TM3 I/O island with TM3BCEIP bus coupler and up to 7 TM3 I/O modules

Notes

- (1) Refer to Section H to complete the TeSys motor starter solution.
- (2) Available Q1 2020: compatibility with M241/251/262 controllers, configuration via EcoStruxure Machine Expert. Available Q2 2020: compatibility with M221 controllers, embedded web server, bus couplers for CANopen and Modbus serial networks.

Modicon ABE7 Telefast pre-wiring system

IP20 sub-bases and cables



ABFTE20EP100

Connection cables M221/TM3•••K HE10 to sub-bases

Description	Compatibility	Connector	Length	Reference
Cables for digital I/O to flying leads	TM221M•••TK	HE10 - flying lead	3m	TWDFCW30K
	TM3D•••TK		5m	TWDFCW50K
Cables for digital inputs to 16 channel input bases	TM221M•••TK	HE10 - HE10	1m	ABFTE20EP100
	TM3DJ•••K		2m	ABFTE20EP200
			3m	ABFTE20EP300
Cables for digital outputs to 16 channel output bases	TM221M•••TK	HE10 - HE10	1m	ABFTE20SP100
	TM3DQ••TK		2m	ABFTE20SP200
			3m	ABFTE20SP300

Passive connection sub-bases for discrete I/O



ABE7H20E000

Function	Compatibility	Channels	Terminals per channel	Polarity distribution	LED status	Reference
Input (1) or output (2)	TM221M•32TK	16	1	No	No	ABE7H20E000
	TM3D•••TK		1	No	Yes	ABE7H16C11
			2	0 or 24V	Yes	ABE7H16C21
			3	0 or 24V	Yes	ABE7H16C31
Input with isolator and fuse per channel	TM3DI••TK	16	2	24V	Yes	ABE7H16S43
Output with isolator and fuse per channel	TM3DQ••TK	16	2	0V	Yes	ABE7H16F43



ABE7H16S43

Electromechanical relay output sub-bases for discrete outputs (3)

Description	Compatibility	Channels	Number of contacts	Polarity distribution	Output current / relay size	Reference
Soldered relay output	TM221M•32TK	16	1 N/O	1 common per 8 channels	2A	ABE7R16S111
	TM3D•••TK			Volt-free	5A	ABE7R16S210
Plug-in relay output (4)	TM221M•32TK	16	1 N/O	1 common per 4 channels	5A / 5mm	ABE7R16T111
	TM3D•••TK			Volt-free	5A / 10mm	ABE7R16T210
				TM3DQ••TK	16	1 N/C



ABE7R16T230

Replacement plug-in electromechanical and solid state relays

Description	Relay size	Control voltage	Number of contacts	Output current	Qty	Reference
Electromechanical relays	5mm	24VDC	1 N/O	5A	4	ABR7S11
	10mm	24VDC	1 N/O	5A	4	ABR7S21
		24VDC	1 N/C	5A	4	ABR7S23
Solid state relays	5mm	24VDC	-	2A	4	ABS7SC1B
	10mm	24VDC	-	0.5A	4	ABS7SC2E

Notes

- (1) For inputs use ABFTE20EP•••• cables.
- (2) For source outputs use ABFTE20SP•••• cables. Not compatible with sink outputs.
- (3) Other versions are available, please refer to the Telefast ABE7 catalogue.
- (4) Supplied with plug-in electromechanical relays. Relays can be replaced with solid state relays of the same width. It is possible to have both electromechanical and solid state relays in the same sub-base.

Notes

Index

Process Control, Safety & HMI

Programmable Automation Controllers (PAC)

Modicon CPUs

M340 – Complex machines and mid sized infrastructures	N2
M580 – Advanced machines and large infrastructures	N4
M580 - Hot Standby redundancy	N5
M580S - High End Safety ePAC	N7

Modicon I/O Modules

X80 I/O Modules	N8
X80 Safety I/O Modules	N21

Distributed I/O

Advantys STB IP20	N22
-------------------	-----

Software

EcoStruxure Control Expert – Unity Pro

PLC programming software	N25
Legacy Software Migration	N26
Legacy PAC Migration	N27

OFS

OPC Factory Server	N28
--------------------	-----

Networking

Modicon & Connexium

Ethernet infrastructure hardware	N29
----------------------------------	-----

CANopen

Machine bus components	N33
------------------------	-----

Human Machine Interface (HMI)

Harmony HMI (Formerly Magelis HMI)

STO / STU Compact touch operator panels	N35
ST6 / STW6 Basic HMI Panels	N36
GTO Advanced Panels	N37
GTU High performance touchscreen with box module	N38
GTUX eXtreme Panels Rugged Outdoor HMI	N39
USB Accessories	N40

Harmony iPC (Formerly Magelis iPC)

S-Panel PC	N41
Rack PC	N43
iDisplay Screens	N44
IIoT Edge Box & HMIBM Box PC	N45
HMIDM Display Screen	N48

HMI Configuration Software

Vijeo Designer	N49
EcoStruxure Operator Terminal Expert – Vijeo XD	N50

SCADA

SCADA Software Solutions	N51
--------------------------	-----

Modicon CPUs

Product configurator
on se.com/nz

M340 – Complex machines and mid sized infrastructures



Modicon M340

Extremely compact-shaped, the new PLC Modicon M340 brings in a small box the flexibility and services of a high-end PLC. In the heart of your application, it will give you integrated Plug&Work solutions with other Schneider Electric devices. At your desk, the great capacity of the Unity offer will ease and shorten your programming time. Modicon M340 is really the smallest giant...

Key applications:

- > Complex machines (packaging, textile, material handling, hoisting...)
- > Manufacturing
- > Infrastructures (water/wastewater, etc)
- > Hardened versions with conformal coatings and extended operating range of -25 to +70 Deg C.
Contact your sales representative for more information.



BMXP341000

BMX P34 processor modules

Modicon M340 processor modules are supplied with the BMX RMS 008MP Flash memory card. This card can be replaced by another card featuring a file storage option.

Standard BMX P340 10

I/O capacity	Memory capacity	Max. no. of network and bus modules	Integrated communication ports	Reference
512 discrete I/O 128 analogue I/O 20 application-specific channels	2,048Kb integrated	2 Ethernet networks 2 AS-Interface buses	Modbus serial link	BMXP341000

Note: 2 racks maximum with BMXP341000 processor in multi rack configuration.



BMXP342020

BMXP3420102

Performance BMX P340 20

I/O capacity	Memory capacity	Max. no. of network and bus modules	Integrated communication ports	Reference
1,024 discrete I/O 256 analogue I/O 36 application-specific channels	4,096Kb integrated	2 Ethernet networks 4 AS-Interface buses	Modbus Serial link	BMXP342000
			Modbus Serial link CANopen bus	BMXP3420102
			Modbus serial link Ethernet TCP/IP network	BMXP342020
			Ethernet TCP/IP network CANopen bus	BMXP3420302

Note: 4 racks maximum with BMXP3420 processor in multi rack configuration.



BMXXCAUSB000

Separate parts

Description	Use		Length	Reference
	From	To		
Terminal port/USB cordsets	Mini B USB port on the Modicon M340 processor	Type A USB port on:	1.8m	BMXXCAUSBH018
		> PC terminal	4.5m	BMXXCAUSBH045
		> HMI terminal		



BMXRMS008MP/MPF

Replacement parts

Description	Use	Processor compatibility	Reference
Memory card 8Mb	Supplied as standard with each processor, used for: <ul style="list-style-type: none"> > Back-up of program, constants, symbol and data > Activation of class B10 web server 	BMXP341000/2000	BMXRMS008MP

Modicon CPUs

M340 specific X80 modules



BMXNOE0100



BMXNOC0401

M340 Specific network modules

Description	Data rate	Reference
Ethernet TCP/IP network module	10/100Mbps	BMXNOE0100
		BMXNOE0110
Ethernet IP and Modbus TCP module	10/100Mbps	BMXNOC0401

Presentation

The modules are standard size occupying a single slot in the rack of the M340 platform.
BMXNOC0401 has a built in 4 port switch.

Characteristics

	BMXNOE0100	BMXNOE0110	BMXNOC0401
	Rack viewer access for diagnostics		
Configurable web server	Yes	–	–
Advanced Ethernet services include:	I/O Scanning	Yes	Yes
	Global Data	Yes	Yes
	FDR Server	Automatic assignment of IP Address and network parameters	
	SNMP network Administrator	Yes	Yes
	SOAP/XML Web Servers	–	Server
	Bandwidth Management	Yes	Yes
IGMP	–	–	Yes
QOS tagging	–	–	Yes
RSTP	–	–	Yes
Port Mirroring	–	–	Yes
Physical interface	10BASE-T/100BASE-T (RJ45)		
Data Rate	10/100Mbps auto sensing		
Medium	Twisted pair		
Conformity to standards	UL 508, CSA 22.2- 142, CSA 22.2- 213, IEC61131-2, OVDA		



Modicon CPUs

Product configurator
on se.com/nz

M580 – Advanced machines and large infrastructures



Modicon M580

The world's first ePAC, with Ethernet built into its core. The PAC is designed for medium to large process control systems. The ethernet backplanes allow for transparent communication from the field to the control room. Based on open industry standard protocols. The M580 utilises the robust and proven X80 hardware. Memory ranges from 4Mb to 64Mb RAM.

All CPUs support Distributed I/O (DIO) communications such as I/O scanning Advantys islands or drives. Selected CPUs also support Ethernet Remote I/O (RIO) which guarantees updates per PAC scan. RIO uses the X80 I/O platform. A 4GB SD card can also be installed to allow additional data storage. Hardened versions are available.

Key Applications/Customers:

- > Mining and metals
- > Infrastructure
- > Automotive
- > Substation automation
- > Food and beverage
- > Pharmaceutical
- > Petrochemical



BMEP586040
Processor

Processors

Type of processor	Memory	Max local racks	Integrated coms	Reference
Level 1	4Mb, 384K Data	4	USB, Ethernet, DIO	BMEP581020
Level 2	8Mb, 768K Data	4	USB, Ethernet, DIO	BMEP582020
Level 2	8Mb, 768K Data	4	USB, Ethernet, DIO, RIO	BMEP582040
Level 3	12Mb, 1024K Data	8	USB, Ethernet, DIO	BMEP583020
Level 3	12Mb, 1024K Data	8	USB, Ethernet, DIO, RIO	BMEP583040
Level 4	16Mb, 2048K Data	8	USB, Ethernet, DIO	BMEP584020
Level 4	16Mb, 2048K Data	8	USB, Ethernet, DIO, RIO	BMEP584040
Level 5	24Mb,4096K Data	8	USB, Ethernet, DIO, RIO	BMEP585040
Level 6	64Mb,4096K Data	8	USB, Ethernet, DIO, RIO	BMEP586040



BMXRMS004GPF

Memory card

Description	Use	Reference
4Gb SD card	Additional user data storage	BMXRMS004GPF

M580 Specific network modules

Description	Reference
3 port dual protocol ethernet module	BMENOC0301 BMENOC0311

Characteristics

	BMENOC0301	BMENOC0311
MB TCP	Yes	Yes
Ethernet IP	Yes	Yes
I/O Scanning	Yes	Yes
IGMP	Yes	Yes
QOS	Yes	Yes
RSTP	Yes	Yes
Port Mirroring	Yes	Yes
Factorycast web server		Yes
Backplane communications	Ethernet	Ethernet

Note: M580 BME Ethernet modules require an Ethernet back plane BMEXBP●●●●●●

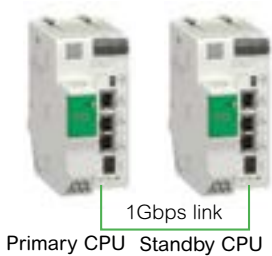


BMENOC0301

N

Modicon CPUs

M580 Hot Standby redundancy



High-availability system with M580 HotStandby redundancy

The high-availability system is used for more demanding applications, in terms of the availability of their control/command system, as no interruption of the process can be tolerated. This system helps to ensure global availability of the redundant CPU and Ethernet I/O devices.

2 PLC racks ("Primary" and "Standby") with identical hardware configurations, based on BMEH58**40 Unity redundant CPUs, connected via a high-speed (1Gbps) link (copper or fiber optic) via SFP sockets.

The "Primary" PLC executes the application program and controls the I/O, while the "Standby" PLC remains in the background. In the event of a detected error affecting the "Primary" PLC, the "Standby" system switches over automatically, changing over execution of the application program and control of the I/O to the "Standby" PLC with an up-to-date data context. Once the changeover is complete, the "Standby" PLC becomes the "Primary" PLC. Once the detected error has been cleared on the other PLC and it has been reconnected to the standby system, it acts as the "Standby" PLC. The changeover is performed smoothly at the outputs and is completely transparent to the process.

The high-availability system with Unity Pro software increases productivity by minimising process downtime.



BMEH●●●●● Processor

Modicon M580 redundant processors

Type of processor	Memory	Max RIO drops	Integrated coms	Reference
Level 2	8Mb,768K Data	8	USB, Ethernet, DIO, RIO	BMEH582040
Level 4	16Mb,4096K Data	16	USB, Ethernet, DIO, RIO	BMEH584040
Level 6	64Mb,4096K Data	31	USB, Ethernet, DIO, RIO	BMEH586040



490NAC0100 490NAC0201

Accessories

Description	Use	Cable medium	Reference
HSBY link SFP Socket	To be inserted in pair of 2 redundant processor	RJ45 Copper	490NAC0100
		Single mode fiber	490NAC0201

Note: SFP sockets are used to choose the medium of the Hot Standby link with 1 Gbps speed.



BMEH58●040K Kit

HotStandby kits

Description	Composition	Reference
HSBY kits with 2 HSBY processors and 2 SFP sockets	2 BMEH582040 redundant M580 processors 2 490NAC0100 RJ45 SFP sockets	BMEH582040K
	2 BMEH584040 redundant M580 processors 2 490NAC0100 RJ45 SFP sockets	BMEH584040K

Note: M580 BME modules require an Ethernet back plane BMEXBP●●●●

Redundant AC power supply BMXCPS4002 & Dual power supply backplane BMEXBP0602/1002 are also available for higher system availability. Please refer M580 Specific Modules Page 20 for more details.



Modicon CPUs

M580 specific X80 modules



M580 Remote I/O adapters

Description	Version	Support	Reference
BusX X80 drop adapter	Standard	Quantum / M580	BMXCRA31200
	Performance	Quantum / M580	BMXCRA31210
Ethernet backplane X80 drop adapter	Performance	M580	BMECRA31210

Note: M580 BME modules require an Ethernet back plane BMEXBP●●●●

Characteristics

	BMXCRA31200	BMXCRA31210	BMECRA31210
Max analogue I/O	16	256	256
Max Digital I/O	128	1024	1024
Service port	No	Yes	Yes
CCOTF	No	Yes	Yes
Bus X rack	Yes	Yes	No
Ethernet rack	Yes	Yes	Yes
Timestamping	No	Yes	Yes
Expert modules	No	Yes	Yes
Ethernet only Module	No	No	Yes

Note: For online configuration use BMXCRA31210 or BMECRA31210



Fibre Remote I/O modules

Fibre modules are used when the connections between drops is greater than 100m. 2 models are available, Multimode for up to 2000m and Single mode for distances up to 15Km

Description	Characteristics	Reference
X80 I/O Fibre Module	Multimode	BMXNRP0200
	Singlemode	BMXNRP0201

Note: Coated version of NRP modules are also available.



M580 Profibus DP Master module

Description	Usage	Connection type	Reference
X80 Profibus DP Master Module	Profibus master module used for M580 platform fieldbus communication	Profibus DP 1 SUB-D 9-pin female	PMEPXM0100*

Note: *Hardened ATEX version PMEPM0100H also available. This module requires Control Expert software V14 & above for configuration along with Prosoft PCM Tool.

M580 OPC UA Module

Description	Characteristics	Reference
Ethernet communication module with embedded OPC UA server	X80 OPC UA Module 1 Ethernet 100 Mbit/s	BMENUA0100*

Note: *Programmed by Control Expert V14.1 & above, Hardened Version is also available.



BMENUA0100

N

Modicon CPU's

Product configurator
on se.com/nz

M580S- High End Safety ePAC



Unity V13
XLS



EcoStruxure
Control
Expert

The Modicon M580 Safety is a M580 programmable automation controller (PAC) with embedded safety modules and functions. A standalone PAC includes a single CPU with a safety coprocessor that is mandatory for dual execution.

It is based on the X80 platform, and the Unity Pro / CE environment:

1. M580 safety CPU and coprocessor (SIL3 / PLe)
2. Redundant safety power supplies
3. Safety local and remote I/Os
4. Safety communications
5. Software libraries for process and machine safety

X80 safety modules are compatible with the M580 safety only. Safety I/O modules can be installed in the local backplane or in RIO drops.

All safety I/O modules supports SIL3 standards according to IEC61508.



Modicon M580 Safety
configuration with a mix
of standard X80 & Safety
I/O

M580 Safety Processor

Local I/O capacity	Maximum number of Ethernet modules	Device ports	Service port	Reference
2048 discrete I/O 512 analog I/O 64 application specific channels 8 MB (memory program)	2 Ethernet Networks	2 RIO/DIO	1	BMEP582040S
4,096 discrete I/O 1,024 analog I/O	4 Ethernet Networks	2 RIO/DIO	1	BMEP584040S
64 application-specific channels 16MB (memory program)	4 Ethernet Networks	2 RIO/DIO	1	BMEP586040S
	–	–	–	BMEP58CPROS3

Note: The BMEP584040S has a door, which can be locked to prevent theft of the SD card.



BMEP584040S



BMEP58CPROS3

Modicon M580 Hot Standby (HSBY) processors

Local I/O capacity (safety/non safety memory program)	Maximum no. of Ethernet modules	Device ports	Service port	Reference
8MB integrated	2	2 RIO/DIO	1	BMEH582040S
16MB integrated	4	2 RIO/DIO	1	BMEH584040S
64MB integrated	4	2 RIO/DIO	1	BMEH586040S



BMXSCPS4002S
Redundant Safety
Power supply

Safety power supply module (1)

Line supply	Available power (2)	Nominal current		Reference	
	3.3 V --- (3)	24 V --- rack (3)	Total	24 V --- rack (3)	
100...240V \sim	18W	40W	40 W	1.67 A	BMXCPS4002S
100...150V \sim	18W	40W	40 W	1.67 A	BMXCPS3522S
24...48V ---	18W	40W	40 W	1.67 A	BMXCPS4022S

Description	Type	Composition	Reference
Set of two removable connectors	Spring-type	One 5-way terminal block and one 2-way terminal block	BMXXTSCPS20
	Cage clamp	One 5-way terminal block and one 2-way terminal block	BMXXTSCPS10

(1) Include a set of 2 cage clamp removable connectors. Spring-type connectors available separately under reference BMXXTSCPS20.

(2) The sum of the power consumed on each voltage (3.3 V --- and 24 V ---) must not exceed the total power of the module. See the power consumption table available on our website www.schneider-electric.com.

(3) 3.3 V --- and 24 V --- rack voltages for powering modules in the Modicon X80 I/O rack.



Unity V13 XLS

Note

Modicon M580 Safety requires at least Unity Pro XLS V13 for programming and configuration.

Modicon I/O Modules

Product configurator
on se.com/nz

X80 I/O Modules



BMXCPS2010/3020



BMXCPS2000/3500



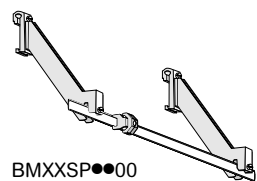
BMXXBP0400



BMXXBP0800



BMEXBP0400



BMXXSP0000



STBXSP3000

Power supply modules

Line supply	Available power (1)				Reference
	3.3V $\overline{\text{---}}$ (2)	24V $\overline{\text{---}}$ (2)	24V $\overline{\text{---}}$ (3)	Total	
24V $\overline{\text{---}}$ isolated	8.3W	16.5W	–	16.5W	BMXCPS2010
24...48V $\overline{\text{---}}$ isolated	15W	31.2W	–	31.2W	BMXCPS3020
100...240V \sim	8.3W	16.5W	10.8W	20W	BMXCPS2000
	15W	31.2W	21.6W	36W	BMXCPS3500
100...150 $\overline{\text{---}}$				36W	BMXCPS3540T

Separate parts

Description	Composition	Type	Reference
Pack of 2 removable connectors	One 5-way terminal block and one 2-way terminal block	Cage clamp	BMXXTSCPS10
		Spring-type	BMXXTSCPS20

Supplied as standard with each power supply.

X80 Standard racks (5)

Description	Type of module to be inserted	No. of slots (4)	Reference
Racks	BMX CPS power supply	4	BMXXBP0400
	BMX P34 processor, I/O modules and application-specific modules (counter, communication)	6	BMXXBP0600
		8	BMXXBP0800
		12	BMXXBP1200

X80 Ethernet racks (6)

Description	Types of modules to be inserted	No of slots	Reference
Ethernet Rack	X80 I/O, expert and BMExx modules	4	BMEXBP0400
		8	BMEXBP0800
		12	BMEXBP1200

Accessories

Description	For use with	Reference
Shielding connection kits comprising: > a metal bar > two sub-bases > one set of spring clamping rings	BMXXBP0400 rack	BMXXSP0400
	BMXXBP0600 rack	BMXXSP0600
	BMXXBP0800 rack	BMXXSP0800
	BMXXBP1200 rack	BMXXSP1200
Spring clamping rings (pack of 5)	Cables with 1.5...6mm ² cross-section	STBXSP3010
	Cables with 5...11mm ² cross-section	STBXSP3020
Protective covers (pack of 5)	Unoccupied slots on BMXXBP0000 rack	BMXXEM010

Notes

- (1) The sum of the absorbed power on each voltage (3.3V $\overline{\text{---}}$ and 24V $\overline{\text{---}}$) should not exceed the total power of the module.
- (2) 3.3V $\overline{\text{---}}$ and 24V $\overline{\text{---}}$ voltages for powering Modicon M340 PLC modules.
- (3) 24V $\overline{\text{---}}$ voltage for powering the input sensors (voltage available via the 2-way removable connector on the front panel).
- (4) Number of slots taking the processor module, I/O modules and application-specific modules (excluding power supply module).
- (5) X80 standard racks need to be PV02 or greater to be compatible with the M580 CPU.
- (6) BME modules require an Ethernet back plane BMEXBP0000.
- (7) Check X80 module for compatibility with selected CPU & backplane.

Modicon I/O Modules

X80 I/O Modules



The M340 / X80 configurations

The M340 can support multi-rack systems comprising of:
 2 racks for a station with BMX P34 1000 processor
 4 racks for a station with BMX P34 2000 processor

Each rack must be equipped with :

A BMX CPS 0000 power supply.

A BMX XBE 1000 extension rack module. This module is inserted on the right of the rack in the slot marked XBE

The BMX XBE 1000 extension rack modules are connected to each other by bus X extension cordsets. Maximum total length is 30m.

The two extension modules located at the ends of the line must have a TSX TLY EX line terminator fitted on the unused connectors.

Note The processor module is always positioned in the rack address 0. However on a bus X the order of racks does not affect the operation. For example, the chaining order can be 0-1-2-3, 2-0-3-1, 3-1-2-0, ...



BMXXBE1000

Extension rack

Description	Use	Reference
Extension rack module for Modicon M340	Standard module for each rack (XBE slot), allows the connection of extension racks	BMXXBE1000
Extension rack kit	Kit for configuration with 2 racks including: 2 BMX XBE 1000 extension rack modules 1 BMX XBC 008K daisy chaining cordset length 0.8 m 1 set of TSX TLY EX line terminators (lot of 2)	BMXXBE2005

Cordsets

Description	Use	Composition	Type of connector	Length	Reference
Daisy chaining cordsets bus X (total length 30 m max.)	Between BMX XBE 1000 extension rack modules	2 x 9-way SUB-D 9 connectors	Bent	0.8m	BMXXBC008K
				1.5m	BMXXBC015K
				3m	BMXXBC030K
				5m	BMXXBC050K
				12m	BMXXBC120K
			Straight	1m	TSXCBY010K
				3m	TSXCBY030K
				5m	TSXCBY050K
				12m	TSXCBY120K
				18m	TSXCBY180K
				28m	TSXCBY280KT

Connecting accessories

Description	Use	Composition	Sold in lots of	Reference
Line terminators	Compulsory	Compulsory on both ends of Bus X network	2	TSXTLYEX



TSXTLYEX



Modicon I/O Modules

X80 I/O Modules



BMXDDI160



BMXDDI3202K

BMXDDI6402K

Discrete input modules

Type of current	Input voltage	Connection by (1)	IEC 1131-2 conformity	Modularity (No. of channels)	Reference
---	24V (positive logic)	Screw or spring-type 20-way removable terminal block	Type 3	16 isolated inputs	BMXDDI1602
		One 40-way connector	Type 3	32 isolated inputs	BMXDDI3202K
		Two 40-way connectors	Non-IEC	64 isolated inputs	BMXDDI6402K
	24V (negative logic)	Screw or spring-type 20-way removable terminal block		16 isolated inputs	BMXDDI1602
	48V (positive logic)	Screw or spring-type 20-way removable terminal block	Type 1	16 isolated inputs	BMXDDI1603
~	125	Screw or spring-type 20-way removable terminal block		16 inputs	BMXDDI1604T
	24V	Screw or spring-type 20-way removable terminal block	Type 1	16 isolated inputs	BMXDAI1602
	48V	Screw or spring-type 20-way removable terminal block	Type 3	16 isolated inputs	BMXDAI1603
	100...120V	Screw or spring-type 20-way removable terminal block	Type 3	16 isolated inputs	BMXDAI1604
	100...120V	Caged or Spring type New 40 pin terminal block		16 Isolated inputs high form factor	BMXDAI1614
	200-240V	Caged or Spring type New 40 pin terminal block		16 Isolated inputs high form factor	BMXDAI1615
	220	Screw or spring-type 20-way removable terminal block	Type 2	8 inputs	BMXDAI0805

Note: Hardened & Coated versions of discrete input modules are also available.

Discrete output modules

Type of current	Output voltage	Connection by (1)	IEC 1131-2 conformity	Modularity (No. of channels)	Reference
--- solid state	24V/0.5A (positive logic)	Screw or spring-type 20-way removable terminal block	Yes	16 protected outputs	BMXDDO1602
		Screw or spring-type 20-way removable terminal block	Non-IEC	16 protected outputs	BMXDDO1612
	24V/0.5A (negative logic)	40 way terminal block connection	Yes	32 Protected outputs	BMXDDO3202
	24V/0.1A (positive logic)	One 40-way connector	Yes	32 protected outputs	BMXDDO3202K
		Two 40-way connectors	Yes	64 protected outputs	BMXDDO6402K
	220	Screw or spring-type 20-way removable terminal block		8 outputs	BMXDRA0804T
~ triac	100...240	Screw or spring-type 20-way removable terminal block	-	16 outputs	BMXDAO1605
	24-240V	Caged or Spring type New 40 pin terminal block	-	16 Isolated Outputs High form factor	BMXDAO1615
--- or ~ relay	12...24V---/3A, 24...240V~/3A	Screw or spring-type 20-way removable terminal block	Yes	8 non-protected outputs	BMXDRA0805
		Screw or spring-type 20-way removable terminal block	Yes	16 non-protected outputs	BMXDRA1605
	24...240V~/2A, 24...125V---/0.3A	20-way removable terminal block, caged, screw or spring-type	Yes	8 normally open isolated relay outputs	BMXDRA0815
	24...240V~/2A, 5...125V---/0.3A	40-way removable terminal block, caged or spring-type	Yes	8 normally open/normally closed isolated relay outputs	BMXDRC0805

Note: Hardened version of discrete output module's are also available.

Note

(1) By connector, module supplied with cover(s).

Modicon I/O Modules

X80 I/O Modules



BMXDDM1602●
BMXDDM3202K

Discrete mixed I/O modules

Number of I/O	Connection via	No. and type of inputs	No. and type of outputs	IEC 1131-2 conformity	Reference
16	Screw or spring-type 20-way removable terminal block	8 (positive logic)	8, solid state 24V $\overline{\text{---}}$ /0,5A	Inputs, type 3	BMXDDM16022
			8, relay 24V $\overline{\text{---}}$ or 24...240V \sim	Inputs, type 3	BMXDDM16025
32	One 40-way connector	16 (positive logic)	16, solid state 24V $\overline{\text{---}}$ /0,1A	Inputs, type 3	BMXDDM3202K



BMXFTB20●0

Removable connection blocks

Description		Use	Reference
20-way removable terminal blocks	Cage clamp	For module with 20-way removable terminal block	BMXFTB2000
	Screw clamp	For module with 20-way removable terminal block	BMXFTB2010
	Spring-type	For module with 20-way removable terminal block	BMXFTB2020
40-way removable terminal blocks	Cage Clamp	For high form factor module with 40-way terminal block	BMXFTB4000
	Screw Clamp	For high form factor module with 40-way terminal block	BMXFTB4020



BMXFTW01

Preformed cordsets for I/O modules with removable terminal block

Description	Composition	Length	Reference
Preformed cordsets with one end with flying leads	One 20-way terminal block	3m	BMXFTW301
	One end with colour-coded flying leads	5m	BMXFTW501
		10m	BMXFTW1001
	One 40-way terminal block	3m	BMXFTW305
	One end with colour coded flying leads (1 x 40 wires,unshielded)	5m	BMXFTW505



BMXFCW01

Preformed cordsets for I/O modules with 40-way connectors

Description	No. of sheaths	Composition	Cross-section	Length	Reference			
Preformed cordsets with one end with flying leads	1 x 20 wires (16 channels)	One 40-way connector	0.324mm ²	3m	BMXFCW301			
		One end with colour-coded flying leads		5m	BMXFCW501			
				10m	BMXFCW1001			
	2 x 20 wires (32 channels)	One 40-way connector	0.324mm ²	3m	BMXFCW303			
		Two ends with colour-coded flying leads		5m	BMXFCW503			
				10m	BMXFCW1003			
Preformed cordsets for Telefast Advantys ABE 7 sub-bases	1 x 20 wires (16 channels)	One 40-way connector One HE 10 connector	0.324mm ²	0.5m	BMXFCC051			
				1m	BMXFCC101			
				2m	BMXFCC201			
				3m	BMXFCC301			
				5m	BMXFCC501			
				10m	BMXFCC1001			
				2 x 20 wires (32 channels)	One 40-way connector Two HE 10 connectors	0.324mm ²	0.5m	BMXFCC053
							1m	BMXFCC103
							2m	BMXFCC203
							3m	BMXFCC303
							5m	BMXFCC503
							10m	BMXFCC1003



BMXFCW03



BMXFCC01

Modicon I/O Modules

X80 I/O Modules



Analogue input modules

Input type	Input signal range	Resolution	Connection	No. of channels	Reference
Isolated high-level inputs	$\pm 10V, 0\dots 10V, 0\dots 5V, 1\dots 5V, \pm 5V$ $0\dots 20mA, 4\dots 20mA, \pm 20mA$	16 bits	Via cage clamp, screw clamp or spring-type removable terminal block	4 fast	BMXAMI0410
Non-isolated high-level fast inputs	$\pm 10V, 0\dots 10V, 0\dots 5V, 1\dots 5V, \pm 5V$ $0\dots 20mA, 4\dots 20mA, \pm 20mA$	16 bits	28-way connector	8	BMXAMI0800
Isolated high-level fast inputs	$\pm 10V, 0\dots 10V, 0\dots 5V, 1\dots 5V, \pm 5V$ $0\dots 20mA, 4\dots 20mA, \pm 20mA$	16 bits	28-way connector	8	BMXAMI0810
Isolated low-level inputs	Temperature probe, thermocouple $\pm 40mV, \pm 80mV, \pm 160mV, \pm 320mV, \pm 640mV,$ $\pm 1.28V 0\dots 400 \Omega$ $0\dots 4000 \Omega$	15 bits + sign	40-way connector	4 8	BMXART0414 BMXART0814

Analogue output module

Output type	Output signal range	Resolution	Connection	No. of channels	Reference
Isolated high-level outputs	$\pm 10V, 0\dots 20mA, 4\dots 20mA$	16 bits	Via cage clamp, screw clamp or spring-type removable terminal block	2	BMXAMO0210
Isolated high-level fast outputs	$\pm 10V, 0\dots 20mA, 4\dots 20mA$	16 bits	20-way connector	4	BMXAMO0410
Non isolated high-level fast outputs	0-20mA, 4-20mA	16 bits	20-way connector	8	BMXAMO0802

Mixed analogue I/O module

Channel type	Signal range	Resolution	Connection	No. of channels	Reference
Mixed I/O, non-isolated	$\pm 10V, 0\dots 10V, 0\dots 5V, 1\dots 5V, 0\dots 20mA, 4\dots 20mA$	12 bits or 10 bits depending on the range	Via cage clamp, screw clamp or cage spring-type removable	I: 4 Q: 2 terminal block	BMXAMM0600

Notes

The shielding on the cordsets carrying the analogue signals must always be connected to the **BMXXSP0000** shielding connection kit mounted under the rack holding the analogue modules.

The **BMXART0814** 8-channel module requires two **ABE7CPA412** sub-bases and two **BMXFCA0002** cordsets.

Modicon I/O Modules

X80 I/O Modules



BMXFTB2000



BMXFTW001S



BMXETM0200H



Unity V11



BMXERT1604T



BMXMSP0200

Connection accessories for analogue modules (1)

Description	For use with modules	Type, composition	Length	Reference
20-way removable terminal blocks	BMXAMI0410	Cage clamp	–	BMXFTB2000
	BMXAMO0210	Screw clamp	–	BMXFTB2010
	BMXAMM0600	Spring-type	–	BMXFTB2020
28-way removable terminal blocks	BMXAMI0800	Spring-type	–	BMXFTB2820
	BMXAMI0810	Cage clamp	–	BMXFTB2800
Preformed cordsets	BMXAMI0410	One 20-way removable terminal block	3m	BMXFTW301S
	BMXAMO0210 BMXAMM0600	One end with colour-coded flying leads	5m	BMXFTW501S
	BMXART0414	One 40-way connector	3m	BMXFCW301S
	BMXART0814 (2)	One end with colour-coded flying leads	5m	BMXFCW501S
	BMXAMI0800	One FTB2820 and 1 DB 25 for connection to telefast	1.5m	BMXFTA150
	BMXAMI0810	ABE7CPA02/03/31/31E	3.0m	BMXFTA300
	BMXAMI0810	One FTB2020 and 1DB25 for connection to telefast	1.5m	BMXFTA152
	BMXAMO0802	ABE7CPA02	3.0m	BMXFTA302

TMC Expert frequency input module

The new module is available on Modicon M340 and M580 platforms designed for frequency monitoring of the turbine shaft and diesel engines etc., and provides the following benefits to user for TMC applications:

- > Fast and accurate frequency measurement
- > Frequency measurement range from minimum 1Hz up to maximum 500 KHz with input filters
- > Support to a variety of sensor and signal input types, including MPU, APU, PT and Encoder
- > Dedicated functions such as Pattern Recognition, Jerk and Acceleration Detection, Phase Angle and Ratio Detection etc.
- > Easy to use with Scaling of Frequency Input for RPM measurement, Reflex Output and Broken Wire Detection etc.

Description	Input/output	Frequency measurement range	Reference
H Turbomachinery Frequency Input 2 Channel	2 Channels of frequency Input/24VDC reflex digital Output per channel	1 Hz to 500KHz with input filters	BMXETM0200H

Note: Unity Software Version 11 & above is used for programming this module.

Time Stamping Input Module

Description	Input Type	Resolution	Reference
Multifunction time stamping input module	16 Discrete Inputs	1ms (Between two different inputs in the same source module)	BMXERT1604T

Note : This module can be placed either in an RIO drop or in a local rack equipped with BM*CRA31210 module. CRA module is synchronized via the DCF 77 or IRIG-B standards.

Motion Control Module

Description	Number of channels	Description per channel	Reference
PTO module (PTO = Pulse Trian Output)	2	2 x 200 kHz max. PTO outputs 2 x 24 V \pm 50 mA auxilliary outputs 4 x 24 V auxilliary inputs	BMXMSP0200

Notes

- (1) The shielding on the cordsets carrying the analogue signals must always be connected to the **BMXXSP0000** shielding connection kit mounted under the rack holding the analogue modules.
- (2) The **BMXART0814** 8-channel module requires two **ABE7CPA412** sub-bases and two **BMXFCA0002** cordsets.

Modicon I/O Modules

X80 I/O Modules



ABE7CPA41●



BMXFCA●●●0



BMXFCA●●●2

Advantys Telefast ABE 7 pre-wired system

Description	For use with modules	Type, composition	Length	Reference
Advantys Telefast ABE 7 sub-bases	BMXAMI0410	Distribution of isolated power supplies Delivers 4 protected isolated power supplies for 4...20mA inputs Direct connection of 4 inputs	–	ABE7CPA410
	BMXART0414 BMXART0814	Connection and provision of cold junction compensation for thermocouples Direct connection of 4 inputs	–	ABE7CPA412
Preformed cordsets for ABE7CPA●●● sub-bases	BMXAMI0410	One 20-way removable terminal block and one 25-way SUB-D connector for ABE7CPA410 sub-base	1.5m	BMXFCA150
			3m	BMXFCA300
			5m	BMXFCA500
	BMXART0414 BMXART0814	One 40-way connector and one 25-way SUB-D connector for ABE7CPA412 sub-base	1.5m	BMXFCA152
			3m	BMXFCA302
			5m	BMXFCA502



BMXEHC0200

BMX EHC 0200/0800 counter modules

Description	No. of channels	Characteristics	Reference (1)
Counter modules for 2 and 3-wire 24V \pm sensors and 10/30V \pm incremental encoders with push-pull outputs	2	Counting at 60kHz	BMXEHC0200
	8	Counting at 10kHz	BMXEHC0800



BMXEHC0800

Connection accessories (1)

Description	Composition use	Reference
Connector kit	Two 16-pin connectors and one 10-pin connector for BMXEHC0200 module	BMXXTSHSC20
20-way removable terminal blocks For BMXEHC0800 module	Cage clamp	BMXF TB2000
	Screw clamp	BMXF TB2010
	Spring-type	BMXF TB2020
Electromagnetic compatibility kits For BMXEHC0200/0800 modules	Comprising: a metal bar, two sub-bases and one set of spring clamping rings	See page N8



BMXEAE0300

BMXEAE0300 SSI encoder module

Description	No. of channels	Characteristics	Reference (1)
Absolute SSI encoder	3	Up to 1Mhz 8-31 data bits	BMXEAE0300

Note

(1) The shielding on the cordsets carrying the analogue signals must always be connected to the **BMXXSP●●●00** shielding connection kit mounted under the rack holding the analogue modules.

Modicon I/O Modules

X80 I/O Modules



BMXNOM0200

Modbus serial module

Description	Channels	Reference
Modbus Serial Link	2	BMXNOM0200

Presentation

The **BMXNOM0200** Modbus Serial link module is standard format (1 Slot), for the Modicon M340 platform

Characteristics

Protocol		Modbus		Character mode	
Module channels		COM Port 0	COM Port 0 and Port 1	COM Port 0	COM Port 0 and Port 1
Structure	Physical interface	RS 232, 8-wire (1)	RS 485, 2-wire	RS 232, 8-wire (1)	RS 485, 2-wire
Serial link type		Non-isolated	Isolated	Non-isolated	Isolated
Access method		Master/slave type, switchable online		-	
Peripheral power supply		-		-	
Connection		RJ45 female connector	Two female RJ45 connectors	RJ45 female connector	Two female RJ45 connectors
Transmission	Mode	Asynchronous in baseband			
Frame		RTU/ASCII, Full duplex	RTU/ASCII, Half duplex	Full duplex	Half duplex
Data rate		0.3...115.2 Kbps	0.3...57.6 Kbps	0.3...115.2 Kbps	0.3...57.6 Kbps
Medium		Shielded twisted pair	Shielded twisted pair	Shielded twisted pair	Shielded twisted pair
Line polarization		-	Automatic	-	Configurable with Unity Pro software
Configuration	Number of devices	2 (point-to-point)	Up to 32 per segment	2 (point-to-point)	Up to 32 per segment
Maximum number of link addresses		248		248	
Maximum length of bus		15m	1000m	15m	1000m
Maximum length of a tap link		-	40m Isolated link	-	40m Isolated link
Services	Frame	252 bytes of data per RTU request 504 characters per ASCII request		1 KB of data per request	
Safety, check parameter		One CRC on each frame (RTU) One LRC on each frame (ASCII)		One LRC on each frame (ASCII)	
Monitoring		Diagnostics counters, event counters		-	

(1) Manages the RXD, TXD, TRS, DTR, DSR, CTS and DCD signals; does not manage the RI Signal.

Cordsets

Description	Channels	Reference
RJ45 DB9 female RS232 crossed		TCSMCN3M4F3C2
RJ45 DB9 male RS232 straight		TCSMCN3M4M3S2
RJ45 DB9 male serial cable Modbus port to a RS-232 DCE equipment (e.g. modem).		TCSXCN3M4F3S4

For full product details – refer to product catalogue

Modicon I/O Modules

X80 I/O Modules



BMXEIA0100

ASI-interface module

Description	Slave Devices	Reference
ASI Module V3	max 62	BMXEIA0100

Presentation

The **BMXEIA0100** AS-Interface master module is standard format (1 Slot), for the Modicon M340 platform

Characteristics

ASI-interface profile	Master profile	M4 (ASI-interface V3) Full extended master
	Slave profiles	S-7.3, S-7.A.7, S-7.A.A, S-7.A.8, S-7.A.9, S-6.0.p supported (S-7.4 and Combined transaction type 2 not documented)
Type of addressing		Standard and extended
Cycle time		5 ms for 31 slaves in standard or extended addressing
		10 ms for 62 slaves in extended addressing
Maximum length of an AS-Interface segment		100 m
		200 m with a TCS AAR011M line extension
		300 m with 2 ASI RPT01 repeaters
		500 m with 2 ASI RPT01 repeaters and the master placed in the middle of the network
Product certification		AS-Interface no. 86601
Ambient air temperature	Operation	0...+ 60°C
	Storage	- 40...+ 70°C
Degree of protection		IP 20
Module hot swapping		Yes
Number of interfaces (or slaves) that can be connected	In standard addressing	124 discrete inputs and outputs or 124 analog inputs and outputs
	In extended addressing	496 discrete inputs and outputs or 124 analog inputs and outputs, depending on profiles used
Fallback on faulty slaves		User-configurable for each slave
Line connection		By 3-way SUB-D connector (connector supplied with the module)
Consumption	3.3 V typical	Refer to the product catalogue for the power consumption table
	External	30 V (AS-Interface) 60 mA

Modicon I/O Modules

X80 I/O Modules



BMXNOR0200H



BMENOR2200H

X80 RTU module

Description	Reference
M340 RTU Module	BMXNOR0200H
M580 RTU Module	BMENOR2200H

Presentation

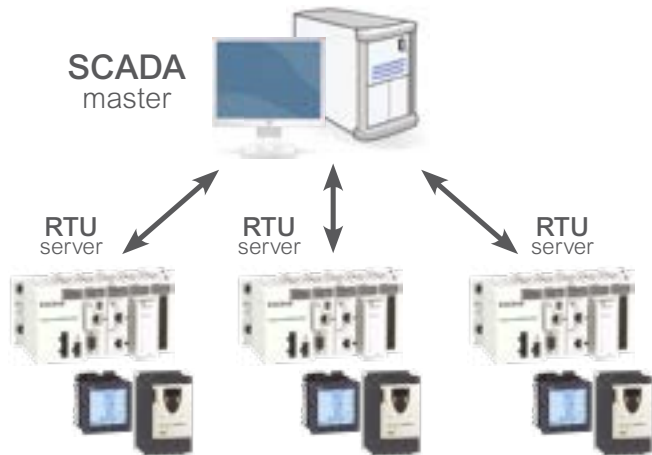
The **BMXNOR0200H** module is a standard module occupying a single slot in the Modicon M340 platform. **BMENOR2200H** is an advanced RTU module for Modicon M580 Platform with Ethernet backplane.

Characteristics

Module Channels	1 Ethernet	1 Serial Port, RS232, 485
Connection	RJ45	RJ45
Protocols	DNP3, IEC 104, MB TCP	DNP3, IEC 101, external modem management
Master/Slave	All protocols	
Webserver	Yes	
Datalogging	Yes, on SD memory card	
SMS/Email	Yes	

Server architecture

- > Upstream communication with the SCADA based on report by exception
- > Automatic backfill of time stamped events
- > Remote Access for Control Expert and remote monitoring/ diagnostic (over IP)



X80 Acksys wifi module

Description	Reference
3 Port Wifi module	PMXNOW0300

Presentation

The **PMXNOW0300** is a standard module occupying a single slot in X80 platform. WiFi Accesspoint, Ethernet bridge and repeater, it allows direct connection to the M340 and M580 range.

Characteristics

Standards	WiFi 802.11 a/b/g
Connection	3 copper - 10/100Mbps
Protocols	Modbus TCP, Ethernet IP
Freq	(2.4/5/5.4Ghz)
Speed	upto 108Mbps
Range	5Km with ext antenna, 300m with standard antennna
Security	WEP, WPA-PSK, WPA2-PSK & 802.1X RADIUS
SMS/Email	Yes



PMXNOW0300

Modicon I/O Modules

X80 I/O Modules



TCSEGDB23F24FA

Modbus plus proxy module

Description	Reference
M340 and M580	TCSEGDB23F24FA

Presentation

The **TCSEGDB23F24FA** Modbus Plus Proxy Module is a network gateway allowing the M340 and M580 PLC to communicate with existing Modbus Plus devices. The module provides a migration path to ethernet.

Characteristics

Module type	TCS EGD B23 F24 FA		
Conforming to standards	UL 508, CSA 22.2 No. 142 (cUL), EMI EN 55011, EN 61131-2, C-Tick		
Operating conditions			
Temperature	°C	0...+60	
Relative humidity	%	0...95 non-condensing at 60°C	
Altitude	m	2000	
Vibration	Panel mounted	Hz	5...11.9 at ± 3.5mm
			11.9...150 at 2 g
	DIN rail mounted		5...8.4 Hz at ± 3.5mm
			8.4...150 Hz at 1 g
Storage conditions			
Temperature	°C	-40...+85	
Relative humidity	%	0...95 non-condensing at 60°C	
Free fall	m	1 (without packaging)	
Shocks	g	+/- 15 g, 11 ms, semi-sinusoidal wave	
General characteristics			
Communication ports	Two 10/100Base-T ports with shielded twisted pair cable (RJ45 connector) and automatic detection Two DB9 Modbus Plus ports (9-pin connectors)		
External power supply voltage	VDC	19.2...31.2	
Consumption	mA	300 maximum	
Power dissipation	W	6.2	
External fuse	None		

N

For full product details – refer to product catalogue

Modicon I/O Modules

M580 specific X80 modules



M580 Specific I/O modules

Input type	Input signal range	Connection	No of channels	Reference
Isolated Hart	4-20mA	28-way connector	8	BMEAHI0812

Output type	Output signal range	Connection	No of channels	Reference
Isolated Hart	4-20mA	20 way connector	4	BMEAHO0412



Connection accessories

BMEAHI0812	One 28 way and 1DB25 for connection to Telefast ABE7CPA02/03/31/31E	1.5m	BMXFTA1522
		3m	BMXFTA3022
BMEAHO0412	One 20 way and 1DB25 for connection to Telefast ABE7CPA410/CPA21	1.5m	BMXFCA150
		3m	BMXFCA300
		5m	BMXFCA500



Weighing module

- > Designed for use with the M580 and ethernet backplane
- > Can be used with Scaime load cells
- > Easy integration, improved resolution, calibration
- > Static Weighing, low speed dynamic weighing and check weighing
- > Filling, dosing, material transfer from silos and tanks

Input type	Signal range	Connection	No of channels	Reference
		Terminal block	1	PMESWT0100



Redundant power supply (1)

Line Supply	Available Power (2)			Total	Reference
	3.3V \pm (3)	24V \pm (3)	24V \pm Sensors (4)		
100...240V \sim	18W	40W	-	40W	BMXCPS4002
100...150V \pm	180W	40W	-	40W	BMXCPS3522
24...48V \pm	18W	40W	-	40W	BMXCPS4022

BMXCPS4002

Note: single redundant power supply can be plugged into the standard backplane but 2 power supplies can only be mounted in dual power supply back plane.

* Hardened versions BMXCPS4002H, BMXCPS3522H, BMXCPS4022H also available.



BMEXBP0602

Dual power supply back planes

Description	Types of modules to be inserted	No. of slots	Reference
Ethernet Rack	X80 I/O, BMExxx, BMXCPS4002	6	BMEXBP0602
Ethernet Rack	X80 I/O, BMExxx, BMXCPS4002	10	BMEXBP1002

Note: It is not possible to plug a standard power supply into a dual power supply backplane, the dual power supply backplane is only compatible with the redundant power supply.

* Hardened versions also available.

BMEXBP1002

Note

M580 BME modules require an Ethernet back plane BMEXBP●●●●

- (1) Include a set of 2 cage clamp removable connectors. Spring-type connectors available separately under reference BMXXTSCPS20.
- (2) The sum of the power consumed on each voltage (3.3 V \pm and 24 V \pm) must not exceed the total power of the module. See the power consumption table available on our website www.schneider-electric.com.
- (3) 3.3 V \pm and 24 V \pm rack voltages for powering modules in the Modicon X80 I/O rack.
- (4) 24 V \pm sensor voltage for powering the input sensors.

Modicon I/O Modules

M580 specific X80 modules



BMENOS0300

Ethernet network option switch

Description	Service port	Device network port	Reference
Ethernet Switch	1	2	BMENOS0300



BMXNGD0100

Ethernet global data module

Communication Service	Integrated connection type	Memory	Reference
Global data Modbus TCP messaging Security	1 Ethernet RJ45 10/100 Mbit/s	Supplied Flash memory card (BMXRWSC016M)	BMXNGD0100

Note: NGD module can only be programmed by Unity Version 11 and above.



BMECXM0100

M580 CANopen master module

Description	Integrated connection type	Type of module	Reference
CANopen X80 Master Module	Serial (Supports up to 63 slaves)	Single Slot on Ethernet backplane	BMECXM0100
CANopen X80 Master hardened (+ATEX certification)	Serial (Supports up to 63 slaves)	Single Slot on Ethernet backplane	BMECXM0100H

Note: M580 BME modules require an Ethernet back plane BMEXBP●●●●.



BMENOC0321

M580 Specific network router module

Description	Reference
3 port dual protocol Ethernet module Provides routing feature to provide transparency when separating control and device networks, up to 3 different subnets (own broadcast domain)	BMENOC0321

Note: M580 BME modules require an Ethernet backplane BMEXBP●●●●.



BMENOP0300

M580 IEC61850 communication module

Communication Protocol	Data rate	Connection Type	Reference
IEC 61850 standard	10/100mbps	3 Ethernet port 10/100BASE-TX (2 ports for ring topology plus Ethernet backplane connection)	BMENOP0300

Note: This module can only be programmed by Unity Version 12 & above, conformal coating version is also available BMENOP0300C

Modicon I/O Modules

X80 Safety I/O modules



Unity V13 XLS



BMXSDI1602



BMXSDO0802



BMXSRA0405



BMXSAI0410



BMXFTB2000



Unity V13 XLS



Rely on a X80 powerful, proven solution to integrate an homogeneous automation architecture with a process and safety unique platform. In the Modicon X80 offer, a safety project can include both safety modules and non-safety modules:

- a. Safety modules in the SAFE task.
- b. Non-safety modules only for the non-safe tasks (MAST, FAST, AUX0, and AUX1).

Only non-safety modules that do not interfere with the safety function can be added to a shared rack with safety modules.

Safety I/O modules can be used to connect the safety PAC to the sensors and actuators that are part of the safety loop. Each safety I/O module incorporates a dedicated safety processor.

Safety I/O modules can be installed in the local backplane or in RIO drops.

All safety I/O modules supports SIL3 standards according to IEC61508.

Safety discrete input module

Type of current	Input voltage	Connection via	IEC/EN 61131-2 conformity	No of channels (common)	Reference
DC	24 V (logic positive)	Cage, screw or spring-type 20-way removable terminal block	Type 3	16 non-isolated inputs (1x16)	BMXSDI1602

Safety discrete output module

Type of current	Input voltage	Connection via	IEC/EN 61131-2 conformity	No of channels (common)	Reference
DC	24 V (logic positive)	Cage, screw or spring-type 20-way removable terminal block	Yes	8 non-isolated outputs (1x8)	BMXSDO0802
AC/DC Relay	24 V $\overline{\text{---}}$ / 24...230 V \sim	Cage, screw or spring-type 20-way removable terminal block	Yes	4 isolated outputs (1x4)	BMXSRA0405

Safety analog input modules

Type of input	Input signal range	Resolution	Connection	No of channels	Reference
Isolated high level input	4-20mA	16 bits	Removable terminal block, 20-way cage clamp, screw clamp, or spring-type	4	BMXSAI0410

Connection accessories for safety analog input module

Description	For use with modules	Type composition	Reference
20-way removable terminal blocks	BMXSAI0410	Cage clamp	BMXFTB2000
	BMXSDO0802	Screw clamp	BMXFTB2010
	BMXSDI1602	Spring	BMXFTB2020
	BMXSRA0405		

EcoStruxure Control Expert

Note: Modicon M580 Safety requires at least Unity Pro XLS V13 or Control Expert for programming and configuration.

Distributed I/O

Smart terminal block Advantys STB IP20

Advantys STB kits

Advantys modules now come packaged with the base and connectors.

Kit part number scheme

- > STB xxx xxx K = kit contains module, base and appropriate number of both spring and screw type connectors
- For the 16 Channel High Density Modules only, there will be 2 kits available, one for screw type connectors and one for spring type connectors:
- > STB xxx xxx KS = kit contains module, base and appropriate number of "screw type" connectors
- > STB xxx xxx KC = kit contains module, base and appropriate number of "spring clamp type" connectors
- The Network Interface Modules (NIMS) will now include power connectors:
- > STB NIMs = no change in part number, but box will now each contain 1 spring and screw power connectors



Communication modules

Description	Binary speed	Protocol	Max. number of addressable I/O modules	Reference
Ethernet TCP/IP Embedded Web server	10Mbps	Modbus TCP/IP	32 per island	STBNIP2212
		Ethernet/IP	32 per island	STBNIC2212
		Dual port 10/100Mbps Modbus TCP/IP	32 per island	STBNIP2311

Description	Type of module	Reference
Machine bus and fieldbus	CANopen	STBNCO2212
	Fipio	STBNFP2212
	Interbus	STBNIB2212
	Profibus DP	STBNDP2212

Description	Type of module	Reference
Other networks	Modbus Plus	STBNMP2212
	DeviceNet	STBNND2212

Connection accessories

Description	Use	Type of accessory	Reference
Removable terminals for 24VDC power supply Both screw and spring terminals are supplied with module	All modules	Screw terminals	STBXTS1120
		Spring terminals	STBXTS2120
DeviceNet	DeviceNet module	Screw terminals	STBXTS1111
		Spring terminals	STBXTS2111

For full product details – refer to product catalogue.

Distributed I/O

Smart terminal block Advantys STB IP20



Power distribution modules

Description	Supply voltage	Maximum current inputs	Maximum current outputs	Type	Reference
PDM	24VDC	4A at 30°C, 2.5A at 60°C	8A at 30°C, 5A at 60°C	Module	STBPDT3100K
	115...230 VAC	5A at 30°C, 2.5A at 60°C	10A at 30°C, 2.5A at 60°C	Module	STBPDT2100K



Bus extension modules

Description	Use	Type	Reference
End of segment	For placing at end of segment (except for the last)	Module	STBXBE1100K
Beginning of segment	For placing at head of each extension segment	Module	STBXBE1300K
Connection of CANopen devices	For placing at end of last segment	Module	STBXBE2100K



Digital input modules

Description	Number of channels	Input voltage	Type	Reference
Discrete inputs	4	24VDC	Kit	STBDDI3420K
	6	24VDC	Kit	STBDDI3610K
	16	24VDC	Kit	STBDDI3725KS STBDDI3725KC
	2	115VAC	Kit	STBDAI5260K



Digital output modules

Description	Number of channels	Output voltage	Output current	Type	Reference
Discrete solid state outputs	6	24VDC	0.5A	Kit	STBDDO3600K
	16	24VDC	0.5A	Kit	STBDDO3705KS STBDDO3705KC
Discrete outputs Triac	2	115...230 VAC	2A at 30°C, 1A at 60°C	Kit	STBDAO5260K
Relay	2 NC/NO	24VDC or 115...230 VAC	2A per contact	Kit	STBDRC3210K
	2 NC+NO	24VDC or 115...230 VAC	7A per contact	Kit	STBDRA3290K

Software and memory card

Description	Use	Memory size	Reference
Advantys configuration software	Single station*	–	STBSPU1000
Removable memory card	–	32Kb	STBXMP4440

* Multi-user packs available on request.

Connection accessories

Description	Length	Reference
Island bus extension cable	0.3m	STBXCA1001
	1m	STBXCA1002
	4.5m	STBXCA1003
	10m	STBXCA1004
	14m	STBXCA1006

For full product details – refer to product catalogue.

Distributed I/O

Smart terminal block Advantys STB IP20



Analogue I/O modules

Description	Number of channels	Input signal	Resolution	Type	Reference
Analogue inputs	2	- 10...+10V	11 bits + sign	Kit	STBAVI1255K
		0...20mA single end	12 bits	Kit	STBACI1230K
		Multi-range isolated	16 bits	Kit	STBART0200K
	4	0/4...20mA differential/ isolated	16 bit 16 bit (1)	Kit Kit	STBACI0320K STBACI8320K
		- 10...+10V isolated	16 bits	Kit	STBAVI0300K
	8	0...20 or 4...20mA single end	16 bits	Kit	STBACI1400K
- 10...+10V single end		16 bits	Kit	STBAVI1400K	
Hart Interface Multiplexer	4				STBAHI8321KC



Description	Number of channels	Output signal	Resolution	Type	Reference
Analogue outputs	2	0...+10V, -10...+10V	11 bits + sign or 12 bits	Kit	STBAVO1250K
		0...20mA	12 bits	Kit	STBACO1210K
		4...20mA isolated	16 bits	Kit	STBACO0220K
		-10...+10V	16 bits	Kit	STBAVO0200K

Application-specific modules

Description	Connection by connector	Number of inputs	Number of outputs	Input voltage	Number of channels	Type	Reference
TeSys model U	4 RJ45	12	8	24VDC	-	Kit	STBEPI2145K
						Connection cables	490NTW00002 (L= 2m)
						Connection cables	490NTW00005 (L= 5m)
Counter	Spring	4	2	24VDC	1 counter channel 40kHz	Kit	STBEHC3020KC



N

For full product details – refer to product catalogue.

Note

(1) STBACI8320 is HART compatible.

EcoStruxure™ Control Expert Software Formerly Unity Software

PLC programming software
Specialist tools



EcoStruxure
Control Expert

For Modicon M340 and M580

Control Expert is the common programming, debugging and operating software for the M340, M580 and legacy PLCs. It is based on the standards set by PL7 and Concept software and provides a comprehensive set of new functions for greater productivity and openness to other software.

The five IEC61131-3 languages are supported as standard in Control Expert with all the debugging functions, on the simulator or directly online with the PLC.

Thanks to independent symbolic memory variables, structured data and user function blocks, the application objects directly reflect the application-specific components of the automated process.

Using graphic libraries, the Control Expert operator screens are configured in the application by the user. Operator access is simple and direct. Debugging and maintenance are made simple by animated graphic objects.

For diagnostics, a display window provides a clear display in chronological order (time-stamped at source) of all system and application faults. The navigation function for finding the causes of faults traces missing conditions back to the source.

The standard XML Web format for exchanging data has been adopted as the source format for CE applications. All or part of the application can be exchanged with other software in the project simply by using the Import/Export function.

Modernisation – Control Expert allows the user to automatically open PL7, Concept and Modicon 984LL into a Control Expert Application, thus reducing engineering costs and risk.

Compatibility matrix for M340, M580 & legacy PLCs

Controllers family	Small	Large	Large (L) + M580 Safety Add on	X large (XL)	X Large (XL) + M580 Safety Add on
Momentum	All models	All models	All models	All models	All models
Modicon M340	All models	All models	All models	All models	All models
Premium		TSX P 57 00	TSX P 57 00	TSX P 57 00	TSX P 57 00
		TSX P 57 10	TSX P 57 10	TSX P 57 10	TSX P 57 10
		TSX P 57 20	TSX P 57 20	TSX P 57 20	TSX P 57 20
		TSX H 57 20	TSX H 57 20	TSX H 57 20	TSX H 57 20
		TSX P 57 30	TSX P 57 30	TSX P 57 30	TSX P 57 30
		TSX P 57 40	TSX P 57 40	TSX P 57 40	TSX P 57 40
		TSX H 57 40	TSX H 57 40	TSX H 57 40	TSX H 57 40
				TSX P 57 50	TSX P 57 50
				TSX P 57 60	TSX P 57 60
M580 Standalone		BMEP 58 10••	BMEP 58 10••	BMEP 58 10••	BMEP 58 10••
		BMEP 58 20••	BMEP 58 20••	BMEP 58 20••	BMEP 58 20••
		BMEP 58 30••	BMEP 58 30••	BMEP 58 30••	BMEP 58 30••
				BMEP 58 40••	BMEP 58 40••
				BMEP 58 5040	BMEP 58 5040
				BMEP 58 6040	BMEP 58 6040
M580 Hot-Standby		BMEH 58 2040	BMEH 58 2040	BMEH 58 2040	BMEH 58 2040
				BMEH 58 4040	BMEH 58 4040
				BMEH 58 6040	BMEH 58 6040
M580 Safety		/	BME P582040S	/	BME P582040S
			BME H582040S		BME P584040S
					BME H582040S
					BME H584040S
					BME H586040S
Quantum		CPU 311 10	CPU 311 10	CPU 311 10	CPU 311 10
		CPU 434 12 U	CPU 434 12 U	CPU 434 12 U	CPU 434 12 U
		CPU 534 14 U	CPU 534 14 U	CPU 534 14 U	CPU 534 14 U
				CPU 651 50	CPU 651 50
				CPU 651 60	CPU 651 60
				CPU 652 60	CPU 652 60
				CPU 670 60	CPU 670 60
				CPU 671 60	CPU 671 60
				CPU 672 60	CPU 672 60
				CPU 672 61	CPU 672 61
				CPU 658 60	CPU 658 60
				CPU 678 61	CPU 678 61

Note: Unity V13 XLS & above support M580 Safety configuration.

Legacy software migration

Software migration to Control Expert (Unity) platform



Unity Pro now has a 6th editor to allow migrations from older 984LL platforms and when used with the Quick wiring systems provides a cost effective and low risk upgrade path.

984LL / Concept

Old platform	New platform	Software	Hardware
Momentum	New Momentum Unity CPUs M340	Unity Import	
Compacts (A140 series)	M340	Unity Import	Quick wiring arms
984A (800 series)	Quantum	Unity Import	Quick wiring arms and racks



PL7

TSX Micro	M340	Unity import	
TSX Premium	M580	Unity import	Existing I/O on Bus X



Note: As with all migrations nothing is 100% and there will be in some cases a small amount of engineering and recommissioning required.

Time Saving Options

Our Quick Wiring adaptors let you change out legacy I/O while retaining the original field wiring.

Quick wiring adaptors for the below platform conversion are available:

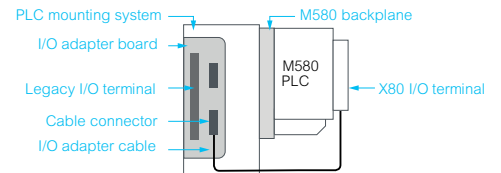
1. TSX Premium I/O to Modicon X80 I/O platform
2. TSX7 PLCs to Modicon X80 I/O platform
3. 984-800 I/O to Modicon X80 I/O platform
4. Modicon Compact PLCs to Modicon X80 I/O platform
5. Rockwell SLC500 I/O to Modicon X80 I/O platform
6. 984-800 I/O to Modicon Quantum I/O Platform
7. Rockwell PLC5 1171 I/O to Modicon Quantum I/O Platform
8. Quantum I/O to Modicon X80 I/O Platform



Premium to X80 I/O



Wiring adapter



The I/O Wiring System adapts Legacy I/O Terminals to X80 I/O

Note: Please contact your sales representative for more information.

Legacy PAC migration

Migration to M580 from legacy CPU

Why switch to M580?



5x
Controller scan time



Increase your process efficiency

8x
Larger memory



Process more data to optimise your process

5x
Bandwidth capability



Near real time monitoring and control with incredible bandwidth capabilities

99.9996%

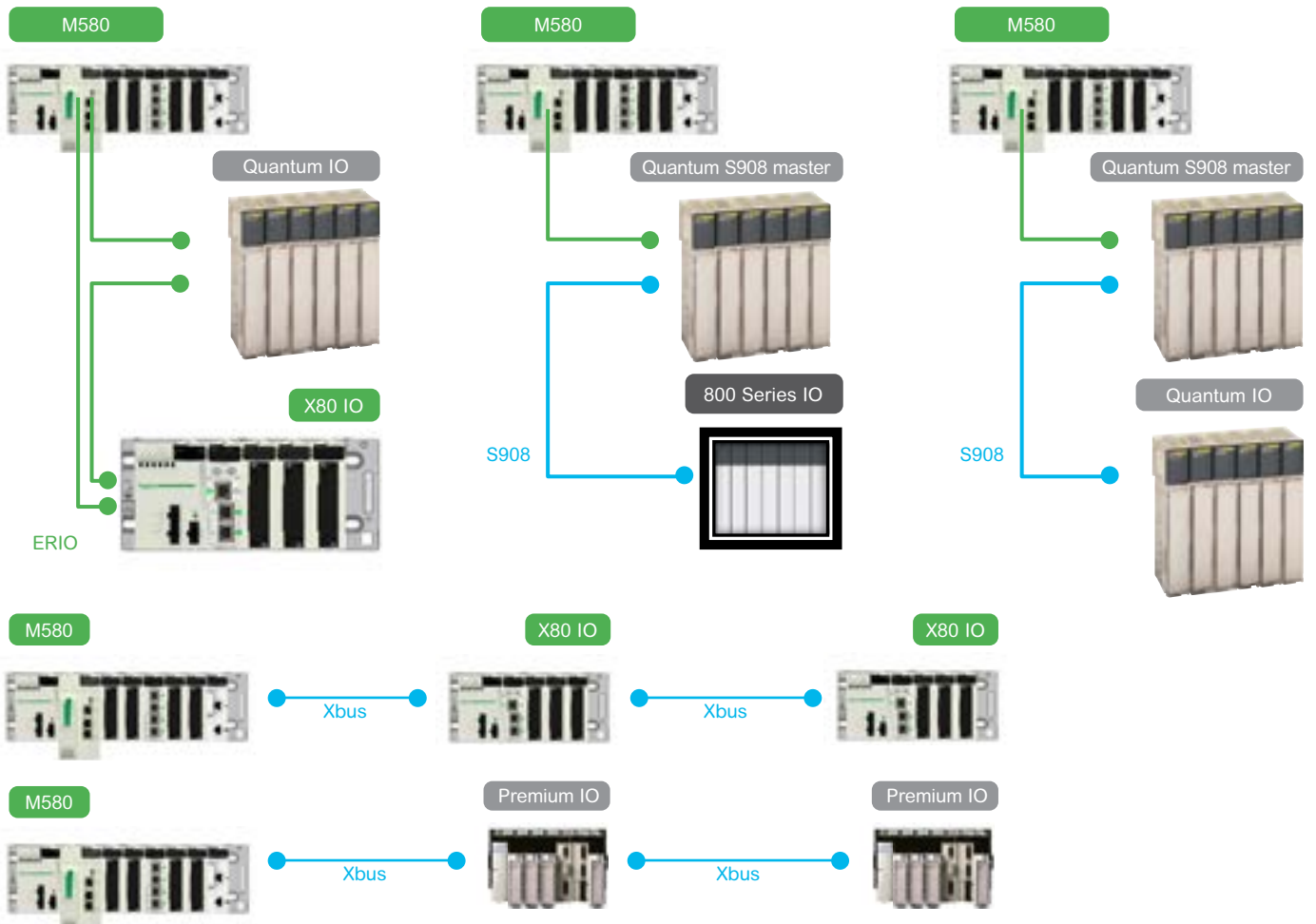


Maximise process uptime and reliability



Extended cybersecurity capabilities

Easily extend current and future performance and capability



Note: Please contact your sales representative for more information on wiring options for migration to latest PAC platform.

OPC factory server

OFS Software



OPC factory server

Based on the OPC protocol, Schneider Electric's OFS software (OPC Factory Server) enables OPC client applications to access Schneider Electric devices and PLC data in real time.

The communication between your software applications and your automation devices becomes simple and unlimited access to key information, an open interface, and a transparent architecture are just some of the advantages providing seamless interoperability at the heart of your process.



The OPC protocol – a universally recognised standard

OPC is an open and standardised communication interface defined by the OPC Foundation which includes over 300 members. OPC interfaces make possible the direct interoperability between automation systems and information management applications.

Leading companies in automation have chosen OPC, including Fisher-Rosemount, Siemens, Rockwell, Wonderware, etc.



OFS: Even more open!

OFS, the OPC server from Schneider Electric, developed with the latest specifications from the OPC foundation including OPC DA, OPC .NET API and OPC XML DA, offers greater freedom when sharing data.

> **Native Microsoft.NET compatibility**

Now any Microsoft.NET client application can access the OFS server with complete interoperability.

> **OPC XML – DA**

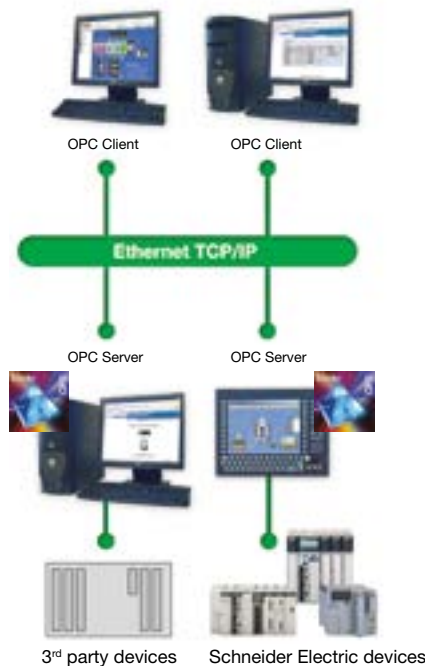
The latest specifications from OPC ensures compatibility with both Windows and non-Windows environments and Web based applications via the internet (through firewalls).

> **A scalable offer**

A new low cost, entry level version of OPC Factory Server (OFS Small) is now available for users with smaller systems.

> **Your production data in real time!**

OPC is essential for client applications that need real-time access to key production data: OFS is the interface between your client applications and the hardware in your automation architecture.



Networking

Modicon & ConneXium Ethernet infrastructure hardware

ConneXium

ConneXium products are the industrial Ethernet-ready network devices that can provide you with integrated Ethernet solutions to unite everything in your plant, from the device level all the way to your corporate intranet.

The ConneXium range consists of Managed, Unmanaged and Wi-Fi switches

Managed or Unmanaged?

Unmanaged switches are suitable for simple plug and play networks such as small machines, where there is no connection to an IT network. Basic managed switches provide single redundant ring connection recommended for distributed I/O. Standard Managed switches are designed to be used as part of the control system backbone, with features such as redundant rings, Vlans and port filtering. Extended Managed switches allow for faster network reconfiguration where a higher availability is required.

Note

It is recommended that managed switches that support IGMP port filtering be used in an Ethernet IP network. Managed switches also provide better network diagnostics.

Type	Cost of downtime	IT Network connection	Network size	Redundancy	Multicast traffic	Diagnosis
Unmanaged switch	Inexpensive	Not required	Small	Not required	No	Not required
Managed switch	Expensive	Required	Medium to large	Required	Yes	Required

Modicon Unmanaged Switches



MCSESU053FN0



MCSESU083F2CU0



Description	Type	Ports	Reference
Standard Unmanaged Switch 5TX	Copper	5TX	MCSESU053FN0
Standard Unmanaged Switch 4TX/1FX-MM	Copper multimode fiber	4TX 1FX-MM	MCSESU053F1CU0
Standard Unmanaged Switch 8TX	Copper	8TX	MCSESU083FN0
Standard Unmanaged Switch 6TX/2FX-MM	Copper multimode fiber	6TX 2FX	MCSESU083F2CU0
Standard Unmanaged Switch 6TX/2FX-SM	Copper Single mode fiber	6TX 2FX- SM	MCSESU083F2CS0

TX = 10/100 BASE- TX ports (RJ45 shielded connectors)

FX- MM = 100 BASE- FX multimode (SC duplex connector)

FX- SM = 100 BASE- FX singlemode (SC duplex connector)

TCSESPU & TCSESSU Unmanaged Switches

The 6 new models expand the range of unmanaged switches which are Industrialized switches and feature an extended operating range on the TCSESPU switches (-40 to 70°C). With the ConneXium Switch Tool certain parameters of the TCSESPU switches can be customized to allow for some network optimization if necessary. These parameters include:

- > Power supply unit alarm
- > Aging time
- > QoS 802.1p mapping
- > Flow control
- > Broadcast & Multicast storm protection/threshold
- > Port based priority
- > Link alarm;
- > Auto-negotiation & port speed
- > Duplex mode
- > Auto-crossing

Size	Type	Ports	Reference
5 port	Multimode Fibre/Cu	4TX/1FX-MM	TCSESPU053F1CU0
	Fibre/Cu	4TX/1FX-SM	TCSESPU053F1CS0
8 port	Copper	8TX	TCSESPU083FN0
9 port	Multimode Fibre/Cu	7TX/2FX-MM	TCSESPU093F2CU0
	Fibre/Cu	7TX/2FX-SM	TCSESPU093F2CS0

Unmanaged Switch – IP67

Size	Type	Ports	Reference
5 port	Copper	5TX*	TCSESU051F0

*10/100 BASE-TX ports, M12 type D female connector

Networking

Modicon & Connexium Ethernet infrastructure hardware



Lost cost managed switch

Size	Type	Ports	Reference
4 port	Copper	4TX	TCSESL043F23F0

Basic managed switches

Size	Type	Ports	Reference
8 port	Copper	8TX	TCSESB083F23F0
	Multi-mode fibre	6TX/2FX-MM	TCSESB083F2CU0
9 port	Multi-mode fibre	6TX/3FX-MM	TCSESB093F2CU0

TX = 10/100 BASE-TX ports (RJ45 connectors)

FX = 100 BASE-FX multi-mode (SC duplex connector)



MCSESM043F23F0

Modicon Standard Managed Switches (4 to 6 ports)

Description	Type	Ports	Reference
Standard Managed Switch 4TX	Copper	4TX	MCSESM043F23F0
Standard Managed Switch 4TX/1FX-MM	Copper multimode fiber	4TX 1FX-MM	MCSESM053F1CU0
Standard Managed Switch 4TX/1FX-SM	Copper singlemode fiber	4TX 1FX-SM	MCSESM053F1CS0
Standard Managed Switch 6TX/2FX-MM	Copper multimode fiber	6TX 2FX-MM	MCSESM063F2CU0
Standard Managed Switch 6TX/2FX-SM	Copper singlemode fiber	6TX 2FX-SM	MCSESM063F2CS0

TX = 10/100 BASE- TX ports (RJ45 shielded connectors)

FX- MM = 100 BASE- FX multimode (SC duplex connector)

FX- SM = 100 BASE- FX singlemode (SC duplex connector)



MCSESM063F2CU0

Modicon Standard Managed Switches (8 to 10 ports)

Description	Type	Ports	Reference
Standard Managed Switch 8TX	Copper	8TX	MCSESM083F23F0
Standard Managed Switch 8TX- Harsh	Copper	8TX Harsh	MCSESM083F23F0H
Standard Managed Switch 8TX/1FX-MM	Copper multimode fiber	8TX 1FX-MM	MCSESM093F1CU0
Standard Managed Switch 8TX/1FX-SM	Copper singlemode fiber	8TX 1FX-SM	MCSESM093F1CS0
Standard Managed Switch 8TX/2FX-MM	Copper multimode fiber	8TX 2FX-MM	MCSESM103F2CU0
Standard Managed Switch 8TX/2FX-MM harsh	Copper multimode fiber	8TX 2FX-MM harsh	MCSESM103F2CU0H
Standard Managed Switch 8TX/2FX-SM	Copper singlemode fiber	8TX 2FX-SM	MCSESM103F2CS0
Standard Managed Switch 8TX/2FX-SM harsh	Copper singlemode fiber	8TX 2FX-SM harsh	MCSESM103F2CS0H

TX = 10/100 BASE- TX ports (RJ45 shielded connectors)

FX- MM = 100 BASE- FX multimode (SC duplex connector)

FX- SM = 100 BASE- FX singlemode (SC duplex connector)



MCSESM083F23F0

Modicon Managed Switch (12 ports)

Description	Type	Ports	Reference
Standard Managed Switch 8TX/ 4GE-SFP	Copper / fiber	8TX 4TX	MCSESM123F2LG0
Standard Managed Switch 8TX/ 4GE- TX	Copper	8 TX 4 GE- TX	MCSESM123F23G0

GE = Gigabit ports

TX = 10/100 BASE- TX ports (RJ45 shielded connectors)



MCSESM123F22LG0

N

Networking

Modicon & Connexium Ethernet infrastructure hardware



MCSESM163F23F0

Modicon Managed Switch (16-24 ports)

Description	Type	Ports	Reference
Standard Managed Switch 16TX	Copper	16TX	MCSESM163F23F0
Standard Managed Switch 16TX / 4GE- SFP	Copper / Fiber	8 TX 4 GE- SFP	MCSESM203F4LG0
Standard Managed Switch 20TX / 4GE- SFP	Copper / Fiber	20 TX 4 GE- SFP	MCSESM243F4LG0

GE = Gigabit ports

TX = 10/100 BASE- TX ports (RJ45 shielded connectors)



MCSESP083F23G0
MCSESP083F23G0T

Modicon PoE Managed Switch (8 gigabit ports)

Description	Type	Ports	Reference
PoE Managed Switch 8GE- TX	Copper	8GE-TX	MCSESP083F23G0
Standard Managed Switch 8GE- TX- harsh	Copper	8GE-TX - harsh	MCSESP083F23G0T

GE = Gigabit ports

TX = 10/100 BASE- TX ports (RJ45 shielded connectors)



MCSESM083F23F1
MCSESM083F23F1H

Modicon Extended managed switches (8 ports)

Description	Type	Ports	Reference
Extended Managed Switch 8TX	Copper	8TX	MCSESM083F23F1
Extended Managed Switch 8TX- Harsh	Copper	8TX Harsh	MCSESM083F23F1H
Extended Managed Switch 8TX/2FX-MM	Copper multimode fiber	8TX 2FX-MM	MCSESM103F2CU1
Extended Managed Switch 8TX/1FX-MM harsh	Copper multimode fiber	8TX 2FX-MM harsh	MCSESM103F2CU1H
Extended Managed Switch 8TX/2FX-SM	Copper singlemode fiber	8TX 2FX-SM	MCSESM103F2CS1
Extended Managed Switch 8TX/2FX-SM harsh	Copper singlemode fiber	8TX 2FX-SM harsh	MCSESM103F2CS1H

Network remote masters and gateways

Description	Reference
Profibus Remote Master	TCSEGPA23F14F
Modbus/Ethernet Gateway	EGX150
MEBII001 MB+ to Ethernet gateway	140MEBII001

Networking

Modicon & Connexium Ethernet infrastructure hardware

Fibre (SFP) modules – (SFP Gigabit switch only)

Size	Type	Ports	Reference
275m / 550m	Multi-mode	SFP-SX/LC	TCSEAAF1LFU00
550m	Multi-mode	SFP-LX/LC	TCSEAAF1LFS00
20km	Single mode		
72km	Single mode	SFP-LH/LC	TCSEAAF1LFH00

Firewalls

An industrial firewall is designed to control access to your automation network and should form part of your IT security strategy.

The Firewall provides physical separation between your control and corporate network.

It is recommended that you also use firewalls to divide your control network into zones.

Two types are available.

Hardware Firewall – fully featured but doesn't require additional software or licences.

Software Firewall – Utilises the hardware firewall and adds a software layer offering greater security and advanced features.

Hardware Firewall

Size	Type	Ports	Reference
2 ports 10/100MB	Copper	1 TX Internal 1 TX External	TCSEFEC23F3F21
	Copper / Fibre	1 TX Internal 1 FX MM External	TCSEFEC23FCF21



Hardware with Tofino Software Firewall

Size	Type	Packet enforcer	Ports	Reference
2 ports 10/100MB	Copper	MB TCP	1 TX Internal 1 TX External	TCSEFEA23F3F22

The Tofino software includes features such as network traffic analysis, event logger, MB TCP and Ethernet IP packet enforcer.

The firewall allows the user more control of the network's security.

The software has built-in templates for Schneider Electric devices.

Loadable licenses

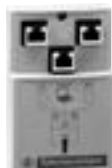
Description	Reference
Connexium Tofino IEC104-LSM Security Software Module (for TCSEFEA23F3F22)	TCSEFM0003
Connexium Tofino IEC61850-LSM Security Software Module (for TCSEFEA23F3F22)	TCSEFM0004

Networking

CANopen Machine bus components



TSXCANTDM4



VW3CANTAP2



TSXCANKCDF90T



TSXCANKCDF180T



TSXCANKCDF90TP

Standard tap junctions and connectors

Designation	Description	Length	Reference
IP20 CANopen tap junction	4 SUB-D ports. Screw terminal block for connection of trunk cables Line term	–	TSXCANTDM4
IP20 connectors	90° angled	–	TSXCANKCDF90T
CANopen female	Straight (1)	–	TSXCANKCDF180T
9-way SUB-D. Switch for line termination	90° angled with 9-way SUB-D for connecting a PC or diagnostic tool	–	TSXCANKCDF90TP
IP20 CANopen tap junctions for Altivar and Lexium 05	2RJ45 ports	–	VW3CANTAP2

IP20 standard cables and preformed cordsets

Designation	Description	Length	Unit Reference
CANopen cables (AWG 24)	Standard, CE marking: low smoke. Halogen-free. Flame-retardant (IEC 60332-1)	50m	TSXCANCA50
		100m	TSXCANCA100
		300m	TSXCANCA300
	Standard, U certification, CE marking: flame-retardant (IEC 60332-1)	50m	TSXCANCB50
		100m	TSXCANCB100
		300m	TSXCANCB300
	For harsh environments (2) or mobile installation, CE marking: low smoke. Halogen-free. Flame-retardant (IEC 60332-1). Resistance to oils	50m	TSXCANCD50
		100m	TSXCANCD100
		300m	TSXCANCD300
CANopen preformed cordsets	Standard, CE marking: low smoke. Halogen-free. Flame-retardant (IEC 60332-1)	1m	TSXCANCADD1
		3m	TSXCANCADD3
One 9-way female SUB-D connector at each end (AWG 24)	Standard, UL certification, CE marking: flame-retardant (IEC 60332-2)	1m	TSXCANCBDD1
Cordsets with one 9-way female SUB-D connector and one RJ45 connector		0.5m	TCSCCN4F3M05T
		1m	TCSCCN4F3M1T
		1m	VW3M3805R010
		3m	VW3M3805R030
		3m	TCSCCN4F3M3T
CANopen preformed cordsets	Two 9-way SUB-D connectors, one male and one female	0.5m	TLACDCBA005
		1.5m	TLACDCBA015
		3m	TLACDCBA030
		5m	TLACDCBA050

Notes

(1) For connection to controller inside programmable card, the **VW3CANKCDF180T** connector can also be used.

(2) Standard environment:

Without any particular environmental constraints

Operating temperature between +5° and +60°

Fixed installation

Harsh environment:

Resistance to hydrocarbons, industrial oils, detergents, solder splashes

Relative humidity up to 100%

Saline atmosphere

Significant temperature variations

Operating temperature between -10°C and +70°C

Mobile installation

Networking

CANopen Machine bus components

IP20 connection accessories

Designation	Description	No. (1)	Length	Unit Reference
CANopen connector for Altivar 71 drive (2)	9-way female SUB-D. Switch for line termination. Cables exit at 180°	–	–	VW3CANKCDF180T
Adaptor for Altivar 71 drive	CANopen adaptor SUB-D to RJ45	–	–	VW3CANA71
Performed CANopen cordsets for Altivar and Lexium 05 drives	Open RJ45 connector at each end	10	0.3m	VW3CANCARR03
			1m	VW3CANCARR1
CANopen bus adaptor for Lexium 15 servo	Hardware interface for a link conforming to the CANopen standard + one connector for a PC terminal	14	–	AM02CA001V000
Y-connector	CANopen/Modbus	–	–	TCSCNT011M11F

Notes

(1) For numbers, see product catalogue.

(2) For connection to controller inside programmable card, the **VW3CANKCDF180T** connector can also be used.

Harmony HMI

Product configurator
on se.com/nz

Human-machine interface STO / STU Compact touch operator panels



Operator
Terminal
Expert



STO7●●



STO5●●

Compact small panel terminals

The Harmony STO and STU panels are ideal for machine manufacturer solutions in industry and infrastructure, with their touch screens, simple mounting system and programmed with Vijeo Designer/Operator Terminal Expert feature rich software.

The new Harmony STO7 is panel mounted and fits into same cutout of STO5 models to migrate to 64k color TFT 4.3" touch screen & configured by Operator Terminal Expert Software which allows to use Vector graphics.

The STU panels mount via a 22mm pushbutton hole, as a cost effective solution. The small panels are programmed with Vijeo Designer, the common platform for Schneider Electric's HMI.

The software offers the full benefits of Vijeo Designer's advanced functions, such as Web Gate, recipes, graphic object library and downloads via a USB stick.

With the arrival of an embedded ethernet connection the panels are more open.

Harmony panels offer a wide range of protocols to make communicating to other equipment easier and at no extra cost.

Harmony small touch operator panels

Compact full graphic terminal

Description	Display resolution	Display type	Comm Ports	Supply voltage	Reference
4.3" color	480 x 272 pixels	64k color	RS-232C Terminal block 9 pin, 2 USB ports	24VDC	HMISTO705
4.3" color	480 x 272 pixels	64k color	RS-232C/485 RJ-45 8 pin, 2 USB ports	24VDC	HMISTO715
4.3" color	480 x 272 pixels	64k color	Ethernet RJ45, 2 USB ports	24VDC	HMISTO735

Note: STO7 can only be configured by Operator Terminal Expert Software.



STO7●●



Operator
Terminal
Expert

Small panel with 22mm mounting hole

Description	Display resolution	Display type	Comm ports	Supply voltage	Reference
3.5" Colour touch screen	QVGA 320x240 pixels	65k Colour screen	1 serial 2 USB 1 Ethernet	24VDC	HMISTU655
5.7" Colour touch screen	QVGA 320x240 pixels	65k Colour screen	1 serial 2 USB 1 Ethernet	24VDC	HMISTU855



STU●55



Vijeo Designer

Accessories

Description	Reference
3.5" STU front panel	HMIS65
5.7" STU front panel	HMIS85
STU rear module	HMIS5T



Connection cable

From	To	Reference
HMISTO, STU	Twido, TSX Micro, Premium 8-way mini DIN	XBTZ9780
XBGTGT	M340	XBTZ9980
HMISTO501	Zelio Smart Relay	SR2CBL09

Harmony HMI

Product configurator
on se.com/nz

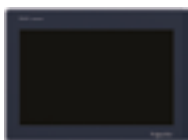
Human machine interface ST6 / STW6 Basic HMI Panels



EcoStruxure
Operator
Terminal
Expert

Ranging from 4" to 15", the Harmony ST6 & Harmony STW6 is quick and easy to install, with secure dual IP connections for effective integration into the overall operating system, enabling operators to be more efficient. Basic HMI, Harmony ST6 provides best in class user interface for multi-device connection: 2 x Ethernet ports with Dual IP, 2 x COM (except 4" model), USB host and device.

Basic Web HMI, Harmony STW6 provides 2 x Ethernet ports with one IP address for daisy chain connection (except 4" model).



Front view



Rear view

More Efficient

- > The high resolution screen is powered by EcoStruxure Operator terminal Expert software, with multi-screen and Layout Objects (Dock Panel) functions to combine more information in one page for easy operation
- > Tool free fastener for fast and easy mounting
- > Low maintenance thanks to the 1,000,000 times resistive touch panel, 50,000+ hours LED backlight, replaceable RTC battery designed for 5+ years long term use

More Flexible

- > Batch conversion of themes and color setting functions make customisation easy
- > Support for situational awareness using Theme and Color set function
- > Electronic manual via QR code for easy in-field maintenance without PC or paper
- > Able to access all HTML5 Servers with Basic Web HMI, Harmony STW6 version

More Secure

- > The falling preventive hook makes mounting safe and easy
- > Enhanced cybersecurity from application to firmware level
- > Meets environmental regulations (European and Chinese ROHS, REACH, WEEE)



EcoStruxure
Operator
Terminal
Expert

Magelis ST6 Basic HMI panels

Size	Resolution (pixels)	Colors	App Memory	Number of ports	Reference
4.3"W	480 x 272	16M	512MB (Flash EPROM)	1 x Ethernet, 1 x RS-232C/485, 2 x USB	HMIST6200
7 "W	800 x 480 WVGA	16M	1GB (Flash EPROM)	2 x Ethernet, 2 x USB 1 x RS-232C, 1 x RS-485	HMIST6400
10.1 "W	1024 x 600 WSVGA	16M	1GB (Flash EPROM)	2 x Ethernet, 2 x USB 1 x RS-232C, 1 x RS-485	HMIST6500
12.1"W	1280 x 800 WXGA	16M	1GB (Flash EPROM)	2 x Ethernet, 2 x USB 1 x RS-232C, 1 x RS-485	HMIST6600
15.6"W	1366 x 768 FWXGA	16M	1GB (Flash EPROM)	2 x Ethernet, 2 x USB 1 x RS-232C, 1 x RS-485	HMIST6700



Magelis STW6 Basic WebHMI panels

With development of HTML5 technology in Industry, more and more products provide embedded HTML5 Server with data that can be easy visualise on multiple devices like PC, Tablet, Smartphone using different OS. Basic Web HMI STW6 is expected for same operation powered by Linux Browser HTML5.

Size	Resolution (pixels)	Colors	Number of ports	Reference
4.3"W	480 x 272	16M,Resistive	1 x Ethernet,1USB	HMISTW6200
7 "W	800 x 480	16M,Resistive	2 x Ethernet,1USB	HMISTW6400
10 "W	1024 x 600	16M,Resistive	2 x Ethernet,1 USB	HMISTW6500
12.1"W	1280 x 800	16M,Resistive	2 x Ethernet,1 USB	HMISTW6600
15.6"W	1366 x 768	16M,Resistive	2 x Ethernet,1 USB	HMISTW6700

N

Harmony HMI

Human Machine Interface

Harmony Basic Modular Panels STM6 HMI / STM6BOXIOT Machine SCADA Box



EcoStruxure
Operator
Terminal
Expert

The modular Harmony STM6 version has basic HMI Modular panels HMISTM6200 and HMISTM6400, offer a combination of display module 4" (HMISTM6200) or 7" (HMISTM6400) and a rear module (HMISTM6B) option, also a basic HMI Gateway Box, rear module (HMISTM6BOX) mounted on DIN Rail adapter. This single touch resistive HMI has a multi-color status indicator showing the various operating modes. This HMI interface offers both 4.3" wide 480 x 272 pixel & 7" wide 800 x 480 pixel resolution with 16 million colors. It is a modular HMI with 22mm pushbutton mounting system and is powered by EcoStruxure Operator Terminal Expert software for intuitive user experience. It has a 800 MHz ARM Cortex-A8 CPU, 1 GB device memory, 128 MB user data memory, and 512 KB backup memory. This HMI ST6 supports 2x Ethernet port, 1x COM1 (RS-232C or RS-485), 1x USB 2.0 Type A, and 1x USB 2.0 Micro-B port.



Harmony Edge Box HMI is configured using EcoStruxure Machine SCADA Expert . This software allows to collect data with different drivers on OT devices and to push data on IT side with different Cloud drivers. In addition basic HMI features can be configured on this Box :

- > Display of animated synoptic and control of numeric, alphanumeric values remotely via Web Interface.
- > Scheduler Task with date & time
- > Mathematic Task
- > Alarm Task with log
- > Trend Task with log
- > Storage of the application logs in internal Flash memory, on USB sticks and on External DataBase
- > Remote Visualization with Mobile Access function



HMISTM6200



HMISTM6BOXIOT



Harmony STM6 Basic Modular HMI panels

Size	Resolution (pixels)	Colors	Memory	Number of ports	Reference
4 "W	480 x 272	16M	1 GB device	2x USB	HMISTM6200
7 "W	800 x 480 WVGA	16M	128 MB user data 512 kB backup	2x Ethernet 1x COM1	HMISTM6400
-	Spare Rear Unit Only	-			HMISTM6B

Harmony Faceless STM6BOX & STM6BOXIOT Edge Box with SCADA 500Tag

The STM6 Gateway Box (HMISTM6BOX) & Edge Box HMI (HMISTM6BOXIOT) is a Box without screen and mounted on DIN rail, The HMISTM6BOXIOT comes with IOT connectivity and 500tag Machine SCADA run time. Both units offer remote connectivity and secure connect options

Faceless	Machine SCADA	Colors	Memory Application	Number of ports	Reference
Yes	No		1 GB device 128 MB user data	2x USB 2x Ethernet	HMISTM6BOX
Yes	Yes - 500T RT		512 kB backup	1x COM1	HMISTM6BOXIOT



Harmony HMI

Product configurator
on se.com/nz

Human-machine interface GTO Advanced panels



Advanced panels

Description/ version	Display type	App mem	Flash card slot	Multi-media video	Comm. ports	Reference	
3.5"	Function keys	QVGA (320 x 240)	64MB		No	2Serial 2USB	HMIGTO1300
			96MB		No	2Serial 2USB 1Ethernet	HMIGTO1310
5.7"		QVGA (320 x 240)	64MB		No	2Serial 2USB	HMIGTO2300
			96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO2310
7.0"	WideScreen Function keys	WVGA (800 x 400)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO3510
7.5"		VGA (640 x 480)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO4310
10.4"		VGA (640 x 480)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO5310
12.1"		SVGA (800 x 600)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO6310



Stainless steel bezel food grade panels

Description/ version	Display type	App mem	Flash card slot	Multi-media video	Comm. ports	Reference
5.7"	QVGA (320 x 240)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO2315
10.4"	VGA (640 x 480)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO5315
12.1"	SVGA (800 x 600)	96MB	SD Card	No	2Serial 2USB 1Ethernet	HMIGTO6315



Advanced touchscreen keypad panels

Description	Display type	App mem	Flash card slot	Comm. ports	Reference
5.7" Color TFT LCD	QVGA (320 x 240) 65K colors	128 MB Flash EPROM	SD Card	2 Serial 2 USB 1 Ethernet	HMIGK2310
10.4" Color TFT LCD	QVGA (640 x 480) 65K colors	128 MB Flash EPROM	SD Card	2 Serial 2 USB 1 Ethernet	HMIGK5310



HMIGK2310 HMIGK5310

Note: HMIGK range is new replacement for XBTGK keypad panels range.

Harmony HMI

Product configurator
on se.com/nz

Human-machine interface GTU High performance touchscreen with box module



The HMIGTU is a high performance, modular touchscreen. Navigate your HMI like a smartphone.

Standard 4:3 and Wide screen 16:9 options.

Operate through gloves.

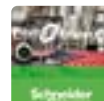
Runtime or Windows embedded environments.

Can be used with Vijeo Designer or Operator Terminal Expert for the intuitive smartphone features.

Choose your box and then add the screen.



Vijeo Designer



Operator Terminal Expert



BOX modules (rear module)

Description/ version	Display Type	App Mem	Storage type	Multimedia Interface *	Comm. ports	Reference
Standard Box	Real time OS-HMI runtime	256MB	1xInternal Flash and 1xSDcard	No	2 Serial 2 USB 2 Ethernet	HMIG2U*
Premium box	Realtime OS - HMI runtime	256MB	2 SD Cards	Sound Output	2Serial 2USB 2Ethernet	HMIG3U
Open box	Windows 7 embedded	2GB	2 CFast cards 1 SD card	Sound output,DVI output,Mic	2Serial 3USB 2Ethernet	HMIG5U2

* Note: Sound output interface connector HMIZGAUX need to be ordered separately. HMIG2U is configured by Vijeo designer V6.2 SP8 & above only.

HMI screen (front module)

Smart Display

Description	Display Type	Auto Brightness	Multi-touch	Comm. ports	Reference
10.4" format 4:3	SVGA (800 x 600) 16M Colours	Yes	Resistive, Yes	2Front USB	HMIDT542
12.1" format 4:3	XGA (1024 x 768) 16M Colours	Yes	Resistive, Yes	2Front USB	HMIDT642
12.1" format 4:3	XGA (1024 x 768) 16M Colours	Yes	Resistive, Yes	2Front USB Integrated Wifi	HMIDT643
15" format 4:3	XGA (1024 x 768) 16M Colours	Yes	Resistive, Yes	2Front USB	HMIDT732
15" format 16:9	FWXGA (1366 x 768) 16M colors	Yes	Capacitive, Yes	2Front USB	HMIDT752
19" format 16:9	FWXGA (1366 x 768) 16M colors	Yes	Capacitive, Yes	2Front USB	HMIDT952

Advanced Display

Description	Display Type	Auto Brightness	Multi-touch	Comm. ports	Reference
7" format 16:9	WVGA (800 x 480) 262K Colours	No	No	Rear USB	HMIDT351
10" format 16:9	WXGA (1200 x 800) 262K Colours	No	No	Rear USB	HMIDT551
12" format 16:9	WXGA (1200 x 800) 262K Colours	No	No	Rear USB	HMIDT651

Note: For front mount USB order XBTZGUSB. Just change screen on existing box module for switching to large or small screen.



N

Harmony HMI

Product configurator
on se.com/nz

Human-machine interface GTUX eXtreme Panels Rugged Outdoor HMI



Vijeo Designer

Harmony GTUX is a modularly designed robust terminal suitable for harsh outdoor environments. Features like high brightness and UV protection to direct sunlight, protection against water and dust, and supporting a wide range of temperatures make it an ideal choice for direct outdoor operation in O&G, WWW, and MMM segments.

Harmony eXtreme panels can be used in applications like smart energy generation (solar, wind turbine, biomass, hydropower genset, etc.), hoisting, compressor, pumping, and car charging/washing.

Harmony GTUX eXtreme panels can be configured using Vijeo Designer software. This software has an advanced user interface with many configurable windows enabling projects to be developed quickly and easily.



Front view

Sunlight readable

- > Clear visibility and resistant under direct sunlight
- > High brightness LCD (1,000 cd/m²)
- > Anti-reflection (anti-glare surface)
- > Maximum brightness (no overlay, glass touch panel)



Robustness

- > UV protected surface design and gasket
- > Dust proof and water proof (IP66F)
- > Wide temperature range (7" and 12" W: -30 °C...+70 °C, 15" W: -20 °C...+60 °C)
- > Resistant against shocks (40G) and vibrations (2G)



Front view

Environment adaptability

- > Atmospheric resistance with conformal coating (fully coated, corrosive gas class 3C3). This treatment increases the isolation capability of the circuit boards and their resistance to condensation, dusty atmospheres, and chemical corrosion.
- > Environmental standards: UL Haz Loc (Class 1 Div. 2)
- > Low-voltage range of 12 V...24 V dc (10.8 V...28.8 V ac)

Easy maintenance

- > Modular design (Box + Display)
- > Removable system card
- > Batteryless design



Box Module

Harmony GTUX eXtreme Box modules

Operating System	App memory	Backup memory	Number of ports	Class 3C3	Reference
Real time OS	1 x GB SD card	512KB (NVRAM)	2 x Ethernet, 2 x USB (Type A), 2 x Serial, 1 x USB (Mini-B)	Yes	HMIG3XFH

Note: GTUX is configured by only Vijeo Designer V6.2 SP8 & above in standalone mode.



Display Screen

Harmony GTUX eXtreme Display panels

Display Size	Resolution (pixels)	Colors	Touch type	Conformal Coating Class 3C3	Reference
7 "W	800 x 480 (WVGA)	262K	Single touch	Yes	HMIDT35XFH
12.1"W	1280 x 800 (WXGA)		analog resistive		HMIDT65XFH
15.6"W	1366 x 768 (FWXGA)				HMIDT75XFH

Harmony HMI

USB accessories



USB accessories can be configured and controlled from the Harmony HMI but please check compatibility of specific accessories with specific Harmony HMI Range before selection.

Illuminated switch annunciator

Description	Power supply	Mounting	Reference
5 Push Button switches and LED backlights	5VDC (via USB)	Ø 22mm PB Hole	HMIZRA1

Biometric switch

Stores up to 200 fingerprints configurable from the HMI.



Description	Power supply	Mounting	Reference
Bistable USB Biometric switch with PNP output RYPD	24VDC	Ø 22mm PB Hole	XB5S8B2L2

Accessories such as protective covers, locking nuts and USB extension cables are available.

Towerlight

Configurable tower light, 60mm, multi colour, with buzzer.

Description	Power supply	Reference
With 100mm aluminium mounting tube	5VDC (via USB)	XVGU3SHAV
With direct base mounting	5VDC (via USB)	XVGU3SWV



Harmony iPC

Product configurator
on se.com/nz

Industrial panel PC's
S-Panel PC

Harmony panel PC's

- > The panel PCs are an all-in-one PC with touchscreen. They are designed as true industrial PCs with certifications such as UL, ATEX, marine and C-tick.
- > The PCs are rugged with options for harsh environments and maintenance free operation.
- > 240VAC options available



Operator
Terminal
Expert

Vijeo Citect

Optimum S-Panel PC HMIPSO

Description	Resolution	CPU	RAM	Storage	Expansion slots	Power supply	Comm ports	OS	Reference
10.1" Panel PC (LED Colour TFT LCD)	HD WSVGA 1280 x 800 Wide Multi touch capacitive screen 267k colors	ATOM E3827 dual core 1.75Ghz	4GB DDR3	HDD 500GB	1 optional full-size mini PCIe slot with optional interface slot	24V DC Supply	1 RS232 1 RS485/RS422 2 USB 2 Ethernet HDMI	Win 10 IoT Enterprise 64 bits	HMIPSOH552D1801
				SSD 80GB				Win 10 IoT Enterprise 64 bits	HMIPSOS552D1801
				CFAST 16GB				WES7 64 Bits	HMIPSOC552D1W01
				No Storage				No OS	HMIPSO0552D1001
15.6" Panel PC (LED Colour TFT LCD)	HD FWXGA 1366 x 768 Wide Multi touch capacitive screen 16M colors	ATOM E3827 dual core 1.75Ghz	4GB DDR3	HDD 500GB	1 optional full-size mini PCIe slot with optional interface slot	24V DC Supply	1 RS232 1 RS485/RS422 2 USB 2 Ethernet HDMI	Win 10 IoT Enterprise 64 bits	HMIPSOH752D1801
				SSD 80GB				Win 10 IoT Enterprise 64 bits	HMIPSOS752D1801
				CFAST 16GB				WES7 64 Bits	HMIPSOC752D1W01
				No Storage				No OS	HMIPSO0752D1001

Note: Operator Terminal Expert RT Demo to be installed and activated by unlimited license. Vijeo Citect DVD is only for installation. Software activation license to be ordered separately.



Operator
Terminal
Expert



Harmony iPC

Industrial PC displays iDisplay Screens

Harmony iDisplay



HMIDID64DTD1

Harmony iDisplay screens are monitors with industrial flat screens designed for use in conjunction with PCs. Harmony HMIDID enhances user experience and efficiency by multi-touch support like a smartphone. The 4:3 auto-scaler format screens of iDisplay adapt to screen definition.

Certified in accordance with PLC product standards, designed for use in severe industrial environments and offering an excellent screen size/dimensions ratio, they can be installed easily on any machine and in any equipment. They are suitable for use in any type of environment

Size	Resolution	Monitor input	Touch panel connection	Power supply	Comm ports	Reference
12.1" TFT HD LCD	XGA resistive 1024 x 768	DVI-D	USB	12-24V DC	1 USB 2.0 (Type A front) 1 DVI-D	HMIDID64DTD1
15" TFT HD LCD	Multi touch 16M colors				1 USB 2.0 (Type B)	HMIDID73DTD1

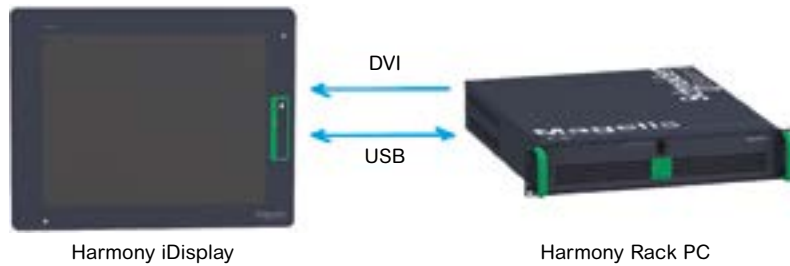
Note: Supplied with 5 m/16.40 ft DVI-D and USB cables.

*Mounting options - Panel on front enclosure or VESA 100 x 100 on the rear of iDisplay.

*iDisplay adaptation plate from 19" to 15" HMIYAD1915D1 is also available.

DVI-D cable for connecting Magelis iDisplay to HMIG5U2 Open Box is available HMIYCABDVI1011.

For 19" Display screen, Modular display HMIDM9521 with Display adaptor HMIDADP11 option available, Display and USB cable have to be ordered separately for display & touch signal.



Harmony iPC

Industrial Box PC IIoT Edge Box & HMIBM Box PC



Operator Terminal Expert



Harmony IIoT Edge Box

The new Harmony Edge Box & iPC offer meets IIoT challenges at the Edge Control level of EcoStruxure, the Schneider Electric IIoT architecture. They enable secured communication from connected products on the shop floor to the required software and applications on the top floor improving profitability and offering new business opportunities through enhanced asset performance for more efficient operation and maintenance of capital assets. They offer smart application design and engineering to leverage asset performance, with end-to-end cybersecurity.

The comprehensive range of intuitive Edge Box and industrial PCs provides solutions to applications that need to run on Windows or Linux operating systems in industrial environments. Harmony HMIBSC/HMIBMI/HMIBMO can be used for IIoT at the edge for direct connection to Cloud applications (running Node-RED to wire from OT (Operational technology) to IT (Internet technology)) with enhanced cybersecurity by design. Harmony iPC (Formerly Magelis iPC) and Edge Box runs Node-RED to wire devices on the Industrial Internet of Things. Node-RED is a simple, open source graphical programming tool for designing the communication data flow from OT to IT.



HMIBSC Edge Box



HMIBSC Core Edge Box

Software & interface	CPU	RAM	Storage	Slots	Power Supply	Comm Ports & Interface	OS	Reference
Node-red Pre-installed. Secure boot, TPM (Trusted platform module) for cyber-security	Qual-comm ARM Cortex-A53 fanless processor Quad core (upto 1.2GHz)	1GB DDR3 (not user expand-able)	8GB eMMC (soldered and not user-expand-able)	1x full-size mini PCIe slot ,1x M.2 slot for extension (Cellular 4G and Analog I/Os), 1x SD card slot	24 VDC Supply or 100...240 VAC with power adapter HMIYPSOMAC1	2x Ethernet, 1x Serial, 2x USBs, 1x DP,1x HDMI, Wifi & Bluetooth embed- ded, 1x for WLAN antenna, 1x for GPRS antenna,8x GPIO (Digital General Purpose I/O)	Linux Yocto	HMIBSCEA53D1L0T
Secure Boot, Node-red pre-installed, Connector for optional TPM module*		2GB	64GB eMMC					HMIBSCEA53D1L01 HMIBSCEA53D1L0A*

Note*: HMIBSCEA53D1L0A is conformally coated core Edge Box. TPM module to be ordered separately HMIYBINLTPM201

Industrial Box PC IIoT Edge Box & HMIBM Box PC



HMIBMI Edge Box



HMIBMO Edge Box

HMIBMI Basic / HMIBMO Optimised Modular Edge Box

Software & interface	CPU	RAM	Storage	Slots	Power Supply	Comm Ports	OS	Reference
Secure Boot, Node-red pre-installed, Connector for optional TPM module*	Intel Atom Apollo Lake E3930 Dual core (1.8 GHz)	4GB DDR3 (not user expandable)	64GB eMMC (soldered)	1x mini PCIe full slot with optional interface	DC Supply or 100...240 VAC with power adapter HMIYPSOMAC1	2 Gigabit Ethernet, 1x Serial, 2x USBs, 1x display port, 1x HDMI, 2x for WLAN antenna, 1x for GPRS antenna	Win10 IoT enterprise 64 bit	HMIBMIEA5DD1E01
Secure boot, Connector for optional TPM module*			128GB eMMC					HMIBMIEA5DD1101
			64GB eMMC					HMIBMIEA5DD110L
			128GB eMMC				No OS	HMIBMIEA5DD1001
								HMIBMIEA5DD100A*
Node-red Pre-installed. Secure boot, TPM module			64GB M.2 SSD	1x mini PCIe full slot without optional interface			Win10 IoT enterprise 64 bit	HMIBMOMA5DD1E01
Secure boot, Connector for optional TPM module*			No Storage					HMIBMOMA5DD1101
			250GB M.2 SSD	1x mini PCIe full slot with optional interface			No OS	HMIBMOMA5DDF10L
			No Storage					HMIBMO0A5DDF101
		8GB DDR3						HMIBMO0A5DDF10A

Note*: HMIBMI / HMIBMO edge box can be mounted on HMIDM Display Screens (12"W to 22"W) for panel PC option. HMIBMIEA5DD100A is conformally coated edge box.



Harmony iPC

Industrial Box PCs
IIoT Edge Box & Modular HMIBM Box PC

HMIBM Box PC



HMIDM Display

Harmony HMIBM modular box PC

Magelis HMIBM Modular Box PCs support advanced automation applications requiring Windows operating systems, with powerful CPUs, expansion capabilities, high-availability options (RAID HDD, UPS), and advanced certifications. Their modularity means that HMIBM Box PCs can be converted to Panel PCs by combining them with HMIDM Displays.

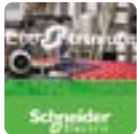
Harmony iPC

Industrial Displays HMIDM display screens

HMIBM Box PC



HMIDM Display



EcoStruxure
Operator
Terminal
Expert



Please supply HR images

Harmony HMIDM display screen

Harmony HMIDM Modular Displays are monitors designed to be easily integrated with Harmony HMIBM Modular Box PCs to make a Panel PC. In addition to multiple choices, the modularity feature reduces maintenance as the Display or the Box PC can be independently replaced without changing the complete Panel PC.

Harmony HMIDM7421 4:3 15" and HMIDM7521 16:9 15" screens are cULus Industrial Control and Hazardous Locations, IECEx ATEX, and Marine DNV certified. When mounted with HMIBM Modular Box PCs with similar certifications, these displays can be used for advanced automation applications.

HMIDM Display screens

Size	Resolution	Screen properties	Power supply	Reference
12" LED Colour TFT LCD	4:3 display ratio XGA 1024x768	Single touch resistive	24V DC Supply	HMIDM6421
12" LED Colour TFT LCD	Wide 16:9 display ratio WHD/WXGA 1280 x 800	Multi touch capacitive		HMIDM6521
15" LED Colour TFT LCD	Wide 4:3 display ratio XGA 1024 x 768	Single touch resistive		HMIDM7421
15.6" LED Colour TFT LCD	Wide 16:9 display ratio WHD/FWXGA 1366 x 768	Multi touch capacitive		HMIDM7521
18.5" LED Colour TFT LCD				HMIDM9521
21.5" LED Colour TFT LCD	Wide 16:9 display ratio Full HD /FWXGA 1920 x 1080			HMIDMA521

Note: HMIDM display can only be used with HMIBM Box PC.

Display Adaptor HMIDADP11 is also available for remote mounting HMIDM Screen with HMIBM Box PC.

Harmony P6 IPC - CTO

Harmony HMIP6 connects OT (Operational Technology) in the field to IT (Information Technology) for the Industrial Internet of Things. With Node-RED, WiFi, Bluetooth, and Windows operating system running on a Intel Core/Celeron CPU, it is well equipped to wire the Internet of Things. This range features interface modularity with slot-in design for HDD/SSD, optional interfaces, and optional PCI/PCIe slots for Advanced Box only. The two standard Ethernet ports allow OT and IT communications to be separated if necessary. The secure password boot and TPM encryption module afford a high level of cybersecurity by design. The Harmony HMIP6 offer comprises Advanced and Standard boxes, each equipped with:

*Advanced Modular Box PC

- > Intel Core/Celeron processor and UHD Graphics accelerator
- > Operating system: Windows® 10 IoT Enterprise 2019 LTSC (64-bit)
- > Connection ports: USB Type A (2x USB 2.0 and 2x USB 3.0), USB Type C (1x USB 3.0), 1x COM RS-232C, 2x RJ45 Ethernet, 1x Display port
- > Expansion slots: 1x PCI + 1x PCIe, 2x PCIe or 2x PCI
- > Storage: 1x M.2 SSD SATA, 2x 2.5-inch SATA (HDD/SSD)
- > Power supply: 12...24 V c, 100...240 V a
- > Default TPM module for encryption

* Standard Modular Box PC

- > Intel Core processor and UHD Graphics accelerator
- > Operating system: Windows 10 IoT Enterprise 2019 LTSC (64-bit)
- > Connection ports: USB Type A (2x USB 2.0 and 2x USB 3.0), USB Type C (1x USB3.0), 1x COM RS-232C, 2x RJ45 Ethernet, 1x Display port
- > Storage: 1x M.2 SSD SATA, 1x 2.5-inch SATA (HDD/SSD)
- > Power supply: 12...24 V c, 100...240 V a
- > Default TPM module for encryption

The HMIP6 Modular Boxes are ordered using the Product Configurator.

For more information on the Configured-to-order options: www.se.com/nz/en/product-range/22953172-harmony-p6

Harmony HMIP6 PCs are supported by Schneider Electric HMI software. Windows, EOTE and Harmony HMIP6 running with EcoStruxure Machine SCADA Expert can be selected from the on-line configurator as to deliver best-in-class technology and performance for your business applications.

For secure remote access, Harmony HMIP6 are supported with EcoStruxure Secure Connect that is installed and can be activated with subscription option

Note*: P6 Offer replaces HMBMU/HMIBMP Universal & Performance IPC Offers direct equivalents are easily selected via the CTO Tool or product code (BOM) options can be provided on request, a full line of display options are also available for selection with your configured IPC Box



HMI Configuration Software

Vijeo Designer for Harmony touchscreen HMIs and industrial PC's



Vijeo Designer

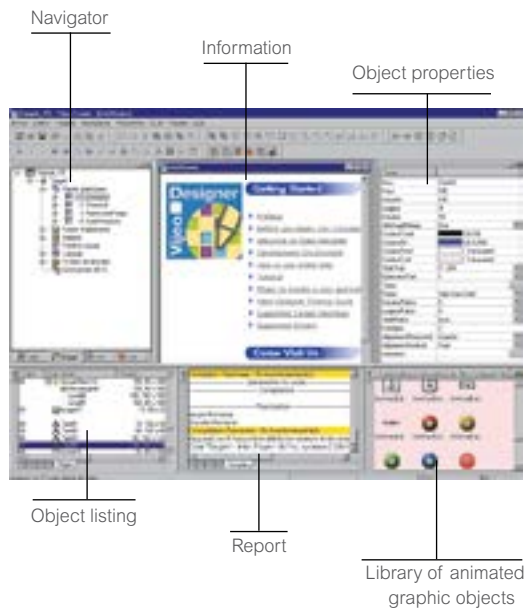
Vijeo Designer configuration software enables creation of automated system control operator dialogue applications for all Harmony terminals (except N, R, RT models). It also enables management of the multimedia functions of Smart & Compact i PC (video and audio) and offers users of Ethernet terminals and iPC remote access via a Web browser (WEB Gate function).

Configuration

Vijeo Designer configuration software enables fast, simple processing of operator dialogue projects thanks to its ergonomics, developed around 6 configurable windows.

It also offers comprehensive application management tools:

- > Project creation; projects comprising one or several applications.
- > Recipe editor (32 groups of 64 recipes of max. 1024 ingredients).
- > User action list (eg. script) for application adaptability.
- > Application variable cross-referencing.
- > Vectorial graphic library for more attractive graphic screens.
- > Application block diagram documentation.
- > Simulation mode for simple design office application testing.
- > High-performance graphic editor for simple block diagram creation (over 30 animated preconfigured objects).
- > Support of layers and masks for faster development.
- > Data sharing (up to 300 variables on 8 terminals).
- > Management of 40 languages (including simplified Chinese, Korean, Arabic and Hebrew).
- > Programmable controller database sharing (Unity, PL7, Concept, ProWORX, ModSoft).
- > Advanced traceability function (periodic, at event or on request).
- > Project backup on terminal for simple maintenance.
- > User-friendly data recovery tool.
- > Support of standard USB peripherals (USB key up to 2 GB).
- > Support of external USB keyboards and mice.
- > Integration with Schneider Electric equipment (buffer diag., variables access...)
- > Over 35 third party protocols
- > Multilingual software: English, French, German, Italian, Spanish and Chinese.



HMI Configuration Software

EcoStruxure Operator Terminal Expert – Formerly Vijeo XD for Harmony HMI and industrial PC's



Operator Terminal Expert

Operator Terminal Expert is an HMI configuration software developed to create and edit application screens that control automation systems for Harmony GTU terminals (Standard, Open & Premium Box), STO7, ST6 and Magelis industrial PCs (Panel and BOX).

OPE software supports features like intuitive and simple-to-use user interface, easy access to functions and information, multi-platform working environment, and reduced down-time. This software also reduces the design time by reusing the existing operations.

Configuration

OPE is an intuitive configuration software that enables operator dialogue projects to be processed quickly and easily using the 5 configurable windows:

The software also offers a complete set of application management tools for:

- > Recipe management (256 family groups of 256 groups of 256 recipes with up to 1024 ingredients) - (data size can be used as needed)
- > A full simulation mode for testing the application from the design office
- > Retrieval of symbol files for PLC variables generated by TwidoSuite, PL7, Concept, ProWORX 32 and Control Expert Software (1)
- > Intuitive and simple-to-develop user interface
- > Templates and theme design selection
- > Online modification of project
- > Multi-touch, zoom in/zoom out, slide, stretch like a tablet
- > Vector Graphic engine
- > Zoom in/out for more or less detail
- > Animation features with rotating objects and dynamic drawings.



Note

(1) DDT structured types and "unlocated" variables are supported.




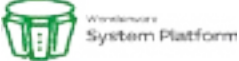
SCADA software solutions

Industrial software solutions

Optimise your process & drive increased operational value with a suite of Wonderware software solutions

Software application map

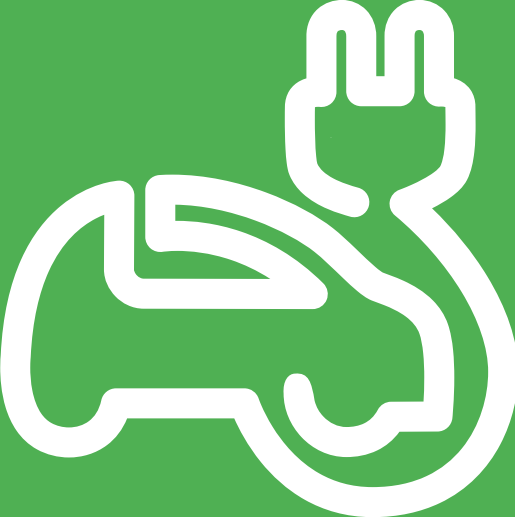


	<p>Geo SCADA Expert (GeoSCADA) Your new go to solution for efficient management of remote assets spread across geographically dispersed infrastructure, with secure and reliable capabilities and easy connectivity to business and IT systems.</p>
	<p>CitectSCADA (Vijeo Citect) Citect SCADA is a fully integrated industrial control solution that will help you increase your return on assets by delivering a reliable, flexible and high performance control and monitoring system. Easy to use configuration tools and powerful graphic features enable you to quickly develop & deploy solutions for any size application.</p>
	<p>Wonderware InTouch InTouch SCADA enables users to quickly create and centrally manage standardized, reusable, industrial applications, maximising return on engineering, shortening project times, reducing risk and significantly reducing cost of ownership.</p>
	<p>Wonderware System Platform Connect your existing SCADA (GeoSCADA, Citect SCADA / Vijeo Citect or Wonderware InTouch) to System platform and build on your current installations with applications from the wonderware software suite to better manage, improve processes and drive increased operational value.</p>

Maintain your investment throughout the lifecycle through Schneider Electric's commitment to providing technology updates and on going, high quality support.

Note: Please contact your sales representative for more information on these solutions.

EVlink

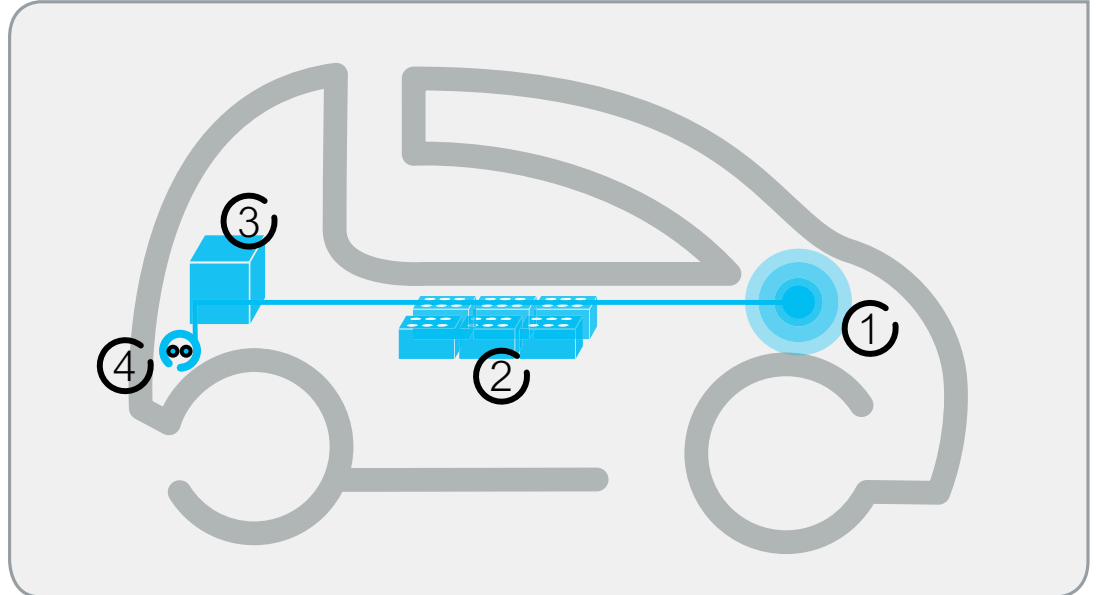


Electric Vehicle Charging Solutions



The Electric Vehicle

How it works



4 major components:

① Motor

The vehicle has one or more motors. Depending on size and performance, the total power ranges between 15 and 200 kW.
Example: 48 kW (65 hp) for a small 4-seater sedan.

② Batteries

Huge advances in battery technology have been made in recent years. Lead has gradually been replaced by other, more efficient compounds. Research continues with a view to improving capacity and reducing weight.

③ On-board charger

The vehicle is fitted with one battery charger supplied in AC by the charging station that defines the maximum charging current available.

In some vehicles the battery charger may also be supplied in DC by the charging station.

④ Charging inlet

The vehicle is fitted with at least one inlet for AC charging. In some vehicles, the inlet can also be used for DC fast charging or is completed by a second inlet for DC fast charging.

The most common technology at present is lithium-ion.

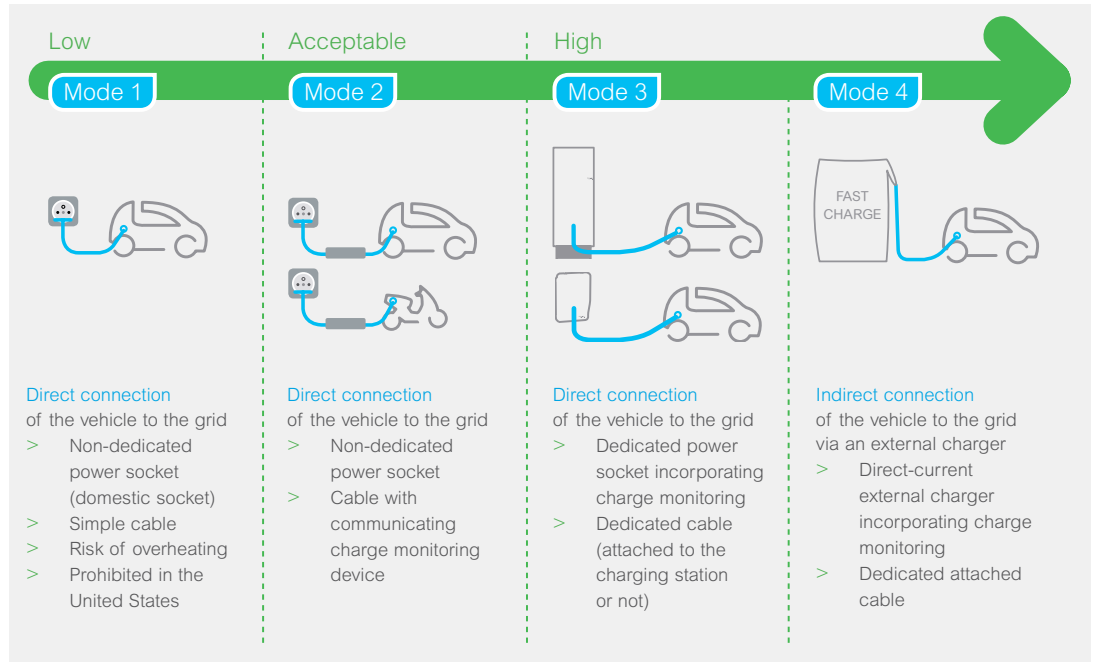
These new batteries have no memory effect and can therefore be charged without having to be completely empty **beforehand**. They are present in telephones, laptop computers, and some aircraft, as well as in electric vehicles.



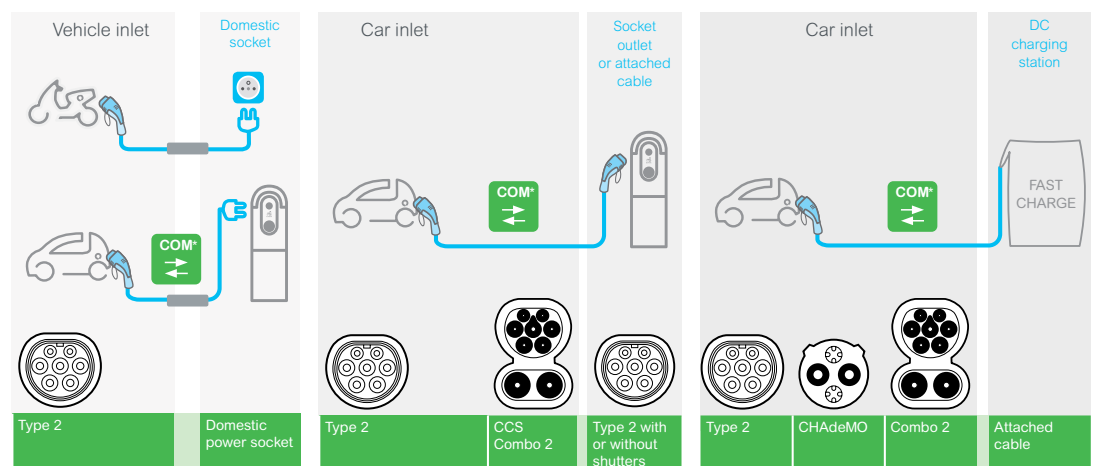
The Electric Vehicle

How it works

> The charging mode determines the protection level









> Mode 2, Mode 3 or Mode 4 determines the type of charging connectors



The Electric Vehicle









How it works

> The effective charging capacity is that of the weakest “link”, for example:

Vehicle charger	Cable/charging mode	Charging point	Effective charging capacity
 7 kW	 2.3 kW (Mode 2)	 Domestic power socket 2.3 kW (Mode 2)	2.3 kW
 7 kW	 7.4 kW (Mode 3)	 Charging station 22 kW	7.4 kW

> The power of the source determines the charging speed*

Example: for a vehicle with a 40 kWh battery:

Source used	Domestic power socket	Dedicated AC power socket		Dedicated DC power socket
Power	Single-phase: 2.3 kW	Single-phase: 7.4 kW	Three-phase: 22 kW	Three-phase: 24 kW
Time to a full charge	 18 h	 7 h	 2h30 min	 2h
% of charge reached in 30 min	 3%	 7%	 20%	 25%

* Subject to the use of a suitable cable.

Focus on technology

Electrical distribution architecture

Standalone

One or several charging stations can be connected to the same protection panel.

Each charging station operates independently.

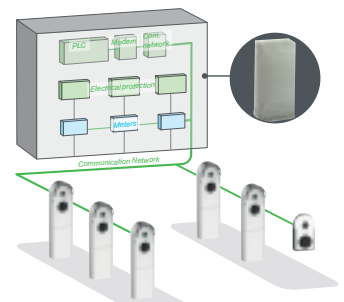
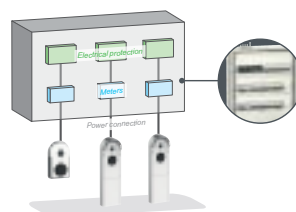
They are protected upstream and their consumption can be measured. The charging stations can be connected to a supervision solution.

Clustered

An alternative way is to manage energy availability:


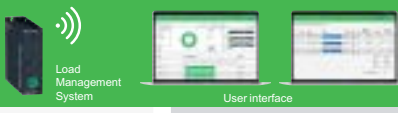





[EcoStruxure EV Charging Expert](#).

This makes it possible to consider various needs related to the use of the vehicles that will be charged. A cluster consists of between 3 and 1000 charging stations, controlled by [EcoStruxure EV Charging Expert](#) and a power meter, 3G/4G modem, etc., that can be connected to a supervision solution.



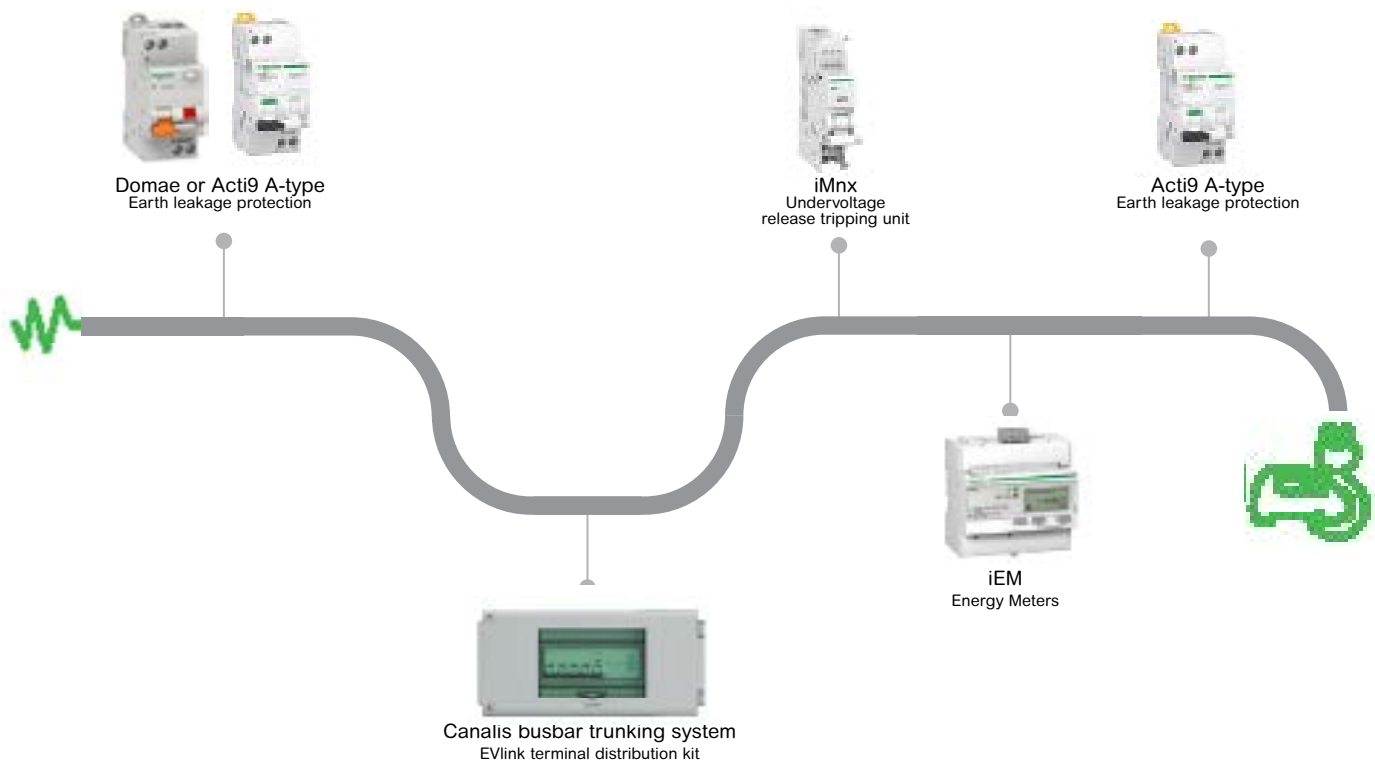
The Electric Vehicle

eMobility solutions Panorama per Applications

	HOMES Single Family Home	BUILDINGS > Multifamily Home	> At work	> At destination	FLEETS Everywhere
APPS, ANALYTICS AND SERVICES	eMobility Services Maximize the performance of your EV infrastructure and keep your assets running in optimum condition throughout the whole lifecycle, from consulting through to modernization.				
EDGE CONTROL	EVlink Home anti-tripping system 	EcoStruxure™ EV Charging Expert A charging load management system that helps you to efficiently control your EV infrastructure and smartly distribute available power to your charging stations. 			
CONNECTED PRODUCT	EVlink Home 	EVlink Pro AC EVlink Pro AC Metal 	EVlink Pro AC EVlink Pro AC Metal 	EVlink Pro AC EVlink Pro AC Metal 	EVlink Pro AC EVlink Pro AC Metal 

Electrical distribution for eMobility

From grid to EV





Capture the growing EV charging market with a simple and easy-to-install residential EV charging solution

EVlink™ Home



Looking to gear your business up to maximise the growing New Zealand EV residential charging market?

EVlink Home is a **simple and easy-to-install** charger that **protects the asset (car) and user**, ensures the right charge in residential settings, minimises peak impacts, and avoids power overruns - all at an affordable price.

It also allows a **convenient charge of the vehicle at home** without impacting power availability.

Please be aware this EV charger does not contain any smart home app connectivity options.



Key features:

- In-built RDC-DD
- 1Phase: **7.4kW** | 3Phase: **11kW** options
- Wall mounted
- Attached cable 5m or Type 2 socket
- Compatible with home anti-tripping system (Peak Controller)
- CTs are included with Peak Controllers
- Certification IEC 61851-1 Ed. 3.0
- RCM GMA-513376

Electric Vehicle charging solutions

Residential chargers for single family homes



EVlink™ Home and Home Smart

Characteristics		Reference (1)
		EVlink Home
T2	3.7 kW (1P - 16 A)	EVH4S03N2
	7.4 kW (1P - 32 A)	EVH4S07N2
	11 kW (3P - 16 A)	EVH4S11N2
Charging stations with attached cable (5 m)		
	3.7 kW (1P - 16 A)	EVH4S03NC
	4 kW (1P - 32 A)	EVH4S07NC
	11 kW (3P - 16 A)	EVH4S11NC
Accessories		Reference
Peak controller		
1 Phase Universal Peak Controller		EVA1HPC1
3 Phase Universal Peak Controller		EVA1HPC3

EVlink™ Pro AC

Unique features

User-friendly

- Ease of daily operation - bright LED light give clear visual indicators of status for users
- Commissioning time reduced by up to 80% using new e-setup app (mobile friendly)
- Schneider Electric™ user resources easily accessible online including video guides to support first time EV charger users

Advanced Connectivity

- Schneider Electric e-setup app used for ease of commissioning on-the-go and ongoing maintenance
- Reduce commission times with the ability to pre-load configurations
- Remote monitoring: tested to be compatible with major charging platforms
- Robust free-standing outdoor metal kit available for public charging applications, with dual outlet options
- Schneider Electric internal servicing team available for commissioning and ongoing maintenance
- Smart charging
- OCPP 1.6 Json
- Modbus
- Plug-in 3G/4G modem option available

Sustainability

- Circularity profile
- Green Premium™ label
- Repairability

Reliability and safety

- Robust products:
 - Individually factory tested and certified
 - Compliant with latest strict European guidelines such as IEC61851 and “Plug & Charge”
- In-built RDC-DD 6mA protection, requiring only Type A protection upstream
- MNx (Under voltage tripping auxiliary protection embedded in the charger)

Return On Investment

- Serviceable components stocked locally for ease and speed of replacement
- IP55 - best in class suitable for outdoor use in harsh NZ environments
- IK10 - Commercial grade impact resistance
- Accurate 1% or better metering for fair and reliable user billing



Benefits

- Schneider Electric EVlink Pro AC, the next generation of charging stations for electric vehicles
- EVlink Pro AC:
 - Enables reliable & sustainable smart charging for residential multi-dwelling developments and commercial buildings
 - Scalable - future flexibility and expansion while being backwards compatible with legacy hardware
 - Ease and speed of commissioning reducing time needed on site
 - Built to last and reduce ongoing costs with options to service/repair
 - Ready for vehicle to grid
 - Maximise power availability & TOU using Schneider Electric dynamic load management

Electric Vehicle charging solutions

Commercial chargers for Buildings, Fleet & Infrastructure



EVlink™ Pro AC

Characteristics	Reference
Charging stations with socket outlet	
EVlink Pro AC 7.4 kW 32 A 1PH T2S TE SOCKET 6 mA MNX MID	EVB3S07N40M
EVlink Pro AC 7.4 kW 32 A 1PH Attached Cable 6 mA RCD-DD and MNX supplied	EVB3S07NC0
EVlink Pro AC 22 kW 32 A 3PH T2S SOCKET 6 mA MNX	EVB3S22N4
EVlink Pro AC 22 kW 32 A 3PH T2S SOCKET MID 6 mA and MNX supplied	EVB3S22N40M
EVlink Pro AC 7.4 kW 32 A 1PH Attached Cable 6 mA RaCD-DD and MNX supplied	EVB3S22NC0
EVlink Pro AC 22 kW 32 A 3PH Attached Cable MID 6 mA and MNX supplied	EVB3S22NC0M



Accessories

	Reference
Pack of 10 RFID Badges	EVP1BNS
Cable holder for EVlink Pro AC Metal charger	EVA1FWHS12
Permanent T2S socket cable holder EVlink Pro AC	EVA1PLS1



	Reference
Pedestal	
Pedestal for 1 EVlink Pro AC Charger	EVA1PBS1
Pedestal for 2 EVlink Pro AC Chargers	EVA1PBS2
Plate to convert Pedestal for 1 charger to Pedestal for 2 EVlink Pro AC	EVA1PCS2



	Reference
Metallic kits	
EVlink Pro AC Metal wall mount 1 charge point kit	EVA1RWKS1
EVlink Pro AC Metal floor standing 1 charge point kit	EVA1RFKS1
EVlink Pro AC Metal floor standing 2 charge points kit	EVA1RFKS2

	Reference
Enclosures	
Thalassa PLS box kit IP66 power cable 25 35²	EVA1RFKES

	Reference
Communication interface	
4G kit - embedded modem with 2 internal antennas for EVlink Pro AC	EVA1MS
4G kit - embedded 4G modem with an external antenna for EVlink Pro AC Metal	EVA1MM
Kaedra enclosure	13979
Thalassa enclosure	EVA1RFKES



Charging cables

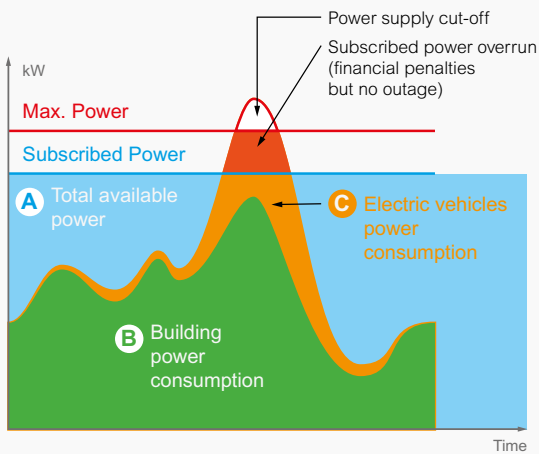
EVlink charging cables	Reference
T2-T2 plug connector 32 A 1 Phase 5 m length	EVP1CNS32122
T2-T2 plug connector 32 A 1 Phase 7 m length	EVP1CNL32122
T2-T2 plug connector 32 A 1 Phase 10 m length	EVP1CNX32122
T2-T2 plug connector 32 A 3 Phase 5 m length	EVP1CNS32322
T2-T2 plug connector 32 A 3 Phase 7 m length	EVP1CNL32322
T2-T2 plug connector 32 A 3 Phase 10 m length	EVP1CNX32322

Energy management

How to optimize the impact of consumption of EV charging infrastructure on an electrical installation

> The problem

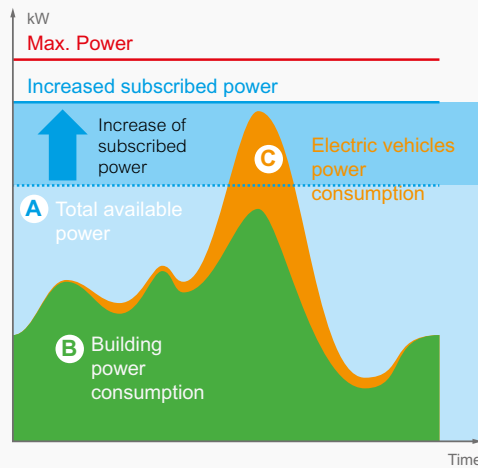
Initial situation



The installation of charging stations in an existing electrical installation can have a significant impact due to the power level required by electric vehicles to charge.

> Solution without energy management

Increase of subscribed power



This solution consists of increasing the power subscribed to the energy supplier to maintain the same consumption model. It implies an increase in the cost of the subscription and does not guarantee that the trigger threshold will never be exceeded. Thus the continuity of service of the building is not guaranteed.



Energy management: why do it?

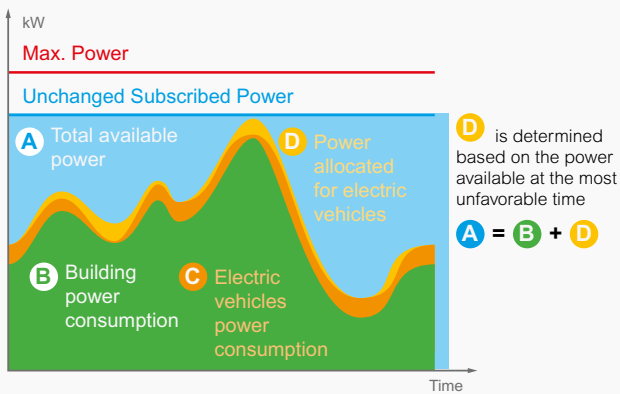
- Avoids facility disruption, causing operating losses
- Reduces power and electrical infrastructure costs
- Makes operations more efficient
- Increases driver satisfaction.



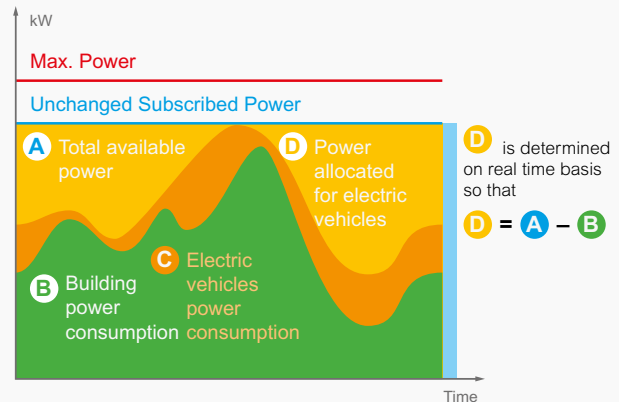
> Schneider Electric solutions

Static energy management

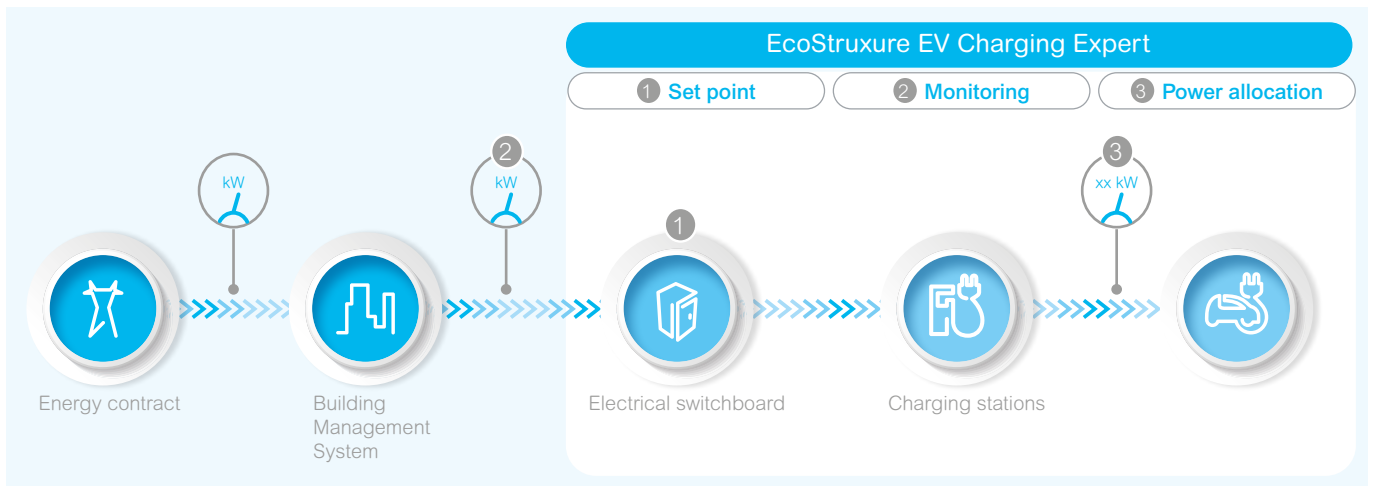
Dynamic energy management



Setpoint "D" is fixed. The power is distributed between all connected vehicles.



Setpoint "D" is adjusted in real time according to the consumption of the rest of loads in the building, to maximize the power allocated to charging electric vehicles.



- 1 Defining maximum power with a dynamic or static current setpoint
- 2 Metering the facility and charging stations consumptions
- 3 Algorithms to allocate power to electric vehicles based on real-time needs and availability

EcoStruxure™ EV Charging Expert

Monitor, control and maximize EV charging based on the real-time available power in your building.



Peace of mind

Maximized continuity of service all while providing fair and controlled EV charging services



Cost effective

Minimum infrastructure upgrade
On-peak/off-peak tariff settings



Connected offer

Connection to embedded dashboard for supervision and control, to a CPO backend or to BMS



Upgradeable and scalable

Upgrade to a higher level software license to adapt to your evolving EV charging needs



Easy installation & commissioning

With a configuration assistant and features such as automatic scan of chargers



Easy operation

With user access management and charging sessions data registering



Easy maintenance

With remote charging station control and logs data registering



EcoStruxure EV Charging Expert is the perfect solution for fleets, private company parking or condominiums to enjoy EV charging services all while ensuring an optimized use of energy and a cost-effective and sustainable operation.

EcoStruxure EV Charging Expert is a Solar Impulse Efficient solution.



Find out more here

Electric Vehicle charging solutions

EcoStruxure™ EV Charging Expert

Characteristics	Reference (1)
Core	
EV Charging Expert Core 5 CS dynamic	HMIBSCEA53D1EDB
EV Charging Expert Core 15 CS dynamic	HMIBSCEA53D1EDS
EV Charging Expert Core 50 CS dynamic	HMIBSCEA53D1EDM
EV Charging Expert Core 15 CS static	HMIBSCEA53D1ESS
EV Charging Expert Core 50 CS static	HMIBSCEA53D1ESM
EV Charging Expert Core 100 CS dynamic	HMIBSCEA53D1EDL
Upgrade	
EV Charging Expert Upgrade dynamic 5 CS to 15 CS	EVLMSedb2EDS
EV Charging Expert Upgrade dynamic 5 CS to 50 CS	EVLMSedb2EDM
EV Charging Expert Upgrade dynamic 5 CS to 100 CS	EVLMSedb2EDL
EV Charging Expert Upgrade 15 CS from static to dynamic	EVLMSess2EDS
EV Charging Expert Upgrade static from 15 CS to 50 CS	EVLMSess2ESM
EV Charging Expert Upgrade from 15 CS static to 50 CS dynamic	EVLMSess2EDM
EV Charging Expert Upgrade dynamic from 15 CS to 50 CS	EVLMSeds2EDM
EV Charging Expert Upgrade from 15 CS static to 100 CS dynamic	EVLMSess2EDL
EV Charging Expert Upgrade dynamic from 15 CS to 100 CS	EVLMSeds2EDL
EV Charging Expert Upgrade from 50 CS static to 50 CS dynamic	EVLMSesM2EDM
EV Charging Expert Upgrade static 50 CS to dynamic 100 CS	EVLMSesM2EDL
EV Charging Expert Upgrade dynamic from 50 CS to 100 CS	EVLMSedM2EDL

Notes

Technical reference charts

Technical information

Reference charts

Calculating short circuit current	P3
Determination of short circuit current	P4
Cascading, network 380/415V	P5-6
Type 1 co-ordination	P7-8
Type 2 co-ordination	P9-10
Direct current distribution	P12-13
ICT contractors selection	P14-15
Motor circuit breaker co-ordination	P16
Soft starter co-ordination	P16-19
Variable speed drive co-ordination	P20-23
Star Delta and contactor selection chart	P24
Average full load motor currents	P25
Technical data	P26

Calculating short circuit current

Maximum short circuit current downstream of an MV/LV transformer
 Selecting CBs supplied by one or more MV/LV transformers

Maximum short circuit current downstream of an MV/LV transformer

The values indicated in the table below correspond to a bolted 3 phase short circuit across the LV terminals of an MV/LV transformer connected to a network with a short circuit power of 500 MVA.

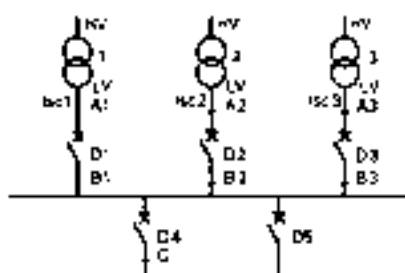
	transformer kVA rating														
433 V (1)	50	100	160	250	315	400	500	630	750	1000	1250	1500	2000	2500	3150
In (A)	66.7	133.3	213.3	333.3	420.0	533.3	666.7	840	1000	1333	1667	2000	2667	3333	4200
Isc (kA)	1.7	3.3	5.3	8.3	10.5	13.3	16.7	21.0	22.2	26.7	30.3	33.3	41.0	47.6	60.0
Usc (%)	4	4	4	4	4	4	4	4	4.5	5	5.5	6	6.5	7	7

Selecting incoming or outgoing circuit breakers according to the number and kVA rating of source transformers

The selection of a circuit breaker protecting a circuit mainly depends on:

- > the rated current of the source or of the load which determines the rating of the equipment,
- > the maximum short circuit current at the point of installation which determines the minimum breaking capacity of the equipment.

Case with several transformers



E.g. If transformers 1, 2 & 3 were rated at 630kVA each, circuit breakers D1, D2 & D3 must have a breaking capacity $\geq 42\text{kA}$.

Circuit breakers D4 & D5 must have a breaking capacity $\geq 63\text{kA}$.

(Note: Special precautions to be taken when cascading with several transformers in parallel).

For the case involving several transformers in parallel (2):

- > the incoming circuit breaker D1 must have a breaking capacity higher than the larger of the following two values:
 - > either I_{sc1} (for a short circuit in B1),
 - > or $I_{sc2} + I_{sc3}$ (for a short circuit in A1),
- > the outgoing circuit breaker D4 must have a breaking capacity higher than $I_{sc1} + I_{sc2} + I_{sc3}$.

Notes

- (1) Rated voltage between phases of the transformer under no-load conditions.
- (2) To connect several transformers in parallel, the transformers should have the same U_{sc} , the same transformation ratio and the same coupling.
 The power ratio between the two transformers should be a maximum of 2.

Determination of short circuit current

Using cable data and upstream short circuit current information

The tables below quickly give a good evaluation of the short circuit current at a point in the network when the short circuit current upstream, the CSA, constitution and length of the cable are known. To obtain more precise values, particularly in the case of major installations, a detailed calculation has to be carried out. In addition, the cascading technique enables a circuit breaker with a breaking capacity less than the prospective short circuit current to be installed downstream provided a current limiting circuit breaker is fitted upstream (see next page).

The values are calculated using the resistivity of copper at 25°C.

Examples (see chart below).

In the 415V switchboard, choose on the line corresponding to the cable cross-sectional area: 70 sq.mm, the nearest lower value to the cable length: 75m. The crossing of this column with the line which corresponds to the nearest higher value of the upstream short circuit current $I_{sc}=25kA$, gives the required short circuit current value: 7kA.

CSA per phase conductor (mm ²)	Length of cable (M)																																			
1.5																	0.8	1	1.3	1.6	3	6.5	8	9.5	13	16	32									
2.5																	1	1.3	1.6	2.1	2.6	5	10	13	16	21	26	50								
4																	0.8	1.7	2.1	2.5	3.5	4	8.5	17	21	25	34	42	85							
6																	1.3	2.5	3	4	5	6.5	13	25	32	38	50	65	130							
10																	0.8	1.1	2.1	4	5.5	6.5	8.5	11	21	42	55	65	85	110	210					
16																	0.9	1	1.4	1.7	3.5	7	8.5	10	14	17	34	70	85	100	140	170	340			
25																	1	1.3	1.6	2.1	2.6	5	10	13	16	21	26	50	100	130	160	210	260			
35																	1.5	1.9	2.2	3	3.5	7.5	15	19	22	30	37	75	150	190	220	300	370			
50																	1.1	2.1	2.7	3	4	5.5	11	21	27	32	40	55	110	210	270	320				
70																	1.5	3	3.5	4.5	6	7.5	15	30	37	44	60	75	150	300	370					
95																	0.9	1	2	4	5	6	8	10	20	40	50	60	80	100	200	400				
120																	0.9	1	1.1	1.3	2.5	5	6.5	7.5	10	13	25	50	65	75	100	130	250			
150																	0.8	1	1.1	1.2	1.4	2.7	5.5	7	8	11	14	27	55	70	80	110	140	270		
185																	1	1.1	1.3	1.5	1.6	3	6.5	8	9.5	13	16	32	65	80	95	130	160	320		
240																	1.2	1.4	1.6	1.8	2	4	8	10	12	16	20	40	80	100	120	160	200	400		
300																	1.5	1.7	1.9	2.2	2.4	5	9.5	12	15	19	24	49	95	120	150	190	240			
2 x 120																	1.5	1.8	2	2.3	2.5	5.1	10	13	15	20	25	50	100	130	150	200	250			
2 x 150																	1.7	1.9	2.2	2.5	2.8	5.5	11	14	17	22	28	55	110	140	170	220	280			
2 x 185																	2	2.3	2.6	2.9	3.5	6.5	13	16	20	26	33	65	130	160	200	260	330			
3 x 120																	2.3	2.7	3	3.5	4	7.5	15	19	23	30	38	75	150	190	230	300	380			
3 x 150																	2.5	2.9	3.5	3.5	4	8	16	21	25	33	41	80	160	210	250	330	410			
3 x 185																	2.9	3.5	4	4.5	5	9.5	20	24	29	39	49	95	190	240	290	390				

Upstream ISC (kA)	Downstream Short circuit current (kA)																									
100	94	94	93	92	91	83	71	67	63	56	50	33	20	17	14	11	9	5	2.4	2	1.6	1.2	1	0.5		
90	85	85	84	83	83	76	66	62	58	52	47	32	20	16	14	11	9	4.5	2.4	2	1.6	1.2	1	0.5		
80	76	76	75	75	74	69	61	57	54	49	44	31	19	16	14	11	9	4.5	2.4	2	1.6	1.2	1	0.5		
70	67	67	66	66	65	61	55	52	49	45	41	29	18	16	14	11	9	4.5	2.4	1.9	1.6	1.2	1	0.5		
60	58	58	57	57	57	54	48	46	44	41	38	27	18	15	13	10	8.5	4.5	2.4	1.9	1.6	1.2	1	0.5		
50	49	49	48	48	48	46	42	40	39	36	33	25	17	14	13	10	8.5	4.5	2.4	1.9	1.6	1.2	1	0.5		
40	39	39	39	39	39	37	35	33	32	30	29	22	15	13	12	9.5	8	4.5	2.4	1.9	1.6	1.2	1	0.5		
35	34	34	34	34	34	33	31	30	29	27	26	21	15	13	11	9	8	4.5	2.3	1.9	1.6	1.2	1	0.5		
30	30	29	29	29	29	28	27	26	25	24	23	19	14	12	11	9	7.5	4.5	2.3	1.9	1.6	1.2	1	0.5		
25	25	25	25	24	24	24	23	22	22	21	20	17	13	11	10	8.5	7	4	2.3	1.9	1.6	1.2	1	0.5		
20	20	20	20	20	20	19	19	18	18	17	17	14	11	10	9	7.5	6.5	4	2.2	1.8	1.5	1.2	1	0.5		
15	15	15	15	15	15	15	14	14	14	13	13	12	9.5	8.5	8	7	6	4	2.1	1.8	1.5	1.2	0.9	0.5		
10	10	10	10	10	10	10	9.5	9.5	9.5	9.5	9	8.5	7	6.5	6.5	5.5	5	3.5	2	1.7	1.4	1.1	0.9	0.5		
7	7	7	7	7	7	7	7	7	7	6.5	6.5	6.5	6	5.5	5	5	4.5	4	2.9	1.8	1.6	1.3	1.1	0.9	0.5	
5	5	5	5	5	5	5	5	5	5	5	5	5	4.5	4	4	4	3.5	3.5	2.5	1.7	1.4	1.3	1.1	0.8	0.5	
4	4	4	4	4	4	4	4	4	4	4	4	4	3.5	3.5	3.5	3	3	2.9	2.2	1.5	1.3	1.2	1.1	0.8	0.4	
3	3	3	3	3	3	3	3	3	3	2.9	2.9	2.9	2.8	2.7	2.6	2.5	2.4	2.3	1.9	1.4	1.2	1.1	0.9	0.8	0.4	
2	2	2	2	2	2	2	2	2	2	2	2	2	1.9	1.9	1.8	1.8	1.7	1.7	1.4	1.1	1	0.9	0.8	0.7	0.4	
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.6	0.5	0.3

P

Cascading, network 380/415 V

Upstream: NG160, Compact NSX100-160
Downstream: Multi 9, Compact NSX100-160

Cascading is the use of the current limiting capacity of circuit breakers at a given point to permit installation of lower-rated and therefore lower-cost circuit breakers downstream. The upstream Compact circuit breakers act as a barrier against short circuit currents. In this way, downstream circuit breakers with lower breaking capacities than the prospective short circuit (at their point of installation) operate under their normal breaking conditions. Since the current is limited throughout the circuit controlled by the limiting circuit breaker, cascading applies to all switchgear downstream. It is not restricted to two consecutive devices. With cascading, the devices can be installed in different switchboards. Thus, in general, cascading refers to any combination of circuit breakers where a circuit breaker with a breaking capacity less than the prospective I_{sc} at its point of installation can be used. Of course, the breaking capacity of the upstream circuit breaker must be greater than or equal to the prospective short circuit current at its point of installation.

Cascading tables are:

- > drawn up on the basis of calculations (comparison between the energy limited by the combination of the two CBs and the maximum permissible thermal stress for the downstream device),
- > verified experimentally.

The tables indicate cascading possibilities between circuit breakers on 415V distribution networks.

Upstream	NG160H	NSX100F	NSX100N	NSX100H	NSX100S	NSX100L
Breaking capacity (kA rms)	36	36	50	70	100	150
Downstream	Reinforced breaking capacity (kA rms)					
iC60N 32 A	25 kA	25 kA	30 kA	30 kA	30 kA	30 kA
iC60N 40 A	25 kA	25 kA	30 kA	30 kA	30 kA	30 kA
iC60H 32 A	25 kA	30 kA	40 kA	40 kA	40 kA	40 kA
iC60H 40 A	25 kA	30 kA	40 kA	40 kA	40 kA	40 kA
C120N	25 kA	25 kA	25 kA	25 kA	25 kA	25 kA
C120H	25 kA	25 kA	25 kA	25 kA	25 kA	25 kA
NG125H			40 kA	50 kA	70 kA	100 kA
NSX100F			50 kA	70 kA	100 kA	150 kA
NSX100N				70 kA	100 kA	150 kA
NSX100H					100 kA	150 kA
NSX100S						150 kA
Upstream	NSX160F	NSX160N	NSX160H	NSX160S	NSX160L	
Breaking capacity (kA rms)	36	50	70	100	150	
Downstream						
iC60N 32 A	25 kA	25 kA	25 kA	25 kA	25 kA	
iC60N 40 A	25 kA	25 kA	25 kA	25 kA	25 kA	
iC60H 32 A	30 kA	30 kA	30 kA	30 kA	30 kA	
iC60H 40 A	30 kA	30 kA	30 kA	30 kA	30 kA	
C120N	25 kA	25 kA	25 kA	25 kA	25 kA	
C120H	25 kA	25 kA	25 kA	25 kA	25 kA	
NG125H		40 kA	50 kA	70 kA	100 kA	
NG160N		36 kA	50 kA	50 kA	50 kA	
NG160H		50 kA	50 kA	50 kA	50 kA	
NSX100F		50 kA	70 kA	100 kA	150 kA	
NSX100N			70 kA	100 kA	150 kA	
NSX100H				100 kA	150 kA	
NSX100S					150 kA	
NSX160F		50 kA	70 kA	100 kA	150 kA	
NSX160N			70 kA	100 kA	150 kA	
NSX160H				100 kA	150 kA	
NSX160S					150 kA	
Upstream	NSX250F	NSX250N	NSX250H	NSX250S	NSX250L	
Breaking capacity (kA rms)	36	50	70	100	150	
Downstream						
iC60N 32 A	25 kA	30 kA	30 kA	30 kA	30 kA	
iC60N 40 A	20 kA	20 kA	20 kA	20 kA	20 kA	
iC60H 32 A	30 kA	30 kA	30 kA	30 kA	30 kA	
iC60H 40 A	25 kA	25 kA	25 kA	25 kA	25 kA	
C120N	25 kA	25 kA	25 kA	25 kA	25 kA	
C120H	25 kA	25 kA	25 kA	25 kA	25 kA	
NG125H		40 kA	50 kA	70 kA	100 kA	
NG160H		50 kA	50 kA	50 kA	50 kA	
NSX100F		50 kA	70 kA	100 kA	150 kA	
NSX100N			70 kA	100 kA	150 kA	
NSX100H				100 kA	150 kA	
NSX100S					150 kA	
NSX160F		50 kA	70 kA	100 kA	150 kA	
NSX160N			70 kA	100 kA	150 kA	
NSX160H				100 kA	150 kA	
NSX160S					150 kA	
NSX250F		50 kA	70 kA	100 kA	150 kA	
NSX250N			70 kA	100 kA	150 kA	
NSX250H				100 kA	150 kA	
NSX250S					150 kA	

Notes

> Refer Compact Catalogue (LVPED208012EN) for more information on cascading and discrimination.

Requirements of AS/NZS3000:2007

Clause 2.5.4.5 "Characteristics of short circuit protective devices" item (a) allows cascading [back-up protection] where the upstream device is rated for the prospective short circuit rating and protects the downstream device and conductors.

Clause 2.5.6.2 "Protection afforded by separate devices" requires co-ordination with overload protective devices.

Cascading, network 380/415 V

Upstream: Compact NSX400-630, NS630b-3200N, Masterpact NT/MTZ1, NW/MTZ2
Downstream: NG160, Compact NSX100-630, NS630b-1600

Upstream	NSX400N	NSX400H	NSX400S	NSX400L	NSX630N	NSX630H	NSX630S	NSX630L
Breaking capacity (kA rms)	50	70	100	150	50	70	100	150

Downstream	Reinforced breaking capacity (kA rms)							
NG160H	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA
NSX100F	50 kA	70 kA	100 kA	150 kA	50 kA	70 kA	100 kA	150 kA
NSX100N		70 kA	100 kA	150 kA		70 kA	100 kA	150 kA
NSX100H			100 kA	150 kA			100 kA	150 kA
NSX100S				150 kA				150 kA
NSX160F	50 kA	70 kA	100 kA	150 kA	50 kA	70 kA	100 kA	150 kA
NSX160N		70 kA	100 kA	150 kA		70 kA	100 kA	150 kA
NSX160H			100 kA	150 kA			100 kA	150 kA
NSX160S				150 kA				150 kA
NSX250F	50 kA	70 kA	100 kA	150 kA	50 kA	70 kA	100 kA	150 kA
NSX250N		70 kA	100 kA	150 kA		70 kA	100 kA	150 kA
NSX250H			100 kA	150 kA			100 kA	150 kA
NSX250S				150 kA				150 kA
NSX400N		70 kA	100 kA	150 kA		70 kA	100 kA	150 kA
NSX400H			100 kA	150 kA			100 kA	150 kA
NSX400S				150 kA				150 kA
NSX630N						70 kA	100 kA	150 kA
NSX630H							100 kA	150 kA
NSX630S								150 kA

Upstream	NS630bN to NS1600N	NS630bH	NS630bL	NS800H	NS800L	NS1000H	NS1000L	NS1250H	NS2000N
Breaking capacity (kA rms)	50	70	150	70	150	70	150	70	70

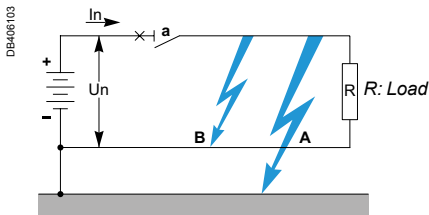
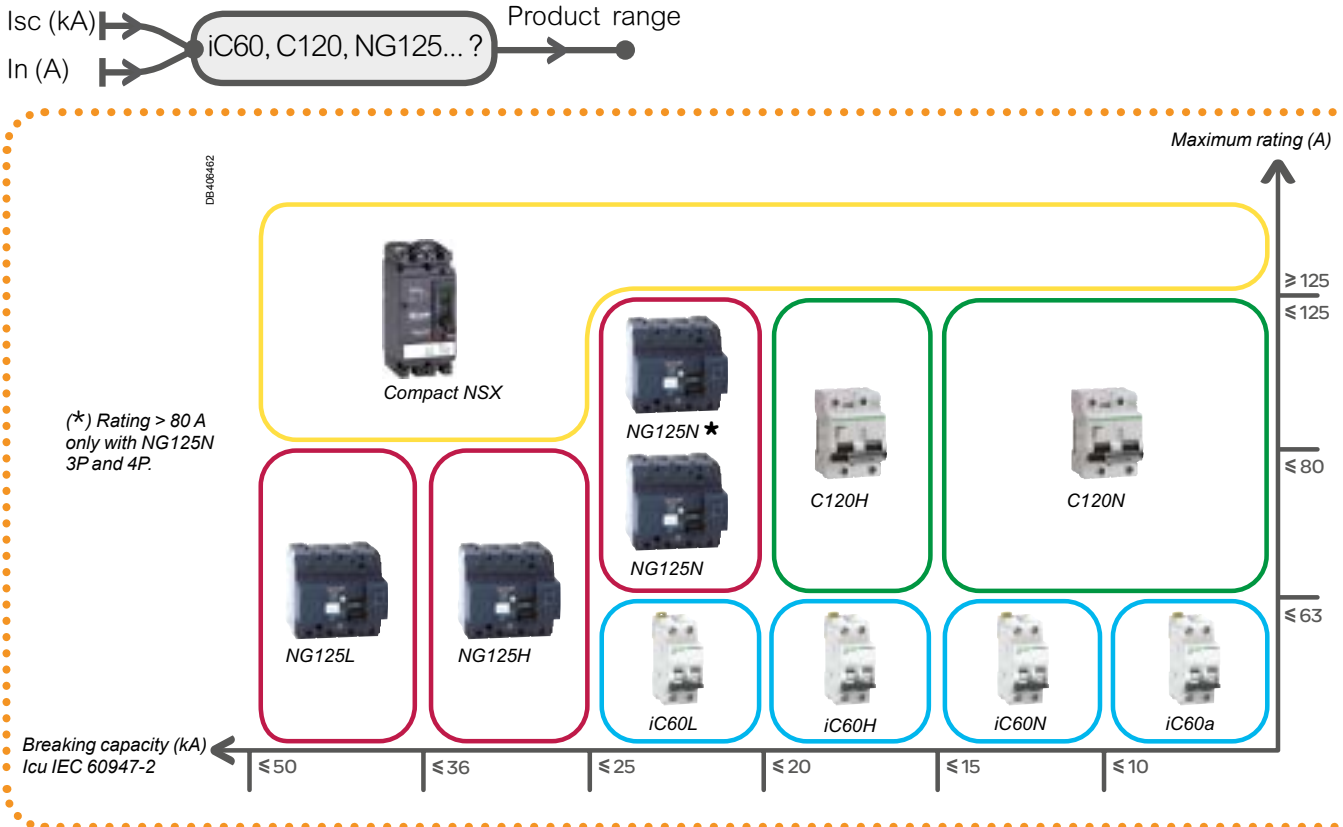
Downstream	Reinforced breaking capacity (kA rms)								
NSX100F	50 kA	70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX100N		70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX100H			150 kA		150 kA		150 kA		
NSX100S			150 kA		150 kA		150 kA		
NSX160F	50 kA	70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX160N		70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX160H			150 kA		150 kA		150 kA		
NSX160S			150 kA		150 kA		150 kA		
NSX250F	50 kA	70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX250N		70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX250H			150 kA		150 kA		150 kA		
NSX250S			150 kA		150 kA		150 kA		
NSX400N		70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX400H			150 kA		150 kA		150 kA		
NSX400S			150 kA		150 kA		150 kA		
NSX630N		70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	
NSX630H			150 kA		150 kA		150 kA		
NSX630S			150 kA		150 kA		150 kA		
NS630bN		70 kA	150 kA	70 kA	150 kA	70 kA	150 kA	70 kA	70 kA
NS630bH			150 kA		150 kA		150 kA		
NS800N				70 kA	150 kA	70 kA	150 kA	70 kA	70 kA
NS800H					150 kA		150 kA		
NS1000N						70 kA	150 kA	70 kA	70 kA
NS1000H							150 kA		
NS1250N								70 kA	70 kA
NS1600N									70 kA

Direct current distribution

Choosing and implementing circuit breakers
Complementary technical information
iC60, C120, NG125 offer

Choosing circuit breakers for distribution with earthed polarity

The following tables show the number of poles connected in series according to the DC network voltage, and the circuit breaking performance of our circuit breaker range.
Breaking capacity for a maximum voltage per pole of: 60 V DC for the iC60 offers and 125 V DC for the C120 and NG125 offers.



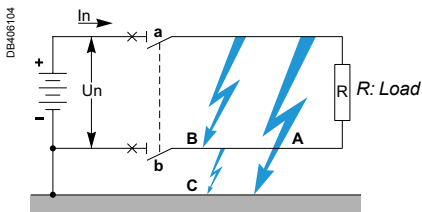
1 The figure shows a source with the negative polarity earthed.

Fault condition analysis 1

Fault	Fault current (max.)	Voltage	Poles involved in breaking	Breaking characteristics
A, B	Isc	Un	a	Isc at Un on the poles connected to the positive polarity

Isc: presumed short-circuit current.
Un: rated network voltage.

> All the circuit-breaker poles must be on the non-earthed polarity.



2 The figure shows a source with the negative polarity earthed.

Fault condition analysis 2

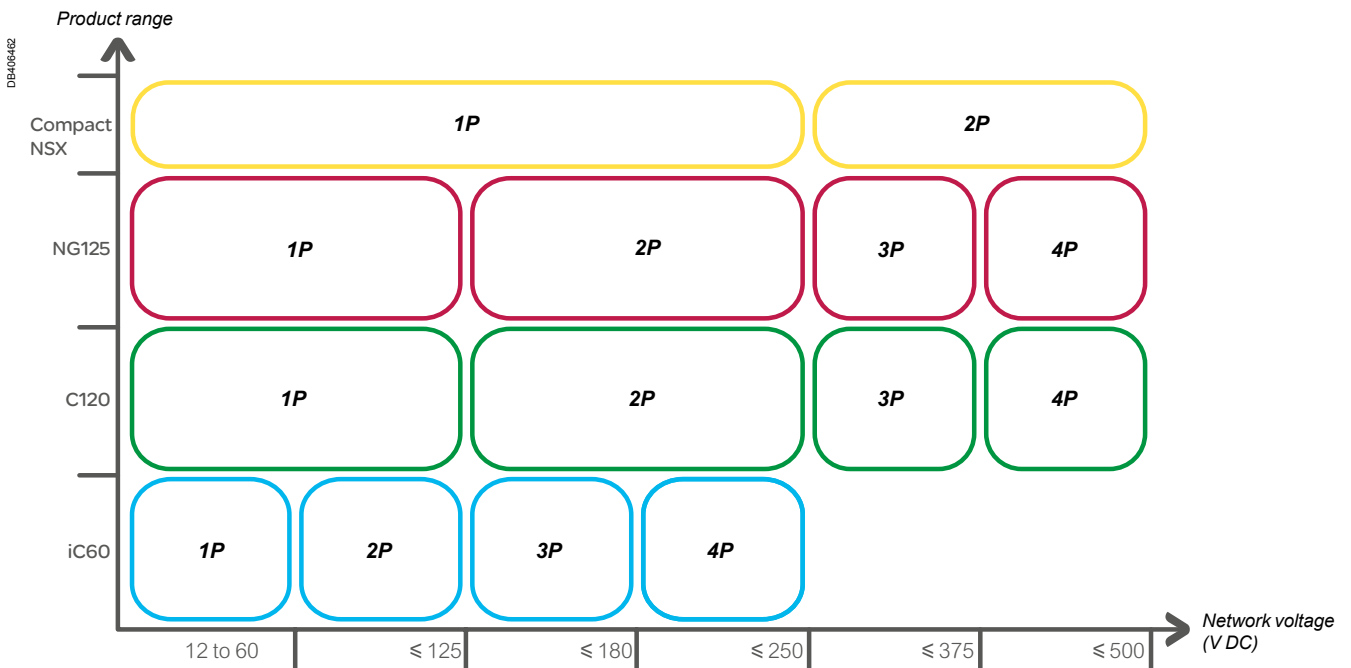
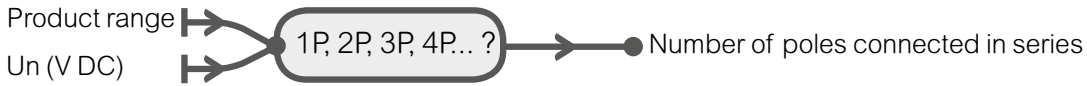
Fault	Fault current (max.)	Voltage	Poles involved in breaking	Breaking characteristics
A	Isc	Un	a	Isc at Un on the poles connected to the positive polarity
B	Isc	Un	a + b	Isc at Un on all the poles connected in series
C	-	-	b	No breaking needed

Isc: presumed short-circuit current.
Un: rated network voltage.

> All the circuit-breaker poles must be on the non-earthed polarity.
One pole on the earthed polarity will allow isolation to be performed.

Direct current distribution

Choosing and implementing circuit breakers
 Complementary technical information
 iC60, C120, NG125 offer



Isolation	Number of poles and connection diagram			
	1P	2P	3P	4P
Not required 1	DB405938 	DB405939 	DB405940 	DB405941
Required 2	DB405942 	DB405943 	DB405944 	

R: Load.

iCT contactors selection

Lighting application

- > The following tables concern all the contactors from the iCT range, with or without manual control, for 230V single phase lighting circuits
- > They indicate the contactor rating to be chosen according to the number and type of lamps to be controlled. As a guideline, maximum power is also given.
 - > three-phase + neutral circuits: multiply the number of lamps and the power indicated in the table by 3.
 - > three-phase without neutral circuits: multiply the number of lamps and the power indicated in the table by 1.7.

Type of lighting application 230V single phase circuit Power (W)	Maximum number of lamps for a given rating iCT contactors				
	16A	25A	40A	63A	100A
Incandescent lamp with or without halogen gas					
40	38	57	115	172	250
60	30	45	85	125	187
75	25	38	70	100	150
100	19	28	50	73	110
150	12	18	35	50	75
200	10	14	26	37	55
300	7	10	18	25	37
500	4	6	10	15	22
1000	2	3	6	8	12
12V halogen lamp (on ELV electromagnetic transformer)					
20	15	23	42	63	94
50	10	15	27	42	63
75	8	12	23	35	52
100	6	9	18	27	40
150	4	6	13	19	28
26mm fluorescent tube (single parallel-corrected)					
15	15	20	40	60	90
18	15	20	40	60	90
20	15	20	40	60	90
36	15	20	40	60	90
40	15	20	40	60	90
58	10	15	30	43	64
65	10	15	30	43	64
115	5	7	14	20	30
140	5	7	14	20	30
26mm fluorescent tube (single uncorrected)					
15	22	30	70	100	150
18	22	30	70	100	150
20	22	30	70	100	150
36	20	28	60	90	135
40	20	28	60	90	135
58	13	17	35	56	84
65	13	17	35	56	84
115	7	10	20	32	48
140	7	10	20	32	48
26mm fluorescent tube (dual serial-corrected)					
2x18	30	46	80	123	180
2x20	30	46	80	123	180
2x36	17	25	43	67	100
2x40	17	25	43	67	100
2x58	10	16	27	42	63
2x65	10	16	27	42	63
2x118	6	10	16	25	37
2x140	6	10	16	25	37
26mm fluorescent tube (4 tubes, serial correction)					
4x18	15	23	46	69	100
Electronic ballast (1x26mm tube)					
18	74	111	222	333	500
35	38	58	117	176	260
58	25	37	74	111	160
Electronic ballast (2x26mm tubes)					
2x18	36	55	111	166	250
2x36	20	30	60	90	135
2x58	12	19	38	57	85
Electronic compact lamp (low consumption)					
7	133	200	400	600	900
11	80	120	240	360	540
15	58	88	176	264	396
20	44	66	132	200	300
23	38	57	114	171	256

iCT contactors selection

Type of lighting application 230V single phase circuit Power (W)	Maximum number of lamps for a given rating iCT contactors				
	16A	25A	40A	63A	100A
Low pressure sodium vapour lamp (without correction)					
18	18	34	57	91	
35	4	9	14	24	
55	5	9	14	24	
90	3	6	9	19	
135	2	4	6	10	
180	2	4	6	10	
Low pressure sodium vapour lamp (with parallel correction)					
18	14	21	40	60	
35	3	5	10	15	
55	3	5	10	15	
90	2	4	8	11	
135	1	2	5	7	
180	1	2	4	6	
High pressure sodium vapour lamp (without correction)					
70	8	12	20	32	
150	4	7	13	18	
250	2	4	8	11	
400	1	3	5	8	
1000	–	1	2	3	
High pressure sodium vapour lamp (with parallel correction)					
70	6	9	16	25	
150	4	6	10	15	
250	3	4	7	10	
400	2	3	5	7	
1000	1	2	3	5	

Heating application

- > The following table concerns all the contactors in the iCT range, with or without manual control, for 230V single phase and 400V three-phase heating circuits.
- > It indicates the contactor rating to be chosen according to the power to be controlled and the number of operations a day.

Type of heating application Number of operations/day	Maximum power (kW) for a given rating iCT contactors			
	25A	40A	63A	100A
230V heating				
25	5.4	8.6	14	21.6
50	5.4	8.6	14	21.6
75	4.6	7.4	12	18
100	4	6	9.5	14
250	2.5	3.8	6	9
500	1.7	2.7	4.5	6.8
400V heating				
25	16	26	41	63
50	16	26	41	63
75	14	22	35	52
100	11	17	26	40
250	5	8	13	19
500	3.5	6	9	14

Small motor application

The following table concerns all the contactors in the iCT range, with or without manual control, for 230V single-phase and 400V three-phase circuits.

- > It indicates the contactor rating to be chosen according to the power of the motor to be controlled.

Small motor application type Voltage	Maximum power (kW) for a given rating iCT contactors		
	25A	40A	63A
Asynchronous single phase motor with capacitor			
230V	1.4	2.5	4
Asynchronous three-phase motor			
400V	4	7.5	15
Universal motor			
230V	0.9	1.4	2.2

DOL motor starter co-ordination

Selection charts according to IEC60947-4-1 TeSys Direct On Line starters (DOL)

Type 1 Co-ordination: Type 1 coordination requires that in a short-circuit condition, the contactor or starter must not present any danger to personnel or installations and must not be able to resume operation without repair or the replacement of parts.

Type 2 Co-ordination: Type 2 coordination requires that in a short-circuit condition, the contactor or starter must not present any danger to personnel or installations and must subsequently be able to resume operation. The risk of contact welding is permissible; in this case, the manufacturer must indicate measures to be taken regarding maintenance of the equipment.

Type 1 co-ordination – 2 product solution

Circuit breaker with built in overload protection + contactor

Power rating of 3 phase motor 400V		Fault level	Motor circuit breaker (in built overload)		Contactor
(kW)	AC3 (A)	(kA)	Reference	Thermal setting	Reference (2)
0.06	0.2	50	GV2ME02	0.16...0.25	LC1K06 or LC1D09
0.09	0.3	50	GV2ME03	0.25...0.40	LC1K06 or LC1D09
0.18	0.6	50	GV2ME04	0.40...0.63	LC1K06 or LC1D09
0.37	1.1	50	GV2ME05	0.63...1	LC1K06 or LC1D09
0.55	1.5	50	GV2ME06	1...1.6	LC1K06 or LC1D09
0.75	1.9	50	GV2ME07	1.6...2.5	LC1K06 or LC1D09
1.5	3.6	50	GV2ME08	2.5...4	LC1K06 or LC1D09
2.2	4.9	50	GV2ME10	4...6.3	LC1K06 or LC1D09
4	8.5	50	GV2ME14	6...10	LC1K09 or LC1D09
5.5	11.5	15	GV2ME16	9...14	LC1K12 or LC1D12
7.5	15.5	15	GV2ME20	13...18	LC1D18
9	18.1	15	GV2ME21	17...23	LC1D25
11	22	15	GV2ME22	20...25	LC1D25
15	29	10	GV2ME32	24...32	LC1D32
18.5	35	50	GV3P40	30...40	LC1D40A
22	41	50	GV3P50	37...50	LC1D50A
30	55	50	GV3P65	48...65	LC1D65A
37	66	50	GV4P80N	40...80	LC1D80
45	80	50	GV4P115N	65...115	LC1D95
55	97	50	GV4P115N	65...115	LC1D115



GV2ME16



LC1D12B7

Type 2 co-ordination (high performance) – 2 product solution

Circuit breaker with built in overload protection + contactor

Power rating of 3 phase motor 400V		Fault level	Motor circuit breaker (in built overload)		Contactor
(kW)	AC3 (A)	(kA)	Reference	Thermal setting	Reference (2)
0.06	0.2	130	GV2P02 or GV2ME02	0.16...0.25	LC1D09
0.09	0.3	130	GV2P03 or GV2ME03	0.25...0.40	LC1D09
0.18	0.6	130	GV2P04 or GV2ME04	0.40...0.63	LC1D09
0.37	1.1	130	GV2P05 or GV2ME05	0.63...1	LC1D09
0.55	1.5	130	GV2P06 or GV2ME06	1...1.6	LC1D09
0.75	1.9	130	GV2P07 or GV2ME07	1.6...2.5	LC1D09
1.5	3.6	130	GV2P08 or GV2ME08	2.5...4	LC1D09
2.2	4.9	130	GV2P10 or GV2ME10	4...6.3	LC1D09
4	8.5	130	GV2P14 or GV2ME14	6...10	LC1D09
5.5	11.5	130	GV2P16 or GV2ME16	9...14	LC1D25
7.5	15.5	50 or 15	GV2P20 or GV2ME20	13...18	LC1D25
9	18.1	50 or 15	GV2P21 or GV2ME21	17...23	LC1D25
11	22	50 or 15	GV2P22 or GV2ME22	20...25	LC1D25
15	29	50 or 10	GV2P32 or GV2ME32	25...40	LC1D32
18.5	35	50	GV3P40	30...40	LC1D50A
22	41	50	GV3P50	37...50	LC1D50A
30	55	50	GV3P65	48...65	LC1D65A
37	66	50	GV4P80N	40...80	LC1D80
45	80	50	GV4P115N	65...115	LC1D115 or LC1F115
55	97	50	GV4P115N	65...115	LC1D115 or LC1F115



GV2P16



LC1D25

Notes

- (1) Refer to TeSys product catalogue for DOL starter co-ordination above 55kw
- (2) Complete the part reference by adding the control voltage code at the end. For control voltage code refer to section H or contact customer care centre

DOL motor starter co-ordination

Selection charts according to IEC60947-4-1
TeSys Direct On Line starters (DOL)



GV2L16



LC1K



LR2K0321

Type 1 co-ordination – 3 product solution

Circuit breaker + contactor + overload

Power rating of 3 phase motor 400V		Fault level	Motor circuit breaker	Contactor	Overload
(kW)	AC3 (A)	(kA)	Reference	Reference (2)	Reference
0.06	0.2	50	GV2L03	LC1K06	LR2K0302
0.09	0.3	50	GV2L03	LC1K06	LR2K0304
0.12	0.44	50	GV2L04	LC1K06	LR2K0304
0.18	0.6	50	GV2L04	LC1K06	LR2K0305
0.37	1.1	50	GV2L05	LC1K06	LR2K0306
0.55	1.5	50	GV2L06	LC1K06	LR2K0307
1.1	2.7	50	GV2L07	LC1K06	LR2K0308
1.5	3.6	50	GV2L08	LC1K06	LR2K0310
2.2	4.9	50	GV2L10	LC1K06	LR2K0312
3	6.5	50	GV2L14	LC1K09	LR2K0314
4	8.5	50	GV2L14	LC1K09	LR2K0316
5.5	11.5	15	GV2L16	LC1K12	LR2K0321
7.5	15.5	15	GV2L20	LC1D18	LRD21
9	18.1	15	GV2L22	LC1D25	LRD22
11	22	15	GV2L22	LC1D25	LRD22
15	29	10	GV2L32	LC1D32	LRD32
18.5	35	50	GV3L40	LC1D40A	LRD340
22	41	50	GV3L50	LC1D50A	LRD350
30	55	50	GV3L65	LC1D65A	LRD365
37	66	50	GV4L80N	LC1D80	LRD3361
45	80	50	GV4L115N	LC1D95	LRD3365
55	97	50	GV4L115N	LC1D115	LRD4367



GV2L16



LC1D25



LRD16

Type 2 co-ordination (high performance) – 3 product solution

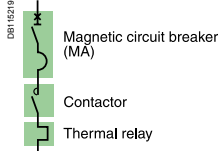
Circuit breaker + contactor + overload

Power rating of 3 phase motor 400V		Fault level	Motor circuit breaker	Contactor	Overload
(kW)	AC3 (A)	(kA)	Reference	Reference (2)	Reference
0.06	0.2	130	GV2L03	LC1D09	LRD02
0.09	0.3	130	GV2L03	LC1D09	LRD03
0.18	0.6	130	GV2L04	LC1D09	LRD04
0.37	1.1	130	GV2L05	LC1D09	LRD05
0.55	1.5	130	GV2L06	LC1D09	LRD06
0.75	1.9	130	GV2L07	LC1D09	LRD07
1.5	3.6	130	GV2L08	LC1D09	LRD08
2.2	4.9	130	GV2L10	LC1D09	LRD10
3	6.5	130	GV2L14	LC1D09	LRD12
4	8.5	130	GV2L14	LC1D09	LRD14
5.5	11.5	130	GV2L16	LC1D25	LRD16
7.5	15.5	50	GV2L20	LC1D25	LRD21
11	22	50	GV2L22	LC1D25	LRD22
15	29	50	GV3L32	LC1D40A	LRD332
18.5	35	50	GV3L40	LC1D50A	LRD340
22	41	50	GV3L50	LC1D50A	LRD350
30	55	50	GV3L65	LC1D65A	LRD365
37	66	50	GV4L80N	LC1D80	LRD3363
45	80	50	GV4L115N	LC1D115/F115	LR9D5367/LR9F5367
55	97	50	GV4L115N	LC1D115/F115	LR9D5369/LR9F5369

Notes

- (1) Refer to TeSys product catalogue for DOL starter co-ordination above 55kw
- (2) Complete the part reference by adding the control voltage code at the end. For control voltage code refer to section H or contact customer care centre

Type 1 co-ordination (IEC 60947-4-1)



NSX100 circuit breakers, contactors and thermal relays

Direct-on-line starting

Reverser

"Iq" breaking performance: equal to the breaking capacity of the circuit breaker alone.

Starting (1): normal LR2 class 10 A, LR9 class 10.

Motors				Circuit breakers			Contactors (2)		Thermal relays	
220/230 V		380 V		415 V		Type	Rating	Type	Type	Irth (1)
P (kW)	I (A)	P (kW)	I (A)	P (kW)	I (A)		(A)			(A)
		0.37	1.1			NSX100B/F/N/H/S/L-MA	2.5	LC1-D09	LRD-06	1/1.6
		0.55	1.5			NSX100B/F/N/H/S/L-MA	2.5	LC1-D09	LRD-06	1/1.6
0.37	1.8			0.75	1.8	NSX100B/F/N/H/S/L-MA	2.5	LC1-D09	LRD-07	1.6/2.5
						NSX100B/F/N/H/S/L-MA	2.5	LC1-D09	LRD-07	1.6/2.5
0.55	2.8			1.1	2.5	NSX100B/F/N/H/S/L-MA	6.3	LC1-D09	LRD-08	2.5/4
				1.5	3.5	NSX100B/F/N/H/S/L-MA	6.3	LC1-D09	LRD-08	2.5/4
1.1	4.4			2.2	4.8	NSX100B/F/N/H/S/L-MA	6.3	LC1-D09	LRD-10	4/6
1.5	6.1			3	6.5	NSX100B/F/N/H/S/L-MA	12.5	LC1-D09	LRD-33 12	5.5/8
2.2	8.7			4	8.2	NSX100B/F/N/H/S/L-MA	12.5	LC1-D09	LRD-33 14	7/10
						NSX100B/F/N/H/S/L-MA	12.5	LC1-D12	LRD-33 14	7/10
3	11			5.5	11	NSX100B/F/N/H/S/L-MA	12.5	LC1-D12	LRD-33 16	9/13
4	14.5			7.5	14	NSX100B/F/N/H/S/L-MA	25	LC1-D18	LRD-33 21	12/18
				9	17	NSX100B/F/N/H/S/L-MA	25	LC1-D18	LRD-33 21	12/18
						NSX100B/F/N/H/S/L-MA	25	LC1-D18	LRD-33 16	9/13
5.5	20			11	21	NSX100B/F/N/H/S/L-MA	25	LC1-D25	LRD-33 22	16/24
						NSX100B/F/N/H/S/L-MA	25	LC1-D25	LRD-33 21	12/18
						NSX100B/F/N/H/S/L-MA	50	LC1-D32	LRD-33 22	16/24
7.5	28			15	28	NSX100B/F/N/H/S/L-MA	50	LC1-D32	LRD-33 32	23/32
						NSX100B/F/N/H/S/L-MA	50	LC1-D40A	LRD-340	30/40
11	39			22	40	NSX100B/F/N/H/S/L-MA	50	LC1-D40A	LRD-350	37/50
				25	47	NSX100B/F/N/H/S/L-MA	50	LC1-D50A	LRD-350	37/50
						NSX100B/F/N/H/S/L-MA	50	LC1-D65A	LRD-350	37/50
15	52			30	55	NSX100B/F/N/H/S/L-MA	100	LC1-D65A	LRD-365	48/65
18.5	64					NSX100B/F/N/H/S/L-MA				
						NSX100B/F/N/H/S/L-MA	100	LC1-D80	LRD-33 57	37/50
22	75			37	72	NSX100B/F/N/H/S/L-MA	100	LC1-D80	LRD-33 63	63/80
				45	80	NSX100B/F/N/H/S/L-MA				
25	85					NSX100B/F/N/H/S/L-MA	100	LC1-D95	LRD-33 65	80/104
						NSX100B/F/N/H/S/L-MA	100	LC1-D115	LR9-D53 63	48/80
30	100			55	100	NSX100B/F/N/H/S/L-MA	100	LC1-D115	LR9-D53 67	60/100

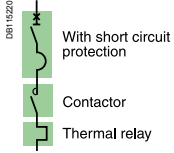
Notes

(1) For installation with a class 30 relay, a derating of 20% must be applied on circuit breakers.

(2) Reversers: replace LC1 by LC2.

Where more than one association is possible for a rated power, if the motor starting current is high or unknown, the highest association should be applied.

Type 1 co-ordination (IEC 60947-4-1)



NSX160 to NS1250 circuit breakers, contactors and thermal relays

Direct-on-line starting

Reverser

“Iq” breaking performance: equal to the breaking capacity of the circuit breaker alone.

Starting ⁽¹⁾: normal class 10.

Motors				Circuit breaker	Contactors (2)	Thermal relays (1)		
220/230 V		415 V						
P (kW)	I (A)	P (kW)	I (A)	Type	Rating (A)	Type	Type	Irth (A)
37	125	75	135	NSX160B/F/N/H/S/L MA	150	LC1-D150	LR9-D53 69	90/150
45	150					LC1-F150	LR9-F53 69	100/160
55	180	90	160	NSX250B/F/N/H/S/L MA	220	LC1-F185	LR9-F53 71	132/220
		110	200	NSX250B/F/N/H/S/L MA	220	LC1-F225	LR9-F53 71	132/220
				NSX250B/F/N/H/S/L MA	220	LC1-F265	LR9-F53 71	132/220
75	250	132	230	NSX400F/N/H/S/L Micrologic 1.3M	320	LC1-F265	LR9-F73 75	200/330
90	312	160	270	NSX400F/N/H/S/L Micrologic 1.3M	320	LC1-F330	LR9-F73 75	200/330
110	360	220	380	NSX630F/N/H/S/L Micrologic 1.3M	500	LC1-F400	LR9-F73 79	300/500
				NSX630F/N/H/S/L Micrologic 1.3M	500	LC1-F400	LR9-F73 75	200/330
				NSX630F/N/H/S/L Micrologic 1.3M	500	LC1-F500	LR9-F73 79	300/500
150	480	250	430	NSX630F/N/H/S/L Micrologic 1.3M	500	LC1-F500	LR9-F73 79	300/500
				NSX630F/N/H/S/L Micrologic 1.3M	500	LC1-F630	LR9-F73 81	380/630
160	520	300	510	NS800N/H-NS1000L Micrologic 5.0 - LR off	800 1000	LC1-F630	LR9-F73 81	380/630
200	630	335	580	NS800N/H-NS1000L Micrologic 5.0 - LR off	800 1000	LC1-F630	LR9-F73 81	380/630
220	700	375	650	NS800N/H-NS1000L Micrologic 5.0 - LR off	800 1000	LC1-F800	LR2-F83 83	500/800
		400	690	NS800N/H-NS1000L Micrologic 5.0 - LR off	800 1000	LC1-F800 LC1-BL33	LR2-F83 83	500/800
				NS800N/H-NS1000L Micrologic 5.0 - LR off	800 1000	LC1-BL33	LR2-F83 83	500/800
250	800	450	750	NS1000N/H Micrologic 5.0 - LR off	1000	LC1-BM33	LR2-F83 83	500/800
		500	830	NS1000N/H Micrologic 5.0 - LR off	1000	LC1-BM33	LR2-F83 85	630/1000
300	970	560 600	920 1000	NS1250N/H Micrologic 5.0 - LR off	1250	LC1-BP33	LR2-F83 85	630/1000

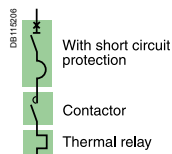
Notes

(1) For long starting (class 20), see the correspondence table for thermal relay.

(2) Reversers: replace LC1 by LC2.

Where more than one association is possible for a rated power, if the motor starting current is high or unknown, the highest association should be applied.

Type 2 co-ordination (IEC 60947-4-1) 380/415 V



Circuit breakers, contactors and thermal relays

Performance: U = 380/415 V

Circuit breakers	B	F	N	H	S	L
NSX100/160/250-MA	25 kA	36 kA	50 kA	70 kA	100 kA	130 kA
NSX400/630 Micrologic 1.3M	25 kA	36 kA	50 kA	70 kA	100 kA	130 kA
NS800L/NS1000L Micrologic 5.0	-	-	-	-	-	130 kA
Starting(2): normal	LRD class 10 A, other classes 10					

Motors				Circuit breakers			Contactors ⁽¹⁾		Thermal relays	
P (kW)	I (A) 380 V	I (A) 415 V	I _e max (A)	Type	Rating (A)	I _{rm} (A) ⁽³⁾	Type	Type	I _{rth} ⁽²⁾	
0.37	1.2	1.1	1.6	NSX100-MA	2.5	22.5	LC1-D09	LRD-06	1/1.6	
0.55	1.6	1.5	2.5	NSX100-MA	2.5	32.5	LC1-D09	LRD-07	1.6/2.5	
0.75	2	1.8	2.5	NSX100-MA	2.5	32.5	LC1-D09	LRD-07	1.6/2.5	
1.1	2.8	2.6	4	NSX100-MA	6.3	57	LC1-D32	LRD-08	2.5/4	
1.5	3.7	3.4	4	NSX100-MA	6.3	57	LC1-D32	LRD-08	2.5/4	
2.2	5.3	4.8	6	NSX100-MA	6.3	82	LC1-D32	LRD-10	4/6	
3	7	6.5	8	NSX100-MA	12.5	113	LC1-D38	LRD-33 12	5.5/8	
4	9	8.2	10	NSX100-MA	12.5	138	LC1-D38	LRD-33 14	7/10	
5.5	12	11	12.5	NSX100-MA	12.5	163	LC1-D40A	LRD-313	9/13	
7.5	16	14	18	NSX100-MA	25	250	LC1-D40A	LRD-318	12/18	
10	21	19	25	NSX100-MA	25	325	LC1-D40A	LRD-325	17/25	
11	23	21	25	NSX100-MA	25	325	LC1-D40A	LRD-325	17/25	
15	30	28	32	NSX100-MA	50	450	LC1-D80	LRD-33 53	23/32	
18.5	37	34	40	NSX100-MA	50	550	LC1-D80	LRD-33 55	30/40	
22	43	40	50	NSX100-MA	50	650	LC1-D80	LRD-33 57	37/50	
30	59	55	63	NSX100-MA	100	900	LC1-D80	LRD-33 59	48/65	
37	72	66	80	NSX100-MA	100	1100	LC1-D80	LRD-33 63	63/80	
45	85	80	100	NSX100-MA	100	1300	LC1-D115 LC1-F115	LR9-D53 67 LR9-F53 67	60/100	
55	105	100	115	NSX160-MA	150	1500	LC1-D115 LC1-F115	LR9-D53 69 LR9-F53 69	90/150	
75	140	135	150	NSX160-MA	150	1950	LC1-D150 LC1-F150	LR9-D53 69 LR9-F53 69	90/150	
90	170	160	185	NSX250-MA	220	2420	LC1-F185	LR9-F53 71	132/220	
110	210	200	220	NSX250-MA NSX400 Micrologic 1.3M	220 320	2860 2880	LC1-F225 LC1-F265	LR9-F53 71	132/220	
132	250	230	265	NSX400 Micrologic 1.3M	320	3500	LC1-F265	LR9-F73 75	200/330	
160	300	270	320	NSX400 Micrologic 1.3M	320	4160	LC1-F330	LR9-F73 75	200/330	
200	380	361	400	NSX630 Micrologic 1.3M	500	5700	LC1-F400	LR9-F73 79	300/500	
220	420	380	500	NSX630 Micrologic 1.3M	500	6500	LC1-F500	LR9-F73 79	300/500	
250	460	430	500 630	NSX630 Micrologic 1.3M NS800L Micrologic 5.0 - LR off	500 800	6500 8000	LC1-F500 LC1-F630	LR9-F73 79 LR9-F73 81	300/500 380/630	
300	565	500	630	NS800L Micrologic 5.0 - LR off	800	8000	LC1-F630	LR9-F73 81	380/630	
335	620	560	630	NS800L Micrologic 5.0 - LR off	800	8000	LC1-F630	LR9-F73 81	380/630	
375	670	620	710	NS800L Micrologic 5.0 - LR off	800	9600	LC1-F780	TC800/5 + LRD-10	630/1000	
400	710	660	710	NS800L Micrologic 5.0 - LR off	800	9600	LC1-F780	TC800/5 + LRD-10	630/1000	
450	800	750	800	NS1000L Micrologic 5.0 - LR off	1000	10000	LC1-F780	TC800/5 + LRD-10	630/1000	

Notes

(1) Reversers: replace LC1 by LC2; star-delta starter: replace LC1 by LC3.

(2) For long starting (class 20), see the correspondence table for thermal relay.

(3) I_i for Micrologic 5.0 control unit.

Where more than one association is possible for a rated power, if the motor starting current is high or unknown, the highest association should be applied.

Soft starter co-ordination

Altistart 01 soft start/stop units
400V power supply
Type 1 co-ordination

Components for use together in accordance with IEC/EN 60647-4-2, as per the wiring diagrams in the product catalogue and user manual.

Motor kW	A	Starter Class 10	Type of circuit breaker	Rating A	Type of contactor
M1		A1	Q1		KM1, KM2, KM3
0.37	0.98	ATS01N103FT	GV2ME05	1	LC1K06 or LC1D09
0.55	1.5	ATS01N103FT	GV2ME06	1.6	LC1K06 or LC1D09
0.75	2	ATS01N103FT	GV2ME07	2.5	LC1K06 or LC1D09
1.1	2.5	ATS01N103FT	GV2ME08	4	LC1K06 or LC1D09
		ATS01N206QN	GV2ME08	4	LC1K06 or LC1D09
1.5	3.5	ATS01N106FT	GV2ME08	4	LC1K06 or LC1D09
		ATS01N206QN	GV2ME08	4	LC1K06 or LC1D09
2.2	5	ATS01N106FT	GV2ME10	6.3	LC1K06 or LC1D09
		ATS01N206QN	GV2ME10	6.3	LC1K06 or LC1D09
3	6.5	ATS01N106FT	GV2ME14	9	LC1K06 or LC1D09
		ATS01N206QN	GV2ME14	9	LC1K06 or LC1D09
4	8.4	ATS01N109FT	GV2ME14	9	LC1K06 or LC1D09
		ATS01N209QN	GV2ME14	9	LC1K06 or LC1D09
5.5	11	ATS01N112FT	GV2ME16	13	LC1K12 or LC1D12
		ATS01N212QN	GV2ME16	13	LC1K12 or LC1D12
7.5	14.8	ATS01N222QN	GV2ME20	17	LC1D18
9	18.1	ATS01N222QN	GV2ME21	21	LC1D25
11	21	ATS01N222QN	GV2ME22	23	LC1D25
15	28.5	ATS01N232QN	GV2ME32	32	LC1D32

Soft starter co-ordination

Altistart 22 soft start/stop units
400...440V power supply
Type 1 co-ordination



GV3L32



LC1D32●●



ATS22D32Q

Altistart 22 - motor starter protection co-ordination table

Components for use together in accordance with IEC/EN 60947-4-2, as per the wiring diagrams in the product catalogue and user manual.

Motor (1) kW	A	Starter Class 10	Circuit breaker (2)	Rating A	Max Icu (2) kA	Line contactor (3)
M1		A1	Q1			KM1
Three-phase supply voltage: 400...440V 50/60Hz Type 1 co-ordination						
7.5	14.8	ATS22D17Q	GV3L20	-	50	LC1D18●●
15	28.5	ATS22D32Q	GV3L32	-	50	LC1D32●●
22	42	ATS22D47Q	GV3L50	-	50	LC1D50A●●
30	57	ATS22D62Q	GV3L65	-	50	LC1D65A●●
37	69	ATS22D75Q	GV4L80N	80	(4)	LC1D80●●
45	81	ATS22D88Q	NSX100●MA	100	(4)	LC1D115●●
55	100	ATS22C11Q	NSX160●MA	150	(4)	LC1D115●●
75	131	ATS22C14Q	NSX160●MA	150	(4)	LC1F150●●
90	162	ATS22C17Q	NSX250●MA	220	(4)	LC1F185●●
110	195	ATS22C21Q	NSX250●MA	220	(4)	LC1F225●●
132	233	ATS22C25Q	NSX400●Micrologic 1.3M	320	(4)	LC1F265●●
160	285	ATS22C32Q	NSX400●Micrologic 1.3M	320	(4)	LC1F330●●
220	388	ATS22C41Q	NSX630●Micrologic 1.3M	500	(4)	LC1F400●●
250	437	ATS22C48Q	NSX630●Micrologic 1.3M	500	(4)	LC1F500●●
315	560	ATS22C59Q	NS630b● Micrologic 5	500	(4)	LC1F630●●

Notes

- (1) Standard power rating for 4-pole motors 400V 50/60Hz
- (2) Breaking capacity of the circuit breaker according to IEC 60947-2
- (3) Replace '●●' with required coil voltage code to complete the contactor reference
- (4) Replace the '●' in the circuit breaker reference with the letter corresponding to the required breaking performance (F, N, H, S or L)

Soft starter co-ordination

Altivar Soft Starter ATS480

Type 1 co-ordination according to IEC 60947-4-1 and IEC 60947-4-2
380...415V supply, in-line connection

Presentation

Type of co-ordination:

The EN/IEC 60947-4-1 standard makes a distinction between two different types of coordination, which are designated Type 1 and Type 2:

- > **Type 1** coordination requires that, under short-circuit conditions, the contactor or soft starter shall cause no danger to persons or the installation and may not be suitable for further service without repair and replacement of parts.
- > **Type 2** coordination requires that, under short-circuit conditions, the contactor or soft starter shall cause no danger to persons or the installation and shall be suitable for further use. The risk of contact welding is recognised, in which case the manufacturer shall indicate the measures to be taken as regards the maintenance of the equipment. For Type 2 coordination (according to IEC 60947-4-1 and IEC 60947-4-2), install fast-acting fuses in series with the soft starter to ensure that the ATS480 will be protected in the event of a short circuit. After a short circuit, fast-acting fuses must be replaced, and the contactor must be checked.

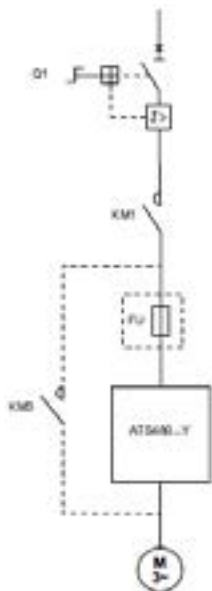
Note: Use of a short-circuit protection device (SCPD) that does not comply with the manufacturer's specification can invalidate the coordination.

Bypass contactor:

The bypass contactor is optional as the ATS480 is rated for continuous operation without bypass contactor for a maximum ambient temperature of 40°C without derating. When bypassed, an ATS480 with a lower current rating can be used (please refer to ATS480 catalogue) or the ATS480 can operate at a maximum ambient temperature of 50°C without derating.

Line contactor:

The line contactor on ATS480 is optional. When used, the line contactor is controlled by the soft starter to disconnect the mains supply on stop or when a fault is detected.



NSX250N MA
+
LC1G185....
+
ATS480C17Y

ATS480 Type 1 co-ordination: 380...415V supply, in-line connection (1)

Motor (1)		Combination ATS480		Circuit breaker (2)		Line/Bypass contactor
		Fault level Iq				
kW	A	kA	Normal duty Class 10	Heavy duty Class 20	Reference	Reference (3)
M1		A1			Q1	KM1, KM3
Supply voltage: 380...415V 3-ph 50/60Hz						
5.5	11	50	-	ATS480D17Y	GV2L20	LC1D18..
7.5	14.8	50	ATS480D17Y	ATS480D22Y	GV2L20	LC1D18..
11	21	50	ATS480D22Y	ATS480D32Y	GV2L22	LC1D25..
15	28.5	50	ATS480D32Y	ATS480D38Y	GV3L32	LC1D32..
18.5	35	50	ATS480D38Y	ATS480D47Y	GV3L40	LC1D38..
22	42	50	ATS480D47Y	ATS480D62Y	GV3L50	LC1D50A..
30	57	50	ATS480D62Y	ATS480D75Y	GV3L65	LC1D65A..
37	69	50	ATS480D75Y	ATS480D88Y	GV4L80N	LC1D80..
45	81	50	ATS480D88Y	ATS480C11Y	NSX100N MA	LC1D115..
55	100	50	ATS480C11Y	ATS480C14Y	NSX160N MA	LC1D115..
75	131	50	ATS480C14Y	ATS480C17Y	NSX160N MA	LC1D150..
90	162	50	ATS480C17Y	ATS480C21Y	NSX250N MA	LC1G185....
110	195	50	ATS480C21Y	ATS480C25Y	NSX250N MA	LC1G225....
132	233	50	ATS480C25Y	ATS480C32Y	NSX400N ML 1.3-M	LC1G265....
160	285	50	ATS480C32Y	ATS480C41Y	NSX400N ML 1.3-M	LC1G330....
220	388	70	ATS480C41Y	ATS480C48Y	NSX630H ML 1.3-M	LC1G500....
250	437	70	ATS480C48Y	ATS480C59Y	NSX630H ML 1.3-M	LC1G500....
315	560	70	ATS480C59Y	ATS480C66Y	NS630bH ML 5.0	LC1G630....
355	605	70	ATS480C66Y	ATS480C79Y	NS800H ML 5.0	LC1G630....
400	675	70	ATS480C79Y	ATS480M10Y	NS800H ML 5.0	LC1G800....
500	855	70	ATS480M10Y	ATS480M12Y	NS1000H ML 5.0	LC1F1000..
630	1045	42	ATS480M12Y	-	NS1250H ML 5.0	LC1F2600..

Notes

- (1) For 'inside delta' connection or for other supply voltages, please refer to the ATS480 catalogue or online configurator.
- (2) Set I_{rm} current of the circuit breaker (when available) to a minimum of six times the current rating of the soft starter.
- (3) Replace '...' with the required coil voltage code to complete the contactor reference.

Soft starter co-ordination

Altivar Soft Starter ATS480

Type 2 co-ordination according to IEC 60947-4-1 and IEC 60947-4-2

380...415V supply, in-line connection

ATS480 Type 2 co-ordination: 380...415V supply, in-line connection (1)

Motor (1)		Combination ATS480			Circuit breaker (2)		Fast-acting fuse	Line/Bypass contactor
		Fault level Iq						
		Normal duty		Heavy duty	Reference	Reference	Reference (3)	
kW	A	Class 10		Class 20				
M1		A1			Q1	FU	KM1, KM3	
Supply voltage: 380...415V 3-ph 50/60Hz								
5.5	11	50	-	ATS480D17Y	GV2L20	DF3ER50	LC1D18••	
7.5	14.8	50		ATS480D17Y	ATS480D22Y	GV2L20	DF3ER50	LC1D18••
11	21	50		ATS480D22Y	ATS480D32Y	GV2L22	DF3FR80	LC1D25••
15	28.5	50		ATS480D32Y	ATS480D38Y	GV2L32 + GV1L3	DF3FR80	LC1D32••
18.5	35	50		ATS480D38Y	ATS480D47Y	GV3L40	DF3FR100	LC1D38••
22	42	50		ATS480D47Y	ATS480D62Y	GV3L50	DF3FR100	LC1D50A••
30	57	50		ATS480D62Y	ATS480D75Y	GV3L65	DF400125	LC1D65A••
37	69	50		ATS480D75Y	ATS480D88Y	GV4L80N	DF400125	LC1D80••
45	81	50		ATS480D88Y	ATS480C11Y	GV4L115N	DF400160	LC1D115••
55	100	50		ATS480C11Y	ATS480C14Y	GV4L115N	DF400160	LC1D115••
75	131	50		ATS480C14Y	ATS480C17Y	NSX160N MA	DF430400	LC1D150••
90	162	50		ATS480C17Y	ATS480C21Y	NSX250N MA	DF430400	LC1G185••••
110	195	50		ATS480C21Y	ATS480C25Y	NSX250N MA	DF431700	LC1G225••••
132	233	50		ATS480C25Y	ATS480C32Y	NSX400N ML 1.3-M	DF431700	LC1G265••••
160	285	50		ATS480C32Y	ATS480C41Y	NSX400N ML 1.3-M	DF431700	LC1G330••••
220	388	50		ATS480C41Y	ATS480C48Y	NSX630N ML 1.3-M	DF433800	LC1G500••••
250	437	50		ATS480C48Y	ATS480C59Y	NSX630N ML 1.3-M	DF4331000	LC1G500••••
315	560	50		ATS480C59Y	ATS480C66Y	NS630bN ML 5.0	DF4331000	LC1G630••••
355	605	50		ATS480C66Y	ATS480C79Y	NS800N ML 5.0	DF42331400	LC1G630••••
400	675	50		ATS480C79Y	ATS480M10Y	NS800N ML 5.0	DF4441600	LC1G800••••
500	855	85		ATS480M10Y	ATS480M12Y	NS1000N ML 5.0	DF4442200	LC1F1000••
630	1045	85		ATS480M12Y	-	NS1250N ML 5.0	DF4442200	LC1F2600•• (4)

Fast-acting fuses - essential for type 2 co-ordination

Starter	Fast-acting fuses	
	A	kA ² .s
ATS480D17Y	50	2.3
ATS480D22Y, D32Y	80	5.6
ATS480D38Y, D47Y	100	12
ATS480D62Y, D75Y	125	45
ATS480D88Y, C11Y	160	82
ATS480C14Y, C17Y	400	120
ATS480C21Y...C32Y	700	490
ATS480C41Y	800	490
ATS480C48Y, C59Y	1000	900
ATS480C66Y	1400	1200
ATS480C79Y	1600	1600
ATS480M10Y, M12Y		4100



NSX250N MA
+
LC1G185••••
+
DF430400
+
ATS480C17Y

Notes

- (1) For 'inside delta' connection or for other supply voltages, please refer to the ATS480 catalogue or online configurator.
- (2) Set I_{rm} current of the circuit breaker (when available) to a minimum of six times the current rating of the soft starter.
- (3) Replace '•••' with the required coil voltage code to complete the contactor reference. LC1F.. coils sold separately.
- (4) Type 2 coordination is only possible if the fast-acting fuses remain in the motor supply circuit and are not bypassed at the end of starting.

Variable speed drive co-ordination

Altivar 12

Altivar 12 - motor starter protection co-ordination table

Two types of combination are possible:

Drive + circuit-breaker: Minimum combination

Drive + circuit-breaker + contactor: Minimum combination with contactor for control and isolation on stop

Single-phase supply voltage: 200...240V 50/60Hz					
Motor kW	Drive	Circuit breaker Modular circuit breaker	Rating A	Max Icu (1) kA	Line contactor (2)
M1	A1	Q1			KM1
0.18	ATV12H018M2	GV2L08 2-pole C60N	4 6	>100 10	LC1K09●●
0.37	ATV12H037M2	GV2L10 2-pole C60N	6.3 10	>100 10	LC1K09●●
0.55	ATV12H055M2	GV2L14 2-pole C60N	10 10	>100 10	LC1K09●●
0.75	ATV12H075M2	GV2L16 2-pole C60N	14 16	>100 10	LC1K12●●
1.5	ATV12HU15M2	GV2L20 2-pole C60N	18 20	>100 10	LC1D18●●
2.2	ATV12HU22M2	GV2L22 2-pole C60N	25 32	50 10	LC1D25●●

Variable speed drive co-ordination

Altivar Machine ATV320

Altivar Machine ATV320 IEC motor starter co-ordination

Two types of combination are possible:

- > Drive + circuit breaker: minimum combination. The GV2 circuit breaker can be mounted directly on ATV320B drives up to 4kW using a bracket (VW3A9921) and an adaptor (GV2AF5).
- > Drive + circuit breaker + contactor: minimum combination with contactor for control and isolation on stop.

The circuit breaker provides protection against accidental short circuits, disconnection, and, if necessary, isolation.

For ATV320W IP66, the combination table of circuit breaker, rotary handle kit (GVAPB65S or GV2APN03), and base plate (VW3A9922) is required.

For ATV320WS IP65, the circuit breaker can't be integrated.

Altivar 320 motor starters: drive + circuit breaker + contactor



ATV320B/GV2
direct mounting:
GV2L08
+
(VW3A9921 + GV2AF5)
+
ATV320U07N4B



GV2L14
+
LC1D09
+
ATV320U15N4B /
ATV320U15N4C /
ATV320U15N4W

Motor kW (1)	Drive reference (2)	Circuit breaker reference	Contactor reference (3)	Circuit breaker mounted directly on ATV320B (4)
Supply voltage: 200...240V 1-ph 50/60Hz				
0.18	ATV320U02M2●	GV2L08	LC1D09●●	With accessories
0.37	ATV320U04M2●	GV2L10	LC1D09●●	VW3A9921 + GV2AF5 (5)
0.55	ATV320U06M2●	GV2L14	LC1D09●●	
0.75	ATV320U07M2●	GV2L16	LC1D09●●	
1.1	ATV320U11M2●	GV2L16	LC1D09●●	
1.5	ATV320U15M2●	GV2L20	LC1D09●●	
2.2	ATV320U22M2●	GV2L22	LC1D09●●	
Supply voltage: 380...500V 3-ph 50/60Hz				
0.37	ATV320U04N4●	GV2L07	LC1D09●●	With accessories
0.55	ATV320U06N4●	GV2L08	LC1D09●●	VW3A9921 + GV2AF5 (5)
0.75	ATV320U07N4●	GV2L08	LC1D09●●	
1.1	ATV320U11N4●	GV2L10	LC1D09●●	
1.5	ATV320U15N4●	GV2L14	LC1D09●●	
2.2	ATV320U22N4●	GV2L14	LC1D09●●	
3	ATV320U30N4●	GV2L16	LC1D09●●	
4	ATV320U40N4●	GV2L16	LC1D09●●	
5.5	ATV320U55N4●	GV2L22	LC1D09●●	-
7.5	ATV320U75N4●	GV3L32	LC1D18●●	-
11	ATV320D11N4●	GV3L40	LC1D25●●	-
15	ATV320D15N4●	GV3L50	LC1D32●●	-

Notes

- (1) Standard power ratings for a 4-pole 400V 50Hz/60Hz motor.
- (2) Complete the reference by replacing ● with 'B', 'C', 'W' or 'WS' according to the version of ATV320.
- (3) Replace '●●' with the required coil voltage code to complete the contactor reference.

Contractor	Coil Voltage					
	VAC	24V	48V	110V	240V	415V
	50/60Hz	B7	E7	F7	U7	N7

For other coil voltages please refer to section H, or contact our Customer Care Centre.

- (4) Direct mounting of circuit breaker is possible on ATV320U●●M2B and ATV320U04N4B...U40N4B.
- (5) To be ordered separately

Variable speed drive co-ordination

Altivar Process
ATV630/930 IP21 wall mounting 0.75...315kW



NSX100●MA100
+
LC1D80●●
+
ATV630D45N4

Altivar Process ATV630/930 - IEC motor starter co-ordination

Motor (1)	Drive reference ATV630/930...	Circuit breaker Reference (2)	Rating	I _{rm} (3)	Line contactor Reference (4)
kW			A	A	
Supply voltage: 380...415V 3-ph 50/60Hz					
0.75	U07N4	GV2L07	2.5	33.5	LC1D09●●
1.5	U15N4	GV2L08	4	51	LC1D09●●
2.2	U22N4	GV2L10	6.3	78	LC1D09●●
3	U30N4	GV2L14	10	138	LC1D09●●
4	U40N4	GV2L14	10	138	LC1D09●●
5.5	U55N4	GV2L16	14	170	LC1D18●●
7.5	U75N4	GV2L20	18	223	LC1D18●●
11	D11N4	GV2L22	25	327	LC1D25●●
15	D15N4	GV3L32	32	448	LC1D25●●
18.5	D18N4	GV3L40	40	560	LC1D40A●●
22	D22N4	GV3L50	50	700	LC1D50A●●
30	D30N4	GV3L65	65	910	LC1D50A●●
37	D37N4	GV4L80N	80	480	LC1D65A●●
45	D45N4	GV4L115N	115	690	LC1D80●●
55	D55N4	GV4L115N	115	690	LC1D115●●
75	D75N4	NSX160●MA150	150	1350	LC1D115●●
90	D90N4	NSX250●MA220	220	1980	LC1F185●●
110	C11N4	NSX250●MA220	220	1980	LC1F185●●
132	C13N4	NSX400● Micrologic 1.3-M	320	1600	LC1F265●●
160	C16N4	NSX400● Micrologic 1.3-M	320	1600	LC1F265●●
220	C22N4	NSX630● Micrologic 1.3-M	500	3000	LC1F400●●
250	C25N4	NSX630● Micrologic 1.3-M	500	3000	LC1F500●●
315	C31N4	NS800L Micrologic 2 or 5	800	1600	LC1F630●●

Notes

- (1) Standard power ratings for a 4-pole 400V 50Hz motor.
- (2) Replace the '●' in the circuit breaker reference with the letter corresponding to the required breaking performance (F, N, H, S, or L). Breaking capacity of circuit breakers according to IEC 60947-2.

Circuit breaker	I _{cu} (kA) for 380...415V	I _{cu} (kA) for 380...415V				
		F	N	H	S	L
GV2L07...L14	100	-	-	-	-	-
GV2L16...L65	50	-	-	-	-	-
GV4L80N, L115N	-	-	50	-	-	-
NSX100●MA100	-	36	50	70	100	150
NSX160●MA150	-	36	50	70	100	150
NSX250●MA220	-	36	50	70	100	150
NSX400●, NSX630●	-	36	50	70	100	150
NS800L Micrologic 2 or 5	-	-	-	-	-	150

(3) I_{rm}: current setting for magnetic trip.

(4) Replace '●●' with the required coil voltage code to complete the contactor reference. LC1F... coils sold separately.

Contactor	Coil Voltage	Coil Voltage				
		VAC	24V	48V	110V	240V
LC1D09...D115	50/60Hz	B7	E7	F7	U7	N7
LC1F185	40-400Hz	LX9FG024	-	LX9FG110	LX9FG240	LX9FG415
LC1F265	40-400Hz	-	-	LX1FH1102	LX1FH2402	LX1FH3802
LC1F400	40-400Hz	-	-	LX1FJ110	LX1FJ240	LX1FJ415
LC1F500	40-400Hz	-	-	LX1FK110	LX1FK240	LX1FK415
LC1F630	40-400Hz	-	-	LX1FL110	LX1FL240	LX1FL415

For other coil voltages please refer to section H, or contact our Customer Care Centre.

Variable speed drive co-ordination

Altivar Process
ATV650/950 IP55 wall mounting 0.75...90kW



NSX100●MA100
+
LC1D80●●
+
ATV650D45N4

Altivar Process ATV650/950 - IEC motor starter co-ordination

Motor (1) kW	Drive reference ATV650/950...	Circuit breaker			Line contactor
		Reference (2)	Rating A	I _{rm} (3) A	Reference (4)
Supply voltage: 380...415V 3-ph 50/60Hz					
0.75	U07N4	GV2L07	2.5	33.5	LC1D09●●
1.5	U15N4	GV2L08	4	51	LC1D09●●
2.2	U22N4	GV2L10	6.3	78	LC1D09●●
3	U30N4	GV2L14	10	138	LC1D09●●
4	U40N4	GV2L14	10	138	LC1D09●●
5.5	U55N4	GV2L16	14	170	LC1D18●●
7.5	U75N4	GV2L20	18	223	LC1D18●●
11	D11N4	GV2L22	25	327	LC1D25●●
15	D15N4	GV3L32	32	448	LC1D25●●
18.5	D18N4	GV3L40	40	560	LC1D40A●●
22	D22N4	GV3L50	50	700	LC1D50A●●
30	D30N4	GV3L65	65	910	LC1D50A●●
37	D37N4	GV4L80N	80	480	LC1D65A●●
45	D45N4	GV4L115N	115	690	LC1D80●●
55	D55N4	GV4L115N	115	690	LC1D115●●
75	D75N4	NSX160●MA150	150	1350	LC1D115●●
90	D90N4	NSX250●MA220	220	1980	LC1F185●●

Notes

- (1) Standard power ratings for a 4-pole 400V 50Hz motor.
 (2) Replace the 'i' in the circuit breaker reference with the letter corresponding to the required breaking performance (F, N, H, S, or L). Breaking capacity of circuit breakers according to IEC 60947-2.

Circuit breaker	I _{cu} (kA) for 380...415V					
		F	N	H	S	L
GV2L07...L14	100	-	-	-	-	-
GV2L16...L65	50	-	-	-	-	-
GV4L80N, L115N	-	-	50	-	-	-
NSX100●MA100	-	36	50	70	100	150
NSX160●MA150	-	36	50	70	100	150
NSX250●MA220	-	36	50	70	100	150

(3) I_{rm}: current setting for magnetic trip.

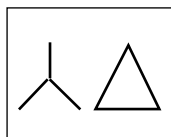
(4) Replace '●●' with the required coil voltage code to complete the contactor reference. LC1F.. coils sold separately.

Contactor	Coil Voltage					
	VAC	24V	48V	110V	240V	415V
LC1D09...D115	50/60Hz	B7	E7	F7	U7	N7
LC1F185	40-400Hz	LX9FG024	-	LX9FG110	LX9FG240	LX9FG415

For other coil voltages please refer to section H, or contact our Customer Care Centre.

Star-delta starters co-ordination

Selection charts according to IEC60947-4-1
TeSys range



Type 1 co-ordination (3)

Maximum operating rate: LC1D: 30starts/hour; LC1K:12starts/hour

Maximum starting time: LC1D & LC1K: 30seconds

Power rating of 3 phase motor 400V (kW)		Fault level (kA)	Motor circuit breaker Reference	Contactor Reference (2)	Overload Reference	Thermal setting
AC3 (A)						
2.2	4.9	50	GV2L10	3 x LC1K06	LR2K0310	2.6...3.7
3	6.5	50	GV2L14	3 x LC1K06	LR2K0312	3.7...5.5
4	8.5	50	GV2L14	3 x LC1K06	LR2K0312	3.7...5.5
5.5	11.5	15	GV2L16	3 x LC1K06	LR2K0314	5.5...8
7.5	15.5	15	GV2L20	3 x LC1K09	LR2K0316	8...11.5
9	18.1	15	GV2L22	3 x LC1K12	LR2K0321	10...14
11	22	15	GV2L22	3 x LC1K12	LR2K0321	10...14
15	29	10	GV3L32	3 x LC1D18	LRD21	12...18
18.5	35	50	GV3L40	3 x LC1D18	LRD22	16...24
22	41	50	GV3L50	3 x LC1D32	LRD32	23...32
30	55	50	GV3L65	3 x LC1D32	LRD35	30...38
37	66	50	GV4L80N	3 x LC1D40A	LRD340	30...40
45	80	50	GV4L115N	2 x LC1D50A + 1 x LC1D40A	LRD350	30...40
55	97	50	GV4L115N	2 x LC1D50A + 1 x LC1D40A	LRD350	30...40

Type 2 co-ordination (high performance) (3)

Maximum operating rate: LC1D: 30starts/hour; Maximum starting time: LC1D: 30 seconds

Power rating of 3 phase motor 400V (kW)		Fault level (kA)	Motor circuit breaker Reference	Contactor Reference (2)	Overload Reference	Thermal setting
(A)						
1.5	3.6	130	GV2L08	3 x LC1D09	LRD08	2.5...4
2.2	4.9	130	GV2L10	3 x LC1D09	LRD10	4...6
3	6.5	130	GV2L10	3 x LC1D09	LRD10	4...6
4	8.5	130	GV2L14	3 x LC1D18	LRD16	9...13
5.5	11.5	50	GV2L16	3 x LC1D25	LRD16	9...13
7.5	15.5	50	GV2L20	3 x LC1D25	LRD21	12...18
9	18.1	50	GV2L22	3 x LC1D25	LRD22	16...24
11	22	50	GV2L22	3 x LC1D25	LRD22	16...24
15	29	50	GV3L32	3 x LC1D40A	LRD332	23...32
18.5	35	50	GV3L40	2 x LC1D50A+ 1 x LC1D40A	LRD340	30...40
22	41	50	GV3L50	2 x LC1D50A+ 1 x LC1D40A	LRD350	37...50
30	55	50	GV3L65	2 x LC1D65A+ 1 x LC1D40A	LRD365	48...65
37	66	50	GV4L80N	3 x LC1D80	LRD3363	63...80
45	80	50	GV4L115N	3 x LC1D115	LR9D5367	60...100
55	97	50	GV4L115N	3 x LC1D115	LR9D5369	90...150

Notes

- (1) Refer to TeSys product catalogue for Star delta starter co-ordination above 55kw
- (2) Complete the part reference by adding the control voltage code at the end. For control voltage code refer to section H or contact customer care centre
- (3) To complete star delta starter, also order interlock kit and timer (see section H star delta starters).

Average full load motor currents

Single phase motors

3 phase motors

1 phase		3 phase 4 pole 50/60Hz motors											
kW	hp	220V A	240V A	kW	hp	220-240 V A	380V A	415V A	440V A	500V A	660V A	690V A	1000V A
0.37	0.5	3.9	3.6	0.37	0.5	1.8	1.03	-	0.99	1	0.6	-	0.4
0.55	0.75	5.2	4.8	0.55	0.75	2.75	1.6	-	1.36	1.21	0.9	-	0.6
0.75	1	6.6	6.1	0.75	1	3.5	2	2	1.68	1.5	1.1	-	0.75
1.1	1.5	9.6	8.8	1.1	1.5	4.4	2.6	2.5	2.37	2	1.5	-	1
1.5	2	12.7	11.7	1.5	2	6.1	3.5	3.5	3.06	2.6	2	-	1.3
1.8	2.5	15.7	14.4	2.2	3	8.7	5	5	4.42	3.8	2.8	-	1.9
2.2	3	18.6	17.1	3	4	11.5	6.6	6.5	5.77	5	3.8	3.5	2.5
3	4	24.3	22.2	3.7	5	13.5	7.7	7.5	7.1	5.9	4.4	-	3
4	5	29.6	27.1	4	5.5	14.5	8.5	8.4	7.9	6.5	4.9	4.9	3.3
4.4	6	34.7	31.8	5.5	7.5	20	11.5	11	10.4	9	6.6	6.7	4.5
5.2	7	39.8	36.5	7.5	10	27	15.5	14	13.7	12	8.9	9	6
5.5	7.5	42.2	38.7	9	12	32	18.5	17	16.9	13.9	10.6	10.5	7
6	8	44.5	40.8	10	13.5	35	20	-	-	15	11.5	12	7.5
7	9	49.5	45.4	11	15	39	22	21	20.1	18.4	14	12.1	9
7.5	10	54.4	50	15	20	52	30	28	26.5	23	17.3	16.5	12
18.5	25	64	37	35	32.8	28.5	21.3	20.2	14.5				
22	30	75	44	40	39	33	25.4	24.2	17				
25	35	85	52	47	45.3	39.4	30.3	-	20				
30	40	103	60	55	51.5	45	34.6	33	23				
33	45	113	68	60	58	50	39	-	25				
37	50	126	72	66	64	55	42	40	28				
40	54	134	79	71	67	60	44	-	30				
45	60	150	85	80	76	65	49	46.8	33				
51	70	170	98	90	83	75	57	-	38				
55	75	182	105	100	90	80	61	58	40				
59	80	195	112	105	97	85	66	-	43				
63	85	203	117	115	109	89	69	-	45				
75	100	240	138	135	125	105	82	75.7	53				
80	110	260	147	138	131	112	86	-	57				
90	125	295	170	165	146	129	98	94	65				
100	136	325	188	182	162	143	107	-	71				
110	150	356	205	200	178	156	118	113	78				
129	175	420	242	230	209	184	135	-	85				
132	180	425	245	240	215	187	140	135	90				
140	190	450	260	250	227	200	145	128	95				
147	200	472	273	260	236	207	152	-	100				
150	205	483	280	270	246	210	159	-	102				
160	220	520	300	280	256	220	170	165	115				
180	245	578	333	320	289	254	190	-	135				
185	250	595	342	325	295	263	200	-	138				
200	270	626	370	340	321	281	215	203	150				
220	300	700	408	385	353	310	235	224	160				
250	340	800	460	425	401	360	274	253	200				
257	350	826	475	450	412	365	280	-	203				
280	380	900	510	475	450	400	305	-	220				
295	400	948	546	500	473	416	320	-	227				
300	410	980	566	510	481	420	325	-	230				
315	430	990	584	535	505	445	337	721	239				
335	450	1100	620	550	518	472	355	-	250				
355	480	1150	636	580	549	500	370	350	262				
375	500	1180	670	610	575	527	395	-	273				
400	545	1250	710	650	611	540	410	390	288				
425	580	-	760	690	650	574	445	-	302				
445	600	-	790	730	680	595	455	-	317				
450	610	-	800	740	690	608	460	-	320				
475	645	-	850	780	730	645	485	-	335				
500	680	-	900	820	780	680	515	494	350				

These values are given as a guide only. They may vary depending on the type of motor and the manufacturer.



Technical data

IP	1st numeral	2nd numeral
-----------	-------------	-------------

1st numeral: conforming to AS1939 protection against ingress of solid bodies

2nd numeral: conforming to AS1939 protection against ingress of water

0 No protection.		0 No protection.	
1 Full penetration of 50mm diameter sphere not allowed. Contact with hazardous parts not permitted.		1 Protected against vertically falling drops of water. Limited ingress permitted.	
2 Full penetration of 12.5mm diameter sphere not allowed. The jointed test finger shall have adequate clearance from hazardous parts.		2 Protected against vertically falling drops of water with enclosure tilted 15° from the vertical. Limited ingress permitted.	
3 The access probe of 2.5mm diameter shall not penetrate.		3 Protected against sprays to 60° from the vertical. Limited ingress permitted.	
4 The access probe of 1.0mm diameter shall not penetrate.		4 Protected against water splashed from all directions. Limited ingress permitted.	
5 Limited ingress of dust permitted (no harmful deposit).		5 Protected against jets of water. Limited ingress permitted.	
6 Totally protected against ingress of dust.		6 Protected against strong jets of water. Limited ingress permitted.	
		7 Protected against the effects of immersion between 15cm and 1m.	
		8 Protected against long periods of immersion under pressure.	

IP69K for High temperature, high pressure wash down and steam clean.

3 Phase Current Ratings (AS/NZS3008.1.1:1998)

Table 6: Three single core V75 PVC or PVC/PVC 0.6/1kV cables

Current Carrying Capacity A						
Conductor Size	Unenclosed			Enclosed	Buried Direct	Underground Ducts
	Spaced	Spaced from surface	Touching	Conduit in air		
mm ²	Cu	Cu	Cu	Cu	Cu	Cu
1	16	14	13	11	21	16
1.5	20	17	16	14	27	20
2.5	29	25	23	20	37	28
4	38	33	31	26	49	37
6	49	42	40	34	61	46
10	67	58	54	47	81	61
16	89	77	72	62	105	80
25	120	105	97	87	135	105
35	150	125	120	100	160	125
50	180	155	145	125	190	150
70	230	195	185	155	235	185
95	285	245	230	185	280	225
120	335	285	265	220	315	260
150	385	330	310	250	355	290
185	445	385	355	285	400	335
240	540	455	425	340	465	390

These ratings are based on 40°C ambient air temperature and 25°C ambient soil temperature.

The standard utilisation categories fix the current values which the switching device must make or break. They depend on:

- the type of load being switched (squirrel cage or slip ring motor, resistors)
- the conditions under which opening and closing is performed (motor running or stalled or in the course of starting, reverse running).



Category AC-1

Applies to all AC machines (loads), whose power factor is at least equal to 0.95 ($\cos \phi \geq 0.95$)

Application Example:

Heating distribution.

Category AC-2

Applies to starting, plugging and inching of slip ring motors. On closing, the contactor makes the starting current (approx 2.5xIe). On opening, it must break the starting current (voltage \leq mains voltage). Breaking is severe.

Application Example:

Lifting overhead cranes, gantries.

Category AC-3

Applies to squirrel cage motors with breaking during normal running of the motor. On closing, the contactor makes the starting current, which is about 5 to 7 times the rated current of the motor. On opening, it breaks the rated current drawn by the motor.

Application Example:

Conveyor belts, compressors, pumps, mixers, air conditioning units.

Category AC-4

Applies to plugging and inching of squirrel cage motors. The contactor makes the starting current (approx 5 to 7xIe). On opening, it breaks this same current which varies according to motor speed. Breaking is severe.

Application Example:

Hoists, printing machines, wire drawing machines.

Table 3: Two single core V75 PVC or PVC/PVC 0.6/1kV Cables

Current Carrying Capacity A						
Conductor Size	Unenclosed			Enclosed	Buried Direct	Underground Ducts
	Spaced	Spaced from surface	Touching	Conduit in air		
mm ²	Cu	Cu	Cu	Cu	Cu	Cu
1	16	16	13	13	24	18
1.5	21	21	16	16	31	24
2.5	30	29	23	22	43	33
4	40	39	31	30	56	42
6	51	49	40	38	71	53
10	69	67	54	53	94	71
16	92	89	72	71	120	91
25	125	120	97	97	160	120
35	155	145	120	115	190	145
50	185	175	145	140	225	170
70	240	225	185	175	275	210
95	295	275	230	210	330	260
120	345	320	265	250	380	295
150	395	365	310	280	425	335
185	460	425	360	325	480	380
240	550	510	430	385	560	450

Services & training

Schneider Electric Services

For 24 Hour Support Call 0800 652 999

Complete brand support: Schneider Electric Services encompasses a full range of capabilities for the ongoing support of all the Schneider Electric international brands and product ranges – Merlin Gerin, Modicon, Square D, PDL and Telemecanique.

Schneider Electric Services is your trusted source for technical solutions, spare parts and product support.

As the manufacturer, we have access to the latest product developments, spare parts and technical advice direct from the factory.

In recent years electrical products have become more and more technical and there is an increased need for the manufacturer to provide ongoing support for the commissioning, maintenance and life cycle requirements of the overall electrical installation. Building on the global strength of Schneider Electric, our services division provides a complete portfolio of services to meet this requirement. We also work hard as a team to ensure that you get the maximum service life out of your electrical assets. With an extensive range of initiatives to improve product performance and ensure reliability and efficiency targets are maintained, Schneider Electric Services has ONE PURPOSE – 100% commitment to service.

Life Cycle Support

Schneider Electric Services provides integrated solutions enabling you to reduce the total cost and risk, whilst fulfilling your ongoing quality, safety and environmental obligations. Schneider Electric Services provides a full range of services to support an installed base of electrical distribution, automation and controlled equipment. We also provide a host of initiatives to improve product performance and ensure product life cycle targets are maintained.

National Service Network

Through a national network of service centres and supplemented by a group of specialist service agents, Schneider Electric Services can deliver a range of services direct to your site as well as maintaining workshop capabilities for major repair and overhaul of specific equipment.

Complete portfolio

In addressing the requirements of local customers, Schneider Electric Services has developed a complete range of offers to cater for all end user requirements and support of the product through its life cycle.

These include the following:

Digital Services

From data and actionable insights through to maximised system uptime

Real-time data on infrastructure performance helps reduce maintenance costs and maximise system uptime. We offer services for diagnosis, troubleshooting and predictive analytics, as well as maintenance strategy recommendations and co-ordination of on-site interventions.

Spare Parts, Adaptations and Modifications

- > Range of spare parts for current and non-current product
- > Access to international spares management system
- > Equipment upgrades
- > Integrated hardware solutions

Testing and Commissioning

- > Verification of installation to factory recommendations
- > Operational testing of all equipment
- > Commissioning of all equipment and associated systems

Warranty Support

- > On-site and workshop repairs
- > Spare parts
- > Technical support
- > Service updates

Workshop Refurbishment & Repairs

- > Access to specialist parts
- > Test facilities
- > Technical documentation

Power Management Solutions

- > Power quality management
- > Load management
- > Energy efficiency

Modernisation and Retrofits

- > MV circuit breaker retrofits
- > LV circuit breaker retrofits
- > PLC hardware upgrades

Preventative Maintenance

- > Power quality audits
- > Installation audits and equipment condition assessment
- > Planned maintenance
- > Comprehensive test reports

To view a full list of services, please visit se.com/nz/services

Training

Schneider Electric offers a range of courses to ensure that whatever your level you are trained to current industry standards. Spread over the year, in different training centres nationwide you'll be able to find the course you want at a time that suits you. The duration of courses vary from a half day to three days.

To find out more information, to view the training options available and to register for courses Freecall 0800 652 999 or visit se.com/nz/training

Schneider Electric

EXCHANGE

Create | Collaborate | Scale

Life Is On

Schneider
Electric

Exchange is an open business platform that brings together 3 capabilities:

- **Marketplace:** find Schneider Electric, AVEVA and 3rd party offers & services
- **Community:** solve problems of customers and partners
- **Developer's corner:** create innovative solutions

SE & AVEVA
Offers & Services

Service Providers

Technology Partners

Schneider Electric
EXCHANGE

End Users

Marketplace



Community



Developer's corner

300+

Digital Products &
Services

50%

3rd party content

50K

Registered Users

60+

Analytics, API, Datasets
Application Notes, SDKs

exchange.se.com

Notes

Product Index and Terms & Conditions

Reference	Page
A9S60120	C4
A9S60220	C4
A9S60132	C4
A9S60232	C4
A9S60332	C4
A9S66140	C4
A9S66240	C4
A9S66340	C4
A9S66440	C4
A9S66163	C4
A9S66263	C4
A9S66363	C4
A9S66463	C4
A9S66191	C4
A9S66291	C4
A9S66391	C4
A9S66491	C4
A9S66192	C4
A9S66292	C4
A9S66392	C4
A9S66492	C4
A9A26904	C4
A9F44101	C4
A9F44102	C4
A9F44104	C4
A9F44106	C5
A9F44110	C5
A9F44116	C5
A9F44120	C5
A9F44125	C5
A9F44132	C5
A9F44140	C5
A9F44150	C5
A9F44163	C5
A9F44201	C5
A9F44202	C5
A9F44204	C5
A9F44206	C5
A9F44210	C5
A9F44216	C5
A9F44220	C5
A9F44225	C5
A9F44232	C5
A9F44240	C5
A9F44250	C5
A9F44263	C5
A9F44301	C5
A9F44302	C5
A9F44304	C5
A9F44306	C5
A9F44310	C5
A9F44316	C5
A9F44320	C5
A9F44325	C5
A9F44332	C5
A9F44340	C5
A9F44350	C5
A9F44363	C5
A9F54101	C6
A9F54102	C6
A9F54104	C6
A9F54106	C6
A9F54110	C6
A9F54116	C6
A9F54120	C6
A9F54125	C6
A9F54132	C6
A9F54140	C6
A9F54150	C6
A9F54163	C6
A9F54201	C6
A9F54202	C6
A9F54204	C6
A9F54206	C6
A9F54210	C6
A9F54216	C6
A9F54220	C6
A9F54225	C6
A9F54232	C6
A9F54240	C6
A9F54250	C6
A9F54263	C6
A9F54301	C6
A9F54302	C6
A9F54304	C6
A9F54306	C6
A9F54310	C6
A9F54316	C6
A9F54320	C6
A9F54325	C6
A9F54332	C6
A9F54340	C6
A9F54350	C6
A9F54363	C6
A9F54401	C6
A9F54402	C6
A9F54404	C6
A9F54406	C6
A9F54410	C6
A9F54416	C6
A9F54420	C6
A9F54425	C6
A9F54432	C6
A9F54430	C6
A9F54440	C6
A9F54450	C6
A9F54463	C6
A9F544101	C7
A9F544102	C7
A9F544104	C7
A9F544106	C7
A9F544110	C7
A9F544116	C7
A9F544120	C7
A9F544125	C7
A9F544132	C7
A9F544140	C7
A9F544150	C7
A9F544163	C7
A9F544201	C7
A9F544202	C7
A9F544204	C7
A9F544206	C7
A9F544210	C7
A9F544216	C7
A9F544220	C7
A9F544225	C7
A9F544232	C7
A9F544240	C7
A9F544250	C7
A9F544263	C7
A9F544301	C7
A9F544302	C7
A9F544304	C7
A9F544306	C7
A9F544310	C7
A9F544316	C7
A9F544320	C7
A9F544325	C7
A9F544332	C7
A9F544340	C7
A9F544350	C7
A9F544363	C7
A9F544401	C7
A9F544402	C7
A9F544404	C7
A9F544406	C7
A9F544410	C7
A9F544416	C7
A9F544420	C7
A9F544425	C7
A9F544432	C7
A9F544430	C7
A9F544450	C7
A9F544463	C7
A9N61501	C8
A9N61502	C8
A9N61503	C8

Reference	Page
A9F54210	C6
A9F54216	C6
A9F54220	C6
A9F54225	C6
A9F54232	C6
A9F54240	C6
A9F54250	C6
A9F54263	C6
A9F54301	C6
A9F54302	C6
A9F54304	C6
A9F54306	C6
A9F54310	C6
A9F54316	C6
A9F54320	C6
A9F54325	C6
A9F54332	C6
A9F54340	C6
A9F54350	C6
A9F54363	C6
A9F54401	C6
A9F54402	C6
A9F54404	C6
A9F54406	C6
A9F54410	C6
A9F54416	C6
A9F54420	C6
A9F54425	C6
A9F54432	C6
A9F54430	C6
A9F54440	C6
A9F54450	C6
A9F54463	C6
A9F94101	C7
A9F94102	C7
A9F94104	C7
A9F94106	C7
A9F94110	C7
A9F94116	C7
A9F94120	C7
A9F94125	C7
A9F94132	C7
A9F94140	C7
A9F94150	C7
A9F94163	C7
A9F94201	C7
A9F94202	C7
A9F94204	C7
A9F94206	C7
A9F94210	C7
A9F94216	C7
A9F94220	C7
A9F94225	C7
A9F94232	C7
A9F94240	C7
A9F94250	C7
A9F94263	C7
A9F94301	C7
A9F94302	C7
A9F94304	C7
A9F94306	C7
A9F94310	C7
A9F94316	C7
A9F94320	C7
A9F94325	C7
A9F94332	C7
A9F94340	C7
A9F94350	C7
A9F94363	C7
A9F94401	C7
A9F94402	C7
A9F94404	C7
A9F94406	C7
A9F94410	C7
A9F94416	C7
A9F94420	C7
A9F94425	C7
A9F94432	C7
A9F94430	C7
A9F94450	C7
A9F94463	C7
A9N61501	C8
A9N61502	C8
A9N61503	C8

Reference	Page
A9N61504	C8
A9N61505	C8
A9N61506	C8
A9N61508	C8
A9N61509	C8
A9N61510	C8
A9N61511	C8
A9N61512	C8
A9N61513	C8
A9N61514	C8
A9N61515	C8
A9N61517	C8
A9N61518	C8
A9N61519	C8
A9N61521	C8
A9N61522	C8
A9N61523	C8
A9N61524	C8
A9N61525	C8
A9N61526	C8
A9N61528	C8
A9N61529	C8
A9N61530	C8
A9N61531	C8
A9N61532	C8
A9N61533	C8
A9N61534	C8
A9N61535	C8
A9N61537	C8
A9N61538	C8
A9N61539	C8
A9N18356	C9
A9N18357	C9
A9N18358	C9
A9N18359	C9
A9N18360	C9
A9N18361	C9
A9N18362	C9
A9N18363	C9
A9N18364	C9
A9N18365	C9
A9N18367	C9
A9N18369	C9
A9N18371	C9
A9N18372	C9
A9N18374	C9
A9N18376	C9
A9N18378	C9
A9N18445	C10
A9N18446	C10
A9N18447	C10
A9N18448	C10
A9N18456	C10
A9N18457	C10
A9N18458	C10
A9N18459	C10
A9N18467	C10
A9N18468	C10
A9N18469	C10
A9N18470	C10
A9N18478	C10
A9N18479	C10
A9N18480	C10
A9N18481	C10
A9N18489	C10
A9N18490	C10
A9N18491	C10
A9N18492	C10
A9N18500	C10
A9N18501	C10
A9N18502	C10
A9N18503	C10
A9N18511	C10
A9N18512	C10
A9N18513	C10
A9N18514	C10
A9N18522	C10

Reference	Page
A9N18523	C10
A9N18524	C10
A9N15636	C10
A9N15646	C10
A9N15651	C10
A9N15656	C10
A9N15658	C10
A9R51240	C11
A9R51263	C11
A9R21291	C11
A9R51440	C11
A9R51463	C11
A9R21480	C11
A9R21491	C11
A9R22240	C11
A9R22280	C11
A9R22440	C11
A9R22463	C11
A9R22480	C11
A9D32606	C11
A9D32610	C11
A9D32616	C11
A9D32620	C11
A9D32625	C11
A9D32632	C11
A9D32640	C11
A9D32606	C11
A9D32610	C11
A9D32616	C11
A9D32620	C11
A9D32625	C11
A9D32632	C11
A9D32640	C11
A9D32606	C11
A9D32610	C11
A9D32616	C11
A9D32620	C11
A9D32625	C11
A9D32632	C11
A9D32640	C11
A9D40606	C11
A9D40610	C11
A9D40616	C11
A9D40620	C11
A9D40625	C11
A9D40632	C11
A9D73606	C11
A9D73610	C11
A9D73616	C11
A9D73620	C11
A9D73625	C11
A9D73632	C11
A9D11806	C12
A9D11810	C12
A9D11816	C12
A9D11820	C12
A9D11832	C12
A9D12806	C12
A9D12810	C12
A9D12816	C12
A9D12820	C12
A9D12825	C12
A9D12832	C12
A9D12840	C12
A9D12845	C12
A9D11210	C12
A9D11216	C12
A9D11220	C12
A9D11225	C12
A9D11232	C12
A9R91240	C12
A9R91263	C12

Reference	Page
A9R91440	C12
A9R91463	C12
A9D33610	C12
A9D33616	C12
A9D33620	C12
A9D33625	C12
A9D33632	C12
A9D33640	C12
A9V51263	C13
A9V25263	C13
A9V51363	C13
A9V25363	C13
A9V51463	C13
A9V25463	C13
A9V02663	C13
A9V02763	C13
A9N18572	C13
A9N18573	C13
A9N18575	C13
A9N18576	C13
A9N18578	C13
A9N18579	C13
A9Z51216	C13
A9Z51225	C13
A9Z51240	C13
A9Z51440	C13
A9Z51463	C13
A9Z61225	C13
A9Z61240	C13
A9Z61263	C13
A9Z61425	C13
A9Z61440	C13
A9Z61463	C13
A9Z61480	C13
A9T26606	C14
A9T26610	C14
A9T26616	C14
A9T26620	C14
A9T26625	C14
A9T27610	C14
A9T27616	C14
A9T27620	C14
A9T27625	C14
A9A26897	C15
A9A26904	C15
A9A26907	C15
A9A26909	C15
A9A26914	C15
A9A26917	C15
A9A26919	C15
A9A26946	C15
A9A26947	C15
A9A26948	C15
A9A26500	C15
A9A26960	C15
A9A26961	C15
A9A27108	C15
A9A26963	C15
A9A26969	C15
A9A26971	C15
A9N26899	C15
A9N26904	C15
A9N26907	C15
A9N26909	C15
A9N26914	C15
A9N26917	C15
A9N26946	C15
A9N26947	C15
A9N26948	C15
A9N26500	C15
A9N26960	C15
A9N26961	C15

Reference	Page
A9N26963	C15
A9N26969	C15
A9N26971	C15
A9A26970	C16
A9A27049	C16
A9A26975	C16
A9A26976	C16
A9A26982	C16
A9A26981	C16
A9A27001	C16
A9A27062	C16
A9A27052	C16
19096	C16
A9A27003	C16
A9A27005	C16
A9A27006	C16
26970	C16
27145	C16
26975	C16
26976	C16
18526	C16
26981	C16
18527	C16
27046	C16
27047	C16
16329	C17
16330	C17
16331	C17
16332	C17
16360	C17
16361	C17
16362	C17
16363	C17
A9L16182	C17
A9L16282	C17
A9L16382	C17
A9L16482	C17
16329	C17
16330	C17
16331	C17
16332	C17
16360	C17
16361	C17
16362	C17
16363	C17
A9L16182	C17
A9L16282	C17
A9L16382	C17
A9L16482	C17
A9L20100	C18
A9L20500	C18
A9L20300	C18
A9L20600	C18
A9L20501	C18
A9L20601	C18
A9L40100	C18
A9L40500	C18
A9L40300	C18
A9L40600	C18
A9L40101	C18
A9L40501	C18
A9L40301	C18
A9L40601	C18
A9L65101	C18
A9L65501	C18
A9L65301	C18
A9L65601	C18
A9L20102	C18
A9L40102	C18
A9L65102	C18
A9L00002	C18
A9XMSB11	C19

Reference	Page
A9XCATM1	C19
A9XCAS06	C19
A9XCAM06	C19
A9XCAH06	C19
A9XCAL06	C19
A9XCAU06	C19
A9XC2412	C19
A9XMFA04	C19
A9XM2B04	C19
A9XMLA02	C19
A9C22715	C20
A9C22712	C20
A9C20731	C20
A9C20732	C20
A9C20736	C20
A9C20833	C20
A9C20834	C20
A9C20837	C20
A9C20838	C20
A9C20842	C20
A9C20843	C20
A9C20844	C20
A9C20847	C20
A9C20862	C20
A9C20863	C20
A9C20864	C20
A9C20867	C20
A9C20868	C20
A9C20882	C20
A9C20884	C20
A9C20132	C20
A9C20134	C20
A9C20137	C20
A9C20162	C20
A9C20164	C20
A9C20167	C20
A9C15030	C20
A9C15031	C20
A9C15914	C20
A9C15915	C20
A9C15916	C20
A9C18308	C20
A9C18309	C20
A9C15924	C20
A9A27062	C20
A9C15906	C20
A9C15908	C20
A9C15913	C20
A9C30811	C21
A9C30311	C21
A9C30211	C21
A9C30111	C21
A9C30011	C21
A9C30812	C21
A9C30312	C21
A9C30212	C21
A9C30112	C21
A9C30012	C21
A9C15032	C21
A9C30815	C21
A9C30315	C21
A9C30215	C21
A9C30115	C21
A9C30831	C21
A9C15424	C21
A9E18030	C22
A9E18031	C22
A9E18032	C22
A9E18033	C22
A9E18036	C22
A9E18037	C22
A9E18038	C22

Reference	Page
A9E18039	C22
A9E18034	C22
A9E18035	C22
A9E18330	C22
A9E18331	C22
A9E18332	C22
A9E18333	C22
A9E18334	C22
A9E18335	C22
A9E18320	C22
A9E18321	C22
A9E18322	C22
A9E18323	C22
A9E18324	C22
A9E18325	C22
A9E18326	C22
A9E18327	C22
A9S60120	C23
A9S60220	C23
A9S60132	C23
A9S60232	C23
A9S60332	C23
A9E18070	C23
A9E18071	C23
A9E18072	C23
A9SCO240	C23
A9SCO440	C23
A9SCO163	C23
A9SCO263	C23
A9SCO463	C23
A9E16065	C24
A9E16066	C24
A9E16067	C24
A9E16068	C24
A9E16069	C24
A9E16070	C24
A9E16065	C24
A9E16066	C24
A9E16067	C24
A9E16068	C24
A9E16069	C24
A9E16070	C24
15335	C24
15336	C24
15331	C24
CCT15838	C24
CCT15441	C24
CCT15443	C24
CCT15910	C24
CCT15940	C24
CCT15950	C24
A9A15151	C25
A9A15152	C25
CCT15285	C25
CCT15369	C25
A9A15320	C25
A9A15321	C25
A9A15322	C25
A9A15216	C25
A9A15215	C25
A9A15212	C25
A9A15219	C25
A9A15220	C25
A9A15222	C25
PBELKIT2	C26
PBELKIT4	C26
PBELSAKIT	C26
A9XPH112	C27
A9XPH124	C27
A9XPH212	C27
A9XPH224	C27
A9XPH312	C27

Reference	Page
A9XPH324	C27
A9XPH412	C27
A9XPH424	C27
A9XPH512	C27
A9XPH524	C27
A9XAH157	C27
A9XAH257	C27
A9XAH357	C27
A9XAH457	C27
A9XAH557	C27
A9XAH657	C27
A9XPE110	C27
A9XPE210	C27
A9XPE310	C27
A9XPE410	C27
A9XPT920	C27
A9XPCM04	C27
A9XPCD04	C27
A9XPC612	C27
A9XPC624	C27
A9XPC712	C27
A9XPC724	C27
A9XPH612	C27
A9XPH624	C27
A9XPH712	C27
A9XPH724	C27
A9X21094	C27
A9X21095	C27
A9XPT620	C27
A9XPC604	C27
A9XPA648	C27
A9XPA748	C27
A9XPV648	C27
A9XPV748	C27
A9XPA648	C27
A9XPA748	C27
A9XPV648	C27
A9XPV748	C27
LVS04040	C28
LVS04041	C28
SAU25012183	C29
SAU25018183	C29
SAU25024183	C29
SAU25030183	C29
SAU25036183	C29
SAU25042183	C29
SAU25048183	C29
SAU25060183	C29
SAU25072183	C29
SAU25084183	C29
SAU25096183	C29
SAU250108183	C29
SAU25012183DF	C29
SAU25018183DF	C29
SAU25024183DF	C29
SAU25030183DF	C29
SAU25036183DF	C29
SAU25042183DF	C29
SAU25048183DF	C29
SAU25060183DF	C29
SAU25072183DF	C29
SAU25084183DF	C29
SAU25096183DF	C29
SAU250108183DF	C29
SAU40012183	C29
SAU40018183	C29
SAU40024183	C29
SAU40036183	C29
SAU40048183	C29
SAU40060183	C29
SAU40072183	C29
SAU40084183	C29

Reference	Page
SAU40096183	C29
SAU40012183DF	C29
SAU40018183DF	C29
SAU40024183DF	C29
SAU40036183DF	C29
SAU40048183DF	C29
SAU40060183DF	C29
SAU40072183DF	C29
SAU40084183DF	C29
SAU40096183DF	C29
SAU40012273	C29
SAU40018273	C29
SAU40024273	C29
SAU40036273	C29
SAU40048273	C29
SAU40060273	C29
SAU40072273	C29
SAU40012273DF	C29
SAU40018273DF	C29
SAU40024273DF	C29
SAU40036273DF	C29
SAU40048273DF	C29
SAU40060273DF	C29
SAU40072273DF	C29
SAU2501641N	C30
SAU2502441N	C30
SAU2503241N	C30
SAU2504041N	C30
SAU2504841N	C30
SAU2505641N	C30
SAU2506441N	C30
SAU2507241N	C30
SAU2501641NDF	C30
SAU2502441NDF	C30
SAU2503241NDF	C30
SAU2504041NDF	C30
SAU2504841NDF	C30
SAU2505641NDF	C30
SAU2506441NDF	C30
SAU2507241NDF	C30
SAU2500843N	C30
SAU2501643N	C30
SAU2502443N	C30
SAU2503243N	C30
SAU2504043N	C30
SAU2505643N	C30
SAU2506443N	C30
SAU2507243N	C30
SAU400H183	C30
SAU400H303	C30
SAU400H423	C30
SAU400H483	C30
SAU400H723	C30
SAU400H843	C30
SAU400H183DF	C30
SAU400H303DF	C30
SAU400H423DF	C30
SAU400H723DF	C30
SAU400H843DF	C30
CD25124N9	C30
CD25204N9	C30
CD25244N9	C30
CD25324N9	C30
CD25364N9	C30
CD25484N9	C30
CD25724N9	C30
400CK2	C31
LV429516	C31
LV429518	C31
SAU250TAGCOVER	C31
SAUTOFFCAP18	C31
SAUTOFFCAP27	C31

Reference	Page
SEA9BP	C31
SEA9TB1001	C31
SEA9TB1254	C31
SEA9BN4TNA	C32
SEA9BN6TNA	C32
SEA9BN8TNA	C32
SEA9BN12TNA	C32
SEA9BN16TNA	C32
SEA9BN18TNA	C32
SEA9BN24TNA	C32
SEA9NB4	C32
SEA9NB6	C32
SEA9NB8	C32
SEA9NB12	C32
SEA9NB16	C32
SEA9NB18	C32
SEA9NB24	C32
SEA9NKIT	C32
SEA9BP	C32
SEA9ISOPLA	C32
SEA9TB1001	C32
SEA9TB2253	C32
A9TNA250CK	C32
A9XPT920	C32
A9XPH124	C33
A9XPH224	C33
A9XPH324	C33
A9XPT920	C33
A9XPCM04	C33
28900	D2
28902	D2
28904	D2
28908	D2
28910	D2
28912	D2
31100	D2
31104	D2
31102	D2
31106	D2
31106	D2
31108	D2
31110	D2
31112	D2
31114	D2
31342	D2
31330	D2
31332	D2
31334	D2
31336	D2
31338	D2
31340	D2
28901	D2
28903	D2
28905	D2
28909	D2
28911	D2
28913	D2
31107	D2
31109	D2
31111	D2
31113	D2
31115	D2
29450	D3
28947	D3
28951	D3
LV431061	D3
LV431563	D3
LV432490	D3
LV432492	D3
LV429516	D3
LV432592	D3
28957	D3

Reference	Page
28958	D3
LV429518	D3
LV432594	D3
LV432596	D3
28959	D3
29329	D3
LV432570	D3
31315	D3
31146	D3
31148	D3
31150	D3
31152	D3
31154	D3
31055	D3
LV428941	D4
LV431050	D4
31052	D4
31288	D4
28943	D4
31057 *	D4
28962	D4
31082	D4
31084	D4
31054	D4
41940	D4
41950	D4
31087	D4
31088	D4
31291	D4
28953	D4
31073	D4
31074	D4
LV429358	D4
LV432619	D4
C11B3TM016L	D5
C11B3TM025L	D5
C11B3TM032L	D5
C11B3TM040L	D5
C11B3TM050L	D5
C11B3TM063L	D5
C11B3TM080L	D5
C11B3TM100L	D5
C12B3TM125L	D5
C12B3TM160L	D5
C11F3TM016L	D5
C11F3TM025L	D5
C11F3TM032L	D5
C11F3TM040L	D5
C11F3TM050L	D5
C11F3TM063L	D5
C11F3TM080L	D5
C11F3TM100L	D5
C12F3TM125L	D5
C12F3TM160L	D5
C11B34V025L	D5
C11B34V050L	D5
C11B34V100L	D5
C12B34V160L	D5
C11B44V025L	D5
C11B44V050L	D5
C11B44V100L	D5
C12B44V160L	D5
C11F34V025L	D5
C11F34V050L	D5
C11F34V100L	D5
C12F34V160L	D5
C11F44V025L	D5
C11F44V050L	D5
C11F44V100L	D5
C12F44V160L	D5
C113050LS	D5
C113100LS	D5

Reference	Page
C123160LS	D5
LV426912	D6
LV426913	D6
LV426920	D6
LV426950	D6
LV429453	D6
LV426900	D6
29370	D6
LV426905	D6
LV426843	D6
LV426844	D6
LV426846	D6
LV426846	D6
LV426841	D6
LV426803	D6
LV426804	D6
LV426806	D6
LV426807	D6
LV426801	D6
LV426930T	D6
LV426932T	D6
LV426935T	D6
LV426970	D6
LV426960	D6
3P	D7
C10F3	D7
C10N3	D7
C10H3	D7
3P	D7
C16F3	D7
C16N3	D7
C16H3	D7
3P	D7
C25F3	D7
C25N3	D7
C25H3	D7
C103MA003	D8
C103MA007	D8
C103MA013	D8
C103MA025	D8
C103MA050	D8
C103MA100	D8
C163MA150	D8
C253MA220	D8
C1032M025	D8
C1032M050	D8
C1032M100	D8
C1632M150	D8
C2532M220	D8
C1036M025	D8
C1036M050	D8
C1036M080	D8
C1636M150	D8
C2536M220	D8
C1034V040	D8
C1034V100	D8
C1634V160	D8
C2534V250	D8
C1044V040	D8
C1044V100	D8
C1644V160	D8
C2544V250	D8
C1047E040	D8
C1047E100	D8
C1647E160	D8
C2547E250	D8
C103100S	D8
C163160S	D8
C253250S	D8
C104100S	D8
C164160S	D8
C254250S	D8

Reference	Page
LV429489	D9
LV429493	D9
LV429214	D9
LV481011	D9
LV481012	D9
LV481013	D9
LV481014	D9
LV481017	D9
LV481018	D9
LV429521	D9
LV430563	D9
LV434210	D9
LV429313	D10
LV429312	D10
LV429234	D10
LV430554	D10
LV429528	D10
LV429502	D10
LV429513	D10
29450	D11
29452	D11
LV429451	D11
LV429454	D11
LV429532	D11
LV429424	D11
LV429386	D11
LV429387	D11
LV429388	D11
LV429390	D11
LV429406	D11
LV429407	D11
LV429408	D11
LV429410	D11
LV429457	D12
LV430557	D12
LV431567	D12
LV429461	D12
LV430561	D12
LV431569	D12
LV429337T	D12
LV429338T	D12
LV429346	D12
29370	D12
LV429371T	D12
LV429344	D12
LV429449	D12
LV429369T	D12
LV429344	D13
41950	D13
LV429317	D13
LV429372	D13
LV429373	D13
LV429235	D14
LV429236	D14
LV431563	D14
LV431061	D14
LV429515	D14
LV429516	D14
LV429517	D14
LV429518	D14
LV429329	D14
3P	D15
C40N3	D15
C40H3	D15
3P	D15
C63N3	D15
C63H3	D15
3P 3d	D15
C4032D250	D15
C4032D400	D15
C6332D630	D15
3P 3d	D15

Reference	Page
C4036E400	D15
C6336E630	D15
3P 3d	D15
C4031M320	D15
C6331M500	D15
3P 3d	D15
C4032M320	D15
C6332M500	D15
3P 3d	D15
C4036M320	D15
C6336M500	D15
C4034V400	D16
C6334V570	D16
C4044V400	D16
C6344V570	D16
C4037E400	D16
C6337E570	D16
C4047E400	D16
C6347E570	D16
LV432464	D16
LV432465	D16
LV432457	D16
LV481010	D16
LV481011	D16
LV481012	D16
LV481013	D16
LV481014	D16
LV481017	D16
LV481018	D16
LV432575	D16
LV432756	D16
LV432956	D16
LV432757	D16
LV432957	D16
LV432490	D17
LV432492	D17
LV432591	D17
LV432593	D17
LV432595	D17
LV432570	D17
29450	D18
29452	D18
LV429454	D18
LV429532	D18
LV429424	D18
LV429386	D18
LV429387	D18
LV429388	D18
LV429390	D18
LV429406	D18
LV429407	D18
LV429408	D18
LV429410	D18
MT400-630	D18
LV432640	D18
LV432641	D18
LV432642	D18
LV432643	D18
LV432652	D18
LV434205	D18
LV434200	D18
LV434201	D18
LV434202	D18
LV432657	D19
LV432857	D19
LV432653	D19
LV432861	D19
LV432597T	D19
LV432598T	D19
LV432605	D19
LV429346	D19
LV432553	D19

Reference	Page
LV432552	D19
LV432571	D19
32556	D19
LV432513	D19
LV432498	D19
29370	D20
LV432631	D20
LV432604	D20
41940	D20
LV432649	D20
41940	D20
LV432621T	D20
LV432558	D20
LV432604	D20
41950	D20
LV432623	D20
LV432624	D20
LV434205	D22
TRV00121	D22
LV434128	D22
TRV00128	D22
LV434000	D22
LV434200	D22
LV434201	D22
LV434198	D22
TRV00217	D22
TRV00870	D22
TRV00880	D22
LV434063	D22
LV434001	D22
PAS800	D22
PAS800L	D22
PAS800P	D22
PAS600	D22
PAS600L	D22
LV434020	D22
LV434022	D22
LV434021	D22
LV434023	D22
A9XMWD20	D22
A9XMWD100	D22
C10N1TM016	D23
C10N1TM020	D23
C10N1TM025	D23
C10N1TM030	D23
C10N1TM040	D23
C10N1TM050	D23
C10N1TM063	D23
C10N1TM080	D23
C10N1TM100	D23
C16N1TM125	D23
C16N1TM160	D23
C10M2TM016	D23
C10M2TM020	D23
C10M2TM025	D23
C10M2TM030	D23
C10M2TM040	D23
C10M2TM050	D23
C10M2TM063	D23
C10M2TM080	D23
C10M2TM100	D23
C16M2TM125	D23
C16M2TM160	D23
LV429289	D24
LV432538	D24
LV429282	D24
LV429283	D24
LV432538	D24
LV432532	D24
LV432533	D24
LV429273	D24
LV429274	D24

Reference	Page	Reference	Page	Reference	Page	Reference	Page
LV432523	D24	34433	D27	LV480808	D44	METSECT5DA060	E3
LV429275	D24	34437	D27		D44	METSECT5DA080	E3
LV432525	D24	33486	D28	LV480805	D44	METSECT5DA100	E3
LV429272	D24	33487	D28	LV480807	D44	METSECT5DA125	E3
LV429306	D24	33488	D28	LV480824	D44	METSECT5DD125	E3
LV432584	D24	33489	D28	LV480827	D44	METSECT5DA150	E3
LV429329	D24	33490	D28	LV480831	D44	METSECT5DD150	E3
LV432570	D24	33870	D28	49885	D44	METSECT5DB200	E3
LV429515	D24	33872	D28	LV480852	D44	METSECT5DB250	E3
LV432591	D24	33890	D28	LV480863	D44	METSECT5DB300	E3
LV429266	D24	44936	D28	LV480864	D44	METSECT5DC400	E3
LV432516	D24	33897	D28	LV480865	D44	METSECT5COVER	E3
LV429268	D24	33899 + 41940	D28	KBA25ED2302W	D48	3090SCCT022	E3
LV432518	D24	33895	D28	KBA25ED2303W	D48	3090SCCT032	E3
LV429269	D24	33640	D29	KBA40ED2303W	D48	3090SCCT043	E3
LV432519	D24	33628	D29	KBA25ED2305W	D48	3090SCCT063	E3
LV429270	D24	33642	D29	KBA40ED2305W	D48	3090SCCT083	E3
LV432520	D24	33644	D29	KBA25ED2202W	D48	3090SCCT084	E3
CNSMB12DS	D25	33646	D29	KBA40ED2203W	D48	3090SCCT124	E3
CNSMB18DS	D25	33646	D29	KBA25ED4302W	D48	3090SCCT164	E3
CNSMB24DS	D25	33622	D29	KBA25ED4303W	D48	3090SCCT204	E3
CNSMB30DS	D25	33013	D29	KBA40ED4303W	D48	A9MEM2000	E4
CNSMB36DS	D25	33015	D29	KBA25ED4305W	D48	A9MEM2010	E4
CNSMB42DS	D25	33659	D29	KBA40ED4305W	D48	A9MEM2050	E4
CNSMB48DS	D25	33660	D29	KBA25ED4202W	D48	A9MEM2455	E4
CNSMB60DS	D25	33661	D29	KBA40ED4203W	D48	A9MEM2435	E4
CNSMB12DSDFC	D25	33662	D29	KBA40ZFU	D48	A9MEM3100	E4
CNSMB18DSDFC	D25	33663	D29	KBA25ABG4W	D49	A9MEM3110	E4
CNSMB24DSDFC	D25	33664	D29	KBA40ABG4W	D49	A9MEM3115	E4
CNSMB30DSDFC	D25	33668	D29	KBA40ABD4W	D49	A9MEM3150	E4
CNSMB36DSDFC	D25	33669	D29	KBA25ABG4W	D50	A9MEM3155	E4
CNSMB42DSDFC	D25	33670	D29	KBA40ABG4W	D50	A9MEM3135	E4
CNSMB48DSDFC	D25	33671	D29	KBA40ABD4W	D50	A9MEM3165	E4
CNSMB60DSDFC	D25	33673	D29	KBA40DF405W	D50	A9MEM3175	E4
33460	D26	33717	D29	KBA40DF420W	D50	A9MEM3200	E4
33466	D26	33718	D29	KBB25ED22305W	D50	A9MEM3210	E4
33472	D26	34024	D30	KBB40ED22305W	D50	A9MEM3215	E4
33478	D26	34027	D30	KBB40ED22203W	D50	A9MEM3250	E4
33482	D26	34030	D30	KBB25ED42305W	D50	A9MEM3255	E4
33461	D26	34033	D30	KBB40ED42305W	D50	A9MEM3235	E4
33467	D26	33975	D30	KBB40ED42203W	D50	A9MEM3265	E4
33473	D26	29450	D30	KBB25ED44305W	D50	A9MEM3275	E4
33479	D26	TPCDIO05	D40	KBB40ED44305W	D50	A9MEM3300	E5
33483	D26	TPCDIO07	D40	KBB40ED44203W	D50	A9MEM3310	E5
33546	D26	TPCDIO08	D40	KBB40DF4405W	D50	A9MEM3350	E5
33552	D26	TPCDIO10	D40	KBB40DF4420W	D50	A9MEM3355	E5
33558	D26	TPCDIO11	D40	KBB40ABG44W	D50	A9MEM3335	E5
33564	D26	TPCDIO13	D40	KBB40ZFU	D50	A9MEM3365	E5
33568	D26	TPCDIO14	D40	KBC10DCB20	D51	A9MEM3375	E5
33547	D26	TPCDIO17	D40	KBC10DCB40	D51	A9MEM3455	E5
33553	D26	TPCDIO15 (native equipped)	D40	KBC16DCB21	D51	A9MEM3465	E5
33559	D26	TPCCOM16 (native equipped)	D40	KBC16DCF21	D51	A9MEM3555	E5
33565	D26	LV429358	D42	KBC16DCB40	D51	A9MEM3565	E5
33569	D26	LV432619	D42	KBC16DCF40	D51	METSECTR25500	E5
34400	D27	29364	D42	15440	E2	METSECTR30500	E5
34404	D27	29380	D42	16061	E2	METSECTR46500	E5
34408	D27	29352	D42	15201	E2	METSECTR60500	E5
34412	D27	LV480800	D43	15202	E2	METSECTR90500	E5
34416	D27	49862	D43	15209	E2	A9MEM1560	E6
34401	D27	49863	D43	15125	E2	A9MEM1570	E6
34405	D27	49865	D43	15126	E2	A9MEM1580	E6
34409	D27	49877	D43	METSEDM6000HCL10NC	E2	A9MEM1520	E6
34413	D27	49885	D43	METSEDM6200HCL10RS	E2	A9MEM1521	E6
34417	D27	LV480801	D43	METSECT5CC005	E3	A9MEM1522	E6
34420	D27	LV480802	D43	METSECT5CC008	E3	A9MEM1540	E6
34424	D27	LV480803	D43	METSECT5CC010	E3	A9MEM1541	E6
34428	D27	LV480812	D43	METSECT5CC015	E3	A9MEM1542	E6
34432	D27	LV480813	D43	METSECT5CC020	E3	A9MEM1561	E6
34436	D27	LV480818	D43	METSECT5MA025	E3	A9MEM1562	E6
34421	D27	LV480755	D43	METSECT5MA030	E3	A9MEM1563	E6
34425	D27	LV480819	D43	METSECT5MA040	E3	A9MEM1590	E6
34429	D27	LV480804	D44	METSECT5MB040	E3	A9MEM1591	E6
		LV480806	D44				

Reference	Page
A9MEM1592	E6
A9MEM1593	E6
LV434020	E6
LV434022	E6
LV434021	E6
LV434023	E6
PAS400	E6
PAS600L	E6
PAS600	E6
PAS800L	E6
PAS800	E6
PAS800P	E6
A9XMWD20	E6
A9XMWD100	E6
A9XMWRD	E6
METSEPM3200	E7
METSEPM3210	E7
METSEPM3250	E7
METSEPM3255	E7
METSEPM2110	E7
METSEPM2120	E7
METSEPM2130	E7
METSEPM5100	E7
METSEPM5110	E7
METSEPM5310	E7
METSEPM5320	E7
METSEPM5330	E7
METSEPM5340	E7
METSEPM5560	E7
METSEPM5580	E7
METSEPM5650	E7
METSEPM5350	E7
METSEPM8240	E7
METSEPM8243	E7
METSEPM8244	E7
METSEPM89RD96	E7
METSEPM89M2600	E7
METSEPM89M0024	E7
METSEPM5310R	E8
METSEPM5320R	E8
METSECTV25006	E8
METSECTV25010	E8
METSECTV25013	E8
METSECTV25016	E8
METSECTV29006	E8
METSECTV29010	E8
METSECTV29012	E8
METSECTV29013	E8
METSECTV29015	E8
METSECTV29016	E8
METSECTV29020	E8
METSECTV35006	E8
METSECTV35010	E8
METSECTV35012	E8
METSECTV35013	E8
METSECTV35015	E8
METSECTV35016	E8
METSECTV35020	E8
METSECTV35025	E8
METSECTV45025	E8
METSECTV45030	E8
METSECTV45040	E8
METSECTV45050	E8
METSECTV45060	E8
METSECTV45063	E8
METSECTV70080	E8
METSECTV70100	E8
METSECTV70125	E8
METSECTV70160	E8
DCEPCURJX5GYM	E8
DCEPCURJ01GYM	E8
DCEPCURJ02GYM	E8

Reference	Page
DCEPCURJ03GYM	E8
DCEPCURJ05GYM	E8
DCEPCURJ10GYM	E8
LVCT00102S	E9
LVCT00202S	E9
LVCT00302S	E9
LVCT00403S	E9
LVCT00603S	E9
LVCT00803S	E9
LVCT00804S	E9
LVCT01004S	E9
LVCT01204S	E9
LVCT01604S	E9
LVCT02004S	E9
LVCT02404S	E9
PAS400	E11
PAS600L	E11
PAS600	E11
PAS800L	E11
PAS800	E11
PAS800P	E11
A9XMWB11	E11
56170	E16
56172	E16
56173	E16
56174	E16
56270	E16
56272	E16
56273	E16
56274	E16
50438	E16
50439	E16
50440	E16
50441	E16
50442	E16
BLRCH080A096B52	E17
BLRCH106A127B52	E17
BLRCH172A206B52	E17
BLRCH200A240B52	E17
BLRCH250A300B52	E17
BLRCH400A480B52	E17
LVR07065A40T	E18
LVR07125A40T	E18
LVR07250A40T	E18
LVR07500A40T	E18
LC1DFK□□	E18
LC1DGK□□	E18
LC1DLK□□	E18
LC1DMK□□	E18
LC1DPK□□	E18
LC1DTK□□	E18
LC1DWK12□□	E18
VPL06N	E19
VPL12N	E19
51207	E19
51209	E19
51213	E19
BLRCH106A127B52	E19
BLRCH200A240B52	E19
BLRCH400A480B52	E19
BLRCH400A480B52	E19
LVR07065A40T	E19
LVR07125A40T	E19
LVR07250A40T	E19
LVR07500A40T	E19
LC1DFKU7	E19
LC1DGKU7	E19
LC1DMKU7	E19
LC1DWK12U7	E19
LV429003	E19

Reference	Page
LV429003	E19
LV429003	E19
LV429003	E19
LV429037	E19
LV429036	E19
LV429033	E19
LV429030	E19
V12C52CR	E20
V25C52CR	E20
V50C52CR	E20
FISHPLATES_VARP	E20
MPLTVARSET	E20
VLVAW1N03506AA	E22
VLVAW1N03529AA	E22
VLVAW1N03507AA	E22
VLVAW1N03530AA	E22
VLVAW1N03508AA	E22
VS025WA00B00C02TCC	E22
VS037WA00B01C01TCC	E22
VS050WA00B01C02TCC	E22
VS075WA01B01C00TCC	E22
VS087WA01B01C01TCC	E22
VS100WA01B02C00TCC	E22
EVCP075D5CH00	E23
EVCP075D5W20	E23
EVCP075D5W31	E23
EVCP100D5CH00	E23
EVCP100D5W20	E23
EVCP100D5W31	E23
EVCP060D5IP00	E24
EVCP060D5IP31	E24
EVCP060D5IP54	E24
EVCP120D5IP00	E24
EVCP120D5IP31	E24
EVCP120D5IP54	E24
EVCP200D5IP00	E24
EVCP200D5IP31	E24
EVCP200D5IP54	E24
EVCP300D5IP00	E24
EVCP300D5IP31	E24
EVCP300D5IP54	E24
PCSPWMKIT60A	E24
PCSPWMKIT120A	E24
PCSPWMKIT300A	E24
PCSN020Y4W20	E26
PCSN030Y4W20	E26
PCSN050Y4W20	E26
PCSN060Y4W20	E26
PCSN060Y4W20E	E26
PCSN020Y4CH00	E26
PCSN030Y4CH00	E26
PCSN050Y4CH00	E26
PCSN060Y4CH00	E26
PCSN060Y4CH00E	E26
PCSN030Y4R19	E26
PCSN060Y4R19	E26
PCSN060Y4R19E	E26
AR3100	E26
AR3300	E26
AR8136BLK	E26
AR8108BLK	E26
AR8101BLK	E26
AR7700	E26
AR7701	E26
AR7701-S	E26
PCSP060D5IP00	E27
PCSP060D5IP31	E27
PCSP060D5IP54	E27
PCSP120D5IP00	E27
PCSP120D5IP31	E27
PCSP120D5IP54	E27
PCSP200D5IP00	E27

Reference	Page
PCSP200D5IP31	E27
PCSP200D5IP54	E27
PCSP300D5IP00	E27
PCSP300D5IP31	E27
PCSP300D5IP54	E27
PCSPWMKIT60A	E27
PCSPWMKIT120A	E27
PCSPWMKIT300A	E27
NSYTBS1397T	F2
NSYTBS16128T	F2
NSYTBS19128T	F2
NSYTBS19168T	F2
NSYTBS191610HT	F2
NSYTBS241910HT	F2
NSYTBS292412T	F2
NSYTBS292412HT	F2
NSYTBS775	F2
NSYTBS885	F2
NSYTBS1176	F2
NSYTBS1179H	F2
NSYTBS11116	F2
NSYTBS111113H	F2
NSYTBS1397	F2
NSYTBS16128	F2
NSYTBS19128	F2
NSYTBS191210H	F2
NSYTBS19168	F2
NSYTBS191610H	F2
NSYTBS24198	F2
NSYTBS241910H	F2
NSYTBS241912H	F2
NSYTBS29248	F2
NSYTBS292412	F2
NSYTBS292412H	F2
NSYTBS292416H	F2
NSYTBS342912	F2
NSYTBS342916H	F2
NSYTBP1397T	F2
NSYTBP16128T	F2
NSYTBP19128T	F2
NSYTBP241910HT	F2
NSYTBP292412T	F2
NSYTBP775	F2
NSYTBP885	F2
NSYTBP1176	F2
NSYTBP11116	F2
NSYTBP1397	F2
NSYTBP16128	F2
NSYTBP19128	F2
NSYTBP191210H	F2
NSYTBP19168	F2
NSYTBP191610H	F2
NSYTBP24198	F2
NSYTBP241910H	F2
NSYTBP241912H	F2
NSYTBP29248	F2
NSYTBP292412	F2
NSYTBP292412H	F2
NSYTBP292416H	F2
NSYTBP292416H	F2
NSYTBP342912	F2
NSYTBP342916H	F2
NSYTBP342912	F2
NSYTBP342916H	F2
NSYAMPA1916TB	F3
NSYAMPA2419TB	F3
NSYAMPA2924TB	F3
NSYAMPA3429TB	F3
NSYAFTB	F3
NSYAEDH20TB	F3
NSYAEDH40TB	F3
NSYPLS1827G	F4
NSYPLSP1827G	F4
NSYPLS2727G	F4

Reference	Page
NSYPLSP2727G	F4
NSYPLS2727AG	F4
NSYPLSC2727AG	F4
NSYPLS2736G	F4
NSYPLSP2736G	F4
NSYPLS2736AG	F4
NSYPLSC2736AG	F4
NSYPLS2754G	F4
NSYPLSP2754G	F4
NSYPLS2754AG	F4
NSYPLSC2754AG	F4
NSYPLS3636G	F4
NSYPLS3654AG	F4
NSYPLS3654G	F4
NSYPLSP3636G	F4
NSYPLSP3654G	F4
NSYPLSC3654AG	F4
NSYPLS5454AG	F4
NSYPLS5454G	F4
NSYPLS5472AG	F4
NSYPLSC5472AG	F4
NSYPMA1827G	F5
NSYPMA2727G	F5
NSYPMA2736G	F5
NSYPMA2754G	F5
NSYPMA3636G	F5
NSYPMA3654G	F5
NSYPMA3672G	F5
NSYPMA5454G	F5
NSYPMA5472G	F5
NSYVA278MA	F5
NSYVA2710MA	F5
NSYBE27G	F5
NSYUM27270	F5
NSYUM27360	F5
NSYUM27270	F5
NSYUM27360	F5
NSYCL27M	F6
NSYCL27L405	F6
NSYTC274	F6
NSYTCM274	F6
NSYCAG19LP	F6
NSYCAG33LP	F6
NZYCAG35LP	F6
NSYPF27N	F6
NSYPF27X	F6
NSYPLM43TG	F7
NSYPLM54TG	F7
NSYPLM64TG	F7
NSYPLM86TG	F7
NSYPLM108TG	F7
NSYPLM32BG	F7
NSYPLM43BG	F7
NSYPLM54BG	F7
NSYPLM64BG	F7
NSYPLM75BG	F7
NSYPLM86BG	F7
NSYPLM108BG	F7
NSYPLM32	F8
NSYPLM43	F8
NSYPLM54	F8
NSYPLM64	F8
NSYPLM75	F8
NSYPLM86	F8
NSYPLM108 (1)	F8
NSYMB32	F8
NSYMB43	F8
NSYMB54	F8
NSYMB64	F8
NSYMB75	F8
NSYMB86	F8

Reference	Page
NSYMB108	F8
NSYPLM43	F8
NSYPLM54	F8
NSYPLM64	F8
NSYPLM75	F8
NSYPLM86	F8
NSYPAP43G	F8
NSYPAP54G	F8
NSYPAP64G	F8
NSYPAP75G	F8
NSYPAP86G	F8
NSYPLM64	F8
NSYPLM75 and NSYPLM86	F8
NSYPLM108	F8
NSYDPLM250	F8
NSYDPLM300	F8
NSYDPLM350	F8
NSYTCSPML	F8
NSYTCM6PLM	F8
NSYDLA24G	F9
NSYDLA48G	F9
NSYDLA48PG	F9
NSYDLA66G	F9
NSYDLA84G	F9
NSYDPLM	F10
NSYTL405PLM	F10
NSYTEL405PL	F10
NSYTT8CRN	F10
NSYLT8	F10
NSYKPLM	F10
NSYLDDB5	F10
NSYDBP	F10
NSYCAG35LP	F10
NSYPFPLM32G	F10
NSYPFPLMG	F10
NSYPFXPLM	F10
NSYTEX6	F10
NSYTEX8	F10
NSYDPLM43G	F10
NSYDPLM54G	F10
NSYDPLM64G	F10
NSYDPLM75G	F10
NSYDPLM86G	F10
NSYDPLM108G	F10
NSYVPLM108G	F10
NSYAEDPLM108	F10
NSYAEDHPLM32	F10
NSYAEDHPLM	F10
NSYAEDHPLM108	F10
NSYPLA553G	F11
NSYPLA753G	F11
NSYPLA754G	F11
NSYPLA773G	F11
NSYPLA1053G	F11
NSYPLA1073G	F11
NSYPLA10103G	F11
NSYPLA10104G	F11
NSYPLA1273G	F11
NSYPLA12103G	F11
NSYPLA12123G	F11
NSYPLA1573G	F11
NSYPLA15103G	F11
NSYPLA15123G	F11
NSYPLM86	F11
NSYPMB55	F11
NSYPMB75	F11
NSYPMB77	F11
NSYPMB105	F11
NSYPMB107	F11
NSYPMB1010	F11
NSYPMB127	F11
NSYPMB1210	F11

Reference	Page
NSYPMB1212	F11
NSYPMB157	F11
NSYPMB1510	F11
NSYPMB1512	F11
NSYPMB105 + NSYPMB105	F11
NSYPMB125 + NSYPMB125	F11
NSYPMB125 + NSYPMB127	F11
NSYDPLA3	F12
NSYZNPLA53G	F12
NSYZNPLA73G	F12
NSYZNPLA103G	F12
NSYZNPLA104G	F12
NSYZNPLA123G	F12
NSYTJPLA53G	F12
NSYTJPLA73G	F12
NSYTJPLA103G	F12
NSYTJPLA54G	F12
NSYTJPLA123G	F12
NSYLT8	F12
NSYCBCMPLAG	F12
NSYLDDB5	F12
NSYINT81	F12
NSYIN405E1	F12
NSYTSPLA	F12
NSYINDB31	F12
NSYINDB51	F12
NSYCRN252150P	F13
NSYCRN325150P	F13
NSYCRN325200P	F13
NSYCRN33200P	F13
NSYCRN43150P	F13
NSYCRN43200P	F13
NSYCRN54150P	F13
NSYCRN54200P	F13
NSYCRN54250P	F13
NSYCRN65200P	F13
NSYCRN65250P	F13
NSYCRN75250P	F13
NSYCRN86250P	F13
NSYCRN86300P	F13
NSYCRN86400	F13
NSYCRN810300D	F13
NSYCRN106250P	F13
NSYCRN108250P	F13
NSYCRN108300P	F13
NSYCRN108400	F13
NSYCRN1010300D	F13
NSYCRN1012300D	F13
NSYCRN128400	F13
NSYCRN1210400D	F13
NSYMM2520	F13
NSYMM3025	F14
NSYMM33	F14
NSYMM43	F14
NSYMM54	F14
NSYMM65	F14
NSYMM75	F14
NSYMM86	F14
NSYMM108	F14
NSYMM106	F14
NSYMM1010	F14
NSYMM1210	F14
NSYMM128	F14
NSYMM1210	F14
NSYMB3025	F14
NSYMB33	F14
NSYMB43	F14
NSYMB54	F14
NSYMB54	F14
NSYMB65	F14

Reference	Page
NSYMB75	F14
NSYMB86	F14
NSYMB106	F14
NSYMB108	F14
NSYSDCR200	F14
NSYSDCR250	F14
NSYSDCR300	F14
NSYCAG110X46M	F14
NSYCAG180X62M	F14
NSYCAG216X62M	F14
NSYCAG317X91M	F14
NSYDPA44	F14
NSYDPA5	F14
NSYDFCR	F14
NSYAEFFPFC	F14
NSYCDB3	F15
NSYCL405CRN	F15
NSYTT8CRN	F15
NSYLT8	F15
NSYLDDB5	F15
NSYDBP	F15
NSYCBCCRN	F15
NSYSUCR300WM	F15
NSYSUCR400WM	F15
NSYBICRN	F15
NSYS3X3215	F16
NSYS3X302515	F16
NSYS3X3315	F16
NSYS3X4315	F16
NSYS3X4320	F16
NSYS3X4420	F16
NSYS3X5420	F16
NSYS3X6420	F16
NSYS3X6625	F16
NSYS3X7525	F16
NSYS3X8625	F16
NSYS3X8830	F16
NSYS3X10830	F16
NSYS3X12830	F16
NSYS3X3215H	F16
NSYS3X302515H	F16
NSYS3X3315H	F16
NSYS3X4315H	F16
NSYS3X4320H	F16
NSYS3X4420H	F16
NSYS3X5420H	F16
NSYS3X6420H	F16
NSYS3X6625H	F16
NSYS3X7525H	F16
NSYS3X8625H	F16
NSYS3X8830H	F16
NSYS3X10830H	F16
NSYS3X12830H	F16
NSYMB32	F17
NSYMB3025	F17
NSYMB33	F17
NSYMB43	F17
NSYMB54	F17
NSYMB64	F17
NSYMB75	F17
NSYMB86	F17
NSYMB108	F17
NSYMM32	F17
NSYMM3025	F17
NSYMM33	F17
NSYMM43	F17
NSYMM44	F17
NSYMM54	F17
NSYMM64	F17
NSYMM66	F17
NSYMM75	F17

Reference	Page
NSYMM86	F17
NSYMM88	F17
NSYMM108	F17
NSYMM128	F17
NSYSDCR200	F17
NSYSDCR250	F17
NSYSDCR300	F17
NSYCL405CSX	F18
NSYTT8CSX	F18
NSYLT8	F18
NSYLD85	F18
NSYSTDCSX	F18
NSYSTDCXH	F18
NSYSTDCX2H	F18
NSYCBXHCRN	F18
NSYDPA44	F18
NSYDPA5	F18
NSYPFCX	F18
NSYPFC2X	F18
NSYHS3X	F18
NSYCVF38M115PF	F19
NSYCVF38M230PF	F19
NSYCVF85M230PF	F19
NSYCVF85M115PF	F19
NSYCVF85M24DPF	F19
NSYCVF165M230PF	F19
NSYCVF165M115PF	F19
NSYCVF300M230PF	F19
NSYCVF560M230PF	F19
NSYCVF850M230PF	F19
NSYCVF850M400PF	F19
NSYCAG92LPF	F19
NSYCAG125LPF	F19
NSYCAG223LPF	F19
NSYCAG291LPF	F19
NSYCAF92	F19
NSYCAF125	F19
NSYCAF223	F19
NSYCAF291	F19
NSYCCOTHC	F19
NSYCCOTHO	F19
NSYCCOTHD	F19
NSYCR55WU2	F19
NSYCR100WU2	F19
MIP0106S	F20
MIP0108S	F20
MIP0112S	F20
PDL56CB13	F20
PDL56CB4LEGY	F20
WMDIN2	F20
NSYTRV22BL	F21
NSYTRV42BL	F21
NSYTRV62BL	F21
NSYTRV102BL	F21
NSYTRV352BL	F21
NSYTRV22	F21
NSYTRV42	F21
NSYTRV62	F21
NSYTRV102	F21
NSYTRV162	F21
NSYTRV352	F21
NSYTRV502	F21
NSYTRV22PE	F21
NSYTRV42PE	F21
NSYTRV62PE	F21
NSYTRV102PE	F21
NSYTRV162PE	F21
NSYTRV352PE	F21
NSYTRAC22BL	F21
NSYTRAP22BL	F21
NSYTRAC22	F21
NSYTRAC162	F21
NSYTRAP22	F21
NSYTRAC952	F21

Reference	Page
NSYTRACP1	F21
NSYTRACP2	F21
NSYTRALV62	F21
NSYTRALV102	F21
NSYTRALVR62	F21
NSYTRALVR102	F21
NSYTRV42SC	F21
NSYTRV42ST	F21
NSYTRV42TB	F21
NSYTRASF520	F21
NSYTRASV1	F21
NSYTRAP23	F21
NSYTRV42SF5	F21
NSYTRV162SF	F21
NSYTRR23BL	F22
NSYTRR62BL	F22
NSYTRR102BL	F22
NSYTRR162BL	F22
NSYTRR22	F22
NSYTRR23	F22
NSYTRR24	F22
NSYTRR42	F22
NSYTRR43	F22
NSYTRR44	F22
NSYTRR62	F22
NSYTRR102	F22
NSYTRR162	F22
NSYTRR22PE	F22
NSYTRR23PE	F22
NSYTRR42PE	F22
NSYTRR43PE	F22
NSYTRR62PE	F22
NSYTRR102PE	F22
NSYTRACR22BL	F22
NSYTRACR23BL	F22
NSYTRACR24BL	F22
NSYTRACR22	F22
NSYTRACR23	F22
NSYTRACR24	F22
NSYTRACR42	F22
NSYTRACR43	F22
NSYTRACR44	F22
NSYTRACR62	F22
NSYTRACR63	F22
NSYTRACR102	F22
NSYTRACR162	F22
NSYTRAPR42	F22
NSYTRAPR23	F22
NSYTRAPR24	F22
NSYTRAPR42	F22
NSYTRALR62	F22
NSYTRALR102	F22
NSYTRALR162	F22
NSYTRR22SC	F22
NSYTRASF520	F22
NSYTRASV1	F22
NSYTRP22BL	F23
NSYTRP23BL	F23
NSYTRP24BL	F23
NSYTRP24DBL	F23
NSYTRP42BL	F23
NSYTRP43BL	F23
NSYTRP44BL	F23
NSYTRP22	F23
NSYTRP23	F23
NSYTRP24	F23
NSYTRP24D	F23
NSYTRP42	F23
NSYTRP43	F23
NSYTRP44	F23
NSYTRP22PE	F23
NSYTRP23PE	F23

Reference	Page
NSYTRP24PE	F23
NSYTRP24DPE	F23
NSYTRP42PE	F23
NSYTRACR22BL	F23
NSYTRACR23BL	F23
NSYTRACR24BL	F23
NSYTRACR22	F23
NSYTRACR23	F23
NSYTRACR24	F23
NSYTRACR42	F23
NSYTRACP43	F23
NSYTRACP44	F23
NSYTRAPR42	F23
NSYTRAPR23	F23
NSYTRAPR24	F23
NSYTRAPR42	F23
NSYTRACPK22	F23
NSYTRACPK23	F23
NSYTRACPK24	F23
NSYTRAPR42	F23
NSYTRV24D	F24
NSYTRV44D	F24
NSYTRV44DPE	F24
NSYTRV26T	F24
NSYTRACEP24	F24
NSYTRACE24	F24
NSYTRACE26	F24
NSYTRALV24	F24
NSYTRR24D	F24
NSYTRR44D	F24
NSYTRR26T	F24
NSYTRACRE24	F24
NSYTRACRE44	F24
NSYTRACRE26	F24
NSYTRALV24R	F24
NSYTRAB510	F24
NSYTRAB520	F24
NSYTRAB530	F24
NSYTRAB540	F24
NSYTRAB550	F24
NSYTRAB560	F24
NSYTRAB570	F24
NSYTRAB580	F24
NSYTRAB590	F24
NSYTRAB5100	F24
NSYTRAB51100	F24
NSYTRAB5L1N	F24
NSYTRAB610	F24
NSYTRAB620	F24
NSYTRAB630	F24
NSYTRAB640	F24
NSYTRAB650	F24
NSYTRAB660	F24
NSYTRAB670	F24
NSYTRAB680	F24
NSYTRAB690	F24
NSYTRAB6100	F24
NSYTRAB61100	F24
NSYTRAB6L1N	F24
NSYTRAB810	F24
NSYTRAB820	F24
NSYTRAB830	F24
NSYTRAB840	F24
NSYTRAB850	F24
NSYTRAB860	F24
NSYTRAB870	F24
NSYTRAB880	F24
NSYTRAB890	F24
NSYTRAB8100	F24
NSYTRAB1010	F24
NSYTRAB1020	F24
NSYTRAB1030	F24

Reference	Page
NSYTRAB1040	F24
NSYTRAB1050	F24
NSYTRAB1060	F24
NSYTRAB1070	F24
NSYTRAB1080	F24
NSYTRAB1090	F24
NSYTRAB10100	F24
NSYTRAL22	F25
NSYTRAL42	F25
NSYTRAL62	F25
NSYTRAL102	F25
NSYTRAL162	F25
NSYTRAL352	F25
NSYTRAL23	F25
NSYTRAL43	F25
NSYTRAL63	F25
NSYTRAL503	F25
NSYTRAL24	F25
NSYTRAL44	F25
NSYTRAL25	F25
NSYTRAL45	F25
NSYTRAL210	F25
NSYTRAL410	F25
NSYTRAL610	F25
NSYTRAL220	F25
NSYTRAL420	F25
NSYTRAAB35	F25
NSYTRAABV35	F25
NSYTRAF2	F25
NSYSDR200BD	F25
NSYDPR200D	F25
NSYTRAB4	F25
DZ5CE005	F26
DZ5CE007	F26
DZ5CE010	F26
DZ5CE015	F26
DZ5CE020	F26
DZ5CE025	F26
DZ5CE0153	F26
DZ5CE0253	F26
DZ5CA005	F26
DZ5CA007	F26
DZ5CA010	F26
DZ5CA015	F26
DZ5CA025	F26
DZ5CA042	F26
DZ5CA062	F26
DZ5CA102	F26
DZ5CA162	F26
DZ5CA043	F26
DZ5CA103	F26
DZ5CA163	F26
DZ5CA253	F26
AZ5DE015	F26
AZ5DE025	F26
AK2GD2550	F27
AK2GD3775	F27
AK2GD5075	F27
AK2GD10075	F27
AK2GD12575	F27
AK2GA33	F27
AK2GA35	F27
AK2GA39	F27
AK2GA65	F27
AK2GA69	F27
AK2CD25	F27
AK2CD37	F27
AK2CD50	F27
AK2CD100	F27
AK2CD125	F27
AK2CA3	F27
AK2CA6	F27
LC1K0610□□	H5
LC1K0601□□	H5

Reference	Page
LC1K0910□□	H5
LC1K0901□□	H5
LC1K1210□□	H5
LC1K1201□□	H5
LC1K1610□□	H5
LC1K1601□□	H5
LP1K0610□□	H5
LP1K0601□□	H5
LP1K0910□□	H5
LP1K0901□□	H5
LP1K1210□□	H5
LP1K1201□□	H5
LC2K0610□□	H5
LC2K0601□□	H5
LC2K0910□□	H5
LC2K0901□□	H5
LC2K1210□□	H5
LC2K1201□□	H5
LC2K1610□□	H5
LC2K1601□□	H5
LP2K0610□□	H5
LP2K0601□□	H5
LP2K0910□□	H5
LP2K0901□□	H5
LP2K1210□□	H5
LP2K1201□□	H5
LC1K09008□□	H5
LC1K09004□□	H5
LP1K09008□□	H5
LP1K09004□□	H5
LA1KN20	H6
LA1KN02	H6
LA1KN11	H6
LA1KN40	H6
LA1KN31	H6
LA1KN22	H6
LA2KT2E	H6
LA2KT2U	H6
LA4KC1B	H6
LA4KA1U	H6
LR2K0301	H6
LR2K0302	H6
LR2K0303	H6
LR2K0304	H6
LR2K0305	H6
LR2K0306	H6
LR2K0307	H6
LR2K0308	H6
LR2K0310	H6
LR2K0312	H6
LR2K0314	H6
LR2K0316	H6
LR2K0321	H6
LR2K0322	H6
LA7K0064	H6
LC1D09□□	H12
LC1D12□□	H12
LC1D18□□	H12
LC1D25□□	H12
LC1D32□□	H12
LC1D38□□	H12
LC1D40A□□ (4)	H12
LC1D50A□□ (4)	H12
LC1D65A□□ (4)	H12
LC1D80A□□ (4)	H12
LC1D80□□	H12
LC1D95□□	H12
LC1D1156□□ (3)	H12
LC1D1506□□ (3)	H12

Reference	Page
LC1D09□□	H12
LC1D12□□	H12
LC1D18□□	H12
LC1D25□□	H12
LC1D32□□	H12
LC1D38□□	H12
LC1D40A□□ (6)	H12
LC1D50A□□ (6)	H12
LC1D65A□□ (6)	H12
LC1D80A□□ (6)	H12
LC1D80□□	H12
LC1D95□□	H12
LC1D1156□□ (3)	H12
LC1D1506□□ (3)	H12
LC1DT20□□	H13
LC1D098□□	H13
LC1DT25□□	H13
LC1D128□□	H13
LC1DT32□□	H13
LC1D188□□	H13
LC1DT40□□	H13
LC1D258□□	H13
LC1DT60A□□	H13
LC1DT80A□□	H13
LC1D40008□□	H13
LP1D40008●□	H13
LC1D65008□□	H13
LP1D65008●□	H13
LC1D80004□□	H13
LP1D80004●□	H13
LC1D80008□□	H13
LP1D80008●□	H13
LC1D1150046□□ (3)	H13
LC1DT20□□/LC1D098□□	H13
LC1DT25□□/LC1D128□□	H13
LC1DT32□□/LC1D188□□	H13
LC1DT40□□/LC1D258□□	H13
LC1DT60A□□ (6)	H13
LP1D40008□□	H13
LC1DT80A□□ (6)	H13
LP1D65008□□	H13
LP1D80004□□	H13
LP1D80008□□	H13
LC1D1150046□□	H13
LC1D09□□□	H14
LC1D12□□□	H14
LC1D18□□□	H14
LC1D25□□□	H14
LC1D32□□□	H14
LC1D38□□□	H14
LC1D40A□□□ (4)	H14
LC1D50A□□□ (4)	H14
LC1D65A□□□ (4)	H14
LC1D80A□□□ (4)	H14
LC1DT60A□□□	H14
LC1DT80A□□□	H14
LC1DFK□□	H16
LC1DGK□□	H16
LC1DLK□□	H16
LC1DMK□□	H16
LC1DPK□□	H16
LC1DTK□□	H16
LC1DVK12□□	H16
LAD9R1V	H16
LAD9R1	H16
LAD9R3	H16
LAD9V2	H16
LAD4CM	H16

Reference	Page
LA9D50978	H16
LA9D80978	H16
LAD9V5 + LAD9V6	H16
LA9D65A69	H16
LA9D8069	H16
LA9D11569	H16
LADT9R1V	H16
LADT9R1	H16
LAD9V2	H16
LAD4CM	H16
LA9D50978	H16
LA9D80978	H16
LA9D8070(2)	H16
LA9D8070(2)	H16
LA9D11570	H16
LADN10	H18
LADN01	H18
LADN11	H18
LADN20	H18
LADN02	H18
LADN22	H18
LADN13	H18
LADN40	H18
LADN04	H18
LADN31	H18
LADC22	H18
LAD8N11	H18
LAD8N20	H18
LAD8N02	H18
LAD4RCE	H19
LAD4RCG	H19
LAD4RCU	H19
LAD4RC3E	H19
LAD4RC3G	H19
LAD4RC3U	H19
LAD4RC3N	H19
LA4DA2E	H19
LA4DA2G	H19
LA4DA2U	H19
LAD4VE	H19
LAD4VU	H19
LAD4V3E	H19
LAD4V3U	H19
LA4DE2G	H19
LA4DE2U	H19
LA4DE3U	H19
LAD4DDL	H20
LAD4D3U	H20
LA4DC3U	H20
LAD4TB	H20
LAD4TBDL	H20
LAD4TS	H20
LAD4TSDL	H20
LAD4TGDL	H20
LAD4T3B	H20
LAD4T3U	H20
LAD4T3R	H20
LA4DB3B	H20
LA4DB3S	H20
LADT0	H21
LADT2	H21
LADT4	H21
LADS2	H21
LADR0	H21
LADR2	H21
LADR4	H21
LAD6K10□ (2)	H21
LA6DK10□	H21
LA6DK20□	H21
LA4DT2U (2)	H22
LA4DT4U (2)	H22

Reference	Page
LA4DFB (2)	H22
LA4DWB (2)	H22
LAD4BB	H22
LAD4BBVE	H22
LAD4BBVG	H22
LAD4BBVU	H22
LAD9P3	H22
LA9D115703	H22
LA9D115704	H22
LA9D115603	H22
GV3S	H22
LRD01	H23
LRD02	H23
LRD03	H23
LRD04	H23
LRD05	H23
LRD06	H23
LRD07	H23
LRD08	H23
LRD10	H23
LRD12	H23
LRD14	H23
LRD16	H23
LRD21	H23
LRD22	H23
LRD32	H23
LRD35	H23
LRD313	H23
LRD318	H23
LRD325	H23
LRD332	H23
LRD340	H23
LRD350	H23
LRD365	H23
LRD380	H23
LRD3322	H23
LRD3353	H23
LRD3355	H23
LRD3357	H23
LRD3359	H23
LRD3361	H23
LRD3363	H23
LRD3365	H23
LRD4365 (2)	H23
LRD4367 (2)	H23
LRD4369 (2)	H23
LR9D5367 (2)	H23
LR9D5369 (2)	H23
LR9D67	H23
LR9D69	H24
LR9D01	H24
LR9D02	H24
LR9D08	H24
LR9D32	H24
LAD7B205	H25
LR9D015M7	H25
LR9D015B	H25
LR9D07M7	H25
LR9D07F7	H25
LR9D07B	H25
LR9D25M7	H25
LR9D25F7	H25
LR9D25B	H25
LR9D38M7	H25
LR9D38F7	H25
LR9D38B	H25
LT4706M7S	H25
LT4706F7S	H25
LT4706BS	H25
LT4730M7S	H25
LT4730F7S	H25

Reference	Page
LT4760M7S	H25
LT4760F7S	H25
LT4760BS	H25
LAD7C1	H25
LAD7C2	H25
LAD7B106	H25
LAD7C1 (1)	H27
LAD7C2 (1)	H27
LAD7B106	H27
LAD7B205	H27
LA7D3064 (3)	H27
LAD96560	H27
LAD703□ (5) (6)	H27
LA7D03□ (5)	H27
LA7D1020	H27
XB5AL84101	H27
XB5AA86102	H27
LA9G3601	H35
LA9G3602	H35
LA9G3603	H35
LA9G3613	H35
LA9G3614	H35
LA9G4601	H35
LA9G4602	H35
LA9G4603	H35
LA9G4613	H35
LA9G4614	H35
LA9G3661	H35
LA9G3662	H35
LA9G3663	H35
LA9G3671	H35
LA9G3672	H35
LA9G3673	H35
LA9G3681	H35
LA9G3682	H35
LA9G3683	H35
LA9G3631	H35
LA9G3632	H35
LA9G3633	H35
LA9G4631	H35
LA9G4632	H35
LA9G4633	H35
LA9G3611	H35
LA9G3612	H35
LA9G3711	H35
LA9G3712	H35
LA9G3714	H35
LA9G4611	H35
LA9G4612	H35
LA9G4711	H35
LA9G4712	H35
LA9G4714	H35
LA9G3801	H36
LA9G4801	H36
LA9G3707	H36
LA9G4707	H36
LV429256	H36
LV429257	H36
LV429258	H36
LV432501	H36
LV432503	H36
LA9GQQ330	H36
LA9GSSQ330	H36
LA9GSS330	H36
LA9GTS330	H36
LA9GTT330	H36
LA9GSQ331	H36
LA9GTS331	H36
LA9G3760	H37
LA9G3761	H37
LA9G3762	H37
LA9G3750	H37
LA9G3751	H37
LA9G3752	H37
LA9G4750	H37
LA9G4751	H37
LA9G4752	H37
LA9G970	H37

Reference	Page
LA9G971	H37
LA9G972	H37
LA9G3111	H37
LA9G3112	H37
LA9G3113	H37
LA9G4111	H37
LA9G4112	H37
LA9G4113	H37
LA9GRFB1	H38
LA9GRFB2	H38
LA9GRFB3 (1)	H38
LA9G3QA	H40
LA9G3RA	H40
LA9G3SA	H40
LA9G3TA (1)	H40
LA9G4QA	H40
LA9G4RA	H40
LA9G4SA	H40
LA9G4TA (1)	H40
LR9G115	H42
LR9G225	H42
LR9G500	H42
LR9G630 (1)	H42
LA9G3650	H42
LA9G3651	H42
LA9G3652	H42
LA9G3653	H42
LA9G82	H42
LA9G3704	H42
LA9G3705	H42
LA9G3706	H42
LAD7305	H42
LE1M35□□05	H44
LE1M35□□06	H44
LE1M35□□07	H44
LE1M35□□08	H44
LE1M35□□10	H44
LE1M35□□12	H44
LE1M35□□14	H44
LE1M35□□16	H44
LE1M35□□21	H44
LE1M35□□22	H44
LE1D12□□	H44
LE1D18□□	H44
LE1D25□□	H44
LE1D35□□	H44
LE1D40A□□	H44
LE1D50A□□	H44
LE1D65A□□	H44
PDL56DOL9LOBGY	H44
PDL56DOL9LOGY	H44
PDL56DOL12LOBGY	H44
PDL56DOL12LOGY	H44
PDL56DOL16LOBGY	H44
PDL56DOL16LOGY	H44
LC3D180AB7	H45
LC1D320AP7	H45
LE3D12N7	H45
LE3D18N7	H45
LAD91217	H45
LAD93217	H45
LAD9SD3	H45
LA9D8017	H45
LA9D80973	H45
GV2ME01	H47
GV2ME02	H47
GV2ME03	H47
GV2ME04	H47
GV2ME05	H47
GV2ME06	H47
GV2ME07	H47
GV2ME08	H47
GV2ME10	H47
GV2ME14	H47
GV2ME16	H47
GV2ME20	H47

Reference	Page
GV2ME21	H47
GV2ME22	H47
GV2ME32	H47
GV2P01	H47
GV2P02	H47
GV2P03	H47
GV2P04	H47
GV2P05	H47
GV2P06	H47
GV2P07	H47
GV2P08	H47
GV2P10	H47
GV2P14	H47
GV2P16	H47
GV2P20	H47
GV2P21	H47
GV2P22	H47
GV2P32	H47
GV2L03	H47
GV2L04	H47
GV2L05	H47
GV2L06	H47
GV2L07	H47
GV2L08	H47
GV2L10	H47
GV2L14	H47
GV2L16	H47
GV2L20	H47
GV2L22	H47
GV2L32	H47
LAD311	H49
GV1F03	H49
GV2AF01	H49
GV2AF3	H49
GV2AF4	H49
GV2G245	H49
GV2G254	H49
GV2G445	H49
GV2G454	H49
LA9D92	H49
LA9E07	H49
GV1G02	H49
GV1G10	H49
GV1G09	H49
GV2G05	H49
GV2APN02	H49
INT_CHGV2/14	H49
INT_CHGV2/26	H49
GVAE1	H51
GVAE11	H51
GVAE20	H51
GVAN11	H51
GVAN20	H51
GVAD1010	H51
GVAD0110	H51
GVAM11	H51
GVA□025	H51
GVA□115	H51
GVA□225	H51
GVA□415	H51
GVAX225	H51
GVAX415	H51
GV2AK00	H51
GV1L3	H51
GV2MC03	H52
GV2PC02	H52
GV2V01	H52
GV2K011	H52
GV2K031	H52
GV2K04 (2)	H52
GV2E02	H52
GV3P13	H54
GV3P18	H54
GV3P25	H54
GV3P32	H54
GV3P40	H54

Reference	Page
GV3P50	H54
GV3P65	H54
GV3P73	H54
GV3L25	H54
GV3L32	H54
GV3L40	H54
GV3L50	H54
GV3L65	H54
GV3L73	H54
GV3APN02	H54
GV3G364	H54
GVAED101	H54
GVAED011	H54
GVAED101	H54
GVAED011	H54
GVAE1	H55
GVAE11	H55
GVAE20	H55
GVAN11	H55
GVAN20	H55
GVAD1010	H55
GVAD1001	H55
GVAD0110	H55
GVAD0101	H55
GVAM11	H55
GVA□025	H55
GVA□115	H55
GVA□225	H55
GVA□415	H55
GV3G364	H55
GV2V03	H55
GV3G364	H55
GV2V03	H55
GV3PC02	H55
GV4PEM02N (2)	H57
GV4PEM03N (2)	H57
GV4PEM07N (2)	H57
GV4PEM12N (2)	H57
GV4PEM25N (1)(2)	H57
GV4PEM50N (1)(2)	H57
GV4PEM80N (1)(2)	H57
GV4PEM115N (1)	H57
GV4P02N	H57
GV4P03N	H57
GV4P07N	H57
GV4P12N	H57
GV4P25N	H57
GV4P50N	H57
GV4P80N	H57
GV4P115N	H57
GV4P02N	H57
GV4P03N	H57
GV4P07N	H57
GV4P12N	H57
GV4P25N	H57
GV4P50N	H57
GV4P80N	H57
GV4P115N	H57
GV4PE02N	H57
GV4PE03N	H57
GV4PE07N	H57
GV4PE12N	H57
GV4PE25N	H57
GV4PE50N	H57
GV4PE80N	H57
GV4PE115N	H57
GV4L02N	H57
GV4L03N	H57
GV4L07N	H57
GV4L12N	H57
GV4L25N	H57

Reference	Page
GV4L50N	H57
GV4L80N	H57
GV4LE02N	H57
GV4LE03N	H57
GV4LE07N	H57
GV4LE12N	H57
GV4LE25N	H57
GV4LE50N	H57
GV4LE80N	H57
GV4AE11	H58
GV4ADM1111	H58
GV4AS027	H58
GV4AS137	H58
GV4AS287	H58
GV4AS487	H58
GV4AU027	H58
GV4AU137	H58
GV4AU247	H58
GV4AU415	H58
GV4ADN01	H58
GV4ADN02	H58
GV4APN04	H58
GV4APN01	H58
LV426936	H58
LV426937	H58
GVAPL01	H58
GV4LUG	H58
LAD96590	H58
LV426920	H58
LV426940	H58
LV426990	H58
LV426992	H58
29370	H58
LV429375	H58
Ecoreach	H58
LZ1H2X4□□	H59
LZ1H6X5□□	H59
LZ2H2X4□□	H59
LZ2H6X5□□	H59
LZ7H2X4□□	H59
LZ7H6X5□□	H59
LZ8H2X4□□	H59
LZ8H6X5□□	H59
LUB120	H63
LUB320	H63
LUB380	H63
LU9BN11	H63
LU9BN11C	H63
TUC_CH/16	H63
TUC_CH/30	H63
TUCH16W	H63
TUCH30W	H63
LU2B12□□	H64
LU2B32□□	H64
LU2B38□□ (3)	H64
LU2MB0□□	H64
LU6MB0□□	H64
LU9MR1C	H64
LU9M1	H65
LU9M1	H65
LU9M1	H65
LU9MR1	H65
LUA1C11	H66
LUA1C20	H66
LUA8E20	H66
LUFN20	H66
LUFN11	H66
LUFN02	H66
LU9C1	H66
LU9C2	H66

Reference	Page
LUCBX6□□	H67
LUCB1X□□	H67
LUCB05□□	H67
LUCB12□□	H67
LUCB18□□	H67
LUCB32□□	H67
LUCB38□□ (2)	H67
LUCCX6□□	H67
LUCC1X□□	H67
LUCC05□□	H67
LUCC12□□	H67
LUCC18□□	H67
LUCC32□□	H67
LUCDX6□□	H67
LUCD1X□□	H67
LUCD05□□	H67
LUCD12□□	H67
LUCD18□□	H67
LUCD32□□	H67
LUCD38□□ (2)	H67
LUCLX6□□	H68
LUCL1X□□	H68
LUCL05□□	H68
LUCL12□□	H68
LUCL18□□	H68
LUCL32□□	H68
LUCMX6BL	H68
LUCM1XBL	H68
LUCM05BL	H68
LUCM12BL	H68
LUCM18BL	H68
LUCM32BL	H68
LUFDH11	H69
LUFDA01	H69
LUFDA10	H69
LUFW10	H69
LUFV2	H69
LUFC00	H70
LU9BN11C	H70
LU9MRC	H70
LU9G02 (1)	H70
LU9R03	H70
LU9R10	H70
LU9R30	H70
TSXCDP053	H70
TSXCDP103	H70
TSXCDP203	H70
TSXCDP303	H70
ABFH20H100	H70
ABFH20H200	H70
TSXCDP301	H70
TSXCDP501	H70
ASILUFC5	H71
ASILUFC51	H71
LU9BN11C	H71
LU9MRC	H71
LU9BN11C	H72
LU9MRC	H72
LU9GC3	H72
VW3A8306R03	H72
VW3A8306R10	H72
VW3A8306R30	H72
VW3A8306TF03	H72
VW3A8306TF10	H72
TSXCANCADD1	H73
TSXCANCADD3	H73
TSXCANCADD5	H73
TSXCANCA50	H73
TSXCANCA100	H73
TSXCANCBDD03	H73
TSXCANCBDD1	H73
TSXCANCBDD3	H73

Reference	Page
TSXCANCBDD5	H73
TSXCANCB50	H73
TSXCANCB100	H73
TSXCANKCDF90T	H73
TSXCANKCDF180T	H73
TSXCANTDM4	H73
LULC15	H74
LU9RFL15	H74
LU9BN11L	H74
LU9MRL	H74
LU9RCD03	H74
LU9RCD10	H74
LU9RCD50	H74
LU9RDD03	H74
LU9BN11L	H75
LU9MRL	H75
LU9BN11L	H76
LU9MRL	H76
LU9GC7	H76
LU9AD7	H76
TSXPBSCA100	H76
TSXPBSCA400	H76
LU9RPB010	H76
LU9RPB100	H76
LU9RPB400	H76
GV2G245	H77
GV2G254	H77
GV2G345	H77
GV2G354	H77
GV2G445	H77
GV2G454	H77
GV2G554	H77
GV1G10	H77
GV1G09	H77
AK5PC13 (1)	H77
AK5PC33 (1)	H77
AK5PC33L (1)	H77
LUALB1 (2)	H77
LA9LB920	H77
LUALF1	H77
LAD90 (4)	H77
LU9APN22	H78
LU9APN21	H78
LU9AP20	H78
TPRBCEIP	H80
TPRBCPFN	H80
TPRBCPF8	H80
TPRAN2X1	H80
TPRDG4X2	H80
TPRVM001	H80
TPRPM009	H80
TPRPM038	H80
TPRPM080	H80
TPRST009	H80
TPRST025	H80
TPRST038	H80
TPRST065	H80
TPRST080	H80
TPRSS009	H80
TPRSS025	H80
TPRSS038	H80
TPRSS065	H80
TPRSS080	H80
TPRSM001	H80
LAD9R1	H80
LAD9R3	H80
LAD9P3	H80
LAD9SD3S	H80
LTMR08MBD	H81
LTMR08MFM	H81
LTMR27MBD	H81
LTMR27MFM	H81

Reference	Page
LTMR100MBD	H81
LTMR100MFM	H81
LTMR27CBM	H81
LTMR27CFM	H81
LTMR100CBD	H81
LTMR100CFM	H81
LTMR08PBD	H81
LTMR08PFM	H81
LTMR27PBD	H81
LTMR27PFM	H81
LTMR100PBD	H81
LTMR100PFM	H81
LTMR08DBD	H81
LTMR08DFM	H81
LTMR27DFM	H81
LTMR100DBD	H81
LTMR100DFM	H81
LTMR08EBD	H81
LTMR08EFM	H81
LTMR27EBD	H81
LTMR27EFM	H81
LTMR100EBD	H81
LTMR100EFM	H81
LTMEV40BD	H81
LTMEV40FDM	H81
LTMCC004	H81
LTM9CEXP10	H81
LTMCUF	H82
LTMCU	H82
LTM9CU10	H82
TCSMCNAM3M002P	H82
LTM9KCU	H82
LUTC1001	H82
LUTC2001	H82
LUTC4001	H82
50437	H82
50438	H82
50439	H82
50440	H82
50441	H82
AK5JB143	H82
AK5JB145	H82
AK5JB1410	H82
AK5JB143	H82
AK5JB145	H82
AK5JB1410	H82
AK5PC12	H82
AK5PC32L	H82
AK5PC33	H82
AK5PC33L	H82
AK5PC34	H82
AK5PC34L	H82
AK5PA232	H82
AK5PA2312	H82
AK5PA231	H82
AK5PA241	H82
AM1DL201	H82
AK5JB143	H83
AK5JB145	H83
AK5JB1410	H83
AK5JB143	H83
AK5JB145	H83
AK5JB1410	H83
AK5PC12	H83
AK5PC32L	H83
AK5PC33	H83
AK5PC33L	H83
AK5PC34	H83
AK5PC34L	H83
AK5PA231	H83
AK5PA241	H83
AK5PA232	H83

Reference	Page
AK5PA2312	H83
LA9ZX01495	H85
LA9ZX01573	H85
LA9ZX01485	H85
LA9ZX01131	H85
LA9ZX01244	H85
LA9ZX01245	H85
LA9ZA32621	H86
LA9ZA32434	H86
LA9ZA32622	H86
LA9ZA32623	H86
LA9ZA32427	H86
LA9ZA32428	H86
LA9ZA32624	H86
LA9ZA32625	H86
LA9ZA32626	H86
LV429372	H88
LV429373	H88
LV432623	H88
LV432624	H88
LV429372	H88
LV429373	H88
LV432623	H88
LV432624	H88
LA9ZX01285	H88
LA9ZX01287	H88
LA9ZX01413	H88
LA9ZX01243	H88
LA9ZX01563	H88
VCD01	H90
VCD0	H90
VCD1	H90
VCD2	H90
VCF01	H90
VCF0	H90
VCF1	H90
VCF2	H90
VCF3	H90
VCF4	H90
VCF5	H90
VCF6	H90
VCF02GE	H90
VCF01GE	H90
VCF0GE	H90
VCF1GE	H90
VCF2GE	H90
VCF3GE	H90
VCF4GE	H90
VCF5GEN	H90
VCF6GEN	H90
KCC1YZ	H91
KCE1YZ	H91
KCD1PZ	H91
KCF1PZ	H91
KCF2PZ	H91
KCF3PZ	H91
V0	H91
V1	H91
V2	H91
V3	H91
V4	H91
V5	H91
V6	H91
VZ02	H92
VZ01	H92
VZ0	H92
VZ1	H92
VZ2	H92
VZ3	H92
VZ4	H92
VZ11	H92
VZ12	H92

Reference	Page
VZ14	H92
VZ15	H92
VZ16	H92
VZ7	H92
VZ20	H92
VZ17	H93
VZ30	H93
VZ18	H93
VZ31	H93
VZ18	H93
VZ31	H93
KZ32	H93
KZ74	H93
KZ13	H93
KZ15	H93
KZ14	H93
KZ16	H93
KZ101	H93
VZ8	H93
VZ9	H93
VZ10	H93
VZ26	H93
VZ27	H93
ATS01N103FT	I7
ATS01N106FT	I7
ATS01N109FT	I7
ATS01N112FT	I7
ATS01N125FT	I7
ATS01N206QN	I7
ATS01N209QN	I7
ATS01N212QN	I7
ATS01N222QN	I7
ATS01N232QN	I7
ATS22D17Q	I8
ATS22D32Q	I8
ATS22D47Q	I8
ATS22D62Q	I8
ATS22D75Q	I8
ATS22D88Q	I8
ATS22C11Q	I8
ATS22C14Q	I8
ATS22C17Q	I8
ATS22C21Q	I8
ATS22C25Q	I8
ATS22C32Q	I8
ATS22C41Q	I8
ATS22C48Q	I8
ATS22C59Q	I8
VW3G22400	I9
VW3G22401	I9
VW3G22402	I9
VW3G22901NZ	I9
VW3G22902NZ	I9
VW3G22903NZ	I9
VW3G22904NZ	I9
VW3G22905NZ	I9
LA9F702	I9
LA9F703	I9
ABL6TS10U	I9
VW3G22101	I9
VW3G22102	I9
VW3A1104R10	I9
VW3A1104R30	I9
TCSMCNAM3M002P	I10
UPUMP1	I10
UPUMP2	I10
HMIZSURDP	I10
HMIZSURDP5	I10
ABLS1A24031	I10
ATS480D17Y	I12
ATS480D22Y	I12
ATS480D32Y	I12
ATS480D38Y	I12
ATS480D47Y	I12

Reference	Page
ATS480D62Y	I12
ATS480D75Y	I12
ATS480D88Y	I12
ATS480C11Y	I12
ATS480C14Y	I12
ATS480C17Y	I12
ATS480C21Y	I12
ATS480C25Y	I12
ATS480C32Y	I12
ATS480C41Y	I12
ATS480C48Y	I12
ATS480C59Y	I12
ATS480C66Y	I12
ATS480C79Y	I12
ATS480M10Y	I12
ATS480M12Y	I12
VW3A1113	I13
VW3A1114	I13
VW3A1104R10	I13
VW3A1104R30	I13
VW3A1104R50	I13
VW3A1104R100	I13
VW3A1111	I13
VW3A1112	I13
TCSXCNAMUM3P	I13
TCSMCNAM3M002P	I13
TCSEGWB131W	I13
VW3A3720	I13
VW3A3607	I13
VW3A3647 (2)	I13
VW3A3608	I13
VW3A3618	I13
VW3A3628	I13
LA9F702	I14
LA9F703	I14
LA9F704	I14
ATSF1-S	I14
ATSF2-S	I14
ATSF3-S	I14
ATSF4-S	I14
ATSF5-S	I14
VZ1L015UM17T	I14
VZ1L030U800T	I14
VZ1L040U600T	I14
VZ1L070U350T	I14
VZ1L150U170T	I14
VZ1L250U100T	I14
VZ1L325U075T	I14
VZ1L530U045T	I14
VZ1LM10U024T	I14
VZ1LM14U016T	I14
VZ3V481	I14
VZ3V4811	I14
VZ3V482	I14
VZ3V483	I14
VZ3V484	I14
VZ3V485	I14
VZ3V485	I14
ATV12H018M2	I15
ATV12H037M2	I15
ATV12H055M2	I15
ATV12H075M2	I15
ATV12HU15M2	I15
ATV12HU22M2	I15
VW3A9804	I15
VW3A9805	I15
VW3A9523	I15
VW3A9524	I15
SZ1RV1202	I15
VW3A1006	I16
VW3A1007	I16
VW3A1104R10	I16
VW3A1104R30	I16
TCSMCNAM3M002P	I16
VW3A8120	I16
VW3A8121	I16
VW3A8126	I16

Reference	Page
VW3A4416	I16
VW3A4417	I16
VZ3V1301	I16
ATV320U02M2C	I18
ATV320U04M2C	I18
ATV320U06M2C	I18
ATV320U07M2C	I18
ATV320U11M2C	I18
ATV320U15M2C	I18
ATV320U22M2C	I18
ATV320U04N4C	I18
ATV320U06N4C	I18
ATV320U07N4C	I18
ATV320U11N4C	I18
ATV320U15N4C	I18
ATV320U22N4C	I18
ATV320U30N4C	I18
ATV320U40N4C	I18
ATV320U55N4C	I18
ATV320U75N4C	I18
ATV320D11N4C	I18
ATV320D15N4C	I18
ATV320U02M2B	I19
ATV320U04M2B	I19
ATV320U06M2B	I19
ATV320U07M2B	I19
ATV320U11M2B	I19
ATV320U15M2B	I19
ATV320U22M2B	I19
ATV320U04N4B	I19
ATV320U06N4B	I19
ATV320U07N4B	I19
ATV320U11N4B	I19
ATV320U15N4B	I19
ATV320U22N4B	I19
ATV320U30N4B	I19
ATV320U40N4B	I19
ATV320U55N4B	I19
ATV320U75N4B	I19
ATV320D11N4B	I19
ATV320D15N4B	I19
ATV320U02M2W	I20
ATV320U04M2W	I20
ATV320U06M2W	I20
ATV320U07M2W	I20
ATV320U11M2W	I20
ATV320U15M2W	I20
ATV320U22M2W	I20
ATV320U04N4W	I20
ATV320U06N4W	I20
ATV320U07N4W	I20
ATV320U11N4W	I20
ATV320U15N4W	I20
ATV320U22N4W	I20
ATV320U30N4W	I20
ATV320U40N4W	I20
ATV320U55N4W	I20
ATV320U75N4W	I20
VW3A9535	I20
VW3A9536	I20
ZB5AW7L3741	I20
ZB5AA71114	I20
ZB5AD3	I20
XB5AD912R4K7	I20
XB5AS86449B4	I20
VW3A1111	I20
VW3A1112	I20
VW3A9921	I21
GV2AF5	I21
VW3A9920	I21
VW3M7101R01	I21
VW3M7102R150	I21

Reference	Page	Reference	Page	Reference	Page	Reference	Page
VW3M2207	I21	TCSCAR01NM120	I23	VW3A9704	I30	ATV950C16N4F	I33
VW3A95817	I21	VW3CANTAP2	I23	VW3A9112	I30	ATV950C20N4F	I33
VW3A95819	I21	490NTW00002	I23	VW3A9113	I30	ATV950C25N4F	I33
VW3A9804	I21	490NTW00005	I23	ATV650U07N4	I31	ATV950C31N4F	I33
VW3A9805	I21	490NTW00012	I23	ATV650U15N4	I31	VW3A9704	I34
VW3A95811	I21	VW3A7730	I24	ATV650U22N4	I31	VW3A9112	I34
VW3A95812	I21	VW3A7731	I24	ATV650U30N4	I31	VW3A9113	I34
VW3A95814	I21	VW3A7732	I24	ATV650U40N4	I31	VW3A9704	I34
VW3A95816	I21	VW3A7730	I24	ATV650U55N4	I31	VW3A9112	I34
VW3A95818	I21	VW3A7731	I24	ATV650U75N4	I31	VW3A9113	I34
VW3A3600	I21	VW3A7732	I24	ATV650D11N4	I31	VW3A9114	I34
VW3A9922	I21	VW3A7733	I24	ATV650D15N4	I31	NSYPTDS1	I34
GVAPB65S	I21	VW3A7608R07	I24	ATV650D18N4	I31	NSYPTDS2	I34
GV2APN03	I21	VW3A7608R30	I24	ATV650D22N4	I31	NSYPTDS3	I34
VW3A9535	I21	VW3A7605R07	I24	ATV650D30N4	I31	NSYPTDS4	I34
VW3A9536	I21	VW3A7605R30	I24	ATV650D37N4	I31	NSYPTDS5	I34
VW3A9911	I21	VW3A7603R07	I24	ATV650D45N4	I31	VW3A95116	I34
VW3A9912	I21	VW3A7603R30	I24	ATV650D55N4	I31	VW3A9513	I34
VW3A3600	I21	VW3A7608R07	I24	ATV650D75N4	I31	VW3A9514	I34
SZ1RV1202	I21	VW3A7608R30	I24	ATV650D90N4	I31	VW3A9515	I34
XB4BD912R4K7	I21	VW3A7606R07	I24	ATV650C11N4F	I31	NSYAEFPFPTD	I34
XB5AD912R4K7	I21	VW3A7606R30	I24	ATV650C13N4F	I31	SZ1RV1202	I34
VW3A1006	I22	VW3A7604R07	I24	ATV650C16N4F	I31	XB4BD912R4K7	I34
VW3A1007	I22	VW3A7604R30	I24	ATV650C20N4F	I31	XB5AD912R4K7	I34
VW3A1111	I22	VW3A31401	I24	ATV650C25N4F	I31	VX5VPS1001	I34
VW3A1112	I22	VW3A31403	I24	ATV650C31N4F	I31	VX5VPS2001	I34
VW3A1104R10	I22	VW3A31405	I24	ATV930U07N4	I32	VX5VPS3001	I34
VW3A1104R30	I22	VW3A4420	I24	ATV930U15N4	I32	VX5VPS4001	I34
VW3A1104R50	I22	VW3A4421	I24	ATV930U22N4	I32	VX5VPS5001	I34
VW3A1104R100	I22	VW3A4426	I24	ATV930U30N4	I32	VX5VPS6001	I34
TCSXCNAMUM3P	I22	VW3A31404	I24	ATV930U40N4	I32	VZ3V1212	I34
TCSMCNAM3M002P	I22	VW3A31406	I24	ATV930U55N4	I32	VX5VP50A001	I34
VW3A8120	I22	VW3A4422	I24	ATV930U75N4	I32	VX5VP50BC001	I34
VW3A8121	I22	VW3A4424	I24	ATV930D11N4	I32	VZ3V1213	I34
VW3A8126	I22	VW3A4425	I24	ATV930D15N4	I32	VX5VPM001	I34
VZ3V303S2001	I22	VZ1L004M010	I25	ATV930D18N4	I32	VX5VPM002	I34
VZ3V303S3001	I22	VZ1L007UM50	I25	ATV930D22N4	I32	NSYCAF223	I34
VZ3V32A100	I22	VZ1L018UM20	I25	ATV930D30N4	I32	NSYCAF291	I34
VZ3V32B100	I22	VW3A4551	I25	ATV930D37N4	I32	VW3A1111	I35
VZ3V32C100	I22	VW3A4552	I25	ATV930D45N4	I32	VW3A1112	I35
VZ3V32D100	I22	VW3A4553	I25	ATV930D55N4	I32	VW3A1104R10	I35
VZ3V32066S2	I22	VW3A4554	I25	ATV930D75N4	I32	VW3A1104R30	I35
VZ3V32066S3	I22	VW3A4552	I25	ATV930D90N4	I32	VW3A1104R50	I35
VZ3V32066S4	I22	VW3A4553	I25	ATV930C11N4 (5)	I32	VW3A1104R100	I35
VW3A3600	I23	VW3A4552	I25	ATV930C13N4 (5)	I32	VW3A1116	I35
VW3A3620	I23	VW3A4553	I25	ATV930C16N4 (5)	I32	TCSXCNAMUM3P	I35
VW3A3608	I23	VW3A4554	I25	ATV930C22N4 (6)	I32	TCSMCNAM3M002P	I35
VW3A3618	I23	VW3A4555	I25	ATV930C25N4C (7)	I32	VW3A1115	I35
VW3A3628	I23	ATV630U07N4	I30	ATV930C31N4C (7)	I32	VW3CANCARR03	I35
VW3A3609	I23	ATV630U15N4	I30	VW3A9704 (5)	I32	VW3CANCARR1	I35
VW3A3601	I23	ATV630U22N4	I30	VW3A9112	I32	VW3A3203	I37
VW3A3616	I23	ATV630U30N4	I30	VW3A9113	I32	VW3A3204	I37
VW3A3619	I23	ATV630U40N4	I30	VW3A9114	I32	VW3A3720	I37
VW3A3607	I23	ATV630U55N4	I30	ATV950U07N4	I33	VW3A3721	I37
VW3A3627	I23	ATV630U75N4	I30	ATV950U15N4	I33	VW3A3609	I37
VW3A8306R03	I23	ATV630D11N4	I30	ATV950U22N4	I33	VW3A3607	I37
VW3A8306R10	I23	ATV630D15N4	I30	ATV950U30N4	I33	VW3A3627	I37
VW3A8306R30	I23	ATV630D18N4	I30	ATV950U40N4	I33	VW3A3608	I37
VW3A8306TF03	I23	ATV630D22N4	I30	ATV950U55N4	I33	VW3A3618	I37
VW3A8306TF10	I23	ATV630D30N4	I30	ATV950U75N4	I33	VW3A3628	I37
LU9GC3	I23	ATV630D37N4	I30	ATV950D11N4	I33	VW3A3601	I37
VW3A8306D30	I23	ATV630D45N4	I30	ATV950D15N4	I33	VW3A3725	I37
TSXSCA50	I23	ATV630D55N4	I30	ATV950D18N4	I33	VW3A8306R03	I37
TSXCSA100	I23	ATV630D75N4	I30	ATV950D22N4	I33	VW3A8306R10	I37
VW3A8306DRC	I23	ATV630D90N4	I30	ATV950D30N4	I33	VW3A8306R30	I37
VW3CANCARR03	I23	ATV630C11N4 (5)	I30	ATV950D37N4	I33	VW3A8306TF03	I37
VW3CANCARR1	I23	ATV630C13N4 (5)	I30	ATV950D45N4	I33	VW3A8306TF10	I37
TCSCAR013M120	I23	ATV630C16N4 (5)	I30	ATV950D55N4	I33	LU9GC3	I37
TSXCANKCDF180T	I23	ATV630C22N4 (5)	I30	ATV950D75N4	I33	VW3A8306D30	I37
TSXCANCA50	I23	ATV630C25N4 (5)	I30	ATV950D90N4	I33	TSXSCA50	I37
TSXCANCA100	I23	ATV630C31N4 (5)	I30	ATV950C11N4F	I33	TSXCSA100	I37
TSXCANCA300	I23		I30	ATV950C13N4F	I33	VW3A8306DRC	I37

Reference	Page
VW3CANCARR03	I37
VW3CANCARR1	I37
TCSCAR013M120	I37
TSXCANKCDF180T	I37
TSXCANCA50	I37
TSXCANCA100	I37
TSXCANCA300	I37
TCSCAR01NM120	I37
VW3CANTAP2	I37
490NTW00002	I37
490NTW00005	I37
490NTW00012	I37
VW3A3420	I38
VW3A3422	I38
VW3A3423	I38
VW3A3424	I38
VW3M4701	I38
VW3A3802	I38
VW3A3809	I38
VW3A3800	I38
VW3M8801R30	I38
VW3M8810	I38
VW3M8802R15	I38
VW3M8802R30	I38
VW3M8820	I38
VW3A7105 (2)	I39
VW3A7101 (3)	I39
VW3A7730	I39
VW3A7731	I39
VW3A7732	I39
VW3A7733	I39
VW3A7734	I39
VW3A7735	I39
VW3A7736	I39
VW3A7737	I39
VW3A7748	I39
VW3A7737	I39
VW3A7730	I39
VW3A7740	I39
VW3A7741	I39
VW3A7742	I39
VW3A7743	I39
VW3A7744	I39
VW3A7745	I39
VW3A7746	I39
VW3A7747	I39
VW3A7757	I39
VW3A7750	I39
VW3A7751	I39
VW3A7752	I39
VW3A7753	I39
VW3A7754	I39
VW3A7755	I39
VW3A7756	I39
VW3A7754	I39
VW3A7756	I39
ATVRU75N4	I39
ATVRD15N4	I39
VW3A4701	C141
VW3A4702	C141
VW3A4703	C141
VW3A4704	C141
VW3A4705	C141
VW3A4706	C141
VW3A4707	C141
VW3A4708	C141
VW3A4709	C141
VW3A4710	C141
VW3A4411	C141
VW3A47901	C141
VW3A47902	C141
VW3A47903	C141

Reference	Page
VW3A47904	C141
VW3A47905	C141
VW3A47906	C141
VW3A47907	C141
VW3A47908	C141
VW3APFU22NZ	I42
VW3APFU30NZ	I42
VW3APFU40NZ	I42
VW3APFU55NZ	I42
VW3APFU75NZ	I42
VW3APFD15NZ	I42
VW3APFD18NZ	I42
VW3APFD22NZ	I42
VW3APFD30NZ	I42
VW3APFD45NZ	I42
VW3APFD55NZ	I42
VW3APFD90NZ	I42
VW3APFC11NZ	I42
VW3APFC13NZ	I42
VW3APFC16NZ	I42
VW3APFC22NZ	I42
VW3APFC25NZ	I42
VW3A5301	I43
VW3A5302	I43
VW3A5303	I43
VW3A5304	I43
VW3A5305	I43
VW3A5306	I43
VW3A5307	I43
VW3A5106	I43
VW3A5107	I43
VW3A53903	I43
VW3A53905	I43
VW3A5401	I44
VW3A5402	I44
VW3A5403	I44
VW3A5404	I44
VW3A5405	I44
VW3A5406	I44
VW3A5407	I44
VW3A5209	I44
VW3A5210	I44
VW3A53901	I44
VW3A53902	I44
VW3A53903	I44
VW3A53904	I44
VW3A5501	I45
VW3A5502	I45
VW3A5503	I45
VW3A5504	I45
VW3A5505	I45
VW3A5506	I45
ATV660C11Q4X1●	I47
ATV660C13Q4X1●	I47
ATV660C16Q4X1●	I47
ATV660C20Q4X1●	I47
ATV660C25Q4X1●	I47
ATV660C31Q4X1●	I47
ATV660C35Q4X1●	I47
ATV660C40Q4X1●	I47
ATV660C45Q4X1●	I47
ATV660C50Q4X1●	I47
ATV660C56Q4X1●	I47
ATV660C63Q4X1●	I47
ATV660C71Q4X1●	I47
ATV660C80Q4X1●	I47
ATV680C11Q4X1●	I48
ATV680C13Q4X1●	I48
ATV680C16Q4X1●	I48
ATV680C20Q4X1●	I48
ATV680C25Q4X1●	I48

Reference	Page
ATV680C31Q4X1●	I48
ATV680C35Q4X1●	I48
ATV680C40Q4X1●	I48
ATV680C45Q4X1●	I48
ATV680C50Q4X1●	I48
ATV680C56Q4X1●	I48
ATV680C63Q4X1●	I48
ATV680C71Q4X1●	I48
ATV680C80Q4X1●	I48
ATV960C11Q4X1●	I49
ATV960C13Q4X1●	I49
ATV960C16Q4X1●	I49
ATV960C20Q4X1●	I49
ATV960C25Q4X1●	I49
ATV960C31Q4X1●	I49
ATV960C35Q4X1●	I49
ATV960C40Q4X1●	I49
ATV960C45Q4X1●	I49
ATV960C50Q4X1●	I49
ATV960C56Q4X1●	I49
ATV960C63Q4X1●	I49
ATV960C71Q4X1●	I49
ATV960C80Q4X1●	I49
ATV980C11Q4X1●	I50
ATV980C13Q4X1●	I50
ATV980C16Q4X1●	I50
ATV980C20Q4X1●	I50
ATV980C25Q4X1●	I50
ATV980C31Q4X1●	I50
ATV980C35Q4X1●	I50
ATV980C40Q4X1●	I50
ATV980C45Q4X1●	I50
ATV980C50Q4X1●	I50
ATV980C56Q4X1●	I50
ATV980C63Q4X1●	I50
ATV980C71Q4X1●	I50
ATV980C80Q4X1●	I50
XB6DA31B	J3
XB6CA31B	J3
XB6CA42B	J3
XB6AA31B	J3
XB6AA42B	J3
XB6AS8349B	J3
XB6AS9349B	J3
XB6DD221B	J3
XB6DD225B	J3
XB6DD235B	J3
XB6DGC5B	J3
XB6DGH5B	J3
XB6DW3B1B	J4
XB6DW4B2B	J4
XB6CW3B1B	J4
XB6CW4B2B	J4
XB6CF3B1B	J4
XB6CF4B2B	J4
XB6AW3B1B	J4
XB6DV1BB	J4
XB6DV3BB	J4
XB6DV4BB	J4
XB6DV5BB	J4
XB6CV1BB	J4
XB6CV3BB	J4
XB6CV4BB	J4
XB6AV1BB	J4
XB6AV3BB	J4
XB6AV4BB	J4
XB6AV5BB	J4
ZB6E1B	J5
ZB6E2B	J5
ZB6E1E	J5
ZB6E2E	J5

Reference	Page
ZB6Y009	J5
ZB6Y003	J5
ZB6Y002	J5
ZB6Y018	J5
ZB6Y016	J5
ZB6Y905	J5
ZB6Y019	J5
ZB6YA002	J5
ZB6Y001	J5
ZB6YA001	J5
ZB6YD001	J5
ZB6Y004	J5
ZB6Y005	J5
ZB6Y7330	J5
ZB6EB1B	J5
ZB6EB3B	J5
ZB6EB4B	J5
ZB6EB8B	J5
XB4BA11	J7
XB4BA21	J7
XB4BA31	J7
XB4BA51	J7
XB4BA61	J7
XB4BA42	J7
XB4BL42	J7
XB4BP21	J7
XB4BP31	J7
XB4BP51	J7
XB4BP61	J7
XB4BP42	J7
XB4BA3311	J7
XB4BA4322	J7
XB4BA3341	J7
XB4BA3351	J7
XB4BL4325	J7
XB4BC21	J7
XB4BT845	J7
XB4BS8445	J7
XB4BS9445	J7
XB4BW31B5	J7
XB4BW33B5	J7
XB4BW34B5	J7
XB4BW35B5	J7
XB4BW36B5	J7
XB4BW31M5	J7
XB4BW33M5	J7
XB4BW34M5	J7
XB4BW35M5	J7
XB4BW36M5	J7
XB4BD21	J7
XB4BD41	J7
XB4BD33	J7
XB4BD53	J7
XB4BG21	J7
XB4BG61	J7
XB4BG33	J7
ZB4BA1	J8
ZB4BA2	J8
ZB4BA3	J8
ZB4BA4	J8
ZB4BA5	J8
ZB4BA6	J8
ZB4BA8	J8
ZB4BA18	J8
ZB4BA38	J8
ZB4BA48	J8
ZB4BA58	J8
ZB4BA68	J8
ZB4BP1	J8
ZB4BP2	J8
ZB4BP3	J8
ZB4BP4	J8

Reference	Page
ZB4BP5	J8
ZB4BP6	J8
ZB4BP1S	J8
ZB4BP2S	J8
ZB4BP3S	J8
ZB4BP4S	J8
ZB4BP5S	J8
ZB4BP6S	J8
ZB4BL1	J8
ZB4BL2	J8
ZB4BL3	J8
ZB4BL4	J8
ZB4BL5	J8
ZB4BL6	J8
ZB4BA16	J8
ZB4BA26	J8
ZB4BA36	J8
ZB4BA46	J8
ZB4BA56	J8
ZB4BA66	J8
ZB4BC180	J8
ZB4BC280	J8
ZB4BC380	J8
ZB4BC480	J8
ZB4BC580	J8
ZB4BC680	J8
ZB4BC48021	J8
ZB4BC38023	J8
ZB4BA331	J9
ZB4BA333	J9
ZB4BA341	J9
ZB4BA432	J9
ZB4BA434	J9
ZB4BA435	J9
ZB4BA334	J9
ZB4BA335	J9
ZB4BL432	J9
ZB4BL434	J9
ZB4BH01	J9
ZB4BH02	J9
ZB4BH03	J9
ZB4BH04	J9
ZB4BH05	J9
ZB4BH06	J9
ZB4BH1	J9
ZB4BH2	J9
ZB4BH3	J9
ZB4BH4	J9
ZB4BH5	J9
ZB4BH6	J9
ZB4BC2	J9
ZB4BC3	J9
ZB4BC4	J9
ZB4BC5	J9
ZB4BC6	J9
ZB4BS834	J9
ZB4BS844	J9
ZB4BS864	J9
ZB4BT84	J9
ZB4BX84	J9
ZB4BS944	J9
ZB4BS964	J9
ZB4BT2	J9
XB4BL73415	J10
XB4BW73731B5	J10
XB4BW73731M5	J10
ZB4BL7340	J10
ZB4BL7341	J10
ZB4BW7L3740	J10
ZB4BW7L3741	J10
ZB4BA71123	J10
ZB4BA71124	J10

Reference	Page
XB4BW73731B5	J10
XB4BW73731G5 (1)	J10
XB4BW73731M5 (2)	J10
ZB4BD2	J11
ZB4BD4	J11
ZB4BD3	J11
ZB4BD5	J11
ZB4BD7	J11
ZB4BD8	J11
ZB4BJ2	J11
ZB4BJ4	J11
ZB4BJ3	J11
ZB4BJ5	J11
ZB4BJ7	J11
ZB4BJ8	J11
ZB4BD28	J11
ZB4BD48	J11
ZB4BG2	J11
	J11
ZB4BG4	
ZB4BG6	J11
ZB4BG0	J11
	J11
ZB4BG3	
	J11
ZB4BG5	
	J11
ZB4BG9	
	J11
ZB4BG09	
ZB4BG1	J11
ZB4BG7	J11
ZB4BG8	J11
	J11
ZB4BG08	
ZB4BW313	J12
ZB4BW333	J12
ZB4BW343	J12
ZB4BW353	J12
ZB4BW383	J12
ZB4BW363	J12
ZB4BW513	J12
ZB4BW533	J12
ZB4BW543	J12
ZB4BW553	J12
ZB4BW583	J12
ZB4BW563	J12
ZB4BW113	J12
ZB4BW133	J12
ZB4BW143	J12
ZB4BW153	J12
ZB4BW183	J12
ZB4BW163	J12
ZB4BH013	J12
ZB4BH033	J12
ZB4BH043	J12
ZB4BH053	J12
ZB4BH083	J12
ZB4BH063	J12
ZB4BH13	J12
ZB4BH33	J12
ZB4BH43	J12
ZB4BH53	J12
ZB4BH83	J12
ZB4BH63	J12
ZB4BW413	J12
ZB4BW433	J12
ZB4BW443 (1)	J12
ZB4BW453	J12
ZB4BW463	J12
ZB4BW613	J12
ZB4BW633	J12
ZB4BW643 (1)	J12
ZB4BW653	J12
ZB4BW663	J12

Reference	Page
ZB4BK1213	J13
ZB4BK1233	J13
ZB4BK1243	J13
ZB4BK1253	J13
ZB4BK1263	J13
ZB4BK1413	J13
ZB4BK1433	J13
ZB4BK1443	J13
ZB4BK1453	J13
ZB4BK1463	J13
ZB4BK1313	J13
ZB4BK1333	J13
ZB4BK1343	J13
ZB4BK1353	J13
ZB4BK1363	J13
ZB4BK1513	J13
ZB4BK1533	J13
ZB4BK1543	J13
ZB4BK1553	J13
ZB4BK1563	J13
ZB4BK1813	J13
ZB4BK1833	J13
ZB4BK1843	J13
ZB4BK1853	J13
ZB4BK1863	J13
ZB4BK1713	J13
ZB4BK1733	J13
ZB4BK1743	J13
ZB4BK1753	J13
ZB4BK1763	J13
XB4FA11	J14
XB4FA21	J14
XB4FA31	J14
XB4FA51	J14
XB4FA61	J14
XB4FA42	J14
XB4FL42	J14
XB4FA3311	J14
XB4FA4322	J14
XB4FA3341	J14
XB4FA3351	J14
XB4FL4325	J14
XB4FW31B5	J14
XB4FW33B5	J14
XB4FW34B5	J14
XB4FW35B5	J14
XB4FW36B5	J14
XB4FW31M5	J14
XB4FW33M5	J14
XB4FW34M5	J14
XB4FW35M5	J14
XB4FW36M5	J14
XB4FD21	J14
XB4FD41	J14
XB4FD33	J14
XB4FD53	J14
XB4FG21	J14
XB4FG61	J14
XB4FG33	J14
ZB4FA1	J15
ZB4FA2	J15
ZB4FA3	J15
ZB4FA4	J15
ZB4FA5	J15
ZB4FA6	J15
ZB4FA8	J15
ZB4FA18	J15
ZB4FA38	J15
ZB4FA48	J15
ZB4FA58	J15
ZB4FA68	J15
ZB4FL1	J15

Reference	Page
ZB4FL2	J15
ZB4FL3	J15
ZB4FL4	J15
ZB4FL5	J15
ZB4FL6	J15
ZB4FA16	J15
ZB4FA26	J15
ZB4FA36	J15
ZB4FA46	J15
ZB4FA56	J15
ZB4FA66	J15
ZB4FA333	J15
ZB4FA331	J15
ZB4FA341	J15
ZB4FA434	J15
ZB4FA432	J15
ZB4FA435	J15
ZB4FA334	J15
ZB4FA335	J15
ZB4FL432	J15
ZB4FL434	J15
ZB4FH01	J15
ZB4FH02	J15
ZB4FH03	J15
ZB4FH04	J15
ZB4FH05	J15
ZB4FH06	J15
ZB4FH1	J15
ZB4FH2	J15
ZB4FH3	J15
ZB4FH4	J15
ZB4FH5	J15
ZB4FH6	J15
ZB4FW313	J15
ZB4FW333	J15
ZB4FW343	J15
ZB4FW383	J15
ZB4FW363	J15
ZB4FA18	J15
ZB4FA38	J15
ZB4FA48	J15
ZB4FA88	J15
ZB4FA68	J15
ZB4FD2	J16
ZB4FD2M178	J16
ZB4FD4	J16
ZB4FD3	J16
ZB4FD5	J16
ZB4FD7	J16
ZB4FD8	J16
ZB4FJ2	J16
ZB4FJ4	J16
ZB4FJ3	J16
ZB4FJ5	J16
ZB4FJ7	J16
ZB4FJ8	J16
ZB4FG2	J16
ZB4FG4	J16
ZB4FG6	J16
ZB4FG0	J16
ZB4FG5	J16
ZB4FG9	J16
ZB4FG09	J16
ZB4FG1	J16
ZB4FG7	J16
ZB4FG8	J16
ZB4BZ101	J17
ZB4BZ102	J17
ZB4BZ1015 (2)	J17
ZB4BZ1025 (2)	J17
ZB4BZ106	J17
ZB4BZ107	J17

Reference	Page	Reference	Page	Reference	Page	Reference	Page
ZBE101	J17	XB4BA962	J20	ZB5AA333	J23	ZB5AG9	J26
ZBE102	J17	XB4BD912R1K	J20	ZB5AA434	J23	ZB5AG09	J26
ZBE201	J17	XB4BD912R4K7	J20	ZB5AA343	J23	ZB5AG1	J26
ZBE202	J17	XB4BD912R10K	J20	ZB5AA344	J23	ZB5AG7	J26
ZBE1015 (2)	J17	XB4BD912R47K	J20	ZB5AA334	J23	ZB5AG08	J26
ZBE1025 (2)	J17	XB4BD912R100K	J20	ZB5AA335	J23	ZB5AW313	J27
ZBE1016	J17	XB4BD912R470K	J20	ZB5AH01	J23	ZB5AW333	J27
ZBE1026	J17	XB5AA11	J22	ZB5AH02	J23	ZB5AW343	J27
ZB4BZ009	J17	XB5AA21	J22	ZB5AH03	J23	ZB5AW353	J27
ZBVJ1	J17	XB5AA31	J22	ZB5AH04	J23	ZB5AW363	J27
ZBVB1	J17	XB5AA51	J22	ZB5AH05	J23	ZB5AA18	J27
ZBVBG1	J17	XB5AA61	J22	ZB5AH06	J23	ZB5AA38	J27
ZBVG1	J17	XB5AA42	J22	ZB5AC180	J23	ZB5AA48	J27
ZBVM1	J17	XB4BL42	J22	ZB5AC280	J23	ZB5AA58	J27
ZBVGM1T	J17	XB5AP21	J22	ZB5AC380	J23	ZB5AA68	J27
XB4BVB1	J18	XB5AP31	J22	ZB5AC480	J23	ZB5AH013	J27
XB4BVB3	J18	XB5AP51	J22	ZB5AC580	J23	ZB5AH033	J27
XB4BVB4	J18	XB5AP61	J22	ZB5AC680	J23	ZB5AH043	J27
XB4BVB5	J18	XB5AP42	J22	ZB5AC2	J24	ZB5AH053	J27
XB4BVB6	J18	XB5AA3311	J22	ZB5AC3	J24	ZB5AH063	J27
XB4BVG1	J18	XB5AA4322	J22	ZB5AC4	J24	ZB5AH13	J27
XB4BVG3	J18	XB5AA3341	J22	ZB5AC5	J24	ZB5AH33	J27
XB4BVG4	J18	XB5AA3351	J22	ZB5AT84	J24	ZB5AH43	J27
XB4BVG5	J18	XB5AL4322	J22	ZB5AS834	J24	ZB5AH53	J27
XB4BVG6	J18	XB5AC21	J22	ZB5AS844	J24	ZB5AH63	J27
XB4BVM1	J18	XB5AT845	J22	ZB5AS944	J24	ZB5AK1213	J27
XB4BVM3	J18	XB5AS8445	J22	ZB5AS964	J24	ZB5AK1233	J27
XB4BVM4	J18	XB5AS9445	J22	ZB5AS842Y	J24	ZB5AK1243	J27
XB4BVM5	J18	XB5AT845	J22	ZB5AS942Y	J24	ZB5AK1253	J27
XB4BVM6	J18	XB5AS8445	J22	ZB5AT82Y	J24	ZB5AK1263	J27
ZB4BV013	J18	XB5AS9445	J22	ZB5AT8643M	J24	ZB5AK1413	J27
ZB4BV033	J18	XB5AW31B5	J22	ZB5AT8643M330	J24	ZB5AK1433	J27
ZB4BV043	J18	XB5AW33B5	J22	ZB5AW713	J24	ZB5AK1443	J27
ZB4BV053	J18	XB5AW34B5	J22	ZB5AW733	J24	ZB5AK1453	J27
ZB4BV063	J18	XB5AW35B5	J22	ZB5AW743	J24	ZB5AK1463	J27
XB4FVB1	J18	XB5AW36B5	J22	ZB5AW753	J24	ZB5AK1313	J27
XB4FVB3	J18	XB5AW31M5	J22	ZB5AW763	J24	ZB5AK1333	J27
XB4FVB4	J18	XB5AW33M5	J22	ZBE302	J24	ZB5AK1343	J27
XB4FVB5	J18	XB5AW34M5	J22	XB5AS8446	J24	ZB5AK1353	J27
XB4FVB6	J18	XB5AW35M5	J22	XB5AS84462	J24	ZB5AK1363	J27
XB4FVM1	J18	XB5AW36M5	J22	XB4BS8446	J24	ZB5AK1513	J27
XB4FVM3	J18	XB5AD21	J22	XB4BS84462	J24	ZB5AK1533	J27
XB4FVM4	J18	XB5AD41	J22	XALK1786	J24	ZB5AK1543	J27
XB4FVM5	J18	XB5AD33	J22	XALK1786H7	J24	ZB5AK1553	J27
XB4FVM6	J18	XB5AD53	J22	ZB5AS84W2B	J24	ZB5AK1563	J27
ZB4FV013	J18	XB5AG21	J22	ZB5AS84W2M	J24	XB5FA11	
ZB4FV033	J18	XB5AG61	J22	ZB5AS84W3B	J24	XB5FA21	
ZB4FV043	J18	XB5AG33	J22	ZB5AZ141	J24	XB5FA31	
ZB4FV053	J18	ZB5AA1	J23	ZB5AZ105	J24	XB5FA51	
ZB4FV063	J18	ZB5AA2	J23	ZBY8L330	J24	XB5FA61	
ZB4BVJ1	J19	ZB5AA3	J23	XB5AL73415	J25	XB5FA42	
ZB4BVB1	J19	ZB5AA4	J23	XB5AW73731B5	J25	XB5FL42	
ZB4BVBG1	J19	ZB5AA5	J23	XB5AW73731M5	J25	XB5FA3311	
ZB4BVG1	J19	ZB5AA6	J23	ZB5AL7340	J25	XB5FA4322	
ZB4BVM1	J19	ZB5AA8	J23	ZB5AL7341	J25	XB5FA3341	
ZBV5B (7)	J19	ZB5AA18	J23	ZB5AW7L3740	J25	XB5FA3351	
ZBE000	J19	ZB5AA38	J23	ZB5AW7L3741	J25	XB5FL4322	
ZBZG156	J19	ZB5AA48	J23	ZB5AD2	J26	XB5FW31B5	
ZBZM156	J19	ZB5AA58	J23	ZB5AD4	J26	XB5FW33B5	
ZB4BZ009	J19	ZB5AA68	J23	ZB5AD3	J26	XB5FW34B5	
XD4PA12	J20	ZB5AP2	J23	ZB5AD5	J26	XB5FW35B5	
XD4PA22	J20	ZB5AP3	J23	ZB5AD7	J26	XB5FW36B5	
XD4PA14	J20	ZB5AP4	J23	ZB5AD8	J26	XB5FW31M5	
XD4PA24	J20	ZB5AP5	J23	ZB5AD28	J26	XB5FW33M5	
XD2GA8241	J20	ZB5AP6	J23	ZB5AD48	J26	XB5FW34M5	
XD2GA8251	J20	ZB5AL1	J23	ZB5AG2	J26	XB5FW35M5	
XD2GA8441	J20	ZB5AL2	J23	ZB5AG4	J26	XB5FW36M5	
XD2GA8451	J20	ZB5AL3	J23	ZB5AG6	J26	XB5FD21	
ZB2BE101	J20	ZB5AL4	J23	ZB5AG0	J26	XB5FD41	
XB4BA861	J20	ZB5AL5	J23	ZB5AG3	J26	XB5FD33	
XB4BA862	J20	ZB5AL6	J23	ZB5AG5	J26	XB5FD53	
XB4BA961	J20					XB5FG21	

Notes

Notes

Notes

Schneider Electric Standard Terms & Conditions

New Zealand, January 2021

1 OVERVIEW OF AGREEMENT

1.1 Unless otherwise expressly agreed in writing, all Products, Services and Projects are supplied on the following terms and conditions which shall include:

- (a) The proposal or quote ("Quote") provided by Schneider Electric;
- (b) The Credit Terms (if applicable);
- (c) these Terms and Conditions;
- (d) Each purchase order submitted by the Customer and accepted by Schneider Electric.

For the purposes of these terms a reference to "Agreement" shall mean the above documents in clause 1.1(a) to 1.1(d).

1.2 If there is any conflict or inconsistency between the above documents the documents will rank in order of precedence with the order in which they are listed in clause 1.1 above.

1.3 Each Order issued by the Customer and accepted by Schneider Electric will be accepted on these Terms and Conditions, to the exclusion of all other terms including any terms and conditions referenced or set forth on the face or reverse side of any Order or other document presented by Customer.

1.4 No amendment or variation of the Agreement is valid or binding on a Party unless made in writing and signed by both Parties.

2 DEFINITIONS

2.1 The following capitalised terms will be defined as follows:

Acceptance Tests means tests agreed between the Customer and Schneider Electric which are based on agreed objective criteria.

Agreement has the meaning given to that term in clause 1.1 of these Terms and Conditions.

Consumer Law means the Consumer Guarantees Act 1993 NZ as amended from time to time.

Background IP means with respect to both parties Intellectual Property owned by that party existing at the date the Order is made including any modifications made during the course of the Agreement to such Background IP.

Confidential Information means any information of a confidential nature which relates to the business, affairs or activities of a Party including information comprised in Intellectual Property Rights of any Party, process or operational information, calculations or analysis, financial and business information and information of third parties which is required to be kept confidential.

Credit Terms means the Credit terms and conditions referred to in the Credit Application completed by the Customer with Schneider Electric.

Customer means the party who Schneider Electric will supply the Products, Services and Projects, as specified in the Order.

Date of Acceptance has the meaning given to that term in clause 21.2 of the Addendum for the Supply of Projects

Delivery Date has the meaning given to that term in clause 21.1 of these Terms and Conditions.

Delivery Point has the meaning given to that term in clause 4.2 of these Terms and Conditions.

Effective Date means the date of acceptance of an Order by Schneider Electric in accordance with clause 1.3 of these Terms and Conditions.

Energy Consulting Services means Services to support customers in managing financial risks purchasing energy and energy consumption and/or generation.

Fixed Price means the lump sum amount quoted by Schneider Electric for the supply of specified Products, Services and Projects.

Force Majeure has the meaning given to that term in clause 16.2 of these Terms and Conditions.

GST Act means Goods and Services Tax Act 1985 (NZ).

Intellectual Property Rights means all and any rights in issued patents and patent applications, rights to inventions, design rights, utility models, copyright and related rights, trademarks, service marks, trade, business and domain names, moral rights, rights in confidential information (including know-how and trade secrets).

Law means any statute, regulation, order, rule, subordinate legislation or other document enforceable under any statute, regulation, rule or subordinate legislation and includes a modification or re-enactment of it.

Order means the Quote submitted by Schneider Electric and the purchase order issued by the Customer and accepted by Schneider Electric in accordance with clause 1.3 of these Terms and Conditions.

Party means a party to the Agreement.

Personal Information means all information about a person that is "personal information" as defined in the Privacy Act, which is collected and/or handled by any of the Parties in connection with this Agreement.

PPSA means the Personal Property Securities Act 1999.

Price means the aggregate amount payable by the Customer to Schneider Electric in relation to the Products, Services and Projects, as specified in the Order.

Privacy Act means the NZ Privacy Act 1993 as amended from time to time.

Privacy Policy means Schneider Electric privacy policy which may be found at <http://www.schneider-electric.co.nz/en/about-us/legal/privacy-policy.jsp>

Products means any Schneider Electric Products or such other third-party products, equipment, materials, supplies or items, as specified in the Order including Software.

Project means a set of activities including the development, provision, modification, configuration, enhancement and integration of the Products and Services, by Schneider Electric to meet the Specifications.

Project Deliverable means the Products and other deliverables required to be developed or integrated by Schneider Electric pursuant to a particular Project in accordance with agreed Specifications.

Quote means a proposal or quote provided by Schneider Electric relating to the Products, Services and Projects referred to in the Order.

Schneider Electric Products or Schneider Electric

Project Deliverables means Schneider Electric's proprietary products, including any and all products manufactured or developed by Schneider Electric

Schneider Electric Software means Schneider Electric's proprietary software, including any and all software developed and owned by Schneider Electric or its Affiliates.

Schneider Electric means any of the following entities which will be listed on the Order:

Schneider Electric (NZ) Limited and or Schneider Electric Systems New Zealand Limited (formerly Invensys Process Systems New Zealand Limited).

Services means any services Schneider Electric agrees to perform, as specified in the Order.

Site means the Customer's site where the Products are to be delivered and or installed, the Services are to be performed, or the Project is to be implemented as specified in the Order.

Software means machine readable (i) computer programs that comprise a series of instructions, rules, routines, or statements, regardless of the media in which recorded, that allow or cause a computer, or other machine, to perform a specific operation or series of operations; Software Documentation means the printed materials supplied with the Software.

Specifications means the drawings, specifications and/or plans for the Products, Services and Projects as specified in the Order or as otherwise agreed by the Parties in accordance with clause 18 of the Addendum for the Supply of Projects.

Terms and Conditions means these terms and conditions of Sale.

Timetable means the document setting out the dates by which the Products, Services and Projects are to be supplied, as specified in the Order or as otherwise agreed between the Parties in accordance with clause 19.1 of the Addendum for the Supply of Projects.

Time and Materials means Services supplied in accordance with the Order where (i) all labour time utilised and (ii) expenses incurred are payable by the Customer at the prices set out in Schneider Electric's schedule of rates and (iii) all products supplied are payable by the Customer in accordance with Schneider Electric's price list, unless indicated otherwise by Schneider Electric in writing.

Use shall have the same meaning as set out in clause 6.2.

Variation has the meaning given to that term in clause 20.1 of the Addendum for the Supply of Projects.

Warranty Period means:

- (a) For all Schneider Electric Products (excluding Software), the earlier of:
 - (i) eighteen (18) months from the Delivery Date; and
 - (ii) the date that is twelve (12) months from commercial or operational use of the Products by the Customer; and
- (b) For all Services, a period of ninety (90) days from the date of delivery of the Services; and

- (c) For all Schneider Electric Software not supplied under the terms of a EULA and media that such Software is supplied on, a period of ninety (90) days from the date of delivery of Schneider Electric Software; and
- (d) For all Projects, a period of ninety (90) days from the date of acceptance of the Project.

3 QUOTES AND ORDERING

- 3.1 Any quotes provided by Schneider Electric are subject to the Products, Services and Projects being available at such time when the Customer places an Order.
- 3.2 Unless indicated otherwise by Schneider Electric in writing, all Prices referred to in any Quotes are based on the quantity of Products, Services, Software, Projects and delivery timetable described in the Quote and will only be valid for thirty (30) days from the date the Quote is submitted. In the event the Customer changes the time required for delivery or the volume or scope of Products, Services and Projects required or places an Order more than thirty (30) days after the Quote is submitted, Schneider Electric reserves the right to vary its Prices.
- 3.3 Unless otherwise indicated in an Order or Quote in writing, an Order will not be considered binding on Schneider Electric or come into force until Schneider Electric has received from the Customer a cash deposit or a bank guarantee or other security acceptable to Schneider Electric for 10% of the Price set out in the Order.

4 DELIVERY, RISK AND TITLE

- 4.1 Schneider Electric agrees to supply the Products, Services and Projects in accordance with the terms of the Agreement and in consideration of payment of the Price by the Customer.
- 4.2 Unless specified otherwise it will be presumed that delivery of;
 - (a) Products manufactured in New Zealand will occur ex works at the place of manufacture
 - (b) Products which are manufactured outside New Zealand will occur ex works at a warehouse of Schneider Electric's choosing
 - (c) Software supplied via physical media will occur ex works at a warehouse of Schneider Electric's choosing
 - (d) Software supplied electronically will occur when Schneider Electric has delivered the Software to any carriage service or network.
 (Delivery Point)
- 4.3 Schneider Electric will deliver the Products to the Delivery Point. Risk of any loss or damage to the Products passes to the Customer upon delivery to the Customer at the Delivery Point.
- 4.4 Title in the Products (excluding Software) does not pass to the Customer until the Customer has made payment in full for the Products and, further, until the Customer has made payment in full of all the other money owing by the Customer to Schneider Electric (whether in respect of money payable under a specific contract or on any other account whatsoever). Whilst the Customer has not paid for the Products supplied in full at any time, the Customer agrees that property and title in the Products will not pass to the Customer and Schneider Electric retains the legal and equitable title in those Products supplied and not yet sold.
- 4.5 The Customer grants Schneider Electric a security interest in all goods supplied by Schneider Electric as security for all indebtedness owed whatsoever to Schneider Electric. The Customer agrees: (i) to promptly give Schneider Electric all assistance and information (including signing any documents) as the Schneider Electric requests to ensure that the Schneider Electric has a perfected first ranking security interest in all goods (and the proceeds thereof) supplied by the Schneider Electric; (ii) that the Schneider Electric may register a financing statement on the Personal Property Securities Register against the Customer; (iii) not to change its name without notifying the Schneider Electric in writing of the Customer's intention to change its name at least 10 business days prior to doing so; (iv) it waives the right to receive a copy of any verification statement under s148 of the Personal Property Securities Act 1999 (NZ)(PPSA (NZ)); and (v) it has no rights under sections 114(1)(a), 116, 120(2), 121, 125, 129, 131, 133 and 134 of the PPSA (NZ).

5 PROVISION OF SERVICES

- 5.1 Schneider Electric will provide suitably qualified,

experienced and competent personnel to carry out the Services and related tasks in accordance with these Terms and Conditions and any Specifications in a professional manner with due skill and care.

- 5.2 Schneider Electric will follow all reasonable directions provided by the Customer when delivering the Services which are necessary and incidental to the performance of the Services under this Agreement.
- 5.3 Schneider Electric will ensure the Services are provided in accordance with all applicable laws and regulations and general industry practice.
- 5.4 If an Order indicates that Schneider Electric is to perform Services at the Site, then:
 - (a) the Customer will at its cost prepare the Site and provide Schneider Electric with reasonable access to the Site and other associated necessary facilities to allow Schneider Electric to perform its obligations under this Agreement; and
 - (b) The Customer will also ensure that Schneider Electric's representatives attending the Site receive (where appropriate) all necessary safety site induction and personal protection equipment.
 - (c) at the Customer's cost, in a timely manner and so as to avoid any delay to Schneider Electric, provide all information, approvals, permits, authorisations, licenses, customs clearances, instructions, materials, civil works, reports, drawings, geotechnical and survey information, access and other things which may be required in relation to the performance of Schneider Electric's obligations and which are not expressly stated to be Schneider Electric's responsibility.
 - (d) The Customer shall provide to Schneider Electric any approval or comment with respect to drawings submitted by Schneider Electric to the Customer within five (5) days from the date of the submission by Schneider Electric of such drawings unless some other time is provided for in the Order.
 - (e) If Schneider Electric considers the information, documents and other particulars made available to Schneider Electric by the Customer are not sufficient to enable Schneider Electric to provide the services in accordance with the contract and the provision of which is not reasonably to be considered within the responsibility of Schneider Electric under the contract, Schneider Electric may advise the Customer who shall then provide such further assistance, information or other particulars as necessary in the circumstances or as requested by Schneider Electric as the case may be.
- 5.5 If the Customer is ordering Energy Consulting Services, the following additional conditions will apply:
 - (a) the Customer shall make all necessary information regarding electrical utilities ("Utility Information") available to Schneider Electric within 14 days of the request. Schneider Electric reserves the right to alter its Price if there is a substantial material change between the information which it has based its Price on and the information provided by the Customer pursuant to this clause
 - (b) The Customer acknowledges that Schneider Electric is acting as its agent to analyse and interpret the Utility Information that it provides for the purposes of providing the Energy Consulting Services;
 - (c) The Customer warrants that in providing such Utility Information it is not breaching the terms of any contract it has with the Utility Provider or any other third party for the Energy Consulting Services.
 - (d) The Customer warrants that it is the owner or lessee of the premises the subject of the Utility Information.
- 5.6 If Schneider Electric is providing the Customer Services which are cloud based and hosted by Schneider Electric then the following terms and conditions will apply in addition to any terms and conditions of use which the Customer may be required to agree to when accessing the cloud based services:
 - (a) Any Personal Information will be collected and used in accordance with the terms of Schneider Electric's Privacy Policy and the terms set out in section 11. By accessing the Services, the Customer signifies its consent to the collection and use of the personal information in accordance with Schneider Electric's Privacy Policy including receiving marketing communications and agreeing to the personal information being used in accordance with this Policy.
 - (b) The Customer represents and warrants that if any

data provided by it includes other parties Personal Information that they have obtained all the necessary consents to disclose such Personal Information to Schneider Electric in accordance with these Terms and Conditions and the Privacy Act.

6 SOFTWARE LICENCE

- 6.1 If Schneider Electric has agreed to provide Software which has an end user licence agreement (EULA), the Software will be licensed on the terms of the EULA applying to that Software.
- 6.2 For all other Schneider Electric Software which is not supplied with a EULA, Schneider Electric grants the Customer a non-exclusive, non-transferable license to "Use", in object code form, the version or release of the Schneider Software described in the Order, For the purposes of this clause "Use" means to install, store, load, execute, and display one copy of the Software on one device at a time for the Customer's internal business purposes. The Customer's Use of such Software is subject to the following restrictions:
- The Customer may not exceed the number of users, or client access licences that are paid for by the Customer and noted on the quote or Order;
 - The Customer may not copy the Software (other than or one (1) backup copy of the Software and a reasonable limited number of the user manuals related to the Software).
 - The Customer may only use the Software for its internal business processes and shall not use it for the benefit of any third party.
 - The Customer acknowledges that such Software is confidential and shall not make it available to any third parties and shall only disclose to those of its employees that need to use it for the purposes of its internal business who have agreed to comply with the terms of this clause 5.
 - The Customer may not decompile, disassemble, reverse assemble, reverse engineer, translate or emulate the Software;
 - Unless otherwise agreed, the Customer may transfer the Software from one computer to another (which may be operated by a third party) provided it is not used on more than one computer at a time. The Customer shall not sublicense, assign or transfer the Software without the prior written consent of Schneider Electric.
 - Unless specifically agreed otherwise in writing by Schneider Electric, the licence of the Software does not include any right to any updated versions of the Software.
 - Schneider Electric's Software licensed to Customer may contain components that are owned by third parties. The third party owner shall retain exclusive right to its firmware and software. Use of such third party components may be subject to restrictions contained in the third party's end-user licence agreement in addition to the conditions set forth herein. Schneider Electric shall make available to Customer on request the third party's end-user licence agreement applicable. Copyright and other proprietary rights notices of Schneider Electric and third parties are contained in the Software and Customer must not modify, delete or obfuscate such notices.
 - Customer shall maintain complete and accurate records documenting the location and use of the licensed Software in Customer's possession. No later than thirty (30) days on receipt of Schneider Electric's written request, Customer must provide Schneider Electric with a signed certification of compliance with the Software licensing conditions. Schneider Electric has the right to conduct an audit of Customer's use of the Software. Any such audit shall be conducted during regular business hours at Customer's facilities. If an audit reveals any underpayment of licence fees, Customer shall be invoiced for additional licence fees consistent with Schneider Electric's then current price list for the Software, without any discount being applicable in that instance. Customer shall then immediately pay the invoiced amount together with interest at a rate of one and one-half percent (1.5%) per month or partial month during which such amount was due and unpaid. The assessment of additional licence fees is without prejudice to Schneider Electric's other remedies under this Agreement.

- 6.3 For non-Schneider Electric Software, the third party supplier's license terms that may accompany that Software will solely govern its Use.

7 WARRANTIES

7.1 Schneider Electric warrants that:

- All Schneider Electric Products (excluding third party Product) will operate in accordance with their published specifications for the duration of the Warranty Period; and
- All Services will be performed in a professional manner with due skill and care, using appropriately skilled and qualified personnel and in accordance with all applicable laws and regulations; and
- All Schneider Electric Software licensed under clause 6.2, will during the Warranty Period operate in accordance with the Software Documentation and the media upon which such software is supplied will be free for defects; and
- Provided a separate Project Deliverable warranty is indicated in the Order, then all Project Deliverables provided pursuant to the Addendum for the Supply of Projects shall perform in accordance with the Specification agreed with the Customer for the Warranty Period defined in the Order. For the avoidance of doubt where there is no reference to an additional warranty period for Project Deliverables in the Order then this Project Deliverable warranty shall not apply.

7.2 If the Customer makes a claim during the Warranty Period it will be handled as follows:

- In the case of Schneider Electric Products and Project Deliverables (where relevant), where there is a defect in such Products, Schneider Electric will replace or repair (at its discretion and cost). Schneider Electric will not be responsible for the cost of retrieving, removing, reinstalling, retesting or transporting the Products or Project Deliverables to and from the location where the Products are located.
- In the case of Services, where there is a defect in the Services, Schneider Electric will re-perform the Services at a mutually agreed time.
- For the avoidance of doubt if Services were delivered on a Time and Materials basis Schneider Electric will not provide any additional warranties for any deliverables provided pursuant to those Services other than the standard warranties referred to in clause 7.1.
- In the case of a Project, if it is not practical to return the defective Product to Schneider Electric in accordance with clause 6.2(a), Schneider Electric will bear the cost of correcting the defects, by either attending the Customer's Site where the Project is located or by remote means, as determined at the sole discretion of Schneider Electric and at a mutually agreed time.
- All warranties for any Products repaired or replaced or Services resupplied during the Warranty Period will expire at the same time as the original warranty of the products and services that were replaced or resupplied.

7.3 The Customer agrees that, unless otherwise agreed in writing by Schneider Electric, any warranty on any third party Products is limited to the warranty given by the manufacturer of those Products and, to the maximum extent permitted by law, Schneider Electric gives no additional warranties in relation to any third party Products or Software.

7.4 Schneider Electric will not be responsible for any defect arising out of or in connection to:

- Misuse, abuse, neglect, errors or any other act or omission of or by the Customer or third party not contracted by Schneider Electric; or
- Alteration (improper or otherwise) or installation of the Products and Projects by the Customer or any person other than Schneider Electric; or
- Power failure, power surge, lightning, flood, fire, accidental breakage or other events outside of Schneider Electric's reasonable control; or
- The Products not being maintained, installed or energised in accordance with Schneider Electric's instructions or in the absence of such instructions, in accordance with generally accepted practices for maintenance of such Products; or
- Improper environmental conditions where the Products are used or installed; or

- (f) The Products being stored for more than twelve (12) months prior to being put into operation; or
- (g) Any consumables; or
- (h) Following a direction from the Customer where Schneider Electric has recommended to the Customer against following such direction.
- 7.5 Certain legislation, including the Consumer Law, may imply warranties or conditions or impose guarantees or obligations upon Schneider Electric which cannot be excluded, restricted or modified or cannot be excluded, restricted or modified except to a limited extent. Any Order and these terms including this clause 7.5 must be read subject to these statutory provisions. If these statutory provisions apply, to the extent to which Schneider Electric is entitled to do so, Schneider Electric limits its liability in respect of any claim under the provisions to:
- (a) in the case of Products, at Schneider Electric's option:
- the replacement of Products or the supply of equivalent Products;
 - the repair of the Products;
 - the payment of the cost of replacing the Products or of acquiring equivalent Products; or
 - the payment of the cost of having the Products repaired; and
- (b) in the case of services, at Schneider Electric's option:
- the supply of the services again; or
 - the payment of the cost of having the services supplied again.
- 8 PRICE AND PAYMENT
- 8.1 The Customer must pay the Price mutually agreed by the Parties in the Order.
- 8.2 Unless specifically set out in the Order, Schneider Electric will issue all invoices for the Products, Services and Projects as follows:
- For Services provided on a Time and Materials basis, Schneider Electric will invoice monthly in arrears.
 - For Services provided at a Fixed Price, Schneider Electric will invoice in advance.
 - For Products, Schneider Electric will invoice on or after delivery to the Delivery Point.
 - For all other Products and Projects delivered, Schneider Electric will invoice in accordance with agreed payment milestones set out in the Order. If no milestones are set out in the order, invoicing will be monthly in arrears in accordance with the work completed.
- 8.3 Customer may buy and pay in U.S. Dollars, European Euros or such other currency as Customer and Schneider Electric may agree. If any expenses, charges or any other amounts to be paid to Schneider Electric by Customer under this Agreement were incurred by Schneider Electric in a currency other than the currency agreed in an Order, these expenses, charges or other amounts shall be invoiced in such other currency. If the Parties agree that these expenses, charges or other amounts are to be paid in the currency indicated in the Order, the amounts to be paid shall be calculated using the official spot rate on the date of payment between the currency indicated in the Order and the other currency. Where the price of quoted Products is stated to be based in whole or in part on a conversion between two currencies, Customer shall indemnify Schneider Electric against any loss incurred by Schneider Electric which results from any variation in the rates of exchange between the date of the quotation of the Products and the date upon which payment becomes due to Schneider Electric.
- 8.4 The Customer must pay the amount shown on any invoice rendered by Schneider Electric within twenty five (25) days from the date of issue of the invoice.
- 9 INTELLECTUAL PROPERTY
- 9.1 Each party will retain all Intellectual Property Rights in their respective Background IP. Subject to payment in full for the Products, Services and Projects, Schneider Electric will grant to Customer a royalty free, non-exclusive, irrevocable and perpetual license to use Schneider Electric's Background IP necessary for Customer to enjoy the benefit of the Products, Services and Projects for the purposes of or in connection with Customer's business.
- 9.2 The Customer acknowledges that Schneider Electric retains ownership of the Intellectual Property Rights of Schneider Electric used or created under the Agreement. Schneider Electric acknowledges that the Customer retains ownership of the Intellectual Property Rights of any Customer Background. To enable each party to perform their obligations under each Order and for the Customer to enjoy the benefit of the Products, Services and Projects for the purpose of or in connection with its business, each party grants to the other Party a non-exclusive, royalty free, irrevocable and perpetual license to use its Intellectual Property Rights for that purpose.
- 9.3 In the event that any claim is made against the Customer for infringement of any person's Intellectual Property Rights arising of the Customer's use of Schneider Electric Products supplied under the Agreement, Schneider Electric will, at its own expense, conduct any ensuing litigation and all negotiations for a settlement of the claim. Schneider Electric will bear the costs of any payment made in settlement, or as a result of an award in a judgment provided that:
- The Customer promptly notifies Schneider Electric in writing of any such claim being made or action threatened or brought against the Customer;
 - The Customer grants Schneider Electric the right to assume sole authority to conduct the defence or settlement of such claim or any related negotiations; and
 - The Customer provides Schneider Electric with all reasonable information, co-operation and assistance.
- 9.4 Notwithstanding any other provision of the Agreement, Schneider Electric will not be liable in any case whatsoever where the claim is based on:
- Specifications that the Customer provided to Schneider Electric;
 - Where the Customer has combined Schneider Electric Products with non-Schneider Electric Products, data or business processes; and
 - Where the Customer has altered or modified the Products.
- 10 CONFIDENTIALITY
- 10.1 Each Party agrees to hold in strict confidence all Confidential Information and not to disclose or permit or cause the disclosure of any Confidential Information to any person except and solely to the extent necessary for the performance of that Party's obligations under the Agreement, unless that Party has obtained the prior written consent of the other Party.
- 10.2 Clause 10.1 does not apply to:
- Information after it becomes generally available to the public other than as a result of the breach of this clause 10.2 or any other obligations of confidentiality imposed on a Party; or
 - The disclosure of information in order to comply with any applicable law or legally binding order of any court, government agency or recognised stock exchange, provided that prior to such disclosure the disclosing Party gives notice to the other Party with full particulars or the proposed disclosure.
- 11 COMPLIANCE WITH PRIVACY LAWS
- 11.1 Each Party agrees to comply with its obligations under the Privacy Act in respect of Personal Information obtained by or disclosed to it pursuant to this Agreement.
- 11.2 Each Party must only collect, use and disclose Personal Information for the purpose of fulfilling its obligations under this Agreement.
- 11.3 A Party must notify the other Party as soon as possible when it becomes aware of:
- a complaint alleging an interference with privacy; or
 - any breach, or possible breach of this clause 11,
 - in relation to any Personal Information collected and/or handled by any of the Parties in connection with this Agreement.
- 11.4 Customer acknowledges that Schneider Electric is a global company with legal entities, business processes, management structures and technical systems that cross borders. As such, personal information may be collected and stored on servers located in other countries including the United States and in addition Schneider Electric may share information about Customer within the organisation and may need to disclose such Personal Information to other countries in which Schneider Electric does business for the purposes or uses outlined in Schneider Electric Privacy Policy provided that at all times Schneider Electric will comply with its obligations under the Privacy Law and its Privacy Policy.

- 12 LIMITATION OF LIABILITY**
- 12.1 Notwithstanding any other term of the Agreement, Schneider Electric's total liability under the Agreement whether in contract, tort (including negligence) or otherwise arising out of Schneider Electric's performance of the Agreement, will not exceed in the aggregate the Price actually paid to Schneider Electric pursuant to the Order giving rise to such liability.
- 12.2 Notwithstanding any other term of the Agreement, to the maximum extent permitted by law, in no event will either Party, its affiliates, or their officers, directors, employees or their subcontractors be liable for any form of indirect, special or consequential loss or damage (including loss of profits, revenue, loss of use and data, loss production), howsoever caused, irrespective of fault, negligence or strict liability.
- 13 TAXES**
- 13.1 Unless otherwise stated, all amounts referred to under or in connection with the Agreement are exclusive of GST or any other value added or withholding taxes. In relation to any GST payable for a taxable supply (under GST Law) by a Party, the recipient of the supply will pay the GST subject to the supplier providing a tax invoice (as defined under GST Law). Terms used in this clause 13 which are defined in the GST Act have the same meaning as in the GST Act.
- 14 SUSPENSION AND TERMINATION**
- 14.1 If the Customer fails to pay any sum due under the Agreement by the due date, Schneider Electric may by notice, in addition to any other rights it may have, suspend supplying the Products, Services and Projects until all overdue amounts are paid. The Customer will be liable to Schneider Electric for all expenses, including reasonable legal fees, relating to the collection of overdue amounts.
- 14.2 A Party may terminate the Agreement by providing notice to the other Party if any of the following events or circumstances occurs:
- (a) A Party goes into liquidation, has a receiver or receiver and manager appointed to it or any part of its assets, enters into a scheme of arrangement with creditors or suffers any other form of external administration (or the equivalent under the laws of another jurisdiction); or
- (b) A Party fails to remedy any breach of an essential obligation under the Agreement within thirty (30) days after receipt of written notice from the other Party of details of the breach.
- 14.3 Any termination of the Agreement will not affect any rights or obligations which by their nature continue beyond the effective date of termination, including this clause 12, clause 9 (Confidentiality) and clause 10 (Limitation of liability).
- 15 DISPUTE RESOLUTION**
- 15.1 The parties will attempt in good faith to resolve all disputes, disagreements or claims between the parties relating to an Order. The preferred method of determination of unresolved disputes shall be by amicable agreement at the senior management level of the Customer and Schneider Electric.
- 15.2 If the parties cannot resolve the dispute themselves they may agree to appoint an expert or mediator to help them resolve the dispute. In such event both parties agree to jointly bear the costs of such mediator or expert and be bound by the determination of such person.
- 15.3 In the event the parties cannot resolve the dispute and:
- (a) The parties cannot agree upon a mediator or expert;
- (b) A mediator or expert has been appointed but resolution has not been reached within six weeks of appointment of the mediator or expert; then either party may initiate legal proceedings.
- 16 MISCELLANEOUS**
- 16.1 Nothing contained or implied in the Agreement will create a relationship of partnership or agency between the Parties and neither Party has any authority to bind the other Party to any obligations.
- 16.2 A Party will not be liable to the other if performance of its obligations to the other Party is delayed, impeded or prevented by any act or event beyond the control of a Party, whether foreseen or not, which delays, interrupts or prevents such Party from performing its obligations under the Agreement (Force Majeure). If Schneider Electric is delayed in the supply of Products, Services and Projects due to Force Majeure which continues for more than one (1) month, either Party may terminate the Order by written notice to the other Party. For the purposes of this clause Force Majeure may also include but not be limited to hostilities, revolution, acts of war or terrorism, civil commotion, epidemic, accident or quarantines or regional medical crisis, fire, flood, wind, earthquake or storms, strikes and lockouts or shortage of materials or transport facilities or any other acts of god or act of any government or governmental agency including laws regulation or ordinance and proclamation affecting the parties or the Products or Project Deliverables.
- 16.3 The Customer agrees that during the term of any Order and for a period of six months after expiry of that Order it will not solicit or hire directly or indirectly any employees that Schneider Electric used to provide any Services or Project under that Order to the Customer.
- 16.4 Neither Party may assign its rights and obligations under the Agreement without the prior written approval of the other Party (such approval not to be unreasonably withheld) provided that either Party may assign its rights and obligations to a related body corporate within the meaning of the Corporations Act 2001 (Cth) provided that the related body corporate is of similar financial standing and has the ability to discharge its obligations under the Agreement.
- 16.5 Each Order will be governed by and will be construed in accordance with the laws of New Zealand. Each Party irrevocably and unconditionally submits to the exclusive jurisdiction of the courts of New Zealand and its appellate courts and waives any right to object to proceedings being brought in those courts for any reason.
- 16.6 If any provision of the Agreement, or the application thereof to any person, place or circumstance, will be held by a court or tribunal of competent jurisdiction to be invalid, unenforceable, or void, the remainder of the Agreement and such provisions as applied to other persons, places or circumstances will remain in full force and effect.
- 16.7 For the purposes of each Order, the Order together with these Terms and Conditions and the Credit Terms will form the entire agreement between the parties and as such both parties exclude all statements, representations, warranties, conditions, promises, undertakings, covenants and other provisions, express or implied (and whether implied by law including Act of Parliament or otherwise) relating to that Order.
- 17 COMPLIANCE**
- 17.1 Neither party shall comply with any foreign boycott laws or requirements, which are in violation of any law, rule, or regulation of New Zealand.
- 17.2 Customer acknowledges that each Product and any related software and technology, including technical information supplied by Seller or contained in documents (collectively "Items"), is subject to export controls of the U.S. government. Software is licensed for use in the specific location identified in the Orders and licences attached. Customer may not export the "Items" to another country without Seller's written permission and payment of any applicable country specific surcharges. Customer agrees to comply fully with all relevant export laws and regulations of the United States and foreign nations in which the "Items" will be used ("Export Laws") to ensure that neither the "Items" nor any direct product thereof are
- (i) exported, directly or indirectly, in violation of any Export Laws; or
- (ii) are intended to be used for any purposes prohibited by the Export Laws. Without limiting the foregoing, Customer will not export or re-export the "Items":
- (iii) to any country to which the United States has embargoed or restricted the export of Products or services or to any national of any such country, wherever located;
- (iv) to any end user who Customer knows or has reason to know will utilise the "Items" in the design, development or production of nuclear, chemical or biological weapons; or
- (v) to any end-user who has been prohibited from participating in U.S. export transactions by federal agency of the U.S. government.
- 17.3 Each party shall execute and deliver to the other any documents as may be required to effect or evidence compliance.

Addendum for the Supply of Projects

18 AGREEMENT ON SPECIFICATIONS AND PROVISION OF INFORMATION

18.1 If the Products, Services and Projects involve preparing and agreeing the Specifications with the Customer, Schneider Electric will prepare the necessary Specifications in conjunction with the Customer in accordance with the Timetable, or if there is no Timetable, within thirty (30) days of acceptance of the Order or such other time as is agreed between the Parties. The Customer will review and either provide amendments or approve the Specifications within five (5) working days of receipt of the Specifications. In the absence of any written comments within five (5) working days the Customer will be deemed to have approved the Specifications. Any changes to the approved Specifications will be considered Variation in accordance with clause 20.

18.2 The Customer will respond to any requests for further information or instructions from Schneider Electric within five (5) working days after the receipt of such request for further information or instructions by the Customer. If the Customer does not respond within that period (or such other period identified by Schneider Electric), Schneider will have the right to claim an extension of time relating to such failure to provide the necessary information.

19 DELAY AND EXTENSION OF TIME

19.1 Unless there is a Timetable specified in an Order, Schneider Electric will, if so requested by the Customer, submit a Timetable to the Customer for approval prior to commencing the supply of the Products, Services and Projects.

19.2 Any Timetable submitted by Schneider Electric pursuant to clause 19.1 as requiring the Customer's approval will be approved or commented on in writing by the Customer within five (5) working days after the receipt of such Timetable by the Customer. If the Customer does not respond within that period (or such other period agreed with Schneider Electric), it will be deemed to have approved the Timetable.

19.3 Schneider Electric will, at all times, take all reasonable steps to ensure that the Products, Services and Projects are supplied in accordance with the Timetable. If the supply of the Products, Services and Projects will be delayed by an act or omission of the Customer or by an event beyond Schneider Electric's reasonable control, and the delay was not contributed to by Schneider Electric, Schneider Electric will promptly submit a claim to the Customer for an extension of time to the Timetable setting out the details of the cause of the delay, the activities affected and the extension time needed. The Customer will, acting reasonably, consider Schneider Electric's claim and grant the extension of time requested or such other mutually acceptable period of time as an extension to the Timetable.

19.4 Any changes to the approved Timetable including those pursuant to clause 19.3 will be considered Variation in accordance with clause 20.

20 VARIATIONS

20.1 If the Customer wishes to alter, amend, omit, add to or otherwise vary an Order or Timetable including suspend the delivery of the Order, it will issue Schneider Electric with a written Variation request. (Variation) Schneider Electric will review the Variation request and provide a quote to the Customer setting out the cost of the Variation and the impact on the Timetable.

20.2 As soon as practicable after receipt of the quote from Schneider Electric, the Customer will either accept the quote by signing and returning it to Schneider Electric or reject the quote in writing. If the Customer and Schneider Electric are unable to agree upon the amount of the difference in cost or impact on the Timetable the provisions of clause 20.3 shall apply.

20.3 If the parties can agree upon the variation to the Timetable and the only outstanding item is pricing, the Customer may direct Schneider Electric to proceed with the Variation request on a Time and Materials basis in accordance with Schneider Electric's standard schedule of rates. Unless Schneider Electric reaches agreement with the Customer under clause 20.2 or it receives a direction under this clause, Schneider Electric will not be required to proceed with the Variation request.

21 TESTING AND ACCEPTANCE

21.1 For Products, the Customer will be deemed to have accepted the Products on the date that the Products are delivered to the Customer at the Delivery Point (Delivery Date).

21.2 For all Project Deliverables, the following provisions will apply:

- (a) Schneider Electric will notify the Customer in writing when the Project Deliverables are ready to be submitted for Acceptance Tests and within ten (10) days after receiving such notice, the Customer will conduct Acceptance Tests on the Project Deliverables and advise Schneider Electric in writing of whether the Project Deliverables have passed the Acceptance Tests or the Project Deliverables have failed the Acceptance Tests.
- (b) If the Project Deliverables fail to pass the Acceptance Tests then the Customer must notify Schneider Electric in writing setting out details of the known defects in the Project and permit Schneider Electric, within a reasonable period of time taking into account the nature of the defects and the likely time it will take to remedy the defects, which period shall not be less than ten (10) working days, to correct the defects and resubmit the Project to the Customer to conduct Acceptance Tests again.
- (c) The Project Deliverables will be deemed accepted upon the occurrence of the earlier of:
 - (i) The date that the Customer gives written notice to Schneider Electric that the Project Deliverables have passed the Acceptance Tests; or
 - (ii) The date that is fourteen (14) days after completion of the Acceptance Tests, provided that during the fourteen (14) day period after completion of the Acceptance Tests the Customer did not notify Schneider Electric in writing of any defects in the Project Deliverables; or
 - (iii) The date the Customer makes commercial or operational use of the Project Deliverables other than for the purposes of conducting the Acceptance Tests.

(Date of Acceptance).

Notes



EcoStruxure is our IoT-enabled open and interoperable system architecture and platform. EcoStruxure delivers enhanced values around safety, reliability, efficiency, sustainability and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity technologies to deliver Innovation At Every Level from Connected Products; Edge Control; and Apps, Analytics & Services: our IoT technology Levels.

Life Is On



For more information visit: [se.com/nz](https://www.se.com/nz)

Schneider Electric (NZ) Ltd.
Level 2, Building 6
60 Highbrook Drive, East Tamaki
Manukau 2013
Tel: +64 9 829 0490
Fax: +64 9 829 0491
www.se.com/nz

Customer Care
Tel: 0800 652 999
Email: customercare.nz@schneider-electric.com