

ElectroMechanica Product Catalogue (11/2025) — Volume 2 of 2, pages 250–497

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686.204



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COMBI 308

Junction boxes for electrical installations (halogen free)

SCABOX series plastic boxes/enclosures are ideal for housing electrical accessories and terminals for household and fixed electrical installations and offer IP56 degree of protection.

- Max. operating temperature: 60°C
- Colour: RAL 7035 grey (*stabilised*)
- Material: Self extinguishing thermoplastic
- Reference standards: EN 60439-1, EN 60670-1, EN60670-22

type	IP rating	description	carton qty.	ext. dimension (mm)			price (ea)
				(H)	(W)	(D)	

Plastic housings
IP56
Shallow lid

686.204	IP56	PVC housing - opaque lid	40	100	100	50	58.00
686.205	IP56	PVC housing - opaque lid	42	120	80	50	60.00
686.206	IP56	PVC housing - opaque lid	48	150	110	70	90.00
686.207	IP56	PVC housing - opaque lid	30	190	140	70	173.00
686.208*	IP56	PVC housing - opaque lid	16	240	190	90	283.00
686.209*	IP56	PVC housing - opaque lid	8	300	220	120	515.00
686.210*	IP56	PVC housing - opaque lid	4	380	300	120	667.00
686.211*	IP56	PVC housing - opaque lid	1	450	370	130	1 170.00

Deep lid

686.404	IP56	PVC housing - opaque (<i>high</i>) lid	24	100	100	80	90.00
686.408*	IP56	PVC housing - opaque (<i>high</i>) lid	6	240	190	125	374.00
686.409*	IP56	PVC housing - opaque (<i>high</i>) lid	6	300	220	170	638.00
686.410*	IP56	PVC housing - opaque (<i>high</i>) lid	3	380	300	170	975.00
686.411*	IP56	PVC housing - opaque (<i>high</i>) lid	1	450	370	180	1 340.00

Transparent cover/ lid
Shallow lid

686.226	IP56	PVC housing - transparent lid	48	150	110	70	202.00
686.227	IP56	PVC housing - transparent lid	30	190	140	70	350.00
686.228*	IP56	PVC housing - transparent lid	16	240	190	90	545.00
686.229*	IP56	PVC housing - transparent lid	8	300	220	120	795.00
686.230*	IP56	PVC housing - transparent lid	4	380	300	120	1 280.00
686.231*	IP56	PVC housing - transparent lid	1	450	370	130	1 840.00

Deep lid

686.428*	IP56	PVC housing - transparent (<i>high</i>) lid	6	240	190	125	655.00
686.429*	IP56	PVC housing - transparent (<i>high</i>) lid	6	300	220	170	923.00
686.430*	IP56	PVC housing - transparent (<i>high</i>) lid	3	380	300	170	1 580.00
686.431*	IP56	PVC housing - transparent (<i>high</i>) lid	1	450	370	180	2 170.00

Accessories for above enclosures
Chassis plates (steel)
for enclosures

654.0787	—	chassis plate for enc.	686.207/227	190	140	—	108.00
654.0788	—	chassis plate for enc.	686.208/408/228/428	240	190	—	164.00
654.0789	—	chassis plate for enc.	686.209/409/229/429	300	220	—	237.00
654.0790	—	chassis plate for enc.	686.210/410/230/430	380	300	—	648.00
654.0791	—	chassis plate for enc.	686.211/411/231/431	460	380	—	777.00
654.0080	—	sealing caps for internal mounting holes				(12 pcs)	46.00
654.0085	—	kit to hinge the lid on enclosures				(1 pair)	117.00
654.0021	—	plastic wall mounting brackets				(set of 4)	63.00

* Enclosures which accept 654.0085 hinge kit

COMBI Junction boxes
IP66/67

Wiska COMBI junction boxes provide ultimate protection from environmental conditions in a compact, very attractive format, suitable for extreme outdoor installations.

- Weather proof, ultraviolet resistant, shatterproof, impact resistant, flame retardant and halogen free

type	cable entry sides	rear	thread Ø	description	colour	dimensions (mm)			price
						(H)	(W)	(D)	

COMBI 308 IP66/67 (*captive - quick release lid screws*)

10060400	8	—	M20	weatherproof junction box	grey	85	85	51	see Cat L for pricing.
10060581	8	—	M20	weatherproof junction box	black	85	85	51	

Insulated enclosures IP65/66/67

A - Motor control & drives

Plastic enclosures

Lovato M series enclosures are high quality, extremely robust housings ideally suited to indoor or outdoor installations, offering IP65 protection for internally mounted components.

- Protection degree: IP65
- Operating temperature: -25...+60°C
- Material: Made of UV protected polycarbonate
- Colour: Black base and RAL7035 (light grey) cover

type	IP rating	cable entry	description	dimensions (mm) (H) (W) (D)			price
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M1 and M2 series - Plastic housings IP65 (light grey)

Slim, deep housings designed for compact but tall components such as contactors, timers, voltage, liquid level and phase failure relays etc. required to be housed in a protective enclosure without occupying much space.

- External mounting holes
- Incorporated earth terminal
- DIN-rail incorporated into internal base of enclosure for mounting electrical components
- Two M20 knock-outs on top and bottom of enclosure (to accommodate gland for cable entry)

M1N	IP65	M20	slim polycarbonate housing	202	88	135	
M2N	IP65	M20	slim polycarbonate housing	234	110	149	

M24 and M25 series - Plastic housings IP65 (light grey)

Robust, heavy duty enclosures for mounting a variety of electrical components.

- Incorporated earth terminal
- Mounting holes within the enclosure (outside the sealing gasket)
- Supplied complete with internal metal chassis plate (156 x 148 mm)
- Moulded (alpha and numeric) grid on internal door for ease of mounting control devices
- Two M25/M32 knock-outs on top and bottom of enclosure (to accommodate gland for cable entry)

M24N	IP65	M25/32	shallow polycarbonate housing	210	175	99	
M25N	IP65	M25/32	deep polycarbonate housing	210	175	165	

Accessories (spare chassis)

MX31	chassis	metal chassis/mounting plate	for M25N enclosures				
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M3 series - Plastic housings IP65 (light grey)

Robust, heavy duty enclosure with high impact resistance and incorporated hinge facility for mounting a variety of electrical components.

- Material: ABS plastic material
- Mounting holes within the enclosure (outside the sealing gasket)
- Internal ribbing in base for mounting components - DIN-rail etc.
- Plain base (no knockouts) for easy configuration of cable entry/exits
- Incorporated hinge facility (180° full opening) lid can be removed if required
- Moulded (alpha - numeric) grid on internal door for easy alignment of control devices

M3N	IP65	—	ABS housing without chassis plate	280	220	170	
MX30	chassis	metal chassis/mounting plate	for M3N enclosures				

Metallic enclosures (empty housings) IP66, IP67 (without any holes)

- The thickness of the enclosure is suitable for drilling
- Suitable for pushbuttons, selector switches and pilot lights
- Material: Aluminium alloy
- Colour: Light grey (base and cover)
- Protection: IEC/EN: IP66 and IP67
UL: Nema 4X
- Earth connection: On base and cover
- Ambient conditions: -25...+70°C
- Compliant: IEC/EN/BS 60947-5-1, cULus

type	cover	description	(H)	(W)	(D)	price
LPZ M1E8	grey	empty aluminium alloy housing only	80	80	73	676.00
LPZ M2E8	grey	empty aluminium alloy housing only	130	80	73	842.00
LPZ M3E8	grey	empty aluminium alloy housing only	170	80	73	1 010.00
LPZ M5E8	grey	empty aluminium alloy housing only	160	160	90	1 830.00
LPZ M6E8	grey	empty aluminium alloy housing only	170	190	90	2 000.00
LPZ M7E8	grey	empty aluminium alloy housing only	190	250	90	2 380.00

Surface & flush-mount distribution boards IP30/41

Enclosures / Distribution boards

type	no. of ways	IP rating	description	dimensions (mm)			price
				(H)	(W)	(D)	

Mini gamma series - Surface shrouds 40A IP30

- Incorporated DIN profile and labelling facility
- Hinged transparent doors available (*IP40 with door*)
- Lead sealable housing

GD102B	2-way	IP30	surface mounting MCB shroud	160	55	82	86.00
GD104B	4 way	IP30	surface mounting MCB shroud	180	110	82	117.00
GD106B	6 way	IP30	surface mounting MCB shroud	180	146	82	136.00
GD110B	10 way	IP30	surface mounting MCB shroud	180	218	82	284.00

Accessories for above GD series boards

GP102T	door	—	transparent (<i>horizontally</i>) hinged door	for	GD102B	153.00
GP104T	door	—	transparent (<i>horizontally</i>) hinged door	for	GD104B	174.00
GP106T	door	—	transparent (<i>horizontally</i>) hinged door	for	GD106B	183.00
GP110T	door	—	transparent (<i>horizontally</i>) hinged door	for	GD110B	204.00

GZ104S	support	—	clip-in support for terminals GZ04E/N	for	GD104B	30.60
GZ106S	support	—	clip-in support for terminals GZ04E/N	for	GD106B	30.60
GZ110S	support	—	clip-in support for terminals GZ04E/N	for	GD110B	41.00

GZ04E	4 way	terminal	insulated "earth" terminal	(clips onto above supports)		56.00
GZ04N	4 way	terminal	insulated "neutral" terminal	(clips onto above supports)		56.00
JP002	24 way	blanking	blanking strip	(breakable sections)		78.00

Golf series - Surface and flush-mount distribution boards 63A

- Transparent door 180° opening (*hinged left or right*) / key-lock facility
- Internal cable tie fixing points / cable can be run behind breakers / optional cable retainer clips
- Supplied with earth / neutral terminals
- Colour: RAL9010 (*white*) / glow wire test to 650°C to UNE 60595-2-1

Golf VS series - Surface mounting enclosures - IP40 (*with door*)

- Pre-cut profiles for cable, conduit, trunking entry
- Enclosures can be joined together (*horizontally or vertically*)

VS104TJ	4 (1 x 4)	IP40	surface mounting distribution board	184	138	99	392.00
VS108TJ	8 (1 x 8)	IP40	surface mounting distribution board	184	210	99	440.00
VS112TJ	12 (1 x 12)	IP40	surface mounting distribution board	252	282	99	600.00
VS212TJ	24 (2 x 12)	IP40	surface mounting distribution board	377	282	99	820.00
VS118TJ	18 (1 x 18)	IP40	surface mounting distribution board	252	390	99	690.00
VS218TJ	36 (2 x 18)	IP40	surface mounting distribution board	377	390	99	1 090.00
VS318TJ	54 (3 x 18)	IP40	surface mounting distribution board	500	390	99	1 230.00

Golf VF series - Flush mounting enclosures - IP40 (*with door*)

- 72 mm installation depth, can be mounted into "hollow wall" with optional brackets

VF108TJ	8 (1 x 8)	IP40	flush mounting distribution board	225	275	98	501.00
VF112TJ	12 (1 x 12)	IP40	flush mounting distribution board	293	352	98	593.00
VF212TJ	24 (2 x 12)	IP40	flush mounting distribution board	418	352	98	795.00
VF118TJ	18 (1 x 18)	IP40	flush mounting distribution board	293	460	98	687.00
VF218TJ	36 (2 x 18)	IP40	flush mounting distribution board	418	460	98	1 040.00
VF318TJ	54 (3 x 18)	IP40	flush mounting distribution board	543	460	98	1 220.00

Accessories for Golf series (VS/VF) enclosures

VZ696N	bracket	hollow wall mounting brackets for flush enclosures			(4pcs)	283.00
VZ699N	retainer	cable retaining guides for all enclosures			(4pcs)	270.00
VZ786N	bracket	brick wall fixing brackets for flush enclosures			(4pcs)	104.00
VZ787N	label	spare transparent label holder for all enclosures			(5pcs)	283.00
VZ794N	key	key lock facility for all enclosures			(2pcs)	489.00

Volta series - "Exclusive" flush mounting boards IP41 (*class II*)

- Metallic front door and frame (*reversible - opening from left or right*)
- Integrated mini spirit level (*installation aid for alignment*)
- 30% more wiring space available
- Supplied with earth / neutral terminals
- Colour: RAL 9010 (*white*)
- IEC 60439-3

VU12NE	12 (1 x 12)	flush mount "exclusive" distribution board	356	348	96	1 220.00
VU24NE	24 (2 x 12)	flush mount "exclusive" distribution board	505	348	96	1 420.00
VU36NE	36 (3 x 12)	flush mount "exclusive" distribution board	630	348	96	1 730.00
VU48NE	48 (4 x 12)	flush mount "exclusive" distribution board	755	348	96	1 930.00

Above ZAR prices do not include VAT. E&OE

Surface-mount distribution boards IP55/65



VE106L

(Enclosure only)



VE212SN

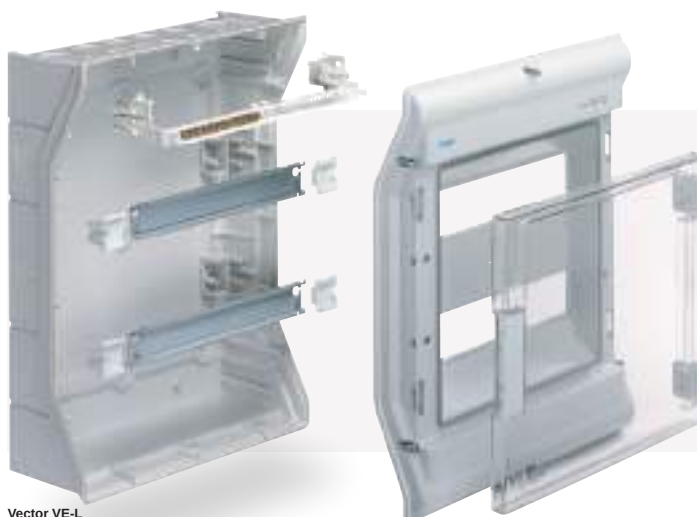


Vector series - Surface mount enclosures class II

- Compliant: IEC 61439-3
- Colour: RAL 7035 (light grey)
- Adjustable DIN-rail depth (to fit products of different depth)
- Transparent hinged cover (2 - 10 way) or door (12 - 54 way)
- Rear adjustment screws for mounting on uneven / irregular wall surfaces (up to 3 mm)
- Premarked knock-outs for cable glands **M20, M25, M32, M40, M50** (size dependant)

type	number of ways		dimensions (mm) (H) (W) (D)			price
Vector VE-L - Surface-mount distribution boards 63A			IP55			
• IP rating: IP55 • Supplied with Earth/Neutral terminals • 2 lateral knockouts for cable entry or coupling pieces • Glow wire test to IEC 60695-2-10 and IEC 60 695-2-11: 750°C						
VE103L	3 (1 x 3)	surface mounting distribution board	175	111	93	516.00
VE106L	6 (1 x 6)	surface mounting distribution board	190	165	113	595.00
VE110L	10 (1 x 10)	surface mounting distribution board	210	237	114	671.00
VE112L	12 (1 x12)	surface mounting distribution board	302	310	151	945.00
VE212L	24 (2 x 12)	surface mounting distribution board	427	310	151	1 550.00
VE118L	18 (1 x 18)	surface mounting distribution board	302	418	151	1 380.00
VE218L	36 (2 x 18)	surface mounting distribution board	452	418	151	2 130.00
VE318L	54 (3 x 18)	surface mounting distribution board	602	418	151	2 700.00
Vector VE-SN - Surface-mount distribution boards 63A (for outdoor use)			IP65			
UV stabilised and IP65 surface mounting enclosure range designed specifically for outdoor use and photovoltaic applications.						
• Protection: IP65 • Material: Polycarbonate • Dimensional stability up to 100°C, resistant to frost down to -25°C • Plain base (<i>no knockouts</i>) for easy configuration of cable entry/exits • Earth and neutral terminals to be ordered separately (<i>see below</i>) • Glow wire test to IEC 60695-2-10 and IEC 60 695-2-11: 750°C • Resistant to ultraviolet radiation, immersion in water in accordance with UL746C						
VE112SN	12 (1 x 12)	surface mounting distribution board	302	310	151	930.00
VE212SN	24 (2 x 12)	surface mounting distribution board	427	310	151	1 540.00
VE312SN	36 (3 x 12)	surface mounting distribution board	552	318	151	2 390.00
Earth/Neutral terminal set for above VE...SN boards						
VZ522	E/Neutral	terminals each with: (1 x 25 mm ² + 5 x 16 mm ² + 7 x 10 mm ²)				259.00

Vector waterproof boards



Vector VE-L

Technical characteristics

- **Excellent waterproofing: IP55 / 65 - IK 07 and IK 08**
- Plastic boxes, class II
- Capacity: 1 to 3 rows, 3 to 54 modules
- Depth **adjustable DIN-rail**
- 2 side knockouts (VE-L)

Surface & flush-mount distribution boards IP41

Vega D series - Surface and flush mounting distribution boards IP41 (with optional door fitted)

Vega D enclosures are suitable for installations in residential and commercial buildings for supplies up to 160A. Delivered in a ready-to-mount configuration. All enclosures have 24 module rows.

General features:

- Material: Metallic enclosure
- Colour: RAL 9010 (white)
- Integrated quick connect earth terminals
- Removable front frame for optimal access to internal installed devices
- Doors sheet metal plain or with transparent window (to be ordered separately)
- Protection class: IP30/IPK07 (without door) - IP41/IPK08 (with door) - class II totally insulated



Scan to watch video

type	number of modular ways	description	dimensions (mm)			price
			(H)	(W)	(D)	

Surface-mounting boards 48 to 168 way

- Removable top and bottom plates for easier cable entry

FD22DN	48	(2 x 24)	surface mounting distribution board	450	550	193	6 010.00
FD32DN	72	(3 x 24)	surface mounting distribution board	600	550	193	6 700.00
FD42DN	96	(4 x 24)	surface mounting distribution board	750	550	193	7 760.00
FD52DN	120	(5 x 24)	surface mounting distribution board	900	550	193	8 250.00
FD62DN	144	(6 x 24)	surface mounting distribution board	1050	550	193	9 780.00
FD72DN	168	(7 x 24)	surface mounting distribution board	1200	550	193	10 500.00

Partially equipped surface enclosures

FD42AN*	48	(2 x 24)	surface mounting distribution board	750	550	193	6 700.00
FD52AN*	72	(3 x 24)	surface mounting distribution board	900	550	193	7 610.00
FD62AN*	96	(4 x 24)	surface mounting distribution board	1050	550	193	8 060.00
FD72AN*	120	(5 x 24)	surface mounting distribution board	1200	550	193	8 520.00

Flush-mounting boards 48 to 168 way
General features:

- Metallic flush mounting tray (depth 110 mm with insulated cable entries top and bottom)
- Removable chassis with uprights accommodating modular devices
- Metallic (easily removable) finishing frame DN=40 / AN=72 mm depth

FU22DN	48	(2 x 24)	flush mounting distribution board	537	550	150	6 910.00
FU32DN	72	(3 x 24)	flush mounting distribution board	687	550	150	8 440.00
FU42DN	96	(4 x 24)	flush mounting distribution board	837	550	150	9 110.00
FU52DN	120	(5 x 24)	flush mounting distribution board	987	550	150	9 860.00
FU62DN	144	(6 x 24)	flush mounting distribution board	1137	550	150	10 400.00
FU72DN	168	(7 x 24)	flush mounting distribution board	1287	550	150	12 000.00

Partially equipped flush enclosures

FU42AN*	48	(2 x 24)	flush mounting distribution board	837	550	182	8 440.00
FU52AN*	72	(3 x 24)	flush mounting distribution board	987	550	182	9 550.00
FU62AN*	96	(4 x 24)	flush mounting distribution board	1137	550	182	10 100.00
FU72AN*	120	(5 x 24)	flush mounting distribution board	1287	550	182	10 600.00

* Supplied without top two rows, to be completed with internal modules of choice (below) to accept main switch MCCB (up to 160A) or two rows modular devices or chassis plate

Doors for Vega D enclosures (sheet metal)
Plain doors

(left or right hinged 135° opening)

FD22PN	plain	sheet metal door for enclosures	FD/FU22	350	500	—	1 200.00
FD32PN	plain	sheet metal door for enclosures	FD/FU32	500	500	—	1 400.00
FD42PN	plain	sheet metal door for enclosures	FD/FU42	650	500	—	1 600.00
FD52PN	plain	sheet metal door for enclosures	FD/FU52	800	500	—	1 700.00
FD62PN	plain	sheet metal door for enclosures	FD/FU62	950	500	—	1 800.00
FD72PN	plain	sheet metal door for enclosures	FD/FU72	1100	500	—	2 000.00

Transparent doors

(left or right hinged 135° opening)

FD22TN	transparent	sheet metal door for enclosures	FD/FU22	350	500	—	1 800.00
FD32TN	transparent	sheet metal door for enclosures	FD/FU32	500	500	—	1 900.00
FD42TN	transparent	sheet metal door for enclosures	FD/FU42	650	500	—	2 200.00
FD52TN	transparent	sheet metal door for enclosures	FD/FU52	800	500	—	2 400.00
FD62TN	transparent	sheet metal door for enclosures	FD/FU62	950	500	—	2 600.00
FD72TN	transparent	sheet metal door for enclosures	FD/FU72	1100	500	—	2 900.00

Internal modules (to fill upper 2 spaces on FD/FU42,52,62,72AN enclosures)

FD01A1	1 row 24 way	standard chassis with modular DIN cover	150	—	—	725.00
FD01A2	1 row adj.	DIN-rail kit for terminals with plain front cover	150	—	—	975.00
FD01K1	1 row	for 1x horizontally mounted 160A MCCB	150	—	—	1 710.00

See page H-6 for Vega D internal modules and accessories



Floor-standing distribution board system



Quadro 5 series - Floor standing distribution board system (IP55)

- Nominal insulation voltage: $U_i = 690 \text{ V}$
- Type tested nominal current: 630A, 35 kA
- Colour: RAL9010, (plinth RAL7042)
- Class of protection: IP55, IK10 (with door) to EN 60530

type	description	for enclosure	dimensions (mm)			price
			(H)	(W)	(D)	

Enclosures - Height: 1260 mm - Surface wall mount or (floor mount with optional plinth)

- Main frame with back plate, removable top and bottom plates and 4 lugs for wall mounting
- 1200 mm Internal height - accepts: - 8 rows (150 mm high) or 6 rows (200 mm high) 24 way

FM205	upright basic frame without plinth	(standard)	1260	700	260	10 200.00
FM405	pair of side plates (L and R) for enclosure	FM205	1260	—	260	2 010.00
FM450	plinth (optional) for floor mounting enclosure	FM205	150	700	260	3 380.00
FM535	plain sheet metal hinged door for	FM205	1260	685	—	3 910.00
FM545	transparent sheet metal hinged door for	FM205	1260	685	—	5 180.00

Enclosures - Height: 2010 mm (floor standing with back plate, removable top plate and plinth)

- Main frame with back plate, removable top plate and plinth with 2 wall securing lugs
- 1800 mm Internal height - accepts: - 12 rows (150 mm high) or 9 rows (200 mm high) 24 way

FM109	upright basic frame with back plate and plinth	(narrow)	2010	450	260	15 500.00
FM209	upright basic frame with back plate and plinth	(standard)	2010	700	260	16 100.00
FM409	pair of side plates (L and R) for enclosure	FM1/209	2010	—	260	2 800.00
FM519	plain sheet metal hinged door (narrow)	FM109	2010	435	—	4 970.00
FM539	plain sheet metal hinged door (standard)	FM209	2010	685	—	6 340.00
FM549	transparent sheet metal hinged door (standard)	FM209	2010	685	—	8 080.00

Equipment mounting kits - For Quadro 5 system

- Comprises: mounting rail + accessories and front covers for modular MCB and MCCB

For 700 mm wide (standard) panels

UC201	mounting kit for MCB (150 mm)	24 modules	FM205/9	150	600	—	1 040.00
UC205	mounting kit for MCB (200 mm)	24 modules	FM205/9	200	600	—	1 140.00
UC011H	mounting kit for MCCB	x160	FM205/9	300	600	—	1 560.00
UC021H	mounting kit for MCCB	x250	FM205/9	300	600	—	2 640.00
UC464P	kit for mounting 2 x MCCB	P630	FM205/9	300	600	—	2 170.00
UC464X	kit for mounting 2 x MCCB	x630	FM205/9	300	600	—	2 570.00
UC233EM	kit with knock-outs for 3 x 96 mm instruments		FM205/9	200	600	—	991.00

For 450 mm wide (narrow) panels

UC200	mounting kit for MCB	10 modules	FM109	150	350	—	701.00
UC010H	mounting kit for MCCB	x160	FM109	300	350	—	1 300.00
UC020H	mounting kit for MCCB	x250	FM109	300	350	—	2 200.00
UC434P	kit for mounting 1 x MCCB	P630	250A	300	350	—	1 770.00
UC434X	kit for mounting 1 x MCCB	x630	250A	300	350	—	1 960.00

Accessories for Quadro 5 enclosures - (other common accessories see page H-11)

FM484	chassis plates for standard enclosures	FM205/9	300	500	—	688.00
FM486	chassis plates for standard enclosures	FM205/9	600	500	—	1 150.00
FM635	horizontal joining kit (side by side mounting of frames)					952.00
FM653	screw-in lifting ring set for Quadro 5 enclosures				(2pcs)	265.00
UC915	clip-in cable trunking support (60 mm vertical / 40 mm horizontal)					76.00
JP024	blanking strip (24 modules wide) with breakable sections					82.00
FZ517	replacement square 6 x 6 mm key lock insert					86.00

(continued...) Vega D Internal modules

type	number of modular ways	description	dimensions (mm)			price
			(H)	(W)	(D)	
FD02A1	2 rows (24 way)	standard chassis with modular DIN cover	300	—	—	1 320.00
FD02K1	2 row	for 1 x vertically mounted 160A MCCB	300	—	—	1 410.00
FD02C2	2 row	perforated chassis plate + plain front cover	300	—	—	2 030.00
FD00C2	2 row	plain flat surface front cover for enclosures	300	—	—	639.00
FD00M2	2 row	chassis plate direct fixing on vert. supports	300	—	—	307.00

Accessories for Vega D enclosures

JP002	blanking strip	24 way blanking strip (breakable sections)			(ea)	78.00
FD00A1	label holder	24 way holder and paper strip for marking			(10 per pack)	512.00
FD00F1	bracket	for horizontal side by side mounting			(ea)	603.00
FD00F2	brackets	external wall mount for surface enclosures			(ea)	506.00
FZ794	pocket plan	self adhesive flexible A4 format pocket plan			(10 per pack)	477.00
FD00S1	key lock	key lock to replace original door latch			(ea)	413.00

Modular floor-standing distribution board system

- Quick and easy to assemble
- IP55 (with door)
- Access from all sides
- Sheet metal class I

Dimension (mm)			①	②	③	④	⑤
height	width	depth	Top and bottom frame (set)	4 uprights	plinth (H=100 mm)	back panel	side panel
1900	450	400	FN018EW	FN046EW	FN438E	FN216E	FN356E
1900	450	600	FN020EW	FN046EW	FN440E	FN216E	FN366E
1900	450	800	FN022EW	FN046EW	FN442E	FN216E	FN376E
1900	700	400	FN021EW	FN046EW	FN441E	FN276E	FN356E
1900	700	600	FN029EW	FN046EW	FN451E	FN276E	FN366E
1900	700	800	FN013EW	FN046EW	FN433E	FN276E	FN376E
1900	900	400	FN023EW	FN046EW	FN443E	FN296E	FN356E
1900	900	600	FN031EW	FN046EW	FN453E	FN296E	FN366E
1900	900	800	FN017EW	FN046EW	FN437E	FN296E	FN376E
1900	1000	400	FN024EW	FN046EW	FN444E	FN246E	FN356E
1900	1000	600	FN032EW	FN046EW	FN454E	FN246E	FN366E
1900	1000	800	FN037EW	FN046EW	FN459E	FN246E	FN376E

Introducing more possibilities
quadro evo
The New Hager Main Distribution Board

Basic component requirement to assemble a single floor standing cabinet:

- Top and bottom frames • Four uprights • Plinth • Side panels • Back panel • Top and bottom plates • Door



type	description	dimensions (mm)			price
		(H)	(W)	(D)	
Top and bottom frame set - Connects to structural uprights FN046EW ①					
FN018EW	top and bottom frame set (connects to uprights)	—	450	400	5 230.00
FN020EW	top and bottom frame set (connects to uprights)	—	450	600	5 670.00
FN022EW	top and bottom frame set (connects to uprights)	—	450	800	6 060.00
FN021EW	top and bottom frame set (connects to uprights)	—	700	400	6 190.00
FN029EW	top and bottom frame set (connects to uprights)	—	700	600	6 410.00
FN013EW	top and bottom frame set (connects to uprights)	—	700	800	6 870.00
FN023EW	top and bottom frame set (connects to uprights)	—	900	400	6 750.00
FN031EW	top and bottom frame set (connects to uprights)	—	900	600	7 620.00
FN017EW	top and bottom frame set (connects to uprights)	—	900	800	8 520.00
FN024EW	top and bottom frame set (connects to uprights)	—	1000	400	7 560.00
FN032EW	top and bottom frame set (connects to uprights)	—	1000	600	8 390.00
FN037EW	top and bottom frame set (connects to uprights)	—	1000	800	9 230.00
Four structural uprights - Connects to top and bottom frames with single captive screw ②					
FN046EW	set of 4 uprights (connects to top and bottom frame)	1900	—	—	6 950.00
Plinth - Removable front and rear inspection plates ③					
FN438E	plinth with inspection plates (H) 100 mm	100	450	400	2 420.00
FN440E	plinth with inspection plates (H) 100 mm	100	450	600	2 660.00
FN442E	plinth with inspection plates (H) 100 mm	100	450	800	2 820.00
FN441E	plinth with inspection plates (H) 100 mm	100	700	400	2 700.00
FN451E	plinth with inspection plates (H) 100 mm	100	700	600	2 790.00
FN433E	plinth with inspection plates (H) 100 mm	100	700	800	3 010.00
FN443E	plinth with inspection plates (H) 100 mm	100	900	400	2 840.00
FN453E	plinth with inspection plates (H) 100 mm	100	900	600	2 940.00
FN437E	plinth with inspection plates (H) 100 mm	100	900	800	3 150.00
FN444E	plinth with inspection plates (H) 100 mm	100	1000	400	2 820.00
FN454E	plinth with inspection plates (H) 100 mm	100	1000	600	2 920.00
FN459E	plinth with inspection plates (H) 100 mm	100	1000	800	3 130.00
FN430E	Plinth connection kit to increase overall height by adding two or more plinths				111.00
Back panels - Removable ④					
FN216E	rear panel for Quadro enclosures (removable)	1900	450	—	2 200.00
FN276E	rear panel for Quadro enclosures (removable)	1900	700	—	3 240.00
FN296E	rear panel for Quadro enclosures (removable)	1900	900	—	4 210.00
FN246E	rear panel for Quadro enclosures (removable)	1900	1000	—	4 730.00
FN276EDW	ventilated rear panel for enclosures (louvered)	1900	700	—	5 510.00
FN296EDW	ventilated rear panel for enclosures (louvered)	1900	900	—	7 220.00
FN246EDW	ventilated rear panel for enclosures (louvered)	1900	1000	—	8 320.00
Side panels (supplied individually) ⑤					
FN356E	side panel for Quadro enclosures (removable)	1900	—	400	2 090.00
FN366E	side panel for Quadro enclosures (removable)	1900	—	600	2 590.00
FN376E	side panel for Quadro enclosures (removable)	1900	—	800	3 990.00

Modular floor-standing distribution board system

6		7		8		9	10
							
top and bottom cable entry plates		doors		chassis plate		functional uprights	
plain plate	cable entry	plain	transparent	full height			
FN078E	FN4540DREM	FN546E	FN510E	FN726E		UC1800FB	
FN080E	FN4560DREM	FN546E	FN510E	FN726E		UC1800FB	
FN082E	FN4580DREM	FN546E	FN510E	FN726E		UC1800FB	
FN081E	FN7040DREM	FN506E	FN516E	FN736E		UC1800FB	
FN089E	FN7060DREM	FN506E	FN516E	FN736E		UC1800FB	
FN073E	FN7080DREM	FN506E	FN516E	FN736E		UC1800FB	
FN083E	FN9040DREM	FN526E	FN536E	FN746E		UC1800FB	
FN091E	FN9060DREM	FN526E	FN536E	FN746E		UC1800FB	
FN077E	FN9080DREM	FN526E	FN536E	FN746E		UC1800FB	
FN084E	FN10040DREM	—	—	—		UC1800FB	
FN092E	FN10060DREM	—	—	—		UC1800FB	
FN121E	FN10080DREM	—	—	—		UC1800FB	

Scan Here
for How To
Tutorial Videos



FN089E



FN4540DREM



FN506E



FN516E

type	description	dimensions (mm)					price
		(H)	(W)	(D)			
Top and bottom cover plates (plain) 6							
FN078E	plain cover plate	top (or) bottom	(plain)	—	450	400	1 020.00
FN080E	plain cover plate	top (or) bottom	(plain)	—	450	600	1 230.00
FN082E	plain cover plate	top (or) bottom	(plain)	—	450	800	1 430.00
FN081E	plain cover plate	top (or) bottom	(plain)	—	700	400	1 280.00
FN089E	plain cover plate	top (or) bottom	(plain)	—	700	600	1 540.00
FN073E	plain cover plate	top (or) bottom	(plain)	—	700	800	2 160.00
FN083E	plain cover plate	top (or) bottom	(plain)	—	900	400	1 350.00
FN091E	plain cover plate	top (or) bottom	(plain)	—	900	600	1 760.00
FN077E	plain cover plate	top (or) bottom	(plain)	—	900	800	2 200.00
FN084E	plain cover plate	top (or) bottom	(plain)	—	1000	400	1 500.00
FN092E	plain cover plate	top (or) bottom	(plain)	—	1000	600	1 790.00
FN121E	plain cover plate	top (or) bottom	(plain)	—	1000	800	2 830.00
Top and bottom cable entry plates (frame + precut plate) 7							
FN4540DREM	cable entry plate	top (or) bottom	(precut)	—	450	400	1 469.00
FN4560DREM	cable entry plate	top (or) bottom	(precut)	—	450	600	1 964.00
FN4580DREM	cable entry plate	top (or) bottom	(precut)	—	450	800	2 207.00
FN7040DREM	cable entry plate	top (or) bottom	(precut)	—	700	400	2 025.00
FN7060DREM	cable entry plate	top (or) bottom	(precut)	—	700	600	2 569.00
FN7080DREM	cable entry plate	top (or) bottom	(precut)	—	700	800	3 130.00
FN9040DREM	cable entry plate	top (or) bottom	(precut)	—	900	400	2 460.00
FN9060DREM	cable entry plate	top (or) bottom	(precut)	—	900	600	3 130.00
FN9080DREM	cable entry plate	top (or) bottom	(precut)	—	900	800	3 740.00
FN10040DREM	cable entry plate	top (or) bottom	(precut)	—	1000	400	3 010.00
FN10060DREM	cable entry plate	top (or) bottom	(precut)	—	1000	600	3 550.00
FN10080DREM	cable entry plate	top (or) bottom	(precut)	—	1000	800	4 350.00
Cable entry plates - for (above) open cover plates							
FZ404	cable entry plain plastic plate without precuts					plain	263.00
FZ422	cable entry plain steel plate without precuts					plain	448.00
FZ402AL	aluminium cable entry plate					plain	435.00
FZ402	cable entry plate with flexible rubber pins			various entry diameters			283.00
FZ406M	cable entry plate with precuts for cable glands			13x M20 + 2x M25/20			262.00
FZ407M	cable entry plate with precuts for cable glands			6x M25 + 2x M32/25			263.00
FZ408M	cable entry plate with precuts for cable glands			2x M25/32 + 1x M50/63			263.00
FZ403WP	top ventilating cap for enclosures		(mounts onto open cover plates)				743.00
Doors - Supplied with hinges and rotary locks 8							
FN510E	door for Quadro system	(reversible)	(t/parent)	1900	450	—	4 900.00
FN516E	door for Quadro system	(reversible)	(t/parent)	1900	700	—	7 090.00
FN536E	door for Quadro system	(reversible)	(t/parent)	1900	900	—	8 190.00
FN546E	door for Quadro system	(reversible)	(plain)	1900	450	—	4 110.00
FN506E	door for Quadro system	(reversible)	(plain)	1900	700	—	5 150.00
FN526E	door for Quadro system	(reversible)	(plain)	1900	900	—	6 100.00
FN952	door stopper unit (to latch door in open position)			—	—	—	840.00

Above ZAR prices do not include VAT. E&OE

H-8

Modular floor-standing distribution board system


Equipment mounting kits (for Quadro Evo systems)

- Comprises: mounting accessories and front covers for MCB, MCCB and ACB

type	description		for components	dimensions (mm)		price
				(H)	(W)	
Functional uprights - Mandatory for mounting equipment kits in enclosures 10						
UC1800FB	functional uprights	(to support mounting accessories)		1900	—	6 200.00
UC1600FB	functional uprights	(space for busbar in top section)		1600	—	6 260.00
Mounting kits for circuit breakers - Vertical mounting (terminals top/bottom)						
For 450 (350) mm wide panels						
UC1530MDN	kit for mounting MCB		10 modules	150	350	1 440.00
UC2035AMD	terminal kit with mounting kit, DIN-rail and front cover			200	350	1 090.00
UC133X	kit for mounting 2 x MCCB	vertical	x160	300	350	1 920.00
UC233XH	kit for mounting 1 x MCCB	vertical	x250	300	350	2 000.00
UC434PN	kit for mounting 1 x MCCB	vertical	P630	400	350	2 180.00
UC434XN	kit for mounting 1 x MCCB	vertical	x630	400	350	2 170.00
For 700 (600) mm wide panels						
UC1560MDN	kit for mounting MCB		24 modules	150	600	1 470.00
UC2060MDN	kit for mounting MCB		24 modules	200	600	1 500.00
UC2060AMD	terminal kit with mounting kit, DIN-rail and front covercover plate			200	600	1 160.00
UC163X	kit for mounting 4 x MCCB	vertical	x160	300	600	2 100.00
UC263XH	kit for mounting 2 x MCCB	vertical	x250	300	600	1 740.00
UC464PN	kit for mounting 2 x MCCB	vertical	P630	400	600	2 950.00
UC464XN	kit for mounting 2 x MCCB	vertical	x630	400	600	3 110.00
UC566H	kit for mounting 1 x MCCB	vertical	h1000	600	600	3 950.00
UC666H	kit for mounting 1 x MCCB	vertical	h1600	600	600	4 650.00
Horizontal mounting (terminals left and right)						
UC262XHR	kit for mounting 1 x MCCB	horizontal	x250	200	600	2 080.00
UC463XRN	kit for mounting 1 x MCCB	horizontal	x630	300	600	2 560.00
UC463PRN	kit for mounting 1 x MCCB	horizontal	P630	400	600	2 500.00
UC564H	kit for mounting 1 x MCCB	horizontal	h1000	400	600	3 750.00
Mounting kits for ACB - Vertically mounted (terminals top/bottom)						
UC6040HW1	kit for mounting HW1 ACB	fixed-D/out	1600A	400	600	2 760.00
UC6060HW2	kit for mounting HW2 ACB	fixed-D/out	2500A	600	600	4 440.00
Other mounting kits - For 700mm wide cabinets						
UC301	kit with knock-outs for up to	4 x 72 mm ²	instruments	200	600	667.00
UC233EM	kit with knock-outs for up to	3 x 96 mm ²	instruments	200	600	991.00
For 900 (800) mm wide panels						
UC1580MDN	kit for mounting MCB		35 modules	150	800	1 840.00
UC2080MDN	kit for mounting MCB		35 modules	200	800	1 900.00
UC2080AMD	terminal kit with mounting kit, DIN-rail and front cover			200	800	1 190.00
UC183X	kit for mounting 6 x MCCB	vertical	x160	300	800	1 700.00
UC283XH	kit for mounting 3 x MCCB	vertical	x250	300	800	1 980.00
UC484XDN	kit for mounting 3 x MCCB	vertical	x630	400	800	3 570.00
UC484PDN	kit for mounting 3 x MCCB	vertical	P630	400	800	3 540.00
UC586H	kit for mounting 1 x MCCB	vertical	h1000	600	800	4 120.00
UC686HD	kit for mounting 2 x MCCB	vertical	h1600	600	800	3 190.00
Horizontal mounting MCCB (terminals left and right)						
UC282XHR	kit for mounting 1 x MCCB	horizontal	x250	200	800	2 390.00
UC483XRN	kit for mounting 1 x MCCB	horizontal	x630	300	800	2 880.00
UC483PRN	kit for mounting 1 x MCCB	horizontal	P630	400	800	2 940.00
UC584H	kit for mounting 1 x MCCB	horizontal	h1000	400	800	4 360.00
Mounting kits for ACB						
UC8040HW1	kit for mounting HW1 ACB	fixed-D/out	1600A	400	800	3 160.00
UC8060HW2	kit for mounting HW2 ACB	fixed-D/out	2500A	600	800	4 870.00
UC8060FHW4	kit for mounting HW4 ACB	fixed	4000A	600	800	6 440.00
UC8060DHW4	kit for mounting HW4 ACB	D/out	4000A	600	800	6 440.00
Other mounting kits - For 900 mm wide cabinets						
UC243EM	kit with knock-outs for up to	3 x 96 mm ²	instruments	200	800	1 280.00



UC1530MD



UC263XH



UC1560MD



UC243EM

Modular floor-standing distribution board system



FN6030PDW



FN6060PDW



UC232



FN266E

FN206E

type	description	dimensions (mm)			price	
		(H)	(W)	(D)		
Partial door system - Replaces classical door system with partial doors						
Vertical upright - requires front top and bottom finishing panels (below)						
FN1900PD	vertical upright to attach partial doors onto	(ea)	1900	—	—	1 340.00
FN60TBPW	top and bottom finishing panels for partial doors	(set 2 pcs)	—	600	—	1 490.00
FN80TBPW	top and bottom finishing panels for partial doors	(set 2 pcs)	—	800	—	1 880.00
Partial doors for cabinets						
FN6020MDW	partial door with cut-out for modular devices (MCB's)	(1 lock)	200	600	—	2 640.00
FN6020PDW	partial plain blank doors only	(hinged) (1 lock)	200	600	—	2 610.00
FN6030PDW	partial plain blank doors only	(hinged) (1 lock)	300	600	—	3 040.00
FN6040PDW	partial plain blank doors only	(hinged) (2 locks)	400	600	—	2 500.00
FN6060PDW	partial plain blank doors only	(hinged) (2 locks)	600	600	—	2 640.00
FN8020MDW	partial door with cut-out for modular devices (MCB's)	(1 lock)	200	800	—	2 840.00
FN8020PDW	partial plain blank doors only	(hinged) (1 lock)	200	800	—	2 060.00
FN8030PDW	partial plain blank doors only	(hinged) (1 lock)	300	800	—	2 400.00
FN8040PDW	partial plain blank doors only	(hinged) (2 locks)	400	800	—	2 610.00
FN8060PDW	partial plain blank doors only	(hinged) (2 locks)	600	800	—	2 870.00
Blanking plates - For Quadro systems - screws onto functional uprights						
UC221	front blanking cover plate	(screw on) (plain)	50	350	—	474.00
UC222	front blanking cover plate	(screw on) (plain)	150	350	—	411.00
UC223	front blanking cover plate	(screw on) (plain)	200	350	—	520.00
UC224	front blanking cover plate	(screw on) (plain)	300	350	—	591.00
UC225	front blanking cover plate	(screw on) (plain)	400	350	—	828.00
UC226	front blanking cover plate	(screw on) (plain)	600	350	—	794.00
UC231	front blanking cover plate	(screw on) (plain)	50	600	—	540.00
UC239	front blanking cover plate	(screw on) (plain)	100	600	—	583.00
UC232	front blanking cover plate	(screw on) (plain)	150	600	—	643.00
UC233	front blanking cover plate	(screw on) (plain)	200	600	—	885.00
UC234	front blanking cover plate	(screw on) (plain)	300	600	—	655.00
UC235	front blanking cover plate	(screw on) (plain)	400	600	—	920.00
UC236	front blanking cover plate	(screw on) (plain)	600	600	—	1 170.00
UC6020PL	ventilating front blanking cover	(screw on) (louvered)	200	600	—	1 020.00
UC241	front blanking cover plate	(screw on) (plain)	50	800	—	587.00
UC249	front blanking cover plate	(screw on) (plain)	100	800	—	631.00
UC242	front blanking cover plate	(screw on) (plain)	150	800	—	670.00
UC243	front blanking cover plate	(screw on) (plain)	200	800	—	774.00
UC244	front blanking cover plate	(screw on) (plain)	300	800	—	901.00
UC245	front blanking cover plate	(screw on) (plain)	400	800	—	1 180.00
UC246	front blanking cover plate	(screw on) (plain)	600	800	—	1 450.00
UC8020PL	ventilating front blanking cover	(screw on) (louvered)	200	800	—	1 090.00
Vertical dividing uprights - (supplied individually)						
- To create a cable compartment (W) 200/300 mm within (W) 900/1000 mm cabinets						
FN286EW	vertical dividing upright for cable compartment	(each)	1900	—	—	4 740.00
Cable compartment plate - (supplied individually) fixing with screws						
FN266E	cable compartment blanking plate	(front or back mount)	—	200	—	2 050.00
FN206E	cable compartment blanking plate	(front or back mount)	—	300	—	1 840.00
Horizontal dividing support - to support functional uprights when creating a cable compartment						
FX289	horizontal dividing side support for functional uprights		—	—	400	629.00
FX291	horizontal dividing side support for functional uprights		—	—	600	797.00
FX292	horizontal dividing side support for functional uprights		—	—	800	982.00
Partial front functional uprights - can be used when no functional uprights for equipment are used						
UC200F	partial front functional uprights for cabinet		200	—	—	755.00
UC300F	partial front functional uprights for cabinet		300	—	—	874.00
UC400F	partial front functional uprights for cabinet		400	—	—	1 020.00
UC600F	partial front functional uprights for cabinet		600	—	—	1 200.00
UC1800F	full length functional front uprights for cabinet		1800	—	—	2 360.00
Partial rear functional uprights - to accommodate rear mounted chassis and support brackets						
UC400BU	partial rear functional uprights		400	—	—	2 440.00
UC600BU	partial rear functional uprights		600	—	—	2 370.00
UC800BU	partial rear functional uprights		800	—	—	2 510.00
UC1000BU	partial rear functional uprights		1000	—	—	3 400.00

Modular floor-standing distribution board system



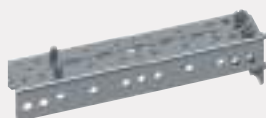
FN950



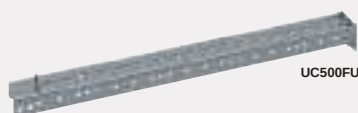
FN406E



Finishing frame



UC200FU



UC500FU



UC000FU



UC990



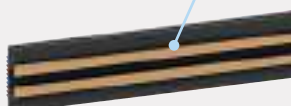
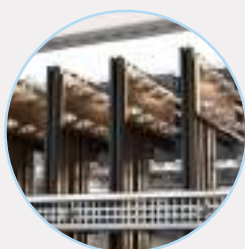
FZ767



UC268

type	description	dimensions (mm)			price	
		(H)	(W)	(D)		
Coupling kits - To combine cabinets (of the same height) depth or laterally						
FN950	lateral coupling to combine two cabinets horizontally (for greater width)				425.00	
FN942E	cover plate for gap between adjoining enclosures	widthwise	—	—	400	292.00
FN943E	cover plate for gap between adjoining enclosures	widthwise	—	—	600	315.00
FN944E	cover plate for gap between adjoining enclosures	widthwise	—	—	800	359.00
FN954E	depth coupling to combine two cabinets back to back (for greater depth)				1 320.00	
FN946E	cover plate for gap between adjoining enclosures	depthwise	—	450	—	375.00
FN947E	cover plate for gap between adjoining enclosures	depthwise	—	700	—	396.00
FN948E	cover plate for gap between adjoining enclosures	depthwise	—	900	—	445.00
FN949E	cover plate for gap between adjoining enclosures	depthwise	—	901	—	710.00
FN951	adhesive gasket/seal tape for enclosures	(10 x 6 mm)	(length 10 met)			298.00
Finishing frame - Required when no door is fitted to enclosure						
FN1970AF	finishing frame when no door is used on enclosures	1900	700	—		2 270.00
FN1990AF	finishing frame when no door is used on enclosures	1900	900	—		2 570.00
Chassis plates - UC partial plates can be increased in height by adding 1 or more kits 9						
UC2060MP	partial chassis mounting plate	(without cover plate)	200	600	—	900.00
UC2080MP	partial chassis mounting plate	(without cover plate)	200	800	—	976.00
FN726E	chassis plate for Quadro cabinets	(full height)	1900	450	—	2 320.00
FN736E	chassis plate for Quadro cabinets	(full height)	1900	700	—	3 210.00
FN746E	chassis plate for Quadro cabinets	(full height)	1900	900	—	4 710.00
Perforated mounting accessories						
All accessories are designed for adapting enclosures to accommodate a range of components. Perforations in profiles, brackets, rails are in steps 25 mm apart and accommodate cage nuts M6 (UC990).						
Side brackets - mounts horizontally between side structural uprights						
UC300FU	side mount horizontal support bracket	(perforated)	50	—	400	603.00
UC500FU	side mount horizontal support bracket	(perforated)	50	—	600	543.00
UC700FU	side mount horizontal support bracket	(perforated)	50	—	800	637.00
Back brackets - mounts horizontally between back structural uprights or mounted side brackets						
UC350FU	back bracket mounts bet. rear funct. uprights or side brackets		—	450	—	488.00
UC600FU	back bracket mounts bet. rear funct. uprights or side brackets		—	700	—	747.00
UC800FU	back bracket mounts bet. rear funct. uprights or side brackets		—	900	—	959.00
UC200FU	back bracket for accessories	for cable compartment section	—	200	—	529.00
UC300FU	back bracket for accessories	for cable compartment section	—	300	—	603.00
UC000FU	support mounting bracket for perforated profiles (one per profile)					285.00
FZ767	lifting rings for enclosures	Quadro evo (2 pcs)	—	—	—	248.00
FZ760E	lifting rings for double enclosures	Quadro evo (2 pcs)	—	—	—	403.00
UC990	clip-in M6 cage nut for perforations in profiles	(pack of 25)	—	—	—	826.00
UC991	M6 x 12 mm screw for above cage nuts	(pack of 25)	—	—	—	597.00
Accessories for Quadro systems						
UC268	hinge kit for modular covers (hinge from left or right)	(2 pcs)	—	—	—	159.00
UC000HTS	clip-in cable trunking support	(6pcs)	—	—	—	857.00
UZ25V1*	rail mount cable clamp/guide	(20pcs)	—	—	—	163.00
UZ01V1	cable guide to fix cable clamp to DIN-rail	(20pcs)				851.00
JP024	blanking strip (24 - way) with breakable sections		—	—	—	82.00
JE003	spare transparent self-adhesive marking strips (24 - way)		—	—	—	55.00
* Requires UZ01V1 - cable guide to fix cable clamp UZ25V1 to DIN-rail						
FZ795D	metal self-adhesive document holder (A4) for inside doors		—	—	—	576.00
FZ794	plastic self-adhesive transparent pocket (A4) for inside doors		—	—	—	477.00
Key locks						
• To replace existing lock cylinders with other key types						
FZ537	spare swing lever handle for enclosures without lock					832.00
FZ506	key lock replacement cylinder	with key	1242E	—	—	518.00
FZ519	key lock replacement cylinder	with key	405	—	—	519.00
FZ520	key lock replacement cylinder	with key	455	—	—	503.00
FZ850	panel key triangle/square/double bit					62.00
FL74Z	lock replacement insert	triangle	8 mm	—	—	270.00
FL76Z	lock replacement insert	square	8x8 mm	—	—	303.00
FZ516	lock replacement insert	square	6x6 mm	—	—	91.00

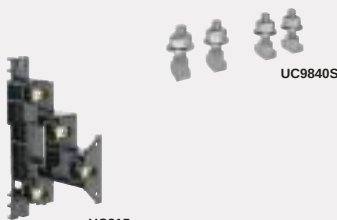
Modular floor-standing distribution board system



UC918125AL



UC918160AL



UC9840S



UC815



UC826

Busbar supports for Quadro system

type	current (A)	bar size (mm) width	thick	no. pole	description	dimensions (mm) (H) (W) (D)	price
Universal edgewise mounting busbar support - Variable phase-spacing 75/100/150mm							
• Supplied with 8 x insulated supports (<i>for top and bottom of busbars</i>) with fixing screws • For vertical or horizontal busbar mounting within Quadro enclosures • Suitable for aluminium profile bars or flat copper bars • Requires support brackets (<i>below</i>) to complete system							
UC825BB	1600A	50...120	1 x 10	4	edgewise busbar support	variable	1 850.00
UC8110BB	2000A	50...120	1 x 10	4	edgewise busbar support	variable	1 780.00
UC8210BB	2500A	50...120	2 x 10	4	edgewise busbar support	variable	1 970.00
UC8310BB	4000A	50...120	3 x 10	4	edgewise busbar support	variable	2 180.00

Busbar support profiles and mounting brackets - required to mount the above edgewise supports

• Delivered with 2 x perforated profiles, 2 x mounting brackets and 8 x screws				
UC300BB	support on Quadro structure kit	for enclosure depth	400	900.00
UC500BB	support on Quadro structure kit	for enclosure depth	600	981.00
UC700BB	support on Quadro structure kit	for enclosure depth	800	1 220.00
UC400BB	flying support profile kit	for enclosure depth	400	929.00
UC600BB	flying support profile kit	for enclosure depth	600	1 170.00
UC800BB	flying support profile kit	for enclosure depth	800	1 340.00

Lower vertical busbar holders - set of 4 holders to be mounted at the bottom of vertical bars

UC000BB	lower busbar support kit for vertically mounted bars (to prevent sliding)					variable	1 120.00
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Aluminium profile busbars - Mounts into holders UC825BB

UC91880AL	800A	50	18.5	aluminium profile busbars	1800	50	18.5	2 260.00
UC918125AL	1250A	60	18.5	aluminium profile busbars	1800	60	18.5	3 570.00
UC918160AL	1600A	100	18.5	aluminium profile busbars	1800	100	18.5	4 890.00

Copper connection plates for aluminium bars - to extend or join profile bars

UC9800C	800A	connection plates for UC91880AL aluminium bars			110	50	—	3 630.00
UC9125C	1250A	connection plates for UC918125AL aluminium bars			130	60	—	4 090.00
UC9160C	1600A	connection plates for UC918160AL aluminium bars			210	100	—	8 690.00
UC9800T	800A	deviation plates for UC91880AL aluminium bars			110	50	—	3 630.00
UC9125T	1250A	deviation plates for UC918125AL aluminium bars			130	60	—	4 360.00
UC9160C	1600A	deviation plates for UC918160AL aluminium bars			210	100	—	8 690.00

Screws for aluminium bars - steel class 8.8, supplied (screw + nut + washer)

UC9825S	screws	hammerhead zinc plated screws	M8x25 (50 pcs)	25	M8	—	1 940.00
UC9840S	screws	hammerhead zinc plated screws	M8x25 (50 pcs)	40	M8	—	3 030.00

Flat copper bar supports (multi-pole)

Multi stage bar support - supplied individually with 6x M6 and 2 cagenuts									
UC815	250A	20	5	4	multi stage busbar support	180	25	126	1 430.00
UC816	protective screen kit			for (above) UC815 support		620	—	—	2 850.00

Inclined busbar support - set of 2 with with all mounting accessories and terminals

UC826	630A	20...32	5/10	4	inclined busbar support	245 54 114	2 380.00
UC828	protective screen kit			for (above) UC826 support		990 212 —	1 140.00

Flat busbars - supplied individually with mounting accessories

UC820	630A	12...30	5/10	4	inclined busbar support	242 22 42	794.00
UC827	protective screen kit			for (above) UC820 support		990 294 —	1 520.00

hagercad: Layout software for distribution boards with 3D visualization

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create & share your projects

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03
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04
Simply
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05
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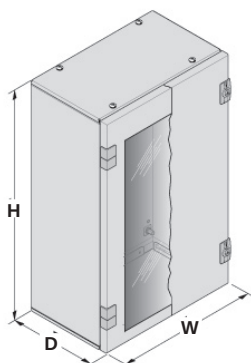
06
Greater accuracy
for cabinet calculations

07
User friendly
function for device labels

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Sheet metal & polyester enclosures IP65


Orion + Enclosures (IP65) (sheet metal and polyester)

Sheet steel or glass reinforced polyester - **Orion Plus** enclosures suited for the harshest conditions can be applied for wet and mechanical use. Even under chemical use, Orion Plus offers the ideal solution with glass reinforced polyester.

Flexibility is provided via mounting plate or DIN-rail (*in 2 different versions*) and thus offers the suitable interior equipment system - both for the application in automation and for classical current distribution.

- Colour: RAL 7035 (*light grey*)
- Mounting: Surface mounting
- Certification: CEI EN 60439-1
- Material: Sheet steel - class I or polyester - class II
- IP Rating: (IP65/IK10) protection, insulation class I (*powder-coated epoxy polyester*)

General features:

- Size and depth adapted according to your need
- Front door with foamed gasket opening 140°, hinged left or right
- Interior kits for conversion to distribution facility (*for mounting MCB and modular products*)
- Polyester enclosures for indoor and outdoor applications
- Sheet metal enclosures for indoor application

Typical applications:

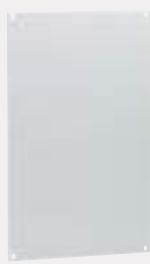
- Installation of automation products for the control of machines or small processes
- Installation of non modular products such as contactors, transformers, etc
- Cable termination and distribution



FL117A



FL110A+FL547A



FL404A

type	protection	description	dimensions (mm)			price
			(H)	(W)	(D)	

Sheet metal enclosures 630A (surface mounting)

- Colour: RAL 7035 (*light grey*)
- IP65 protection, insulation class I (*powder-coated epoxy polyester*)
- Full-sized top and bottom gland plates (*enclosures can be mounted on top of each other*)

FL102A	IP65	surface mount sheet metal enclosure	300	250	160	2 500.00
FL104A	IP65	surface mount sheet metal enclosure	350	300	160	2 710.00
FL110A	IP65	surface mount sheet metal enclosure	500	300	200	3 370.00
FL112A	IP65	surface mount sheet metal enclosure	500	400	200	3 800.00
FL117A	IP65	surface mount sheet metal enclosure	650	400	200	4 230.00
FL120A	IP65	surface mount sheet metal enclosure	650	500	250	4 990.00
FL124A	IP65	surface mount sheet metal enclosure	800	600	300	5 860.00
FL128AEM	IP65	surface mount sheet metal enclosure	950	800	300	7 620.00
FL130AEM	IP65	surface mount sheet metal enclosure	1250	800	300	9 790.00

Above enclosures with transparent door (add suffix T to part no. - e.g **FL102AT**)

+ 15%

Polyester enclosures 630A (surface mounting)

- Colour: RAL 7035 (*light grey*)
- IP66 protection, insulation class II
- Waterproof hood, top and bottom (*incorporated*)

FL204B	IP66	surface mount polyester enclosure	350	300	160	3 690.00
FL209B	IP66	surface mount polyester enclosure	500	300	200	4 230.00
FL213B	IP66	surface mount polyester enclosure	500	400	200	4 670.00
FL216B	IP66	surface mount polyester enclosure	650	400	200	5 860.00
FL221B	IP66	surface mount polyester enclosure	650	500	250	7 160.00
FL221BT	IP66	as above + transparent door	650	500	250	5 620.00
FL229B	IP66	surface mount polyester enclosure	800	600	300	9 330.00

Above enclosures, add suffix T to part no. - e.g **FL204BT** (excl. **FL221BT** with transparent door)

+15%

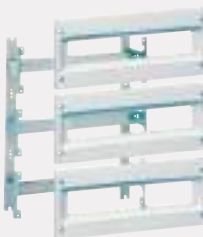
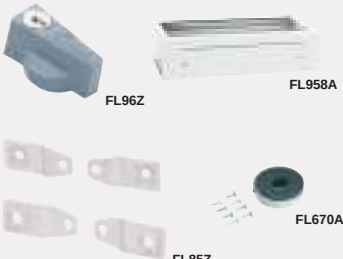
Chassis plates (supplied separately)

- Plain mounting plate mounted either directly
- Sheet metal thickness 2 mm
- Mounting either directly on the back of enclosure or on the integrated slides with brackets **FL450A** to adjust depth, see page **H-14**

type	description		for enclosures	price
FL402A	internal sheet metal chassis plate	for enclosure	FL102	380.00
FL404A	internal sheet metal chassis plate	for enclosure	FL104/204	392.00
FL407A	internal sheet metal chassis plate	for enclosure	FL110/209	596.00
FL408A	internal sheet metal chassis plate	for enclosure	FL112/213	651.00
FL412A	internal sheet metal chassis plate	for enclosure	FL117/216	824.00
FL413A	internal sheet metal chassis plate	for enclosure	FL120/221/221B	977.00
FL415A	internal sheet metal chassis plate	for enclosure	FL124/229	1 410.00
FL417AEM	internal sheet metal chassis plate	for enclosure	FL128	2 190.00
FL419AEM	internal sheet metal chassis plate	for enclosure	FL130	2 760.00

Above ZAR prices do not include VAT. E&OE

Sheet metal & polyester enclosures IP65

	Orion + Enclosures (IP65) (sheet metal and polyester)				
	type	description		for enclosures	price
	Internal door assembly				
	• Internal doors, sheet metal reversible				
	• Delivered with fixing accessories mounting on slides with delivered fixing frame				
	FL544A	internal door mounting kit	for enclosure	FL104/204	2 390.00
	FL547A	internal door mounting kit	for enclosure	FL110/209	2 610.00
	FL548A	internal door mounting kit	for enclosure	FL112/213	2 610.00
	FL551A	internal door mounting kit	for enclosure	FL117/216	2 930.00
	FL552A	internal door mounting kit	for enclosure	FL120/221	3 040.00
FL555A	internal door mounting kit	for enclosure	FL124/229	3 800.00	
FL557A	internal door mounting kit	for enclosure	FL128	4 450.00	
FL559A	internal door mounting kit	for enclosure	FL130	4 990.00	
	Functional chassis (complete) for mounting modular products and MCB				
	• To convert a surface mount enclosure into a distribution board				
	• Pre-assembled made up of: 2 Uprights, DIN guides and modular panels				
	type	number of modular ways	description	for enclosures	price
	FL979A	24 (2x12)	complete modular chassis system	FL104A	1 360.00
	FL980A	24 (2x12)	complete modular chassis system	FL204B	1 310.00
	FL981A	36 (3x12)	complete modular chassis system	FL110/209	1 460.00
	FL982A	54 (3x18)	complete modular chassis system	FL112/213	1 960.00
	FL983A	72 (4x18)	complete modular chassis system	FL117/216	2 840.00
	FL994A	88 (4x22)	complete modular chassis system	FL120A/221B	3 280.00
FL996A	140 (5x28)	complete modular chassis system	FL124A/229B	4 360.00	
FL998A	216 (6x36)	complete modular chassis system	FL128A	5 670.00	
FL000A	288 (8x36)	complete modular chassis system	FL130A	6 810.00	
	Kits for main incomer for enclosures				
	FL372A	(H) 300 mm	kit to mount 125/160A MCCB into	FL120/221	1 320.00
	FL373A	(H) 300 mm	kit to mount 125/160A MCCB into	FL124/229	1 530.00
	FL374A	(H) 300 mm	kit to mount 125/160A MCCB into	FL128/130	1 780.00
	Above requires HYA033H DIN-rail adaptor to mount onto rail in kit, see MCCB accessories				
	Blank front covers				
	• Fixed by screws of 1/4 turn to replace modular covers				
	FL711E	150 mm	blank front cover for enclosures	FL104/10FL204/9	312.00
	FL712E	150 mm	blank front cover for enclosures	FL112/17/FL213/16	372.00
	FL713E	150 mm	blank front cover for enclosures	FL120A/221B	396.00
FL714E	150 mm	blank front cover for enclosures	FL124A/229B	488.00	
FL715E	150 mm	blank front cover for enclosures	FL128/130A	619.00	
FL733E	300 mm	blank front cover for enclosures	FL120A/221B	1 410.00	
FL734E	300 mm	blank front cover for enclosures	FL124A/229B	1 520.00	
FL735E	300 mm	blank front cover for enclosures	FL128/130A	1 630.00	
	Plinths for enclosures				
	FL958A	base mount plinth system	for enclosures	FL120/221	3 260.00
	FL960A	base mount plinth system	for enclosures	FL124/229	3 690.00
	FL962A	base mount plinth system	for enclosures	FL128/130	4 230.00
	Accessories for enclosures				
	FL670A	seal kit for mounting enclosures one above another			380.00
	FL85Z	metallic mounting brackets for sheet metal enclosures			166.00
	FL863Z	plastic mounting brackets for polyester enclosures			318.00
	FL871Z	blanking strip (grey) 6 x 4 way blanks in a pack			73.00
	FL96ZX01	lever handle door lock (without key) for all enclosures			225.00
FL96Z	lever handle door lock (with key) for all enclosures			219.00	
FL93Z	set of 2 locks triangular centre 8 mm			154.00	
FL450A	4 brackets delivered with fixing screws			244.00	

Sheet metal enclosures IP65



HE series - Sheet metal electrical enclosures

- Manufactured from high-grade mild steel, powder-coated
- Supplied with internal Aluzinc chassis plate (2 mm thick)
- Supplied with 6 mm square drive locks, key lock and mounting brackets
- Degree of protection: IP65 (continuous foam gasket)



HE204

type	IP rating	colour	description	dimensions (mm)			price
				(H)	(W)	(D)	

Sheet metal enclosures

IP65

Orange enclosures - (RAL2000) electric orange

HE200	IP65	orange	wall mount sheet metal enclosure	250	200	170	1 400.00
HE201	IP65	orange	wall mount sheet metal enclosure	350	250	170	1 700.00
HE202	IP65	orange	wall mount sheet metal enclosure	450	300	220	2 100.00
HE203	IP65	orange	wall mount sheet metal enclosure	550	400	220	2 560.00
HE203GP1*	IP65	orange	as above with bottom gland plate	550	400	220	3 160.00
HE204	IP65	orange	wall mount sheet metal enclosure	650	450	270	3 180.00
HE205	IP65	orange	wall mount sheet metal enclosure	750	550	270	3 940.00
HE206	IP65	orange	wall mount sheet metal enclosure	850	600	270	4 890.00
HE206E	IP65	orange	wall mount sheet metal enclosure	850	600	330	5 290.00
HE206EGP1*	IP65	orange	as above with bottom gland plate	850	600	330	6 560.00
HE207	IP65	orange	wall mount sheet metal enclosure	950	700	270	5 860.00
HE207E	IP65	orange	wall mount sheet metal enclosure	950	700	330	6 350.00
HE207EGP1*	IP65	orange	as above with bottom gland plate	950	700	330	8 400.00
HE208	IP65	orange	wall mount sheet metal enclosure	1150	850	270	7 880.00
HE208E	IP65	orange	wall mount sheet metal enclosure	1150	850	330	8 650.00

* GP1-(bottom gland plate)

Enclosures with transparent glass door

HE201T	IP65	orange	enclosure with transparent door	350	250	170	2 340.00
HE202T	IP65	orange	enclosure with transparent door	450	300	220	2 820.00
HE203T	IP65	orange	enclosure with transparent door	550	400	220	3 290.00
HE204T	IP65	orange	enclosure with transparent door	650	450	270	4 420.00
HE205T	IP65	orange	enclosure with transparent door	750	550	270	5 770.00
HE206T	IP65	orange	enclosure with transparent door	850	600	270	6 500.00
HE206ET	IP65	orange	enclosure with transparent door	850	600	330	6 890.00
HE207T	IP65	orange	enclosure with transparent door	950	700	270	7 850.00
HE207ET	IP65	orange	enclosure with transparent door	950	700	330	8 330.00
HE208T	IP65	orange	enclosure with transparent door	1150	850	270	10 600.00
HE208ET	IP65	orange	enclosure with transparent door	1150	850	330	11 300.00

Grey enclosures - (RAL7032) light grey

IP65

HE200-G	IP65	grey	wall mount sheet metal enclosure	250	200	170	1 400.00
HE201-G	IP65	grey	wall mount sheet metal enclosure	350	250	170	1 700.00
HE202-G	IP65	grey	wall mount sheet metal enclosure	450	300	220	2 100.00
HE203-G	IP65	grey	wall mount sheet metal enclosure	550	400	220	2 560.00
HE204-G	IP65	grey	wall mount sheet metal enclosure	650	450	270	3 310.00
HE205-G	IP65	grey	wall mount sheet metal enclosure	750	550	270	4 200.00
HE206-G	IP65	grey	wall mount sheet metal enclosure	850	600	270	4 890.00
HE206E-G	IP65	grey	wall mount sheet metal enclosure	850	600	330	5 290.00
HE207-G	IP65	grey	wall mount sheet metal enclosure	950	700	270	5 860.00
HE207E-G	IP65	grey	wall mount sheet metal enclosure	950	700	330	6 350.00
HE208-G	IP65	grey	wall mount sheet metal enclosure	1150	850	270	7 880.00
HE208E-G	IP65	grey	wall mount sheet metal enclosure	1150	850	330	8 650.00

Enclosures with transparent glass door

HE201T-G	IP65	grey	enclosure with transparent door	350	250	170	2 340.00
HE202T-G	IP65	grey	enclosure with transparent door	450	300	220	2 820.00
HE203T-G	IP65	grey	enclosure with transparent door	550	400	220	3 290.00
HE204T-G	IP65	grey	enclosure with transparent door	650	450	270	4 420.00
HE205T-G	IP65	grey	enclosure with transparent door	750	550	270	5 770.00
HE206T-G	IP65	grey	enclosure with transparent door	850	600	270	6 500.00
HE206ET-G	IP65	grey	enclosure with transparent door	850	600	330	6 890.00
HE207T-G	IP65	grey	enclosure with transparent door	950	700	270	7 850.00
HE207ET-G	IP65	grey	enclosure with transparent door	950	700	330	8 330.00
HE208T-G	IP65	grey	enclosure with transparent door	1150	850	270	10 600.00
HE208ET-G	IP65	grey	enclosure with transparent door	1150	850	330	11 300.00



HE204T-G

Sheet metal enclosures IP65

	type	IP rating	colour	description	dimensions (mm)			price	
					(H)	(W)	(D)		
 HE204T + ID04 + HC04	Internal door kit for HE enclosures								
	• Reversible and lockable								
	ID02	—	white	internal door kit for enclosures	HE202	—	—	832.00	
	ID03	—	white	internal door kit for enclosures	HE203	—	—	1 100.00	
	ID04	—	white	internal door kit for enclosures	HE204	—	—	1 440.00	
	ID05	—	white	internal door kit for enclosures	HE205	—	—	1 770.00	
	ID06	—	white	internal door kit for enclosures	HE206	—	—	2 160.00	
	ID06E	—	white	internal door kit for enclosures	HE206E	—	—	2 240.00	
	ID07	—	white	internal door kit for enclosures	HE207	—	—	2 680.00	
	ID07E	—	white	internal door kit for enclosures	HE207E	—	—	2 830.00	
	ID08	—	white	internal door kit for enclosures	HE208	—	—	3 280.00	
	ID08E	—	white	internal door kit for enclosures	HE208E	—	—	3 480.00	
 HC0...	Canopy for HE enclosures								
	Orange - RAL2000 (electric orange)								
	HC02	IP65	orange	steel canopy for enclosures	HE202	—	300	220	414.00
	HC03	IP65	orange	steel canopy for enclosures	HE203	—	400	220	462.00
	HC04	IP65	orange	steel canopy for enclosures	HE204	—	450	270	581.00
	HC05	IP65	orange	steel canopy for enclosures	HE205	—	550	270	746.00
	HC06	IP65	orange	steel canopy for enclosures	HE206	—	600	270	765.00
	HC06E	IP65	orange	steel canopy for enclosures	HE206E	—	600	330	860.00
	HC07	IP65	orange	steel canopy for enclosures	HE207	—	700	270	903.00
	HC07E	IP65	orange	steel canopy for enclosures	HE207E	—	700	330	1 030.00
	HC08	IP65	orange	steel canopy for enclosures	HE208	—	850	270	1 070.00
	HC08E	IP65	orange	steel canopy for enclosures	HE208E	—	850	330	1 270.00
 16.4.431.01	Grey - RAL7032 (light grey)								
	HC02-G	IP65	grey	steel canopy for enclosures	HE202	—	300	220	414.00
	HC03-G	IP65	grey	steel canopy for enclosures	HE203	—	400	220	462.00
	HC04-G	IP65	grey	steel canopy for enclosures	HE204	—	450	270	581.00
	HC05-G	IP65	grey	steel canopy for enclosures	HE205	—	550	270	746.00
	HC06-G	IP65	grey	steel canopy for enclosures	HE206	—	600	270	765.00
	HC06E-G	IP65	grey	steel canopy for enclosures	HE206E	—	600	330	860.00
	HC07-G	IP65	grey	steel canopy for enclosures	HE207	—	700	270	903.00
	HC07E-G	IP65	grey	steel canopy for enclosures	HE207E	—	700	330	1 030.00
	HC08-G	IP65	grey	steel canopy for enclosures	HE208	—	850	270	1 070.00
	HC08E-G	IP65	grey	steel canopy for enclosures	HE208E	—	850	330	1 270.00
	 HE12960GP2	Accessories							
16.4.431.01		16 mm	black	padlockable lever handle	for above enclosures			190.00	
 GAZS1E	Special "extra deep" enclosures				IP65				
	• Ideal for changeover switch applications								
	• Supplied with internal Aluzinc chassis plate (2 mm thick)								
	• Degree of protection: IP65 (continuous foam gasket)								
	• Colour : RAL2000 (electric orange) - other colours on request								
	HE09645	IP65	orange	extra deep sheet metal enclosures	900	600	450	11 600.00	
	HE12960GP1*	IP65	orange	as above with top/bottom gland plate	1200	900	600	21 900.00	
	* GP1-(bottom gland plate)								
	Special "termination" boxes				IP65				
	• Front cover secured by 4 x screws								
	Sheet metal enclosures								
	GAZM1E	IP65	grey	sheet metal enclosures	200	150	120	1 400.00	
Stainless steel (AISI 304) enclosures									
GAZS1E	IP65	S/Steel	stainless steel enclosures	200	150	120	2 780.00		
For stainless steel enclosures see overleaf									

Stainless steel enclosures IP65



SE....

3CR12 series - Stainless steel enclosures

- Manufactured from 3CR12 stainless steel and powder-coated
- Supplied with internal Aluzinc chassis plate (2 mm thick)
- Supplied with 6 mm square drive locks, key lock and mounting brackets
- Degree of protection: IP65 (continuous foam gasket)
- Colour: RAL2000 (electric orange) - other colours on request

type	IP rating	colour	description	dimensions (mm)			price
				(H)	(W)	(D)	
3CR12 stainless steel enclosures				IP65			
SE1035	IP65	orange	3CR12 stainless steel enclosure	350	250	170	2 480.00
SE1040	IP65	orange	3CR12 stainless steel enclosure	400	300	220	2 960.00
SE1050	IP65	orange	3CR12 stainless steel enclosure	500	400	220	3 600.00
SE1065	IP65	orange	3CR12 stainless steel enclosure	600	500	220	4 670.00
SE1070	IP65	orange	3CR12 stainless steel enclosure	700	600	270	6 280.00
SE1080	IP65	orange	3CR12 stainless steel enclosure	800	600	270	7 710.00
SE1090	IP65	orange	3CR12 stainless steel enclosure	900	700	330	9 250.00
SE1100	IP65	orange	3CR12 stainless steel enclosure	1000	800	330	11 400.00
SE1201	IP65	orange	3CR12 stainless steel enclosure	1200	800	330	13 000.00

Stainless steel enclosures with transparent glass door

SE1040T	IP65	orange	3CR12 enc. with transparent door	400	300	220	3 820.00
SE1050T	IP65	orange	3CR12 enc. with transparent door	500	400	220	4 690.00
SE1065T	IP65	orange	3CR12 enc. with transparent door	600	500	220	6 140.00
SE1070T	IP65	orange	3CR12 enc. with transparent door	700	600	270	8 070.00
SE1080T	IP65	orange	3CR12 enc. with transparent door	800	600	270	9 760.00
SE1090T	IP65	orange	3CR12 enc. with transparent door	900	700	330	11 900.00
SE1100T	IP65	orange	3CR12 enc. with transparent door	1000	800	330	14 600.00
SE1201T	IP65	orange	3CR12 enc. with transparent door	1200	800	330	16 900.00

Canopy for above enclosures

HC3CR-4	IP65	orange	canopy for stainless steel enclosures			SE1040	954.00
HC3CR-5	IP65	orange	canopy for stainless steel enclosures			SE1050	981.00
HC3CR-6	IP65	orange	canopy for stainless steel enclosures			SE1065	1 090.00
HC3CR-7	IP65	orange	canopy for stainless steel enclosures			SE1070/1080	1 330.00
HC3CR-9	IP65	orange	canopy for stainless steel enclosures			SE1090	1 540.00
HC3CR-10	IP65	orange	canopy for stainless steel enclosures			SE1100/1200	1 760.00

Add "-G" to the end of the above SE.. / HC3CR.. part numbers for grey (RAL7032) enclosures

304 stainless steel enclosures

IP65

- Manufactured from high grade SS 304 stainless steel
- Supplied with internal Aluzinc chassis plate (2 mm thick)
- Supplied with bottom SS 304 gland plate and enclosure mounting brackets
- Degree of protection: IP65 (continuous foam gasket)
- Colour: Stainless steel - "brushed" finish

RGS304-30	IP65	S/Steel	SS 304 stainless steel enclosure	350	250	170	3 860.00
RGS304-40	IP65	S/Steel	SS 304 stainless steel enclosure	400	300	220	4 830.00
RGS304-50	IP65	S/Steel	SS 304 stainless steel enclosure	500	400	220	6 560.00
RGS304-65	IP65	S/Steel	SS 304 stainless steel enclosure	600	500	220	9 390.00
RGS304-70	IP65	S/Steel	SS 304 stainless steel enclosure	700	600	270	13 000.00
RGS304-80	IP65	S/Steel	SS 304 stainless steel enclosure	800	600	270	14 500.00
RGS304-93	IP65	S/Steel	SS 304 stainless steel enclosure	900	700	330	19 000.00
RGS304-103	IP65	S/Steel	SS 304 stainless steel enclosure	1000	800	330	22 700.00
RGS304-123	IP65	S/Steel	SS 304 stainless steel enclosure	1200	800	330	27 300.00

Internal door kit for all above enclosures (mild steel)

ID3CR-4	—	white	internal door kit for above enclosures	400	300	170	900.00
ID3CR-5	—	white	internal door kit for above enclosures	500	400	220	1 180.00
ID3CR-6	—	white	internal door kit for above enclosures	600	500	220	1 590.00
ID3CR-7	—	white	internal door kit for above enclosures	700	600	270	2 010.00
ID3CR-8	—	white	internal door kit for above enclosures	800	600	270	2 310.00
ID3CR-9	—	white	internal door kit for above enclosures	900	700	330	2 910.00
ID3CR-10	—	white	internal door kit for above enclosures	1000	800	330	3 400.00
ID3CR-12	—	white	internal door kit for above enclosures	1200	800	330	3 620.00



RGS....



RGS....

Busbar system accessories



type		description				price				
Rail mountable earth/neutral terminals (clips vertically onto rail)										
KM13N		rail mountable neutral terminal (blue)			6 x 16 + 7 x 10 mm²	77.00				
KM13E		rail mountable earth terminal (green)			6 x 16 + 7 x 10 mm²	81.00				
Terminal support (clips into various distribution boards)										
KN00A		universal terminal support			DIN-rail mount (horizontal or vertical) 105 mm	52.00				
Distribution terminals (fully insulated clips onto above support)										
Incoming:		1.5..25 mm² screw clamp terminal								
Outgoing:		1.5..4 mm² connect cage clamp terminals (push-in)								
type		supply 1.5..25 mm²		output 1.5..4 mm²		price				
				description		colour				
KN10E		63A	2 x 25 mm²	8 x 4 mm²	insulated earth terminal	(green)				
KN18E		63A	4 x 25 mm²	14 x 4 mm²	insulated earth terminal	(green)				
KN26E		63A	6 x 25 mm²	20 x 4 mm²	insulated earth terminal	(green)				
KN99E		earth insulated bridge piece for above terminals (push-in)				252.00				
KN10N		63A	2 x 25 mm²	8 x 4 mm²	insulated neutral terminal	(blue)				
KN18N		63A	4 x 25 mm²	14 x 4 mm²	insulated neutral terminal	(blue)				
KN26N		63A	6 x 25 mm²	20 x 4 mm²	insulated neutral terminal	(blue)				
KN99N		neutral insulated bridge piece for above terminals (10pcs)				252.00				
KN10P		63A	2 x 25 mm²	8 x 4 mm²	insulated phase terminal	(brown)				
KN18P		63A	4 x 25 mm²	14 x 4 mm²	insulated phase terminal	(brown)				
KN26P		63A	6 x 25 mm²	20 x 4 mm²	insulated phase terminal	(brown)				
KN99P		phase insulated bridge piece for above terminals (10 pcs)				252.00				
KN04N		90A	4 x 25 mm²	screw clamp	insulated neutral terminal	(blue)				
KN07N		90A	7 x 25 mm²	screw clamp	insulated neutral terminal	(blue)				
KN04P		90A	4 x 25 mm²	screw clamp	insulated phase terminal	(brown)				
KN07P		90A	7 x 25 mm²	screw clamp	insulated phase terminal	(brown)				
Single-pole distribution blocks (fully protected) Icc: 36kA										
• Space saving • IP20 protection • DIN-rail or bolt down mounting • One main cable input - various cable outputs										
type		amps	incoming terminals	outgoing terminals (per phase) mm²				lcc kA	poles	price
				1.5...6	2.5...10	2.5...16	2.5...25	6...35		
KJ02D		125A	1x35/1x16 mm²			6			36	1 pole
KJ02C		160A	70 mm²			6			36	1 pole
KJ02A		250A	95 mm²		4	5	2		36	1 pole
KJ02B		400A	150 mm²		4	5	2		36	1 pole
Multi-pole distribution blocks										
• Modular DIN-rail mounting (mounts through modular front cut-out) • 3Ph+N distribution bars in modular format • High fault level • IEC 60947-1										
type		amps	incoming terminals	outgoing terminals (per phase) mm²				lcc kA	poles	price
				1.5...6	2.5...10	2.5...16	2.5...25	6...35		
KJ01A		100A	35 mm²			10	1		29	2 pole
KJ01B		80A	16 mm²		8				21	4 pole
KJ01C		125A	35 mm²			10	1		29	4 pole
KJ01D		160A	50 mm²			8		3	20	4 pole
KJ02E		125A	25 mm²	5/4*	2/6*				20	4 pole
* = Neutral terminals										

Panel-mount fans



New



113H1238HA2BMT



SVF114H



FU-9804C2 P2A23

Filter / fan units - Panel mounting

Complete filter fan assembly with fan, mounting frame, removable filter, internal finger guard. Mounts through panel wall or door for simple installation as a ventilator device for electrical cabinets/panels.

- Push-in frame, self locking (*fastening without screws*)
- Permanent sealing gasket in polyurethane foam
- Patented hinged system for easy filter replacement without tools
- Shielded self lubricating ball bearings
- Protection type: IP55

type	voltage (V)	power (W)	noise (dB/A)	air flow (CFM)	dimensions (mm ²)			price
					size	frame	cutout	

Panel mount fan / filter units

IP55

- Fan, mounting frame, removable filter, internal finger guard

AC filter/fans

112H9225HA2BPT	230 VAC	14	32	18	2	109	92	4 380.00
113H1238HA2BMT	230 VAC	18	42	59	3	145	124	5 270.00
114H17255HA2BMT	230 VAC	28	51	177	4	202	177	16 400.00
115H1806HA2BMT	230 VAC	47	57	340	5	252	224	19 200.00
116H2208HA2BMT	230 VAC	58	65	476	6	320	292	23 100.00
116H2509HA2BMW	230 VAC	57	64	570	6	320	292	25 600.00
113H1238HA1BMT	110 VAC	18	42	59	3	145	124	5 270.00
114H17255HA1BMT	110 VAC	28	51	177	4	202	177	16 400.00
115H1806HA1BMT	110 VAC	47	57	340	5	252	224	19 200.00
113H1238HA3BMT	380 VAC	18	42	59	3	145	124	5 710.00
114H17255HA3BMT	380 VAC	28	51	177	4	202	177	18 700.00
115H1806HA3BMT	380 VAC	47	57	340	5	252	292	20 800.00

DC filter/fans

112H8025MD4BBL	24 VDC	14	36	25	2	109	92	2 750.00
113H1225XD4BCLS	24 VDC	14	45	41	3	145	124	4 080.00
115H1724XD4BALS	24 VDC	36	54	136	5	252	224	13 500.00

Exhaust filter - without fan used as a matching air outlet/inlet

- Match size of the filter/fan to achieve optimal ventilation within the cabinet

SVF112H	9225	—	exhaust filter only	2	109	92	1 190.00
SVF113H	1238	—	exhaust filter only	3	145	124	1 410.00
SVF114H	1755	—	exhaust filter only	4	202	177	1 710.00
SVF115H	1806	—	exhaust filter only	5	252	224	3 120.00
SVF116H	2208	—	exhaust filter only	6	320	292	4 450.00

Filter / fan units with rain hood

IP55

- Fan, mounting frame, removable filter, internal finger guard, external rain hood

AC filter/fans - (with rain hood)

FU-9801C2 P2A23	230 VAC	20	30	21	1	109	83	920.00
FU-9802C2 P2A23	230 VAC	20	35	35	2	121	95	1 050.00
FU-9803C2 P2A23	230 VAC	21	49	99	3	149	122	1 150.00
FU-9804C2 P2A23	230 VAC	30	56	213	4	204	175	1 750.00
FU-9805C2 P2A23	230 VAC	49	67	592	5	255	223	4 090.00
FU-9806C2 P2A23	230 VAC	50	66	788	6	332	292	5 870.00
FU-9803C2 P2A40	400 VAC	21	49	99	3	149	122	1 080.00
FU-9804C2 P2A40	400 VAC	30	56	2.3	4	204	175	1 640.00

DC filter/fans - (with rain hood)

FU-9801C2 P2D	24 VDC	1.44	42	34	1	109	83	761.00
FU-9802C2 P2D	24 VDC	1.92	44	51	2	121	95	785.00
FU-9803C2 P2D	24 VDC	2.64	48	89	3	149	122	1 100.00

Exhaust filter with rain hood - without fan used as an air outlet/inlet

- Match size of the filter/fan to achieve optimal ventilation within the cabinet

FU9801B P2	—	—	exhaust filter only	1	109	83	533.00
FU9802B P2	—	—	exhaust filter only	2	121	95	574.00
FU9803B P2	—	—	exhaust filter only	3	149	122	664.00
FU9804B P2	—	—	exhaust filter only	4	204	175	765.00
FU9805B P2	—	—	exhaust filter only	5	255	223	1 190.00
FU9806B P2	—	—	exhaust filter only	6	332	292	2 380.00

Above ZAR prices do not include VAT. E&OE

Panel-mount fans



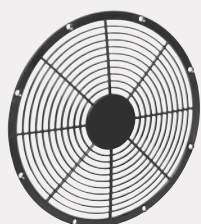
1238XA2BPT



1725XA3BPT



FU9805B P2/P5-220



SF825B



MG-80



SF8...

Frame fans and accessories

- Temperature: -40°C...+60°C
- Shielded self lubricating ball bearing fans

type	voltage (V)	power (W)	noise (dB/A)	air flow (CFM)	dimensions (mm²) size □ (D)			price
AC frame fans only								
8025HA2BPT	230 VAC	14	30	19	1	80	25	2 970.00
9238HA2BPT	230 VAC	17	38	43	2	92	38	2 970.00
1238XA2BPT	230 VAC	20	40	93	3	120	38	3 190.00
1725XA2BPT	230 VAC	40	46	200	4	172 x 150	51	5 420.00
2206HA2BMT	230 VAC	47	60	450	5	Ø 222	60	13 500.00
2509HA2BMW	230 VAC	57	64	670	6	Ø 255	89	18 600.00
1238XA3BPT	380 VAC	18	40	96	3	120	38	3 560.00
1725XA3BPT	380 VAC	34	46	200	4	172 x 150	51	6 300.00
2206HA3BMW	380 VAC	42	60	450	5	Ø 222	60	15 300.00
2509HA3BMW	380 VAC	52	64	670	6	Ø 255	89	20 500.00

DC frame fans - 24V DC (12...27.6 VDC)

8025HD4BBL	24 VDC	0.80A	41	56	1	80	25	964.00
9225HD4BBL	24 VDC	0.35A	44	73	2	92	25	1 080.00
1225HD4BCL	24 VDC	0.80A	44	100	3	120	25	1 380.00
1725HD4BAL	24 VDC	2.50A	58	256	4	172 x 150	51	8 160.00

Exhaust filter - without fan

IP55

- Match size of the filter/fan to achieve optimal ventilation within the cabinet

type	accepts fan type	with air duct	external material		dimensions (mm²)			price
					size	frame	cutout	
SVF112H	8025	no	UL94-V0	—	1/2	109	92	1 190.00
SVF113H	1238	no	UL94-V0	—	3	145	124	1 410.00
SVF114H	1725	yes	UL94-V0	—	4	202	177	1 710.00
SVF115H	2206	yes	UL94-V0	—	5	252	224	3 120.00
SVF116H	2509	yes	UL94-V0	—	6	320	292	4 450.00

All metallic version (ADC12 aluminium alloy material)

FU9803AM	K1238	—	metal	—	3	149	122	1 700.00
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Panel mount filter units - with rain hood cover

IP55

FU9802B P2	9225	—	PC+UV	—	2	121	95	574.00
FU9803B P2	1238	—	PC+UV	—	3	149	122	664.00
FU9804B P2/P4-172	1725	P4-172	PC+UV	—	4	204	175	837.00
FU9805B P2/P5-220	2206	P5-220	PC+UV	—	5	255	223	1 360.00
FU9806B P2/P6-250	2509	P6-250	PC+UV	—	6	332	292	2 600.00

All metallic version (ADC12 aluminium alloy material)

FU9803BM	1238	—	metal	—	3	149	122	3 390.00
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Finger guards (internal) for fans

type	for fan	colour	material	description	size	H	W	price
SF808B	8025	black	ABS	finger guard	1	80	80	60.00
SF809B	9225	black	ABS	finger guard	2	92	92	60.00
SF812B	1238	black	ABS	finger guard	3	119	119	89.00
SF817B	1725	black	ABS	finger guard	4	172	151	149.00
SF822B	2206	black	ABS	finger guard	5	222	Ø	223.00
SF825B	2509	black	ABS	finger guard	6	259	Ø	297.00
MG-80	8025	chrome	metal	finger guard	1	75	75	75.00
MG-92	9225	chrome	metal	finger guard	2	89	89	75.00
MG-120	1238	chrome	metal	finger guard	3	115	115	112.00
MG-172	1725	chrome	metal	finger guard	4	162	139	149.00
MG-220	2206	chrome	metal	finger guard	5	212	Ø	371.00
MG-250	2509	chrome	metal	finger guard	6	246	Ø	519.00

3-in-1 econo filter - Comprising of frame, low density fabric filter and cover guard

SF808A	8025	black	ABS	3-in-1 air outlet	1	85	85	149.00
SF809A	9225	black	ABS	3-in-1 air outlet	2	96	96	149.00
SF812A	1238	black	ABS	3-in-1 air outlet	3	125	125	223.00
SF817A	1725	black	ABS	3-in-1 air outlet	4	177	156	445.00

Panel-mount fans & heaters



TRT-10A230V-NO



TRT-10A230V-NC



IGR35F



FF12A230UF



FF12A230UF



FF20A230UE



HWM030



HTM060

TRT series - Mechanical bimetal thermostats *(used to control temperatures within enclosures)*

Bimetal thermostats used to control temperatures inside enclosures. Suitable for different applications, available with closed-on-rise (NO) or open-on rise (NC) contact for regulation of heating and ventilation equipment or for switching signalling devices.

- Compact dimensions - (H) 68 x (W) 29 x (D) 45 mm
- Enclosure PA66 self-extinguishing to UL 94V-0
- DIN-rail mountable
- IP20 protected screw terminals
- Applied standards EN 60730-1, UL approved UL873 and C22.2

type	temperature range	contact	description		price
Thermostats 1					
TRT-10A230V-NO	-10 - +80°C	1 x NO	DIN-rail mount panel thermostat	(blue knob)	294.00
TRT-10A230V-NC	-10 - +80°C	1 x NC	DIN-rail mount panel thermostat	(red knob)	292.00

IGR series - Mechanical hygrometer

Mechanical hygrometers automatically regulate humidity inside enclosures, triggering a heater or fan when a preset relative humidity is exceeded. To prevent condensation on electric and electronic components the relative humidity is raised above the dew point.

IGR35F	10 - 90% RH	ch/over	DIN-rail mounting panel hygrometer	1 330.00
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Panel ventilation 2

FF series - Complete fan-filter units *(IP54)*

Compact design, snap-on mounting, integrated sealing gasket preventing dust and water penetration. Ideal for all panel ventilation applications.

- Complete fan with mounting frame, removable filter and metal finger guard
- Screwless mounting (*simply clips into panel cut-out*)
- Plastic parts self extinguishing to UL 94V-0
- Permanent sealing gasket in polyurethane foam
- Shielded self lubricating ball bearing fans
- Filter replaceable from the front removable grill

type	voltage (V)	power (W)	air flow (m³/h)	noise (dB/A)	description		dimensions (mm²) frame cutout	price
FF08A230UN	230 VAC	10	10	33	complete fan filter		107 92	806.00
FF12A230UF	230 VAC	18	45	49	complete fan filter		150 124	830.00
FF15A230UF	230 VAC	32	230	50	complete fan filter		250 223	2 000.00
FF20A230UE	230 VAC	79	460	66	complete fan filter		325 291	3 540.00

Outlet filter grill/frame *(without fan)*

FF08U	outlet/filter	separate panel mount ventilation unit	107	92	217.00
FF12U	outlet/filter	separate panel mount ventilation unit	150	124	220.00
FF15U	outlet/filter	separate panel mount ventilation unit	250	223	420.00
FF20U	outlet/filter	separate panel mount ventilation unit	325	291	688.00

Panel heaters *(anti-condensation)* 3 15W - 400W

For the thermo regulation of electrical cabinets. The heaters consist of a self-extinguishing PTC element in a black anodized aluminium DIN-rail mountable housing.

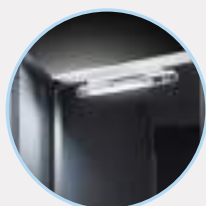
- Compact dimensions - DIN-rail mounting
- Self-regulating PTC resistance
- Screw terminal connection *(15/30W heaters supplied with 500 mm cable)*
- Voltage range: 110...250 VAC
- Complies with standards: IEC/EN 60335-1 and IEC 60004-1

type	heating power	current mA	description		dimensions (mm) (H) (W) (D)	price
HWM015	15 W	65	DIN-rail mount panel heater		78 28 49	829.00
HWM030	30 W	130	DIN-rail mount panel heater		108 28 49	829.00
HTM060	60 W	260	DIN-rail mount panel heater		138 62 85	1 160.00
HTM100	100 W	475	DIN-rail mount panel heater		188 62 85	1 490.00
HTM150	150 W	770	DIN-rail mount panel heater		238 62 85	1 690.00

Panel-mount fans & lamps



TP19U230B54



FLL-C3006UITB



400100

TP series - Roof mount exhaust fan units 4

Roof exhaust fan units used to directly extract heat from the upper region of the cabinet facilitating effective internal air flow. Equipped with a high-head radial fan.

- Mounting via 8 x Ø4 mm screws (*mounts through 175 mm² cutout*)
- Plastic parts in PC/ABS alloy and aluminium self extinguishing to UL 94V-0
- Permanent sealing gasket in polyurethane foam
- Compact dimensions, height: total 94 mm / hood 62 mm
- Colour: RAL 7035 (*others colours available on request*)

type	voltage (V)	power (W)	air flow (m³/h)	noise (dB/A)	description	dimensions (mm) (H) (W) (D)			price
Exhaust Fan (roof mount) IP24									
TP19U230B	230 VAC	70	500	68	roof exhaust fan	324	324	94	3 340.00
Exhaust Fan (roof mount) IP54									
TP19U230B54	230 VAC	70	420	68	roof exhaust fan	324	324	94	3 810.00

LED Lamp for switchboards 5

During maintenance and inspection on switchboards it is essential for to have a good level of lighting LEDs provides effective illumination within electrical cabinets at significantly low consumption. Switching via a mounted switch or version with a PIR sensor which detects motion within 120° radius with delayed auto off with no detected presence.

type	power	supply voltage	description	dimensions (mm) (H) (W) (D)			price
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Fandis FLL series - Panel lamps

Termination is via "push-in" cage clamp terminals on both sides with an incorporated release button. Magnetic fastening for simple positioning on metallic surfaces (*with optional magnet set*). Lamp rotates to six different positions on base (*max. to 40°*)

- LED light output: 600 lm (*luminous flux*), 120°, daylight, colour temperature 7100K
- Operating temp: -30 to +60°C
- Lifetime: 160000 h at 25°C

FLL-C3006USTB	5 Watt	20...230V AC/DC	LED panel lamp with switch	32	356	48	1 900.00
FLL-C3006UITB	5 Watt	20...230V AC/DC	LED lamp with PIR sensor	32	356	48	1 830.00
FLL-2MA	magnet	magnet mounting kit for lamps (2 magnets)					158.00

Seifert SL 4000 series - Panel lamps

Termination via 2 pin latching plug (*supplied separately*) on both ends of the lamp. Mounting is via supplied mounting clips or incorporated magnets for simple positioning on metallic surfaces.

400100	4 Watt	24...265V AC/DC	LED panel lamp with switch	32	350	28	1 510.00
400000	4 Watt	24...265V AC/DC	LED panel lamp with sensor	32	350	33	1 800.00
91.921.3053.0	white		female connector plug for panel lamps	18	53	14	83.00
91.922.3053.0	white		male connector plug for panel lamps	18	53	14	77.00

Systems & components for enclosures



Cabinet air conditioning



850600001



42740001



43050001



TG 3102-24V

SlimLine Pro - 8500 series - Cabinet cooling units

SlimLine Pro series cabinet cooling air conditioners feature an innovative one man mounting system permitting screwless installation with maintenance free operation due to the eco-friendly filter-less construction. The compact, slim construction combined with modern design features provide excellent size to performance ratio to meet modern day requirements. Providing improved cooling performance ensuring total reliability in all industrial applications.

- Innovative mounting system (*screwless, one man mounting*)
- Simplified panel cutout (*ease mounting even further*)
- Integrated condensate evaporation
- Temperature range 10°C to 60°C
- Standard material powder coated mild steel housing RAL 7035 (*light grey*)
- Compliance to NEMA / UL type 3, 3R, 12, 4 und 4X.
- Can be mounted external or recessed (*with only 35-50 mm protruding*) into the panel

type	cooling capacity L35L35	supply voltage	description	dimensions (mm)				price
				(H)	(W)	(D)	Ext.	
SlimLine Pro - 8500 series			IP56					
850600001	670 W	230 VAC	panel air conditioner	600	250	135	(25)	38 300.00
850800001	825 W	230 VAC	panel air conditioner	950	305	210	(35)	45 000.00
851200001	1.2 kW	230 VAC	panel air conditioner	950	305	210	(35)	46 800.00
851500001	1.5 kW	230 VAC	panel air conditioner	1350	395	210	(35)	62 600.00
852000001	2.0 kW	230 VAC	panel air conditioner	1350	395	210	(35)	68 400.00
852500001	2.5 kW	230 VAC	panel air conditioner	1350	395	210	(35)	74 200.00
854000001	4.0 kW	230 VAC	panel air conditioner	1550	455	270	(50)	102 000.00

SlimLine series - Filterless technology air conditioners

SlimLine series air conditioners provide maximum power-to-size ratio compatible with market standards ensuring simple integration with cabinet systems. Designed to operate with minimum maintenance, due to eco-friendly filter-less construction. Wide-ribbed aluminium condenser provides improved cooling performance ensuring total reliability in all industrial applications.

- Compressor type: Rotary piston compressor
- Mounting: Internal / External

42660001	320 W	230 VAC	panel air conditioner	520	270	110	(25)	32 200.00
42700001	600 W	230 VAC	panel air conditioner	810	395	145	(25)	47 000.00
42710001	820 W	230 VAC	panel air conditioner	980	395	145	(25)	50 700.00
42720001	1100 W	230 VAC	panel air conditioner	1250	395	145	(25)	58 200.00
42740001	1500 W	230 VAC	panel air conditioner	1550	395	145	(25)	66 800.00

SlimLine TOP series - Top mounted filterless air conditioners

- Compressor type: Rotary piston compressor

45550001	1100 W	230 VAC	roof mount air conditioner	400	600	400	—	60 800.00
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ComPact series - Economical all-round systems

ComPact series air conditioners optimise high efficiencies with outstanding COP values throughout the range, the built-in controller displays temperature, operating status and can be simply adjusted. Surface treated condenser with high fin separation provide virtually maintenance free service.

- Operating temp. range: 20°C...55°C
- Compressor type: Reciprocating compressor
- Mounting: External mounting
- Colour: RAL 7035 (*other colours available on request*)

43040001	320 W	230 VAC	panel air conditioner	500	280	200	—	26 400.00
43050001	550 W	230 VAC	panel air conditioner	650	315	260	—	28 400.00
43100001	1000 W	230 VAC	panel air conditioner	650	315	260	—	35 000.00
43150001	1500 W	230 VAC	panel air conditioner	980	395	260	—	44 900.00
43200001	2000 W	230 VAC	panel air conditioner	980	395	260	—	51 000.00

TG series - Thermoelectric cooling units - for cooling enclosures or electronic components

Thermoelectric cooling units are an effective solution for the cooling of enclosures. Energy transferred heat without the use of hazardous gases or liquids. Thermoelectric modules (*Peltier modules*), permitting heat absorption from one side (*cold side*) and heat expulsion to the ambient from the other side.

- External or recessed mounting in almost any position (*except roof mounting*)
- Suitable for indoor and outdoor application, ingress protection rating of IP66
- Stainless steel AISI 304 (V2A)
 - Maintenance free
 - Easy installation

type	voltage (V)	cooling power	rated current	cutout (mm)	dimensions (mm)			price
					(H)	(W)	(D)	
SoliTherm Peltier - Panel cooling units				Temperature range: -20°C...+65°C				
TG 3102-24V	24 VDC	100W	4.8A	260 x 160	304	200	138	22 800.00
TG 3200-24V	24 VDC	200W	9.0A	370 x 155	400	180	171	34 700.00

Above ZAR prices do not include VAT. E&OE

Notes



SCAME

VIA COSTA ERTA, 15
24020 PARRE BG ITALY



3P+T-P44-16A-6h/380-415V~ 50/60Hz MADE IN ITALY 400

Plugs & Sockets



Industrial plugs
& Sockets

I-1...5



Industrial socket
outlets

I-6...7



Surface-mount
distribution
boards

I-8



Mobile distribution
assemblies

I-9



Residential
switches &
Sockets

I-10



Weatherproof
plugs &
Sockets

I-11...12



Heavy-duty
multi-pole
connectors

I-13...15



Photovoltaic (PV)
connectors

I-16



Battery storage
connectors &
Terminals

I-17...20

Industrial plugs & sockets



Optima series: 16A - 32A - 63A - 125A

- Insulation voltage: 690 VAC
- Standards: IEC 60309-2
- Material: Thermoplastic (**halogen free**)
- Impact resistance: IK08 (1.7kg with a striking energy of 2J)
- Operating temperature: -25...+40°C (max operating temperature +60°C)
- Cable inlet: External cable stay with tulip clamping IP67 gland

Voltage Coding

100 to 130V*
200 to 250V
380 to 480V
480 to 525V

* On request



213.163...



218.163...



218.1636...



313.324...



318.324...

type	rated current	(h) pos.	pin configuration	IP protection 44/54	66/7/9	description	cable outlet	price
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Male plugs (straight cable exit) 16 - 125A

213.1633	16A	6h	2P+E (3pin)	•		male ind. plug	straight	76.00
213.1636	16A	6h	3P+E (4pin)	•		male ind. plug	straight	101.00
213.1637	16A	6h	3P+N+E (5pin)	•		male ind. plug	straight	126.00
213.3233	32A	6h	2P+E (3pin)	•		male ind. plug	straight	144.00
213.3236	32A	6h	3P+E (4pin)	•		male ind. plug	straight	171.00
213.3237	32A	6h	3P+N+E (5pin)	•		male ind. plug	straight	180.00
213.6333	63A	6h	2P+E (3pin)	•		male ind. plug	straight	768.00
213.6336	63A	6h	3P+E (4pin)	•		male ind. plug	straight	650.00
213.6337	63A	6h	3P+N+E (5pin)	•		male ind. plug	straight	684.00
218.1633	16A	6h	2P+E (3pin)	•	•	male ind. plug	straight	168.00
218.1636	16A	6h	3P+E (4pin)	•	•	male ind. plug	straight	197.00
218.16366	16A	7h	3P+E (4pin)	•	•	male ind. plug	straight	267.00
218.1637	16A	6h	3P+N+E (5pin)	•	•	male ind. plug	straight	223.00
218.16376	16A	7h	3P+N+E (5pin)	•	•	male ind. plug	straight	318.00
218.3233	32A	6h	2P+E (3pin)	•	•	male ind. plug	straight	272.00
218.3236	32A	6h	3P+E (4pin)	•	•	male ind. plug	straight	278.00
218.32364*	32A	3h	3P+E (4pin)	•	•	male ind. plug	straight	278.00
218.32366	32A	7h	3P+E (4pin)	•	•	male ind. plug	straight	347.00
218.3237	32A	6h	3P+N+E (5pin)	•	•	male ind. plug	straight	309.00
218.32376	32A	7h	3P+N+E (5pin)	•	•	male ind. plug	straight	386.00
218.6333	63A	6h	2P+E (3pin)	•	•	male ind. plug	straight	854.00
218.6336	63A	6h	3P+E (4pin)	•	•	male ind. plug	straight	713.00
218.63366	63A	7h	3P+E (4pin)	•	•	male ind. plug	straight	1 110.00
218.6337	63A	6h	3P+N+E (5pin)	•	•	male ind. plug	straight	746.00
218.63376	63A	7h	3P+N+E (5pin)	•	•	male ind. plug	straight	1 180.00
218.12533	125A	6h	2P+E (3pin)	•	•	male ind. plug	straight	2 040.00
218.12536	125A	6h	3P+E (4pin)	•	•	male ind. plug	straight	1 770.00
218.125366	125A	7h	3P+E (4pin)	•	•	male ind. plug	straight	2 650.00
218.12537	125A	6h	3P+N+E (5pin)	•	•	male ind. plug	straight	1 890.00
218.125376	125A	7h	3P+N+E (5pin)	•	•	male ind. plug	straight	2 820.00

Connectors/couplers (female in-line socket)

313.1643	16A	6h	2P+E (3pin)	•		female connector	straight	134.00
313.1646	16A	6h	3P+E (4pin)	•		female connector	straight	141.00
313.1647	16A	6h	3P+N+E (5pin)	•		female connector	straight	173.00
313.3243	32A	6h	2P+E (3pin)	•		female connector	straight	164.00
313.3246	32A	6h	3P+E (4pin)	•		female connector	straight	200.00
313.3247	32A	6h	3P+N+E (5pin)	•		female connector	straight	221.00
313.6343	63A	6h	2P+E (3pin)	•		female connector	straight	882.00
313.6346	63A	6h	3P+E (4pin)	•		female connector	straight	786.00
313.6347	63A	6h	3P+N+E (5pin)	•		female connector	straight	806.00
318.1643	16A	6h	2P+E (3pin)	•	•	female connector	straight	236.00
318.1646	16A	6h	3P+E (4pin)	•	•	female connector	straight	261.00
318.16466	16A	7h	3P+E (4pin)	•	•	female connector	straight	340.00
318.1647	16A	6h	3P+N+E (5pin)	•	•	female connector	straight	286.00
318.16476	16A	7h	3P+N+E (5pin)	•	•	female connector	straight	392.00
318.3243	32A	6h	2P+E (3pin)	•	•	female connector	straight	328.00
318.3246	32A	6h	3P+E (4pin)	•	•	female connector	straight	323.00
318.32464*	32A	3h	3P+E (4pin)	•	•	female connector	straight	340.00
318.32466	32A	7h	3P+E (4pin)	•	•	female connector	straight	425.00
318.3247	32A	6h	3P+N+E (5pin)	•	•	female connector	straight	353.00
318.32476	32A	7h	3P+N+E (5pin)	•	•	female connector	straight	486.00
318.6343	63A	6h	2P+E (3pin)	•	•	female connector	straight	979.00
318.6346	63A	6h	3P+E (4pin)	•	•	female connector	straight	863.00
318.63466	63A	7h	3P+E (4pin)	•	•	female connector	straight	1 240.00
318.6347	63A	6h	3P+N+E (5pin)	•	•	female connector	straight	881.00
318.63476	63A	7h	3P+N+E (5pin)	•	•	female connector	straight	1 330.00

Continued overleaf....

* Refrigerated container (Reefer plugs)

Industrial plugs & sockets

	type	rated current	(h) pos.	pin configuration	IP protection 44/54 66/7/9	description	flange size	price
 2P+E								
 3P+E								
 3P+N+E								
 243.639...								
 248.329...								
 240.639...T								
 570.90164								
continued... Connectors/couplers (female in-line socket)								
318.12543	125A	6h	2P+E	(3pin)		female connector	straight	2 440.00
318.12546	125A	6h	3P+E	(4pin)		female connector	straight	2 450.00
318.125466	125A	7h	3P+E	(4pin)		female connector	straight	3 490.00
318.12547	125A	6h	3P+N+E	(5pin)		female connector	straight	2 620.00
318.125476	125A	7h	3P+N+E	(5pin)		female connector	straight	3 800.00
Optima series - Appliance inlets (male pins - accept female connector)								
Flush mount appliance inlet (straight inlet)								
243.1693	16A	6h	2P+E	(3pin)		flush mnt appliance inlet	75 x 75	177.00
243.1696	16A	6h	3P+E	(4pin)		flush mnt appliance inlet	75 x 75	199.00
243.1697	16A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	75 x 75	258.00
243.3293	32A	6h	2P+E	(3pin)		flush mnt appliance inlet	75 x 75	288.00
243.3296	32A	6h	3P+E	(4pin)		flush mnt appliance inlet	75 x 75	307.00
243.3297	32A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	75 x 75	315.00
243.6393	63A	6h	2P+E	(3pin)		flush mnt appliance inlet	100 x 110	860.00
243.6396	63A	6h	3P+E	(4pin)		flush mnt appliance inlet	100 x 110	919.00
243.6397	63A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	100 x 110	975.00
248.1693	16A	6h	2P+E	(3pin)		flush mnt appliance inlet	75 x 75	251.00
248.1696	16A	6h	3P+E	(4pin)		flush mnt appliance inlet	75 x 75	265.00
248.16966	16A	7h	3P+E	(4pin)		flush mnt appliance inlet	75 x 75	335.00
248.1697	16A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	75 x 75	335.00
248.16976	16A	7h	3P+N+E	(5pin)		flush mnt appliance inlet	75 x 75	417.00
248.3293	32A	6h	2P+E	(3pin)		flush mnt appliance inlet	75 x 75	353.00
248.3296	32A	6h	3P+E	(4pin)		flush mnt appliance inlet	75 x 75	375.00
248.32966	32A	7h	3P+E	(4pin)		flush mnt appliance inlet	75 x 75	469.00
248.3297	32A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	75 x 75	411.00
248.32976	32A	7h	3P+N+E	(5pin)		flush mnt appliance inlet	75 x 75	516.00
248.6393	63A	6h	2P+E	(3pin)		flush mnt appliance inlet	100 x 110	564.00
248.6396	63A	6h	3P+E	(4pin)		flush mnt appliance inlet	100 x 110	603.00
248.63966	63A	7h	3P+E	(4pin)		flush mnt appliance inlet	100 x 110	1 240.00
248.6397	63A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	100 x 110	632.00
248.63976	63A	7h	3P+N+E	(5pin)		flush mnt appliance inlet	100 x 110	1 320.00
248.12593	125A	6h	2P+E	(3pin)		flush mnt appliance inlet	114 x 114	1 100.00
248.12596	125A	6h	3P+E	(4pin)		flush mnt appliance inlet	114 x 114	1 190.00
248.125966	125A	7h	3P+E	(4pin)		flush mnt appliance inlet	114 x 114	2 120.00
248.12597	125A	6h	3P+N+E	(5pin)		flush mnt appliance inlet	114 x 114	1 310.00
248.125976	125A	7h	3P+N+E	(5pin)		flush mnt appliance inlet	114 x 114	2 440.00
Surface mount appliance inlet (angled inlet) cable entry								
240.1693	16A	6h	2P+E	(3pin)		surf mnt appliance inlet	M25	263.00
240.1696	16A	6h	3P+E	(4pin)		surf mnt appliance inlet	M25	289.00
240.1697	16A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M25	356.00
240.3293	32A	6h	2P+E	(3pin)		surf mnt appliance inlet	M32	390.00
240.3296	32A	6h	3P+E	(4pin)		surf mnt appliance inlet	M32	412.00
240.3297	32A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M32	420.00
240.6393T	63A	6h	2P+E	(3pin)		surf mnt appliance inlet	M40	1 150.00
240.6396T	63A	6h	3P+E	(4pin)		surf mnt appliance inlet	M40	1 260.00
240.6397T	63A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M40	1 350.00
245.1693	16A	6h	2P+E	(3pin)		surf mnt appliance inlet	M25	323.00
245.1696	16A	6h	3P+E	(4pin)		surf mnt appliance inlet	M25	338.00
245.1697	16A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M25	411.00
245.3293	32A	6h	2P+E	(3pin)		surf mnt appliance inlet	M32	429.00
245.3296	32A	6h	3P+E	(4pin)		surf mnt appliance inlet	M32	453.00
245.3297	32A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M32	491.00
245.6393T	63A	6h	2P+E	(3pin)		surf mnt appliance inlet	M40	1 110.00
245.6396T	63A	6h	3P+E	(4pin)		surf mnt appliance inlet	M40	1 220.00
245.6397T	63A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M40	1 310.00
245.12597T	125A	6h	3P+N+E	(5pin)		surf mnt appliance inlet	M63	3 100.00
Protection caps for plugs and appliance inlets IP66 / IP67 / IP69								
570.90163	16A	—	2P+E			covers for plugs and inlets		52.00
570.90164	16A	—	3P+E			covers for plugs and inlets		57.00
570.90165	16A	—	3P+N+E			covers for plugs and inlets		63.00
570.90324	32A	—	2/3P+E			covers for plugs and inlets		70.00
570.90325	32A	—	3P+N+E			covers for plugs and inlets		75.00
570.9063	63A	—	all configurations			covers for plugs and inlets		46.00
570.9125	125A	—	all configurations			covers for plugs and inlets		113.00

Above ZAR prices do not include VAT. E&OE

I-2

Industrial plugs & sockets



413.166...



418.636...



570.M0125



423.166...



428.166...

Optima series: Panel mount sockets 16A - 32A - 63A - 125A

- Insulation voltage: 690 VAC
- Operating temperature: -25...+40°C (max operating temperature +60°C)
- Material: Thermoplastic (**halogen free**) / Impact resistance IK08

type	rated current	(h) pos.	pin configuration	IP protection 44/54	67/8/9	description	flange size	price
Flush mount angled socket outlet (18°)				16A - 125A		Standards: IEC 60309-2		
413.1663	16A	6h	2P+E (3pin)	•		angled socket	70 x 87	126.00
413.1666	16A	6h	3P+E (4pin)	•		angled socket	70 x 87	134.00
413.1667	16A	6h	3P+N+E (5pin)	•		angled socket	70 x 87	147.00
413.3263	32A	6h	2P+E (3pin)	•		angled socket	84 x 106	168.00
413.3266	32A	6h	3P+E (4pin)	•		angled socket	84 x 106	176.00
413.3267	32A	6h	3P+N+E (5pin)	•		angled socket	84 x 106	185.00
413.6363	63A	6h	2P+E (3pin)	•		angled socket	100 x 110	811.00
413.6366	63A	6h	3P+E (4pin)	•		angled socket	100 x 110	836.00
413.6367	63A	6h	3P+N+E (5pin)	•		angled socket	100 x 110	906.00
418.1663	16A	6h	2P+E (3pin)	•	•	angled socket	70 x 87	193.00
418.1666	16A	6h	3P+E (4pin)	•	•	angled socket	70 x 87	210.00
418.16666	16A	7h	3P+E (4pin)	•	•	angled socket	70 x 87	356.00
418.1667	16A	6h	3P+N+E (5pin)	•	•	angled socket	70 x 87	239.00
418.16676	16A	7h	3P+N+E (5pin)	•	•	angled socket	70 x 87	435.00
418.3263	32A	6h	2P+E (3pin)	•	•	angled socket	84 x 106	302.00
418.3266	32A	6h	3P+E (4pin)	•	•	angled socket	84 x 106	307.00
418.32664*	32A	3h	3P+E (4pin)	•	•	angled socket	84 x 106	402.00
418.32666	32A	7h	3P+E (4pin)	•	•	angled socket	84 x 106	501.00
418.3267	32A	6h	3P+N+E (5pin)	•	•	angled socket	84 x 106	353.00
418.32676	32A	7h	3P+N+E (5pin)	•	•	angled socket	84 x 106	548.00
418.6363	63A	6h	2P+E (3pin)	•	•	angled socket	100 x 110	875.00
418.6366	63A	6h	3P+E (4pin)	•	•	angled socket	100 x 110	902.00
418.63666	63A	7h	3P+E (4pin)	•	•	angled socket	100 x 110	1 130.00
418.6367	63A	6h	3P+N+E (5pin)	•	•	angled socket	100 x 110	963.00
418.63676	63A	7h	3P+N+E (5pin)	•	•	angled socket	100 x 110	1 230.00
418.12563	125A	6h	2P+E (3pin)	•	•	angled socket	114 x 114	2 470.00
418.12566	125A	6h	3P+E (4pin)	•	•	angled socket	114 x 114	2 090.00
418.125666	125A	7h	3P+E (4pin)	•	•	angled socket	114 x 114	3 090.00
418.12567	125A	6h	3P+N+E (5pin)	•	•	angled socket	114 x 114	2 140.00
418.125676	125A	7h	3P+N+E (5pin)	•	•	angled socket	114 x 114	3 440.00

Micro-switch - for plug inserted indication of above angled outlet sockets only

654.0391	16/32A	1x NO	micro-switch for above angled sockets	—	153.00
654.0392	16/32A	1x NC	micro-switch for above angled sockets	—	153.00
654.0393	63/125A	1x NO	micro-switch for above angled sockets	—	222.00
654.0394	63/125A	1x NC	micro-switch for above angled sockets	—	222.00

Housings to surface mount (above) angled sockets

570.0116	16A	angled housing	•	for p/mnt sockets	70 x 87	107.00
570.0016	16A	straight housing	•	for p/mnt sockets	70 x 87	107.00
570.0132	32A	angled housing	•	for p/mnt sockets	84 x 106	147.00
570.0032	32A	straight housing	•	for p/mnt sockets	84 x 106	144.00
570.M0163	63A	angled housing	•	for p/mnt sockets	100 x 110	693.00
570.M0125	125A	angled housing	•	for p/mnt sockets	114 x 114	1 070.00

Flush mount straight socket outlet				16A - 125A		Standards: IEC 60309-2		
423.1663	16A	6h	2P+E (3pin)	•		straight socket	75 x 75	122.00
423.1663/R	16A	6h	2P+E (3pin)	•		straight socket	62 x 62	163.00
423.1666	16A	6h	3P+E (4pin)	•		straight socket	75 x 75	138.00
423.1666/R	16A	6h	3P+E (4pin)	•		straight socket	62 x 62	177.00
423.1667	16A	6h	3P+N+E (5pin)	•		straight socket	75 x 75	141.00
423.3263	32A	6h	2P+E (3pin)	•		straight socket	75 x 75	288.00
423.3266	32A	6h	3P+E (4pin)	•		straight socket	75 x 75	294.00
423.3267	32A	6h	3P+N+E (5pin)	•		straight socket	75 x 75	342.00
423.6363	63A	6h	2P+E (3pin)	•		straight socket	100 x 110	811.00
423.6366	63A	6h	3P+E (4pin)	•		straight socket	100 x 110	836.00
423.6367	63A	6h	3P+N+E (5pin)	•		straight socket	100 x 110	906.00
428.1663	16A	6h	2P+E (3pin)	•	•	straight socket	75 x 75	257.00
428.1666	16A	6h	3P+E (4pin)	•	•	straight socket	75 x 75	285.00
428.1667	16A	6h	3P+N+E (5pin)	•	•	straight socket	75 x 75	348.00
428.3263	32A	6h	2P+E (3pin)	•	•	straight socket	75 x 75	400.00
428.3266	32A	6h	3P+E (4pin)	•	•	straight socket	75 x 75	402.00
428.32664*	32A	3h	3P+E (4pin)	•	•	straight socket	75 x 75	402.00
428.3267	32A	6h	3P+N+E (5pin)	•	•	straight socket	75 x 75	438.00

Continued overleaf....

* Refrigerated container (Reefer plugs)

Industrial plugs & sockets

 2P+E 3P+E 3P+N+E  428.636...	type	rated current	(h) pos.	pin configuration	IP protection		description	flange size	price	
					44/54	67/8/9				
	continued... Flush mount socket outlet - straight									
	428.6363	63A	6h	2P+E (3pin)			•	straight socket	100 x 110	875.00
	428.6366	63A	6h	3P+E (4pin)			•	straight socket	100 x 110	902.00
	428.6367	63A	6h	3P+N+E (5pin)			•	straight socket	100 x 110	920.00
	428.12563	125A	6h	2P+E (3pin)			•	straight socket	114 x 114	2 470.00
	428.12566	125A	6h	3P+E (4pin)			•	straight socket	114 x 114	2 470.00
	428.12567	125A	6h	3P+N+E (5pin)			•	straight socket	114 x 114	2 750.00
	OPTIMA series - Surface-mount socket outlets									
• Insulation voltage: 690 VAC										
• Operating temperature: -25...+40°C (max operating temperature +60°C)										
• Material: Thermoplastic (halogen free)										
• Impact resistance: IK08 (1.7kg with a striking energy of 2J)										
 513.325...	type	rated current	(h) pos.	pin configuration	IP protection		description	cable entry	price	
					44/54	67/8/9				
	BASE version - IP44 compact, economical, slimline socket outlets (angled)									
	513.1653	16A	6h	2P+E (3pin)			•	surface mnt socket	M20/25	186.00
	513.1656	16A	6h	3P+E (4pin)			•	surface mnt socket	M20/25	219.00
	513.1657	16A	6h	3P+N+E (5pin)			•	surface mnt socket	M20/25	224.00
	513.3253	32A	6h	2P+E (3pin)			•	surface mnt socket	M32	284.00
	513.3256	32A	6h	3P+E (4pin)			•	surface mnt socket	M32	288.00
	513.3257	32A	6h	3P+N+E (5pin)			•	surface mnt socket	M32	352.00
	TOP version - IP44 and IP67 (angled)									
• Compact, flexible, safe - removable socket section for ease of wiring										
• Reversible base (1 or 2 cable outlets top or bottom entry)										
 518.635...T	513.1653T	16A	6h	2P+E (3pin)			•	surface mnt socket	M20/25	240.00
	513.1656T	16A	6h	3P+E (4pin)			•	surface mnt socket	M20/25	284.00
	513.1657T	16A	6h	3P+N+E (5pin)			•	surface mnt socket	M20/25	290.00
	513.3253T	32A	6h	2P+E (3pin)			•	surface mnt socket	M32	367.00
	513.3256T	32A	6h	3P+E (4pin)			•	surface mnt socket	M32	374.00
	513.3257T	32A	6h	3P+N+E (5pin)			•	surface mnt socket	M32	456.00
	513.6353T	63A	6h	2P+E (3pin)			•	surface mnt socket	M40	1 320.00
	513.6356T	63A	6h	3P+E (4pin)			•	surface mnt socket	M40	1 340.00
	513.6357T	63A	6h	3P+E (4pin)			•	surface mnt socket	M40	1 390.00
	 518.325...TS	518.1653T	16A	6h	2P+E (3pin)			•	surface mnt socket	M20/25
518.1656T		16A	6h	3P+E (4pin)			•	surface mnt socket	M20/25	456.00
518.1657T		16A	6h	3P+N+E (5pin)			•	surface mnt socket	M20/25	531.00
518.3253T		32A	6h	2P+E (3pin)			•	surface mnt socket	M32	644.00
518.3256T		32A	6h	3P+E (4pin)			•	surface mnt socket	M32	633.00
518.32564T*		32A	3h	3P+E (4pin)			•	surface mnt socket	M32	633.00
518.3257T		32A	6h	3P+N+E (5pin)			•	surface mnt socket	M32	683.00
518.6353T		63A	6h	2P+E (3pin)			•	surface mnt socket	M40	1 420.00
518.6356T		63A	6h	3P+E (4pin)			•	surface mnt socket	M40	1 440.00
518.6357T		63A	6h	3P+N+E (5pin)			•	surface mnt socket	M40	1 500.00
	518.12553T	125A	6h	2P+E (3pin)			•	surface mnt socket	M63	2 920.00
	518.12556T	125A	6h	3P+E (4pin)			•	surface mnt socket	M63	3 160.00
	518.12557T	125A	6h	3P+N+E (5pin)			•	surface mnt socket	M63	3 310.00
	Surface mount switch sockets (not mechanical interlocked)									
	513.1653TS	16A	6h	2P+E (3pin)			•	surface mnt socket	M25	532.00
	513.1656TS	16A	6h	3P+E (4pin)			•	surface mnt socket	M25	561.00
	513.1657TS	16A	6h	3P+N+E (5pin)			•	surface mnt socket	M25	578.00
	513.3253TS	32A	6h	2P+E (3pin)			•	surface mnt socket	M32	713.00
	513.3256TS	32A	6h	3P+E (4pin)			•	surface mnt socket	M32	744.00
	513.3257TS	32A	6h	3P+N+E (5pin)			•	surface mnt socket	M32	777.00
	518.1653TS	16A	6h	2P+E (3pin)			•	surface mnt socket	M25	713.00
	518.1656TS	16A	6h	3P+E (4pin)			•	surface mnt socket	M25	744.00
	518.1657TS	16A	6h	3P+N+E (5pin)			•	surface mnt socket	M25	777.00
	518.3253TS	32A	6h	2P+E (3pin)			•	surface mnt socket	M32	798.00
	518.3256TS	32A	6h	3P+E (4pin)			•	surface mnt socket	M32	830.00
	518.3257TS	32A	6h	3P+N+E (5pin)			•	surface mnt socket	M32	863.00
* Refrigerated container (Reefer plugs)										

Industrial plugs & sockets



221.163...



247.169...



452.166...



218.32364

Eureka series 16A/32A - 90° inlets

- Insulation voltage: 690 VAC
- Protection degree: IP44 and IP67
- Operating temperature: -25...+40°C (max operating temperature +60°C)
- Material: Thermoplastic
- Impact resistance: IK07 (0.5kg with a striking energy of 2J)
- Standards: IEC 6039-1 / EN 60309-3

type	rated current	(h) pos.	pin configuration	IP protection 44/54 66/7/9	description	flange size	price
Male plugs (90° cable inlet) 16A - 32A							
221.1633	16A	6h	2P+E (3pin)	•	90° ind male plug	sleeve	180.00
221.1636	16A	6h	3P+E (4pin)	•	90° ind male plug	sleeve	200.00
221.1637	16A	6h	3P+N+E (5pin)	•	90° ind male plug	sleeve	233.00
221.3233	32A	6h	2P+E (3pin)	•	90° ind male plug	sleeve	282.00
221.3236	32A	6h	3P+E (4pin)	•	90° ind male plug	sleeve	300.00
221.3237	32A	6h	3P+N+E (5pin)	•	90° ind male plug	sleeve	366.00
226.1633	16A	6h	2P+E (3pin)	•	90° ind male plug	gland	230.00
226.1636	16A	6h	3P+E (4pin)	•	90° ind male plug	gland	247.00
226.1637	16A	6h	3P+N+E (5pin)	•	90° ind male plug	gland	284.00
226.3233	32A	6h	2P+E (3pin)	•	90° ind male plug	gland	318.00
226.3236	32A	6h	3P+E (4pin)	•	90° ind male plug	gland	333.00
226.3237	32A	6h	3P+N+E (5pin)	•	90° ind male plug	gland	408.00

Appliance inlets (90° inlet) 16A - 32A

242.1693	16A	6h	2P+E (3pin)	•	90° appliance inlet	70 x 87	186.00
242.1696	16A	6h	3P+E (4pin)	•	90° appliance inlet	70 x 87	209.00
242.1697	16A	6h	3P+N+E (5pin)	•	90° appliance inlet	70 x 87	280.00
242.3293	32A	6h	2P+E (3pin)	•	90° appliance inlet	70 x 87	317.00
242.3296	32A	6h	3P+E (4pin)	•	90° appliance inlet	70 x 87	338.00
242.3297	32A	6h	3P+N+E (5pin)	•	90° appliance inlet	70 x 87	348.00
247.1693	16A	6h	2P+E (3pin)	•	90° appliance inlet	70 x 87	287.00
247.1696	16A	6h	3P+E (4pin)	•	90° appliance inlet	70 x 87	301.00
247.1697	16A	6h	3P+N+E (5pin)	•	90° appliance inlet	70 x 87	377.00
247.3293	32A	6h	2P+E (3pin)	•	90° appliance inlet	70 x 87	399.00
247.3296	32A	6h	3P+E (4pin)	•	90° appliance inlet	70 x 87	426.00
247.3297	32A	6h	3P+N+E (5pin)	•	90° appliance inlet	70 x 87	471.00

Sockets (90° outlet) 16A - 32A

452.1663	16A	6h	2P+E (3pin)	•	90° female socket	70 x 87	231.00
452.1666	16A	6h	3P+E (4pin)	•	90° female socket	70 x 87	251.00
452.1667	16A	6h	3P+N+E (5pin)	•	90° female socket	70 x 87	348.00
452.3263	32A	6h	2P+E (3pin)	•	90° female socket	70 x 87	413.00
452.3266	32A	6h	3P+E (4pin)	•	90° female socket	70 x 87	423.00
452.3267	32A	6h	3P+N+E (5pin)	•	90° female socket	70 x 87	583.00
457.1663	16A	6h	2P+E (3pin)	•	90° female socket	70 x 87	383.00
457.1666	16A	6h	3P+E (4pin)	•	90° female socket	70 x 87	422.00
457.1667	16A	6h	3P+N+E (5pin)	•	90° female socket	70 x 87	522.00
457.3263	32A	6h	2P+E (3pin)	•	90° female socket	70 x 87	593.00
457.3266	32A	6h	3P+E (4pin)	•	90° female socket	70 x 87	596.00
457.3267	32A	6h	3P+N+E (5pin)	•	90° female socket	70 x 87	734.00

Container plugs and sockets 32A

Resistance is a fundamental requirement in a harsh and exhausting environment like a terminal container where sun, humidity, saltiness and temperature changes put a strain on any product.

Scame offers a full range of plugs and socket outlets in 3h configuration for the supply of refrigerated containers: OPTIMA series plugs and sockets, flush or surface mounting interlocked socket in OMNIA series, ADVANCE2 series of interlocked socket outlets in thermoplastic material to offer maximum resistance to shocks and atmospheric and chemical agents.

- Refrigeration container (Reefer plugs and sockets)
- Earth pin (3h) position
- IP rating: IP67

218.32364	32A	3h	3P+E (4pin)	•	container straight male plug		278.00
318.32464	32A	3h	3P+E (4pin)	•	container straight connector		340.00
428.32664	32A	3h	3P+E (4pin)	•	p/mnt straight socket	75 x 75	402.00
418.32664	32A	3h	3P+E (4pin)	•	p/mnt angled socket	84 x 106	402.00
518.32564T	32A	3h	3P+E (4pin)	•	TOP surface mnt socket outlet		633.00
505.32864	32A	3h	3P+E (4pin)	•	Omnia surf switch/socket outlet		1 550.00
561.32864	32A	3h	3P+E (4pin)	•	Advance surf switch/socket outlet		1 730.00

Industrial socket outlets



Industrial switched sockets (interlocked)

IEC 60309-1/-2

- Protection degree: IP44 and IP67 (*non ageing elastomer seals*)
- Operating temp: -25...+40°C (*max operating temperature +60°C*)
- Material: Thermoplastic (RAL 7035)
- Mechanical interlock: Only operates with plug inserted - cannot be removed with switch "ON"

type	rated current	(h) pos.	pin configuration	IP protection 44/54	67/8/9	description	price
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OMNIA series - Switched sockets

(I-O)
(interlocked)

- Surface mounting: *(flush mountable with surface box removed)*
- Impact resistance: IK08 (*1.7kg with a striking energy of 2J*)

OMNIA Series 16A - 32A

(H)125 x (W)136 x (D)85 mm

500.1683	16A	6h	2P+E (3pin)	•		surface switch socket outlet	877.00
500.1686	16A	6h	3P+E (4pin)	•		surface switch socket outlet	952.00
500.1687	16A	6h	3P+N+E (5pin)	•		surface switch socket outlet	1 040.00
500.3283	32A	6h	2P+E (3pin)	•		surface switch socket outlet	1 050.00
500.3286	32A	6h	3P+E (4pin)	•		surface switch socket outlet	1 150.00
500.3287	32A	6h	3P+N+E (5pin)	•		surface switch socket outlet	1 280.00
505.1683	16A	6h	2P+E (3pin)	•		surface switch socket outlet	1 110.00
505.1686	16A	6h	3P+E (4pin)	•		surface switch socket outlet	1 220.00
505.1687	16A	6h	3P+N+E (5pin)	•		surface switch socket outlet	1 310.00
505.3283	32A	6h	2P+E (3pin)	•		surface switch socket outlet	1 450.00
505.3286	32A	6h	3P+E (4pin)	•		surface switch socket outlet	1 550.00
505.32864*	32A	3h	3P+E (4pin)	•		surface switch socket outlet	1 550.00
505.3287	32A	6h	3P+N+E (5pin)	•		surface switch socket outlet	1 700.00

OMNIA Series 63A (rectangular shape)

(H)275 x (W)136 x (D)186 mm

505.6383	63A	6h	2P+E (3pin)	•		surface switch socket outlet	2 630.00
505.6386	63A	6h	3P+E (4pin)	•		surface switch socket outlet	2 850.00
505.6387	63A	6h	3P+N+E (5pin)	•		surface switch socket outlet	3 150.00

Accessories for above Omnia series switched sockets

572.0310	base	surface base housing for 125 x 136 mm 16/32A switch sockets	113.00
654.0120	blank	plain blank cover for above surface box 5720310	156.00
572.0120	6 way	6 module consumer insert and cover for box 5720310	546.00
409.0428	cover	IP56 Omnia cover accepts Evolution domestic sockets	1 310.00
572.0200	wall box	flush mounting wall box for Omnia 16/32A switch socket outlets	199.00
572.0220	frame	flush frame (IP55) for above flush mounting box 5720200	90.00

Advance 2 series - Industrial switch sockets

(I-O)
(interlocked)

- Impact resistance: IK07 (*500g with a striking energy of 2J*)

16A/32A - compact version

(H)240 x (W)106 x (D)129 mm

560.1683	16A	6h	2P+E (3pin)	•		surface switch socket outlet	749.00
560.1686	16A	6h	3P+E (4pin)	•		surface switch socket outlet	825.00
560.1687	16A	6h	3P+N+E (5pin)	•		surface switch socket outlet	812.00
560.3283	32A	6h	2P+E (3pin)	•		surface switch socket outlet	877.00
560.3286	32A	6h	3P+E (4pin)	•		surface switch socket outlet	958.00
560.3287	32A	6h	3P+N+E (5pin)	•		surface switch socket outlet	894.00
561.1683	16A	6h	2P+E (3pin)	•		surface switch socket outlet	1 220.00
561.1686	16A	6h	3P+E (4pin)	•		surface switch socket outlet	1 340.00
561.16866	16A	7h	3P+E (4pin)	•		surface switch socket outlet	1 670.00
561.1687	16A	6h	3P+N+E (5pin)	•		surface switch socket outlet	1 550.00
561.16876	16A	7h	3P+N+E (5pin)	•		surface switch socket outlet	1 930.00
561.3283	32A	6h	2P+E (3pin)	•		surface switch socket outlet	1 550.00
561.3286	32A	6h	3P+E (4pin)	•		surface switch socket outlet	1 730.00
561.32864*	32A	3h	3P+E (4pin)	•		surface switch socket outlet	1 730.00
561.32866	32A	7h	3P+E (4pin)	•		surface switch socket outlet	2 160.00
561.3287	32A	6h	3P+N+E (5pin)	•		surface switch socket outlet	1 900.00
561.32876	32A	7h	3P+N+E (5pin)	•		surface switch socket outlet	2 370.00

63A - large version

(H)390 x (W)136 x (D)166-207 mm

561.6383	63A	6h	2P+E (3pin)	•		surface switch socket outlet	3 530.00
561.6386	63A	6h	3P+E (4pin)	•		surface switch socket outlet	3 800.00
561.63866	63A	7h	3P+E (4pin)	•		surface switch socket outlet	4 760.00
561.6387	63A	6h	3P+N+E (5pin)	•		surface switch socket outlet	4 210.00
561.63876	63A	7h	3P+N+E (5pin)	•		surface switch socket outlet	5 260.00

125A - large version

(H)460 x (W)212 x (D)217 mm

548.12586	125A	6h	3P+E (4pin)	•		surface switch socket outlet	14 600.00
548.12587	125A	6h	3P+N+E (5pin)	•		surface switch socket outlet	16 100.00

* Refrigerated container (Reefer plugs)

Industrial socket outlets

	type	rated current	(h) pos.	pin configuration	IP protection	44/54	67/8/9	description	price
   	Advance2 - Switch socket outlet								
	ADVANCE2 is a complete range of industrial interlocked sockets available from 16 up to 125A making it ideal for applications in purely industrial environments.								
	- DIN rail facility for 6 x modular devices - MCB's, earth leakage, contactors - With interlocked switch and 6 way distribution board								
	16/32A - switched socket (H)410 x (W)136 x (D)163 mm								
	568.1683	16A	6h	2P+E (3pin)		•	surface switch socket outlet	1 970.00	
	568.1686	16A	6h	3P+E (4pin)		•	surface switch socket outlet	2 110.00	
	568.1687	16A	6h	3P+N+E (5pin)		•	surface switch socket outlet	2 220.00	
	(H)420 x (W)136 x (D)176 mm								
	568.3283	32A	6h	2P+E (3pin)		•	surface switch socket outlet	2 430.00	
	568.3286	32A	6h	3P+E (4pin)		•	surface switch socket outlet	2 570.00	
	568.3287	32A	6h	3P+N+E (5pin)		•	surface switch socket outlet	2 790.00	
	63A - switched socket (H)438 x (W)136 (D)182 mm								
	568.6383	63A	6h	2P+E (3pin)		•	surface switch socket outlet	4 830.00	
	568.6386	63A	6h	3P+E (4pin)		•	surface switch socket outlet	5 200.00	
	568.6387	63A	6h	3P+N+E (5pin)		•	surface switch socket outlet	5 630.00	
Advance-GRP "extra heavy duty" interlocked switch socket outlet 16 - 125A (O-II)									
Advance-GRP(Ex) series surface mounting interlocked socket outlets are designed to guarantee excellent mechanical resistance to impacts and chemical agents, even under extreme atmospheric and temperature conditions.									
- Material: Thermosetting (halogen free) RAL 7037 - Self-extinguishing: GW test: 960°C - UL94 V0 - Impact resistance: IK10 (5kg with a striking energy of 20J) - Ex classification: Atex code Ex II 2D - LED indication: Correct supply and all phases present									
16A/32A - extra heavy-duty (H)260 x (W)130 x (D)170-185 mm									
503.1683	16A	6h	2P+E (3pin)		•	heavy duty switch socket outlet	4 450.00		
503.1686	16A	6h	3P+E (4pin)		•	heavy duty switch socket outlet	4 830.00		
503.1687	16A	6h	3P+N+E (5pin)		•	heavy duty switch socket outlet	5 250.00		
503.3283	32A	6h	2P+E (3pin)		•	heavy duty switch socket outlet	7 000.00		
503.3286	32A	6h	3P+E (4pin)		•	heavy duty switch socket outlet	7 590.00		
503.3287	32A	6h	3P+N+E (5pin)		•	heavy duty switch socket outlet	8 360.00		
63A - extra heavy-duty (H)380 x (W)170 x (D)225 mm									
503.6386	63A	6h	3P+E (4pin)		•	heavy duty switch socket outlet	10 900.00		
503.6387	63A	6h	3P+N+E (5pin)		•	heavy duty switch socket outlet	12 100.00		
125A - extra heavy-duty (H)575 x (W)280 x (D)253 mm									
503.12586-01	125A	6h	3P+E (4pin)		•	heavy duty switch socket outlet	24 200.00		
503.12587-01	125A	6h	3P+N+E (5pin)		•	heavy duty switch socket outlet	27 000.00		
FR series - Enclosed switch disconnectors "Fire rated" IP65									
FR series is a range of fire rated switch disconnectors able to resist at a temperature of 400°C for a period of 120 minutes ensuring the operation of the smoke extraction systems as required by the EN 12101-3 Standard (2015).									
- Protection degree: IP65 - Operating ambient temp: -25...+ 60°C - Colour: RAL 3020 - Impact resistance: IK08 (20A...160A) - Material: Continuous-Casting- Aluminium Alloy - Locking mechanism: Padlockable handle in two positions (ON or OFF) - Conformity of standards: - BS EN 12101-3 (smoke and heat control system) - EN 60947-3 (Low voltage switchgear and controlgear) - EN 60529 (Degrees of protection provided by enclosure)									
General application: - Basement parking - Emergency evacuation exit									
type	AC-21A ≤ 690V	AC-23A ≤ 415V	poles	description		dimensions (mm) (H) (W) (D)			price
590.FEM2003	20A	9 kW	3	enclosed isolator switch		192	168	80	4 400.00
590.FEM3203	32A	15 kW	3	enclosed isolator switch		192	168	80	6 130.00
590.FEM6303	63A	35 kW	3	enclosed isolator switch		253	217	93	10 300.00
Larger sizes (up to 630A) available on request									

Surface-mount distribution boards



Domino series - Distribution boards

- Protection degree: IP66
- Max. operating temperature: 60°C
- Material: Thermoplastic (RAL 7035)
- Standards: EN 62208 / EN 60670-24 / EN 61439-3
- Impact resistance: IK07 (500g with a striking energy of 2J)

type	no. DIN modules	description	dimensions (mm)			price
			(H)	(W)	(D)	

Domino series - Distribution boards

- Reversible hinged door (*hinged from left or right side*)
- Adjustable DIN rail depth (*can accept rail mounted MCCBs*)
- Knock-outs on all sides (*can be coupled to other enclosures using coupler glands*)
- Facility to accept earth and neutral terminals

672.2002	2	IP66 consumer unit / distribution board	135	76	102	306.00
672.2004	4	IP66 consumer unit / distribution board	190	112	106	406.00
672.2008	8	IP66 consumer unit / distribution board	190	184	106	556.00
672.2012.1102	12 (1 x 12)	IP66 consumer unit / distribution board	250	256	140	837.00
672.4024.1102	24 (2 x 12)	IP66 consumer unit / distribution board	400	256	140	1 400.00
672.2016.1102	16 (1 x 16)	IP66 consumer unit / distribution board	250	328	140	1 170.00
672.4032.1102	32 (2 x 16)	IP66 consumer unit / distribution board	400	328	140	1 770.00
672.5048.1102	48 (3 x 16)	IP66 consumer unit / distribution board	550	328	140	2 230.00

.1102 (supplied with mounted earth and neutral terminals)

Boards with additional blank component section (for mounting non modular devices)

672.3100	12 (1 x 12)	with blank section (H) 150 x (D) 115 mm	400	256	140	1 040.00
672.4116	16 (1 x 16)	with blank section (H) 150 x (D) 115 mm	400	328	140	1 080.00
672.5116	16 (1 x 16)	with blank section (H) 300 x (D) 115 mm	550	328	140	1 500.00

Boards with section to accommodate industrial sockets

type	no. DIN modules	sockets No.	flange size (mm)	dimensions (mm)			price
				(H)	(W)	(D)	
672.2300	8 (1 x 8)	board + 2 x 16A sockets	70 x 87	340	184	106	1 190.00
672.3300*	12 (1 x 12)	board + 2 x 16A sockets	70 x 87	400	256	140	1 550.00
672.3302	12 (1 x 12)	board + 1 x 63A sockets	100 x 110	400	256	140	1 550.00
672.4316*	16 (1 x 16)	board + 3 x 16A sockets	70 x 87	400	328	140	2 050.00
672.5616*	16 (1 x 16)	board + 6 x 16A sockets	70 x 87	550	328	140	2 730.00

To accommodate Omnia interlocked switch sockets

672.3200	12 (1 x 12)	board + 1 x 16/32A sw/socket	136 x 125	400	256	140	1 550.00
672.4216	16 (1 x 16)	board + 2 x 16/32A sw/socket	136 x 125	400	328	140	2 110.00
672.5316	16 (1 x 16)	2 x 16/32A + 1 x 63A sw/socket	136 x 125	550	328	140	2 810.00
672.5416	16 (1 x 16)	board + 4 x 16/32A sw/socket	136 x 125	550	328	140	2 830.00

Empty enclosures for Domino series boards

type	for boards	description	flange	(H)	(W)	(D)	price
672.1101	12 way	enclosure with blank cover	—	150	256	115	414.00
672.1301*	12 way	enclosure 2 x 16A sockets	70 x 87	150	256	115	441.00
* With suitable adaption, can accommodate 32A socket (84 x 106 mm flange)							
672.1100	16 way	enclosure with blank cover	—	150	328	115	543.00
672.1300*	16 way	enclosure 3 x 16A sockets	70 x 87	150	328	115	546.00
672.1200	16 way	enclosure 2 x 16/32A sw/socket	136 x 125	150	328	115	576.00

Accessories for Domino boards

654.0365	4 way	5 way insulated terminal block for boards	(IP20)	94.00
654.0363	8 way	10 way insulated terminal block for boards	(IP20)	101.00
654.0362	16 - 32	10 way insulated terminal block for boards	(IP20)	108.00
654.0360	12 - 48 way	additional 10 way insulated terminal block	(IP20)	85.00
654.0358	DIN rail mountable	insulated terminal block vertical	5 x 10 + 5 x 16 mm ²	175.00
654.0359	DIN rail mountable	insulated terminal block horizontal	5 x 10 + 5 x 16 mm ²	175.00
654.0400	4 module	blanking strip for boards	(sectionable ½ and 1 module)	17.40
654.0410	1 module	rail mount dummy module	(assists heat dissipation)	51.00
654.0420	½ module	rail mount dummy module	(assists heat dissipation)	52.00
654.0751	12 module	DIN rail kit	—	87.00

Coupler glands IP66 (to join two enclosures together)

805.3335	coupler gland PG21 for joining 12/24 way enclosures together	(ea)	22.80
805.3337	coupler gland PG36 for joining 16/32 way enclosures together	(ea)	56.00

Mobile distribution assemblies



MBOX series - Distribution assemblies (EN 60670-1 / EN 61439-3 / EN 61439-4)

MBOX panels are made of engineering resin with high mechanical sturdiness suitable for outdoor installations with high impact resistance and excellent dimensional stability at high temperatures.

Numerous combinations of sockets ensure reliability to meet common installation requirements for construction sites, equipped areas, camping sites, harbours and outdoor areas in general.

- Incorporated fold-out carrying handle
- Wall, trestle, turret or pole mountable (*with additional accessories*)
- Incorporated emergency disconnect pushbutton RAL 7035
- Incorporated distribution board to accommodate modular devices MCBs, earth leakages

type	no. DIN modules	mountable accessories to be ordered separately	dimensions (mm) (H) (W) (D)	price
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MBOX series - Distribution assemblies IP66

MBOX2 distribution assemblies (no front door)

- Supplied with 16 mm² 5-pole terminal box

656.0924-000	16 (2 x 8)	4 x16/32A	Omnia industrial switch sockets	365	332	290	10 600.00
656.0926-000	16 (2 x 8)	6 x16/32A	Optima industrial socket outlets	365	332	290	10 600.00

MBOX3 distribution assemblies (supplied with door for socket compartment)

- Supplied with door for socket compartment
- Incorporates extremely low consumption LED light connected to a daylight sensor (*for improved visibility at night or in areas with poor light*)

657.0936-000	39 (3 x 13)	6 x16/32A	Omnia industrial switch sockets	520	465	380	15 800.00
657.0938-000	39 (3 x 13)	9 x16/32A	Optima industrial socket outlets	520	465	380	15 800.00

MBOX5 distribution assemblies (supplied with door for socket compartment)

- Supplied with door for socket compartment
- Internal frame to accept 4 x Omnia switch sockets with facilities to mount an additional 8 surface
- Supplied with incoming terminal blocks (5 x 16 mm² + 5 x 35 mm²)
- Incorporates extremely low consumption LED light connected to a daylight sensor (*for improved visibility at night or in areas with poor light*)

658.0950-000	52 (4 x 13)	12 x16/32A	Omnia industrial switch sockets	670	775	400	22 400.00
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Accessories for MBOX distribution assemblies

			for enclosure	
654.0051	cable support kit (<i>to wind feeder cable on rear of enclosure</i>)		MBOX2	162.00
654.0024	wall	mounting bracket for enclosures	MBOX2/3/5	189.00
655.46090	pole	mounting bracket for enclosures	MBOX2	2 410.00
655.32090	pole	mounting bracket for enclosures	MBOX3/5	2 230.00
657.0121	trestle	metal support trestle for enclosures	MBOX3/5	8 810.00

• Characteristic of MBOX2

- 01** Compartment for sockets and protection
- 02** Can be equipped with OMNIA / OPTIMA sockets
- 03** Enclosure in shockproof and self extinguishing material
- 04** Possibility of emergency button
- 05** 16 way (2 x 8) consumer unit
- 06** Protection window/door
- 07** Integrated tilting handle



Residential switches & sockets

 136.5121-303	Unibox series - Surface mounting IP55								
	- Housing: Thermoplastic (RAL 7035) (grey) - Impact resistance: IK06 (500g with a striking energy of 1J) - Max. temperature: +60°C - Standards: EN 60670-1								
	type	amps	poles	description	dimensions (mm) (H) (W) (D)			price	
	Unibox series - Surface mounting IP55								
	1 gang surface mount switches								
	136.5121-303	16A	1P	1-way surface mount switch	82	68	66	184.00	
	136.5121-302	20A	2P	1-way surface mount switch	82	68	66	282.00	
	136.5121-323	16A	1P	2-way surface mount switch	82	68	66	207.00	
	136.5121-333	16A	1P	bell-push (momentary action)	82	68	66	207.00	
	2 gang surface mount switches								
136.5122-303	16A	2P	2 x 1-pole surface mount switch	82	68	66	283.00		
136.5122-414	15A	2P+E	2-pole + earth socket only	82	68	66	347.00		
3 gang surface mount switches									
136.5123-303	16A	3P	3 x 1-pole surface mount switch	82	98	66	384.00		
Surface mount switch socket									
136.5123-414	15A	2P+E	switch socket outlet	82	98	66	397.00		
Accessories for Unibox series									
136.5121	1 gang	surface mount empty housing only (IP55)		82	68	66	122.00		
136.5122	2 gang	surface mount empty housing only (IP55)		82	68	66	122.00		
136.5123	3 gang	surface mount empty housing only (IP55)		82	98	66	185.00		
136.001	—	external mount brackets for surface boxes				(10 pcs)	27.60		
570.5052*	2 gang	panel mount housing for switches or sockets		82	68	—	167.00		
570.6001*	2 gang	panel mnt housing (IP66 with plug inserted)		107	84	—	263.00		
136.5023	3 gang	flush mnt housing for switches or sockets		82	98	—	201.00		
875.4303	3 gang	wall box for flush mount empty housing		82	98	—	15.00		
* Fits into housing for industrial sockets with 70 x 87 mm flange									
 136.5122-303	Evolution series - Switches and sockets for above boxes								
	101.6303.G	16 A	1-pole	on/off switch for housings	(1 module)			67.00	
	101.6311.G	16 A	2-pole	changeover switch (I-O-II)	(1 module)			120.00	
	101.6403.G	16A	2P+E	Italian socket for housings	(1 module)			69.00	
	101.6414.G	15A	2P+E	SA socket for housings	(2 module)			182.00	
	101.6407.G	16A	2P+E	German socket for housings	(2 module)			140.00	
	DIN rail mount support for Evolution switches and sockets								
	654.0091	support	rail mnt support for above switches/sockets			(1 module)			21.60
	654.0092	support	rail mnt support for above switches/sockets			(2 module)			26.40
	 136.5123-303	Protecta series - Switches and sockets IP66							
- Housing: Thermoplastic (halogen free) RAL 7035 (grey) - Mounting: Surface mount (can be flush mounted) - Max temperature: +60°C - Glow wire test: 850°C / IK07									
1 gang surface mount switches									
137.5012		20A	1P	surface mount switch	95	95	—	369.00	
137.5462		20A	2P	surface mount switch	95	95	—	465.00	
137.5212		20A	1P	2 way surface mnt switch	95	95	—	453.00	
137.5311P		10A	1P	bell-push(momentary action)	95	95	—	329.00	
2 gang surface mount switches									
137.5022		20A	2P	surface mount switch	95	95	—	513.00	
Accessories for above Protecta switches									
137.101	surface	surface mount back box for above switches		95	95	—	69.00		
137.141	pole	pole mount back box for above switches		95	95	—	173.00		
137.002	cover	IP66 cover accepts 2 x evolution (modules)		—	—	—	267.00		
137.121	flush	flush mount frame kit for above switches		95	95	—	87.00		
137.123	flush	flush mount frame kit for above sockets		115	115	—	108.00		
 136.5123-414									
 101.6303.G									
 101.6414.G									
 137.5012									
 137.5022									

Above ZAR prices do not include VAT. E&OE

I-10

Weatherproof plugs & sockets



46.031.4553.1



46.032.4553.1



96.031.4253.1



96.051.5053.1



96.052.5053.1



96.031.4554.3



96.032.4554.3



97.051.4053.1



25.567.5653.0

RST connectors are an ideal solution to providing pluggable connections to products able to withstand severe conditions, the connectors easily replace conventional cable glands providing a flexible, pluggable solution.

- Rapid mounting through ease of handling
- UV-resistant (*Polymide - Halogen free*)
- Cross-sections up to 6 mm²
- Protection degree: IP65, IP66, IP67, IP68, IP69K
- Colour: Black

type	current (A)	No. poles	for cable (Ø mm)	wire (mm²)	description	panel hole Ø	price
RST MINI Twistlock technology			250V				
RST 16i3 16A 3-pole							
46.031.4553.1	16A	3-pole	5 - 9.5	.25 - 2.5	in-line female connector	—	172.00
46.032.4553.1	16A	3-pole	5 - 9.5	.25 - 2.5	in-line male connector	—	172.00
46.031.5053.1	16A	3-pole	—	.25 - 2.5	panel mnt female connector	M16	152.00
46.032.5053.1	16A	3-pole	—	.25 - 2.5	panel mount male connector	M16	152.00
46.030.1253.1	16A	3-pole	—	—	1in / 2out distribution block	—	391.00
06.563.8953.1	16A	3-pole	protection cover for above 3-pole male connectors			—	46.00
06.563.8753.1	16A	3-pole	protection cover for above 3-pole female connectors			—	46.00
RST 16i5 16A 5-pole							
46.051.4553.1	16A	5-pole	5 - 9.5	.25 - 2.5	in-line female connector	—	297.00
46.052.4553.1	16A	5-pole	5 - 9.5	.25 - 2.5	in-line male connector	—	297.00
46.051.5053.1	16A	5-pole	—	.25 - 2.5	panel mnt female connector	M20	249.00
46.052.5053.1	16A	5-pole	—	.25 - 2.5	panel mount male connector	M20	249.00
46.050.1253.1	16A	5-pole	—	—	1in / 2out distribution block	—	512.00
06.562.5853.1	16A	3/5-pole	mounting base for above 3/5-pole distribution blocks			—	53.00
06.563.9353.1	16A	5-pole	protection cover for above 5-pole male connectors			—	49.00
06.563.9153.1	16A	5-pole	protection cover for above 5-pole female connectors			—	49.00
RST 20i3			20A 3-pole		250V		
96.031.4053.1	20A	3-pole	6 - 10	.75 - 6.0	in-line female connector	—	186.00
96.031.4153.1	20A	3-pole	10 - 14	.75 - 6.0	in-line female connector	—	210.00
96.032.4053.1	20A	3-pole	6 - 10	.75 - 6.0	in-line male connector	—	210.00
96.032.4153.1	20A	3-pole	10 - 14	.75 - 6.0	in-line male connector	—	210.00
96.031.5053.1	20A	3-pole	—	.75 - 6.0	panel mnt female connector	M25	157.00
96.032.5053.1	20A	3-pole	—	.75 - 6.0	panel mount male connector	M25	177.00
RST 20i5 20A 5-pole							
96.051.4153.1	20A	5-pole	10 - 14	.75 - 4.0	in-line female connector	—	308.00
96.052.4153.1	20A	5-pole	10 - 14	.75 - 4.0	in-line male connector	—	346.00
96.051.4353.1	20A	5-pole	10 - 14	.75 - 1.5	female splitter connector	—	720.00
96.051.5053.1	20A	5-pole	—	.75 - 4.0	panel mnt female connector	M25	293.00
96.052.5053.1	20A	5-pole	—	.75 - 4.0	panel mount male connector	M25	293.00
96.031.4253.1	20A	3/5-pole	6 - 10	.75 - 2.5	female splitter connector	—	468.00
96.031.4353.1	20A	3/5-pole	10 - 14	.75 - 2.5	female splitter connector	—	468.00
01.006.1553.1	20A	3/5-pole	mounting plate for 20A 3/5-pole splitter connectors			—	110.00
RST 25i3			32A (using 6 mm² cable)		PV applications		
96.031.4554.3	32A	3-pole	10 - 14	.75 - 6.0	in-line female connector	—	257.00
96.032.4554.3	32A	3-pole	10 - 14	.75 - 6.0	in-line male connector	—	257.00
96.031.5054.3	32A	3-pole	—	.75 - 6.0	panel mnt female connector	M25	175.00
96.032.5054.3	32A	3-pole	—	.75 - 6.0	panel mount male connector	M25	175.00
RST 50i5			50A 5-pole		power series		
97.051.4053.1	50A	5-pole	15 - 25	4.0 - 16.0	in-line female connector	M32	1 130.00
97.052.4053.1	50A	5-pole	15 - 25	4.0 - 16.0	in-line male connector	M32	1 130.00
97.051.5553.1	50A	5-pole	—	4.0 - 16.0	panel mnt female connector	M32	901.00
97.052.5553.1	50A	5-pole	—	4.0 - 16.0	panel mount male connector	M32	901.00
Accessories for RST20/25/50 connectors							
05.564.8653.1	20/32A	—	manual disconnect tool (easy release button)			—	15.90
05.568.8853.1	20/32A	—	spacer ring (manually actuated) for M25 connectors			M25	20.80
99.416.6205.2	20/32A	3-pole	protection cover for 20/32A 3-pole female connector			—	114.00
99.414.6205.2	20/32A	3-pole	protection cover for 20/32A 3-pole male connector			—	114.00
99.532.0000.7	20/32A	5-pole	protection cover for 20/32A 5-pole female connector			—	141.00
99.530.0000.7	20/32A	5-pole	protection cover for 20/32A 5-pole male connector			—	141.00
Z5.567.5653.0	50A	cover	protection cover for 50A male or female connectors			—	356.00

Installation connectors

	91.931.3053.0
	91.932.3053.0
	91.931.9053.0
	91.932.9053.0
	92.931.3053.1
	92.932.3053.1
	91.030.4953.0
	92.030.4853.1
	73.300.0353.0
	73.310.0353.0
	76.320.0729.0
	76.321.0753.0
	76.352.0736.1

GST series - Multipole connectors								
Rated voltage:		250V		Rated current:		16A		
Protection degree:		IP20		Colour:		White (black available on request)		
• Quick, easy and reliable connection technology with Integrated locking device								
type	current (A)	No. poles	for cable (Ø mm)	wire (mm²)	description		panel hole Ø	price
GST 15i3 (Gesis mini) connectors 16A/250V								
In-line connectors (with strain relief)				screw connection				
91.921.3053.0	16A	2 pole	5.5 - 8.5	0.5 - 1.5	female in-line connector			83.00
91.922.3053.0	16A	2 pole	5.5 - 8.5	0.5 - 1.5	male in-line connector			77.00
91.931.3053.0	16A	3-pole	5.5 - 8.5	0.5 - 1.5	female in-line connector			116.00
91.932.3053.0	16A	3-pole	5.5 - 8.5	0.5 - 1.5	male in-line connector			108.00
91.931.9053.0	16A	3-pole	—	0.5 - 1.5	flush female p/mnt connector			73.00
91.931.9153.0	16A	3-pole	—	0.5 - 1.6	protruding female p/mnt conn.			73.00
91.932.9053.0	16A	3-pole	—	0.5 - 1.5	flush male p/mnt connector			65.00
91.932.9153.0	16A	3-pole	—	0.5 - 1.6	protruding male p/mnt conn.			65.00
GST 18i3 (Gesis) connectors 16A/250V								
In-line connectors (with strain relief)				screw connection				
92.931.3053.0	16A	3-pole	6.5 - 10.5	0.75 - 2.5	female in-line connector			101.00
92.932.3053.0	16A	3-pole	6.5 - 10.5	0.75 - 2.5	male in-line connector			87.00
Panel mounting (snap-in) spring-loaded screwless connection								
92.031.9658.0	16A	3-pole	—	0.75 - 2.5	female panel mount connector			67.00
92.032.9658.0	16A	3-pole	—	0.75 - 2.5	male panel mount connector			62.00
Accessories for GST connectors								
91.030.6053.0	16A	3-pole	1 in / 2 out distribution unit for GST15i connectors					315.00
91.030.4953.0	16A	3-pole	1 in / 3 out distribution unit for GST15i connectors					359.00
91.030.5853.0	16A	3-pole	U-type intermediate coupling for GST 15i connectors					309.00
91.030.5953.0	16A	3-pole	in-line intermediate coupling for GST 15i connectors					159.00
92.030.4853.0	16A	3-pole	1 in / 3 out distribution unit for GST18i connectors					178.00
92.030.5958.0	16A	3-pole	in-line intermediate coupling for GST 18i connectors					86.00
05.587.3156.0	lock	—	locking device for in-line connectors					23.30
05.561.3653.0	cover	—	protection cover for GST18i female connectors					32.50
Revos MINI - industrial multipole connectors								
Protection degree:		IP65 (when used with appropriate cable gland)						
type	current (A)	No. poles	rated voltage	connect type	cable inlet	description		price
• Set is made up with - contact inserts (male and female) - base - hood								
Revos MINI				10A/400V				
Contact inserts		Screw connection - (cables 0.5 - 2.5 mm²)						
73.310.0353.0	10A	3p + 1	400 V	screw	—	male insert - screw terminal		182.00
73.310.0453.0	10A	4p + 1	400 V	screw	—	male insert - screw terminal		225.00
73.300.0353.0	10A	3p + 1	400 V	screw	—	female insert - screw terminal		179.00
73.300.0453.0	10A	4p + 1	400 V	screw	—	female insert - screw terminal		252.00
Crimp connection - (crimp contacts to be ordered separately)								
73.710.0753.0	10A	7p + 1	250 V	crimp	—	male insert - for crimp pins		77.00
73.710.0853.0	10A	8 pole	50 V	crimp	—	male insert - for crimp pins		78.00
05.544.1029.0	10A	—	250 V	crimp	.75 - 1.5 mm²	male crimp contact pins		12.30
73.700.0753.0	10A	7p + 1	250 V	crimp	—	female insert - for crimp pins		73.00
73.700.0853.0	10A	8 pole	50 V	crimp	—	female insert - for crimp pins		74.00
02.124.1029.0	10A	—	250 V	crimp	.75 - 1.5 mm²	female crimp contact pins		12.90
Bases		with locking lever for hood connection						
76.320.0729.0	metal	3/4/7/8		open	straight	base for contact inserts		162.00
76.321.0729.0	metal	3/4/7/8		open	90°	angled base for cont. inserts		254.00
76.320.0753.0	plastic	3/4/7/8		open	straight	base for contact inserts		112.00
76.321.0753.0	plastic	3/4/7/8		open	90°	angled base for cont. inserts		222.00
Hoods		with threaded collar to accept M20 cable glands						
76.352.0736.1	metal	3/4/7/8		M20	straight	hood for contact inserts		155.00
76.350.0736.1	metal	3/4/7/8		M20	90°	angled hood for cont. inserts		253.00
76.352.0760.1	plastic	3/4/7/8		M20	straight	hood for contact inserts		113.00
76.350.0760.1	plastic	3/4/7/8		M20	90°	angled hood for cont. inserts		129.00

Heavy duty multi-pole connectors



Revos BASIC - Industrial multipole connectors

Heavy duty connectors for use in tough environment conditions. Used in the automotive industry, packaging, instrumentation, control and automation equipment.

They permit simple, time-saving installation of machinery and equipment, providing effective protection against mechanical impact, water and dust entry.

- Rated voltage: 690V
- Rated current: 10/16A
- Protection degree: *Supplied without gland (IP65 when used with appropriate cable gland)*



Scan to watch video



type	current (A)	No. poles	rated voltage	connect type	cable inlet	size	description	price
Contact inserts Fit into all revos bases and hoods to make up a complete connector.								
Revos BASIC Standard contact inserts with screw termination - 6/10/16/24/32/48 pole + earth								
• Connector set is made up with - contact inserts (<i>male and female</i>) - base - hood								
Screw terminal (<i>with wire protection</i>) (for cables 0.5 - 2.5 mm ²)								
70.310.0640.0	16A	6p+ $\frac{1}{2}$	690V	screw	—	6	male insert - screw term.	179.00
70.310.1040.0	16A	10p+ $\frac{1}{2}$	690V	screw	—	10	male insert - screw term.	213.00
70.310.1640.0	16A	16p+ $\frac{1}{2}$	690V	screw	—	16	male insert - screw term.	276.00
70.310.2440.0	16A	24p+ $\frac{1}{2}$	690V	screw	—	24	male insert - screw term.	344.00
70.310.3253.0	16A	32p+ $\frac{1}{2}$	690V	screw	—	32	male insert - screw term.	619.00
70.310.4840.0	16A	48p+ $\frac{1}{2}$	690V	screw	—	48	male insert - screw term.	708.00
70.300.0640.0	16A	6p+ $\frac{1}{2}$	690V	screw	—	6	female insert - screw term.	182.00
70.300.1040.0	16A	10p+ $\frac{1}{2}$	690V	screw	—	10	female insert - screw term.	216.00
70.300.1640.0	16A	16p+ $\frac{1}{2}$	690V	screw	—	16	female insert - screw term.	280.00
70.300.2440.0	16A	24p+ $\frac{1}{2}$	690V	screw	—	24	female insert - screw term.	349.00
70.300.3253.0	16A	32p+ $\frac{1}{2}$	690V	screw	—	32	female insert - screw term.	627.00
70.300.4840.0	16A	48p+ $\frac{1}{2}$	690V	screw	—	48	female insert - screw term.	715.00
Push-in termination contact inserts								
New push-in technology allows flexible conductors with ferrules to be simply and quickly connected without the use of tools. Simply push-in the wire conductor for a high contact quality, reliable, gas-tight, vibration proof connection.								
• Extremely quick connection time - (<i>cables are simply withdrawn by pressing a release button</i>)								
70.415.0653.0	16A	6p+ $\frac{1}{2}$	690V	push-in	—	6	male insert - push-in term.	205.00
70.415.1053.0	16A	10p+ $\frac{1}{2}$	690V	push-in	—	10	male insert - push-in term.	263.00
70.415.1653.0	16A	16p+ $\frac{1}{2}$	690V	push-in	—	16	male insert - push-in term.	320.00
70.415.2453.0	16A	24p+ $\frac{1}{2}$	690V	push-in	—	24	male insert - push-in term.	464.00
70.405.0653.0	16A	6p+ $\frac{1}{2}$	690V	push-in	—	6	female insert - push-in term.	212.00
70.405.1053.0	16A	10p+ $\frac{1}{2}$	690V	push-in	—	10	female insert - push-in term.	270.00
70.405.1653.0	16A	16p+ $\frac{1}{2}$	690V	push-in	—	16	female insert - push-in term.	336.00
70.405.2453.0	16A	24p+ $\frac{1}{2}$	690V	push-in	—	24	female insert - push-in term.	492.00
Revos DD High density contact inserts for crimp contacts - 24/42/72/108 poles								
High contact density in the most compact housing. Connection is made with proven turned crimp contacts.								
• Crimp connection - (<i>crimp contact pins to be ordered separately - see below</i>)								
• Connector set is made up with - contact inserts and crimp contact pins (<i>male and female</i>) - base - hood								
73.810.2453.0	10A	24p+ $\frac{1}{2}$	250V	crimp	—	6	male insert - for crimp pins	336.00
73.810.4253.0	10A	42p+ $\frac{1}{2}$	250V	crimp	—	10	male insert - for crimp pins	392.00
73.810.7253.0	10A	72p+ $\frac{1}{2}$	250V	crimp	—	16	male insert - for crimp pins	401.00
73.810.0853.0	10A	108p+ $\frac{1}{2}$	250V	crimp	—	24	male insert - for crimp pins	423.00
73.800.2453.0	10A	24p+ $\frac{1}{2}$	250V	crimp	—	6	female insert - for crimp pins	338.00
73.800.4253.0	10A	42p+ $\frac{1}{2}$	250V	crimp	—	10	female insert - for crimp pins	395.00
73.800.7253.0	10A	72p+ $\frac{1}{2}$	250V	crimp	—	16	female insert - for crimp pins	403.00
73.800.0853.0	10A	108p+ $\frac{1}{2}$	250V	crimp	—	24	female insert - for crimp pins	426.00
Crimp contacts for Revos DD contact inserts (cables 0.75 - 1 mm ²)								price (ea)
05.544.4329.8	10A	—	250 V	0.75 - 1 mm ²	—	—	male crimp contact pins	12.90
02.125.4329.8	10A	—	250 V	0.75 - 1 mm ²	—	—	female crimp contact pins	14.10
05.544.4429.8	10A	—	250 V	1.5 mm ²	—	—	male crimp contact pins	12.90
02.125.4429.8	10A	—	250 V	1.5 mm ²	—	—	female crimp contact pins	14.10
Accessories for contact inserts								
95.101.0800.0	tool	—	—	crimp	—	—	crimping tool for crimp contact pins	1 630.00
05.502.2100.0	die	—	—	crimp	—	—	die set for crimping contact pins	2 780.00
05.502.3100.0	pos.	—	—	crimp	—	—	contact pin positioner for crimping tool	1 680.00
05.502.0710.0	tool	—	—	—	—	—	extraction tool for removing crimp contact pins from contact inserts	586.00

Heavy duty multi-pole connectors

continued... Revos - Industrial multipole connectors

- Set is made up with - contact inserts (*male and female*) - base - hood

type	locking lever	gland entry	cable inlet	size	description	price
Bases (housings) (diecast aluminium)						
Panel mount (open bottom base - no cover)						
Single locking lever						
70.320.0628.0	single	open	straight	6	bulkhead mounting base	312.00
71.320.1028.0	single	open	straight	10	bulkhead mounting base	410.00
71.320.1628.0	single	open	straight	16	bulkhead mounting base	429.00
71.320.2428.0	single	open	straight	24	bulkhead mounting base	480.00
70.320.4828.0	single	open	straight	48	bulkhead mounting base	1 630.00
Double locking lever						
70.320.1028.0	double	open	straight	10	bulkhead mounting base	448.00
70.320.1628.0	double	open	straight	16	bulkhead mounting base	462.00
70.320.2428.0	double	open	straight	24	bulkhead mounting base	512.00
70.320.3228.0	double	open	straight	32	bulkhead mounting base	932.00
Surface mount (closed bottom base) metric threaded side cable gland entry						
Single locking lever						
70.331.0635.1	single	M20	side	6	side entry surface mount base	451.00
71.331.1035.1	single	M20	side	10	side entry surface mount base	560.00
71.331.1635.1	single	M25	side	16	side entry surface mount base	571.00
71.331.2435.1	single	M25	side	24	side entry surface mount base	644.00
70.344.4835.1	single	M40	side	48	side entry surface mount base	4 350.00
Double locking lever						
70.331.1035.1	double	M20	side	10	side entry surface mount base	596.00
70.331.1635.1	double	M25	side	16	side entry surface mount base	604.00
70.331.2435.1	double	M25	side	24	side entry surface mount base	673.00
Hoods (with studs to receive locking lever on bases) (diecast aluminium)						
Lateral cable entry (side entry) metric threaded cable gland entry						
Single locking lever						
70.350.0635.1	single	M20	side	6	lateral cable gland entry hood	249.00
71.350.1035.1	single	M20	side	10	lateral cable gland entry hood	341.00
71.350.1635.1	single	M25	side	16	lateral cable gland entry hood	342.00
71.350.2435.1	single	M25	side	24	lateral cable gland entry hood	398.00
70.350.4835.1	single	M32	side	48	lateral cable gland entry hood	1 800.00
Double locking lever						
70.350.1035.1	double	M20	side	10	lateral cable gland entry hood	341.00
70.350.1635.1	double	M25	side	16	lateral cable gland entry hood	342.00
70.350.2435.1	double	M25	side	24	lateral cable gland entry hood	398.00
70.350.3235.1	double	M32	side	32	lateral cable gland entry hood	1 230.00
Top cable entry metric threaded cable gland entry						
Single locking lever						
70.352.0635.1	single	M20	top	6	top cable gland entry hood	249.00
71.352.1035.1	single	M20	top	10	top cable gland entry hood	341.00
71.352.1635.1	single	M25	top	16	top cable gland entry hood	342.00
71.352.2435.1	single	M25	top	24	top cable gland entry hood	398.00
70.352.4835.1	single	M32	top	48	top cable gland entry hood	1 800.00
Double locking lever						
70.352.1035.1	double	M20	top	10	top cable gland entry hood	341.00
70.352.1635.1	double	M25	top	16	top cable gland entry hood	342.00
70.352.2435.1	double	M25	top	24	top cable gland entry hood	398.00
70.352.3235.1	double	M32	top	32	top cable gland entry hood	1 230.00
With locking levers (for in-line cable-to-cable connection)						
70.372.0635.1	single	M20	top	6	locking levers for cable to cable	331.00
71.372.1035.1	single	M20	top	10	locking levers for cable to cable	482.00
71.372.1635.1	single	M25	top	16	locking levers for cable to cable	522.00
71.372.2435.1	single	M25	top	24	locking levers for cable to cable	691.00



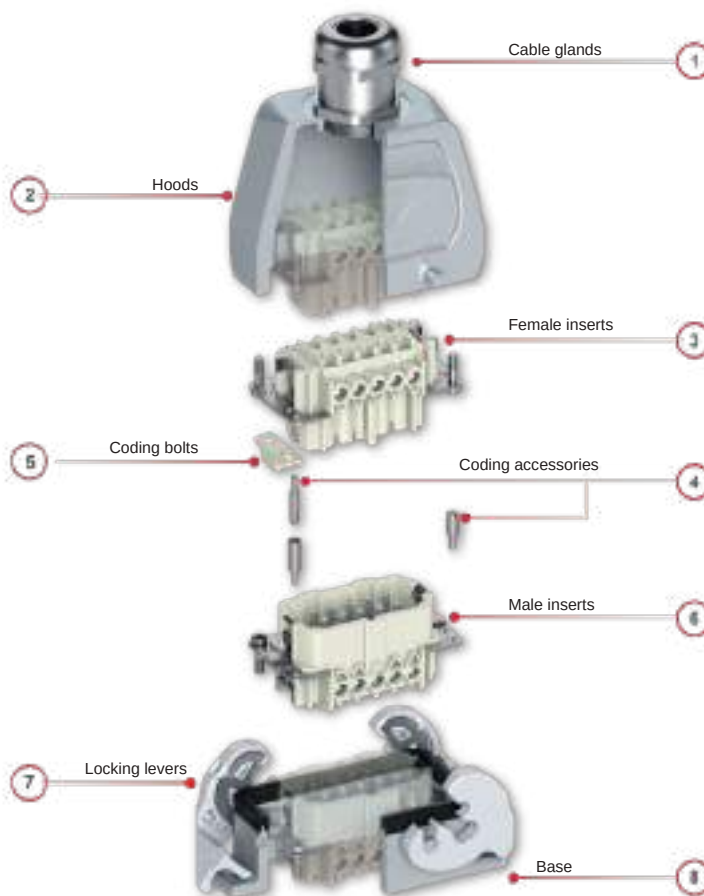
Connector protection covers

Protective covers for Revos housings

type	size	locking lever	for	gasket	description	price
Covers without locking levers for bases						
07.417.6753.0	mini	single	male	no	protection cover for bases	38.00
07.409.7056.0	6	single	base	no	protection cover for bases	74.00
07.428.5553.0	10	single	base	no	protection cover for bases	130.00
07.428.5653.0	16	single	base	no	protection cover for bases	145.00
07.428.5753.0	24	single	base	no	protection cover for bases	167.00
07.409.7156.0	10	double	base	no	protection cover for bases	85.00
07.409.7256.0	16	double	base	no	protection cover for bases	95.00
07.409.7356.0	24	double	base	no	protection cover for bases	109.00
Z7.419.6228.0	32	double	base	no	protection cover for bases	477.00
Covers with locking levers for hoods						
07.417.6853.0	mini	single	female	yes	protection cover for hoods	53.00
Z7.428.1153.0	6	single	hood	yes	protection cover for hoods	325.00
Z7.428.5553.0	10	single	hood	yes	protection cover for hoods	389.00
Z7.428.5653.0	16	single	hood	yes	protection cover for hoods	392.00
Z7.428.5753.0	24	single	hood	yes	protection cover for hoods	452.00
Z7.428.1253.0	10	double	hood	yes	protection cover for hoods	389.00
Z7.428.1353.0	16	double	hood	yes	protection cover for hoods	392.00
Z7.428.1453.0	24	double	hood	yes	protection cover for hoods	452.00
Z7.419.6128.0	32	double	hood	yes	protection cover for hoods	732.00

• **Revos** - Industrial multipole connector

– General configuration:



Photovoltaic connectors



Photovoltaic connectors

Solar PV connectors are manufactured in high quality materials offering extremely high impact strength and chemical resistance with excellent UV and weather properties guaranteeing long-term stability and reliability, lower contact resistance and higher current transfer capability ensuring high product efficiency.

- TUV approved and quick and easy to install
- Stable connection reducing maintenance cost
- Protection class IP67/IP68 suitable for harsh outdoor environments

type	for cable mm ²	DC Volts IEC 62852	Amps	cable outer dia (mm)	male	female	description	price
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PVBN series - In-line connectors 1500V IP68

Rated voltage: IEC1500V / UL 2000V
 Ambient temperature: -40°C...+90°C
 Protection degree: IP68 (IEC 60529)
 Rated Impulse Voltage: 16 kV
 Contact/Insulation material: Tin plated Copper/PC
 Locking system: NEC locking type *(requires a tool to open connector)*
 Fire protection: UL94-V 0
 Certification: IEC 62852; UL 6703

- Supplied individually - complete with insulated housing and open crimp contacts

PVBN101A-F2-M	4.0/6.0	1500 V	35A	5.6...6.9	•		male solar coupler	16.20
PVBN101A-F2-F	4.0/6.0	1500 V	35A	5.6...6.9		•	female solar coupler	16.20

SY-CP series - Panel mount connectors 1000V (mounts through M12 panel hole)

Rated voltage: IEC 1000V / UL 600V
 Ambient temperature: -40°C...+90°C
 Protection degree: IP68 (IEC 60529)
 Contact material: Tin plated copper
 Fire protection: UL94-V0
 Certification: IEC 62852; UL 6703

- Supplied individually - complete with insulated housing and open crimp contacts

SY-CP4A-M	4.0/6.0	1000 V	30A	5.6...6.9	•		male p/mount connector	19.20
SY-CP4A-F	4.0/6.0	1000 V	30A	5.6...6.9		•	female p/mnt connector	19.20

MTT series - T-branch connectors 1500V

MTT series branch connectors are suitable for solar cable 2.5 mm², 4 mm² and 6 mm² in solar connection project. Connecting solar panels in series or parallel, quickly and reliable connection of the solar cables to the photovoltaic system *(solar panels, converters)*.

MTT2AB	branch	1500 V	30A	socket	2	1	socket branch connector	177.00
	branch	1500 V	30A	plug	1	2	plug branch connector	

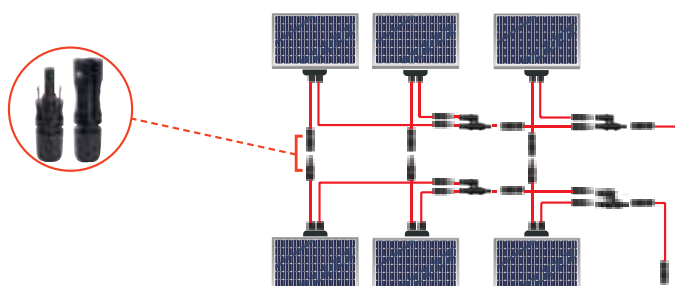
Jokari PV-strip Pro Cable stripper for solar cables / photovoltaic cables

- For stripping solar and photovoltaic cables
- Uniquely large stripping range from 1.5 - 16 mm² (16 - 6 AWG)
- Length stop can be adjusted with millimetre precision from 5 to 26 mm

30199	1.5 - 16	cable stripper for solar cables / photovoltaic cables 1.5 - 16 mm ²						648.00
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Tools and accessories for above connectors

MTHP46-M	4.0/6.0	1500 V	open end male crimping contact pins only	(ea)	6.70
MTHP46-F	4.0/6.0	1500 V	open end female crimping contact pins only	(ea)	6.70
YS-C005	sealing caps for PV connectors			(male + female pair)	20.90
THB510	open end universal spanner and unlocking tool				75.00
TB006	PV connector set in carrying case comprising:				1 740.00
	- PV crimping tool for 2.5/4/6 mm ² cables				
	- Wire cutter, wire stripper for 2.5/4/6 mm ² cables				
	- Pair open end universal spanners with unlocking too				



Battery storage connectors



Scan to watch



New



CN06-W02...



360° rotating plug

CN12-W01-120 + CN12-S02-M8



CN08-S01-M6



CN12-S02-M8

Battery storage connectors

Battery connectors can be connected in series or individually depending on specific application requirements, the connector is mounted on the front of the battery module, while connections are terminated from the rear.

Connectors can be rotated 360° and are mechanically coded to prevent polarity reversal or incorrect mating.

- Touch proof, safety, reliable
- 360° rotating plug
- Compact, robust design
- Various termination options
- Quick lock / press-to-release design
- Rated voltage: 1000 - 1500 VDC
- Operating temp: -40°C ~ +125°C
- Protection degree: IP67 (mated)
- Flammability: UL94 V-0
- Available colours: Orange, black (red available on request)

type	rated current	cable size	rated voltage	colour	Ø pin contact	termination type	description	price
Plug (right angled)			IP67 (mated)		angled 90°			
CN06-W01-16	100A	16 mm ²	1000V	orange	6 mm	crimp	angled plug	155.00
CN06-W02-16	100A	16 mm ²	1000V	black	6 mm	crimp	angled plug	155.00
CN06-W01-25	120A	25 mm ²	1000V	orange	6 mm	crimp	angled plug	155.00
CN06-W02-25	120A	25 mm ²	1000V	black	6 mm	crimp	angled plug	155.00
CN08-W01-35	150A	35 mm ²	1500V	orange	8 mm	crimp	angled plug	223.00
CN08-W02-35	150A	35 mm ²	1500V	black	8 mm	crimp	angled plug	223.00
CN08-W01-50	200A	50 mm ²	1500V	orange	8 mm	crimp	angled plug	223.00
CN08-W02-50	200A	50 mm ²	1500V	black	8 mm	crimp	angled plug	223.00
CN12-W01-70	250A	70 mm ²	1500V	orange	12 mm	crimp	angled plug	435.00
CN12-W02-70	250A	70 mm ²	1500V	black	12 mm	crimp	angled plug	435.00
CN12-W01-95	300A	95 mm ²	1500V	orange	12 mm	crimp	angled plug	435.00
CN12-W02-95	300A	95 mm ²	1500V	black	12 mm	crimp	angled plug	435.00
CN12-W01-120	350A	120 mm ²	1500V	orange	12 mm	crimp	angled plug	435.00
CN12-W02-120	350A	120 mm ²	1500V	black	12 mm	crimp	angled plug	435.00

Socket (receptacle)			IP67 (mated)		front installation			
type	rated current	thread or hole Ø	rated voltage	colour	Ø pin contact	termination type	description	price
CN06-S01-LD6	120A	M6	1000V	orange	6 mm	outer thread	straight socket	124.00
CN06-S02-LD6	120A	M6	1000V	black	6 mm	outer thread	straight socket	124.00
CN06-S01-LM6	120A	M6	1000V	orange	6 mm	inner thread	straight socket	124.00
CN06-S02-LM6	120A	M6	1000V	black	6 mm	inner thread	straight socket	124.00
CN06-S01-M5	120A	M5	1000V	orange	6 mm	threaded bar	straight socket	124.00
CN06-S02-M5	120A	M5	1000V	black	6 mm	threaded bar	straight socket	124.00
CN06-S01-H25	120A	25 mm ²	1000V	orange	6 mm	crimp	straight socket	124.00
CN06-S02-H25	120A	25 mm ²	1000V	black	6 mm	crimp	straight socket	124.00
CN08-S01-LD8	200A	M8	1500V	orange	8 mm	outer thread	straight socket	186.00
CN08-S02-LD8	200A	M8	1500V	black	8 mm	outer thread	straight socket	186.00
CN08-S01-LM6	200A	M6	1500V	orange	8 mm	inner thread	straight socket	186.00
CN08-S02-LM6	200A	M6	1500V	black	8 mm	inner thread	straight socket	186.00
CN08-S01-M6	200A	M6	1500V	orange	8 mm	threaded bar	straight socket	186.00
CN08-S02-M6	200A	M6	1500V	black	8 mm	threaded bar	straight socket	186.00
CN08-S01-H50	200A	50 mm ²	1500V	orange	8 mm	crimp	straight socket	186.00
CN08-S02-H50	200A	50 mm ²	1500V	black	8 mm	crimp	straight socket	186.00
CN12-S01-LD10	350A	M10	1500V	orange	12 mm	outer thread	straight socket	339.00
CN12-S02-LD10	350A	M10	1500V	black	12 mm	outer thread	straight socket	339.00
CN12-S01-LM10	350A	M10	1500V	orange	12 mm	inner thread	straight socket	339.00
CN12-S02-LM10	350A	M10	1500V	black	12 mm	inner thread	straight socket	339.00
CN12-S01-M8	350A	M8	1500V	orange	12 mm	threaded bar	straight socket	339.00
CN12-S02-M8	350A	M8	1500V	black	12 mm	threaded bar	straight socket	339.00
CN12-S01-H120	350A	120 mm ²	1500V	orange	12 mm	crimp	straight socket	339.00
CN12-S02-H120	350A	120 mm ²	1500V	black	12 mm	crimp	straight socket	339.00

LD: Outer thread	LM: Inner thread	M: Threaded bar	H: Crimp type

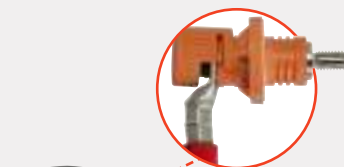
Above ZAR prices do not include VAT. E&OE

Battery storage terminals

New



LSP120-02-M6



LSP200-02-LD8



LSP400-01-LM8

Battery terminals (Bolt connector)

LSP series energy storage connectors are through-wall high-voltage connectors which provide secure and reliable connection between energy storage systems and various electrical equipment and systems. Made of high-quality materials with excellent corrosion resistance, ensuring a long service life, essential for efficient energy transmission and distribution.

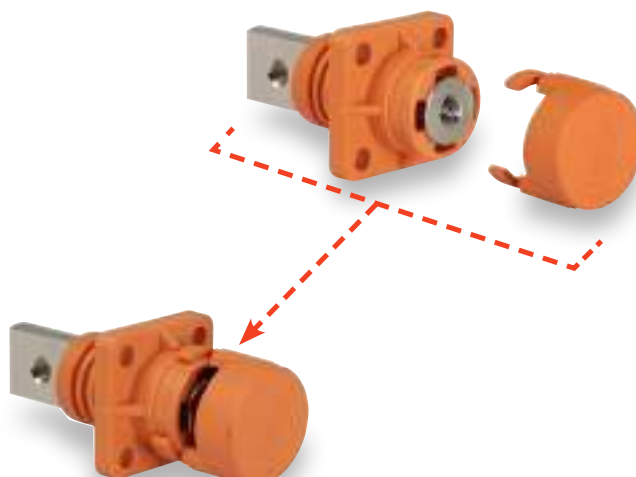
Convenient, easy to install and maintain, widely used in various industries such as renewable energy, electric vehicles and energy storage systems. An essential component for efficient energy transmission and distribution.

Termination is with a bolted cable lug and can be rotated 360°

- Touch proof, safe and reliable connection
 - Multi-directional (360° rotation) outlet
 - Robust arc resistant design
 - Polarity colour error-proof recognition
- Rated voltage: 1500 VDC
 - Dielectric strength: 3000 VDC
 - Material: PA66/T2Y silver plated copper
 - Flammability: UL94 V-0
 - Operating temperature: -40°C ~ +125°C
 - Available colours: Orange (+ positive), black (- negative)

type	rated current	cable size	rated voltage	colour	contact screw	termination type	description	price
100/120A bolt connector			16/25 mm²					
LSP120-01-M6	120A	25 mm²	1500V	orange	M6	threaded bar	bolt connector	115.00
LSP120-02-M6	120A	25 mm²	1500V	black	M6	threaded bar	bolt connector	115.00
LSP120-01-LD6	120A	25 mm²	1500V	orange	M6	outer thread	bolt connector	115.00
LSP120-02-LD6	120A	25 mm²	1500V	black	M6	outer thread	bolt connector	115.00
LSP120-01-LM6	120A	25 mm²	1500V	orange	M6	inner thread	bolt connector	115.00
LSP120-02-LM6	120A	25 mm²	1500V	black	M6	inner thread	bolt connector	115.00
150/200A bolt connector			35/50 mm²					
LSP200-01-M6	200A	50 mm²	1500V	orange	M6	threaded bar	bolt connector	158.00
LSP200-02-M6	200A	50 mm²	1500V	black	M6	threaded bar	bolt connector	158.00
LSP200-01-LD8	200A	50 mm²	1500V	orange	M8	outer thread	bolt connector	158.00
LSP200-02-LD8	200A	50 mm²	1500V	black	M8	outer thread	bolt connector	158.00
LSP200-01-LM6	200A	50 mm²	1500V	orange	M6	inner thread	bolt connector	158.00
LSP200-02-LM6	200A	50 mm²	1500V	black	M6	inner thread	bolt connector	158.00
300/400A bolt connector			70/95/120 mm²					
LSP400-01-M8	400A	120 mm²	1500V	orange	M8	threaded bar	bolt connector	287.00
LSP400-02-M8	400A	120 mm²	1500V	black	M8	threaded bar	bolt connector	287.00
LSP400-01-LD10	400A	120 mm²	1500V	orange	M10	outer thread	bolt connector	287.00
LSP400-02-LD10	400A	120 mm²	1500V	black	M10	outer thread	bolt connector	287.00
LSP400-01-LM8	400A	120 mm²	1500V	orange	M8	inner thread	bolt connector	287.00
LSP400-02-LM8	400A	120 mm²	1500V	black	M8	inner thread	bolt connector	287.00

Bolt connector (threaded bar)



Flat-blade connectors

Flat blade connectors (two pole)

REMA® flat blade contact connectors offer a cost effective, quick-disconnect DC power connector solution. Available in different colours used to differentiate the voltage types, ensuring compatibility of properly configured mating connectors according to their respective voltage.

General features:

- Housing constructed of glass fibre reinforced material for extreme durability and resistance to battery acid
- Genderless housing design (*same unit reversed plugs into opposite*)
- REMA® engineered contacts made of high grade electrolyte copper, silver plated for corrosion protection
- Different contacts with sizes epitomised for metric and AWG cable dimensions
- CE and UL 1977 certified component meets or exceeds EN 1175-1 industry standards
- In compliance with machinery directive 2006/42 EG and therefore with "CE" marking
- Accepts REMA® strain relief clamps and handles for easy intuitive assembly

type	current (A)	colour	cable connection		description		price
			AWG	eq. mm ²			
SR 50 50A connector (H) 48 x (W) 36.5 x (D) 15.9 mm							
78176-01	50A	red	AWG 8	10 mm ²	heavy duty 2 pole connector		133.00
78184-00	50A	red	AWG 6	16 mm ²	heavy duty 2 pole connector		131.00
78180-02	50A	grey	AWG 8	10 mm ²	heavy duty 2 pole connector		131.00
78180-00	50A	grey	AWG 6	16 mm ²	heavy duty 2 pole connector		129.00
78181-05	50A	black	AWG 8	10 mm ²	heavy duty 2 pole connector		131.00
78181-00	50A	black	AWG 6	16 mm ²	heavy duty 2 pole connector		129.00
SR 175 175A connector (H) 79.4 x (W) 55.6 x (D) 25.4 mm							
78234-00	175A	red	AWG 4	25 mm ²	heavy duty 2 pole connector		305.00
78235-00	175A	red	AWG 2	35 mm ²	heavy duty 2 pole connector		295.00
78236-00	175A	red	AWG 0	50 mm ²	heavy duty 2 pole connector		289.00
78220-01	175A	grey	AWG 4	25 mm ²	heavy duty 2 pole connector		259.00
78220-02	175A	grey	AWG 2	35 mm ²	heavy duty 2 pole connector		249.00
78220-00	175A	grey	AWG 0	50 mm ²	heavy duty 2 pole connector		245.00
78224-01	175A	blue	AWG 4	25 mm ²	heavy duty 2 pole connector		259.00
78224-02	175A	blue	AWG 2	35 mm ²	heavy duty 2 pole connector		249.00
78224-00	175A	blue	AWG 0	50 mm ²	heavy duty 2 pole connector		246.00
Accessories for SR 175 (above)							
78290-00	—	grey	—	—	handle for SR 175 connectors		191.00
78291-00	—	red	—	—	handle for SR 175 connectors		160.00
78010-00	—	grey	—	—	cable clamp for SR 175		166.00
SR 350 350A Connector (H) 108 x (W) 69.8 x (D) 33.3 mm							
78307-00	350A	red	AWG 0	50 mm ²	heavy duty 2 pole connector		403.00
78308-00	350A	red	AWG 00	70 mm ²	heavy duty 2 pole connector		432.00
78309-00	350A	red	AWG 000	95 mm ²	heavy duty 2 pole connector		841.00
78299-00	350A	grey	AWG 0	50 mm ²	heavy duty 2 pole connector		439.00
78300-00	350A	grey	AWG 00	70 mm ²	heavy duty 2 pole connector		468.00
78301-00	350A	grey	AWG 000	95 mm ²	heavy duty 2 pole connector		879.00
78303-00	350A	blue	AWG 0	50 mm ²	heavy duty 2 pole connector		395.00
78304-00	350A	blue	AWG 00	70 mm ²	heavy duty 2 pole connector		424.00
78304-01	350A	blue	AWG 000	95 mm ²	heavy duty 2 pole connector		836.00
Accessories for SR350 (above)							
78297-00	—	grey	—	—	handle for SR 350 connectors		184.00
78298-00	—	red	—	—	handle for SR 350 connectors		184.00
78011-00	—	grey	—	—	cable clamp for SR 350		453.00

Reduction bushings

		from to			
79840-00	reduction bushing	AWG 6	6 mm ²	cable reducing bushing	20.50
79844-00	reduction bushing	AWG 2	16 mm ²	cable reducing bushing	41.00
79846-00	reduction bushing	AWG 0	25 mm ²	cable reducing bushing	35.40
79847-00	reduction bushing	AWG 0	35 mm ²	cable reducing bushing	125.00

Recommended colour voltage coding:

Yellow: 12V - red: 24V - grey: 36V - blue: 48V



Flat-blade connectors

Flat blade connectors (single pole)

REMA® flat blade contact connectors offer a cost effective, quick-disconnect power connector solution. Available in different colours used to differentiate the voltage types, ensuring compatibility of properly configured mating connectors according to their respective voltage.

General Features

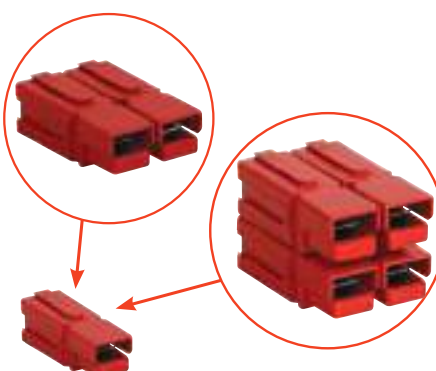
- Interlocking facility permitting multi-pole connections (2P, 3P, 4P...) in a flat horizontal or square format
- Constructed of glass fibre reinforced material for extreme durability and resistance to battery acid
- Genderless housing design (*same unit reversed plugs into opposite*)
- REMA® engineered contacts made of high grade electrolyte copper, silver plated for corrosion protection
- Different contacts with sizes optimised for metric and AWG cable dimensions
- CE and UL 1977 certified component meets or exceeds EN 1175-1 industry standards
- In compliance with machinery directive 2006/42 EG and therefore with "CE" marking

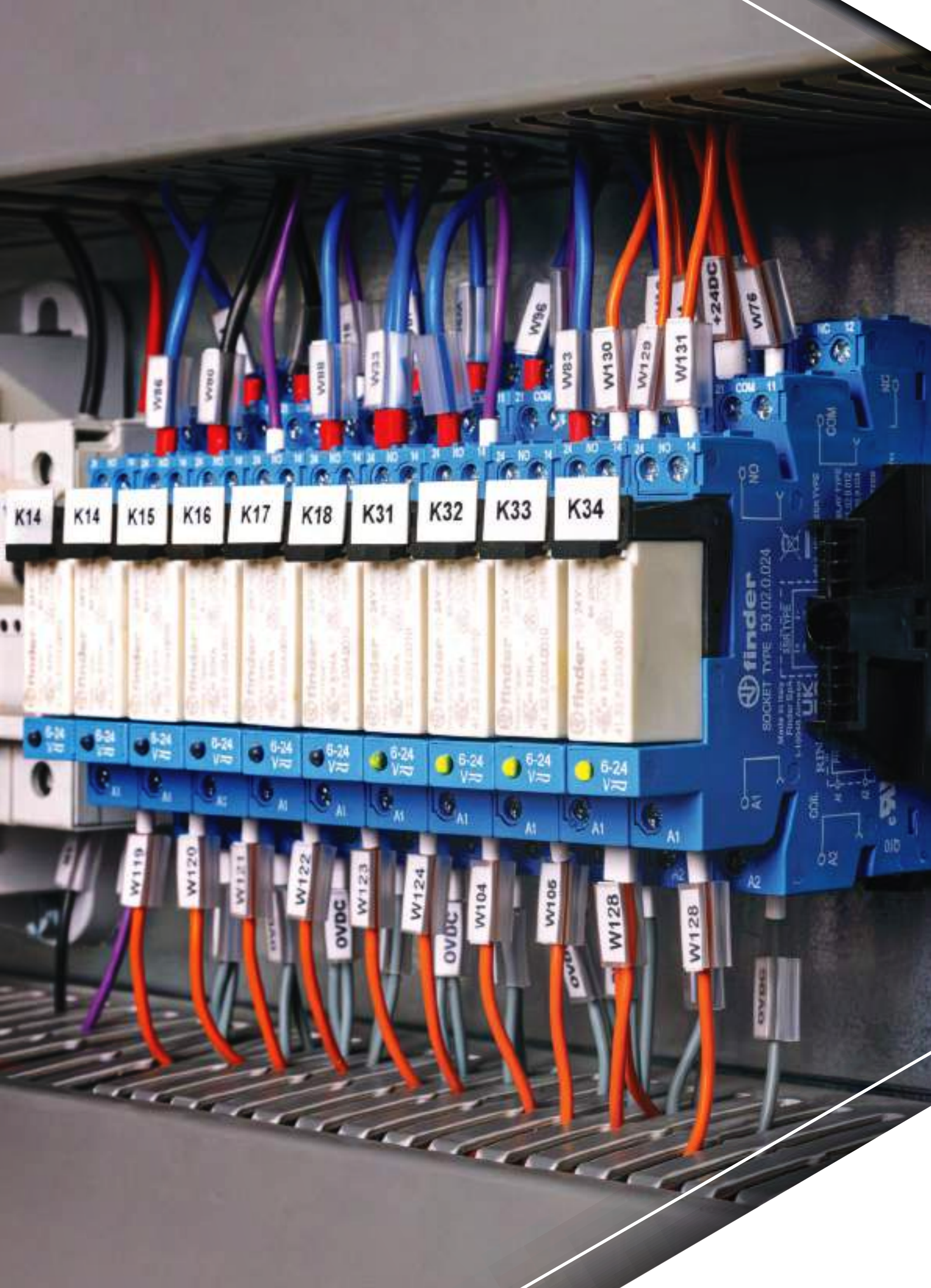
type	current (A)	colour	cable connection		description	pack qty	price (ea)
			AWG	eq. mm ²			
MC30		30A connector			(H) 41.3 x (W) 7.9 x (D) 7.9 mm		
80100-00	30A	 red	AWG 12	2.5/4 mm ²	single pole connector	100	70.00
80100-02	30A	 black	AWG 12	2.5/4 mm ²	single pole connector	100	70.00
80100-01	30A	 white	AWG 12	2.5/4 mm ²	single pole connector	100	21.20
80100-04	30A	 blue	AWG 12	2.5/4 mm ²	single pole connector	100	21.20
MC75		75A connector			(H) 81.4 x (W) 15.9 x (D) 15.9 mm		
80188-00	75A	 red	AWG 6	16 mm ²	single pole connector	50	70.00
80188-02	75A	 black	AWG 6	16 mm ²	single pole connector	50	70.00
80188-04	75A	 white	AWG 6	16 mm ²	single pole connector	50	56.00
80188-06	75A	 green	AWG 6	16 mm ²	single pole connector	50	167.00
80188-08	75A	 blue	AWG 6	16 mm ²	single pole connector	50	65.00
MC120		120A connector			(H) 117.5 x (W) 22.2 x (D) 22.2 mm		
80189-00	120A	 red	AWG 2	35 mm ²	single pole connector	25	157.00
80189-01	120A	 black	AWG 2	35 mm ²	single pole connector	25	157.00
80189-02	120A	 white	AWG 2	35 mm ²	single pole connector	25	141.00
80189-03	120A	 green	AWG 2	35 mm ²	single pole connector	25	174.00
80191-00	120A	 blue	AWG 2	35 mm ²	single pole connector	25	157.00
MC180		180A connector			(H) 139.7 x (W) 28.6 x (D) 28.6 mm		
80190-01	180A	 red	AWG 0	50 mm ²	single pole connector	25	151.00
80190-02	180A	 black	AWG 0	50 mm ²	single pole connector	25	151.00
80190-03	180A	 white	AWG 0	50 mm ²	single pole connector	25	163.00
80190-04	180A	 green	AWG 0	50 mm ²	single pole connector	25	994.00
80190-00	180A	 blue	AWG 0	50 mm ²	single pole connector	25	151.00
Reduction bushings							
			from	to			
79840-00	reduction bushing		AWG 6	6 mm ²	cable reducing bushing	ea	20.50
79844-00	reduction bushing		AWG 2	16 mm ²	cable reducing bushing	ea	41.00
79846-00	reduction bushing		AWG 0	25 mm ²	cable reducing bushing	ea	35.40
79847-00	reduction bushing		AWG 0	35 mm ²	cable reducing bushing	ea	125.00

Recommended colour voltage coding:

Red: 24V - blue: 48V - green: 72V

Interlocking facility permitting multi-pole connections





Timers & Control Relays



PCB mount
relays

J-1...2



Miniature
relays

J-3...8



Relay interface
modules

J-9...10



Modular contactors
& Relays

J-11...12



Solid-state
relays

J-13...16



Modular timing
devices

J-17/23/27/30



Protection relays &
Monitoring devices

J-18/25/31...32



Level control
relays

J-19/26



Float switches

J-20



Daylight & Time
switches

J-21/24



Analogue signal
converters

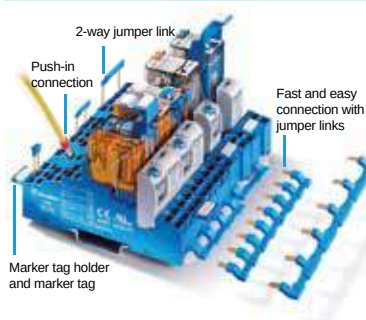
J-28



Plug-in timing &
Monitoring devices

J-33...36

PCB mount relays



PCB mount relays

type	switch current	description	contact	pin pitch (mm)	coil voltage	price
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30 series Subminiature DIL relay (11.4 x 20.3 x 10 mm)

- 2-pole changeover contacts low level switching capability - **2A**
- Sensitive DC coil - 200mW
- Wash tight: RT III

302270120010	2A	sealed DIL PCB relay	2 ch/over	5.08	12 VDC	90.00
302270240010	2A	sealed DIL PCB relay	2 ch/over	5.08	24 VDC	90.00
302270480010	2A	sealed DIL PCB relay	2 ch/over	5.08	48 VDC	110.00

32 series Subminiature low profile relay (10.7 x 20 x 10 mm)

- 1-pole changeover contacts - **6A**
- Sensitive DC coil - 200mW
- Wash tight: RT III

322170124000	6A	low profile PCB relay	1 ch/over	7.62	12 VDC	77.00
322170244000	6A	low profile PCB relay	1 ch/over	7.62	24 VDC	77.00
322170484000	6A	low profile PCB relay	1 ch/over	7.62	48 VDC	83.00

34 series Ultra-slim relay (5 mm) (15 x 28 x 5 mm)**EMR - Electromechanical relays**

- 1-pole changeover contact - **6A**
- Ultra-slim (5 mm) package
- Sensitive DC coil - 170mW
- 8 mm clearance/creepage distance
- 6kV (1.2/50 µs) insulation, coil-contacts

345170050010	6A	ultra-slim PCB relay	1 ch/over	5	5 VDC	117.00
345170120010	6A	ultra-slim PCB relay	1 ch/over	5	12 VDC	83.00
345170240010	6A	ultra-slim PCB relay	1 ch/over	5	24 VDC	83.00
345170480010	6A	ultra-slim PCB relay	1 ch/over	5	48 VDC	117.00
345170600010	6A	ultra-slim PCB relay	1 ch/over	5	60 VDC	137.00

SSR - Solid State relays *silent, high speed switching with long electrical life*

- 1-NO single circuit switching - 6A, 24 VDC / 2A, 240 VAC
- Sensitive DC input circuit
- 3.000V insulation, input-output

					operating	switching	
348170129024	6A	slim solid state relay	1 NO	8 - 17 VDC	1.5 - 33 VDC		359.00
348170249024	6A	slim solid state relay	1 NO	16 - 30 VDC	1.5 - 33 VDC		359.00
348170609024	6A	slim solid state relay	1 NO	35 - 72 VDC	1.5 - 33 VDC		383.00
348170248240	2A	slim solid state relay	1 NO	16 - 30 VDC	12 - 275 VAC		406.00
348170608240	2A	slim solid state relay	1 NO	35 - 72 VDC	12 - 275 VAC		406.00
9311	PCB-mount socket with hinged retain/release clip for 34 series relays						38.80

36 series Miniature "sugar cube" relay (15.5 x 19 x 15.2 mm)

- 1-pole changeover contact 10A (10A N/O and 5A N/C)
- DC coil - 360mW
- Wash tight: RTIII

361190124011	10A	"sugar cube" PCB relay	1 ch/over	—	12 VDC	42.00
361190244011	10A	"sugar cube" PCB relay	1 ch/over	—	24 VDC	42.00

41 series Low-profile PCB relay (15.7 x 29 x 12.6 mm)

- 1 and 2-pole changeover contact 8/12/16A
- DC coil - 400mW
- 8 mm 6kV (1.2/50 µs) insulation, coil-contacts
- Flux proof: RT II (standard)

Electromechanical relays

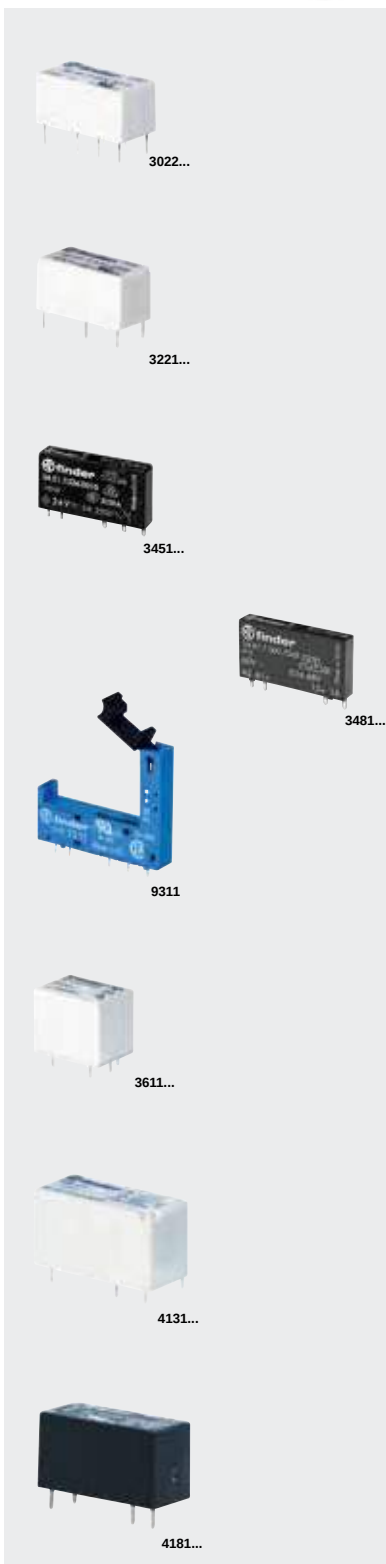
413190120010	12A	low-profile PCB relay	1 ch/over	3.5	12 VDC	73.00
413190240010	12A	low-profile PCB relay	1 ch/over	3.5	24 VDC	73.00
416190120010	16A	low-profile PCB relay	1 ch/over	5	12 VDC	76.00
416190240010	16A	low-profile PCB relay	1 ch/over	5	24 VDC	76.00
415290120010	8A	low-profile PCB relay	2 ch/over	5	12 VDC	85.00
415290240010	8A	low-profile PCB relay	2 ch/over	5	24 VDC	85.00

Solid state relays

- 1-NO single circuit switching
- Silent, high speed switching with long electrical life
- 2500 VAC insulation, input-output

					operating	switching	
418170249024	5A	solid state PCB relay	1 NO	14 - 32 VDC	1.5 - 24 VDC		412.00
418170248240	3A	solid state PCB relay	1 NO	14 - 32 VDC	12 - 275 VAC		393.00

Other voltages available on request



PCB mount relays



Control panels



Electronic circuit boards



Automation for blinds & shutters



40519...



40618...



40516...



9505SPA



ER902220

ES50CNER



4341...



9523SNA

Multi-function, suitable for a wide range of applications. Due to their versatility they are widely used in electronic circuit boards for household appliances (*refrigerators, washing machines*), electric gates, boiler control boards and similar

For applications where the size/ratio is an issue, examples include household appliances, food industry and drying kilns

type	current	description	contact	pin pitch	coil voltage	price
40 series Miniature PCB relays (25 x 29 x 12.4 mm)						
8 mm, 6kV (1.2/50µs) isolation, coil-contacts - Flux proof: RT II (<i>standard</i>)						
405180120000	10A	miniature PCB relay	1 ch/over	5 mm	12 VAC	83.00
405180240000	10A	miniature PCB relay	1 ch/over	5 mm	24 VAC	83.00
405180480000	10A	miniature PCB relay	1 ch/over	5 mm	48 VAC	94.00
405181100000	10A	miniature PCB relay	1 ch/over	5 mm	110 VAC	108.00
405182400000	10A	miniature PCB relay	1 ch/over	5 mm	240 VAC	136.00
405190120000	10A	miniature PCB relay	1 ch/over	5 mm	12 VDC	60.00
405190240000	10A	miniature PCB relay	1 ch/over	5 mm	24 VDC	60.00
405190360000	10A	miniature PCB relay	1 ch/over	5 mm	36 VDC	80.00
405190480000	10A	miniature PCB relay	1 ch/over	5 mm	48 VDC	80.00
405191100000	10A	miniature PCB relay	1 ch/over	5 mm	110 VDC	92.00
406180120000	16A	miniature PCB relay	1 ch/over	5 mm	12 VAC	87.00
406180240000	16A	miniature PCB relay	1 ch/over	5 mm	24 VAC	87.00
406180480000	16A	miniature PCB relay	1 ch/over	5 mm	48 VAC	98.00
406181100000	16A	miniature PCB relay	1 ch/over	5 mm	110 VAC	111.00
406182400000	16A	miniature PCB relay	1 ch/over	5 mm	240 VAC	139.00
406190120000	16A	miniature PCB relay	1 ch/over	5 mm	12 VDC	63.00
406190240000	16A	miniature PCB relay	1 ch/over	5 mm	24 VDC	63.00
406190360000	16A	miniature PCB relay	1 ch/over	5 mm	36 VDC	82.00
406190480000	16A	miniature PCB relay	1 ch/over	5 mm	48 VDC	82.00
406191100000	16A	miniature PCB relay	1 ch/over	5 mm	110 VDC	94.00
405280120000	8A	miniature PCB relay	2 ch/over	5 mm	12 VAC	99.00
405280240000	8A	miniature PCB relay	2 ch/over	5 mm	24 VAC	99.00
405280480000	8A	miniature PCB relay	2 ch/over	5 mm	48 VAC	110.00
405281100000	8A	miniature PCB relay	2 ch/over	5mm	110 VAC	123.00
405282400000	8A	miniature PCB relay	2 ch/over	5 mm	240 VAC	146.00
405290120000	8A	miniature PCB relay	2 ch/over	5 mm	12 VDC	73.00
406290120000	10A	miniature PCB relay	2 ch/over	5 mm	12 VDC	88.00
405290240000	8A	miniature PCB relay	2 ch/over	5 mm	24 VDC	73.00
406290240000	10A	miniature PCB relay	2 ch/over	5 mm	24 VDC	88.00
405290360000	8A	miniature PCB relay	2 ch/over	5 mm	36 VDC	94.00
405290480000	8A	miniature PCB relay	2 ch/over	5 mm	48 VDC	94.00
405291100000	8A	miniature PCB relay	2 ch/over	5 mm	110 VDC	105.00
Other voltages available on request						
Other configurations: (replace 5th digit with following): (e.g.405160120000)						
6	Bistable (<i>single coil</i>) version					85.10
7	DC sensitive coil version 0.5 W					8.05
Sockets and accessories for 40 series relays					for relay	
95152SMA	PCB mount socket + retaining clip			(<i>solder</i>)	40 series	26.70
9505SPA*	surface/DIN mount socket + retaining clip			(<i>screw term</i>)	40 series	99.00
95P5SPA*	surface/DIN mount socket + retaining clip			(<i>push-in term</i>)	40 series	143.00
* Accepts plug-in LED, diode, timing modules (plugs directly into socket) see page J-8						
09518	jumper link/bridge bar for sockets			(8 way)	9505	60.00
09758	jumper link/bridge bar for sockets			(8 way)	95P5	116.00
46392/PS	sheet marking tags (mounts onto retain clip/holder)			(48 pcs)	9505/P5	91.00
09700	tag holder for 46392/PS (mounts onto socket)			(10 pcs)	9505/P5	36.40
ES50CNER	Ersce black surface/DIN mount socket			(<i>screw terminal</i>)	40 series	103.00
ER902220	spring securing/release clip for socket			(10 pcs)	ES50	112.00
ER902230	clip-on marking plate (top or bottom) for socket			(10 pcs)	ES50	73.00
43 series Low-profile slimline PCB relays (15.4 x 28.6 x 10.2 mm)						
1-pole changeover contact 10A - Very high coil-contact isolation 10 mm, 6kV (1.2/50µs) - Flux proof: RT II (<i>standard</i>)						
434170122000	10A	low profile slim PCB relay	1 ch/over	3.2 mm	12 VDC	60.00
434170242000	10A	low profile slim PCB relay	1 ch/over	3.2 mm	24 VDC	60.00
9523SNA	PCB-mount socket 43 series relay (<i>with retaining clip</i>)				4341	26.10

Miniature relays



Shipyards

Hoists &
cranesElevators
& lifts

Manual override option



46618...



46619...



46628...



9711



9702SPA



5514...

type	current	description	contact	coil voltage	price
46 series Miniature industrial plug-in relays (32.8 x 29 x 12.4 mm)					
- AC and DC coil voltages - Lockable test/override button 8 mm, 6kV (1.2/50µs) isolation, coil-contacts - Manual override facility and mechanical flag indication of relay status - Plug-in or direct connection via robust Faston terminals (1 pole 4.75 / 2-pole 2.5 mm)					
466180120040	16A	miniature plug-in relay	1 ch/over	12 VAC	135.00
466180240040	16A	miniature plug-in relay	1 ch/over	24 VAC	135.00
466180480040	16A	miniature plug-in relay	1 ch/over	48 VAC	146.00
466181100040	16A	miniature plug-in relay	1 ch/over	110 VAC	156.00
466182300040	16A	miniature plug-in relay	1 ch/over	230 VAC	189.00
466190120040	16A	miniature plug-in relay	1 ch/over	12 VDC	108.00
466190240040	16A	miniature plug-in relay	1 ch/over	24 VDC	108.00
466190480040	16A	miniature plug-in relay	1 ch/over	48 VDC	131.00
466191100040	16A	miniature plug-in relay	1 ch/over	110 VDC	145.00
465280120040	8A	miniature plug-in relay	2 ch/over	12 VAC	154.00
465280240040	8A	miniature plug-in relay	2 ch/over	24 VAC	154.00
465280480040	8A	miniature plug-in relay	2 ch/over	48 VAC	165.00
465281100040	8A	miniature plug-in relay	2 ch/over	110 VAC	176.00
465282300040	8A	miniature plug-in relay	2 ch/over	230 VAC	212.00
465290120040	8A	miniature plug-in relay	2 ch/over	12 VDC	126.00
465290240040	8A	miniature plug-in relay	2 ch/over	24 VDC	126.00
465290480040	8A	miniature plug-in relay	2 ch/over	48 VDC	150.00
465291100040	8A	miniature plug-in relay	2 ch/over	110 VDC	165.00
Other configurations replace last two digits with following: (e.g.466180120054)					
54	LED	internal LED indicator for		AC relays	26.45
74	LED	internal LED indicator for		DC relays	26.45
Sockets and accessories for 46 series relays				for relay	
9711	PCB mount relay socket (12A)		for relay	4661	56.00
9712	PCB mount relay socket		for relay	4652	70.00
9701SPA*	surface/DIN mount socket + retaining clip		(screw term)	4661	98.00
9702SPA*	surface/DIN mount socket + retaining clip		(screw term)	4652	107.00
97P1SPA*	surface/DIN mount socket + retaining clip		(push-in term)	4661	134.00
97P2SPA*	surface/DIN mount socket + retaining clip		(push-in term)	4652	146.00
* Accepts plug-in LED, diode, timing modules (plugs directly into socket) see page J-8					
04607	DIN rail mountable support bracket for relays			4661/52	44.00
09518	jumper link/bridge bar for sockets		(8 way)	9701/02	60.00
09758	jumper link/bridge bar for sockets		(8 way)	97P1/2	116.00
46392/PS	marking tags (mounts onto retain clip/holder)		(48 pcs)	970/P1/2	91.00
09700	tag holder for 46392/PS (mounts onto socket)		(10pcs)	970/P1/2	36.40
55 series Miniature industrial PCB mount relays (35.8 x 20.7 x 27.7 mm)					
PCB mount termination (55 series)					
- AC and DC coil voltages - Mounting and dedicated sockets, see J-4					
551280120000	10A	miniature PCB mount relay	2 ch/over	12 VAC	162.00
551280240000	10A	miniature PCB mount relay	2 ch/over	24 VAC	162.00
551281100000	10A	miniature PCB mount relay	2 ch/over	110 VAC	191.00
551282400000	10A	miniature PCB mount relay	2 ch/over	230 VAC	179.00
551290120000	10A	miniature PCB mount relay	2 ch/over	12 VDC	162.00
551290240000	10A	miniature PCB mount relay	2 ch/over	24 VDC	162.00
551290480000	10A	miniature PCB mount relay	2 ch/over	48 VDC	191.00
551291100000	10A	miniature PCB mount relay	2 ch/over	110 VDC	179.00
551292200000	10A	miniature PCB mount relay	2 ch/over	220 VDC	327.00
551480120000	7A	miniature PCB mount relay	4 ch/over	12 VAC	173.00
551480240000	7A	miniature PCB mount relay	4 ch/over	24 VAC	173.00
551481100000	7A	miniature PCB mount relay	4 ch/over	110 VAC	202.00
551482400000	7A	miniature PCB mount relay	4 ch/over	230 VAC	191.00
551490120000	7A	miniature PCB mount relay	4 ch/over	12 VDC	173.00
551490240000	7A	miniature PCB mount relay	4 ch/over	24 VDC	173.00
551490480000	7A	miniature PCB mount relay	4 ch/over	48 VDC	202.00
551491100000	7A	miniature PCB mount relay	4 ch/over	110 VDC	191.00
551492200000	7A	miniature PCB mount relay	4 ch/over	220 VDC	338.00

Above ZAR prices do not include VAT. E&OE

Miniature relays



Control &
management of
electric power



Panels for
electrical
distribution



Road / tunnel
lighting



55328...



55329...



9414SMA



9434SMA



9402SPA

type	current	description	contact	coil voltage	price
55 series Miniature industrial plug-in relays (37.2 x 20.7 x 27.7 mm)					
Plug-in relays (55 series)					
• 2 and 4-pole versions • AC and DC coil voltages • Plug-in or direct PCB mounting • Lockable test/override button (<i>plug-in version only</i>) • Mechanical flag indication of relay status (<i>plug-in version only</i>)					
General application:					
- Switchboard installations, industrial automation panels, auxiliary relays, interfacing relays					
2 Changeover	<i>plug-in relays</i>				
553280120040	10A	miniature plug-in relay	2 changeover	12 VAC	155.00
553280240040	10A	miniature plug-in relay	2 changeover	24 VAC	155.00
553280360040	10A	miniature plug-in relay	2 changeover	36 VAC	182.00
553280480040	10A	miniature plug-in relay	2 changeover	48 VAC	182.00
553280600040	10A	miniature plug-in relay	2 changeover	60 VAC	182.00
553281100040	10A	miniature plug-in relay	2 changeover	110 VAC	182.00
553282300040	10A	miniature plug-in relay	2 changeover	240 VAC	172.00
553290120040	10A	miniature plug-in relay	2 changeover	12 VDC	155.00
553290240040	10A	miniature plug-in relay	2 changeover	24 VDC	155.00
553290360040	10A	miniature plug-in relay	2 changeover	36 VDC	182.00
553290480040	10A	miniature plug-in relay	2 changeover	48 VDC	182.00
553290600040	10A	miniature plug-in relay	2 changeover	60 VDC	182.00
553291100040	10A	miniature plug-in relay	2 changeover	110 VDC	172.00
553292200040	10A	miniature plug-in relay	2 changeover	220 VDC	320.00
4 Changeover	<i>plug-in relays</i>				
553480120040	7A	miniature plug-in relay	4 changeover	12 VAC	165.00
553480240040	7A	miniature plug-in relay	4 changeover	24 VAC	165.00
553480360040	7A	miniature plug-in relay	4 changeover	36 VAC	194.00
553480480040	7A	miniature plug-in relay	4 changeover	48 VAC	194.00
553480600040	7A	miniature plug-in relay	4 changeover	60 VAC	194.00
553481100040	7A	miniature plug-in relay	4 changeover	110 VAC	194.00
553482400040	7A	miniature plug-in relay	4 changeover	240 VAC	175.00
553490120040	7A	miniature plug-in relay	4 changeover	12 VDC	159.00
553490240040	7A	miniature plug-in relay	4 changeover	24 VDC	159.00
553490360040	7A	miniature plug-in relay	4 changeover	36 VDC	194.00
553490480040	7A	miniature plug-in relay	4 changeover	48 VDC	194.00
553490600040	7A	miniature plug-in relay	4 changeover	60 VDC	194.00
553491100040	7A	miniature plug-in relay	4 changeover	110 VDC	182.00
553492200040	7A	miniature plug-in relay	4 changeover	220 VDC	331.00
Other configurations: replace last two digits with following: (e.g.5532801200 74)					
54	LED	internal LED indicator for		AC relays	28.75
74	LED	internal LED indicator for		DC relays	28.75

Sockets and accessories for 55 series relays

type	description	for relay	price
PCB mount			
9412SMA	2-pole PCB mount socket	(solder terminal) 5532	46.00
9414SMA	4-pole PCB mount socket	(solder terminal) 5534/32	48.00
Flange mount			
9432SMA	2-pole flange mount socket	(solder terminal) 5532	45.00
9434SMA	4-pole flange mount socket	(solder terminal) 5534	47.00
Surface/DIN mount			
9402SPA*	surface/DIN mount socket + retaining clip	(screw terminal) 5532	106.00
9404SPA*	surface/DIN mount socket + retaining clip	(screw terminal) 5534/32	119.00
94P4SPA*	surface/DIN mount socket + retaining clip	(push-in term) 5532/34	154.00
05627	DIN rail mountable support bracket for	5532/34	32.80
* Accepts plug-in LED, diode, timing modules (plugs directly into socket) see page J-8			
09406	jumper link/bridge bar for sockets	(8 way) 9402/04	57.00
09456	jumper link/bridge bar for sockets	(8 way) 94P4	82.00
09471	retaining clip for relays	(10 pcs) 94 series	43.00
46392/PS	sheet marking tags (mounts onto retain clip/holder)	(48 pcs) 940/P2/4	91.00
09700	tag holder for 46392/PS (mounts onto socket)	(10 pcs) 940/P2/4	36.40

Miniature power relays

Industrial
furnaces &
ovensIndustrial
motors

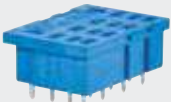
Control panels



5632...



5634...



9614SMA



9604SMA



6233...



9213SMA



9203SMA

type	current	description	contact configuration	coil voltage	price
56 series Miniature power relays (37.2 x 20.7(2-pole) 40.8(4-pole) x 27.7 mm)					
• Faston 187, 4.8 x 0.5 mm termination • Mechanical flag indication of relay status • Lockable test/override button					
563280120040	12A	miniature power relay	2 changeover	12 VAC	195.00
563280240040	12A	miniature power relay	2 changeover	24 VAC	195.00
563280480040	12A	miniature power relay	2 changeover	48 VAC	223.00
563281100040	12A	miniature power relay	2 changeover	110 VAC	223.00
563282400040	12A	miniature power relay	2 changeover	240 VAC	223.00
563290120040	12A	miniature power relay	2 changeover	12 VDC	195.00
563290240040	12A	miniature power relay	2 changeover	24 VDC	195.00
563290480040	12A	miniature power relay	2 changeover	48 VDC	223.00
563290600040	12A	miniature power relay	2 changeover	60 VDC	223.00
563291100040	12A	miniature power relay	2 changeover	110 VDC	223.00
563292200040	12A	miniature power relay	2 changeover	220 VDC	360.00
563480120040	12A	miniature power relay	4 changeover	12 VAC	358.00
563480240040	12A	miniature power relay	4 changeover	24 VAC	358.00
563480480040	12A	miniature power relay	4 changeover	48 VAC	381.00
563481100040	12A	miniature power relay	4 changeover	110 VAC	381.00
563482400040	12A	miniature power relay	4 changeover	240 VAC	381.00
563490120040	12A	miniature power relay	4 changeover	12 VDC	358.00
563490240040	12A	miniature power relay	4 changeover	24 VDC	358.00
563490480040	12A	miniature power relay	4 changeover	48 VDC	381.00
563490600040	12A	miniature power relay	4 changeover	60 VDC	381.00
563491100040	12A	miniature power relay	4 changeover	110 VDC	381.00
563492200040	12A	miniature power relay	4 changeover	220 VDC	523.00
Other configurations: replace last two digits with following: (e.g 56328012004074)					
54	LED	internal LED indicator for		AC relays	60.95
74	LED	internal LED indicator for		DC relays	60.95
PCB terminals: replace 3rd digit (3) with a (4) (e.g.564280120040)					
Sockets and accessories for 56 series relays				for relay	
9612SMA		2-pole PCB mount socket	(solder terminal)	5632	50.00
9614SMA		4-pole PCB mount socket	(solder terminal)	5634	59.00
9602SPA*		DIN mount socket + retaining clip	(screw terminal)	5632	128.00
9604SMA*		DIN mount socket + metal retaining clip	(screw terminal)	5634	152.00
05627		DIN rail mountable support bracket		5632	32.80
05647		DIN rail mountable support bracket		5634	35.20
* Accepts plug-in LED, diode, timing modules (plugs directly into socket) see page J-8 (per pack)					
095004		spare marking tags for sockets	(10pcs)	5632	24.30
090002		spare marking tags for sockets	(10pcs)	5634	24.30
62 series Plug-in power relays (49.1 x 38.2 x 35.8 mm)					
• Lockable test/override button • Mechanical flag indication of relay status • Plug-in or faston 187 (4.8 x 0.5 mm) termination • Reinforced insulation between coil and contacts to EN60335-1					
623380120040	16A	plug-in industrial power relay	3 changeover	12 VAC	239.00
623380240040	16A	plug-in industrial power relay	3 changeover	24 VAC	239.00
623380480040	16A	plug-in industrial power relay	3 changeover	48 VAC	261.00
623381100040	16A	plug-in industrial power relay	3 changeover	110 VAC	261.00
623382400040	16A	plug-in industrial power relay	3 changeover	240 VAC	255.00
623384000040	16A	plug-in industrial power relay	3 changeover	400 VAC	314.00
623390120040	16A	plug-in industrial power relay	3 changeover	12 VDC	239.00
623390240040	16A	plug-in industrial power relay	3 changeover	24 VDC	239.00
623390480040	16A	plug-in industrial power relay	3 changeover	48 VDC	261.00
623391100040	16A	plug-in industrial power relay	3 changeover	110 VDC	255.00
623392200040	16A	plug-in industrial power relay	3 changeover	220 VDC	369.00
Other configurations: replace last two digits with following: (e.g 623380120074) except 220VDC/400AC					
54	LED	internal LED indicator for AC relays			53.00
74	LED	internal LED indicator for DC relays			53.00
Sockets and accessories for 62 series relays				for relay	
9213SMA		3-pole PCB mount socket	(solder terminal)	6233	50.00
9233SMA		3-pole flange mount socket	(solder terminal)	6233	50.00
9203SMA		3-pole surface/DIN mount socket	(screw terminal)	6233	169.00
06207		DIN rail mountable support bracket	(top mount)	6233	32.80
06208		DIN rail mountable support bracket	(rear mount)	6233	32.80

Above ZAR prices do not include VAT. E&OE

Plug-in relays



Wood-processing machines



Industrial furnaces & ovens



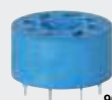
Shipyards



6012...



6013...



9015



9013



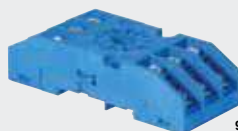
9020SMA



9026SMA



9027SMA



9048SMA



9003SMA

type	current	pins	description		contact configuration	coil voltage	price
60 series		General purpose plug-in relays			(54.2 x 32.5 x 36.4 mm)		
- AC and DC coil voltages - Lockable test/override button 8 pin (2-pole) 11pin (3-pole) round pin plug-in termination - Current sensing coil available: AC: 0.1 - 2.5A / DC: 0.1 - 2.0A - Mechanical flag indication of relay status and manual override facility							
601280120040	10A	8 pin	plug-in industrial relay	2 ch/over	12 VAC	216.00	
601280240040	10A	8 pin	plug-in industrial relay	2 ch/over	24 VAC	216.00	
601280360040	10A	8 pin	plug-in industrial relay	2 ch/over	36 VAC	238.00	
601280480040	10A	8 pin	plug-in industrial relay	2 ch/over	48 VAC	238.00	
601280600040	10A	8 pin	plug-in industrial relay	2 ch/over	60 VAC	238.00	
601281100040	10A	8 pin	plug-in industrial relay	2 ch/over	110 VAC	238.00	
601282400040	10A	8 pin	plug-in industrial relay	2 ch/over	240 VAC	231.00	
601284000040	10A	8 pin	plug-in industrial relay	2 ch/over	400 VAC	292.00	
601290120040	10A	8 pin	plug-in industrial relay	2 ch/over	12 VDC	216.00	
601290240040	10A	8 pin	plug-in industrial relay	2 ch/over	24 VDC	216.00	
601290360040	10A	8 pin	plug-in industrial relay	2 ch/over	36 VDC	238.00	
601290480040	10A	8 pin	plug-in industrial relay	2 ch/over	48 VDC	215.00	
601290600040	10A	8 pin	plug-in industrial relay	2 ch/over	60 VDC	238.00	
601291100040	10A	8 pin	plug-in industrial relay	2 ch/over	110 VDC	231.00	
601292200040	10A	8 pin	plug-in industrial relay	2 ch/over	220 VDC	348.00	
601380120040	10A	11 pin	plug-in industrial relay	3 ch/over	12 VAC	223.00	
601380240040	10A	11 pin	plug-in industrial relay	3 ch/over	24 VAC	223.00	
601380360040	10A	11 pin	plug-in industrial relay	3 ch/over	36 VAC	244.00	
601380480040	10A	11 pin	plug-in industrial relay	3 ch/over	48 VAC	244.00	
601380600040	10A	11 pin	plug-in industrial relay	3 ch/over	60 VAC	244.00	
601381100040	10A	11 pin	plug-in industrial relay	3 ch/over	110 VAC	244.00	
601382400040	10A	11 pin	plug-in industrial relay	3 ch/over	240 VAC	238.00	
601384000040	10A	11 pin	plug-in industrial relay	3 ch/over	400 VAC	299.00	
601390120040	10A	11 pin	plug-in industrial relay	3 ch/over	12 VDC	223.00	
601390240040	10A	11 pin	plug-in industrial relay	3 ch/over	24 VDC	223.00	
601390360040	10A	11 pin	plug-in industrial relay	3 ch/over	36 VDC	244.00	
601390480040	10A	11 pin	plug-in industrial relay	3 ch/over	48 VDC	244.00	
601390600040	10A	11 pin	plug-in industrial relay	3 ch/over	60 VDC	244.00	
601391100040	10A	11 pin	plug-in industrial relay	3 ch/over	110 VDC	238.00	
601392200040	10A	11 pin	plug-in industrial relay	3 ch/over	220 VDC	354.00	
Other configurations: replace last two digits with following: (e.g. 601280120054) except 220VDC/400AC							
54	LED	internal LED indicator for				AC relays	58.65
74	LED	internal LED indicator for				DC relays	58.65
46392/PS	sheet marking tags	(mounts onto retain clip/holder)		(48 pcs)		6012/3	91.00
Sockets and accessories for 60 series relays							
						for relay	
Flange mount							
9012	2-pole flange mount socket			(solder terminal)		6012	39.40
9013	3-pole flange mount socket			(solder terminal)		6013	41.00
PCB mount							
9014	2-pole PCB mount socket			(diameter 20.5 mm)		6012	39.40
90141	3-pole PCB mount socket			(diameter 17.5 mm)		6013	39.40
9015	2-pole PCB mount socket			(diameter 22.0 mm)		6012	41.00
90151	3-pole PCB mount socket			(diameter 19.0 mm)		6013	41.00
Surface/DIN mount							
9020SMA	surface/DIN mount socket (standard)			(screw terminal)		6012	100.00
9021SMA	surface/DIN mount socket (standard)			(screw terminal)		6013	111.00
9022SMA	surface/DIN mount socket (oval)			(screw terminal)		6012	65.00
9023SMA	surface/DIN mount socket (oval)			(screw terminal)		6013	76.00
9026SMA	surface/DIN mount socket (square)			(screw terminal)		6012	103.00
9027SMA	surface/DIN mount socket (square)			(screw terminal)		6013	115.00
9048SMA	surface/DIN mount socket (rectangular)			(screw terminal)		6012	146.00
9049SMA	surface/DIN mount socket (rectangular)			(screw terminal)		6013	165.00
9002SMA*	surface/DIN mount socket (for modules)			(screw terminal)		6012	109.00
9003SMA*	surface/DIN mount socket (for modules)			(screw terminal)		6013	121.00
09006	jumper link/bridge bar for sockets			(6 way)		9002/3	75.00
090002	spare marking tag for sockets			(10 pcs)		9002/3	24.30
* Accepts plug-in LED, diode, timing modules (plugs directly into socket) see page J-8							



Industrial
washing
machines



Air
conditioners



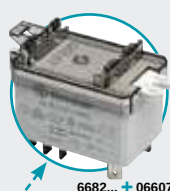
Power
generators



6531...



6531...



6682... + 06607



6682...



6822...

type	current	description	contact configuration	coil voltage	price
65 series Power relays (42.2 x 32.2 x 36.6 mm)					
- Flange mount with Faston 250 (6.3 x 0.5 mm) termination - Reinforced insulation between coil and contacts to EN60335-1					
20A - 1 NO + 1 NC relay					
653180120000	20A	plug-in industrial power relay	1 NO + 1 NC	12 VAC	204.00
653180240000	20A	plug-in industrial power relay	1 NO + 1 NC	24 VAC	204.00
653180480000	20A	plug-in industrial power relay	1 NO + 1 NC	48 VAC	226.00
653181100000	20A	plug-in industrial power relay	1 NO + 1 NC	110 VAC	226.00
653182400000	20A	plug-in industrial power relay	1 NO + 1 NC	240 VAC	219.00
653184000000	20A	plug-in industrial power relay	1 NO + 1 NC	400 VAC	276.00
653190120000	20A	plug-in industrial power relay	1 NO + 1 NC	12 VDC	204.00
653190240000	20A	plug-in industrial power relay	1 NO + 1 NC	24 VDC	204.00
653190480000	20A	plug-in industrial power relay	1 NO + 1 NC	48 VDC	226.00
653191100000	20A	plug-in industrial power relay	1 NO + 1 NC	110 VDC	219.00
653192200000	20A	plug-in industrial power relay	1 NO + 1 NC	220 VDC	330.00
30A - 1 Normally open relay ≥ 3 mm contact gap					
653180120300	30A	plug-in industrial power relay	1 NO	12 VAC	197.00
653180240300	30A	plug-in industrial power relay	1 NO	24 VAC	197.00
653180480300	30A	plug-in industrial power relay	1 NO	48 VAC	219.00
653181100300	30A	plug-in industrial power relay	1 NO	110 VAC	219.00
653182400300	30A	plug-in industrial power relay	1 NO	240 VAC	212.00
653184000300	30A	plug-in industrial power relay	1 NO	400 VAC	269.00
653190120300	30A	plug-in industrial power relay	1 NO	12 VDC	197.00
653190240300	30A	plug-in industrial power relay	1 NO	24 VDC	197.00
653190480300	30A	plug-in industrial power relay	1 NO	48 VDC	219.00
653191100300	30A	plug-in industrial power relay	1 NO	110 VDC	212.00
653192200300	30A	plug-in industrial power relay	1 NO	220 VDC	323.00
Accessories for 65 series relays					
06507		DIN rail mounting frame/bracket	(terminals facing forward)		30.90
06508		DIN rail mounting frame/bracket	(terminals facing down)		30.90
66 series Power relays - 2-pole (31 x 67.5 x 33.5 mm)					
- Faston 250 (6.3 x 0.8 mm) termination 8 mm, 6kV (1.2/50 μs) isolation, coil-contacts, flange mount					
2-pole changeover relay - 30A NO - 10A NC					
668280120000	30A	plug-in industrial power relay	2 changeover	12 VAC	268.00
668280240000	30A	plug-in industrial power relay	2 changeover	24 VAC	268.00
668281100000	30A	plug-in industrial power relay	2 changeover	110 VAC	268.00
668282400000	30A	plug-in industrial power relay	2 changeover	240 VAC	285.00
668290120000	30A	plug-in industrial power relay	2 changeover	12 VDC	268.00
668290240000	30A	plug-in industrial power relay	2 changeover	24 VDC	268.00
668291100000	30A	plug-in industrial power relay	2 changeover	110 VDC	285.00
Atex version available on request					
Accessories for 66 series relays					
06607		DIN rail mounting frame	(terminals facing forward)		32.80
67 series High power relays - 2/3-pole (57.5 x 33 x 51.5 mm)					
High power PCB mount relays for use in the photovoltaic sector					
- DC coil voltage - with only 170mW holding power - Contact gap ≥ 3 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2) - Suitable for use at ambient temperatures up to 85 °C (with energy-saving coil energisation)					
50A - 2-pole NO relays					
672290124300	50A	PCB mount high power relay	2 NO	12 VDC	732.00
672290244300	50A	PCB mount high power relay	2 NO	24 VDC	732.00
68 series High power 2-pole relays (57.5 x 52.2 x 52.2 mm)					
High power PCB mount relays for use in the photovoltaic sector					
- DC coil voltage - with only 700mW holding power - Contact gap ≥ 3.6 mm (according to VDE 0126-1-1, EN 62109-1, EN 62109-2) - Suitable for use at ambient temperatures up to 85°C					
100A - 2-pole NO relays					
682290124300	100A	PCB mount high power relay	2 NO	12 VDC	821.00
682290244300	100A	PCB mount high power relay	2 NO	24 VDC	821.00

Relay accessories



Machines for
paper processing



Packaging
machines



Printing
machines



9902...



9902...59



9902...99



9902...09



8630...



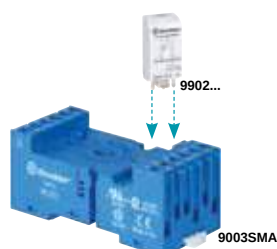
8600...

Plug-in LED / diode / timer modules

Plug-in modules are convenient add-on devices for relays which offer LED indication (*for ease of viewing relay status from a distance*), diode protection, RC circuits, bypass and timing facilities for all socket-mounted plug-in relays. The modules simply plug into specific sockets to enhance the relays functionality.

type	LED colour	description	voltage	price
Diode module				
Recovery diode modules are used for DC applications, reverse voltage peaks of the coil are short circuited by the recovery diode, release time is increased by a factor of 3 to 5.				
9902300000	–	diode module (<i>standard polarity A1/+</i>)	6...220 VDC	37.60
LED module				
Used for AC and DC, the LED indicator illuminates when the relay coil is energised. It is essential to connect "+" to terminal A1 in DC applications				
9902002459	green	plug-in LED module	6...24 VAC/DC	57.00
9902006059	green	plug-in LED module	28...60 VAC/DC	58.00
9902023059	green	plug-in LED module	110...240 VAC/DC	57.00
LED + diode module				
Recovery diode + LED module are used for DC, reverse voltage peaks are short circuited by the recovery diode (<i>positive to terminal A1</i>), release time is increased by approximately 3 times, if this is undesirable use a Varistor or RC module. LED indicator illuminates when coil is energised.				
9902902499	green	plug-in LED + diode module	6...24 VDC	63.00
9902906099	green	plug-in LED + diode module	28...60 VDC	66.00
9902922099	green	plug-in LED + diode module	110...220 VDC	63.00
LED + Varistor module				
LED + Varistor modules are used for AC and DC coils, reverse voltage peaks of the relay coil are limited by the Varistor to approximately 2.5 times the nominal voltage of the supply. Insignificant increase in release times.				
9902002498	green	plug-in LED + Varistor module	6...24 VAC/DC	76.00
9902006098	green	plug-in LED + Varistor module	28...60 VAC/DC	77.00
9902023098	green	plug-in LED + Varistor module	110...240 VAC/DC	76.00
RC circuit module				
RC circuit modules are used for AC and DC applications. The reverse voltage peaks of the coil are limited by the RC module to approximately 2.5 times the nominal supply voltage. Insignificant increase in release times. When using DC coils it is essential that positive is connected to terminal A1				
9902002409	green	plug-in RC module for AC and DC lines	6...24 VAC/DC	80.00
9902006009	green	plug-in RC module for AC and DC lines	28...60 VAC/DC	82.00
9902023009	green	plug-in RC module for AC and DC lines	110...240 VAC/DC	80.00
Residual current bypass module				
Bypass modules are used in applications for 110 and 220 VAC relays with a tendency to fail to release, mainly caused by residual currents from AC proximity switches or inductive coupling caused by long parallel lying AC control lines.				
9902823007	–	plug-in residual current bypass module	110...240 VAC	63.00
Multi-function, multi-voltage timer modules				
- Time range 1s, 10s, 100s, 10m, 100m, 10hr, 100hr (<i>adjustable</i>) - Plugs directly into sockets converting standard relays into timing devices - Can be used with 9002/3, 9203, 9604 sockets				
863000240000	green	multi-range, bi-functional timer module	12...24 VAC/DC	497.00
863082400000	green	multi-range, bi-functional timer module	230 VAC	558.00
860002400000	green	multi-range, multi-function timer module	12...240 VAC/DC	875.00

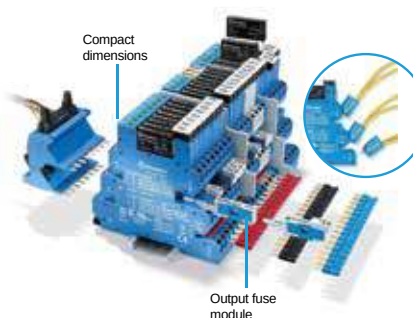
Mounting for plug-in module



Multi-range / function timer module

AI:	On-delay
DI:	Interval
SW:	Symmetrical flasher (<i>starting pulse on</i>)
BE:	Off-delay with control signal
CE:	On- and off-delay with control signal
DE:	Interval with control signal on
EE:	Interval with control signal off
FE:	Interval with control signal on and off

Relay interface modules

**39 series MasterINTERFACE - relay interface modules (slimline)**

- Space saving 6.2 mm wide
- Connections for 16 way jumper links (*bridging bars*)
- Integral LED coil indication and protection circuit
- Secure retention and easy ejection by plastic clip
- DIN 35 rail mounting (EN60715)

type	current voltage	operating voltage	switching voltage	contact	type terminal	description	price
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MasterPLUS series - Relay interface modules

- For general use in any type of system or application
- Provides extra protection for the output circuit thanks to the replaceable fuse module
- Can be used for input interface applications between auxiliary contacts, sensors etc. and controllers, PLCs or motors or for output interface between PLCs controllers and relays, solenoids etc.
- Accepts output fuse module (**09363**) for quick/easy space efficient protection of output circuits

MasterPLUS - EMR		electromechanical relays		(H) 87 x (W) 6.2 x (D) 91 mm			
393100120060	6A	12 VAC/DC	250/400 VAC	1 ch/over	screw	relay interface module	279.00
393100240060	6A	24 VAC/DC	250/400 VAC	1 ch/over	screw	relay interface module	279.00
396100240060	6A	24 VAC/DC	250/400 VAC	1 ch/over	push-in	relay interface module	279.00
393182300060	6A	230 VAC	250/400 VAC	1 ch/over	screw	relay interface module	366.00
MasterPLUS - SSR		solid state relays					
393070129024	6A	12 VDC	1.5...33 VDC	1 NO	screw	relay interface module	590.00
393070249024	6A	24 VDC	1.5...33 VDC	1 NO	screw	relay interface module	590.00
396070249024	6A	24 VDC	1.5...33 VDC	1 NO	push-in	relay interface module	590.00
396070248240	2A	24 VDC	12...275 VAC	1 NO	push-in	relay interface module	620.00

Plug-in output fuse module - for MasterPLUS interface - accepts std 20 x 5 mm fuses up to 6A, 250 V
 - Quick easy plug-in connection to socket (fuse condition visibility with inspection window)

09363	fuse	—	plug-in	output fuse module for MasterPLUS interface	88.00
093630024	fuse	24 VAC/DC	plug-in	output fuse module LED fuse status indicator	114.00
093638230	fuse	230 VAC	plug-in	output fuse module LED fuse status indicator	114.00

MasterINPUT series - Relay interface module

- Interface between auxiliary contacts, sensors, limit switches and PLCs/controllers
- Permits full termination of input devices (*no additional terminals required*)
- Quick and easy distribution of supply voltage with jumper links
- Gold plated output contacts for improved compatibility with low energy PLC inputs

MasterINPUT - EMR		electromechanical relays					
394100245060	6A	24 VAC/DC	250/400 VAC	1 ch/over	screw	relay interface module	336.00
397100245060	6A	24 VAC/DC	250/400 VAC	1 ch/over	push-in	relay interface module	336.00
394182305060	6A	230 VAC	250/400 VAC	1 ch/over	screw	relay interface module	423.00
MasterINPUT - SSR		solid state relays					
394000249024	6A	24 VAC/DC	1.5...33 VDC	1 NO	screw	relay interface module	624.00
397070249024	6A	24 VDC	1.5...33 VDC	1 NO	push-in	relay interface module	590.00
394000248240	2A	24 VAC/DC	12...275 VAC	1 NO	screw	relay interface module	648.00

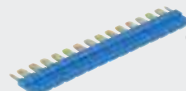
MasterOUTPUT series - Relay interface module

- Interface between PLCs and controllers and output devices, valves, motors etc...
- Quick and easy distribution of supply voltage with jumper link

MasterOUTPUT - EMR		electromechanical relays					
392100240060	6A	24 VAC/DC	250 / 400 VAC	1 NO	screw	relay interface module	279.00
395100240060	6A	24 VAC/DC	250 / 400 VAC	1 NO	push-in	relay interface module	279.00
392182300060	6A	230 VAC	250 / 400 VAC	1 NO	screw	relay interface module	366.00
MasterOUTPUT - SSR		solid state relays					
392070129024	6A	12 VDC	1.5...33 VDC	1 NO	screw	relay interface module	590.00
392070249024	6A	24 VDC	1.5...33 VDC	1 NO	screw	relay interface module	590.00
395070249024	6A	24 VDC	1.5...33 VDC	1 NO	push-in	relay interface module	590.00
392082309024	2A	230 VAC	1.5...33 VDC	1 NO	screw	relay interface module	624.00

Accessories for **39 series** interface modules see page **J-10**
 Atex version available on request

Relay interface modules

    							
Accessories for 39 series relay interface modules							
type	No. of ways	colour	description				price
16-way jumper link (bridging bar)							
- Possibility of multiple connection, side by side							
09316	16 way	blue	plug-in	plug-in jumper link (bridge bar) for interfaces			73.00
093160	16 way	black	plug-in	plug-in jumper link (bridge bar) for interfaces			73.00
093161	16 way	red	plug-in	plug-in jumper link (bridge bar) for interfaces			73.00
Separator dual-purpose (1.8 mm or 6.2 mm separation)							
- Useful for the visual separation of different groups or voltages of neighbouring interfaces,							
09360	partition	plastic separator for interface modules (1,8 or 6.2 mm separation)					23.70
Terminal doubler							
- For push-in terminal sockets only							
- Max. wire size 2 x 1.5 mm²							
09363	doubler	6 A/300V	terminal doubler (for two cables) push-in terminal sockets				88.00
MasterADAPTOR - interconnects 8 interface modules (A1/A2 and power supply terminals)							
- Connection of up to 8 interface modules to PLC outputs via 14-pole ribbon cable							
09368141	adaptor	24 VDC	MasterADAPTOR easy connection of up to 8 interface modules				552.00
09300020	cable	14-pole	PLC cable with 14-pole ribbon connector on end			2 meters	848.00
46392/PS	marking	6 x 12 mm	sheet of 48 marking tags (mounts onto retain clip)				91.00
38 series - Relay interface module (1 pole 16A / 2-pole 8A) (H) 90 x (W) 14 x (D) 77 mm							
• Sensitive DC coil or AC/DC coil versions • Integral coil indication and protection circuit • Easy ejection of relay using retaining clip • DIN rail mounting (EN 60715)							
type	switch current	supply voltage	switching voltage	contact	type terminal	description	price
Electromechanical relays							
380170240050*	16A	24 VDC	250 / 400 VAC	1 ch/over	screw	relay interface module	366.00
380100240060*	16A	24 VAC/DC	250 / 400 VAC	1 ch/over	screw	relay interface module	467.00
380102400060*	16A	240 VAC	250 / 400 VAC	1 ch/over	screw	relay interface module	501.00
* Currents > 10A, contact terminals must be connected in parallel							
385170240050	6A	24 VDC	250 / 400 VAC	1 ch/over	screw	slim interface module	267.00
385270120050	8A	12 VDC	250 / 400 VAC	2 ch/over	screw	relay interface module	372.00
385270240050	8A	24 VDC	250 / 400 VAC	2 ch/over	screw	relay interface module	372.00
385200240060	8A	24 VAC/DC	250 / 400 VAC	2 ch/over	screw	relay interface module	477.00
385202400060	8A	230 VAC	250 / 400 VAC	2 ch/over	screw	relay interface module	510.00
Solid state relays							
383170249024	5A	24 VDC	1.5...24 VDC	1 NO	screw	relay interface module	718.00
383170248240	3A	24 VDC	12...275 VAC	1 NO	screw	relay interface module	698.00
09308	8 way	blue	plug-in	jumper link/bridge bar for interfaces			67.00
ElectroDev - 4/8 way relay interface modules							
• Incorporates LED relay status indication and diode protected coils • Option of positive or negative common modules							
4304 series relay interface module 4-way (H) 90 x (W) 54 x (D) 30 mm (with relays)							
• 4-way DIN rail mounting relay interface module (43 series relay 10A)							
43049024+	10A	24 VDC	up to 400V	ch/over	4 way	fixed relay interface	570.00
43049024-	10A	24 VDC	up to 400V	ch/over	4 way	fixed relay interface	515.00
34 series relay interface module 8-way (H) 90 x (W) 54 x (D) 45 mm (with relays)							
• 8-way DIN rail mounting relay interface module (34 series relay 6A)							
34089024+	6A	24 VDC	up to 400V	ch/over	8 way	fixed relay interface	1 300.00
34089024-	6A	24 VDC	up to 400V	ch/over	8 way	fixed relay interface	1 180.00
4004 series relay interface module 4-way (H) 76 x (W) 71 x (D) 55 mm (with relays)							
• 4-way DIN rail mounting relay interface module (40 series relay 10A)							
40049024+	10A	24 VDC	up to 400V	ch/over	4 way	fixed relay interface	880.00
40048230-	10A	230 VAC	up to 400V	ch/over	4 way	fixed relay interface	873.00
Note: (-) denotes negative common and (+) positive common							



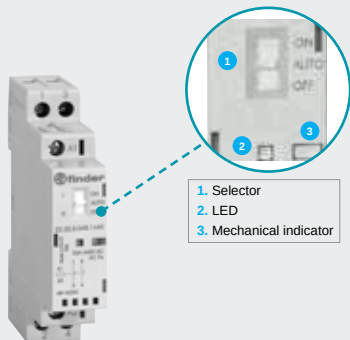
Pump Control



Office Lighting Control



Hotel room energy-enabling units



2232...



2234...



02235



192100240000

Modular contactors 25A

- Modular DIN rail mount
- Auto - On - Off selector
- Continuous duty coils and contacts
- AC/DC silent coil (*with varistor protection*)
- Mechanical flag and LED indicators as standard
- Clip-on auxiliary contact module available (*1NO+1NC or 2NO*)
- Protective separation (*reinforced insulation*) between coil and contacts

General applications:

- Pump control
- Office lighting control
- Garden and night lighting
- Bathrooms lighting control
- Streetlights and car park lighting
- Hotel room energy enabling units

type	rated power		description	modules width in 17.5 mm	contact configuration	coil voltage AC/DC	price
	AC-1 (A)	AC-3 kW (230V)					
22 series - Two pole modular contactor			25A		(H) 89 x (W) 17.5 (D) 61 mm		
• Compact - one module (17.5 mm wide)							
223200124340	25A	1.0 kW	modular contactor	1	2 NO	12V	684.00
223200244340	25A	1.0 kW	modular contactor	1	2 NO	24V	684.00
223200484340	25A	1.0 kW	modular contactor	1	2 NO	48V	684.00
223202304340	25A	1.0 kW	modular contactor	1	2 NO	230V	684.00
223200124440	25A	1.0 kW	modular contactor	1	2 NC	12V	684.00
223200244440	25A	1.0 kW	modular contactor	1	2 NC	24V	684.00
223202304440	25A	1.0 kW	modular contactor	1	2 NC	230V	684.00
223200124540	25A	1.0 kW	modular contactor	1	1NO + 1NC	12V	684.00
223200244540	25A	1.0 kW	modular contactor	1	1NO + 1NC	24V	684.00
223200484540	25A	1.0 kW	modular contactor	1	1NO + 1NC	48V	684.00
223202304540	25A	1.0 kW	modular contactor	1	1NO + 1NC	230V	684.00

AC-3 single phase motor rating at 230 VAC

22 series - Four pole modular contactor				25A	(H) 89 x (W) 35 (D) 61 mm		
• Compact - two modules (<i>35 mm wide</i>)							
223400124340	25A	4.0 kW	modular contactor	2	4 NO	12V	938.00
223400244340	25A	4.0 kW	modular contactor	2	4 NO	24V	938.00
223402304340	25A	4.0 kW	modular contactor	2	4 NO	230V	938.00
223400124740	25A	4.0 kW	modular contactor	2	3NO + 1NC	12V	938.00
223400244740	25A	4.0 kW	modular contactor	2	3NO + 1NC	24V	938.00
223402304740	25A	4.0 kW	modular contactor	2	3NO + 1NC	230V	938.00
223400124640	25A	4.0 kW	modular contactor	2	2NO + 2NC	12V	938.00
223400244640	25A	4.0 kW	modular contactor	2	2NO + 2NC	24V	938.00
223402304640	25A	4.0 kW	modular contactor	2	2NO + 2NC	230V	938.00

Accessories for above modular contactors

Clip-on auxiliaries for above contactors (<i>8.8 mm wide</i>)						contactor	
02235	6A	clip-on auxiliary contact block	0.5	1NO + 1NC	2232/4		466.00
02233	6A	clip-on auxiliary contact block	0.5	2 NO	2232/4		466.00
02218	jumper	bridge bar for 2-pole contactors	8-way	blue	2232		99.00
02226	jumper	bridge bar for 4-pole contactors	6-way	blue	2234		99.00
02001	adaptor	for chassis mounting contactors	1	adaptor	2232		6.70
01101	adaptor	for chassis mounting contactors	2	adaptor	2234		7.30
02209	spacer	rail mount heat dissipation	0.5	module	2232/4		20.60
46392/PS	marking tags (<i>sheet</i>)	mounts directly onto contactor		(48 pcs)	2232/4		91.00

19 series - Modular DIN rail mount relay (H) 84 x (W) 11.2 (D) 57 mm

Ideally suited for industrial control systems applications to control pumps, blowers or motor groups. Allows automatic control of pumps, blowers, groups of motors or in case of maintenance or failure, forcing the controlled load to "Off" or "On".

- 3 function selector switch
 - Auto: works as a monostable relay
 - Off: relay permanently OFF
 - On: relay permanently ON

- Slimline (*11.2 mm wide*) modular relay
- LED indication - auto-off-on selector
- DIN rail mounting

192100240000	10A	slimline	modular relay	1 changeover	24 VAC/DC		752.00
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Modular step relays

Modular step relays

Allows you to perform up to 6 sequences to achieve maximum flexibility for every application.

General applications:

- Bedroom light control
- Living room light control
- Automation for blinds, grilles and shutters
- Lighting control in corridors (for hotels, offices and hospitals)



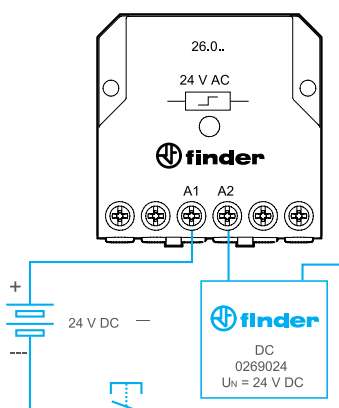
2603...



2023...

type	switch current	No. steps	description	contact configuration	coil voltage	price
26 series - Step relays			(pulse "ON", pulse "OFF")	(H) 46,6 x (W) 45 (D) 22 mm		
• AC coil • Panel mount • Base/chassis mounting • Screw terminal connections • Maximum pulse duration: 1 hour • Electrically separated coils and contact circuits						
260380120000	10A	2 step	base mounting step relay	1NO+1NC	12 VAC	313.00
260380240000	10A	2 step	base mounting step relay	1NO+1NC	24 VAC	313.00
260381100000	10A	2 step	base mounting step relay	1NO+1NC	110 VAC	313.00
260382300000	10A	2 step	base mounting step relay	1NO+1NC	230 VAC	313.00
0269012	module for operating 26 series relays with			DC supply	12 VDC	246.00
0269024	module for operating 26 series relays with			DC supply	24 VDC	246.00
20 series - Modular step relays			(H) 84 x (W) 17.5 x (D) 57 mm			
• AC and DC coils • Modular DIN rail mounting • Compact one module (17.5 mm) wide • Maximum pulse duration: 1 hour • Manual override/test button • Mechanical flag indicators of contact positions						
202380120000	16A	2 step	modular pulse step relay	2 contact	12 VAC	509.00
202380240000	16A	2 step	modular pulse step relay	2 contact	24 VAC	509.00
202382300000	16A	2 step	modular pulse step relay	2 contact	230 VAC	509.00
202390120000	16A	2 step	modular pulse step relay	2 contact	12 VDC	509.00
202390240000	16A	2 step	modular pulse step relay	2 contact	24 VDC	509.00
202680120000	16A	3 step	modular pulse step relay	2 contact	12 VAC	509.00
202680240000	16A	3 step	modular pulse step relay	2 contact	24 VAC	509.00
202682300000	16A	3 step	modular pulse step relay	2 contact	230 VAC	509.00
202690120000	16A	3 step	modular pulse step relay	2 contact	12 VDC	509.00
202690240000	16A	3 step	modular pulse step relay	2 contact	24 VDC	509.00
202480120000	16A	4 step	modular pulse step relay	2 contact	12 VAC	509.00
202480240000	16A	4 step	modular pulse step relay	2 contact	24 VAC	509.00
202482300000	16A	4 step	modular pulse step relay	2 contact	230 VAC	509.00
202490120000	16A	4 step	modular pulse step relay	2 contact	12 VDC	509.00
202490240000	16A	4 step	modular pulse step relay	2 contact	24 VDC	509.00
202880120000	16A	4 step	modular pulse step relay	2 contact	12 VAC	509.00
202880240000	16A	4 step	modular pulse step relay	2 contact	24 VAC	509.00
202882300000	16A	4 step	modular pulse step relay	2 contact	230 VAC	509.00
202890120000	16A	4 step	modular pulse step relay	2 contact	12 VDC	509.00
202890240000	16A	4 step	modular pulse step relay	2 contact	24 VDC	509.00

Modular step relay



20 series Sequence Table

Type	No of steps	Sequence			
		1	2	3	4
20.23	2				
20.26	3				
20.24	4				
20.28	4				

Solid state relays

Okpac® SO series power relays

All Celduc SSRs (Solid State Relays) are fitted with back-to-back thyristors and employ 4th generation TMS² technology with a very long lifetime expectancy.

- Very high immunity according to IEC/EN 61000-4-4 (*bursts*) and IEC/EN 61000-4-5 (*spikes*)
- UL/cUL, VDE (EN 60950), IEC/EN 60947-4-3, CE marking
- Regulated input current
- EMC compatible for industrial environment
- Control status LED

Note: All current ratings are based on utilising SSRs with suitable heat sink.
Consult product datasheet for inductive applications (motors - AC53)



SO942460



SO867070



SO765090



WF151200

type	thyristor rating	switching voltage	peak voltage	control voltage	I ² t	description	price	
SO9 series <i>for resistive loads (AC-51) - heating</i> <i>(H) 58.5 x (W) 45 x (D) 30 mm</i>								
• Zero-cross switching specifically designed for resistive loads • Input overvoltage protection								
SO941460	12A	12 - 280 VAC	600V	3 - 32 VDC	128A ² s	solid state relay	486.00	
SO942460	25A	12 - 280 VAC	600V	3 - 32 VDC	600A ² s	solid state relay	589.00	
SO943460	40A	12 - 280 VAC	600V	3 - 32 VDC	1250A ² s	solid state relay	665.00	
SO945460	50A	12 - 280 VAC	600V	3 - 32 VDC	2800A ² s	solid state relay	697.00	
SO965460	60A	24 - 600 VAC	1200V	3.5 -32 VDC	2800A ² s	solid state relay	794.00	
SO967460	90A	24 - 600 VAC	1200V	3.5 - 32 VDC	7200A ² s	solid state relay	1 060.00	
SO8 series <i>for most load types - lamps and infrared</i> <i>(H) 58.5 x (W) 45 x (D) 30 mm</i>								
• Zero-cross switching with low zero-crossing level (<12V) for most loads • Voltage protection on input (<i>transil</i>) and output (VDR)								
DC control								
SO842074	25A	12 - 275 VAC	600V	3 - 32 VDC	600A ² s	solid state relay	811.00	
SO845070	50A	12 - 275 VAC	600V	3 - 32 VDC	2800A ² s	solid state relay	972.00	
SO865070	50A	24 - 510 VAC	1200V	3.5 - 32 VDC	2800A ² s	solid state relay	1 160.00	
SO867070	75A	24 - 510 VAC	1200V	3.5 - 32 VDC	7200A ² s	solid state relay	1 670.00	
SO868070	95A	24 - 510 VAC	1200V	3.5 - 32 VDC	16200A ² s	solid state relay	2 290.00	
SO869070	125A	24 - 510 VAC	1200V	3.5 - 32 VDC	22000A ² s	solid state relay	3 030.00	
AC control								
SO842974	25A	12 - 275 VAC	600V	20 - 265 VAC/DC	600A ² s	solid state relay	811.00	
SO865970	50A	24 - 510 VAC	1200V	20 - 265 VAC/DC	2800A ² s	solid state relay	1 280.00	
SO867970	75A	24 - 510 VAC	1200V	20 - 265 VAC/DC	7200A ² s	solid state relay	1 980.00	
SO868970	95A	24 - 510 VAC	1200V	20 - 265 VAC/DC	16200A ² s	solid state relay	2 400.00	
SO869970	125A	24 - 510 VAC	1200V	20 - 265 VAC/DC	22000A ² s	solid state relay	3 120.00	
SO7 series <i>suitable for (AC-53) inductive loads and phase angle control applications</i>								
• Random switching solid state relay designed for high inductive loads, motors (AC-53) • Large control voltage range 3.5-32 VDC with input current limiter • Over-Voltage protection on input (<i>transil</i>) and output (RC and VDR)								
DC control (AC51)								
SO765090	50A	24 - 510 VAC	1200V	3.5 - 32 VDC	2800A ² s	solid state relay	1 670.00	
SO767090	75A	24 - 510 VAC	1200V	3.5 - 32 VDC	7200A ² s	solid state relay	2 340.00	
SO768090	95A	24 - 510 VAC	1200V	3.5 - 32 VDC	16200A ² s	solid state relay	2 600.00	
SOB series <i>two phase SSRs</i>								
• Dual zero cross solid state relay with LED indication for each input • Plug-in control terminals (<i>connector to be ordered separately</i>)								
SOB9 <i>designed for resistive loads</i>								
SOB965660	2 x 50A	24 - 600 VAC	1200V	10 - 30 VDC	2500A ² s	solid state relay	3 110.00	
1Y042715						plug-in input screw terminal for above dual phase relay	129.00	
Accessories <i>for above SO series relays</i>								
type	thermal rating	description			dimensions (mm)			price
					(H)	(W)	(D)	
Heatsinks <i>SSR current ratings are based on sufficient cooling by the use of heatsinks</i>								
WF151200	2.2K/W	DIN rail mountable heatsink for SO series relays			80	45	73	464.00
WF108110	1.1K/W	DIN rail mountable heatsink for SO series relays			98	90	81	669.00
WF115100	0.9K/W	DIN rail mountable heatsink for SO series relays			90	110	100	2 090.00
5TH23000	pads	thermal transfer pads for mounting SO solid state relays onto heat sinks						15.10
1LD12020	adaptor	adaptor for direct mounting of SO relays on DIN rail						140.00

Solid state relays

Celpac® SU series power relays *Pluggable control terminals*

All **Celduc SSRs** (*Solid State Relays*) are fitted with back-to-back thyristors and employ 4th generation TMS² technology with a very long life expectancy.

- Cost-effective, reliable and compact solution (*22.5 mm pitch SSR solution*)
- Mounting configuration compatible with all standard hockey puck style relays
- Over-voltage protection on input (*transil*)
- IP20 terminal protection cover (*removable*)
- Control status LED indication

Note: Current ratings are based on utilising SSRs with suitable heat sink.
Consult product datasheet for inductive applications (motors - AC53)

type	thyristor rating	switching voltage	peak voltage	control voltage	I ² t	description	price
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SU9 series *for resistive loads (AC-51) - heating* (H) 90 x (W) 22.5 x (D) 42 mm

- Zero-cross switching specifically designed for resistive loads

SU942460	25A	12 - 280 VAC	600V	3 - 32 VDC	600A ² s	solid state relay	606.00
SU963460	35A	24 - 600 VAC	1200V	3.5 - 32 VDC	882A ² s	solid state relay	766.00
SU965460	50A	24 - 600 VAC	1200V	3.5 - 32 VDC	1680A ² s	solid state relay	819.00
SU967460	75A	24 - 600 VAC	1200V	3.5 - 32 VDC	7200A ² s	solid state relay	1 090.00

SU8 series *for most load types - lamps and infrared* (H) 90 x (W) 22.5 x (D) 42 mm

- Zero-cross switching with low zero-crossing level (<12V) for most loads

DC control

SU842070	25A	12 - 275 VAC	600V	3 - 32 VDC	600A ² s	solid state relay	836.00
SU865070	50A	24 - 510 VAC	1200V	3.5 - 32 VDC	1680A ² s	solid state relay	1 200.00
SU867070	75A	24 - 510 VAC	1200V	3.5 - 32 VDC	7200A ² s	solid state relay	1 690.00

AC control

SU842970	25A	12 - 275 VAC	600V	160 - 240 VAC	600A ² s	solid state relay	826.00
SU865970	50A	24 - 510 VAC	1200V	160 - 240 VAC	1680A ² s	solid state relay	1 290.00

Accessories for SU series SSRs
ESUC **current monitoring module for SU range**

Mounted directly onto SU or SUL devices, this module provides diagnostic information for up to 5 heating elements in parallel.

ESUC0450	2 - 40A	8 - 30 VDC	current monitoring module	2 730.00
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Heatsinks *SSR current ratings are based on sufficient cooling by the use of heatsinks*

type	thermal rating	description	dimensions (mm)			price
			(H)	(W)	(D)	
WF311100	3.0 K/W	DIN rail mountable heatsink for SU series relays	80	22.5	73	633.00
WF151200	2.2 K/W	DIN rail mountable heatsink for SU series relays	80	45	73	464.00
WF112100	1 K/W	DIN rail mountable heatsink for SU series relays	120	50	118	722.00
5TH24000	pads	thermal transfer pads for mounting SU relays onto heatsinks				19.50

SSR + Heatsink complete unit *ready for use*

type	thyristor rating	switching current 25°C	switching voltage	peak voltage	I ² t	control voltage	price
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SUL9 range *for resistive loads (AC-51) - heating* (H) 90 x (W) 22.5 x (D) 112 mm

SUL942460	25A	23A	12 - 280 VAC	600V	600A ² s	3 - 32 VDC	1 430.00
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SUL 8 range *- for most load types - lamps and infrared* (H) 90 x (W) 22.5 x (D) 112 mm

DC control

SUL842070	25A	23A	12 - 275 VAC	600V	600A ² s	3 - 32 VDC	1 850.00
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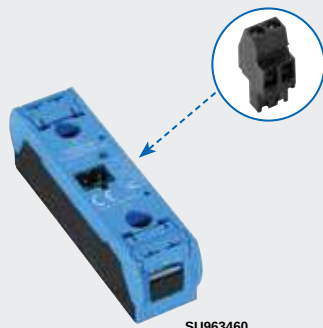
AC control (H) 90 x (W) 22.5 x (D) 112 mm

SUL842970	25A	23A	12 - 275 VAC	600V	600A ² s	160 - 240 VAC	980.00
SUL865970	50A	32A	24 - 510 VAC	1200V	1680A ² s	160 - 240 VAC	1 360.00

Fuse protection of solid state relays

Type 2 coordination: In case of short circuit the protection device must react before damaging the SSR, rendering the SSR suitable for further use.

*Ultra-fast fuses must be used to protect solid state relays against short-circuits of the load.
The I²t value of the fuse must be less than half of the typical I²t value of the solid state relay.*



SU963460



SU865070



ESUC0450



WF311100

Solid state relays



SO465420



SOM040200



SCI0251700



WF151200

type	thyristor rating	switching voltage	peak voltage	control voltage	description	price
SO4 series - Proportional controllers (H) 58.5 x (W) 45 x (D) 30 mm						
- Control status LED - Overvoltage protection by varistor - IP20 protection cover (removeable) 4-20mA / 0-10V / Potentiometer control - Analog switching SSR for resistive load power control (phase angle principle)						
4-20mA control current input						
SO465420	50A	200 - 480 VAC	—	4-20mA	proportional output SSR	2 710.00
SO467420	75A	200 - 480 VAC	—	4-20mA	proportional output SSR	3 110.00
SO468420	95A	200 - 480 VAC	—	4-20mA	proportional output SSR	3 480.00
SO469420	125A	200 - 480 VAC	—	4-20mA	proportional output SSR	4 200.00
0-10V Analog input						
Control supply voltage 8 - 30 VDC						
SO465020	50A	200 - 480 VAC	—	0-10V	proportional output SSR	2 980.00
SO468020	95A	200 - 480 VAC	—	0-10V	proportional output SSR	3 800.00
SO469020	125A	200 - 480 VAC	—	0-10V	proportional output SSR	4 570.00
Potentiometer analog input						
Control supply voltage 8 - 30 VDC						
SO465320	50A	200 - 480 VAC	—	resistance	proportional output SSR	2 980.00
SOM series - Latest MOSFET technology generation (H) 58.5 x (W) 45 x (D) 30 mm						
- MOSFET technology - Ultra low on-state resistance - Built-in overvoltage protection - DC solid state relays DC-in, DC-out - Low output leakage current and control current - Designed to switch DC loads e.g solenoid valves, brakes, indicators						
SOM020100	20A	5 - 60 VDC	100V	3.5 - 32 VDC	DC output solid state relay	1 370.00
SOM040200	40A	5 - 110 VDC	200V	3.5 - 32 VDC	DC output solid state relay	1 840.00
IGBT technology for high DC voltage applications						
SCI series - Integrated reverse diode (H) 58.2 x (W) 45 x (D) 27 mm						
- Ultra low output leakage current - Low control current consumption - Low conducted and radiated disturbances - Latest high voltage IGBT technology generation - Triggered control input to avoid linear control risks - New innovative isolated driver ensures fast power transistor turn on and off ensuring low power transient						
SCI0251700	25A	0 - 1700 VDC	1700V	4.5 - 32 VDC	DC output solid state relay	27 000.00
SCI0501200	50A	0 - 1200 VDC	1200V	4.5 - 32 VDC	DC output solid state relay	14 400.00
SCI0100600	100A	0 - 600 VDC	600V	4.5 - 32 VDC	DC output solid state relay	14 400.00
SDI series - Integrated protection (H) 157 x (W) 68 x (D) 83 mm						
- Overvoltage protection - Load short circuit protection - Overload temperature protection						
SDI0501700	50A	24 - 940 VDC	1700V	24 - 48 VDC	DC output solid state relay	44 400.00
SDI0501710	50A	24 - 940 VDC	1700V	72- 110 VDC	DC output solid state relay	44 400.00
Accessories for above solid state relays						
type	thermal rating	description			dimensions (mm) (H) (W) (D)	price
Heatsinks	SSR current ratings are based on sufficient cooling by the use of heatsinks					
WF151200	2.2K/W	rail mountable heatsink for SO,SC series relays			80 45 72	464.00
WF108110	1.1K/W	rail mountable heatsink for SO,SC series relays			98 90 78	669.00
WF115100	0.9K/W	rail mountable heatsink for SO,SC series relays			90 110 100	2 090.00
5TH23000	pads	thermal transfer pads for SO,SC solid state relays				15.10
1LD12020	adaptor	adaptor for mounting heat sinks on DIN rail				140.00

Three-phase solid state relays



SMB8650510



SMT8620520



SGB8850200



SGT8670500

Three-phase solid state relays

All three-phase solid state relays incorporate new high efficiency back to back thyristors on output with TMS² technology for a long lifetime expectancy and high surge currents.

- Three-phase Zero Cross solid state relays
- Control status LED
- Conforms to: IEC/EN 60947-4-3, CEI 62314, UL-cUL

Note: Current ratings are based on utilising SSRs with suitable heat sink.
Consult product datasheet for inductive applications (motors - AC53)

type	max. thyristor rating	switching current AC-51 (40°C)	switching voltage	peak voltage	control voltage	I ² t	price
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Sightpac series - Three-phase solid state relays (H) 100 x (W) 45 x (D) 48 mm

SMB series - Two leg Three-phase solid state relay (New compact - 45 mm wide version)

Designed for controlling three-phase loads connected in star or delta (if balanced)
Two of the Three-phases are switched by the SSR the third phase being directly connected

- Three-phase Zero Cross solid state relay with one direct connected phase
- Designed for resistive loads

SMB8650510	2 x 50A	3 x 30A	24 - 520 VAC	1600V	4 - 30 VDC	2800A ² s	3 450.00
SMB8670910	2 x 75A	3 x 35A	150 - 520 VAC	1600V	4 - 30 VDC	7200A ² s	4 320.00

SMT series - Three-phase solid state relay - for controlling three-wire three-phase loads

- Three-phase Zero Cross solid state relay (SSR) designed for most load types
- Plug-in control terminals and spring clamp power terminals

SMT8620520	3 x 25A	3 x 20A	24 - 520 VAC	1200V	4 - 30 VDC	380A ² s	2 540.00
SMT8628520	3 x 25A	3 x 20A	24 - 520 VAC	1200V	24 - 255 VAC/DC	380A ² s	2 560.00

Cel3pac series - Three-phase solid state relays (H) 100 x (W) 76.5 x (D) 35.5 mm

SGB series - Two leg Three-phase solid state relays

Designed for controlling three-phase loads connected in star or delta (if balanced)
Two of the Three-phases are switched by the SSR with the third being directly connected

- Three-phase Zero Cross solid state relay with one direct connected phase
- Designed for resistive loads

SGB8850200	2 x 50A	3 x 50A	24 - 640 VAC	1600V	4 - 30 VDC	2800A ² s	3 130.00
SGB8890200	2 x 125A	3 x 85A	24 - 640 VAC	1600V	4 - 30 VDC	22000A ² s	5 090.00

SGT series - Three-phase solid state relays - for controlling three-wire three-phase loads

SGT9 series - Zero Cross for resistive loads (AC-51)

SGT9834300	3 x 35A	3 x 30A	24 - 660 VAC	1600V	4 - 30 VDC	1250A ² s	3 140.00
SGT9854300	3 x 50A	3 x 42A	24 - 660 VAC	1600V	4 - 30 VDC	2800A ² s	3 030.00
SGT9874300	3 x 75A	3 x 54A	24 - 660 VAC	1600V	4 - 30 VDC	7200A ² s	3 590.00

SGT8 series - Zero Cross for most load types

DC control

SGT8850200	3 x 50A	3 x 42A	24 - 640 VAC	1600V	4 - 30 VDC	2800A ² s	3 830.00
SGT8670500	3 x 75A	3 x 54A	24 - 520 VAC	1600V	4 - 30 VDC	7200A ² s	4 280.00
SGT8690500	3 x 125A	3 x 64A	24 - 520 VAC	1600V	4 - 30 VDC	22000A ² s	7 230.00

AC control

SGT8658500	3 x 50A	3 x 42A	24 - 520 VAC	1600V	24 - 255 VAC/DC	2800A ² s	3 840.00
SGT8678500	3 x 75A	3 x 54A	24 - 520 VAC	1600V	24 - 255 VAC/DC	7200A ² s	4 320.00
SGT8698500	3 x 125A	3 x 64A	24 - 520 VAC	1600V	24 - 255 VAC/DC	22000A ² s	5 950.00

SGTA series - Three-phase proportional controllers (H) 75 x (W) 100 x (D) 46 mm

- Control supply voltage 8 - 30 VDC

4-20mA control current input

SGTA4654	3 x 50A	300 - 510 VAC	4 - 20mA	proportional output SSR	9 830.00
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0-10V analog input

SGTA4650	3 x 50A	300 - 510 VAC	0 - 10V	proportional output SSR	9 600.00
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Accessories for above Three-phase series relays

type	thermal rating	description	dimensions (mm)			price
			(H)	(W)	(D)	
Heatsinks	SSR current ratings are based on sufficient cooling by the use of heatsinks					
WF108110	1.1 K/W	rail mountable heatsink for SM series relays	98	90	78	669.00
WF115100	0.9 K/W	rail mountable heatsink for SM, SG, series relays	90	110	100	2 090.00
1K199000	cover	transparent terminal cover for relays SGB and SGT				118.00



TMP



TMM1



TMM1NFC



NFC



TMPL



TMST

Modular timing devices

- Wide range of functions and time scales
- High accuracy and repeatability of the time settings.
- Green LED indicator for power on
- Red LED indicator for relay state; flashing for delay and steady when relay energized
- Multi-time range: 1s/10s/60s/10m/60m/10h/1day/10days/ON or OFF
- Excellent time accuracy and stability
- Compact robust DIN rail mounting modular housing (one 17.5 mm wide module)
- 1 x changeover relay 8A 250 VAC

type	description	supply voltage	price
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On-delay timer - delay on make (relay switches after preset time elapses)

- Multi-time range: 1s/10s/60s/10m/60m/10h/1day/10days/ON or OFF
- Multi-voltage: 24...48 VDC / 24...240 VAC

TMP	multi-time range, multi-voltage, on-delay modular electronic timer		874.00
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Multi-function timer (several selectable timing functions in one module)

- Multi-voltage: 12...240 VAC/DC
- Multi-function: Selectable functions:
 - A On-delay (relay only switches after preset time lapse)
 - B Interval (relay switches for preset time when energised)
 - C Equal repeat (start with OFF time first)
 - D Equal repeat (start with ON time first)
 - E Pulsed controlled interval (relay switches on close of external contact timing only begins on opening of contact)
 - F Pulsed controlled Interval (timing begins on closing of external contact)
 - G Pulsed controlled Interval (timing begins on opening of external contact)
 - H Pulse cont. On-delay/Interval (timing begins on opening and closing of external contact)
 - I Step relay (relay changes state on each closure of external contact)
 - J Pulse generator (unequal repeat adjustable OFF time/fixed 0.5 sec ON time)

TMM1	multi-time range, multi-voltage, multi-function modular elect. timer	12 - 240 VAC/DC	1 080.00
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NFC programmability Multi-function Timer (without front adjustable knob)

- 40 selectable functions
- Counter and hour counter included
- Simple, fast and intuitive programming
- Very high accuracy and repeatability of settings
- Programmable via smartphone or tablet with NFC technology and APP
- Access to settings can be protected by setting a 4-digit password via the App
- Programming via NFC ensures excellent accuracy in time settings and tripping thresholds



Scan to watch video

TMM1NFC	multi-time range, multi-voltage, multi-func. mod. elect. timer (NFC)	12 - 240 VAC/DC	1 080.00
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Unequal repeat timer (separately adjustable ON and OFF times)

Programmable time relay with a asymmetrical recycle time, with independent timing adjustment for ON and OFF times. Multi-time range and multi-voltage.

- Multi-time range: 1s/10s/60s/10m/60m/10h/1day/10days/30 days/100days
- Multi-voltage: 12...240 VAC/DC

TMPL	multi-time, multi-voltage, modular unequal repeat electronic timer	12 - 240 VAC/DC	1 660.00
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Delay on de-energisation timer

Electronic time relay. True off delay - relay energises on applying supply and remains energised (for pre-set time period) after supply is removed and then resets.

- Relay remains energised for preset time after removal of supply
- Selectable time ranges: 0.6s/6s/60s/180s (adjustable)
- Multi-voltage: 24...240 VAC/DC

TMD	multi-time, multi-voltage, delay on de-energisation elect. timer	24 - 240 VAC/DC	2 090.00
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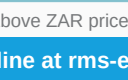
Star-delta timer (star connection delay and adjustable transition delay)

Electronic time relay for starting star-delta, impedance, auto transformer starters etc. Adjustable "star" time delay where after a 20...300ms "transition" delay before "delta" is energised

- Selectable time ranges: 1s/10s/60s/10min - transition: 20...300ms (adjustable)

TMST	multi-time, multi-voltage, mod. star-delta elect. timer	24 - 48 VDC / 24 - 240 VAC	1 030.00
TMSTA440	multi-time, multi-voltage, modular star-delta elect. timer	380 - 440 VAC	1 030.00

Protection relays

	type	description	monitored voltage	width in 17.5 mm	price
	Voltage monitoring modular relays				
	- Modular DIN rail mounting (<i>aligns with standard MCBs</i>) - True RMS measurements				
	Phase failure / reversal relay <i>instantaneous trip</i>				
	PMV10A440	phase failure / reversal relay	208 - 480 VAC L-L	1	911.00
	PMV20A575	phase failure / reversal relay	208 - 575 VAC L-L	2	1 180.00
	Voltage monitors <i>single-phase or three-phase</i>				
	- Voltage monitoring relays, self powered, for minimum and maximum voltage - Adjustments "V max" maximum voltage tripping threshold 105 - 115% U_e "V min" minimum voltage tripping threshold 80 - 95% U_e "tripping" and "reset" time delay 0.1 - 20sec				
	Single phase monitoring				
	PMV55A240	single-phase over/under voltage monitor	208 - 240 VAC	2	2 210.00
	Three-phase monitoring (<i>without neutral</i>)				
	Self powered, for minimum and maximum voltage, phase loss and incorrect phase sequence				
	PMV50A575	3-phase over/under voltage monitor	380 - 575 VAC L-L	2	2 160.00
	Three-phase monitoring (<i>with or without neutral</i>) <i>self powered</i>				
	For minimum and maximum voltage, phase loss, neutral loss and incorrect phase sequence				
	PMV50NA440	minimum and maximum AC voltage	380 - 440 VAC L-L	3	3 110.00
	PMV50NA600	minimum and maximum AC voltage	480 - 600 VAC L-L	3	4 280.00
	NFC programmability Three-phase monitoring (<i>same functionality as above unit</i>)				
	Multifunction voltage and frequency monitoring relay, self powered, for minimum and maximum voltage and frequency, phase loss, neutral loss, incorrect phase sequence and asymmetry.				
	- Without front adjustment knobs - Programmable via smartphone or tablet with NFC technology and APP - Simple, fast and intuitive programming (<i>password protected</i>) - Very high accuracy and repeatability of settings				
	PMV95NA575NFC	multi-func. voltage and frequency relay (NFC)	380 - 575 VAC L-L	2	4 070.00
	Current monitoring relays (<i>TRMS measurements</i>)				
	Single and three-phase, AC/DC minimum or maximum current control with delayed trip. Auxiliary AC/DC power supply, automatic or manual reset.				
	- AC/DC minimum or maximum current control with programmable delayed trip - Multi-voltage auxiliary power supply 24...240 VAC/DC - Direct connection up to 16A or by current transformer (CT) 5A secondary - Automatic or manual reset				
	- Adjustments - maximum or minimum current tripping threshold 5 - 100% I_e - maximum or minimum hysteresis threshold 1 - 50% "trip" delay (<i>selectable</i>) 0.1 - 30sec "inhibition" time - external input or power up 1 - 60sec - current scale selection: 5A or 16A - tripping memory (<i>latch</i>) On or Off				
	PMA30240	minimum or maximum current monitor	24 - 240 VAC/DC	2	2 360.00
	Pump protection relay <i>single and three-phase systems (selectable)</i>				
	Maximum AC current and minimum cosφ. Delayed trip. Phase loss and incorrect sequence. Instantaneous trip (<i>automatic or manual reset</i>)				
	- Pump protection relay against dry running, auxiliary AC power supply - Maximum AC current and minimum cosφ (<i>delayed trip</i>) - Direct connection up to 16A or by current transformer (CT) 5A secondary - Phase loss and incorrect phase sequence (<i>instantaneous trip</i>) - Voltage control range 80...660 VAC				
	- Adjustments "minimum" cosφ threshold (<i>underload/dry running</i>) 0.1 - 0.99 "maximum" (<i>over</i>) current threshold 10 - 100% I_e "trip" delay for min cosφ and max current 0.1 - 10sec "inhibition" time - external input or power up 1 - 60sec - automatic reset time Off - 100min - current selection: 5A or 16A				
	PMA50A240	pump protection relay (<i>against dry running</i>)	220 - 240 VAC	3	4 050.00
	PMA50A415	pump protection relay (<i>against dry running</i>)	380 - 415 VAC	3	4 050.00

Above ZAR prices do not include VAT. E&OE

J-18

Level controls relays



LVM20A240



LVM25240



LVM40...



SN1



LVM10A240

LVM series - Level control relays

- Level monitoring for conductive liquids
- Modular DIN rail mounting (*aligns with standard MCB's*)
- Double insulation between supply, electrodes and output relay

General applications:

- Adjustable sensitivity for water level control applications eg. wastewater (6...8k), rain or condensed water (15...25k)
- Probe signal detection circuit for applications where the electrode cables are significantly long and the liquid to control is highly resistive i.e. low conductivity (LVM40).
- Fail-safe operation for pump control applications by use of N/O contact for both emptying and filling functions avoiding false activations
- Time delay circuit for starting mainly used to avoid frequent pump startings

type	description	supply voltage	width in 18 mm	price
LVM20 <i>single voltage level control relay</i>				
• Three detecting probes (<i>Min, Max and Com</i>) • Emptying function (<i>automatic reset</i>) • Adjustable sensitivity (2.5...50kΩ) • Relay outputs: 1 x changeover (SPDT)				
LVM20A240	liquid level control relay for "emptying" function	220 - 240 VAC	2	1 040.00
LVM20A415	liquid level control relay for "emptying" function	380 - 415 VAC	2	1 040.00
LVM25 <i>multi-voltage supply 24...240 VAC/DC</i>				
• Slimline one module (18 mm) wide • Relay outputs: 1 x changeover (SPDT) • Adjustments – sensitivity (2.5...100kΩ) • Selectable – "emptying" (or) "filling" function (<i>with fail safe operation</i>)				
LVM25240	multi-voltage liquid level control relay	24 - 240 VAC/DC	1	1 480.00
LVM30 <i>dual-voltage supply delay start level control relay</i>				
• Relay outputs: 2 x changeover (SPDT) • Adjustments – probe signal delay 1-10sec / pump start delay 0-300sec • Selectable – "emptying" (or) "filling" function (<i>with fail safe operation</i>)				
LVM30A240	dual-voltage liquid level control relay	24/220-240 VAC	3	1 730.00
LVM30A415	dual-voltage liquid level control relay	110-127/380-415 VAC	3	1 730.00
LVM40 <i>Multifunction level control relay</i>				
• Adjustments – sensitivity (2.5...200kΩ) (<i>separate adj for Max electrodes for foam detection</i>) – probe signal delay 1-10s / pump start delay 0-30min • Relay outputs: 1 x changeover (SPDT) • Detecting probes: Five detecting probes (Min1, Max1, Min2, Max2 and Com) • Selectable 5 different functions: (A) standard emptying function and alarms (B) standard filling function and alarms (C) emptying function with priority start-up change control (D) filling function with priority start-up change control (E) well draining and tank filling and alarms				
LVM40A240	5 probe multi-function liquid level control relay	220 - 240 VAC	3	2 600.00
LVM40A415	5 probe multi-function liquid level control relay	380 - 415 VAC	3	2 600.00

Level electrodes and holders for conductive liquids

SN1	1-pole insulated electrode (<i>AISI 303 stainless steel</i>) for LVM relays	186.00
PS3S	electrode holder for 3 rod probes/electrodes	191.00
P1000S	electrodes for above PS3S holder (1 meter length)	91.00
FS03-3P	electrode spacer disc (for extending probe length)	37.00
PXL	electrode extension locknut (for extending probe length)	34.90

Pump start-up priority change relay

To balance operation times, hence wear of two pumps, compressors, generators when two units (*primary and standby*) are installed.

- Outputs: 2 x NO (SPST)
- Multi-voltage: 24/48 VDC / 2...240 VAC

LVMP05	pump priority change relay	24 - 48 VDC / 24 - 240 VAC	1	1 130.00
LVMP10A240	pump priority change relay with 4 I/O	220 - 240 VAC	3	1 730.00

Above ZAR prices do not include VAT. E&OE

Float switches

LVFS series - Float switches

Float switches for automation of electrical equipment - pumps, solenoid valves, alarms, motorised sluice gates etc. They feature an internal changeover contact operated in accordance with the level of liquid where the float is located. Cables used are high-quality and offer excellent mechanical and chemical resistance over time.

- Relay with changeover contact 10A 250 VAC 50/60Hz
- Compliant with standards: TUV, IEC/EN 60730-1, IEC/EN 60730-2-15.



Scan to watch video



LVFSP1W05



LVFSA1D10



LVFSN1B05

type	activation angle	cable length	supplied with counterweight	max. pressure	description	price
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For grey water IP68

Used for civil and industrial control of grey water levels, e.g. rainwater, groundwater, or cooling water from industry.

- PVC cable
- The MIN and MAX levels can be adjusted by varying the distance between counterweight and float.
- Changeover contact permits selection of filling and emptying function during regulator wiring.

LVFSP1W05	30°	5 meter	yes	2 bar	float level switch for grey water	541.00
LVFSP1W10	30°	10 meter	yes	2 bar	float level switch for grey water	751.00
LVFSP1W15	30°	15 meter	yes	2 bar	float level switch for grey water	1 510.00

For drinking water IP68

These float switches are suitable for drinking water and foodstuff applications such as aqueducts, fountains, aquariums, drinks, fish hatcheries, swimming pools, etc. Realised with a non-toxic polypropylene outer shell, a stainless steel untreated sphere, and an AD8 cable with health certification ACS (*Attestation de Conformité Sanitaire*) outer sheath in PVC suitable for drinkable water immersion and use with food products.

- PVC cable ACS + AD8 certified
- Provided with stainless steel counterweight (AISI 316)
- The MIN and MAX levels can be adjusted by varying the distance between counterweight and float.
- Changeover contact permits selection of filling and/or emptying function during regulator wiring.

LVFSA1D05	30°	5 meter	yes (AISI 316)	2 bar	float level switch for drinking water	1 710.00
LVFSA1D10	30°	10 meter	yes (AISI 316)	2 bar	float level switch for drinking water	2 250.00
LVFSA1D15	30°	15 meter	yes (AISI 316)	2 bar	float level switch for drinking water	2 940.00

For dirty water IP68

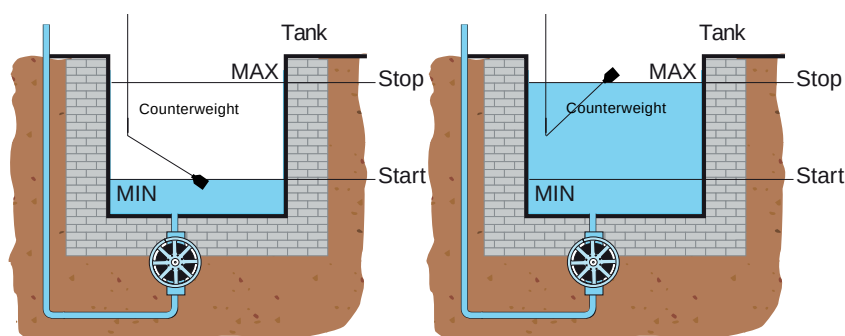
For civil and industrial control of dirty water levels, e.g. sewage or waste water from industry. Made of one-piece blow-moulded external polypropylene casing, with fixed internal counterweight located in the cable exit area. The regulator contact is positioned centrally in its own watertight chamber, insulated from external casing by injected closed-cell foam.

- Level control usually performed using two float switches, one for MIN. and another for MAX. levels
- Cable H07 RN-F3X1 (Neoprene)

LVFSN1B05	30°	5 meter	yes (internal)	10 bar	float level switch for dirty water	2 070.00
LVFSN1B10	30°	10 meter	yes (internal)	10 bar	float level switch for dirty water	2 580.00
LVFSN1B15	30°	15 meter	yes (internal)	10 bar	float level switch for dirty water	4 120.00

Example: Filling function for LVFS series

The level regulator contact closes the lower circuit at minimum level and opens the circuit when the float reaches the upper maximum/minimum level.





ENERGY



COMFORT



SAVINGS

10 series - Daylight switches

Light dependant relays for automatic control of external lighting according to ambient light level.

- Adjustable sensitivity: 1...80 lux
- Built-in time delay: (ON - 15 sec / OFF - 30 sec)
- Ambient range: -30...+70°C

type	switch current	contact config.	supply voltage	lux setting	delay ON/OFF	description	price
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10 series - Daylight switches**IP54****10.41 – light dependant relays (daylight switches)**

(H) 111 x (W) 59 x (D) 40 mm

- LED indication of relay status
- Wall or pole mounting (brackets supplied)

104182300000	16A	1 NO	230 VAC	1...80 lux	15/30s	standard daylight switch	1 080.00
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10.42 – 2 independent outputs with individual lux settings

104282300000	16A	2x 1 NO	230 VAC	2x 1...80	15/30s	2 circuit daylight switch	1 350.00
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10.51 – miniature light dependant relays (daylight switches)

(H) 81 x (W) 37 x (D) 37 mm

- LED indication of relay status
- Wall or pole mounting (brackets supplied)

105182300000	12A	1 NO	230 VAC	1...80 lux	15/30s	mini daylight switch	959.00
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10.61 – hole mount (Ø 18 mm)

(H) 48 x (Ø) 81

- Can be mounted directly on street light body

106182300000	16A	1 NO	230 VAC	(fixed) 10	15/30s	hole mount daylight switch	700.00
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11 series - Daylight switches with separate light sensor

Light dependant relays for automatic control of external lighting according to ambient light level - with separate light sensor.

- Modular DIN rail mounting (same cutout as standard MCBs)
- Selectable: std range 1...80lux / high range 30...1000lux / permanent ON or OFF
- LED indication of relay status

11.31 series - 17.5 mm wide

(H) 89 x (W) 17.5 x (D) 61 mm

113182300000	16A	1 NO	230 VAC	1...100	15/30s	modular daylight switch	1 050.00
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113100240000	16A	1 NO	12/24 VAC/DC	1...100	15/30s	modular daylight switch	1 270.00
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11.42 series - 2 independent outputs with individual lux settings

(H) 89 x (W) 35 x (D) 61 mm

114282300000	12A	2x 1 NO	230 VAC	2x 1-1000	15/30s	2 circuit daylight switch	2 080.00
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Light sensors for 11 series modular light dependant relays

01102	sensor	IP54	surface	mount	light sensor for 11 series modular relays	271.00
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Flush mount light sensor (mounts through 15/18 mm Ø hole) for modular relays

01103	sensor	IP66/67	flush	mount	light sensor for 11 series modular relays	487.00
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Modular time switches NFC programmable (with smartphone)

(H) 89 x (W) 35 x (D) 61 mm

Finder digital time switches incorporate easy to use NFC (Near Field Communication) for fast, flexible programming of time via a smartphone, can also be performed via the front mounted joystick control

- Versions with 1 or 2 contacts - 16A
- 110...230 VAC/DC supply
- Internal battery (easily replaceable) for set-up and programming without supply voltage
- Wide backlit display for easy programming and visualisation

type	time range	contact config.	reserve	min. setting	description	price
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Digital (analogue-style) time switch

easily configurable for daily or weekly programming

125182300000	24hr/7 day	1 CO	yes	30 min.	digital time switch	1 820.00
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Digital time switch with programmable pulse output (for school bell lunch/tea/interval ringing)

- Manual override facility
- Pulse output adjustable (1 sec...59 min)
- Holiday program

126182300000	7 day	1 CO	yes	1 min.	digital time switch with pulse output	2 170.00
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Astro time switches (calculates sunrise/sunset according to longitude/latitude coordinates)

- Astro program: calculation of sunrise and sunset times through date, time, location coordinates
- Programmable offset from Astronomic times (up to 90 min) (H) 89 x (W) 35 x (D) 57 mm

12A182300000	7 day	1 CO	yes	1 min.	astro programmable time switch	2 350.00
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12A282300000	7 day	2 CO	yes	1 min.	astro programmable time switch	2 810.00
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Industrial Automation Training

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ElectroMechanica (EM) provides hands-on training for all levels, helping you excel in Industrial Automation Products.

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Advanced



Servo:
Basic &
Advanced

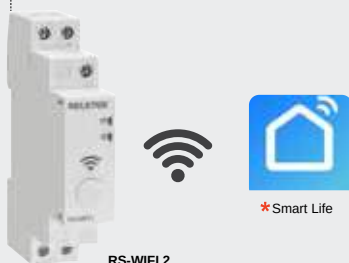


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Advanced

VTScada
Software Training



RS-WIFI 2

* Downloadable via the Play Store or App store



RS-TA14



RS-TM14



RS-TT13

WiFi smart switch

The RS-WIFI smart switch is a programmable switch/timer, easily programmable via a smart phone using WiFi or Bluetooth. Simply download the Smart Life app for use with Android or iPhone.

The smart switch can easily be programmed as a:

Switch: Remotely controlled ON/OFF switch (*phone indication of switch status*)
Timer: Permits a countdown timing function of the connected device
Time Switch: Daily, weekly programs/cycles down to second pulses (*using inching mode*)
 Also with astronomical function to calculate sunrise and sunset times based on geographic positioning (*longitudinal and latitudinal location*) and time zone, thus avoiding the need for external daylight switches and sensors.

- Front facia override button (*external pulse terminal also provided*)
- Output contacts: 1 NO - 16A / AC1
- Compact dimensions: 1 module (*18 mm wide*) DIN rail mounting
- Connection: WiFi and Bluetooth connection available

type	supply voltage	output relay	description	width in 18 mm	price
RS-WIFI 2	24 - 240 VAC/DC	1 x NO	modular WiFi smart switch	1	500.00
RS-WIFI 12	12 - 24 VAC/DC	1 x NO	modular WiFi smart switch	1	560.00

Electronic timing devices

Time relays

- Micro controller based
- Electrical life: 10⁵
- Mechanical life: 10⁶
- Output contacts: 1 C/O 8A / AC1
- LED indication: "Power" and "Relay" status
- Housing: Self-extinguishing material UL94-V-0
- Dimensions: 1 module (*18 mm wide*) DIN rail mounting

Multi-voltage, multi-range timer

- Rep accuracy: <0.2%
- Supply voltage: Multi-voltage - AC/DC 12...240V
- Time ranges: Multi-range - 1s / 10s / 1m / 10m / 1h / 10h / 1day/ 10days / ON / OFF

ON-Delay timer

RS-TA14	12 - 240 VAC/DC	1 x C/O	ON-delay modular timer	1	373.00
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Interval (OFF-delay) timer

RS-TB14	12 - 240 VAC/DC	1 x C/O	interval (OFF-delay) modular timer	1	373.00
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Multi-function, multi-voltage, multi-range timer (10 functions)

- ON-delay,
- OFF-delay,
- Flasher OFF first,
- Flasher ON first,
- Delay impulse generation (0.5s)
- OFF-delay on impulse (*rising edge*)
- OFF-delay on impulse (*falling edge*)
- Switch ON/OFF delay,
- Latching relay,
- Time impulse released by rising edge with switch OFF-delay
- Time ranges: Multi-range - 1s / 10s / 1m / 10m / 1h / 10h / 1d / 10d / ON / OFF

RS-TM14	12 - 240 VAC/DC	1 x C/O	multi-function modular timer	1	450.00
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Asymmetric cycler timer - Multi-range

- Unequal repeat timer with separate adjustment of ON and OFF times.
- Can be configured for ON or OFF time first.
- Cycler beginning with pulse or pause (*selectable*)
- Output contacts: 2 C/O 8A / AC1
- Time ranges: Multi-range - 1s / 10s / 1m / 10m / 1h / 10h / 1d / 10d / 30d / 100days

RS-TC23	24 - 240 VAC/DC	2 x C/O	asymmetric cycler modular timer	1	560.00
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Delay on de-energisation (*true OFF-delay without power supply*)

Relay energises on applying supply and remains energised for a preset time period after supply has been removed.

- Output contacts: 1 C/O 8A / AC1
- Time ranges: 0.1-1s / 1s-10s / 0.1m-1m / 1m-10m (*selectable*)

RS-TT13	24 - 240 VAC/DC	1 x C/O	delay on de-energisation timer	1	711.00
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Time switches



RD-TPD1



RD-TPD2



RD-TPA2



RS-TSL

Digital time switches

Used for programming time functions for various applications such as lighting control, heating, household appliances, shop windows and many other devices.

The pulse program can be used for school or factory bell ringing. An internal battery maintains clock time and all program settings in the event of power failure.

- Compact dimensions: 2 module (36 mm wide) DIN rail mounting
- Number of programs: 52 programs
- Programs: Weekly, daily and pulse
- Operating modes: Manual, automatic, holiday
- Contact rating: 16A / 250V AC1
- Standards: EN/IEC60730-1, EN/IEC60730-2-7

type	supply voltage	time range	min. setting	power reserve	description	width in 18 mm	price
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Digital time switches

Single channel digital weekly time switch

- 52 programs
- Automatic transfer of weekdays
- Holiday mode
- LCD display
- 1 changeover contact
- Sealable front cover, easy setting via 4 frontal buttons

RD-TPD1	220 - 240 VAC	7 day	1 sec	3 year	digital time switch	2	373.00
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Dual channel digital weekly time switch

- 90 programs
- Back-lit LCD display
- 2 changeover contacts
- 10 year power reserve (lithium battery)
- Double channel (each channel programmable independently)

RD-TPD2	24 - 264 VAC/DC	7 day	1 sec	10 year	digital time switch	2	711.00
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Digital astronomical time switches

RD-TPA series astronomical time switches calculate sunrise and sunset times based on geographic positioning (longitudinal and latitudinal location) and time zone. Thus avoiding the need for external daylight switches and sensors.

- Contact rating: 16A / 250V AC1
- Operating modes: Manual, automatic, holiday
- Standards: EN/IEC60730-1, EN/IEC60730-2-7
- Compact dimensions: 2 module (36 mm wide) DIN rail mounting
- Program: Astronomical program (for sunrise and sunset calculation)

Single channel digital astronomical time switch

- LCD display
- 1 changeover contact
- Sealable front cover, easy setting via 4 frontal buttons

RD-TPA1	220 - 240 VAC	7 day	—	3 year	astronomical time switch	2	418.00
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Dual channel digital weekly time switch

- Back-lit LCD display
- 2 changeover contacts
- 10 year power reserve (lithium battery)
- Double channel (each channel programmable independently)

RD-TPA2	24 - 264 VAC/DC	7 day	—	10 year	astronomical time switch	2	728.00
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Staircase timer

The staircase timer provides a pre-determined ON time to operate a light or group of lights for illumination of a staircase, corridor, passageway, bathroom etc.

On receiving a pulsed input, the unit operates a contact (switching lights on) for a predetermined time period, where after it switches off until the next pulse

- 1 NO - 16A contact AC1
- 1 module DIN-rail mounting
- Possibility of 3 or 4 wire connection
- Preselect time range 0.5...20 minutes
- LED indication of "Power" and "Relay" status
- ON - AUTO - OFF slide switch on face of timer (manual override)

RS-TSL	220 - 240 VAC	20 min	1 min	—	modular staircase timer	1	338.00
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RS-MV13



RS-MV31M



RS-MV36M



RS-MI5A

Voltage monitoring devices

- 1 CO 8A /AC1
- Micro-processor based
- 1 module DIN-rail mounting
- Supply voltage monitoring (*True RMS measurement*)
- Threshold voltage and trip delay independently adjustable

type	overvoltage setting (V)	undervoltage setting (V)	trip delay (s)	description	width in 18 mm	price
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Single phase voltage monitor

The **RS-MV13** relay monitors its supply voltage. If the monitored voltage exceeds the preset overvoltage or undervoltage settings, the relay trips until the voltage returns to within the preset levels. An adjustable (*0.1...10sec*) trip delay is also incorporated.

- Microcontroller based
- Auto reset
- LED indication of control state

RS-MV13	225 - 275V	165 - 215V	0.1...10s	single phase voltage monitor	1	444.00
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Three-phase voltage monitor

- Microcontroller based
- 1NO + 1NC output 8A
- True RMS measurement
- LED indication of "supply" and "output" state
- N phase failure protection in 3 phase 4 wire setting

Phase failure/reversal relay

Monitors supply, ensuring all phases (+ *Neutral in 4 wire system*) are present and in correct sequence. **RS-MV32M** additionally monitors phase asymmetry/imbalance (*fixed at 8%*)

RS-MV31M	—	—	phase failure/phase reversal relay	1	400.00
RS-MV32M	—	—	phase failure/phase reversal/asymmetry (8%) relay	1	427.00

Under/Over voltage monitor + phase failure/reversal relay

RS-MV34M relay monitors its 3 phase supply. If the monitored voltage exceeds the preset overvoltage or undervoltage settings the relay trips until voltage returns to within preset levels.

RS-MV36M additionally monitors phase failure and phase sequence (*reversal*) and will only reset once monitored voltage is within the preset level and all phases (*including Neutral in 4 wire setting*) are present and in sequence. An adjustable (*0.1...10sec*) trip delay is also incorporated.

Select - 3 phase 3 wire (or) 3 phase 4 wire and voltage selectable via facia:

Modes	3 PH 3 wire	3 PH 4 wire	(selectable)
Supply Terminals	L1,L2,L3	L1,L2,L3,N	(selectable)
Supply voltage	380/400/415V	220/230/240V	
Operating voltage range	266...540V	154-312V	

RS-MV34M	(105-125%) xUn	(75-95%) xUn	0.1...10s	under/over voltage monitor	1	515.00
RS-MV36M	(105-125%) xUn	(75-95%) xUn	0.1...10s	U/O volt+PH failure/reversal monitor	1	622.00

Current monitoring relay

RS-MI*A monitors a preset overcurrent or **RS-MI*B** undercurrent. If monitored current exceeds (or) falls below preset level the relay trips after completion of a preset trip delay, and only resets once current is within the preset limits. An adjustable (*1-6sec*) start-up delay is also incorporated.

General features:

- 1 C/O output - 8A AC1
- 1 module DIN-rail mounting
- Adjustable trip and start-up delay
- Adjustable current actuation threshold
- Can be used in junction with Current Transformers (CT's) up to 600A
- Hysteresis - 5% current setting value
- Rated insulation voltage - 250 VAC
- Measurement frequency 45-65Hz

Current monitor - overcurrent

RS-MI5A	0.5-5A	—	0.5...10s	modular overcurrent monitor	1	560.00
RS-MI10A	1-10A	—	0.5...10s	modular overcurrent monitor	1	560.00

Current monitor - undercurrent

RS-MI5B	—	0.5-5A	0.5...10s	modular undercurrent monitor	1	560.00
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Liquid level controls



RS-LC3



SNL1



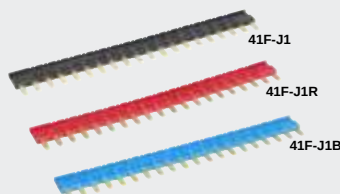
TS-01



RD-ST1



C41F-1Z-C2-1


 41F-J1
41F-J1R
41F-J1B

Liquid level control relays

RS-LC liquid level relay monitors conductive liquid levels using electrodes to provide level status. When level reaches upper level, the relay disconnects the pump until the level reaches the lower level whereupon the relay re-energises switching the pump on.

RS-LC3 permits selection for "filling" or "draining" application and adjustable (0.5...10s) trip delay.

- Microprocessor based
- Adjustable sensitivity 5kΩ...100kΩ
- Operates with 2 or 3 electrodes
- Selectable "draining" or "filling" function (**RS-LC3**)
- 1 module DIN-rail mounting

type	supply voltage	sensitivity adjustment	trip delay	description	width in 18 mm	price
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Liquid level relays

RS-LC1	24 - 240 VAC/DC	5~100kΩ	2s (<i>fixed</i>)	modular liquid level relay	1	489.00
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With adjustable trip delay and "filling" or "draining" selector

RS-LC3	24 - 240 VAC/DC	5~100kΩ	0.5-10s	modular liquid level relay	1	578.00
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Accessories for liquid level relays

SNL1	—	stainless steel Aisi 316 electrodes for liquid level relays	(ea)			72.00
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Twilight (daylight) switches
Surface or pole mounting (IP54)

- 16A/250 VAC AC1
- Sensitivity adjustment 2 to 200 lux
- LED indication for calibration point

TS-01	230 VAC	—	surface/pole mounting day/night switch	—		338.00
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Modular daylight switch (2 module DIN-rail mount)

- 25A/250 V AC1
- Sensitivity adjustment 2 to 100 lux
- External light sensor (*included with switch*) 1m
- Fixed switching delay - ON (2...5s) and OFF (10...15s) delay

RD-ST1	230 VAC		modular day/night switch with external sensor	2		338.00
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Electro: Relay interface module - Slimline (IP20)

The CF41 series relay interface module (*slimline*) is a cost effective solution for interfacing to PLCs and automation controllers. They provide an ultra-slim solution (6.2 mm wide) with high current switching (6A...250VAC).

- Slimline (6.2 mm) (H) 88.3 x (W) 6.3 x (D) 72.4 mm
- DIN-rail mounting - screw terminal
- Integrated LED indication and protection circuit
- Integrated retaining clip/relay ejector (*for ease of relay removal*)
- Provision for fitting pluggable jumper bars (*reducing wiring time*)

Rated current:	6A...250 VAC / 30 VDC
Rated AC1 load:	1500VA
Maximum switching voltage:	400 VAC / 125 VDC
Approvals:	VDE (40020043), UL (E133481)
Dielectric strength	- Coil and contacts 4kV (1 min) - Open contacts 1kV (1 min)

type	supply voltage	contact	description	terminal type	price
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C41F-1Z-C2-1	24V AC/DC	1 CO (SPDT)	DIN-rail mount relay interface module	screw	160.00
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Accessories for above relay interface

type	colour	No. ways	description	price
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41F-J1	black	20 way	jumper link (<i>bridge bar</i>) for relay interface	—	32.10
41F-J1R	red	20 way	jumper link (<i>bridge bar</i>) for relay interface	—	32.10
41F-J1B	blue	20 way	jumper link (<i>bridge bar</i>) for relay interface	—	32.10

Adaptor (8 way) - interconnects 8 interface modules to PLC outputs via 14-pole ribbon cable

AR-8P	black	8 way	interconnect adaptor for relay modules	—	106.00
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New



261018



261022



270272



270282

Modular electronic timer

type	description		supply voltage	price
Multi-range - Multi-function - Multi-voltage, modular timer				
	• Output contact:	1 C/O 5A 250 VAC		
	• Operating temp:	-20...+60°C		
	• Supply frequency:	35 - 70 Hz		
	• Multi- time range:	Seconds: 1/10/100, Minutes: 1/10, Hours 1/10/100, Days 1/10		
	• Multi-voltage:	24...300 VAC/DC		
	• Multi-function:			
	On-delay	(on energising, relay only switches after preset time period)		
	Interval (off-delay)	(on energising, relay switches for preset time then resets)		
	On/off delay	(on energising, relay remains OFF for preset off-time, then switches ON for preset on-time, then resets)		
	Equal repeat (off)	(equal repeating starting with preset OFF time first)		
	Equal repeat (on)	(equal repeating starting with preset ON time first)		
T1-M5 Multi-Range/Function/Voltage electronic timer			(IP20) (width: 17.5 mm)	
	• Modular DIN rail mounting - (H) 90.4 x (W) 17.5 x (D) 66.5 mm (aligns with standard 1 pole MCB)			
261018	multi-range, multi-function, multi-voltage modular electronic timer		24 - 300 VAC/DC	768.00
T1-K Multi-function modular timer (pulse controlled)				
As above T1-M5 also with pulse control of functions (via external contact)				
configurable with interval on rising or falling edge triggering as well as on-delay with memory				
261019	multi-range/function/voltage modular timer with pulse control		24 - 300 VAC/DC	837.00
SD1 Star-Delta modular timer			(IP20) (width: 17.5 mm)	
Applying supply activates the preset "star" time period where after the preset (20...500msec) transition delay occurs before the "delta" relay is energised, it remains in this position until supply is removed.				
	• Modular DIN rail mounting - (H) 90.4 x (W) 17.5 x (D) 66.5 mm (aligns with standard 1 pole MCB)			
	• Multi-voltage:	150...500 VAC		
	• Star time:	t1 1...30 seconds		
261022	modular DIN rail mounting electronic star-delta timer		150 - 500 VAC	993.00
Liquid level controller			IP20 (width: 36 mm)	
LC3 controls levels of conductive liquids by measuring the resistance of the liquid between probes. If measured resistance is less than the preset value, the output relay will be activated.				
To avoid electrolysis, an AC signal is applied to the liquid				
	• Modular DIN rail mounting - (H) 90 x (W) 36 x (D) 58 mm (aligns with standard 2-pole MCB)			
	• Sensitivity adjustment:	5...100kΩ		
	• Time delay:	0.1 - 10 sec		
270299	modular DIN rail mounting electronic liquid level controller		150 - 500 VAC	813.00
Protection relays			IP20 (width: 17.5 mm)	
	• Output contact:	1 C/O 10A 250 VAC		
	Phase-failure/reversal/imbalance	M1D-SA		
	• Fixed time delay:	500msec		
270272	modular DIN rail mount 3 ph phase failure/reversal/imbalance relay		380 - 480 ±25%	948.00
Voltage monitor with phase-failure/reversal/imbalance			IP20 (width: 17.5 mm)	
	• Modular DIN rail mounting - (H) 90.4 x (W) 17.5 x (D) 66.5 mm (aligns with standard 1 pole MCB)			
	• Adjustable - (via front facia dials)			
	Over voltage:	+5...+20% with OFF (override) selection		
	Under voltage:	-5...-20% with OFF (override) selection		
	Delay time:	0.1...10sec		
G1D-SA - 3 phase (L1-L3)				
270283	modular 3ph over/under voltage monitor with ph failure/reversal		380 - 480 ±25%	948.00
G1-SA - 3 phase + neutral (L3-N)				
270282	modular 3ph+N over/under voltage monitor + ph failure/reversal		230 ±25%	810.00
Current monitor relay			36 mm (2 modules wide)	
CPR-16	Current measurement:	0.1 ... 16A AC	Hysteresis: 5...20%	
	Time delay adjustment:	0.1 ... 10 sec		
270270	0.1...16A	modular DIN rail mounting current monitor	36 - 300 VAC/DC	1 470.00

Above ZAR prices do not include VAT. E&OE

Analog signal converters



602310



602320



602400



IBR1...

ASCON series

Analog signal converters

The Ascon range of signal converters are compact electronic devices which measure input parameters converting them to another signal form continuously. Converting temperature, voltage and current parameters into V, mV, mA, and RS485 outputs.

- Different inputs and outputs are configurable via front mounted rotary selector dials
- 3 way - 1.5kV RMS Isolation (Input, output and supply electrically isolated from one another)
- Compact modular (H) 90.4 x (W) 17.5 x (D) 66.5 mm (same dimensions as single pole MCB)

type	supply voltage	selectable inputs		selectable outputs	description	price
ASCON 311 Signal converter (<i>configurable</i>)						
602300	11 - 30 VDC	0...60mV	0...5mA	0...5V	configurable analog signal converter	4 520.00
		0...100mV	0...10mA	5...0V		
		0...250mV	0...20mA	0...10V		
		0...500mV	-5...5mA	10...0V		
		0...1V	-10...10mA	-5...5V		
		0...2V	-20...20mA	0...20mA		
		0...2.5V	4...20mA	20...0mA		
		0...5V	0...24mA	4...20mA		
		0...10V	4...24mA	20...4mA		
		0...20V	0...12mA	-20...20mA		
ASCON 321 PT100 converter (<i>configurable</i>)						
602310	11 - 30 VDC	PT100 (2,3,4 wire) -150°C...800°C (<i>configurable</i>)		V/mA same as Ascon 311 (<i>above</i>)	configurable PT100 signal converter	4 520.00
ASCON 331 Thermocouple converter (<i>configurable</i>)						
602320	11- 30 VDC	J:	-200°C...1200°C	V/mA same as Ascon 311 (<i>above</i>)	configurable thermocouple signal converter	4 520.00
		K:	-200°C...1350°C			
		E:	-200°C... 950°C			
		R:	-50°C...1750°C			
		S:	-50°C...1750°C			
ASCON 352 Signal temperature converter (<i>with RS485</i>)						
602400	11 - 30 VDC	mV, V, mA		RS485	signal temperature converter to RS485	3 790.00
		PT100 (2,3,4 wire)				
		Thermocouple (J,K,E,R,S)				

Voltage and current transducers

Converts voltage and current signals into analog signals for monitoring/managing purposes

- 3 way - 1.5kV RMS Isolation
- Compact modular (H) 90 x (W) 36 x (D) 57.5 mm (same dimensions as 2-pole MCB)

VT3-AC TRMS voltage transducer

600111	85 - 265 VAC	0-24/36/54/80/120/170/250/	V/mA same as Ascon 311 (above)	TRMS AC voltage transducer	4 260.00
600113	10 - 36 VDC	400/450/500V AC		TRMS AC voltage transducer	5 080.00
600115	9 - 30 VDC	(10 ranges)		loop powered voltage t/ducer	4 260.00

VT3-ACDC-24 TRMS voltage transducer

600116	10 - 36 VDC	0-24/54/120/250/450V AC/DC (10 ranges)	V/mA same as Ascon 311 (above)	TRMS AC/DC voltage transducer	2 260.00
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CT3 TRMS current transducer

600110	85 - 265 VAC	0-1/2/3/4/5A AC/DC (10 ranges)	V/mA same as Ascon 311 (above)	TRMS AC current transducer	3 980.00
600112	10 - 36 VDC			TRMS AC current transducer	2 260.00
600114	9 - 30 VDC			loop powered current t/ducer	3 980.00



CTA4100A



L48TP...



S48/704/B6/...



1400/704/B6/11A



XT115163

Delta - CTA - Timer / Counter / Tachometer (Panel mount 48 x 48 mm²)

CTA 3-in-1 Timer/Counter/Tachometer is able to receive external input signals and calculate the times of events, frequency and speed. The CTA unit can be applied to batch counting, total counting, length measurement.

- External power supply: 12 VDC $\pm 10\%$, 100mA (*integrated power supply*)
- Display: Double-line, 6-digit negative transmissive LCD display
- Input signal: Non-voltage input (NPN) / Voltage input (PNP)
- Output 1: Relay: SPST max.250 VAC, 5A + Transistor: NPN open collector.
- Output 2: Relay: SPDT max.250 VAC, 5A (*or*) Transistor: NPN open collector.
- Easy DIP switch setup:
 - Timer
 - timing up or down 0.01 sec - 999.999 hours
 - on-delay, interval, repeat (*power on, pulse on, pulse off*)
 - Counter
 - counting up or down 1 or 2 stage, batch, total, dual counting
 - (*speed selection: 1/30/200/3k/5k/10k Cps*)
 - Tachometer
 - measurement in Hz (*can be configured to read RPM*)

type	description	output 2	RS-485	supply	price
CTA4100A	multi-function timer-counter-tachometer	relay	no	100 - 240 VAC	1 770.00
CTA4000A	multi-function timer-counter-tachometer	transistor	no	100 - 240 VAC	1 770.00
CTA4001A	multi-function timer-counter-tachometer	transistor	yes	100 - 240 VAC	1 870.00
CTA4100D	multi-function timer-counter-tachometer	relay	no	24 VDC	1 770.00
CTA4101D	multi-function timer-counter-tachometer	relay	yes	24 VDC	1 930.00

Lovato - Panel mounting timers (48 x 48 mm²) **Changeover relay (5A 250 VAC)**

- Multi-voltage: 24 VAC/DC, 110, 220...240 VAC
- Housing: 8-pin plug-in housing

On-delay timer - delay on make (*relay switches after preset time elapses*)

		time range	
L48TPS240	on-delay multi-range/voltage panel mount electronic timer	3/12/100/780sec	803.00
L48TPM240	on-delay multi-range/voltage panel mount electronic timer	3/12/100/780min	803.00

Two changeover relays (*one configurable for instantaneous switching*)

L48TPBM240	on-delay multi-time range panel mount electronic timer	1s/10s/1min/10min	935.00
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Accessories for above L48 series panel mount timers

ES8CNER	8 pin surface/DIN rail mounting relay socket for L48 timers	(screw terminals)	143.00
P3G08	8 pin socket for panel mounting L48 timers (<i>rear terminals</i>)	(screw terminals)	48.00
D-48Y	flush-mounting bracket for panel mounting above L48 timers		32.70

CDC - Electromechanical timing devices (*motorised*)**Multi-range motorised timers 6/60sec - 6/60min - 6/60hrs** (*on one timer*)**Surface/DIN rail mount motorised timer**

S45/604/B6/02A	1x instantaneous + 1x delay multi-range motorised timer	24 VAC	4 620.00
S45/604/B6/11A	1x instantaneous + 1x delay multi-range motorised timer	110 VAC	4 620.00
S45/604/B6/22A	1x instantaneous + 1x delay multi-range motorised timer	220 VAC	4 620.00

Flush/panel mount motorised timer

S48/704/B6/02A	1x inst + 1x delay multi-range motorised timer	p/mount 48 mm ²	24 VAC	4 360.00
S48/704/B6/11A	1x inst + 1x delay multi-range motorised timer	p/mount 48 mm ²	110 VAC	4 360.00
S48/704/B6/22A	1x inst + 1x delay multi-range motorised timer	p/mount 48 mm ²	220 VAC	4 360.00
1400/704/B6/22A	1x inst + 1x delay multi-range motorised timer	p/mount 72 mm ²	220 VAC	4 950.00

Accessories

L48P8	rear connected 8 pin screw terminal socket	for S48/1400 timers	194.00
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Finder - Asymmetrical timer (*up to 300hrs*) (*use L48P8 for termination*)

889202400000	2-pole	panel mount asymmetrical flasher	240 VAC	2 990.00
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EM - Mechanical clockwork timers - panel mount 16 A 250 VAC (1NO + 1NC)

- Mounting by 2 x M4 screws
- Supplied with graduated dial & knob

type	Amps	contact	time range	description	price
XTI2049	16A	1NO + 1NC	60 min	MI2 mechanical clockwork timer	969.00
XTI2048	16A	1NO + 1NC	120 min	MI2 mechanical clockwork timer	969.00
XTI2045	16A	1NO + 1NC	12 hour	MI2 mechanical clockwork timer	1 040.00
XTI15163*	16A	1NO + 1NC	24 hour	MI5 mechanical clockwork timer	1 510.00

* Requires separate supply for 220V internal motor

Modular electronic timers



DOD

Electro D series - Modular timing devices

The **Electro "D"** range of control and timing devices are compact modular units for easy introduction into standard panels and/or distribution boards. They mount directly onto DIN rail and align with standard miniature circuit breakers (MCB's).

- Compact DIN rail mounting: (H) 92 x (W) 36 x (D) 64 mm - (2 modules wide)

multi-range (adjustable time ranges)	No.	time ranges
	1	6 sec
	2	60 sec
	3	6 min
	4	60 min
	5	6 hr
	6	60 hr
	7	ON
	8	OFF

multi-function	No.	functions
	A	on-delay
	B	interval
	C	equal repeat
	D	Off delayed (pulse controlled)
	E	interval (pulse controlled)
	F	step relay
	G	pulse generator
	H	on/off delay

type	supply voltage*	time range	function	description	price
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Multi-range/multi-function timers - (8 x selectable time ranges / 8 x selectable functions)

Multi-function, multi-range timers designed with latest technology includes all commonly used functions and time ranges (selectable via front mounted dials).

Single voltage version

DMFT012AD	12 VAC/DC	selectable via rotary selector on facia of timer 1...8	selectable via rotary selector on facia of timer A...H	multi-range/function timer	1 040.00
DMFT110A	110 VAC			multi-range/function timer	1 040.00
DMFT230A	230 VAC			multi-range/function timer	1 040.00
DMFT400A	400 VAC			multi-range/function timer	1 040.00
DMFT024AD	24 VAC/DC			multi-range/function timer	1 040.00

True off delay (delay on de-energisation) electronic timer

Multi-range OFF delay (delay on release) timer with advanced power back-up circuitry to deliver wide time ranges. The unit must be powered for no less than 30 sec + 30% of set time range.
(If permanent power is available DMFT timer should be used.)

- Delay on de-energisation timer (delay on removal of supply)

DOD230A	230 VAC	1...4	off delay	delay on de-energisation timer	999.00
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Unequal repeating electronic timer multi-range (ON/OFF)

Multi-range electronic timer designed with latest technology covers most combinations of ON/OFF time ranges selectable via front mounted dials and DIP switch.

- Asymmetrical recycler with independently adjustable ON and OFF times

DUR110A	110 VAC	selectable via selector on facia 1...8	repeat	multi-range unequal repeat timer	1 040.00
DUR230A	230 VAC		repeat	multi-range unequal repeat timer	1 040.00
DUR024AD	24 VAC/DC		repeat	multi-range unequal repeat timer	1 040.00

Star-Delta timer

Star/Delta timer with adjustable transition delay for starting inductive motors. Applying supply activates a contact for the preset "star" period (3-60 sec) the contact disconnects on lapse of this period for the preset transition period (4-180 ms) where after the relay switches to the "delta" position until supply is removed.

- Adjustable "star" time: 3-60 sec
- Adjustable "transition" time: 40-180 ms

DSD110A	110 VAC	3-60 sec	star delta	rail mount star-delta timer	939.00
DSD230A	230 VAC	3-60 sec	star delta	rail mount star-delta timer	939.00
DSD400A	400 VAC	3-60 sec	star delta	rail mount star-delta timer	939.00

Digital counter / timer (H) 92 x (W) 54 x (D) 64 mm

Multi-function four digit preselect impulse counter/timer. Setup and ranges can be adjusted with an easy to access and control menu system to make all common functions available.

- 4 digit preselect impulse counter with selectable prescaler, configurable for (up/down) counting
- Digital timer with pulse start/stop configurable for (up/down) lapse time indication
- 4 time ranges: 1...999.9s / 9999 min

DDCT230A	230 VAC	1s - 9999m	counter/timer	digital rail mount counter / timer	1 530.00
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* Other voltage options available on request



DDCT

Modular digital monitoring devices



DLL4



DPP4



DPF



DVW3

type	supply voltage*	output	function	description	price
Liquid level controllers (H) 92 x (W) DLL/DLL4 36/54 x (D) 64 mm					
Controlling of conductive liquid levels with two/ four probes.					
3 - probe unit - (2 + common) (H) 92 x (W) 36 x (D) 64 mm					
• Function: Emptying/ Filling					
DLL230A	230 VAC	2 probes+com	emptying/ filling	liquid level controllers	921.00
DLL400A	400 VAC	2 probes+com	emptying/ filling	liquid level controllers	921.00
DLL024AD	24 VAC/DC	2 probes+com	emptying/ filling	liquid level controllers	921.00
5 - probe unit - (4 + common) (H) 92 x (W) 54 x (D) 64 mm					
• Function: Emptying/filling with alarm, emptying/filling with pump priority, container filling/well draining with alarm, electrode test					
DLL4230A	230 VAC	4 probes+com	emptying/ filling	liquid level controllers	1 420.00
DLL4400A	400 VAC	4 probes+com	emptying/ filling	liquid level controllers	1 420.00
DLL4024AD	24 VAC/DC	4 probes+com	emptying/ filling	liquid level controllers	1 420.00
Radio level controller (wireless)					
- DIN radio receiver - 5 km transmission (<i>line of sight</i>) - Coin Battery CR2032 for level transmitters (<i>3 year life span</i>) - Two configurable (<i>radio connected</i>) relay outputs					
ANT 2	—	—	antenna	one per DWL... module	756.00
Advanced pump protection relay					
Advance pump protection relay to safeguard borehole pumps against damage. The unit is easily calibrated to monitor all important pump characteristics.					
- Over / under current protection - Over / under voltage protection and phase rotation (<i>on 3 phase units</i>) - Running dry restart delay / over current retires					
DPP1230A	230 VAC	1 phase	pump protection	pump monitoring relay	1 220.00
DPP3400A	400 VAC	3 phase	pump protection	pump monitoring relay	1 350.00
DPP4400A	400 VAC	3 phase	pump protection	with adj./function selection	1 420.00
Phase failure/reversal relay (sequence and imbalance)					
Phase failure / reversal monitor for Three-phase supply voltage. For protection against phase reversal, and/or phase loss and phase imbalance.					
DPF1110A	110 VAC	3 phase	phase monitor	phase failure/reversal relay	828.00
DPF1400A	400 VAC	3 phase	phase monitor	phase failure/reversal relay	828.00
DPF1/K400A*	400 VAC	3 phase	phase monitor	phase failure/reversal relay	921.00
DPF1/N400A	400 VAC	3 ph + neutral	phase monitor	phase failure/reversal relay	921.00
DPF1525A	525 VAC	3 phase	phase monitor	phase failure/reversal relay	828.00
DPF1/K525A*	525 VAC	3 phase	phase monitor	phase failure/reversal relay	921.00
* With adjustable parameters					
Automatic phase selector					
Monitors Three-phase + neutral and selects the phase most suitable for providing a single phase 230V 50Hz supply to industrial and domestic installations.					
Ideal for supplying essential uninterrupted single phase supply, preventing unacceptable voltage variations.					
• Automatically selects the optimum phase falling within user define pre-set limits.					
DPS3230A	230 VAC	3 phase	phase selector	automatic phase selector	1 740.00
Voltage window comparator + phase failure					
Monitors supply, ensuring voltage remains within preset over and under limits and that all phases are present and in sequence.					
• Delays : No delay - startup delay (10 sec) - recovery delay (180 sec) - reaction delay (10 sec)					
DVW1230A	230 VAC	1 phase	comparator	over / under voltage monitor	1 050.00
DVW3400A	400 VAC	3 phase	comparator	over / under voltage monitor	1 060.00
DVW3N400A	400 VAC	3 ph + neutral	comparator	over / under voltage monitor	1 050.00
DVW3525A	525 VAC	3 phase	comparator	over / under voltage monitor	1 060.00
Voltage monitor monitors a separate voltage than supply.					
DVM400A-230A	230 VAC		400 VAC monitoring	voltage monitor device	993.00
DVM024D-24A	24 VDC		400 VAC monitoring	voltage monitor device	1 410.00
DVM30MV-30MV	10-30 VDC		10-30 VDC monitoring	voltage monitor device	1 050.00
* Other voltage options available on request					

Above ZAR prices do not include VAT. E&OE

Modular digital monitoring devices



DCM



DLS



DDVW3

The **Electro "D"** range of control and timing devices are compact modular units for easy introduction into standard panels and/or distribution boards. They mount directly onto DIN rail and align with standard miniature circuit breakers (MCB's).

- Compact DIN rail mounting: (H) 92 x (W) 36 x (D) 64 mm - (2 modules wide)

type	supply voltage*	current	interface	description	price
Current monitors (H) 92 x (W) 36 x (D) 64 mm					
• Delays : No delay - startup delay (10 sec) - recovery (180 sec) - reaction delay (10 sec)					
Over (or) under current monitoring.					
Monitors supply, ensuring current remains within preset over (or) under current limits					
DCM5230A	230 VAC	5A	with 5A CT	modular current monitor	1 210.00
DCM5400A	400 VAC	5A	with 5A CT	modular current monitor	1 210.00
DCM5024D	24 VDC	5A	with 5A CT	modular current monitor	1 630.00
DCM15230A	230 VAC	15A	direct 15 A	modular current monitor	1 210.00
Current window comparator (H) 92 x (W) 54 x (D) 64 mm					
Monitors supply, ensuring current remains within preset over and under current limits					
DCW5230A	230 VAC	5A	with 5A CT	over / under current monitor	1 210.00
DCW15230A	230 VAC	15A	direct 15 A	over / under current monitor	1 210.00
Load shed relay (H) 92 x (W) 36 x (D) 64 mm					
Load shed relay featuring high resolution analog converter for precise switching levels.					
The relay monitors current consumed and disconnects unnecessary load when necessary					
DLS230A	230 VAC	15A	1 circuit	modular load shed relay	1 160.00
Digital temperature controller with timer (interfaces with TP1 digital probe)					
type	supply	outputs	function	description	price
4 digit digital temperature controller, monitors temperature via the TP1 temperature probe (supplied separately) Setup and range selection can be adjusted via an easy to access control menu system to make all common functions available.					
• Two set points / relay outputs / PID control					
• Over / under temperature					
DDTC230A	230 VAC	relay	controller	digital temperature controller	1 530.00
DDTCT230A	230 VAC	relay	controller	temp controller / 24 hour clock	1 760.00
TP1	temperature probe (with 3 meter cable)				312.00
Digital voltage window comparator					
Monitors supply, ensuring voltage remains within preset over and under limits and that all phases are present and in sequence.					
• Over / under voltage and frequency monitoring					
• 2 relay outputs for individual functions					
• Adjustable delays					
• Phase failure/reversal					
DDVW3400A	400 VAC	3 phase	monitor	digital voltage monitor	1 910.00
Wireless signal extender (3 inputs and 3 outputs: Tx and Rx)					
• Power supply: 10 - 30 VAC/DC					
• License free radio band					
• 7 km transmission - line of sight (includes Watchdog protection)					
DRC/M 10-30VDC	10-30 VAC/DC	3 relay	master transceiver	wireless signal extender	2 220.00
DRC/S 10-30VDC	10-30 VAC/DC	3 relay	slave transceiver	wireless signal extender	2 090.00
ANT 2	antenna for DRC signal extender			for DRC module	756.00
* Other voltage options available on request					

* Other voltage options available on request

Plug-in electronic timing devices



T2M



T2D



R2U



TNE

The **Electro 11 pin plug-in** range of control and timing devices to be installed into a standard 11 pin base making installation and potential future replacement simple and convenient.

- Compact 11 pin plug-in modules: (H) 80 x (W) 35 x (D) 79 mm

multi-range (adjustable time ranges)	No.	time ranges
	1	6 sec
	2	60 sec
	3	6 min
	4	60 min

multi-function	No.	functions
	A	on-delay
	B	interval
	C	equal repeat
	D	interval (pulse controlled)

type	supply voltage*	time range	function	description	price
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Multi-range/multi-function timers - (4 x selectable time ranges / 4 x selectable functions)

Multi-range multi-function plug-in timers incorporating most commonly required functions. Any change made to function or time range by means of front mounted dials will result in a reset of the unit.

T2M110A	110 VAC	selectable via rear mounted DIP switches	selectable via rear mounted DIP switches A, B, C	multi-range/function timer	856.00
T2M230A	230 VAC			multi-range/function timer	856.00
T2M400A	400 VAC			multi-range/function timer	856.00
T2M012AD	12 VAC/DC			multi-range/function timer	856.00
T2M024AD	24 VAC/DC			multi-range/function timer	856.00
T2M048AD	48 VAC/DC			multi-range/function timer	856.00
T3M110A	110 VAC	1...4	DIP switches A...D	multi-range/function timer	1 010.00
T3M230A	230 VAC			multi-range/function timer	1 010.00
T3M024AD	24 VAC/DC			multi-range/function timer	1 010.00

True OFF delay on de-energisation timer (delay on removal of supply)

Multi-range OFF delay (delay on release) timer with advanced power back-up circuitry to deliver wide time ranges. The unit must be powered for no less than 30 sec + 30% of set time range.

T2D10S230A	230 VAC	10 sec	off delay	delay on de-energise timer	982.00
T2D30S230A	230 VAC	30 sec	off delay	delay on de-energise timer	982.00
T2D30S400A	400 VAC	30 sec	off delay	delay on de-energise timer	982.00
T2D60S230A	230 VAC	60 sec	off delay	delay on de-energise timer	982.00
T2D180S024AD	24 VAC/DC	180 sec	off delay	delay on de-energise timer	982.00
T2D180S230A	230 VAC	180 sec	off delay	delay on de-energise timer	982.00
T2D360S024AD	24 VAC/DC	360 sec	off delay	delay on de-energise timer	982.00
T2D360S230A	230 VAC	360 sec	off delay	delay on de-energise timer	982.00
T2D/B10M230A	230 VAC	10 min	off delay	delay on de-energise timer	1 090.00
T2D/B30M230A	230 VAC	30 min	off delay	delay on de-energise timer	1 090.00
T2D/B60M230A	230 VAC	60 min	off delay	delay on de-energise timer	1 090.00
T2D/B180M230A	230 VAC	180 min	off delay	delay on de-energise timer	1 090.00

Unequal repeating timer multi-range (for ON and OFF ranges)

Asymmetrical recycler timer with two independently adjustable time ranges. On application of supply the relay operates for the pre-set "on" time, thereafter the relay releases for the separately pre-set "off" time. Cycle repeats until supply is removed.

Cycle can be reversed ("off" time first) by bridging terminals (7 and 9)

- Unequal repeating timer (asymmetrical recycler independently adjustable ON time and OFF time)

Dip switch selectable: **ON:** 6sec, 60sec, 6min, 60min, 6 hr
OFF: 6sec, 60sec, 6min, 60min, 6 hr

R2U110A	110 VAC	selectable via rear DIP switches	repeat	unequal repeating timer	899.00
R2U230A	230 VAC		repeat	unequal repeating timer	899.00
R2U400A	400 VAC		repeat	unequal repeating timer	899.00
R2U012AD	12 VAC/DC		repeat	unequal repeating timer	899.00
R2U024AD	24 VAC/DC		repeat	unequal repeating timer	899.00

Star-delta timer

Applying supply activates a contact for the preset "star" period the contact disconnects on lapse of this period for the preset transition period (4-180 ms) where after the relay switches to the "delta" position until supply is removed.

TNE30S024AD	24 VAC/DC	30 sec	star delta	plug-in star delta timer	745.00
TNE30S110A	110 VAC	30 sec	star delta	plug-in star delta timer	745.00
TNE30S230A	230 VAC	30 sec	star delta	plug-in star delta timer	745.00
TNE30S400A	400 VAC	30 sec	star delta	plug-in star delta timer	745.00
TNE60S024AD	24 VAC/DC	60 sec	star delta	plug-in star delta timer	745.00
TNE60S230A	230 VAC	60 sec	star delta	plug-in star delta timer	745.00
TNE60S400A	400 VAC	60 sec	star delta	plug-in star delta timer	745.00
TNE180S230A	230 VAC	180 sec	star delta	plug-in star delta timer	745.00

* Other voltage options available on request

Plug-in electronic timing devices



DEF1/F230A



T10



GAM3



RRP1

The **Electro 11 pin plug-in** range of control and timing devices to be installed into a standard 11 pin base making installation and potential future replacement simple and convenient.

- Compact 11 pin plug-in modules: (H) 80 x (W) 35 x (D) 79 mm

type	supply voltage*	time range	function	description	price
Defrost Timer (with fan delay)					
• Configurable for 4-hour (defrost cycle every 4 hours) or 8 hour cycle. Applying supply starts the pre-set (1-60 min) defrost cycle, thereafter the relay switches to the cooling cycle, activating the pre-set (1-60 sec) fan delay period (to prevent water splatter and warm air blowing into the room) and then starts the fan. • Defrost time: 3-60 min • Fan delay: 3-60 sec					
DEF1/F230A	230 VAC	see above	defrost	plug-in electronic defrost timer	1 030.00
Econo range timers econo single adjustable time range and supply voltage					
T10/10S230A	230 VAC	10 sec	on-delay	plug-in electronic timer timer	616.00
T10/10S400A	400 VAC	10 sec	on-delay	plug-in electronic timer timer	616.00
T10/30S230A	230 VAC	30 sec	on-delay	plug-in electronic timer timer	616.00
T10/60S230A	230 VAC	60 sec	on-delay	plug-in electronic timer timer	616.00
T10/180S024AD	24 VAC/DC	180 sec	on-delay	plug-in electronic timer timer	616.00
T10/180S230A	230 VAC	180 sec	on-delay	plug-in electronic timer timer	616.00
T10/360S230A	230 VAC	360 sec	on-delay	plug-in electronic timer timer	616.00
T10/360S400A	400 VAC	360 sec	on-delay	plug-in electronic timer timer	616.00
T10/600S230A	230 VAC	600 sec	on-delay	plug-in electronic timer timer	616.00
T10/600S400A	400 VAC	600 sec	on-delay	plug-in electronic timer timer	616.00
T10/600S525A	525 VAC	600 sec	on-delay	plug-in electronic timer timer	616.00
T10/60M230A	230 VAC	60 min	on-delay	plug-in electronic timer timer	616.00
T1IP/30S024AD	24 VAC/DC	30 sec	interval	econo pulsed internal timer	845.00
T1IP/30S230A	230 VAC	30 sec	interval	econo pulsed internal timer	845.00
T1P/230A	230 VAC	—	one-shot	econo impulse relay	745.00
FRT1/230A	230 VAC	—	timer	econo forward/reverse timer	903.00
Two hand control (safety control)					
Two hand control designed as a safety device for machines, forcing the operator to operate two pushbuttons within 0.5 secs for machine to operate. A latch facility is provided for use foot switches.					
THC1230A	230 VAC	—	safety	two safety hand controller	828.00
Flip flop relays					
Flip flop relays to control many applications such as dividing work load and controlling conveyor direction. (F30 mains controlled function has to be energised for at least 30 sec before the supply is removed)					
F12230A	230 VAC	flip-flop		pulse controlled without memory	903.00
F30230A	230 VAC	flip-flop		mains or pulse controlled + memory	1 010.00
F30024AD	24 VAC/DC	flip-flop		mains or pulse controlled + memory	1 010.00
Alarm module (3 circuits)					
Alarm module to control alarm signals and generate the appropriate output for simple annunciator panels. Control of alarm outputs from 3 separate N/O inputs. System can be expanded by bridging all common terminals of the modules.					
GAM3012D	24 VDC	—	alarm	alarm annunciator module	971.00
GAM3024D	12 VDC	—	alarm	alarm annunciator module	971.00
Tachometer relay					
Multi-function tachometer relay with four selectable speeds. The unit can be selected for OVER and UNDER speeds, interfaces directly with Namur two wire proximity sensor or limit switch. Relay remains energised for as long as detected speed remains within the pre-set limits.					
• Selectable speeds: 1-10, 10-100, 100-1000, 1000-10,000 (RPM)					
RRP1024AD	24 VAC/DC	—	relay	over/under speed monitor	917.00
RRP1110A	110 VAC	—	relay	over/under speed monitor	917.00
RRP1230A	230 VAC	—	relay	over/under speed monitor	917.00
RRP1012D	12 VAC	—	relay	over/under speed monitor	917.00
* Other voltage options available on request					

Plug-in electronic timing devices



SFK1



V3E...



T1R



SC1

The **Electro 11 pin plug-in** range of control and timing devices to be installed into a standard 11 pin base making installation and potential future replacement simple and convenient.

- Compact 11 pin plug-in modules: (H) 80 x (W) 35 x (D) 79 mm

type	supply voltage*	monitored voltage	function	description	price
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Phase failure / sequence relay

The SF1 monitors 3 phase supplies to detect phase failure, phase reversal and phase imbalance. The relay only operates while all Three-phases are present and in sequence.

SF1110A	110VAC	3 phase	phase failure	plug-in phase failure relay	706.00
SF1400A	400VAC	3 phase	phase failure	plug-in phase failure relay	706.00
SF1525A	525VAC	3 phase	phase failure	plug-in phase failure relay	706.00

- With sensitivity adjustment for Negative Phase Sequence (NPS)

SF1K400A	400VAC	3 phase	phase failure	phase failure with adj.for NPS	731.00
SF1K525A	525VAC	3 phase	phase failure	phase failure with adj.for NPS	731.00

Over / under voltage monitor (incorporating phase failure)

Monitors own supply. Relay will only operate whilst the supply voltage is within the presettable "over" and "under" voltage limits and all Three-phases present and in sequence. Provides effective power supply supervision and protection.

- Over / under voltage protection
- Phase failure/reversal protection

V1E230A	230 VAC	3 phase	voltage	over / under voltage monitor	1 020.00
V3E110A	110 VAC	3 phase	voltage	over / under voltage monitor	1 060.00
V3E400A	400 VAC	3 phase	voltage	over / under voltage monitor	1 060.00
V3E525A	525 VAC	3 phase	voltage	over / under voltage monitor	1 060.00
V3EN400A	400 VAC	3 ph + N	voltage	voltage monitor with neutral	1 060.00

Voltage monitor under (or) over voltage

V1C voltage monitor monitors a voltage separate from its supply. Relay will operate while the monitored voltage (below) the preset "over" voltage limit (or) (above) the preset "under" voltage limit.

V1C230A400MV	230 VAC	40 - 400 VAC	voltage	plug-in voltage monitor	946.00
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Frequency monitor

The relay is energised as long as measured frequency is within the presettable limits.

- Upper setting: 50-56 Hz
- Lower setting: 40-50 Hz

H1E0230A	230 VAC	3 phase	frequency	over and under freq monitor	896.00
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Current monitor

The module directly interfaces with conventional 1/5ACTs. The relay only operates as long as monitored current remains below the pre-set upper limit (or) above the pre-set under limit.

- Hysteresis: 5-50% (adjustable)

LA51230A	230 VAC	0 - 1A	current	over (or) under current monitor	1 060.00
LA55230A	230 VAC	0 - 5A	current	over (or) under current monitor	1 060.00
LA55400A	400 VAC	0 - 5A	current	over (or) under current monitor	1 060.00
WA55230A	400 VAC	0 - 5A	current	over and under current monitor	1 060.00

Temperature relay (direct conn. to PT100)

Directly interface with conventional PT100 (3 wire) sensors, the relay energises and remains so until pre-set maximum temperature limit is reached.

- Standard temperature : -20°...+80°C
- Ranges: 80°...180°C

T1R/180S110A	110 VAC	180s	relay	plug-in temperature controller	1 030.00
T1R/180S230A	230 VAC	180s	relay	plug-in temperature controller	1 030.00

Converters / Isolators

Compact signal converter with built-in 24VDC power supply for the output. The unit is designed for low amplitude signals where isolation is not needed. (Use SI100 for isolation).

type	supply voltage*	input signal	output signal	description	price
SC120A111230A	230 VAC	0 - 1A	4 - 20mA	current converter	1 580.00
SC120A211230A	230 VAC	0 - 5A	4 - 20mA	current converter	1 580.00

* Other voltage options available on request

Plug-in electronic timing devices



LV1



LP3



SN1



PS3S



EX11 + EX08



EMD02



EMD03

The **Electro 11 pin plug-in** range of control and timing devices to be installed into a standard 11 pin base making installation and potential future replacement simple and convenient.

- Compact 11 pin plug-in modules: (H) 80 x (W) 35 x (D) 79 mm

type	supply voltage*	time range	function	description	price
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Level controllers *(failsafe control and monitoring of high and / or low levels)*

Level control unit of conductive liquids, can be configured for "Filling" or "Emptying"
 Can be used as a two probe system for alarm purposes or a three probe system to control HIGH and LOW levels of a reservoir. Up to four LV1 can be utilized in the same reservoir by connecting all commons (pin7)

• Emptying/ filling		• Adjustable sensitivity			
LV1024A	24 VAC	—	level control	liquid conductive controller	856.00
LV1110A	110 VAC	—	level control	liquid conductive controller	856.00
LV1230A	230 VAC	—	level control	liquid conductive controller	856.00
LV1400A	400 VAC	—	level control	liquid conductive controller	856.00
LV1525A	525 VAC	—	level control	liquid conductive controller	856.00
LV1024D	24 VAC	—	level control	liquid conductive controller	1 280.00
LVC1230A	230 VAC	—	level control	DC capacitive probe control	799.00

Pump sequence relay - Three circuits

Alternating relays designed to minimize pump and motor wear by equalizing run time between parallel components in a multi-pump system. Controlled by an external control switch.

- Three normally open pump outputs
- Permanent memory for next pump to be activated after power off
- Three pressure switch inputs *(voltage free)*

PSR1230A	230 VAC	3 circuits	relay	pump sequencing relay	974.00
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Pump protection relay

Pump protection relay to safeguard submersible pumps against damage. The unit is easily calibrated to monitor all important pump characteristics.

- Over / under current protection
- Over / under voltage protection and phase rotation *(on 3 phase units)*
- Running dry restart delay / over current retires

Function: Voltage, Current monitoring / Security switch trip / Star / Delta connection

type	supply voltage*	phase time	recovery	description	price
LP1230A	230 VAC	1 phase	6 hours	pump protection relay	956.00
LP2230A	230 VAC	1 phase	1-2-4-8 hrs	pump protection relay	1 220.00
LP3400A	400 VAC	3 phase	1-2-4-8 hrs	pump protection relay	1 250.00

Accessories for level controls

SN1	single line insulated stainless steel probe for conductive liquids				186.00
PS3S	3 electrode holder <i>(mounts through 50.5 mm hole)</i>				191.00
P1000S	electrodes for PS3S holder <i>(1 meter length)</i>				91.00
FS03-3P	electrode spacer disc <i>(for extended probe length)</i>				37.00
PXL	extension locknut <i>(each)</i>				34.90

Empty plastic housings *(for electronic components)*

11 pin plug-in black plastic housings

EX02		panel mount adaptor for 11 pin modules	93.00
EX11	(H) 80 x (W) 35 x (D) 79	11 pin empty housing complete <i>(black)</i>	60.00
EX08	front label	blank adhesive label for front of housing	7.60
EX06B	black knob	potentiometer knob for above housing	10.30
EX06G	grey knob	potentiometer knob for above housing	10.30

Empty modular housings - *(grey) 6.3 mm terminal centre spacing*

- Aligns with standard DIN rail MCBs and modular devices *(2 or 3 modules wide)*

EMD02	92 x 35.5 x 64	2 module complete housing DIN rail mount	78.00
EMD03	92 x 35.5 x 64	3 module complete housing DIN rail mount	72.00
EMX02	front label	blank adhesive front label for EMD02 <i>(2 modular)</i> housing	18.50
EMX03	front label	blank adhesive front label for EMD03 <i>(3 modular)</i> housing	18.50
EMX04	adj. knob	screw adjustable knob for internal potentiometer	13.70

* Other voltage options available on request



Field Switching, Sensing & Safety



Inductive
proximity
sensors
K-1...3/15



Capacitive
proximity
sensors
K-4



Photoelectric
sensors
K-5...11/13...14/16



Ultrasonic
sensors
K-12



Fibre-optic
& Laser
sensors
K-17...18



Pressure
transmitters &
Switches
K-19...21/28...29



Flow sensors &
Switches
K-22/36/38



Temperature
controllers &
Thermocouple sensors
K-25...27



Limit
switches
K-30...34



Float switches
& Liquid level
sensors
K-35/37/39



Occupancy
sensors
K-40



Safety
switches
K-43...48



Safety light
curtains &
Controllers
K-49...52

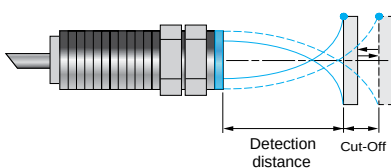


Safety lockout
hasps
K-53



Smoke
detectors
K-54

Inductive proximity sensors



Inductive sensors used for metal object detection. Operational integrity is maintained even in harsh environments e.g. presence of oils, powders, liquids and vibrations etc. Commonly utilized in various types of industrial machinery/ applications for position monitoring (e.g. *textile machines, transport systems, packaging machines and automation systems*).

- Protection degree: IP67
- Ambient limits: -25°C ... +70°C
- LED indication: Incorporated
- Housing: Nickel-plated brass (**PFM/PPK** - AISI 303 / AISI 316L stainless steel housing)
- Short circuit and polarity reversal protection



AB1/AP-3A



AD1/AP-3A



AE1/CP-1A



AE6/AP-3A



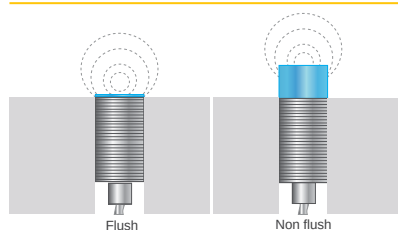
AM6/AP-3H

type	supply voltage	flush	non flush	detection distance	NPN	PNP	NO	NC	connector	body length (mm)	price
M4 proximity switches (standard detection range)											
Standard detection range		cable connection (2m)									
AB1/AP-3A	10 - 30 VDC	•		1 mm		•	•		cable	22	1 420.00
AB1/CP-3A	10 - 30 VDC	•		1 mm		•	•		cable	22	1 420.00
M5 proximity switches (standard detection range)											
Standard detection range		cable connection (2m)									
AD1/AP-3A	10 - 30 VDC	•		1.5 mm		•	•		cable	31	910.00
AD1/CP-3A	10 - 30 VDC	•		1.5 mm		•	•		cable	31	954.00
M8 proximity switches											
Standard detection range		cable connection (2m)									
AE1/AP-1A	10 - 30 VDC	•		1.5 mm		•	•		cable	46	534.00
AE1/CP-1A	10 - 30 VDC	•		1.5 mm		•	•		cable	46	534.00
AE1/AP-2A	10 - 30 VDC		•	2.5 mm		•	•		cable	46	534.00
AE1/CP-2A	10 - 30 VDC		•	2.5 mm		•	•		cable	46	534.00
Long detection range		cable connection (2m)									
AE6/AP-3A*	10 - 30 VDC	•		2 mm		•	•		cable	36	646.00
AE6/CP-3A*	10 - 30 VDC	•		2 mm		•	•		cable	36	646.00
AE6/AP-4A*	10 - 30 VDC		•	4 mm		•	•		cable	36	646.00
AE6/CP-4A*	10 - 30 VDC		•	4 mm		•	•		cable	36	646.00
		M8 (3pin) plug connection									
AE6/AP-3F*	10 - 30 VDC	•		2 mm		•	•		M8 plug	40	690.00
AE6/CP-3F*	10 - 30 VDC	•		2 mm		•	•		M8 plug	40	690.00
AE6/AP-4F*	10 - 30 VDC		•	4 mm		•	•		M8 plug	40	690.00
AE6/CP-4F*	10 - 30 VDC		•	4 mm		•	•		M8 plug	40	690.00
M12 proximity switches											
Standard detection range		cable connection (2m)							standard body		
AM1/AP-1A	10 - 30 VDC	•		2 mm		•	•		cable	50	459.00
AM1/CP-1A	10 - 30 VDC	•		2 mm		•	•		cable	50	490.00
AM1/AN-1A	10 - 30 VDC	•		2 mm		•	•		cable	50	490.00
AM1/CN-1A	10 - 30 VDC	•		2 mm		•	•		cable	50	490.00
AM1/AP-2A	10 - 30 VDC		•	4 mm		•	•		cable	50	490.00
AM1/CP-2A	10 - 30 VDC		•	4 mm		•	•		cable	50	490.00
AM1/AN-2A	10 - 30 VDC		•	4 mm		•	•		cable	50	490.00
AM1/CN-2A	10 - 30 VDC		•	4 mm		•	•		cable	50	490.00
Long detection range		cable connection (2m)							standard body		
AM6/AP-3A*	10 - 30 VDC	•		4 mm		•	•		cable	40	601.00
AM6/CP-3A*	10 - 30 VDC	•		4 mm		•	•		cable	40	601.00
AM6/AP-4A*	10 - 30 VDC		•	8 mm		•	•		cable	40	601.00
AM6/CP-4A*	10 - 30 VDC		•	8 mm		•	•		cable	40	601.00
		M12 (4pin) plug connection									
AM6/AP-3H*	10 - 30 VDC	•		4 mm		•	•		M12 plug	53	605.00
AM6/CP-3H*	10 - 30 VDC	•		4 mm		•	•		M12 plug	53	646.00
AM6/AP-4H*	10 - 30 VDC		•	8 mm		•	•		M12 plug	53	646.00
AM6/CP-4H*	10 - 30 VDC		•	8 mm		•	•		M12 plug	53	646.00
2 wire version		M12 (4pin) plug connection									
AM1/A0-1H	10 - 30 VDC	•		2 mm		•	•		M12 plug	75	640.00
AM1/A0-2H*	10 - 30 VDC	•		4 mm		•	•		M12 plug	75	640.00
AM1/A0-3H*	10 - 30 VDC	•		4 mm		•	•		M12 plug	75	801.00
AM1/A0-4H*	10 - 30 VDC	•		8 mm		•	•		M12 plug	75	801.00
NO + NC output		M12 (4pin) plug connection									
AM1/BP-1H	10 - 30 VDC	•		2 mm		•	•		M12 plug	65	646.00
AM1/BP-2H	10 - 30 VDC	•		4 mm		•	•		M12 plug	65	646.00

* Long detection range

For NPN version, replace the "P" with "N" See sensor connectors and cables page

Inductive proximity sensors



PM3/00-1H



AK1/CP-1A



PK3/00-1H



PFK1/BP-3H



Inductive proximity sensors - Ø M12 and M18

type	supply voltage	flush	non flush	detection distance	NPN	PNP	NO	NC	connector	body length (mm)	price
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M12 proximity switches

Decout version	NPN/PNP/NO/NC (on one sensor)	M12 (4pin) plug connection		
PM3/00-1H	10 - 30 VDC	• • • •	M12 plug	74
PM3/00-2H	10 - 30 VDC	• • • •	M12 plug	74
AC version	cable connection - 3 wire (2m)			
VM2/A0-1B	20 - 253 VAC	TRIAC • •	cable	72
VM2/C0-1B	20 - 253 VAC	TRIAC • •	cable	72
VM2/A0-2B	20 - 253 VAC	TRIAC • •	cable	73
VM2/C0-2B	20 - 253 VAC	TRIAC • •	cable	73

For food and beverage applications

M12 (4pin) plug connection

- AISI 316L (DIN 1.4404) stainless steel housing
- IP67 (EN60529) - IP68 (1m - 7 days) - IP69K protection degree
- -40°C...+80°C (up to 100°C for short exposure during cleaning process)

PFM1/BP-3H*	10 - 30 VDC	• • • •	M12 plug	65	1 210.00
PFM1/BP-4H*	10 - 30 VDC	• • • •	M12 plug	65	1 260.00

See sensor connectors and cables page

M18 cylindrical proximity switches

Standard detection range	cable connection - 3 wire (2m)			
AK1/AP-1A	10 - 30 VDC	• • • •	cable	50
AK1/CP-1A	10 - 30 VDC	• • • •	cable	50
AK1/AN-1A	10 - 30 VDC	• • • •	cable	50
AK1/CN-1A	10 - 30 VDC	• • • •	cable	50
AK1/AP-2A	10 - 30 VDC	• • • •	cable	50
AK1/CP-2A	10 - 30 VDC	• • • •	cable	50
AK1/AN-2A	10 - 30 VDC	• • • •	cable	50
AK1/CN-2A	10 - 30 VDC	• • • •	cable	50

Short body - NO + NC

cable connection - 4 wire (2m)

AK6/BP-1A	10-30 VDC	• • • •	cable	39	660.00
AK6/BN-1A	10-30 VDC	• • • •	cable	39	660.00
AK6/BP-2A	10-30 VDC	• • • •	cable	39	740.00
AK6/BN-2A	10-30 VDC	• • • •	cable	39	740.00

Long sensing range - NO + NC

M12 (4pin) plug connection

AK6/BP-3H*	10 - 30 VDC	• • • •	M12 plug	49	800.00
AK6/BN-3H*	10 - 30 VDC	• • • •	M12 plug	49	854.00
AK6/BP-4H*	10 - 30 VDC	• • • •	M12 plug	49	854.00
AK6/BN-4H*	10 - 30 VDC	• • • •	M12 plug	49	854.00

2 wire version

M12 (4pin) plug connection

AK1/A0-1H	10 - 30 VDC	• • • •	M12 plug	64	737.00
AK1/A0-2H	10 - 30 VDC	• • • •	M12 plug	64	737.00
AK1/A0-3H*	10 - 30 VDC	• • • •	M12 plug	64	890.00
AK1/A0-4H*	10 - 30 VDC	• • • •	M12 plug	64	890.00

Decout version

NPN/PNP/NO/NC (on one sensor)

M12 (4pin) plug connection

PK3/00-1H	10 - 30 VDC	• • • •	M12 plug	72	1 160.00
PK3/00-2H	10 - 30 VDC	• • • •	M12 plug	72	1 160.00

AC version

cable connection

VK2/A0-1B	20 - 253 VAC	TRIAC • •	cable	77	1 170.00
VK2/C0-1B	20 - 253 VAC	TRIAC • •	cable	77	1 170.00
VK2/A0-2B	20 - 253 VAC	TRIAC • •	cable	77	1 170.00
VK2/C0-2B	20 - 253 VAC	TRIAC • •	cable	77	1 170.00

For food and beverage applications

M12 (4pin) plug connection

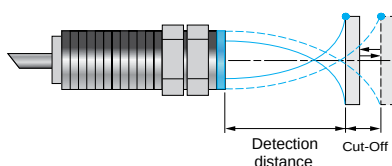
- AISI 316L (DIN 1.4404) stainless steel housing
- IP67 (EN60529) - IP68 (1m - 7 days) - IP69K protection degree
- -40°C...+80°C (up to 100°C for short exposure during cleaning process)

PFK1/BP-3H*	10 - 30 VDC	• • • •	M12 plug	63	1 470.00
PFK1/BP-4H*	10 - 30 VDC	• • • •	M12 plug	63	1 550.00

* Long sensing range

See sensor connectors and cables page

Inductive proximity sensors



Inductive proximity sensors

Inductive sensors are used for metal object detection. Operational integrity is maintained even in harsh environments e.g. presence of oils, powders, liquids and vibrations etc. Commonly utilized in various types of industrial machinery/ applications for position monitoring (e.g. *textile machines, transport systems, packaging machines and automation systems*).

General features:

- Protection degree: IP67
- Ambient limits: -25°C...+70°C
- LED indication: Incorporated
- Housing: Nickel-plated brass
- Short circuit and polarity reversal protection



type	supply voltage	flush	non flush	detection distance	NPN	PNP	NO	NC	connector	body length (mm)	price
M30 cylindrical proximity switches											
Standard sensing range				cable connection (2m)							
AT1/AP-1A	10 - 30 VDC	•		10 mm		•	•		cable	60	760.00
AT1/CP-1A	10 - 30 VDC	•		10 mm		•		•	cable	60	760.00
AT1/AN-1A	10 - 30 VDC	•		10 mm	•		•		cable	60	760.00
AT1/CN-1A	10 - 30 VDC	•		10 mm	•			•	cable	60	760.00
AT1/AP-2A	10 - 30 VDC		•	15 mm		•	•		cable	60	760.00
AT1/CP-2A	10 - 30 VDC		•	15 mm		•		•	cable	60	760.00
AT1/AN-2A	10 - 30 VDC		•	15 mm	•		•		cable	60	760.00
AT1/CN-2A	10 - 30 VDC		•	15 mm	•			•	cable	60	760.00
Long sensing range - NO + NC				M12 (4pin) plug connection							
AT6/BP-3H*	10 - 30 VDC	•		15 mm		•	•	•	M12 plug	60	1 080.00
AT6/BP-4H*	10 - 30 VDC		•	20 mm		•	•	•	M12 plug	60	1 080.00
AT6/BN-3H*	10 - 30 VDC	•		15 mm	•		•	•	M12 plug	60	1 080.00
AT6/BN-4H*	10 - 30 VDC		•	20 mm	•		•	•	M12 plug	60	1 080.00
2 wire version				M12 (4pin) plug connection							
AT1/A0-1H	10 - 30 VDC	•		10 mm	•	•	•		M12 plug	76	1 200.00
AT1/A0-2H	10 - 30 VDC		•	15 mm	•	•	•		M12 plug	76	1 200.00
AT1/A0-3H*	10 - 30 VDC	•		15 mm	•	•	•		M12 plug	76	1 290.00
AT1/A0-4H*	10 - 30 VDC		•	20 mm	•	•	•		M12 plug	76	1 290.00
AC version				cable connection							
VT2/A0-1B	20 - 253 VAC	•		10 mm	TRIAC	•			cable	80	1 590.00
VT2/C0-1B	20 - 253 VAC	•		10 mm	TRIAC		•		cable	80	1 590.00
VT2/A0-2B	20 - 253 VAC		•	15 mm	TRIAC	•			cable	80	1 590.00
VT2/C0-2B	20 - 253 VAC		•	15 mm	TRIAC		•		cable	80	1 590.00
* Long sensing range See sensor connectors and cables page											
Analog output proximity switches 1 x 0-10V and 1 x 4-20mA output											
• Voltage 0 - 10 VDC and Current 4 - 20mA outputs (<i>in the same device</i>) • Wide usable sensing ranges: M12 (6 mm) and M18 (10 mm) • Excellent resolution (<i>no digitalisation</i>)											
M12 proximity switches				M12 (4pin) plug connection							
AM1/D2-5H	15 - 30 VDC	•		0...6 mm	0-10V	4-20mA			M12 plug	60	4 200.00
M18 proximity switches				M12 (4pin) plug connection							
AK6/D2-5H	15 - 30 VDC	•		0...10 mm	0-10V	4-20mA			M12 plug	49	4 400.00
Rectangular housing inductive proximity switches											
8 x 8 x 40 mm rectangular body				cable connection (2 m)							
IL8/AP-3A	10 - 30 VDC	•		2 mm		•	•		cable	40	1 790.00
IL8/CP-3A	10 - 30 VDC	•		2 mm		•		•	cable	40	897.00
IL8/AN-3A	10 - 30 VDC	•		2 mm	•		•		cable	40	1 790.00
IL8/CN-3A	10 - 30 VDC	•		2 mm	•			•	cable	40	1 790.00
28 x 10 x 16 mm rectangular body				(aligns with standard mechanical micro switch)							
IL1/AP-3A	10 - 30 VDC	•		3 mm		•	•		cable	28	686.00
IL1/CP-3A	10 - 30 VDC	•		3 mm		•		•	cable	28	686.00
IL1/AN-3A	10 - 30 VDC	•		3 mm	•		•		cable	28	686.00
IL1/CN-3A	10 - 30 VDC	•		3 mm	•			•	cable	28	686.00

Capacitive proximity sensors



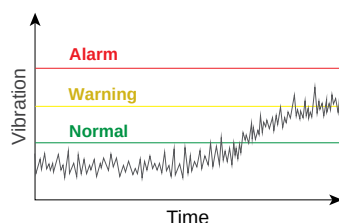
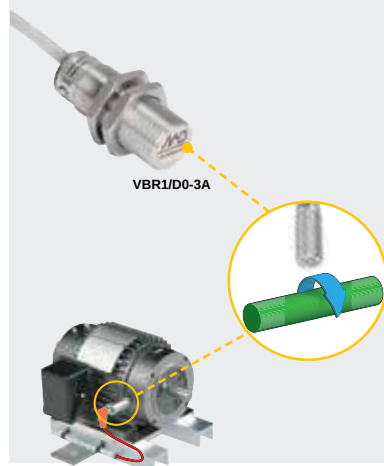
C12P/00-3E



C30P/BN-1E



CQ55/BP-3E



Capacitive proximity sensors are utilised in detection of a variety of materials, whether in solid or liquid state (e.g. water, wood, metals, granules, powders, etc...) Performance is upheld even through plastic or glass barriers. The robust nature of the technology ensures extremely high electromagnetic compatibility (EMC), high shock/vibration resistance, minimalistic sensitivity to dust and moisture. This ensures reliable object detection even in harsh environments.

- Detects powders, granulates, liquids and solids
- Sensitivity adjustment
- Short circuit and polarity reversal protection
- Protection degree: IP67/68/69K
- Ambient limits: -25°C/-20°C...+85°C
- LED indication: Incorporated
- Housing material: Thermoplastic polyester

type	supply voltage	flush	non flush	detection distance	NPN	PNP	NO	NC	connector	body length (mm)	price
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M12 Capacitive proximity switches

M12 (4pin) plug connection

- Adjustable sensitivity via Teach-in button
- Automatic detection of NPN or PNP load

C12P/00-3E	10 - 40 VDC	•		0.5...8 mm	•	•	•	•	M12 plug	80	1 780.00
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M18 Capacitive proximity switches

M12 (4pin) plug connection

- Adjustable sensitivity via potentiometer
- Standard output: NO and NC

C18P/BP-1E	10 - 40 VDC	•		3...8 mm		•	•	•	M12 plug	83	1 750.00
C18P/BN-1E	10 - 40 VDC	•		3...8 mm	•		•	•	M12 plug	83	1 750.00
C18P/BP-2E	10 - 40 VDC		•	3...12 mm		•	•	•	M12 plug	91	1 670.00
C18P/BN-2E	10 - 40 VDC		•	3...12 mm	•		•	•	M12 plug	91	1 670.00

AC version

cable connection (2m)

C18P/A0-1A	20 - 250 VAC	•		3...8 mm	SCR	•			cable	87	2 220.00
C18P/C0-1A	20 - 250 VAC	•		3...8 mm	SCR		•		cable	87	2 220.00
C18P/A0-2A	20 - 250 VAC		•	3...12 mm	SCR	•			cable	99	2 140.00
C18P/C0-2A	20 - 250 VAC		•	3...12 mm	SCR		•		cable	99	2 140.00

M30 Capacitive proximity switches

M12 (4pin) plug connection

- Adjustable sensitivity via potentiometer
- Standard output: NO and NC

C30P/BP-1E	10 - 40 VDC	•		2...16 mm		•	•	•	M12 plug	79	2 140.00
C30P/BN-1E	10 - 40 VDC	•		2...16 mm	•		•	•	M12 plug	79	2 140.00
C30P/BP-2E	10 - 40 VDC		•	4...25 mm		•	•	•	M12 plug	91	2 020.00
C30P/BN-2E	10 - 40 VDC		•	4...25 mm	•		•	•	M12 plug	91	2 020.00

AC version

cable connection (2m)

C30P/00-1A	20 - 250 VAC	•		2...16 mm	SCR	•	•		cable	79	2 630.00
C30P/00-2A	20 - 250 VAC		•	4...25 mm	SCR	•	•		cable	91	2 440.00

Cubic capacitive sensors (flat pack housing)

- Adjustable sensitivity via potentiometer
- Standard output: NO and NC

CQ55 series cubic sensors (flat body)		M12 (4pin) plug connection				58 x 35 x 15 mm					
CQ55/BP-3E	10 - 40 VDC	•		4...25 mm		•	•	•	M12 plug	58	2 350.00
CQ55/BN-3E	10 - 40 VDC	•		4...25 mm	•		•	•	M12 plug	58	2 350.00

M18 VBR/INC series - Vibration and inclination sensor

IP67

VBR series shock and vibration sensor incorporates a MEMS 3-axis accelerometer to monitor all accelerations and vibrations. Designed to be easy to use without any special training for operators.

- Programmable operating range:
- Reference axis:
- Frequency range:
- Fully programmable in all its functions, thresholds, alarms and node addresses
- 1 output RS485 (addressable) 57600 Baud rate - 1 bit stop - parity
- 1 analogue output (programmable voltage or current)

VBR	INC
±2g, ±4g, ±8g, ±16g	360° - 0.025° resolution
3 (X, Y, Z)	1 direction
0 ... 400Hz	< 3 msec

VBR1/D0-3A	24 VDC	vibration sensor	0 - 10V	4-20mA	cable	40.5	5 970.00
INC1/D0-3A	24 VDC	inclination sensor	0 - 10V	4-20mA	cable	50.5	7 550.00

1250Hz available on request

Mounting accessories for VBR/INC sensors

ST18-S	bracket	M18 mounting bracket/housing for above VBR/INC sensor					131.00
ST18-V	bracket	M18 metal mounting bracket for above VBR/INC sensor					101.00

Cylindrical photoelectric sensors



FAI6/BP-0A



FAI6/BN-2E



MV2/A0-0A



MVC/A0-0A

Photoelectric sensors transmit a beam which is reflected back from a detected object (**diffused**), reflector (**retro-reflective**) or used with a separate transmitter and receiver (**through-beam**), typically used for long range detection.

- Protection degree: IP67 (EN60529)
- Ambient limits: -25°C...+70°C
- Supply protection: Polarity reversal, transient, short circuit
- LED indication: Incorporated
- Housing material: PBT (*plastic*) available in metal (*on request only*)

type	supply voltage	sensitivity adj.	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	NPN	PNP	NO	NC	connector	price
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M18 FA series axial beam 10 - 30 VDC IP67 (EN60529) Ø18 mm x 65/80 mm

Diffuse reflection

proximity type detection (no transmitter or reflector required)

FAR2/BN-0A	10 - 30 VDC		•				100 mm	•	•	•	•	cable (2m)	1 080.00
FAR2/BP-0A	10 - 30 VDC		•				100 mm		•	•	•	cable (2m)	1 080.00
FAI6/BN-0A	10 - 30 VDC		•				400 mm	•		•	•	cable (2m)	1 190.00
FAI6/BP-0A	10 - 30 VDC		•				400 mm		•	•	•	cable (2m)	1 190.00
FAI6/BN-2E*	10 - 30 VDC		•				400 mm	•		•	•	M12 plug	1 400.00
FAI6/BP-2E*	10 - 30 VDC		•				400 mm		•	•	•	M12 plug	1 400.00
FAI7/BN-0E	10 - 30 VDC		•	•			400 mm	•		•	•	M12 plug	1 400.00
FAI7/BP-0E	10 - 30 VDC		•	•			400 mm		•	•	•	M12 plug	1 400.00
FAI8/BN-2E*	10 - 30 VDC		•	•			800 mm	•		•	•	M12 plug	1 770.00
FAI8/BP-2E*	10 - 30 VDC		•	•			800 mm		•	•	•	M12 plug	1 770.00
FAI8/BN-0E	10 - 30 VDC		•	•			1000 mm	•		•	•	M12 plug	1 520.00
FAI8/BP-0E	10 - 30 VDC		•	•			1000 mm		•	•	•	M12 plug	1 520.00

With adjustable background suppression

FARS/BP-0E	10 - 30 VDC		•	•			30...130		•	•	•	M12 plug	2 310.00
FARW/BP-0E	10 - 30 VDC		•	•			35...350		•	•	•	M12 plug	2 800.00

Retro-reflective

used together with a reflector

FAIC/BN-0A	10 - 30 VDC			•			5 meters	•	•	•	•	cable (2m)	1 110.00
FAIC/BP-0A	10 - 30 VDC			•			5 meters		•	•	•	cable (2m)	1 110.00
FAIC/BN-2E*	10 - 30 VDC			•			4 meters	•		•	•	M12 plug	1 320.00
FAIC/BP-2E*	10 - 30 VDC			•			4 meters		•	•	•	M12 plug	1 320.00

Retro-reflective (polarised)

used together with a reflector

FARP/BN-0A	10 - 30 VDC			•			4 meters	•		•	•	cable (2m)	1 300.00
FARP/BP-0A	10 - 30 VDC			•			4 meters		•	•	•	cable (2m)	1 300.00

Through beam (receiver)

requires an emitter and receiver

FAIZ/BN-0A	10 - 30 VDC				•		20 meters	•		•	•	cable (2m)	1 030.00
FAIZ/BP-0A	10 - 30 VDC				•		20 meters		•	•	•	cable (2m)	1 030.00
FAIZ/BP-2E*	10 - 30 VDC				•		15 meters		•	•	•	M12 plug	1 220.00
FAIH/00-0A	10 - 30 VDC				•		20 meters		emitter			cable	887.00
FAIH/00-2E*	10 - 30 VDC				•		15 meters		emitter			M12 plug	1 100.00

* Radial optic (90° transmission)

M18 MV series axial beam 20 - 253 VAC IP67 (EN60529) Ø18 mm x 79 mm

Diffuse reflection

proximity type detection (no transmitter or reflector required)

MV2/A0-0A	20 - 253 VAC		•				100 mm	TRIAC	•			cable (2m)	2 050.00
MV2/C0-0A	20 - 253 VAC		•				100 mm	TRIAC		•		cable (2m)	2 050.00
MV4/A0-0A	20 - 253 VAC		•				200 mm	TRIAC	•			cable (2m)	2 050.00
MV4/C0-0A	20 - 253 VAC		•				200 mm	TRIAC		•		cable (2m)	2 050.00
MV6/A0-0A	20 - 253 VAC		•				400 mm	TRIAC	•			cable (2m)	2 140.00
MV6/C0-0A	20 - 253 VAC		•				400 mm	TRIAC		•		cable (2m)	2 140.00

Retro-reflective

used together with a reflector

MVC/A0-0A	20 - 253 VAC			•			4 meters	TRIAC	•			cable (2m)	2 140.00
MVC/C0-0A	20 - 253 VAC			•			4 meters	TRIAC		•		cable (2m)	2 140.00

Through beam (receiver)

requires a transmitter and receiver

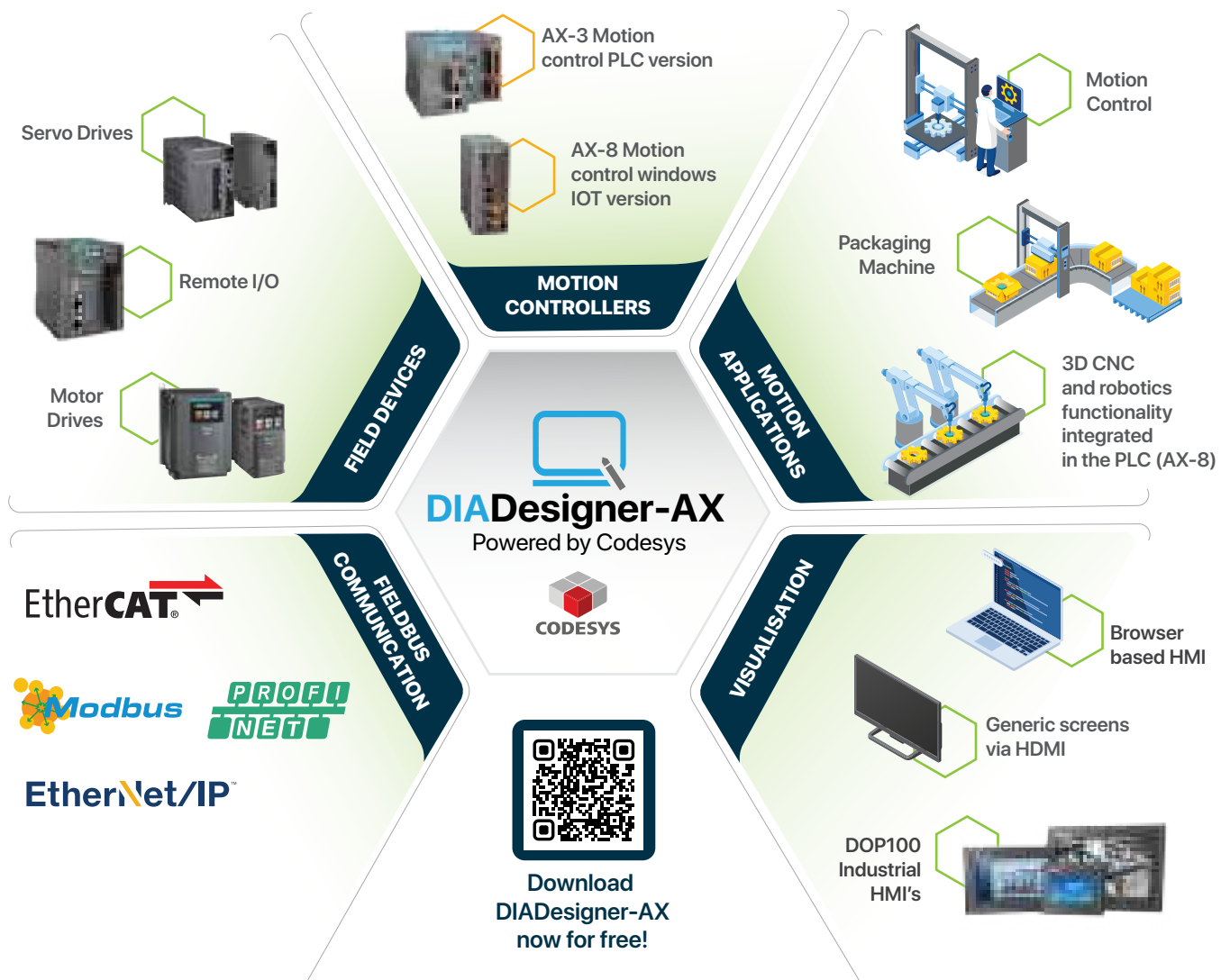
MVR/A0-0A	20 - 253 VAC				•		16 meters	TRIAC	•			cable (2m)	1 920.00
MVR/C0-0A	20 - 253 VAC				•		16 meters	TRIAC		•		cable (2m)	1 920.00
MVE/00-0A	20 - 253 VAC				•		16 meters		emitter			cable (2m)	1 550.00

For mounting accessories, cables, connectors and reflectors see pages K-11, K-23...24

The comprehensive automation software

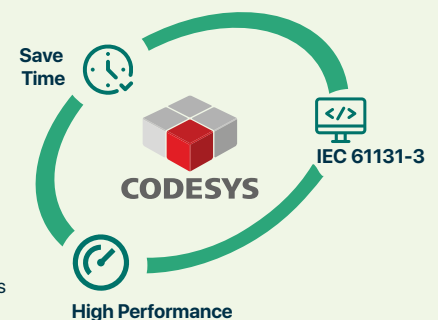


DIADesigner AX powered by Codesys offers a comprehensive PLC and motion-control software development solution. With adherence to the IEC 61131-3 standard, users can expect a familiar and internationally recognised programming environment. It is the perfect platform for integrating components like Delta PLCs, HMIs, servos, motor drives, and remote I/O, making it a versatile choice for automation projects.



DIADesigner-AX key features:

- Comprehensive Editors:** Supports all IEC 61131-3 editors (FBD, LD, ST, SFC) and their variants
- Proven Libraries:** Extensive library concept for reusable applications
- Advanced Debugging:** Fast optimization and testing with extensive debugging and online features
- Device Compatibility:** Integrate devices from various manufacturers
- Versatile POU's:** Support for single and multi-axis movements with PLCOpen POU's
- Dynamic Monitoring:** Additional POU's for monitoring dynamic data, error tracking, and CAM controllers



Cubic photoelectric sensors



S3N mini series - Photoelectric cubic sensors



Robust housing

New



SN3...



SN3...

S3N mini series - Photoelectric cubic sensors

Top performances series in a rugged, miniaturized standard housing. Complete solution for any detection application in any automation industry. Available with trimmer and Teach-in models with high connectivity features thanks to extended IO-Link communication.

General features:

- Bright LED and Safe Laser emission models - for easy alignment
- Smart BGS and clear detection functions
- Single, Double trimmer & Push Button models - for easy setup
- Rugged IP67 Plastic Polymer Fibre glass reinforced miniature case
- IO-Link with extended Smart Tasks
- Sensitivity adjustment via 1 or 9 turn trimmer
- Compact dimensions: (H) 31 x (W) 11 x (D) 19 mm



Scan to watch video

type	supply voltage	diffused polarised retro through-beam background suppress transparent objects mark reader	detection distance (mm)	NPN PNP light ON dark ON	connector	price
Diffused narrow beam		635 nm red LED emission				
S3N-PR-5-C01-PL	10...30 VDC	•	1...250 mm	• •	M8 plug	3 250.00
S3N-PR-5-C01-PD	10...30 VDC	•	1...250 mm	• •	M8 plug	3 250.00
S3N-PR-5-C01-N	10...30 VDC	•	1...250 mm	• •	M8 plug	3 760.00
S3N-PR-5-C11-PL	10...30 VDC	•	0...1 m	• •	M8 plug	3 230.00
Polarized retroreflective		635 nm red LED emission				
S3N-PR-5-B01-PL	10...30 VDC	•	0.05...7 m	• •	M8 plug	3 270.00
S3N-PR-5-B01-PD	10...30 VDC	•	0.05...7 m	• •	M8 plug	3 270.00
S3N-PR-5-B01-N	10...30 VDC	•	0.05...7 m	• •	M8 plug	3 800.00
Through beam emitter and receiver		635 nm red LED emission				
S3N-PR-5-FG01-PL	10...30 VDC	•	0...20 m	• •	M8 plug	5 630.00
S3N-PR-5-FG01-PD	10...30 VDC	•	0...20 m	• •	M8 plug	5 630.00
S3N-PR-5-FG01-N	10...30 VDC	•	0...20 m	• •	M8 plug	6 370.00
Background suppression		635 nm red LED emission				
S3N-PR-5-M01-PL	10...30 VDC	•	10...800 mm	• •	M8 plug	5 200.00
S3N-PR-5-M01-PD	10...30 VDC	•	10...800 mm	• •	M8 plug	5 200.00
S3N-PR-5-M01-N	10...30 VDC	•	10...800 mm	• •	M8 plug	5 910.00
Polarized retroreflective for clear objects		635 nm red LED emission				
S3N-PR-5-T51-PL	10...30 VDC	•	0...2 m	• •	M8 plug	5 130.00
S3N-PR-5-T51-PD	10...30 VDC	•	0...2 m	• •	M8 plug	5 130.00
S3N-PR-5-T51-N	10...30 VDC	•	0...2 m	• •	M8 plug	5 770.00
Laser emission sensors		650 nm LASER Red class 1				
S3N-PH-5-B01-P	10...30 VDC	•	0.1...12 m	• •	M8 plug	6 120.00
S3N-PH-5-B01-N	10...30 VDC	•	0.1...12 m	• •	M8 plug	6 120.00
Through beam emitter and receiver		650 nm LASER Red class 1				
S3N-PH-5-FG01-P	10...30 VDC	•	0...30 m	• •	M8 plug	8 080.00
S3N-PH-5-FG01-N	10...30 VDC	•	0...30 m	• •	M8 plug	8 080.00
Background suppression		650 nm LASER Red class 1				
S3N-PH-5-M01-P	10...30 VDC	•	10...500 mm	• •	M8 plug	7 140.00
S3N-PH-5-M01-N	10...30 VDC	•	10...500 mm	• •	M8 plug	7 140.00
Accessories for S3N sensors						
95A151340	reflector	R4 - prismatic refl. 47x47 mm - frame 51x61 mm	for reflex			250.00
95A151360	reflector	R7 - microprismatic refl. 38x40 mm - frame 51x61 mm	for laser			891.00
S940700075	reflector	R5 - prismatic refl. Ø 75 mm - frame Ø 82 mm	for reflex			206.00
95ACC0024	mnt bracket	S3N L-shaped mnt bracket	ST-1051			961.00
95ACC0025	mnt bracket	S3N protection mnt bracket-horizontal	ST-1049			1 540.00
95ACC0026	mnt bracket	S3N protection mnt bracket-vertical U shaped	QM ST-103			1 540.00
95ACC0033	mnt bracket	S3N bracket for M03 products over the belt app.	ST-1053			1 730.00

See sensor connectors and cables page

Above ZAR prices do not include VAT. E&OE

Cubic photoelectric sensors



New



SN3...



SN3...

IO-Link



S3N mini series - photoelectric IO-Link communication

Top performances series in a rugged, miniaturized standard housing. Complete solution for any detection application in any automation industry. Available with trimmer and Teach-in models with high connectivity features thanks to extended IO-Link communication.

- Bright LED and Safe Laser emission models - for easy alignment
- Smart BGS and clear detection functions
- Single, Double trimmer & Push Button models - for easy setup
- Very fast and very precise RGB Contrast sensor
- Rugged IP67 Plastic Polymer Fiber glass reinforced miniature case
- IO-Link with extended Smart Tasks
- IO-Link models have Teach-In push button
- Compact dimensions: (H) 31 x (W) 11 x (D) 19 mm

type	supply voltage	diffused polarised retro through-beam background suppression transparent objects mark reader	detection distance (mm)	communication interface	connector	price
Diffused narrow beam 635 nm red LED emission						
S3N-PR-5-C03-OZ	10...30 VDC	•	1...250 mm	IO-Link	M8 plug	5 820.00
S3N-PR-5-C13-OZ	10...30 VDC	•	0...1 m	IO-Link	M8 plug	5 760.00
Polarized retroreflective 635 nm red LED emission						
S3N-PR-5-B03-OZ	10...30 Vdc	•	0.05...7 m	IO-Link	M8 plug	5 920.00
Through beam emitter and receiver 635 nm red LED emission						
S3N-PR-5-FG03-OZ	10...30 VDC	•	0...20 m	IO-Link	M8 plug	10 400.00
Background suppression 635 nm red LED emission						
S3N-PR-5-M03-OZ	10...30 VDC	•	25...180 mm	IO-Link	M8 plug	6 840.00
Polarized retroreflective for clear objects 635 nm red LED emission						
S3N-PR-5-T53-OZ	0...30 VDC	•	0...2 m	IO-Link	M8 plug	6 920.00
Contrast sensor RGB blue (460 nm) / green (525 nm) / red (633 nm)						
S3N-PR-5-W03-OZ	10...30 VDC	•	12 mm ±3 mm	IO-Link	M8 plug	23 800.00
Laser emission sensors						
Polarized retroreflective 650 nm LASER Red class 1						
S3N-PH-5-B03-OZ	10...30 VDC	•	0.1...12 m	IO-Link	M8 plug	8 120.00
Through beam emitter and receiver 650 nm LASER Red class 1						
S3N-PH-5-FG03-OZ	10...30 VDC	•	0...30 m	IO-Link	M8 plug	14 200.00
Background suppression 650 nm LASER Red class 1						
S3N-PH-5-M03-OZ	10...30 VDC	•	22...130 mm	IO-Link	M8 plug	10 800.00

S3N mini: Position tracking applications

IO-Link

- Easy installation
- Extended configuration
- Real time monitoring
- Predictive maintenance



Cubic photoelectric sensors



Footprint comparison

Photoelectric sensors transmit a beam which is reflected back from a detected object (diffused), reflector (**retro-reflective**) or used with a separate transmitter and receiver (through-beam), typically used for long range detection.

- Sensitivity: Adjustable (*trimmer*)
- Ambient limits: -25°C...+70°C
- Supply protection: Polarity reversal, impulse overvoltage, short circuit
- LED indication: Yellow (*output status*) / green (*supply present*)

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	NPN	PNP	NO	NC	connector	price
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QM series - Miniature cubic sensor IP67 (EN60529) (H)40.6 x (W)21 x (D)13 mm

- Miniaturize high performance photoelectric sensors
- 2 kHz switching frequency
- Selectable LO/DO output state
- M8 (4pin) plug connection

Diffuse reflection

proximity type detection (no transmitter or reflector required)

QMR5/0P-0F*	10 - 30 VDC	•	•	•	•	30...200	•	•	•	•	M8 plug	2 190.00
QMR7/0N-0F	10 - 30 VDC	•	•	•	•	400 mm	•	•	•	•	M8 plug	1 770.00
QMR7/0P-0F	10 - 30 VDC	•	•	•	•	400 mm	•	•	•	•	M8 plug	1 770.00
QMR8/0N-0F	10 - 30 VDC	•	•	•	•	1 meter	•	•	•	•	M8 plug	1 850.00
QMR8/0P-0F	10 - 30 VDC	•	•	•	•	1 meter	•	•	•	•	M8 plug	1 850.00
QMI9/0P-0F	10 - 30 VDC	•	•	•	•	1.5 meter	•	•	•	•	M8 plug	1 960.00

* With adjustable background suppression

Retro-reflective

used together with a reflector

QMIC/0P-0F	10 - 30 VDC	•	•	•	•	7 meter	•	•	•	•	M8 plug	1 970.00
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Retro-reflective (polarised)

used together with a reflector

QMRN/0N-0F	10 - 30 VDC	•	•	•	•	5 meter	•	•	•	•	M8 plug	1 970.00
QMRN/0P-0F	10 - 30 VDC	•	•	•	•	5 meter	•	•	•	•	M8 plug	1 970.00

Retro-reflective

(transparent objects)

QMRL/0N-0F	10 - 30 VDC	•	•	•	•	0.4...4 m	•	•	•	•	M8 plug	2 320.00
QMRL/0P-0F	10 - 30 VDC	•	•	•	•	0.4...4 m	•	•	•	•	M8 plug	2 320.00

Through beam

(transmitter and receiver kit)

QMRHD/0N-0F	10 - 30 VDC	•	•	•	•	20 meter	•	•	•	•	M8 plug	3 020.00
QMRHD/0P-0F	10 - 30 VDC	•	•	•	•	20 meter	•	•	•	•	M8 plug	3 020.00

QF series - For food and beverage applications (H)31.4 x (W)21 x (D)11 mm

- M8 (4pin) plug connection
- -26°C...+60°C (*without freeze*)
- IP67 (EN60529) - IP68 (1m - 7 days) - IP69K protection degree
- AISI 316L (DIN 1.4404) stainless steel housing - Active head PPSU
- Approvals: CE cULus, ECOLAB, IEC60947-5-2

Diffuse reflection

proximity type detection (no transmitter or reflector required)

QFI4/BP-1F	10 - 30 VDC	•	•	•	•	20...200	•	•	•	•	M8 plug	2 560.00
QFRS/BP-1F*	10 - 30 VDC	•	•	•	•	25...200	•	•	•	•	M8 plug	3 250.00
QFR8/BP-1F	10 - 30 VDC	•	•	•	•	0.1...1 m	•	•	•	•	M8 plug	2 610.00

* With adjustable background suppression

Retro-reflective (polarised)

used together with a reflector

QFRN/BP-1F	10 - 30 VDC	•	•	•	•	6 meter	•	•	•	•	M8 plug	2 610.00
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Accessories for above QM / QF series

ST 101	metal	vertical mounting L shaped bracket for sensors	QM/QF	145.00
ST 102	metal	side mounting vertical L bracket for sensors	QM/QF	145.00
ST 103	metal	vertical mount with protective cover bracket for	QM/QF	355.00
ST 104	metal	horizontal mount protective cover bracket for	QM/QF	275.00
STQMO	adaptor	vertical/horizontal diaphragms (0.5-1-2) for	QM/QF	466.00

Mounting accessories and reflectors see page K-11 (reflectors sold separately)

See sensor connectors and cables page



QMR7/0P-0F



QMRN/0N-0F



QMIC/0N-0F



ECOLAB



QFRS/BP-1F

Cubic photoelectric sensors



Q50I8/B0-0E



Q50RN/0T-0A

Photoelectric sensors transmit a beam which is reflected back from a detected object (**diffused**), reflector (**retro-reflective**) or used with a separate transmitter and receiver (**through-beam**), typically used for long range detection.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	NPN	PNP	NO	NC	connector	price
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Q50 - Compact cubic universal photoelectric sensor

- Universal photoelectric sensor, excellent performance and high versatility
- Totally protected against electrical damage
- Sensitivity: Adjustable
- Dimensions: 50 x 50 x 17 mm
- Protection degree: IP67 (EN60529)
- Mounting: Bracket included

DC supply 10...30 VDC

- Revolving M12 (4 pin) connector (for rear or bottom cable entry)

Diffuse reflection

proximity type detection (no transmitter or reflector required)

Q50I8/B0-0E	10 - 30 VDC	•				0.3...2 m	•	•	•	•	M12 plug	1 910.00
Q50IS/B0-0E*	10 - 30 VDC	•				120...500	•	•	•	•	M12 plug	3 480.00

* With adjustable background suppression

Retro-reflective - (polarised)

used together with a reflector

Q50RN/B0-0E	10-30 VDC			•		0.2...6 m	•	•	•	•	M12 plug	2 140.00
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Through beam (receiver)

requires a transmitter and receiver

Q50ID/B0-0E	10 - 30 VDC				•	20 meter	•	•	•	•	M12 plug	1 740.00
Q50IH/00-0E	10 - 30 VDC				•	20 meter				emitter	M12 plug	1 470.00

Multi-voltage supply 12...240 VDC / 24...240 VAC

- Relay - SPDT output (3A / 240 VAC)

Diffuse reflection

proximity type detection (no transmitter or reflector required)

Q50I8/0T-0A	multi-voltage	•				0.3...2 m		SPDT			cable	2 300.00
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Retro-reflective - (polarised)

used together with a reflector

Q50RN/0T-0A	multi-voltage			•		0.2...6 m		SPDT			cable	2 530.00
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Through beam (receiver)

requires a transmitter and receiver

Q50ID/0T-0A	multi-voltage				•	20 meter		SPDT			cable	2 250.00
Q50IH/0T-0A	multi-voltage				•	20 meter		emitter			cable	1 520.00

QF series

Metallic cubic miniaturized photoelectric sensors

For harsh environments or food and beverage applications

ECOLAB



Cubic photoelectric sensors



QX3/A0-1A



QXR/A0-1A



BS8/00-0C



ST300D



RL 110

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	NPN	PNP	NO	NC	connector	price
QX series (rectangular)												
IP65 (EN60529)						40 x 15 x 23 mm						
Diffuse reflection		proximity type detection (no transmitter or reflector required)										
QX3/A0-1A	10 - 30 VDC	•				300 mm	•	•	•		cable (2m)	3 310.00
QX3/C0-1A	10 - 30 VDC	•				300 mm	•	•		•	cable (2m)	3 310.00
Retro-reflective		used together with a reflector										
QXC/A0-1A	10 - 30 VDC		•			5 meter	•	•	•		cable (2m)	3 380.00
QXC/C0-1A	10 - 30 VDC		•			5 meter	•	•		•	cable (2m)	3 380.00
Through beam (receiver)		requires a transmitter and receiver										
QXR/A0-1A	10 - 30 VDC				•	8 meter	•	•	•		cable (2m)	3 310.00
QXR/C0-1A	10 - 30 VDC				•	8 meter	•	•		•	cable (2m)	3 310.00
QXX/00-1A	10 - 30 VDC				•	8 meter	emitter				cable (2m)	2 210.00
BS/BV series (rectangular) cubic photoelectric sensors												
						37 x 16 x 64/70 mm						
• Sensitivity:		Adjustable										
• LED indication:		Incorporated										
• Protection degree:		IP65 (EN60529)										
• Supply protection:		Transient, short circuit (BS)										
Diffuse reflection		proximity type detection (no transmitter or reflector required)										
BS6/00-0C	10 - 30 VDC	•				400 mm	•	•	•	•	cable (2m)	2 660.00
BS8/00-0C	10 - 30 VDC	•				1.6 meter	•	•	•	•	cable (2m)	2 740.00
BV4/00-0C	20 - 253 VAC	•				200 mm	TRIAC	•	•		cable (2m)	3 320.00
BV6/00-0C	20 - 253 VAC	•				400 mm	TRIAC	•	•		cable (2m)	3 440.00
Retro-reflective		used together with a reflector										
BSC/00-0C	10 - 30 VDC		•			8 meter	•	•	•	•	cable (2m)	2 660.00
BVC/00-0C	20 - 253 VAC		•			8 meter	TRIAC	•	•		cable (2m)	3 440.00
Mounting accessories - (below) See sensor connectors and cables page												
DC sensor tester												
The ST300D is a compact and highly flexible accessory for DC sensor testing. Suitable for offline functionality testing on photoelectric, proximity and ultrasonic sensors. The unit comes equipped with an onboard (non-removable) Li-ion battery.												
type	supply voltage	description				NPN	PNP	NO	NC	connector	price	
ST300D	24 VDC	DC sensor functionality tester				•	•			terminal post	3 950.00	
Accessories for proximity / photoelectric / ultrasonic sensor												
Mounting accessories for sensors												
ST 02	plastic	adjustable swivel mounting bracket for all							M18 sensors		261.00	
ST 18-A	metal	axial mounting bracket for all							M18 sensors		36.60	
ST 18-C	metal	right angled mounting bracket for all							M18 sensors		49.00	
ST 30-A	metal	axial mounting bracket for all							M30 sensors		99.00	
ST 30-C	metal	right angled mounting bracket for all							M30 sensors		122.00	
ST 01	metal	mounting bracket for rectangular sensors							BS - BV		48.00	
ST 80	metal	top mount bracket for rectangular sensors							RX		102.00	
ST 81	metal	side mount bracket for rectangular sensors							RX		102.00	
ST 101	metal	vertical mounting L shaped bracket for sensors							QM/QF		145.00	
ST 102	metal	side mounting vertical L bracket for sensors							QM/QF		145.00	
ST 103	metal	vertical mount with protective cover bracket for							QM/QF		355.00	
ST 104	metal	horizontal mount protective cover bracket for							QM/QF		275.00	
STQMO	adaptor	vertical/horizontal diaphragms (0.5-1-2) for							QM/QF		466.00	
ST 03	adaptor	right angled beam adaptor for photoelectric							M18 sensors		326.00	
ST 03U	adaptor	right angled beam deflector for ultrasonic							M18 sensors		892.00	
Reflectors for Photoelectric switches						(H)	(W)	(D)	Ø			
RL 103	02232510	round	reflector			—	7.4	—	34.5	174.00		
RL 104	02292510	round	reflector			—	—	6.5	46	190.00		
RL 110	80392510	round	reflector			—	—	7.3	84	206.00		
RL 113G	00042510	square	reflector			61	51	8	—	222.00		
RL 107	03132510	square	reflector			100	100	9	—	411.00		
RL 112G	03312510	rectangular	reflector			73	19	8.2	—	222.00		
RL 116	00082510	rectangular	reflector			60	40	8	—	269.00		

Ultrasonic sensors



UQ1A/G6-0E



UK6A/HP-0EUL



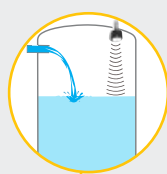
UK6A/HP-0EUL



UK1D/G6-0ESY



UT2F/G6-0ESY



UT5L/G6-1ESY

Ultrasonic sensors IP67 (EN60529)

Ultrasonic transducer emits an ultrasonic signal which is reflected back by the target towards the sensor. The trigger circuit measures the time between the emission and the detection of the signal.

Since the speed of the ultrasonic beam in air is known, it is easy to have an indication of the presence of the target, as well as a measure of the distance between sensor and target.

A Teach-in button is used to set working distance, output status (NO/NC) and slope of analog output and to change the function.

All models are temperature compensated to ensure reliability throughout the entire detection range and are totally resin filled for applications subject to vibration offering an IP67 protection degree.

General features:

- Sensitivity: Adjustable (via external Teach-in)
- Ambient limits: -20°C... +70°C
- Supply protection: Polarity reversal, transient, short circuit
- LED indication: Orange (output/regulation), green (echo reception)
- Housing material: PBT plastic (AISI 316L stainless steel available on request only)

type	supply voltage	detection distance (mm)	description	NPN	PNP	NO	NC	0...10V	4...20mA	connector	price
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M18 UQ1 series - Cubic ultrasonic sensor with head

(H) 53 x (W) 20 x (D) 38 mm

Analog + Digital NO/NC output

M12 (4pin) plug connection

UQ1A/G6-0E	10 - 30 VDC	40...300	ultrasonic sensor		•	•	•	•		M12 plug	5 530.00
UQ1C/G6-0E	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•	•		M12 plug	3 770.00
UQ1D/G6-0E	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•	•		M12 plug	4 240.00
UQ1A/G7-0E	10 - 30 VDC	40...300	ultrasonic sensor		•	•	•	•		M12 plug	5 530.00
UQ1C/G7-0E	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•	•		M12 plug	5 930.00
UQ1D/G7-0E	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•	•		M12 plug	6 470.00

M18 UK6 series - Cylindrical ultrasonic sensors

UK6 series - M18 short body

M12 (4pin) plug connection

M18 x 60.3 mm

Digital NO/NC output

UK6A/HP-0EUL	10 - 30 VDC	40...300	ultrasonic sensor		•	•	•			M12 plug	3 580.00
UK6C/HP-0EUL	10 - 30 VDC	60...800	ultrasonic sensor		•	•	•			M12 plug	3 710.00
UK6D/HP-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor		•	•	•			M12 plug	4 200.00

Analog output

UK6A/H1-0EUL	10 - 30 VDC	40...300	ultrasonic sensor					•		M12 plug	3 920.00
UK6C/H1-0EUL	10 - 30 VDC	60...800	ultrasonic sensor					•		M12 plug	4 050.00
UK6D/H1-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor					•		M12 plug	4 550.00
UK6A/H2-0EUL	10 - 30 VDC	40...300	ultrasonic sensor						•	M12 plug	3 920.00
UK6C/H2-0EUL	10 - 30 VDC	60...800	ultrasonic sensor						•	M12 plug	4 050.00
UK6D/H2-0EUL	10 - 30 VDC	80...1.200	ultrasonic sensor						•	M12 plug	4 550.00

UK1 series - M18 standard body

M12 (4pin) plug connection

M18 x 91.6 mm

Analog + Digital NO/NC output

UK1D/G6-0ESY	10 - 30 VDC	150...1.600	ultrasonic sensor		•	•	•	•		M12 plug	7 060.00
UK1D/G7-0ESY	10 - 30 VDC	150...1.600	ultrasonic sensor		•	•	•	•		M12 plug	7 060.00
UK1F/G6-0ESY	10 - 30 VDC	200...2.200	ultrasonic sensor		•	•	•	•		M12 plug	8 220.00
UK1F/G7-0ESY	10 - 30 VDC	200...2.200	ultrasonic sensor		•	•	•	•		M12 plug	8 220.00

M30 UT series - Standard body (with larger heads for longer distance sensing)

M30 x 99 mm

- M30 - standard body UT1 or with larger head - UT2 (38.8 mm) UT5 (61 mm)
- Synchronism - up to 10 sensors connected on the same SYNC wire

Analog + Digital NO/NC output

M12 (5pin) plug connection

UT1B/G6-0ESY	10 - 30 VDC	250...3.500	ultrasonic sensor		•	•	•	•		M12 plug	8 350.00
UT1B/G7-0ESY	10 - 30 VDC	250...3.500	ultrasonic sensor		•	•	•	•		M12 plug	8 350.00
UT2F/G6-0ESY	10 - 30 VDC	350...6.000	ultrasonic sensor		•	•	•	•		M12 plug	13 500.00
UT2F/G7-0ESY	10 - 30 VDC	350...6.000	ultrasonic sensor		•	•	•	•		M12 plug	13 500.00
UT5L/G6-1ESY*	10 - 30 VDC	600...8.000	ultrasonic sensor		•	•	•	•		M12 plug	19 100.00
UT5L/G7-1ESY	10 - 30 VDC	600...8.000	ultrasonic sensor		•	•	•	•		M12 plug	19 100.00

* Mechanical dimension M30 x 115 mm

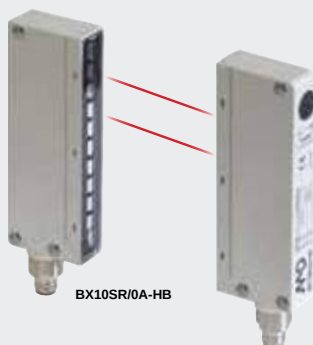
Mounting accessories see page K-11

See sensor connectors and cables page

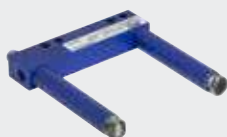
Photoelectric area & fork sensors



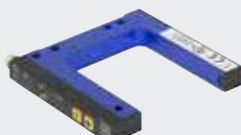
CR0/0B-1V



BX10SR/0A-HB



FC5R/DP-0506-1F



FC6I/0B-0506-1F



FC7I/0B-M304-0F

Photoelectric area and fork sensors

type	supply voltage	slit/fork				NPN	PNP	NO	NC	connector	price
		diffused	retro-reflective	polarised retro	through-beam						

CR0 series - Area sensors

CR0 series retroreflective polarised area sensors IP67 (EN60529)
CR0 area sensors are retroreflective and work in junction with RL106G reflector (*supplied*).
Comprises of synchronised photo element arrays for mutual interference avoidance.

- Nominal detection distance: 0.2 ... 4.5 meter
- Controlled height: 69 mm
- Minimum detectable object: 3...6 mm @ 2m - 3...10 mm @ 4.5m
- Connection: 250 mm pigtail with M12 5pin plug
- Dimensions: (H) 107 X (W) 20 X (D) 36 mm

CR0/0B-1V	16...30 VDC	☐	☐	☒	☐	0.2...4.5 m	☒	☒	☒	☒	M12 plug	5 260.00
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CRX area sensor available on request.

BX series - Through-beam area sensors

(H) 145 x (W) 20 x (D) 45 mm

BX area sensors are supplied as two parts - emitter and receiver elements. The optics comprise of synchronised photo element arrays for mutual interference avoidance. Ideal as a solution for irregular shaped object detection.

- Nominal detection distance: 0.3... 2 meter
- Controlled height: 90 mm
- Minimum detectable object: **BX4** Ø15 mm / **BX10** Ø5 mm
- Sensitivity: Adjustable (*trimmer*)
- LED indication: Green (*supply*) - red (*alarm sync.*) - yellow (*area stable*)
- Supply protection: Polarity reversal, transient, short circuit (*auto reset*)
- Protection degree: IP67 (EN60529)

BX04 area sensor		4 optics - 30 mm optic step										
BX04SR/0A-HB	10... 26 VDC	☐	☐	☐	☒	0.3...2 m	☒	☒	☒	☒	M12 plug	8 000.00

BX10 area sensor		10 optics - 10 mm optic step										
BX10SR/0A-HB	10... 26 VDC	☐	☐	☐	☒	0.3...2 m	☒	☒	☒	☒	M12 plug	10 300.00

Available with 4 and 6 meter detection distances on request.
Available in IP69K version (food and beverage) on request
See sensor connectors and cables page

FC series - Fork sensors

type	supply voltage	slit/fork		NPN	PNP	NO	NC	connector	price
		depth	width						

FC5 series - For object detection without regulation

- Minimum size object detection: 0.8 mm
- Switching frequency: 4 KHz
- Connector: M8 plug connection (3 pin)

FC5R/DP-0506-1F	12...24 VDC	60 mm	☐	50 mm	☐	☒	☒	M8 plug	2 730.00
FC5R/DP-0806-1F	12...24 VDC	60 mm	☐	80 mm	☐	☒	☒	M8 plug	2 910.00
FC5R/DP-1212-1F	12...24 VDC	124 mm	☐	120 mm	☐	☒	☒	M8 plug	3 380.00

FC6 series - For object detection with regulation

- Minimum size object detection: 0.2 mm
- Switching frequency: 10 KHz
- Connector: M8 plug connection (4 pin)

FC6I/0B-0304-1F	12...24 VDC	42 mm	☐	30 mm	☒	☒	☒	M8 plug	4 740.00
FC6I/0B-0306-1F	12...24 VDC	59 mm	☐	30 mm	☒	☒	☒	M8 plug	4 850.00
FC6I/0B-0506-1F	12...24 VDC	59 mm	☐	50 mm	☒	☒	☒	M8 plug	4 920.00
FC6I/0B-0510-1F	12...24 VDC	95 mm	☐	50 mm	☒	☒	☒	M8 plug	5 550.00
FC6I/0B-0806-1F	12...24 VDC	59 mm	☐	80 mm	☒	☒	☒	M8 plug	5 430.00
FC6I/0B-0810-1F	12...24 VDC	95 mm	☐	80 mm	☒	☒	☒	M8 plug	5 780.00

FC7/8 series - Fork sensors for label detection

- Minimum object detection: 2 mm (*gap between labels*) / 2 mm (*label size*)
- FC7: Photoelectric type label detection (*opaque labels*)
- FC8: Ultrasonic type label detection (*transparent labels*)

FC7I/0B-M304-0F	12...24 VDC	42 mm	☐	3 mm	☒	☒	☒	M8 plug	2 780.00
FC8U/0B-M307-1F	12...24 VDC	69 mm	☐	3 mm	☒	☒	☒	M8 plug	13 600.00

See sensor connectors and cables page

Photoelectric sensor with onboard processing



AI enabled
MLAS - Machine
Learning Assisted
Setting



New



MR-5-150...

Smart vision sensor - SMART-VS+ series

The **Smart-VS+** is an intelligent smart vision sensor, simple and easy to integrate into any application. It can be handled and used like a standard photoelectric sensor, but is powerful and smart with a multiprocessor platform supporting (AI) Artificial Intelligence technology.

Customised machine learning algorithms empower the detection system, enabling very complex and accurate object classification, ensuring very simple setup procedure without having to take care of programming or setting thresholds of different vision tools. All complex functionalities are performed by the Smart-VS **"brain"**.

The detection function is accomplished by three simple steps. The initial step is the "GOOD" condition teaching and the second step is "BAD" condition teaching, the third will turn the sensor in learning and normal run status ready to detect "GOOD" or "BAD" scenarios. Place the objects in front of the sensor and press a button to change acquisition steps until the sensor starts to think and act precisely.

Application mainly related to print and apply applications to detect the presence or absence of labels or text printing, in liquid filling machines to detect the presence / absence of any type of cap on any type of bottles, vials, flasks, phials of any material made of glass, plastic or with bright dark colour shiny surfaces with different dimensions.

General features:

- Green/Red LED spot for GOOD/BAD part
- Ethernet point to point communication available
- Machine Learning assisted trigger for sensor set up
- TEACH button and comprehensive UI with 5 status LEDs
- 50...150 mm operating distance with electronic focus control
- Easy and Intuitive WEB Server GUI for maintenance and job setting
- Bright and visible red LED pointer and powerful white polarized illuminator
- No vision tools, skilled installers or programming required just photosensor like setting

type	supply voltage	max. images to handle (GOOD+BAD)	detection distance (mm)	Inputs and Outputs	connector	price
SMART-VS+ Smart vision sensor (H) 58 x (W) 47.1 x (D) 38 mm						
MR-5-150-WH-O	10...30 VDC	6 images	50...150 mm	3 Out+2 In + Ethernet	M12 plug	76 100.00
PL-5-150-WH-O	10...30 VDC	20 images	50...150 mm	3 Out+2 In + Ethernet	M12 plug	95 500.00

Accessories

type	gender	no. pins	plug angle	cable length	description	price
95A900052	female	17	straight	3 meter	M12 connector	3 040.00
95A900053	female	17	straight	5 meter	M12 connector	3 950.00
93A050124	male	8	straight	5 meter	M12 connector	7 820.00
93A050128	male	8	straight	5 meter	M12-RJ45 conn.	5 770.00
93ACC0230	—	—	—	—	fixed bracket	1 990.00

Application types

Label presence detection



Bottle orientation detection



Cap presence detection



Print-on label detection.



Smart-VS+

The new vision for your smart manufacturing



Scan to watch



Inductive proximity sensors



LE40XZ...



LE40SZ...



LE80XZ...



LR12XA...



LR18XA...



CR18XSCN...

Inductive proximity sensors

Inductive sensors are used for metal object detection. Operational integrity is maintained even in harsh environments e.g. presence of oils, powders, liquids and vibrations etc. Commonly mounted on machines tools, textile machines, transport systems packaging machines and all automation applications.

- Protection degree: IP65/67
- Ambient limits: -25°C... +70°C
- LED indication: Incorporated
- Supply protection: Polarity reversal, short circuit, power surge

type	supply voltage	flush	non flush	detection distance	NPN	PNP	NO	NC	connector	body length (mm)	price
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Rectangular housing inductive proximity switches

IP67

40 x 40 mm rectangular body

DC standard version

terminal block connection

LE40XZSF15DPR-D	10-30 VDC	•		15 mm		•	•	•	terminal	120	1 050.00
LE40XZSN20DPR-D	10-30 VDC		•	20 mm		•	•	•	terminal	129	1 050.00
LE40XZSN20DNR-D	10-30 VDC		•	20 mm		•	•	•	terminal	129	1 050.00

Short body version

M12 plug connection

LE40SZSN20DPR-E2	10-30 VDC		•	20 mm		•	•	•	M12 plug	66	1 050.00
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AC version

terminal block connection

LE40XZSN20ATO-D	20-250 VAC		•	20 mm			•		terminal	129	1 100.00
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80 x 80 x 50 mm square body

terminal block connection

IP67

DC version

LE80XZSN50DPR-D	10-30 VDC		•	50 mm		•	•	•	terminal	98	2 210.00
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AC version

LE80XZSN50ATO-D	20-250 VAC		•	50 mm			•	•	terminal	98	2 270.00
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NAMUR proximity switches

(ATEX approved)

IP67

NAMUR inductive sensors are two-wire non amplified D.C. devices containing only the oscillator and are adapted to control an electronic amplified threshold circuit "which" can be utilised in hazardous areas.

M12 cylindrical body

LR12XAF02FLCN	8.2 VDC	•		2 mm				•	cable (2m)	31	654.00
LR12XAN04FLCN	8.2 VDC		•	4 mm				•	cable (2m)	35	654.00

M18 cylindrical body

LR18XAF05FLCN	8.2 VDC	•		5 mm				•	cable (2m)	32	710.00
LR18XAN08FLCN	8.2 VDC		•	8 mm				•	cable (2m)	32	710.00

Capacitive proximity sensors

IP67

Capacitive proximity sensors are used to detect a variety of materials, whether in liquid or solid state (e.g. water, wood, metals, granules, powders, etc...) Performance is upheld even when operating through plastic or glass barriers.

The robust nature of the technology ensures extremely high electromagnetic compatibility (EMC), high shock/vibration resistance and minimal sensitivity to dust and moisture. This ensures reliable object detection in harsh industrial environments.

M18 - Capacitive proximity sensors

CR18XSCF08DPRY-E2	10-30 VDC	•		0...8 mm		•	•	•	M12 plug	70	1 550.00
CR18XSCN12DPRY-E2	10-30 VDC		•	0...12 mm		•	•	•	M12 plug	84	1 550.00
CR18XSCN12DNRY-E2	10-30 VDC		•	0...12 mm	•		•	•	M12 plug	84	1 550.00
CR18SCF05ATO	20-250 VAC	•		0...5 mm			•		cable (2m)	70	1 430.00
CR18SCN08ATO	20-250 VAC		•	0...8 mm			•		cable (2m)	84	1 430.00

M30 - Capacitive proximity sensors

CR30XSCF15DPRY-E2	10-30 VDC	•		0...15 mm			•	•	M12 plug	62	1 600.00
CR30XSCN25DPRY-E2	10-30 VDC		•	0...25 mm		•	•	•	M12 plug	79	1 600.00
CR30XSCN25DNRY-E2	10-30 VDC		•	0...25 mm			•	•	M12 plug	79	1 600.00



PSE-BC30DPBR-E3



PSE-GM2DPBB-E3



PR18S...

Photoelectric sensors transmit a single beam which is reflected or interrupted by an infringing object. Diversified detection methods include diffuse reflection, through-beam, retro reflection, polarized reflection and transparent object detection.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	NPN	PNP	NO	NC	connector	price
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PSE series - Standard compact sensors

M8 - 4-pin connector

PSE series designed with universal housing, an ideal replacement for a wide variety of sensors through a vast range of applications.

One click distance setting for accurate and fast installation equipped with an M12 plug for quick and efficient changeover for reduced production stoppage time.

- Light source: Red light (640 nm)
- Supply protection: Short-circuit, overload and reverse polarity protected.
- Dimensions: 33 x 10.6 x 20 mm
- Feature: Visible light spot for easy calibration / alignment.

Diffuse reflective *proximity type detection (no transmitter or reflector required)*

PSE-BC30DPBR-E3	12-24 VDC	•				300 mm		•	•	•	M8 plug	955.00
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Retro-reflective *used together with a reflector (supplied with reflector)*

PSE-PM3DPBR-E3	12-24 VDC			•		3 meter		•	•	•	M8 plug	1 050.00
PSE-GM2DPBB-E3*	12-24 VDC	•				2 meter		•	•	•	M8 plug	1 790.00

* Transparent object detection

Thru-beam (long range) *not supplied as a set (emitter bought separately)*

PSE-TM10DPBR-E3	12-24 VDC				•	10 meter		•	•	•	M8 plug	1 100.00
PSE-TM20DPB-E3	12-24 VDC				•	30 meter		•	•	•	M8 plug	1 190.00
PSE-TM10DR-E3*	12-24 VDC				•	10 meter					Emitter	1 100.00
PSE-TM20D-E3*	12-24 VDC				•	30 meter					Emitter	1 190.00

PR18S series - Cylindrical sensors

Ø 18 mm x 68 mm

PR18S series cylindrical sensors - utilized on long and short range detection applications. The standard M18 housing ensures easy adaptability to a vast amount of applications.

Due to the non-contact nature of operation (unlike limit switches) the service life is longer, thusly ensuring good return on investment.

- Supply protection: Overload and reverse polarity protected
- Light source: Infrared LED
- Output indication: LED
- Connection: M12 - 4-pin connector
- Housing material: M12 - 4-pin connector
- Feature: Excellent anti-interference performance

Diffuse-reflective *proximity type detection (no transmitter or reflector required)*

Sender and receiver within the same housing, beam reflects on detected object.

PR18S-BC10DPC-E2	12-24 VDC	•				100 mm		•	•	•	M12 plug	863.00
PR18S-BC10DPO-E2	12-24 VDC	•				100 mm		•	•	•	M12 plug	863.00
PR18S-BC40DPC-E2	12-24 VDC	•				400 mm		•	•	•	M12 plug	863.00
PR18S-BC40DPO-E2	12-24 VDC	•				400 mm		•	•	•	M12 plug	863.00

Retro-reflective *utilisation with a reflector (must be ordered separately)*

Sender and receiver within the same housing, beam transmission returned via reflector.

PR18S-DM3DPC-E2	12-24 VDC		•			3 meter		•	•	•	M12 plug	909.00
PR18S-DM3DPO-E2	12-24 VDC		•			3 meter		•	•	•	M12 plug	909.00

Through-beam (long range) *not supplied as a set (emitter ordered separately)*

Sender and receiver in different housing, detection through beam interruption.

PR18S-TM20DPC	12-24 VDC			•		20 meter		•	•	•	M12 plug	1 050.00
PR18S-TM20DPO	12-24 VDC			•		20 meter		•	•	•	M12 plug	1 050.00
PR18S-TM20D*	12-24 VDC					20 meter					Emitter	1 050.00

* Sender / Emitter

Accessories

ZJP-8	33 x 30 mm	PSE/PSR mounting rack	PSE sensors	35.30
ZJP-9	M18 x 37 mm	PSS/PSM mounting rack	PR sensors	35.30
TD-02	40 x 65 mm	surface mount reflector for photo sensors	PR/PSE sensors	99.00
TD-09	40 x 60 mm	surface mount reflector for photo sensors	PR/PSE sensors	72.00

See sensor connectors and cables page

Transparent object detection

PSE-GM2DPBB-E3 - sensor



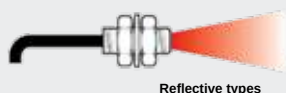
Fibre-optic sensors



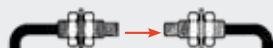
FX102P-Z



FX551P

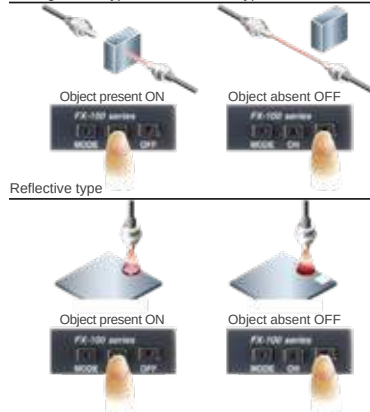


Reflective types



Through beam types

Through beam type / Retroreflective type



FX series - Fibre optic amplifier

DIN rail mounting

Significantly improved stability and operation ease, due to industry's top emission power.

- 3 times higher emission power
- 1.6 times longer detection range than conventional models
- Simplified functions for ease of usage improvement

- Connection: Connector with cable (*supplied separately*)
- Sensitivity setting: 2-point teaching / limit teaching / Full-auto teaching (*manual setting FX5 series*)
- Timer function: ON-delay, OFF-delay, One shot, no timer (*selectable*) 0.1ms - 32sec, 1-1000ms **FX1 series**

type	supply voltage	detection distance (mm)	NPN	PNP	light-on	dark-on	connector	price
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Amplifier for optical fibres FX1 (H) 66.4 x (W) 9 x (D) 32 - FX5 (H) 75 x (W) 10 x (D) 32 mm

FX102P-Z	12 - 24 VDC	dependant on fibre used	☐	☒	☒	☒	M8 plug	3 320.00
FX-551P	12 - 24 VDC	dependant on fibre used	☐	☒	☒	☒	connector	5 030.00

Accessories for above FX551 amplifiers

CN-73-C2	main cable with connector for above amplifier (2 meter)	connector	435.00
CN-73-C5	main cable with connector for above amplifier (5 meter)	connector	506.00
CN-71-C2	sub cable with connector for above amplifier (2 meter)	connector	361.00

Optical fibre sensors for above amplifiers

Due to the vast range of optical fibres available, we illustrate a basic range (*indicated below*).
Vast range of available optical fibre sensors available, request fibre guide, available as a PDF file.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	cuttable fibre	head type	fibre length	price
						FX102	FX551 hyper mode			

Reflective types

proximity type detection (no transmitter or reflector required)

Cylindrical threaded body (straight)

(IP67)

FD-31	M3	☒	☐	☐	☐	140	515	yes	cylindrical	2 meter	1 630.00
FD-41	M4	☒	☐	☐	☐	140	515	yes	cylindrical	2 meter	1 630.00
FD-61	M6	☒	☐	☐	☐	410	1400	yes	cylindrical	2 meter	1 630.00

Square threaded body (right angled)

FD-R31G	M3	☒	☐	☐	☐	150	530	yes	square	2 meter	2 670.00
FD-R41	M4	☒	☐	☐	☐	170	710	yes	square	2 meter	3 520.00

Protective tube (for FD series reflective fibres)

FDP-N500	M4	non-corrosive stainless steel protective tube for	0.5 meter	763.00
FDP-N1000	M4	non-corrosive stainless steel protective tube for	1.0 meter	876.00
FDP-N1500	M4	non-corrosive stainless steel protective tube for	1.5 meter	1 010.00

Thru-beam types

supplied as a set with transmitter and receiver

Cylindrical threaded body (straight)

FT-31	M3	☐	☐	☐	☒	340	1200	yes	cylindrical	2 meter	1 630.00
FT-42	M4	☐	☐	☐	☒	800	3600	yes	cylindrical	2 meter	1 470.00

Square threaded body (right angled)

FT-R31	M3	☐	☐	☐	☒	340	1000	yes	square	2 meter	3 020.00
FT-R43	M4	☐	☐	☐	☒	640	3000	yes	square	2 meter	2 670.00

High temperature fibres

FT-H20-WM1	+200°C	☐	☐	☐	☒	300	1600	no	cylindrical	1 meter	9 970.00
FT-H35-M2S6	+350°C	☐	☐	☐	☒	490	1200	no	cylindrical	2 meter	14 700.00

Expansion lenses (for through beam type fibres) -60°C...+350°C

For fibres: FT-42/43, FT-H20-WM1, FT-H35-M2S6

FX-LE1	M4	fibre expansion lens side view 90° beam axis	FT-42/43	385.00
FX-SV1	M4	fibre expansion lens (5 times increased sensing)	FT-42/43	621.00

Protective tube (for FT series through beam fibres)

FTP-500	M4	non-corrosive stainless steel protective tube for	0.5 meter	763.00
FTP-1000	M4	non-corrosive stainless steel protective tube for	1.0 meter	876.00
FTP-1500	M4	non-corrosive stainless steel protective tube for	1.5 meter	1 010.00

Fibre accessories

FX-CT1	fibre cutting tool (to cut fibres to desired length)	79.00
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Laser sensors



LX-101-P-Z



EX-L221-P



Material slack detection



HG-C1050-P

LX-100 - Mark sensor (can detect any mark)

The **LX-100** mark sensor detects any marking or colour, the sensor is equipped with red, green and blue LED. In addition, it utilises a coaxial reflective optics system to realise high precision sensing when used with 1/4000 resolution 12-bit A/D converter.

type	supply voltage	diffused	retro-reflective	polarised retro	through-beam	detection distance (mm)	NPN	PNP	light-on	dark-on	connector	price
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LX-100 series - Mark / colour sensor

- Sensing: 3 LEDs: red, green, blue
- Sensing modes: 2 (selectable): Mark mode and Colour mode
- Sensitivity: 2-level teaching/Limit teaching - Mark / 1-level teaching - colour
- LED indication: 4-digit red LED display and various LED indicators
- Dimensions: 35 x 24 x 57 mm
- Response time: Mark mode - 45 µs \ Colour mode 150 µs

Mark/colour sensor M12 - 4-pin connector (supplied separately)

LX-101-P-Z	12 - 24 VDC					10...±3 mm		•	•	•	M12 plug	9 820.00
MSLX1	bracket	metallic (side mount)	mounting bracket for above								LX-101	737.00

Note: LX-101 can be used in conjunction with ASDA-A3 for high speed mark position applications.

EX-L200 series - Miniature laser sensor (ultra compact) - amplifier integrated

Due to the customised IC and optical design, high precision detection is fulfilled with directivity and visibility achievable only by laser. Class 1 (IEC / JIS / FDA) laser is safe to use, no need to separate the area of sensor usage.

- Sensing: Minute object detection (high precision - high accuracy)
- Easy beam-axis alignment: Visible beam
- Sensitivity: Adjustable (to eliminate background detection)
- Supply protection: Short-circuit / reverse polarity protection
- LED indication: Orange and green LED indicators
- Ultra compact: 29.9 x 8.2 x 1³ mm

Spot reflective type (Ø1 mm at a sensing distance of 300 mm)

- Minimum sensing object - 0.01 mm

EX-L221-P	12 - 24 VDC		•			45...300 mm		•	•	•	cable (2m)	7 810.00
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Thru-beam supplied as a set with transmitter and receiver

- Minimum sensing object - 0.03 mm

EX-L211-P	12 - 24 VDC				•	1 meter		•	•	•	cable (2m)	8 050.00
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NPN output available on request (remove "-P" from the part number)

MS-EX201	bracket	L shaped metallic mounting bracket for sensor									EX-L2...	160.00
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HG-C series - Micro laser distance/measurement sensor (with built-in amplifier) IP67

HG-C measurement sensors measure and indicate measured values in mm as well as analog voltage outputs. The data can be used for various calculations and storage (logging) when the output is sent to a PLC + analog unit.

- Reliable detection in 10 µm precision (for HG-C1030-P)
- Indicates real measurements
- Equipped with 0 - 5V analog output
- Compact and light weight: 44 x 20 x 25 mm

type	supply voltage	repeatability	measurement center distance (mm)	measurement range (mm)	NPN	PNP	light-on	dark-on	connector	price
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HG-C1030-P	12 - 24 VDC	10 µm	30	±5		•			cable (2m)	24 600.00
HG-C1050-P	12 - 24 VDC	30 µm	50	±15		•			cable (2m)	24 600.00
HG-C1100-P	12 - 24 VDC	70 µm	100	±35		•			cable (2m)	24 600.00
HG-C1200-P	12 - 24 VDC	200 µm	200	±80		•			cable (2m)	27 500.00
HG-C1400-P	12 - 24 VDC	300 µm	400	±200		•			cable (2m)	32 100.00

MS-HG-01 bracket for above HG-C micro laser sensors

NPN available on request (remove "-P" from the part number)

Note: I/O link available on request

See sensor connectors and cables page

Pressure transmitters



Pressure transmitters/sensors IP67

- Compact, rugged construction
- Accuracy: $\pm 0.3\%$ fs
- Response time: < 2 ms, (1 ms typical)
- Medium temperature range: $-15^{\circ}\text{C} \dots +125^{\circ}\text{C}$ / 525 ($-15^{\circ}\text{C} \dots +85^{\circ}\text{C}$)
- Material: Connection stainless steel 1.4404 / AISI 316L
- Conformity: EN 61326-2-3 / IEC 68-2-27 / IEC 68-2-29 / IEC 68-2-6 / UL E3251110

type	pressure range (bar) ¹⁾	power supply	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾	price
Type 525/28 compact pressure transmitter based on well proven ceramic technology developed by Huba Control. Transmitter suitability extends across a broad spectrum of industries.							
• Medium: Liquids and gases							
Type 528	pressure range: -1...0...60 Bar (external thread)					Ø24 x 40.9 mm	
528.9010033411	-1 ... 0	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9120033411	0 ... 1.6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9140033411	0 ... 2.5	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9150033411	0 ... 4	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9170033411	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9300033411	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9310033411	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9320033411	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9330033411	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00
528.9400033411	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 140.00



528.9300033411

Type 520	pressure range: 0 - 1000 Bar					Ø24 x 46.7 mm	
Type 520 compact pressure transmitter based on Huba Control developed thick film technology with fully welded pressure measurement cell. Meets high burst protection demands and is ideal for refrigeration applications suitable for use in all types of refrigerants including ammonia.							
• Welded without sealing parts (<i>no elastomer seals</i>) • Medium: Liquids, gases and refrigerants (<i>including ammonia</i>)							
520.906S033401	-1 ... 9	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.917S033401	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.930S033401	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.931S033401	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.932S033401	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.933S033401	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.940S033401	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 350.00
520.941S033401	0 ... 100	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 860.00
520.942S033401	0 ... 160	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 860.00
520.943S033401	0 ... 250	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 860.00
520.954S033401	0 ... 400	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 860.00
520.955S033401	0 ... 600	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	2 860.00



520.930S033401

Explosion proof version		EC type examination certificate:			SEV 10 ATEX 0145		
• Intrinsic safety:		Ex II 1/2 G Ex ia IIC T4 Ga/Gb / Ex II 1/2 D Ex ia IIC T125°C Da/Db					
520.917S043401	0 ... 6	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 680.00
520.930S043401	0 ... 10	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 680.00
520.931S043401	0 ... 16	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 680.00
520.932S043401	0 ... 25	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 680.00
520.933S043401	0 ... 40	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 680.00
520.934S043401	0 ... 60	7 - 33 VDC	4 - 20 mA	M12x1	transmitter	G 1/4"	3 680.00



520.917S043401

Accessories for transmitters other connectors and cables see page K-23...24

Heat sink for high temperature applications

Heat sink effectively reduces temperatures of hot media, permitting usage of transmitters in applications with temperatures in excess of 200°C.

105074	G 1/4" heat sink for transmitters in high temperature applications (L +101 mm)	2 680.00
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¹⁾ Other pressure ranges available on request

²⁾ Other outputs available on request: 0 - 5V, 0 - 10V, Radiometric 10 ... 90%

³⁾ Other electrical connections available: DIN EN 175301-803-A/C, RAST2.5, Swift, M12 x 1, with cable

⁴⁾ Pressure connections: inside/outside thread: 1/4"-18NPT, 1/2"-14NPT, G1/4", G1/2", M20 x 1.5, R 1/4 to DIN 2999



105074

Electronic programmable pressure switches

Drinking water application safe



Type 712, 713

Type 520

Type 540

Type 235



548.9300152401



540.943S052401



712.911103210



713.9301015111

Pressure transmitter with display and programmable switching outputs

The **548/540** series μ P-regulated, programmable pressure transmitter has a robust industry design, easily adjustable parameters (*via function keys in the configuration menu*) with up to two programmable switching points. All units are equipped with a large 4 digit display assuring reliable, accurate readings.

- Compact, rugged construction
- Clearly readable display (*rotatable 180°*) - 7 segment LED, 4 digits for pressure and parameter values
- Programmable time delay functions rise and switch off delay 0 - 50 s, response time 5 ... 500 ms
- Electrical connection: M12 x 1 (5 pin) See *sensor connectors and cables* page
- 1 x Analog signal output 4 ... 20 mA (0 ... 10 V available on request)
- 2 x programmable switching outputs NO or NC (250 mA)
- Medium: Liquids and gasses -20°C... +80°C
- Protection standard: IP67 - IEC 60529
- Conformity: EN 61326-2-3 / IEC 68-2-27 / IEC 68-2-6 / UL 61610-1

type	pressure range (bar) ¹⁾	supply VDC	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾	price
Type 548 pressure range: 0 - 40 Bar (H) 73 x (W) 41 x (D) 42 mm							
Based on the well proven ceramic technology developed by Huba Controls.							
• Accuracy:		± 0.3 % fs					
• Overload:		≤ 10 Bar 4 x fs > 10 Bar 3.5 x fs					
548.9300152401	0 ... 10	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 210.00
548.9310152401	0 ... 16	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 210.00
548.9320152401	0 ... 25	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 210.00
548.9330152401	0 ... 40	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 210.00

Type 540 pressure range: 0 - 600 Bar (H) 73 x (W) 41 x (D) 42 mm							
Based on Huba Control developed thick film technology with fully welded pressure measurement cell.							
• Accuracy:		± 0.3 % fs					
• Overload:		3 x fs (max. 1500 Bar) rupture pressure 6 x fs (max. 2500 Bar)					
540.941S052401	0 ... 100	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 320.00
540.943S052401	0 ... 250	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 320.00
540.955S052401	0 ... 600	17 - 33	4 - 20 mA	M12x1 PNP	transmitter	G 1/4"	6 320.00

Other pressure ranges available on request.

Level sensing pressure transmitters

- Medium temperature range: -20°C... +80°C
- Accuracy: ± 0.25 % fs
- Drinking water approval: KTW, W270, WRAS, ACS
- Protection class: (IP68) Cable PE-HD
- Material: Stainless Steel 1.4404 / AISI 316L - Ceramic sensor Al2O3 (99.6%)

type	pressure range (bar) ¹⁾	supply VDC	output DC ²⁾	electrical connection ³⁾	description	cable length	price
Type 712 - Level sensing pressure transmitters Ø23.4 x 116 mm							
Type 712 level sensing pressure transmitters are manufactured using a relative and absolute pressure measuring cell. Diesel oil (Ex version).							
• Medium:		Fuel oil, ultra-light/heavy - SN 181 160-2, Diesel oil, Drinking water					
712.913101210	0.0 ... 0.3	10 - 30	4 - 20 mA	cable	transmitter	5 meter	10 200.00
712.911103210	0.0 ... 1.0	10 - 30	4 - 20 mA	cable	transmitter	15 meter	8 730.00
712.912104210	0.0 ... 1.6	10 - 30	4 - 20 mA	cable	transmitter	20 meter	9 370.00

Type 713 - Level sensing pressure transmitters Ø18.5 x 138 mm							
Type 713 pressure level transmitter used for continuous fluid level measurement of ground and drinking water. The compact design permits use in applications with restricted access as small as 20 mm i.d. pipes. Available with enhanced energy efficient ratiometric and digital outputs, for battery powered applications.							
• Applicable in ¾ inch pipes							
• Continuous level measurement							
• Suitable for ground and drinking water							
• Excellent linearity and long term stability							
• Medium: Liquids		(suitable for drinking water and borehole application)					
713.9301013111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	80 meter	21 700.00
713.9301015111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	100 meter	23 400.00
713.9301016111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	125 meter	25 600.00
713.9301017111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	150 meter	27 700.00
713.9301018111	0 ... 10	10 - 30	4 - 20 mA	cable	transmitter	175 meter	29 900.00
713.9311018111	0 ... 16	10 - 30	4 - 20 mA	cable	transmitter	175 meter	29 300.00

Above ZAR prices do not include VAT. E&OE

K-20

Differential pressure transmitters



699.931011010



699.931024110



692.912007141 + 103510

Differential pressure transmitter

Type 699 transmitters are available in switchable pressure ranges, with or without digital display. They include customer specific adjustment possibilities. Specially developed sensors for each pressure range ensure accurate long term stable measurement and provide the perfect platform for use in air conditioning technology.

- Fast, easy mounting. (*housing incorporates integral wall or ceiling mount bracket*)
- Switchable response curve (*linear or root-extracted*)
- Adjustable measurement range
- Switchable output signals
- Resettable Zero Point (*reset button*)
- Full scale adjustable

Application fields

- Check air flows, monitor filters and fan systems
- Measuring slightest differential pressures in ventilation and air conditioning ducts
- Pressure supervision in labs, production, storage and clean rooms (*conversion: 100 Pa = 1 mbar*)



Scan for application PDF

type	pressure range (mbar) ¹⁾	supply VDC	output DC ²⁾	electrical connection ³⁾	description	pressure connection ⁴⁾	price
Type 699 - Differential pressure transmitter			(H) 75 x (W) 92 x (D) 47.9 mm				
• Medium:	Air and neutral gases - temperature range: 0°C... 70°C						
• Response time:	< 20 ms						
• Output:	4 ... 20 mA ²⁾ (others available on request 0 ... 5/10V)						
• Degree of protection:	IP54 according to EN 60529						
• Conformity:	EN 61326-1, UL 60730-1, UL 60730-2-6						
• Supply:	13...33 VDC / 24 VAC ± 15%						
699.931014010	0.3/0.5/1	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	3 320.00
699.913014010	1/3/5	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	3 320.00
699.915014010	5/10/16	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	3 320.00
699.931011010	0.3/0.5/1	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	3 320.00
699.913011010	1/3/5	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	3 320.00
699.915011010	5/10/16	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	3 320.00

As above with LCD Digital display

699.931024110	0.3/0.5/1	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	4 760.00
699.913024110	1/3/5	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	4 760.00
699.915024110	5/10/16	13 - 33	4 - 20 mA	screw term.	transmitter	Ø6.2 mm	4 760.00
699.931021110	0.3/0.5/1	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	4 760.00
699.913021110	1/3/5	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	4 760.00
699.915021110	5/10/16	13 - 33	0 - 10V	screw term.	transmitter	Ø6.2 mm	4 760.00

¹⁾ Other pressure ranges available on request ²⁾ Other outputs available on request (0 ... 5/10V)

Accessories for type 699 above

104312	connection kit for vent duct (<i>metal</i>) 90° angled - including 2 m long tube	362.00
100064	connection kit for vent duct (<i>plastic</i>) straight - including 2 m long tube	242.00

Type 692 - Differential pressure sensor

(H) 95 x (Ø) 44 mm

Type 692 pressure transmitters feature unique, well proven ceramic technology. The wide pressure range together with several standard output signals make these transmitters ideal for applications across a broad spectrum of industries. For the measurement of pressure differentials in HVAC systems.

- Robust stainless steel enclosure
- High resistance to extreme temperatures
- High measurement accuracy
- Very low temperature sensitivity

Type 692 - Differential pressure transmitter

EN 61326-2-3

compact design

- Response time: < 5 ms
- Medium: Liquids and neutral gases -15°C... +85 °C
- Output: 4...20 mA²⁾ (*others available on request 0 ... 5/10V*)
- Electrical connection: DIN EN 175301-803-A connector (*female not supplied with transmitter*)
- Degree of protection: IP65 according to EN 60529

type	range BAR	max BAR	power supply	output (DC) ²⁾	electrical connection ³⁾	description	screw fitting	price
692.912007141	0...1	5	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	10 000.00
692.916007141	0...2.5	12	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	10 000.00
692.919007141	0...6	12	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	10 000.00
692.930007141	0...10	20	11-33	4 - 20 mA	DIN plug	transmitter	Ø6 mm	10 000.00

Accessories for above 692 transmitters

103510	DIN EN 175301-803-A female connector for type 692 transmitters	180.00
101999	mounting bracket (<i>including screws</i>) for type 692 transmitters	274.00

Above ZAR prices do not include VAT. E&OE

Flow sensors



210.906441K



210...



236...



604.9000000

Flow sensors for liquid medium

Huba Control flow sensors are based on the Karman Vortex trail principle and are available in various options. No moving parts, the flow sensor is not sensitive to debris with marginal pressure loss combined with high accuracy.

- Protection class: (IP65)
- Medium temperature: < +125 °C
- Measuring principle: Vortex - Piezoelectric sensor element
- Excellent media resistance: Measuring element not in contact with the media
- Drinking water approval: KTW, W270, WRAS, ACS
- Accuracy at < 50% fs: < 1 % fs (>50% - 2% measuring value)
- Material: Fibreglass-reinforced plastic, sensor paddle ETFE
- Electrical connection: M12 x 1 - 4 pin (See sensor connectors and cables page)
- Flow medium: Heating water with standard additives, drinking water
- Flow pipe connection: External thread K connection G½ ... G1¼" (others on request)



Scan for application PDF

type	nominal diameter	measuring range (l/min)	power supply	output DC ²⁾	description	connect	price
Type 210 - Fibreglass-reinforced plastic			PA6T/6I (40% GF)				
Type 210 flow sensor for liquid media							
210.906441K	DN 6	0.5 ... 10	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	3 440.00
210.908441K	DN 8	0.9 ... 15	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	3 440.00
210.910441K	DN 10	1.8 ... 32	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	3 440.00
210.915441K	DN 15	3.5 ... 50	8 - 33 VDC	4 - 20 mA	flow sensor	G ¾"	3 440.00
210.920441K	DN 20	5.0 ... 85	8 - 33 VDC	4 - 20 mA	flow sensor	G 1"	3 440.00
210.925441K	DN 25	9.0 ... 150	8 - 33 VDC	4 - 20 mA	flow sensor	G 1¼"	3 440.00
²⁾ other outputs available on request 0 - 10V, Frequency square pulse output							
Above flow switches can be provided with additional internal PT1000 temperature sensor							+ 470.00

Type 236 - Brass bodied flow sensors

The Type 236 is based on the Type 210 but incorporates a brass housing. The vortex sensor has a rugged construction of brass connection.

- Brass (CuZn40PbZ), PA6T/6I (40% GF)

Type 236 Brass bodied flow sensors

236.910441K	DN 10	1.8 ... 32	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	5 380.00
236.911441K	DN 10	2.0 ... 40	8 - 33 VDC	4 - 20 mA	flow sensor	G ½"	5 380.00
236.932441K	DN 32	14 ... 240	8 - 33 VDC	4 - 20 mA	flow sensor	G 1½"	7 000.00
Above flow switches can be provided with additional internal PT1000 temperature sensor.							+ 470.00

See sensor connectors and cables page

Type 604 - Mechanical pressure switches

Type 604 pressure switch is used as a Δp flow switch in ventilation ducts for the control of filters and fans in primary and secondary control systems for the control of air dampers. Ideally suited to protect heating coils from overheating and for monitoring industrial air cooling circuits.

- Easy to install, user friendly snap cover
- Case geometry permits easy cable entry - cable strain relief integrated
- Supplied with Combi-bracket for vertical or horizontal installation
- For ventilation and air conditioning plants (monitor differential pressure under/over pressure)
- To monitor air filters and air flow

- Medium: Air and neutral gases -30°C...+85 °C
- Electrical contact: 1 x changeover contact - 5A 250 VAC (resistive)
- Protection class: (IP54) (with cover)
- Conformity: EN 61326-2-3, EN 60730-1

type	pressure range ¹⁾ mbar	Pa	switch	electrical connection ³⁾	description	pressure connection ⁴⁾	price
Type 604 - Mechanical pressure switch			(H) 52 x (Ø) 81				
• Tolerable overload on one side: 50 mbar							
• Pressure connection: PVC nipples - Ø6.2 mm							
604.9000000	0.2 ... 3	20 ... 300	1 ch/over	screw term.	pressure switch	Ø6.2 mm	795.00
604.9100000	0.5 ... 5	50 ... 500	1 ch/over	screw term.	pressure switch	Ø6.2 mm	795.00
604.9200000	1 ... 10	100 ... 1000	1 ch/over	screw term.	pressure switch	Ø6.2 mm	795.00
604.9400000	5 ... 20	500 ... 2000	1 ch/over	screw term.	pressure switch	Ø6.2 mm	795.00
604.9500000	10 ... 50	1000 ... 5000	1 ch/over	screw term.	pressure switch	Ø6.2 mm	795.00

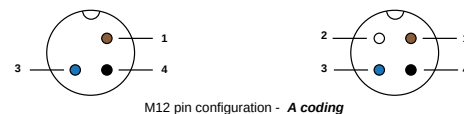
Note: Other pressure ranges available on request

Accessories for type 604 above

104312	connection kit for vent duct (metal) 90° angled - including 2 m long tube	362.00
100064	connection kit for vent duct (plastic) straight - including 2 m long tube	242.00

M8 and M12 - Round sensor connectors

- Contact resistance: $\geq 10\text{m}\Omega$
- Protection degree: IP67/68
- Operating temperature: $-25^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Termination: Screw clamp terminal
- Contact material: Gold plated phosphor brass/bronze
- Body material: 60% glass fibre reinforced Polyamide



type	gender	No. pins	term.	plug angle	nominal current	rated voltage AC/DC	description	price
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M8 assembly connectors (A coding) IP67/68

• Plastic body:	PA66+GF	• Cable Ø: Ø 3...5.5 mm						
080103-02-001	female	3	screw	straight	3A	60V	M8 connector	175.00
080104-02-001	female	4	screw	straight	3A	60V	M8 connector	179.00
080103-01-001	male	3	screw	straight	3A	60V	M8 connector	172.00
080104-01-001	male	4	screw	straight	3A	60V	M8 connector	175.00

M8 panel mount connectors (through hole) (A coding) IP67/68

080103-04-004	female	3	cable (5 m)	straight	3A	60V	M8 panel mount	183.00
080104-04-004	female	4	cable (5 m)	straight	3A	60V	M8 panel mount	190.00
080103-03-003	male	3	solder	straight	3A	60V	M8 panel mount	183.00
080104-03-003	male	4	solder	straight	3A	60V	M8 panel mount	190.00

M12 assembly connectors (A coding) IP67/68

• Plastic body:	PA66+GF	• Cable Ø: Ø 3...8 mm						
120103-02-022	female	3	screw	straight	4A	250V	M12 connector	184.00
120104-02-022	female	4	screw	straight	4A	250V	M12 connector	188.00
120105-02-022	female	5	screw	straight	4A	60V	M12 connector	192.00
120108-02-022	female	8	screw	straight	2A	30V	M12 connector	203.00
120104-02-024	female	4	screw	90°	4A	250V	M12 connector	188.00
120105-02-024	female	5	screw	90°	4A	60V	M12 connector	192.00
120108-02-024	female	8	screw	90°	2A	30V	M12 connector	238.00
120103-01-022	male	3	screw	straight	4A	250V	M12 connector	180.00
120104-01-022	male	4	screw	straight	4A	250V	M12 connector	184.00
120105-01-022	male	5	screw	straight	4A	60V	M12 connector	188.00
120108-01-022	male	8	screw	straight	2A	30V	M12 connector	199.00
120104-01-024	male	4	screw	90°	4A	250V	M12 connector	184.00
120105-01-024	male	5	screw	90°	4A	60V	M12 connector	188.00

M12 metallic body assembly connectors (A coding)

• Gland:	PG9 with shield	• Cable Ø: Ø 6...8 mm						
• Termination:	Solder terminal							
120104-02-006	female	4	solder	straight	4A	250V	M12 connector	254.00
120105-02-006	female	5	solder	straight	4A	60V	M12 connector	259.00
120108-02-006	female	8	solder	straight	2A	30V	M12 connector	275.00
120104-01-006	male	4	solder	straight	4A	250V	M12 connector	254.00
120105-01-006	male	5	solder	straight	4A	60V	M12 connector	259.00
120108-01-006	male	8	solder	straight	2A	30V	M12 connector	275.00

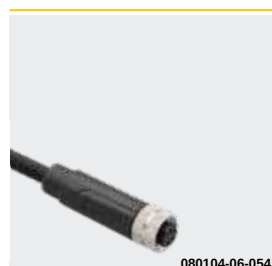
M12 metallic circular connectors (A coding) IP67/68

• M16 x 1.5 rear mounting								
120104-04-001	female	4	solder	straight	4A	250V	M12 panel mount	223.00
120105-04-001	female	5	solder	straight	4A	60V	M12 panel mount	233.00
120108-04-001	female	8	solder	straight	2A	30V	M12 panel mount	257.00
120104-03-001	male	4	solder	straight	4A	250V	M12 panel mount	215.00
120105-03-001	male	5	solder	straight	4A	60V	M12 panel mount	223.00
120108-03-001	male	8	solder	straight	2A	30V	M12 panel mount	250.00

Cable multi-core sensor cable - PUR (Polyurethane)

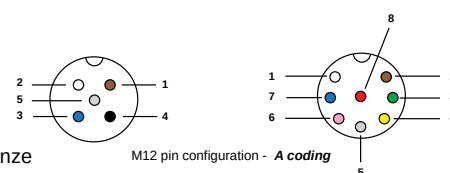
type	(mm ²)	cores	colour	insul.	material	wire colours	price per meter
CA00142	0.34	3	black	cable (1m)	PUR	brown-blue-black	49.00
CA00015	0.34	4	black	cable (1m)	PUR	brown-white-blue-black	52.00
CA00148	0.34	5	black	cable (1m)	PUR	brown-white-blue-black-grey	54.00
CA00103	0.25	8	black	cable (1m)	PUR	pnk-red-yel-brn-wht-blu-grm-gry	50.00

Sensor connectors & cables



M8 and M12 - Round sensor connectors

- Contact resistance: $\geq 10\text{m}\Omega$
- Protection degree: IP67/68
- Operating temperature: $-25^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Termination: Molded on cable
- Contact material: Gold plated phosphor brass/bronze
- PUR cable: High flexibility, oil and abrasion resistant



type	gender	No. pins	colour	plug angle	cable material	cable length	description	price
M8 sensor cable with female connector (A coding)								
080103-06-027	female	3	black	straight	PUR	2 meter	M8 sensor cable	220.00
080103-06-020	female	3	black	straight	PUR	5 meter	M8 sensor cable	391.00
080103-06-058	female	3	black	90°	PUR	2 meter	M8 sensor cable	220.00
080103-06-024	female	3	black	90°	PUR	5 meter	M8 sensor cable	391.00
080104-06-054	female	4	black	straight	PUR	2 meter	M8 sensor cable	220.00
080104-06-029	female	4	black	straight	PUR	5 meter	M8 sensor cable	443.00
080104-06-063	female	4	black	90°	PUR	2 meter	M8 sensor cable	220.00
080104-06-036	female	4	black	90°	PUR	5 meter	M8 sensor cable	443.00

M12 sensor cable with female connector (A coding)								
120104-06-053	female	4	black	straight	PUR	2 meter	M12 sensor cable	220.00
120104-06-061	female	4	black	straight	PUR	5 meter	M12 sensor cable	443.00
120104-06-624	female	4	black	straight	PUR	7.5 meter	M12 sensor cable	537.00
120104-06-625	female	4	black	straight	PUR	10 meter	M12 sensor cable	685.00
120104-06-017	female	4	black	90°	PUR	2 meter	M12 sensor cable	220.00
120104-06-010	female	4	black	90°	PUR	5 meter	M12 sensor cable	400.00
120104-06-924	female	4	black	90°	PUR	7.5 meter	M12 sensor cable	537.00
120104-06-925	female	4	black	90°	PUR	10 meter	M12 sensor cable	685.00
120105-06-075	female	5	black	straight	PUR	2 meter	M12 sensor cable	220.00
120105-06-053	female	5	black	straight	PUR	5 meter	M12 sensor cable	443.00
120105-06-127	female	5	black	90°	PUR	2 meter	M12 sensor cable	220.00
120105-06-055	female	5	black	90°	PUR	5 meter	M12 sensor cable	443.00
120108-06-008	female	8	black	straight	PUR	2 meter	M12 sensor cable	285.00
120108-06-009	female	8	black	straight	PUR	5 meter	M12 sensor cable	481.00
120108-06-115	female	8	black	90°	PUR	2 meter	M12 sensor cable	285.00
120108-06-119	female	8	black	90°	PUR	5 meter	M12 sensor cable	481.00

M12 round connectors - for power applications (S & K coding)								
• Contact resistance: $\geq 3\text{m}\Omega$ • Protection degree: IP67/68 • Operating temperature: $-25^{\circ}\text{C} \dots +85^{\circ}\text{C}$ • Termination: Solder terminal								
type	gender	No. pins	poles	contact coding	nominal current	rated voltage	description	price

M12 power assembly connectors (S & K coding) IP67/68								
• Plastic body: Insulation PA66+GF • Wire gauge: max. 1.5 mm² • Cable Ø: Ø 3...8 mm								
120504-01-001	male	4	3+PE	S	12A	630 VAC	M12 connector	237.00
121305-01-001	male	5	4+PE	K	12A	630 VAC	M12 connector	397.00
120504-02-001	female	4	3+PE	S	12A	630 VAC	M12 connector	245.00
121305-02-001	female	5	4+PE	K	12A	630 VAC	M12 connector	426.00

M12 metallic panel mount power connectors (S & K coding) IP67/68								
• Metallic panel mount circular connectors • M16 x 1.5 rear mounting								
120504-03-001	male	4	3+PE	S	12A	630 VAC	M12 connector	237.00
121305-03-001	male	5	4+PE	K	12A	630 VAC	M12 connector	397.00
120504-04-001	female	4	3+PE	S	12A	630 VAC	M12 connector	245.00
121305-04-001	female	5	4+PE	K	12A	630 VAC	M12 connector	426.00

Temperature controllers



DT... series



DTK4848R01



DT320...



DT360...

Temperature controllers

type	panel size (mm) W x H		description	output 1	output 2	price
DTK series - "Standard" temperature controller 100 - 240 VAC 50/60Hz (60 mm deep)						
• Universal sensor inputs:			Thermocouple: Type (K-J-T-E-N-R-S-B-L-U-TXK) Platinum RTD: Pt100, JPt100			
• LCD display:			Process Value (PV) Red colour - Set point (SV) Green colour			
• Control method:			PID, ON/OFF, Manual control mode			
• Alarms:			1 alarm output (9 selectable alarm modes)			
• Display:			High resolution LCD display			
• Speed:			High speed sampling time (100ms)			
DTK4848R01	48	48	standard temperature controller	relay (5A AC1)	—	1 050.00
DTK4848V01	48	48	standard temperature controller	12 VDC pulse	—	1 220.00
DTK4848C01	48	48	standard temperature controller	4-20mA	—	1 220.00
DTK4896R01	48	96	standard temperature controller	relay (5A AC1)	—	1 350.00
DTK4896V01	48	96	standard temperature controller	12 VDC pulse	—	1 350.00
DTK4896C01	48	96	standard temperature controller	4-20mA	—	1 350.00
DTK7272R01	72	72	standard temperature controller	relay (5A AC1)	—	1 510.00
DTK7272V01	72	72	standard temperature controller	12 VDC pulse	—	1 510.00
DTK9696R01	96	96	standard temperature controller	relay (5A AC1)	—	1 720.00
DTK9696V01	96	96	standard temperature controller	12 VDC pulse	—	1 720.00
DTA/DTB series - Temperature controllers						
DTA4896R0	48	96	standard temperature controller	relay	—	1 800.00
DTA9648R0	96	48	standard temperature controller	relay	—	1 800.00
DTB4824RR	48	24	advanced temperature controller	relay	relay	1 880.00

DT3 series - Advanced "high speed intelligent" temperature controller 100 - 240 VAC 50/60Hz

New DT3 series temperature controller designed with upgraded hardware and higher specifications offering smart operation, fast response, simple expandability and user-defined function keys.

- Built-in sensor input modes: Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK
Platinum RTD: Pt100, JPt100, RTD: Cu50, Ni120
Analog input: 0-5 V, 0-10 V, 0-20 mA, 4-20 mA, 0-50 mV
- Various Control Modes: Auto Tuning, FUZZY, Manual, On/Off, PID Process Control, Self Tuning
- Various Output Modes: Relay, Voltage pulse, Current DC, Linear voltage
- Communication: RS-485 communication MODBUS ASCII / RTU protocol
- Display: Large 3-colour LCD Display
- IP protection: IP66 protection level and CE, UL certified
- Output: Dual output control function for heating and cooling
- Detection: Heater disconnection detection
- Sampling rate: 100ms

				output 1	output 2	
DT320RA-0200	48	48	advanced temperature controller	relay	see output 2 options (below)	1 770.00
DT320VA-0200	48	48	advanced temperature controller	12 VDC pulse		1 770.00
DT340RA-0200	48	96	advanced temperature controller	relay		2 310.00
DT340VA-0200	48	96	advanced temperature controller	12 VDC pulse		2 310.00
DT360RA-0200	96	96	advanced temperature controller	relay		2 540.00
DT360VA-0200	96	96	advanced temperature controller	12 VDC pulse		2 540.00

Note: 24 VDC (change 7th digit "A" of part number to "D" for 24 VDC application on request)

Expansion facilities and accessories for above DT3 controllers

- Max 1 extra output card
- Max 2 optional cards

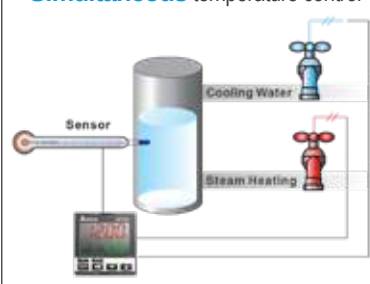
Replace the **last 4 digits** for additional options: (first 2 digits identify the output - Last 2 digits the options)

Example: **V213** = voltage output with event and remote set up input

0233 = no extra control output but with retransmission output and remote set up input

• R200	Relay output	(5A 250 VAC)	output card	DT3-R	265.00
• V200	Voltage pulse output	(14 VDC pulse)	output card	DT3-V	265.00
• C200	DC current output	(4 - 20mA)	output card	DT3-C	265.00
• L200	Linear voltage output	(0 - 10VDC)	output card	DT3-L	265.00
• 0210	Event input 1		option card	DT3-EVENT	265.00
• 0220	CT input 1		option card	DT3-CT1	265.00
• 0230	Retransmission output		option card	DT3-RETRANS	265.00
• 0203	Remote setup input		option card	DT3-REMOTE	265.00
DT3-CT30A	30A	current transformer for heater disconnection or overcurrent detection			383.00
DT3-CT100A	100A	current transformer for heater disconnection or overcurrent detection			515.00

Simultaneous temperature control



Temperature controllers



DTM series

New



DTM series - Multi-Loop modular temperature controller

With increasingly complex temperature control application requirements, Delta introduces the DTM series, multi-loop modular temperature controller, designed for ease of application and installation. Data collection by host and total isolation between channels improves communication speed and stability. From hardware to software, the intuitive design enables a quick start, while advanced functions provide data management flexibility with communication address customisation.

The DTM series consists of host, measurement module, I/O module and extension cassette. A fully extended DTM group consists of a host plus 7 measurement modules and 8 I/O modules, for up to 64 points temperature control. Modules simply slide onto one another to expand the system to total user requirements for simplified wiring.

The DTM series controller is an ideal solution for advanced and complex temperature control applications, where several groups can be connected via RS-485 or Ethernet for temperature control of up to 1 000 points.

DTM series Multi-Loop modular temperature controller

type	supply voltage	temp control points	communication	description	price
Host Module CPU (H) 114 x (W) 71 x (D) 81 mm					
- Supports up to 7 measurement modules + 8 I/O modules - incorporates cassette slots to receive up to 2 extension cassettes (<i>with 4 outputs each</i>) - Communication: RS-485 or RS-485 + Ethernet (<i>model dependant</i>) - Internal interconnects for 24 V supply and communication signal transmission to other modules - Input sensor support - Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK - Platinum RTD: Pt100, JPt100, Ni120, Cu50 - Analog input: 0-10 V, 0-5 V, 0-50 mV, 0-20 mA, 4-20 mA					
DTMR04	24 VDC	4-channel	RS-485	host temperature module	5 520.00
DTMR08	24 VDC	8-channel	RS-485	host temperature module	8 330.00
DTME04	24 VDC	4-channel	RS-485 + Ethernet	host temperature module	8 510.00
DTME08	24 VDC	8-channel	RS-485 + Ethernet	host temperature module	11 400.00
UC-PRG015-01A	cable	Mini USB cable for programming (1.5 meter)			216.00
Measurement modules (H) 113 x (W) 70 x (D) 80 mm					
DTMN04	fm host	4-channel	— —	measurement module	5 290.00
DTMN08	fm host	8-channel	— —	measurement module	8 100.00
I/O modules					
Provide outputs for measurement modules, plug-into (<i>cassettes</i>) or slide-on (<i>modules</i>)					
type	supply voltage	output points	outputs	description	price
Extension Cassettes - for measurement modules (H) 48 x (W) 25 x (D) 77 mm					
Plug into host and measurement modules, providing outputs (without increasing dimensions)					
DTM-BDV	fm host	4-channel	0/12 V pulse voltage	plug-in output cassette	877.00
DTM-BDR	fm host	4-channel	2 A relay contact	plug-in output cassette	877.00
DTM-BDC	fm host	4-channel	4 - 20 mA output	plug-in output cassette	877.00
DTM-BDL	fm host	4-channel	0 - 10 V output	plug-in output cassette	877.00
I/O Module clips onto host or measurement modules (H) 113 x (W) 30 x (D) 80 mm					
Slides onto right side of measurement modules, providing outputs					
DTM-DOV	fm host	8-channel	0/12 V pulse voltage	slide-on I/O Module	2 020.00
DTM-DOR	fm host	8-channel	2 A relay contact	slide-on I/O Module	2 020.00
DTM-DOC	fm host	8-channel	4 - 20 mA output	slide-on I/O Module	2 020.00
DTM-DOL	fm host	8-channel	0 - 10 V output	slide-on I/O Module	2 020.00
DTC series - "Modular" temperature controller (H) 90 x (W) 25.2 x (D) 60 mm					
DTC features modular, wire-saving structure able to monitor multiple temperature points in parallel. Modular extensions, providing user configurable outputs according to actual requirements Programmable PID control allows users up to 64 groups of different temperature and control time.					
- PID, programmable PID, On/Off, Manual control - Analog inputs: 0-5V, 0-10V, 0-20mA, 4-20mA, 0-50mA - Communication: RS-485 communication, 2.400 - 38.400 bps					
DTC1000R	24 VDC	2-channel	3A SPST relay	main unit temp controller	1 580.00
DTC1000C	24 VDC	2-channel	DC current, 4-20 mA	main unit temp controller	1 580.00
DTC2000R	24 VDC	2-channel	3A SPST relay	extension unit	1 580.00
DTC2000C	24 VDC	2-channel	DC current, 4-20 mA	extension unit	1 580.00

Thermocouple sensors

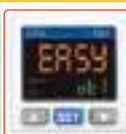


type	sensor type	fitting type	probe type	type	cable length	description	probe dia. Ø	SUS304 length (mm)	price
RTD (PT100) sensors <i>Sensor probe/tube: SUS304 material</i>									
SJ-301/P505P	PT100	none	(1)	PVC	1	plain tube sensor	5	50	654.00
SJ-301/P505P3	PT100	none	(1)	PVC	3	plain tube sensor	5	50	784.00
SJ-301/P510T	PT100	none	(1)	teflon	1	plain tube sensor	5	100	741.00
SJ-301/P510T3	PT100	none	(1)	teflon	3	plain tube sensor	5	100	937.00
SJ-301/P520T	PT100	none	(1)	teflon	1	plain tube sensor	5	200	741.00
SJ-301/P520T3	PT100	none	(1)	teflon	3	plain tube sensor	5	200	937.00
SJ-302/P510T	PT100	M8 thread	(3)	teflon	1	threaded coupling	5	100	741.00
SJ-302/P510T3	PT100	M8 thread	(3)	teflon	3	threaded coupling	5	100	937.00
SJ-302/P520T	PT100	M8 thread	(3)	teflon	1	threaded coupling	5	200	741.00
SJ-302/P520T3	PT100	M8 thread	(3)	teflon	3	threaded coupling	5	200	937.00
SJ-305/P520T	PT100	1/4" PT	(4)	teflon	1	threaded adj. coupling	5	200	1 400.00
SJ-305/P520T3	PT100	1/4" PT	(4)	teflon	3	threaded adj. coupling	5	200	1 590.00
KN-1/2PT-8-200-PT	PT100	1/2" PT	(6)	terminal box		screw terminal box	8	200	1 750.00
KN-1/2PT-8-300-PT	PT100	1/2" PT	(6)	terminal box		screw terminal box	8	300	1 830.00
Type "J" thermocouples <i>Sensor probe/tube: SUS304 material</i>									
SJ-100/J505B	type J	none	(1)	braid	1	plain tube sensor	5	50	214.00
SJ-100/J505B3	type J	none	(1)	braid	3	plain tube sensor	5	50	305.00
SJ-100/J510B	type J	none	(1)	braid	1	plain tube sensor	5	100	214.00
SJ-100/J510B3	type J	none	(1)	braid	3	plain tube sensor	5	100	305.00
SJ-100/J520B	type J	none	(1)	braid	1	plain tube sensor	5	200	214.00
SJ-100/J520B3	type J	none	(1)	braid	3	plain tube sensor	5	200	305.00
SJ-105/J510B	type J	M8 thread	(3)	braid	1	threaded coupling	5	100	214.00
SJ-105/J510B3	type J	M8 thread	(3)	braid	3	threaded coupling	5	100	305.00
SJ-105/J520B	type J	M8 thread	(3)	braid	1	threaded coupling	5	200	214.00
SJ-105/J520B3	type J	M8 thread	(3)	braid	3	threaded coupling	5	200	305.00
SJ-106/JM8B	type J	screw-in	(2)	braid	1	screw-in sensor	M8	—	131.00
SJ-106/JM8B3	type J	screw-in	(2)	braid	3	screw-in sensor	M8	—	223.00
SJ-107/J5BB	type J	bayonet	(5)	braid	1	bayonet fixing sensor	5	—	218.00
SJ-107/J5BB3	type J	bayonet	(5)	braid	3	bayonet fixing sensor	5	—	310.00
KN-1/2PT-8-200-J	type J	1/2" PT	(6)	terminal box		screw terminal box	8	200	1 570.00
KN-1/2PT-8-300-J	type J	1/2" PT	(6)	terminal box		screw terminal box	8	300	1 660.00
Type "K" thermocouples <i>Sensor probe/tube: SUS304 material</i>									
SJ-100/K505B	type K	none	(1)	braid	1 m	plain tube sensor	5	50	192.00
SJ-100/K505B3	type K	none	(1)	braid	3 m	plain tube sensor	5	50	284.00
SJ-100/K510B	type K	none	(1)	braid	1 m	plain tube sensor	5	100	192.00
SJ-100/K510B3	type K	none	(1)	braid	3 m	plain tube sensor	5	100	284.00
SJ-100/K520B	type K	none	(1)	braid	1 m	plain tube sensor	5	200	192.00
SJ-100/K520B3	type K	none	(1)	braid	3 m	plain tube sensor	5	200	284.00
SJ-105/K510B	type K	M8 thread	(3)	braid	1 m	threaded coupling	5	100	192.00
SJ-105/K510B3	type K	M8 thread	(3)	braid	3 m	threaded coupling	5	100	284.00
SJ-105/K520B	type K	M8 thread	(3)	braid	1 m	threaded coupling	5	200	192.00
SJ-105/K520B3	type K	M8 thread	(3)	braid	3 m	threaded coupling	5	200	284.00
SJ-106/KM8B	type K	screw-in	(2)	braid	1 m	screw-in sensor	M8	—	131.00
SJ-106/KM8B3	type K	screw-in	(2)	braid	3 m	screw-in sensor	M8	—	223.00
SJ-107/K5BB	type K	bayonet	(5)	braid	1 m	bayonet fixing sensor	5	—	218.00
SJ-107/K5BB3	type K	bayonet	(5)	braid	3 m	bayonet fixing sensor	5	—	310.00
KN-1/2PT-8-200-K	type K	1/2" PT	(6)	terminal box		screw terminal box	8	200	1 570.00
KN-1/2PT-8-300-K	type K	1/2" PT	(6)	terminal box		screw terminal box	8	300	1 660.00
Thermocouple wire <i>supplied in any length - priced per meter</i>									
RTD/T19W	PT100	teflon		teflon coated wire		19/0.13RTD-AFF-3C	(per meter)		131.00
TC-IC-H/S	type J	braided		steel braided covered		thermocouple wire	(per meter)		61.00
TC-CA-H/S	type K	braided		steel braided covered		thermocouple wire	(per meter)		61.00
Thermocouple connectors									
M-7-J	type J	male		thermocouple connector		plug	black		88.00
F-7-J	type J	female		thermocouple connector		socket	black		96.00
M-7-K	type K	male		thermocouple connector		plug	yellow		88.00
F-7-K	type K	female		thermocouple connector		socket	yellow		96.00
AC05-1/2				threaded sliding coupling for probe	1/2" PT	ID dia	5	—	872.00
AC05-1/4				threaded sliding coupling for probe	1/4" PT	ID dia	5	—	610.00

Pressure sensors



Display color for upper / lower limit (green / red)



Parameter Setup (orange)

DPA series - Compact miniature pressure sensors

Delta's new-generation and slim pressure sensor is small in size and light, supporting many installation methods. DPA features high measurement accuracy, excellent stability, high shock and vibration resistance, good over-load capacity, anti-corrosion and heat resistance, and can work with all Delta's industrial automation products in hi-tech electronics industry, general processing industry, food packaging industry and automatic assembly industry.

Various unit conversion

The DPA series offers 6 kinds of globally adopted pressure units for measurement and display.

3-colour LCD display (green, red, orange)

The large LCD with a green, red and orange 3-colour LCD display allows users to set the display colour according to the ambient environment, such as when the pressure is within normal range or exceeds the allowed range. The display's colour is orange when in parameter setup mode. This makes it easy for reading and reduces operation errors.

Safety control mode

The safety control mode prevents operators from carelessly touching relevant parameters and affecting the operation and production of the equipment.

Functions:

- RS485 port, 2 x digital outputs (NPN or PNP) and 1 x analog output (1 - 5V or 4 - 20mA)
- Various unit conversion functions (kPa, kg/cm², bar, mmHg, psi, inchHg)
- Selectable LED (3 colours) set different colours for different parameters
- 10 sets of output response times available (2ms - 5.000ms)
- Connection: 1/8 PT, inner pore M5
- Safety control function (to prevent unwanted parameter changes)
- For air pressure applications only



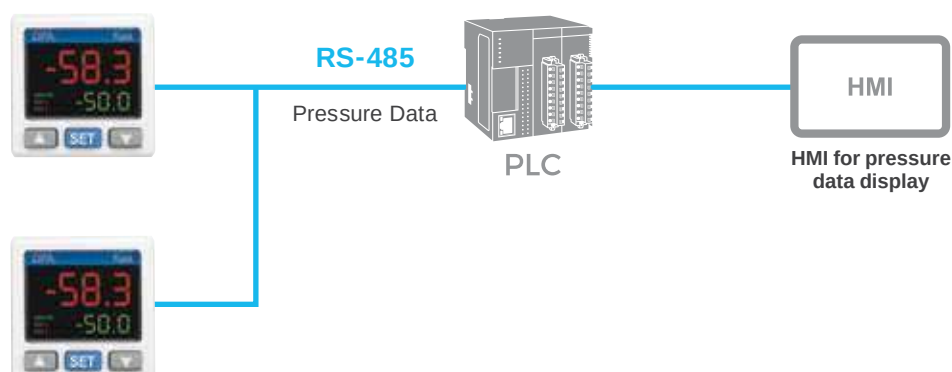
Various Unit Conversion



DPA...

type	pressure	output type		description	price
	range (kPa)	2 x digital	1 x analog		
Multifunction miniature pressure sensor (H) 30 x (W) 30 x (D) 26 mm					
2 x digital and 1 x 4 - 20mA output					
DPA01P-P	-100 - 100kPa	PNP	4 - 20mA	mini pressure sensor	2 000.00
DPA10P-P	-100 - 1000kPa	PNP	4 - 20mA	mini pressure sensor	2 000.00
DPA01N-P	-100 - 100kPa	NPN	4 - 20mA	mini pressure sensor	2 000.00
DPA10N-P	-100 - 1000kPa	NPN	4 - 20mA	mini pressure sensor	2 000.00
2 x digital and 1 x 1 - 5V					
DPA01Q-P	-100 - 100kPa	PNP	+1 - 5V	mini pressure sensor	2 000.00
DPA01M-P	-100 - 100kPa	NPN	+1 - 5V	mini pressure sensor	2 000.00
DPA10M-P	-100 - 1000kPa	NPN	+1 - 5V	mini pressure sensor	2 000.00
Accessories for pressure sensors					
DPA-PFKIT	panel mount accessory			(31 x 31 mm cut-out)	42.00
DPA-FMKIT	surface mount support bracket			(all sides mounting)	20.90

Real-time Data Collection: Pressure Data via RS-485



Pressure switches

LF10 series - Air pressure switches

(IP20)

Pressure switches used to regulate tank pressures between two preset values on small (up to 200psi) electrically driven air compressors. Supplied with unloader valve (preventing starting under load) and manual auto-off override switch.

- Visible contact / no wire looping / ample wiring space
- Automatic unloader valve / manual "auto-off" override facility
- 2 x NC contacts 12A 240 VAC

type	operating pressure		differential range	factory setting	pipe fitting	contact rating	price
	min ON	max OFF					
	PSI	PSI	PSI	PSI	female ¹⁾	240V	
LF10-1H11123-80	25	100	20-35	55-80	1/4 NPT	12A	339.00
LF10-1H11123-115	35	150	30-40	85-115	1/4 NPT	12A	339.00
LF10-1H11123-150	50	175	35-55	110-150	1/4 NPT	12A	339.00

LF16 series - Water pump pressure switch

IP20

LF16 pressure switches provide time tested, reliable control for automatic water systems. Universally accepted for use as original equipment on water well pumps or pumping systems.

- Visible contact / no wire looping / ample wiring space
- Automatic unloader valve / manual "auto-off" override facility
- 2 x NC contacts 16A 240 VAC

LF16-111-40PSI	20	80	15-30	20-40	1/4 NPT	16A	339.00
LF16-111-50PSI	20	80	15-30	30-50	1/4 NPT	16A	339.00
LF16-111-60PSI	20	80	15-35	40-60	1/4 NPT	16A	339.00

LF19/18 series - Air compressor pressure switch

IP44

Designed to regulate tank pressure between two preset values on three-phase electrically driven compressors.

- Non-metallic, corrosion-resistant cover
- Automatic unloader valve / manual "auto-off" override facility

type	Bar	Bar	Bar	Bar	Bar	240V	price
LF19 - 1 phase pressure switch	2 x NC contacts 16A		250 VAC				
LF19-111121-3BAR	1	6	2.0-4.0	1-3	G1/4"	16A	284.00
LF19-111121-4BAR	5	14	8.0-10.0	1.8-4	G1/4"	16A	284.00
LF18 - 3 phase pressure switch	3 x NC contacts 16A		400 VAC				
LF18-111121-5BAR	2	8	1.0-3.0	3.8-5	G1/4"	16A	378.00
LF18-111121-7BAR	3	11	1.4-4.0	5.6-7	G1/4"	16A	378.00
LF18-111121-10BAR	4	16	1.8-4.5	8-10	G1/4"	16A	378.00

1 BAR = 14.5 PSI

¹⁾ Other pipe fittings available on request

LF55 series - Pressure switch for refrigeration systems

LF55 series pressure switches are used with fluorinated refrigerants to control the pressure of compressors in refrigeration system, can also used in air and water applications.

- Medium: Refrigerant, air, water, oil -10°C...+100°C
- Contact: SPDT 10A 250 VAC

type	Bar	Bar	Bar	Bar		fitting	250V	price
				OFF	ON			
LF5503	-0.5	3	0.35-1.5	2.0	1.0	M12 X 1.25	10A	551.00
LF5506	-0.5	6	0.6-4	3.0	2.0	M12 X 1.25	10A	551.00
LF5510	1	10	1-3	6.0	5.0	M12 X 1.25	10A	551.00
LF5516	3	16	1-4	10.0	8.0	M12 X 1.25	10A	551.00
LF5520	5	20	2-5	16.0	13.0	M12 X 1.25	10A	551.00

FS series - Liquid flow switches (paddle type)

Designed for managing liquid flow changes of water, ethylene glycol or other non-hazardous liquids in pipes. When liquid flow is higher or lower than pre-set value a SPDT switch operates.

- Supplied with 3 fitted paddles for Ø25...75 mm pipes +spare for pipes up to Ø 200 mm
- Adjustable flow setting for different requirements
- Brass 1" NPT connection (available in stainless steel for ammonia and other medium)
- Max liquid pressure: 1 Bar - can be used in multiple applications

FS51	IP33	paddle type liquid flow switch	1" NPT	10A	805.00
FS52	IP55	paddle type liquid flow switch	1/2" NPT	10A	1 060.00



LF16-1...



LF18-1...



LF55...



FS52

Miniature snap-action micro switches

- Snap-action micro switch with wiping contacts, silver alloy

type	current Ith	actuator	length	description	contacts	price
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CMV series - Snap-action micro switches

10A 250 VAC changeover

- Terminals: Fast-on 187 (4.8 x 0.5 mm)
- Mounting: Ø3 mm - 22.2 x 10.3 mm apart (*diagonal*)

CMV100D	10A	0	standard plunger	—	miniature micro switch	SPDT	23.70
CMV101D	10A	1	short plain lever	35.6 mm	miniature micro switch	SPDT	28.20
CMV105D	10A	5	long plain lever	62.2 mm	miniature micro switch	SPDT	28.20
CMV104D	10A	4	short roller lever	20.1 mm	miniature micro switch	SPDT	31.60
CMV103D	10A	3	long roller lever	34.0 mm	miniature micro switch	SPDT	30.50

16A 250 VAC changeover

- Terminals: Fast-on 250 (6.35 x 0.8 mm)

CMV16001C	16A	0	standard plunger	—	miniature micro switch	SPDT	31.60
CMV16011C	16A	1	short plain lever	35.6 mm	miniature micro switch	SPDT	30.50
CMV16051C	16A	5	long plain lever	62.2 mm	miniature micro switch	SPDT	31.60
CMV16041C	16A	4	short roller lever	20.1 mm	miniature micro switch	SPDT	32.70
CMV16031C	16A	3	long roller lever	34.0 mm	miniature micro switch	SPDT	36.10

CM series - Standard snap-action micro switch

- Terminals: Screw-type terminals
- Mounting: Ø4 mm - 25.4 mm apart (*horizontal*)

CM1300	15A	F	pin plunger		standard micro switch	SPDT	100.00
CM1305	15A	G	extended plunger		standard micro switch	SPDT	124.00
CM1306	15A	H	button plunger		standard micro switch	SPDT	96.00
CM1307	15A	I	ext. panel mnt plunger		standard micro switch	SPDT	134.00
CM1308	15A	J	ext. panel mnt roller plunger		standard micro switch	SPDT	150.00
CM1309	15A	K	ext. p/mnt roller plunger 90°		standard micro switch	SPDT	154.00
CM1701	15A	L	long plain lever		standard micro switch	SPDT	98.00
CM1703	15A	M	long roller lever		standard micro switch	SPDT	107.00
CM1704	15A	N	short roller lever		standard micro switch	SPDT	103.00
CM1705	15A	P	long wire lever		standard micro switch	SPDT	116.00
CM1743	15A	O	short roller (<i>collapsible</i>)		standard micro switch	SPDT	114.00

CAP-Y					CM switch terminal cover		13.60
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CZ-7 series - Micro switch 10A 250 VAC

- Rated insulated voltage: Ui-380V
- Terminals: Screw terminals (IP40)
- Rated thermal current: 10A (Ith IEC94751) 250 VAC
- Mounting: Ø4 mm...25.4 mm apart (*horizontal*)

CZ-7310	10A	I	ext. panel mnt plunger		standard micro switch	SPDT	173.00
CZ-7311	10A	J	ext. panel mnt roller plunger		standard micro switch	SPDT	208.00
CZ-7312	10A	K	ext. p/mnt roller plunger 90°		standard micro switch	SPDT	208.00
CZ-7120	10A	L	long plain lever		standard micro switch	SPDT	153.00
CZ-7121	10A	M	long roller lever		standard micro switch	SPDT	141.00
CZ-7141	10A	N	short roller lever		standard micro switch	SPDT	155.00
CZ-7144	10A	O	short roller (<i>collapsible</i>)		standard micro switch	SPDT	164.00

Actuator - Types



Limit Switches



KB A1 S11

KB B2 S11

KB C2 S11



KB E2 S11

KB F2 S11

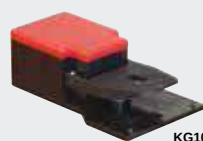
KB M1 S11



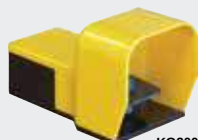
KM E2 S11



KM H1 S11



KG100S11



KG200S11



KR200S11

Limit switches designed to satisfy all requirements comprising quick installation, easy wiring and simple setup. The innovative locking bayonet mechanism permits to remove and reposition the operating head in the required configuration with no tools. The auxiliary contact blocks are removable assuring remarkable wiring ease.

- Replaceable actuator heads, 45° axial rotation of operating heads
- Direct operating operation; safety function according to IEC/EN 60947-5-1
- Ith 10A – IP65 – Ui 690 VAC – M20 cable entry

type	description		contacts	price
KB series - Plastic body bottom entry		(1 x M20)	IP65	
- Body dimensions: (H) 69 x (W) 30 x (D) 30 mm		fixing hole distance:	20 mm	
KB A1 S11	top plunger	industrial limit switch	1NO + 1NC	340.00
KB B2 S11	top roller plunger (metal)	industrial limit switch	1NO + 1NC	408.00
KB C2 S11	top plunger roller lever (metal)	industrial limit switch	1NO + 1NC	411.00
KB D2 S11	roller side push level (metal)	industrial limit switch	1NO + 1NC	411.00
KB E2 S11	rotating roller lever (metal)	industrial limit switch	1NO + 1NC	444.00
KB F2 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC	464.00
KB H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC	658.00
KB L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC	454.00
KB M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC	446.00
KB P1 L11	hinge operating (short cylinder)	industrial limit switch	1NO + 1NC	1 270.00
KB P2 L11	hinge operating (long cylinder)	industrial limit switch	1NO + 1NC	1 330.00

KM series - Metallic body bottom entry (1 x M20) IP65				
- Body dimensions: (H) 69 x (W) 30 x (D) 30 mm		fixing hole distance:	20 mm	
KM A1 S11	top plunger	industrial limit switch	1NO + 1NC	467.00
KM B2 S11	top roller plunger	industrial limit switch	1NO + 1NC	537.00
KM C2 S11	top plunger roller lever	industrial limit switch	1NO + 1NC	543.00
KM E2 S11	rotating roller lever	industrial limit switch	1NO + 1NC	576.00
KM F2 S11	rotating roller lever (adjustable)	industrial limit switch	1NO + 1NC	598.00
KM H1 S11	ceramic rotating rod roller lever	industrial limit switch	1NO + 1NC	811.00
KM L2 S11	rotating rod lever (adjustable)	industrial limit switch	1NO + 1NC	588.00
KM M1 S11	omni-directional wobble stick	industrial limit switch	1NO + 1NC	578.00

Spare – contact blocks (interchangeable) - excluding KB Q1 L11

KX B S11	contact block	snap action	1NO + 1NC	294.00
KX B S02	contact block	snap action	2 NC	463.00
KX B A11	contact block	slow break (make before break)	1NO + 1NC	254.00
KX B L11	contact block	slow break	1NO + 1NC	254.00
KX B L21	contact block	slow break	2NO + 1NC	515.00

Industrial foot switches thermoplastic and metallic IP54

KG and KR series of foot switches are robust and reliable control devices designed for a wide range of industrial applications. Engineered for durability and ease of use, these foot switches allow for hands-free operation, improving safety and efficiency in the workplace.

The KG series is ideal for general-purpose use, providing a straightforward and effective solution for controlling machinery and equipment. In contrast, the KR series offers enhanced protection with a reinforced housing, making it suitable for more demanding environments where additional durability is required.

- Self-extinguishing double insulation polymer thermoplastic
- Cable entry: M20 x 1.5

KG series - Thermoplastic foot switches

• Self-extinguishing double insulation thermoplastic				
KG100S11	open-type industrial foot switch	thermoplastic	1NO + 1NC	1 430.00
KG200S11	closed-type industrial foot switch	thermoplastic	1NO + 1NC	1 710.00

KR series - Metallic foot switches

• Aluminium zinc alloy body				
KR100S11	open-type industrial foot switch	diecast	1NO + 1NC	2 670.00
KR200S11	closed-type industrial foot switch	diecast	1NO + 1NC	3 190.00

Additional charges

KGX01	kit for adding a second contact block to foot switches	–		67.00
KGX02	contact block mounting bracket	–		137.00
KX B S11	additional contact block for above foot switches	1NO + 1NC		294.00

S3N

MINIATURE PHOTOELECTRIC SENSOR



S3N is the new Datasensing miniature photoelectric sensor line with state of art detection features, rugged mechanics, complete optical functions, bright red LED or safe Laser class 1 emission. Available with Teach-in push button and smart IO-Link, offering advanced parametrization and monitoring functionalities, with predictive maintenance for your automation system.

Features



**Compact
Dimensions**



**Smart and
Easy**



**Mechanical
Roughness**



**Logistics
Applications**



Automation



**Packaging
Applications**

The S3N series features IO-Link connectivity, the key to seamless integration and advanced monitoring.

- Easy installation - Plug-and-play functionality
- Adjust parameters, remote diagnostics
- Real-time monitoring: Track sensor status and detection data in real time
- Predictive maintenance: Identify potential problems early

 **IO-Link**



Limit switches

E series industrial limit switches are suitable for most environmental conditions due to their solid construction, IP66 certification and proven reliability over decades of fieldwork.

- Protection degree: IP66
- Rated thermal current: 10A (Ith IEC947-5-1)
- Conformity: EN 50047, UNI EN 1088, EN ISO 12100-1, IEC529
- Contact blocks with positive opening of the NC contact according to IEC/EN 60947-5-1, VDE 0660-200

type	actuator type	description	contact	price
E100 series - Industrial limit switches IP66 CENELEC EN50047				
Body dimensions:	(H) 77.5 x (W) 30.5 x (D) 33 mm	fixing hole distance: 20/22 mm		
Cable entry:	1 x bottom entry - PG13.8			
Thermoplastic body (IP66)				
E10000AI	top steel plunger actuator	limit switch	1NO + 1NC	356.00
E10000BI	top steel roller plunger actuator	limit switch	1NO + 1NC	440.00
E10000CI	roller lever side action	limit switch	1NO + 1NC	409.00
E10000DI	roller lever vertical action	limit switch	1NO + 1NC	425.00
E10000EI	rotary roller arm lever	limit switch	1NO + 1NC	435.00
E10000EI50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC	523.00
E10000II	offset rotary roller arm lever	limit switch	1NO + 1NC	435.00
E10000FI	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	462.00
E10000HI	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC	610.00
E10000LI	flexible spring rod actuator rod	limit switch	1NO + 1NC	569.00
E10001SCI	safety switch for hinges	limit switch	1NO + 1NC	782.00
Diecast metal body (IP66)				
E10000AM	top steel plunger actuator	limit switch	1NO + 1NC	539.00
E10000BM	top steel roller plunger actuator	limit switch	1NO + 1NC	623.00
E10000CM	roller lever side action	limit switch	1NO + 1NC	567.00
E10000DM	roller lever vertical action	limit switch	1NO + 1NC	597.00
E10000EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC	762.00
E10000IMRA	offset rotary (metal) roller arm lever	limit switch	1NO + 1NC	880.00
E10000IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC	680.00
E10000FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	610.00
E10000HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC	807.00
E10000LM	flexible spring rod actuator rod	limit switch	1NO + 1NC	763.00
E300 series - Industrial limit switches IP66 diecast metal body				
Body dimensions:	(H) 89.5 x (W) 52 x (D) 35.5 mm	fixing hole distance: 40 mm		
Cable entry:	2 side + 1 x bottom entry - PG13.8			
E30000AM	top steel plunger actuator	limit switch	1NO + 1NC	757.00
E30000BM	top steel roller plunger actuator	limit switch	1NO + 1NC	763.00
E30000CM	roller lever side action	limit switch	1NO + 1NC	795.00
E30000EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC	835.00
E30000FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	876.00
E30000LM	flexible spring rod actuator rod	limit switch	1NO + 1NC	918.00
E400 series - Industrial limit switches IP66 diecast metal body - CENELEC EN50041				
Body dimensions:	(H) 106.5 x (W) 40 x (D) 36 mm	fixing hole distance: 2 x 30 mm		
Cable entry:	1 x bottom entry - PG13.8			
E40000AM	top steel plunger actuator	limit switch	1NO + 1NC	738.00
E40000BM	top steel roller plunger actuator	limit switch	1NO + 1NC	762.00
E40000CM	roller lever side action	limit switch	1NO + 1NC	787.00
E40000DM	roller lever vertical action	limit switch	1NO + 1NC	854.00
E40000EMRA	rotary (metal) roller arm lever	limit switch	1NO + 1NC	1 330.00
E40000IM50	rotary Ø50 mm rubber roller arm lever	limit switch	1NO + 1NC	858.00
E40000FM	adjustable length rotary roller arm lever	limit switch	1NO + 1NC	775.00
E40000HM	adjustable rotary Ø6 mm rod lever	limit switch	1NO + 1NC	951.00
E40000LM	flexible spring rod actuator rod	limit switch	1NO + 1NC	862.00
E40000LSM	Cats whisker actuator	limit switch	1NO + 1NC	868.00



E10100BI



E30100EMRA



E40100AM

Safety limit & foot switches



E40108TBM



E10001SCI



ELEM00



Z5



PDNS11BX10



PDKS11BX10



LK20K13

Safety limit switches

- Protection degree: IP66
- Body Material: Plastic or Metal body limit switches
- Rated thermal current: 10A lthe (IEC947-5-1)
- Mechanical life: 20 million operations

type	actuator type	description	contact	price
Pull wire safety switches				
Pull wire safety switches guarantee the safety of operator who is able to control the immediate stop of machinery at any point in the operating zone.				
1) Tension wire until both contacts are in the closed position				
2) When wire is pulled one contact (A) opens and switch is latched (<i>resettable via front button</i>)				
3) If wire breaks, the other contact (B) opens				
<i>Both contacts should be wired in series</i>				
E10108TBI	latching (<i>resettable by button</i>) pull wire	plastic limit switch	1NO + 1NC	1 330.00
E40108TBM	latching (<i>resettable by button</i>) pull wire	metal limit switch	1NO + 1NC	1 610.00
Key actuated switches 5 way key actuated switches are used on gates, sliding doors and other devices to protect access to dangerous parts of machines. The key is applied to the moving protection barrier and has to be removed from the switch on every opening thus operating a positive opening or the NC contact.				
E10101S5I	key actuated safety switch	plastic limit switch	1NO + 1NC	717.00
Hinge operated switches used to guarantee operator safety, applied to machinery fitted with protection barriers with application directly to the hinge of the enclosure. The switches hinged socket accepts an 8 mm shaft.				
E10001SCI	safety switch for hinges	plastic limit switch	1NO + 1NC	782.00
Spare contact blocks for all limit switches				
ELEM00	standard snap action	contact block	1NO+1NC	272.00
ELEM03	slow action	contact block	2NO	296.00
Accessories for above limit switches				
Z5	angled key for key actuated safety limit switches			156.00
Z52	adjustable key for key actuated safety limit switches			208.00
<i>For pull wire switch accessories (see page K-43...44)</i>				

Industrial foot switches

IP65

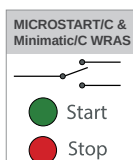
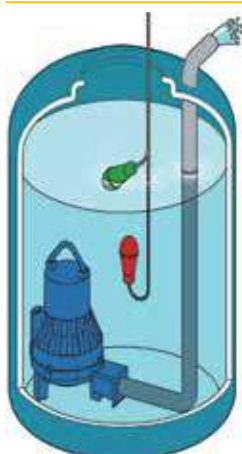
EMAS foot operated switches are ideal for all industrial applications. They are supplied as open type or with plastic or diecast foot protection, preventing inadvertent operation.

Internal cams are provided to accommodate up to 3 x contact blocks, two with simultaneous operation and one with delayed switching.

- Mechanical life: 1.000.000 operations
- Electrical life: 100.000 operations min.
- Operating temperature: -5°C...+60°C
- Rated thermal current: 10A lthe (IEC 947-51)
- Conformity to Standards: EN 60947-5-1, VDE0660, UL508

type	description	protection cover	contact configuration	price
Open type foot switch				
IP65				
PDNS11BX10	open type industrial foot switch	no	1NO + 1NC	727.00
Protected foot switches				
IP65				
PPKS11BX10	protected type industrial foot switch	thermoplastic	1NO + 1NC	989.00
PDKS11BX10	protected type industrial foot switch	diecast	1NO + 1NC	1 460.00
Contact blocks for above foot switches				
Up to two additional contact blocks can added to foot switches: 1 x simultaneous operation and 1 x with delayed switching for two speed operations.				
LK20K13	snap action contact block for foot switches		1NO + 1NC	162.00

Float switches

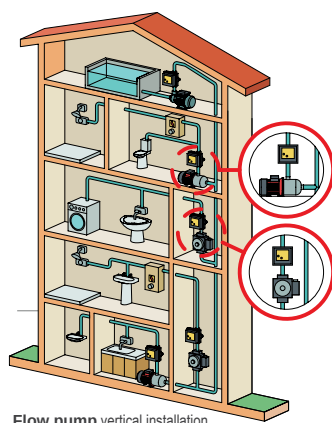


MATIC float switches feature a patented inner chamber filled with Polyurethane foam preventing ingress of humidity and water condensation within the switch.
IMQ, ECC, CENELC, VDE, CE approved.

type	cable length	differential degrees	contact rating	description	dimensions (mm) (H) (W/Ø) (D)			price
MICROSTART/C level regulator for clean water								
- Can be used for emptying and filling (<i>SPDT contact</i>) - Counterweight: Supplied complete with cable fixing - Protection degree: IP68 - Max. water temperature: 55°C - Electrical contact: 10 (4) A 250 VAC (<i>rated voltage</i>) - Max working pressure: 10 Bar								
ACB05P10	5 meter	30°	10 (4) A	float switch for clean water	160	70	52	432.00
ACB10P10	10 meter	30°	10 (4) A	float switch for clean water	160	70	52	679.00
Minimatic/C WRAS WRAS approved for drinking water								
- Tested and certified by WRAS - Counterweight: Supplied complete with cable fixing								
AAB05W10	5 meter	30°	10 A	float switch for drinking water	172	80	56	828.00
AAB10W10	10 meter	30°	10 A	float switch for drinking water	172	80	56	1 510.00
Little Mercury submerged float switches for sewer water								
For regulation of particularly turbulent industrial waters containing residues of suspended agglomerates or of sewer waters.								
- Internal weight fixing the rotation centre (<i>gravity centre</i>) close to the cable connection. - Two switches used: 1 for high level and 1 for low level control - Protection degree: IP68 - Max. water temperature: 55°C - Electrical contact: 10 A 250 VAC (<i>rated voltage</i>) - Max working pressure: 10 Bar								
Little Mercury MC internal micro switch with self-cleaning contacts								
AEA05P00	5 meter	15°	10 (4) A	float switch for sewer water	138	76	—	1 680.00
AEA10P00	10 meter	15°	10 (4) A	float switch for sewer water	138	76	—	2 090.00
Little EX ATEX float switch for use in Diesel oil								
For regulation of particularly diesel oil, water and hydrocarbon mixture, motor oils, tools machine oils, etc.								
- ATEX Certified: Group and category tool II 1G - Ex ia Group of striking IIC - Special blue cable for the immersion in hydrocarbons mixture (3 x 1 <i>NEOPREN</i>)								
AHA05	5 meter	15°	21.4 mA	float switch for diesel oil	138	76	—	1 930.00
AHA10	10 meter	15°	21.4 mA	float switch for diesel oil	138	76	—	2 600.00
Matic V MC level regulator for water up to 130°C								
Outer casing made in 304 AISI stainless steel and electric with outer SILICON sheath resistant to high temperatures.								
- ATEX Certified Group and category tool II 1G - Ex ia Group of striking IIC - Protection degree: IP68 - Electric contact: Max 0.25 A - 60 V (<i>rated voltage</i>) - Max working pressure: 4 Bar								
AFA05S00	5 meter	10°	0.25 A	float switch for clean water	—	75	—	3 070.00
AFA10S00	10 meter	10°	0.25 A	float switch for clean water	—	75	—	3 840.00
Matic P/MC float switch for autoclaves and pipings								
Due to its small diameter it can be introduced into a tank through a Ø30 mm hole and disposed either horizontally or vertically (<i>with counterweight</i>).								
- Protection degree: IP68 - Electric contact: Max 0.25 A - 60 V (<i>rated voltage</i>) - Max working pressure: 8 Bar								
AGD05S00	5 meter	5°	0.25 A	float level switch	182	28.5	—	2 340.00
AGD10S00	10 meter	5°	0.25 A	float level switch	182	28.5	—	3 110.00
Accessories for float switches								
CNTRWT/100	100g	standard cable fixing counterweight for float switches						49.00
CNTRWT/360	360g	stainless steel cable fixing counterweight for float switches						397.00



Flow switches



Flow pump vertical installation



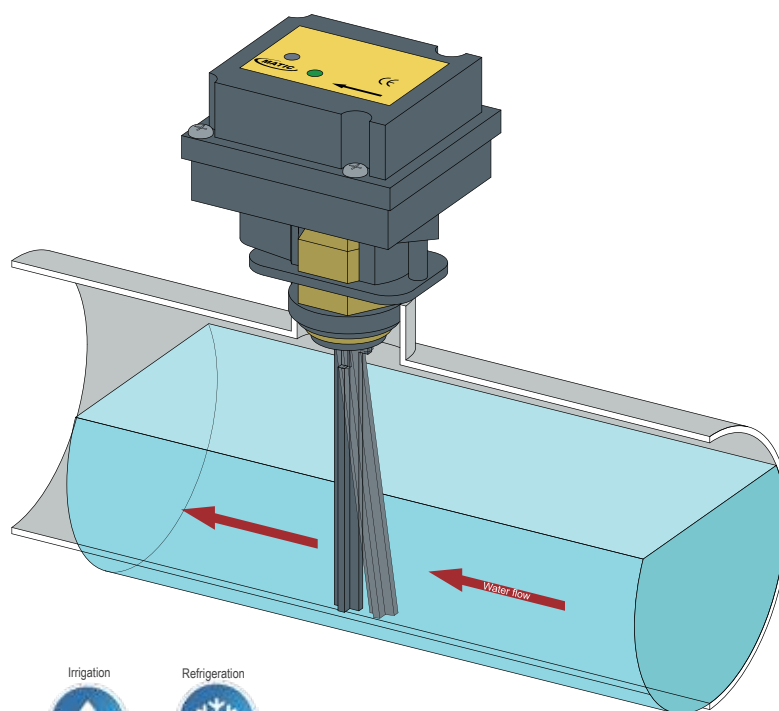
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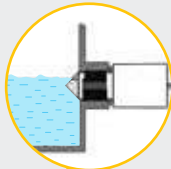
EDA

type	supply voltage	max. pressure	max. temp	description	price
FLOW Pump Flow switches for circulation and centrifugal pumps					
FLOW PUMP				<i>in-line flow switch</i>	
For the control of electric pumps connected to accumulation tanks to increase flow or pressure. Controls the start-up or switching off of the motor in correspondence to water requirements, assuring a constant flow. The highly sensitive switch permits control of flow as low as three litres per minute. When a tap is opened and water flows at over three litres per minute, it starts the motor and if flow drops below three litres per minute (<i>due to closing tap or empty accumulation tank</i>) it stops the motor. Manufactured entirely of glass reinforced polyamide with brass threaded input/output joint G1 for vertical in-line connection to liquid piping. • Incorporated start button • Minimum flow: 3 litres / min. (max. 80 litres/min.) • Motor load: 10 (4) A 250 VAC • Start-up delay: 0...10 sec (<i>adjustable</i>)					
FBA315	220 VAC	8 Bar	85°C	in-line flow switch 1" inch pipe thread	1 530.00
FLOW MATIC/H10AR paddle-type flow switch					
Designed for the control of fluid movement by circulator or centrifugal electric pumps. The high sensitivity switch permits control of flow as low as 20 litres per minute. They incorporate a brass threaded G1 joint for piping from one inch and over. The electric contact is housed externally to the flow switch and is moved by a magnet located on the head of the switch. The glass reinforced polyamide paddle can be cut to size in 25 mm segments to the diameter of pipe. • Incorporated test button • Minimum flow: 20 litres / min. • Relay: 10 (4) A 250 VAC NO + NC • Electric housing: IP54 • Start-up delay: 0...10 sec (<i>adjustable</i>)					
EDA	250 VAC	10 Bar	100°C	paddle flow switch 1" screw connection	2 050.00

Paddle-type flow switch



Level measurement



FS-IR1902D...



LS-264



LS-317



LS-064A



LS-318-1



LS-052-1

Optical level sensors emit an internal infrared light beam within a prism then measure the amount of light returned. In dry conditions the LED projects an infrared light beam which is fully reflected back to the receiver by the prism. Conversely, when the prism comes in contact with liquid, the light is dispersed with less light reaching the receiver, triggering the contacts.

Benefits of Optical level sensors are the absence of moving parts, compact dimensions, very slight switching hysteresis ensuring high reliability and repeatability.

- Developed for monitoring the presence (or) absence of transparent liquids and chemicals.
- Extremely accurate for point level detection in high-stress environments in any sized tank
- Using infrared light and no moving parts whatsoever, Immune to electromagnetic interference
- Simply fit and forget

type	supply voltage	mounting thread	PNP NO NC	NPN NO NC	description	price
Optical level sensor IP67						
- Simple, compact, and robust, detects high/low levels in any sized container - Features transient over-voltage, short circuit protection, - LED Status indication - Dry run detection						
Operating temp:		-20°C...+80°C				
Termination:		Cable (2 meter)				
Body Material:		PS (Polysulfone)				
FS-IR1902D-PNP NO	10 - 30 VDC	M12	•		optical liquid level sensor	370.00
FS-IR1902D-PNP NC	10 - 30 VDC	M12		•	optical liquid level sensor	370.00
FS-IR1902D-NPN NO	10 - 30 VDC	M12		•	optical liquid level sensor	370.00
FS-IR1902D-NPN NC	10 - 30 VDC	M12			optical liquid level sensor	370.00

Magnetic Float switches (reed type)

When the magnetic field (caused by an internal permanent magnet) is moved into the proximity of the sealed reed switch inside the stationary stem, the reed switch contacts close the electrical circuit. The float switches are extremely compact, simple and easy to install and not effected by electrical interference and withstand chemicals.

Safe - Convenient - Low cost N.O. (reversible by reversing float)

Electrical connection: 300 mm cable
Switch current/voltage: 70 VA
Max voltage: 250 VAC / 200 VDC
Accuracy: ± 2 mm in water

type	mounting	thread size (mm)	pressure withstand	description	price
Plastic (top/bottom mount)					
Float size:		(H) 24 x (Ø) 20 mm			
Operating temperature:		-10°C...+70°C			
Short stem - float switch 36 mm		Internal mounting			
LS-264	top/bottom	M10	8 Bar	vertical mount float switch	181.00
Long stem - float switch 55 mm		Internal mounting			
LS-297	top/bottom	M10	8 Bar	vertical mount float switch	196.00

Stainless steel - vertically mount float switches

Float size: (H) 28 mm (Ø) 28 mm
Operating temperature: -30°C...+125°C
Material: SUS 304 stainless steel

Short stem - float switch 40 mm		Internal mounting			
LS-317	top/bottom	G1/8"	20 Bar	vertical mount float switch	795.00
Long stem - float switch 100 mm		Internal mounting			
LS-064A	top/bottom	G1/8"	20 Bar	vertical mount float switch	795.00
Long stem - float switch 100 mm		External mounting			
LS-318-1	top/bottom	NPT 1"	20 Bar	vertical mount float switch	700.00
Bent stem (90°) - float switch 75 mm		Internal mounting			
LS-052-1	top/bottom	G1/8"	20 Bar	vertical mount float switch	735.00

Continue on the opposite page...

Reed-type flow switches

Electrical connection: 300 mm cable
Switch rating: 0.8A max
Switch current: 1.5A
Switch voltage: 250 VAC / 200 VDC
Material: Plastic
 Brass
 Stainless
Liquid medium: Clean water



type	for domestic use		heavy duty		
Model	FS-100	FS-902	FS-300	FS-402	FS-500
Fitting	NPT3/4"	1/2"NPT for inlet 1/2" NPT for outlet	NPT3/4"	NPT1/2"	NPT1/2"
Flow switches housing	plastic PPR	plastic PBT	SUS304	SUS304	brass - C37700
Operating pressure	120 PSI max	140 PSI max	250 PSI max	250 PSI max	150 PSI max
Temperature range	-10°C...80°C	-10°C...105°C	-20°C...120°C	-20°C...120°C	-10°C...120°C
Medium (liquid)	clean water	clean water	clean water	clean water	clean water
Contact form	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.	form A S.P.S.T.
Carry current	1.5A	1.0A	1.5A	1.5A	1.5A
Switch current	0.8A max	0.7A max	0.8A max	0.8A max	0.8A max
Switch voltage	220 VAC/DC	220 VAC/DC	220 VAC/DC	220 VAC/DC	220 VAC/DC
Power rating	50VA	50VA	50VA	50VA	50VA
Operating flow rating	1.5L/min	0.75 - 2L/min	1.0 - 8L/min	1.2 - 4L/min	1 - 4L/min
Setting flow value accuracy	±10%	±10%	±10%	±10%	±10%
Maximum flow	15L/min (pressure drop is 10 PIS)	10L/min (pressure drop is 10 PIS)	10L/min (pressure drop is 10 PIS)	10L/min (pressure drop is 10 PIS)	15L/min (pressure drop is 10 PIS)
Mounting shock	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration	30g for 11ms duration
Mounting vibration	35 to 500Hz	35 to 500Hz	35 to 500Hz	35 to 500Hz	35 to 500Hz
Duration of cycle	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles	100.000 cycles
Price	488.00	506.00	1 190.00	1 220.00	1 070.00



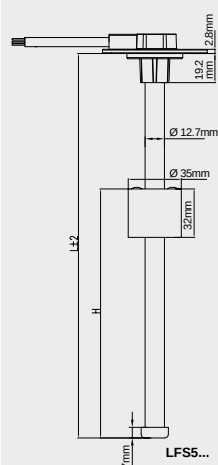
... Continued... Nylon (side mount) hinged type

type	mounting size (mm)	thread withstand	pressure	mounting	description	price
Can be used for "high" or "low" level detection (by turning float direction "up" or "down").						
Float size:			(L) 47 mm (Ø) 17 mm			
Operating temperature:			-10°C...+75°C			
Material:			Nylon			
LS-147	side mount	M16	8 Bar	internal	horizontal mount float switch	341.00
LS-148	side mount	NPT 1/2"	8 Bar	external	horizontal mount float switch	347.00

Stainless steel SUS 304 (side mount) hinged type

Can be used for "high" or "low" level detection (by turning float direction "up" or "down").						
Float size:			(L) 47 mm (Ø) 17 mm			
Operating temperature:			-30°C...+125°C			
LS-154-1	side mount	M16	10 Bar	internal	horizontal mount float switch	942.00
LS-055-1	side mount	NPT 1/2"	10 Bar	external	horizontal mount float switch	879.00

Fuel level sensors



Red	Signal (out)
Black	Common (input)
White	Low level alarm output



LFTN...



LF01-200

LFS5 series - Fuel level sensor

(IP67)

S5 series level sensors employ a magnetic field principle to sense the fuel level depth and to operate the low level alarm signal. The sensors feature long life, unaffected by vibration and are anti explosive.

- Low level alarm contact: 500 mA
- Output signal: 0 - 190 Ω or 4-20mA
- Accuracy: 12 mm

Material: Main body made of SU304 stainless steel

Mounting: Standard SAE 5 hole mounting flange (supplied with M5 screws and NBR gasket)

type	sensor length	output signal	supply	description	price
0 - 190Ω resistance output		-40°C ...+85°C			
LFS5-150	150 mm	0 - 190Ω	—	magnetic fuel level sensor	1 180.00
LFS5-200	200 mm	0 - 190Ω	—	magnetic fuel level sensor	1 250.00
LFS5-250	250 mm	0 - 190Ω	—	magnetic fuel level sensor	1 350.00
LFS5-300	300 mm	0 - 190Ω	—	magnetic fuel level sensor	1 440.00
LFS5-350	350 mm	0 - 190Ω	—	magnetic fuel level sensor	1 690.00
LFS5-400	400 mm	0 - 190Ω	—	magnetic fuel level sensor	1 780.00
LFS5-500	500 mm	0 - 190Ω	—	magnetic fuel level sensor	2 090.00
LFS5-600	600 mm	0 - 190Ω	—	magnetic fuel level sensor	2 430.00
LFS5-800	800 mm	0 - 190Ω	—	magnetic fuel level sensor	3 250.00
LFS5-1000	1000 mm	0 - 190Ω	—	magnetic fuel level sensor	3 990.00
LFS5-1200	1200 mm	0 - 190Ω	—	magnetic fuel level sensor	4 760.00
LFS5-1400	1400 mm	0 - 190Ω	—	magnetic fuel level sensor	5 470.00
LFS5-1600	1600 mm	0 - 190Ω	—	magnetic fuel level sensor	6 610.00
LFS5-2000	2000 mm	0 - 190Ω	—	magnetic fuel level sensor	8 170.00

4 - 20mA output

supply voltage: 24 - 32V

-40°C...+85°C

LFS5-150/4-20	150 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 330.00
LFS5-200/4-20	200 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 400.00
LFS5-300/4-20	300 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 590.00
LFS5-400/4-20	400 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	1 930.00
LFS5-500/4-20	500 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	2 240.00
LFS5-600/4-20	600 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	2 580.00
LFS5-800/4-20	800 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	3 400.00
LFS5-1000/4-20	1000 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	4 140.00
LFS5-1200/4-20	1200 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	4 910.00
LFS5-1400/4-20	1400 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	5 620.00
LFS5-1600/4-20	1600 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	6 840.00
LFS5-2000/4-20	2000 mm	4 - 20mA	24 VDC	magnetic fuel level sensor	8 700.00

Other lengths available on request

LFTN series - Fuel tank level sensors

IP67

LFTN series sensors employ a magnet field principle to sense fuel level depth and to operate a low level alarm signal. The sensor also incorporates a suction pipe, return pipe and breather pipe into the same mounting flange as the sensor.

type	sensor length	output signal	fuel pipes (bulge fitting)			description	price
			suction	return	breather		
LFTN-150	150 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 490.00
LFTN-200	200 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 740.00
LFTN-250	250 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 970.00
LFTN-300	300 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	2 150.00
LFTN-400	400 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	2 510.00
LFTN-500	500 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	2 950.00
LFTN-600	600 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	1 400.00
LFTN-700	700 mm	0 - 190Ω	10 mm	10 mm	6 mm	fuel level sensor	3 430.00

LF01 series - Mechanical fuel level gauges (aluminium alloy)

-40°C...+85°C

LF01 mechanical fuel gauges work on a float connected to a swivel rod which indicates fuel level as the float adjusts to the fuel level.

- Mounting: 6 hole mounting flange (M45x2 thread to accept gauge)

LF01-150	150 mm	gauge	mechanical fuel level gauge	779.00
LF01-200	200 mm	gauge	mechanical fuel level gauge	798.00
LF01-250	250 mm	gauge	mechanical fuel level gauge	832.00
LF01-300	300 mm	gauge	mechanical fuel level gauge	851.00
LF01-400	400 mm	gauge	mechanical fuel level gauge	935.00
LF01-500	500 mm	gauge	mechanical fuel level gauge	1 010.00
LF01-600	600 mm	gauge	mechanical fuel level gauge	1 080.00
LF01-700	700 mm	gauge	mechanical fuel level gauge	1 140.00

Other lengths available on request

Occupancy sensors



EE804A



EE805A



EE820



EE860



EER503



Occupancy sensors

- Detect movement
- Measure ambient light
- Automatically switch lights "on" (if ambient is below pre-set level and movement is detected)
- Automatically switch lights "off" (if no movement is detected after a pre-set time delay period)
- Complies with:
 - IEC 60669-1 and IEC 60669-2-1
 - Supply voltage: 230 VAC 50Hz
 - Switch current: 8/10/16A 230V (AC1)
 - Lux adjustment: 5 - 1000 lux

type	mounting		description	rated current	price
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EE804A / EE805A series - Motion detectors

EE804A and EE805A are 360° indoor movement detectors with a built-in light sensitive switching function. Ideal for use in interior circulation areas such as corridors, entrance halls, bathrooms etc.

- Operating time delay: 5s - 15 min
- Detection range: 6 meter radius (at 2.5 meters high) 360°

EE804A	surface	105.5 mm dia.	economical motion detector	8A	742.00
EE805A	flush	75 mm hole	economical motion detector	8A	790.00

EE820 series - Basic motion detectors IP55

Wall mounting with numerous mounting possibilities for indoor or outdoor applications.

- Operating time delay: Pulse, 5s -15 min
- Detection range: 16 meter frontal /8 meter lateral (at 2.5 meters high)

EE820	surface	140°	wall mnt. basic occupancy sensor	10A	977.00
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EE860 - Enhanced motion detectors IP55

Offers vertical and horizontal adjustment and area limitation with shutters suitable for indoor or outdoor applications. Wall, inner/outer corner, ceiling mount. Setting and adjustments made via concealed potentiometers or remote control.

- Operating time delay: 5s - 15 min
- Detection range: 16 meter frontal / 10 meter lateral (at 2.5 meters high)
- Sensitivity adjustment: 20%...100%

EE860	surface	220°	wall mnt. basic occupancy sensor	16A	1 560.00
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Accessories

EE825	corner mount accessory (inner/outer)		EE820	108.00
EE827	ceiling mount accessory		EE820	141.00
EE855	corner mount accessory (inner/outer)		EE860	108.00
EE806	IR remote control for enhanced series		EE815/20	888.00

High-performance combined presence and motion detector

High-performance presence detectors combine detection of presence and motion in an area. Ideally suited for offices where human presence detection is utilised to maintain lighting conditions. Motion detection enhances the overall detection range of the sensors.

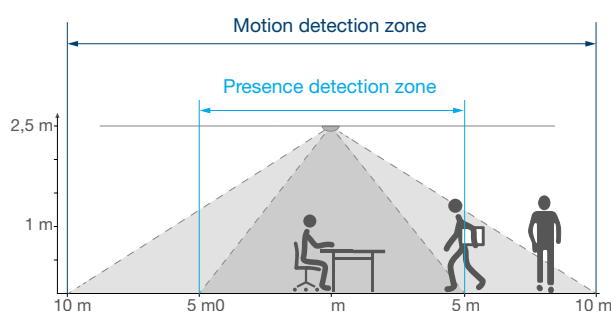
Compact flush mount presence detector

Compact flush device mounts through a 68 mm hole for very neat installation. Settings and adjustments made via concealed potentiometers or remote control.

- Operating time delay: 5 min - 1 hour
- Detection range: Presence 10 meter radius (at 2.5 meters high)
Motion 20 meter radius (at 2.5 meters high)

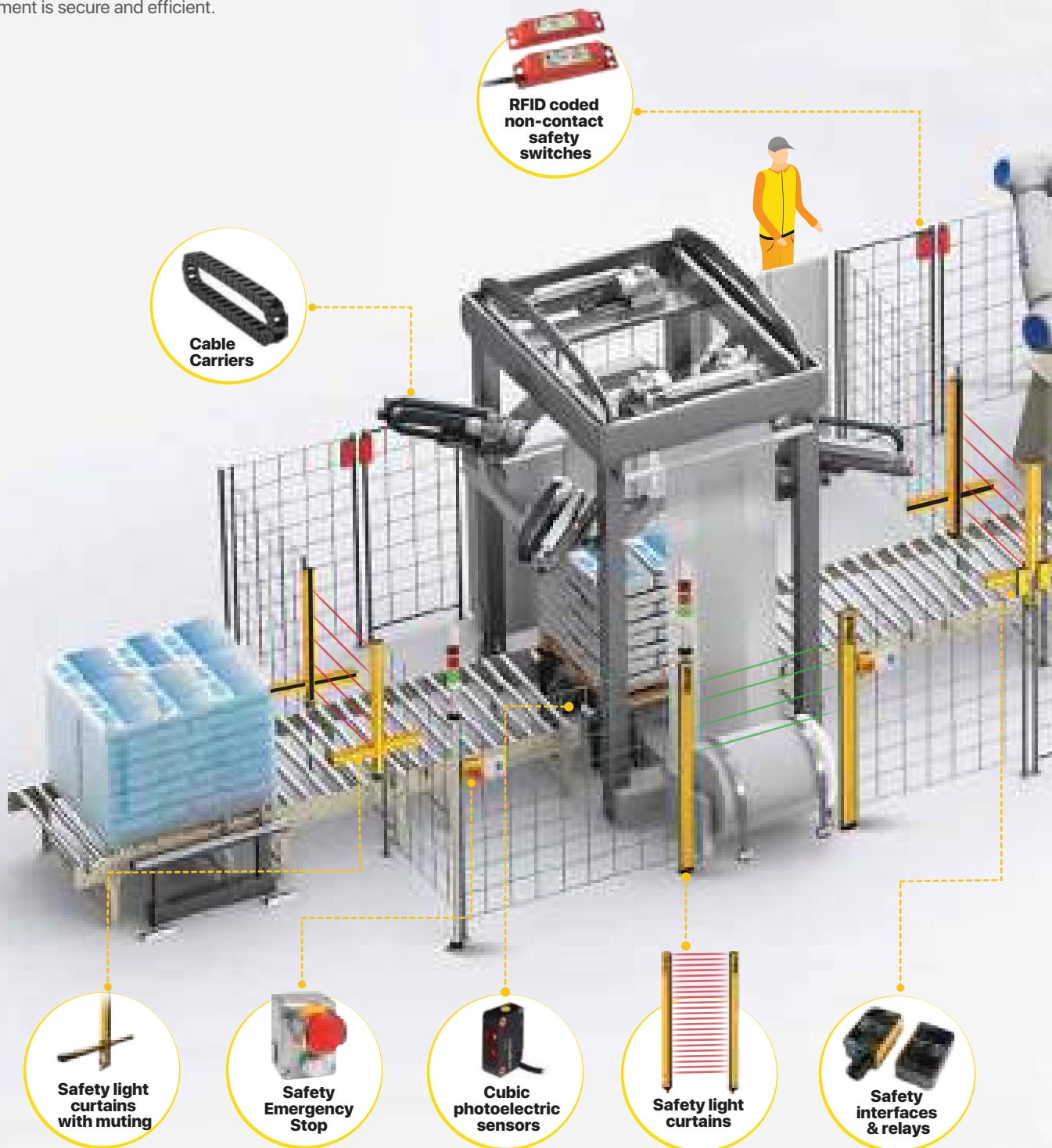
EER503	flush	68 mm hole	360° enhanced presence detector	10A	1 900.00
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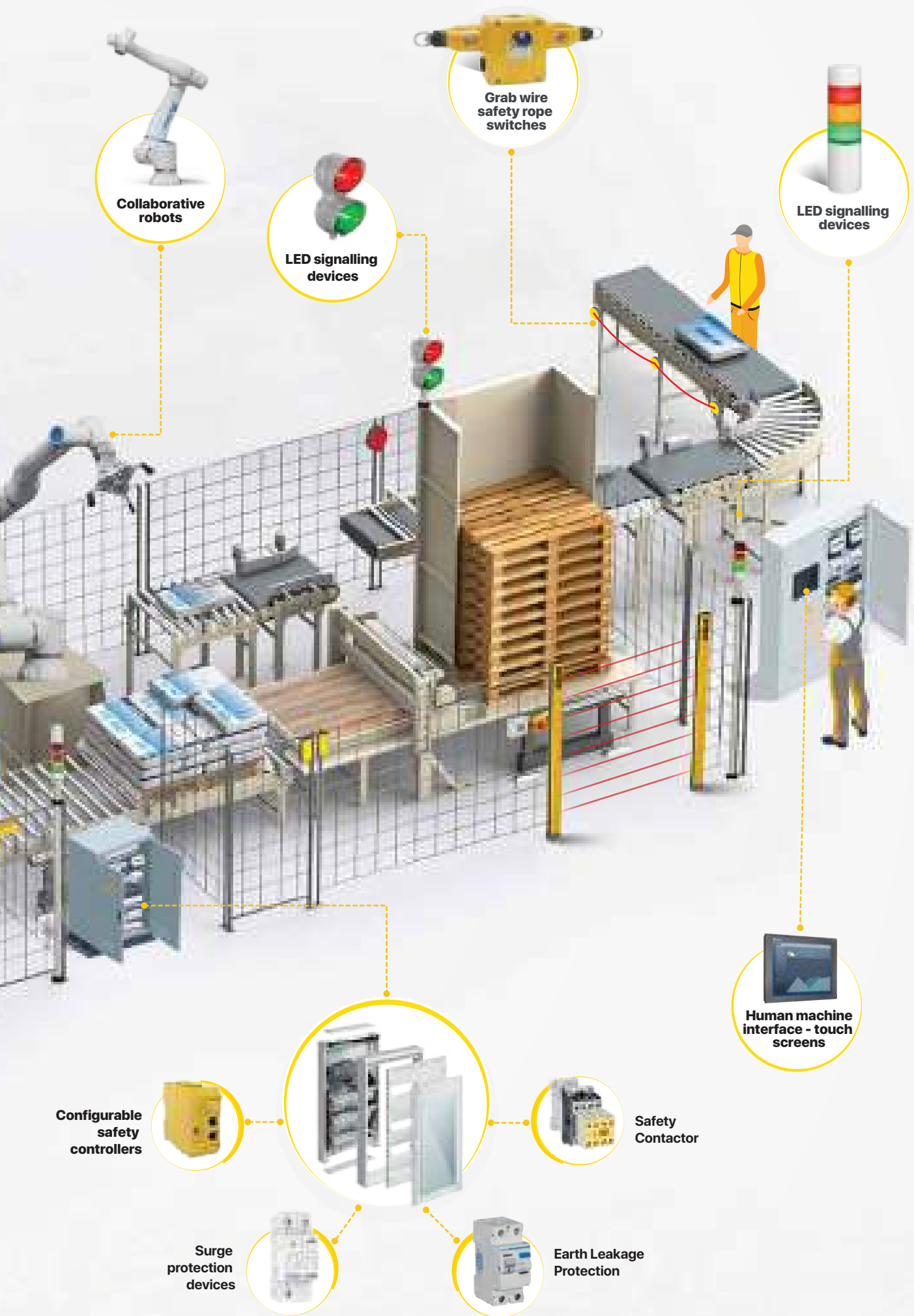
Motion detection / Presence detection



Prioritising Safety in Process Automation

In today's fast-paced industrial environments, ensuring the safety of both people and machinery is paramount. A safe workplace not only protects employees but also enhances productivity and reduces downtime. Our comprehensive range of safety products is designed to meet the rigorous demands of a safety-conscious employer. From advanced sensor technology to reliable emergency systems, our solutions are sourced from globally recognised manufacturers, ensuring your process automation environment is secure and efficient.





Grab wire safety rope switches



Robustness in harsh environmental conditions



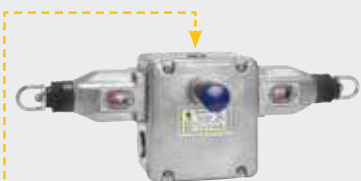
Tension indicator



141029 + 140044



141054...



145025



140044

Guardian line series - Safety rope switches

All IDEM safety rope emergency stop switches conform to **ISO13850 (EN418)** and **EN60947-5-5** standards. They provide positive mechanical linkage between switch contacts and the wire rope as per **EN60947-5-1**. Pre-tensioning the rope using a tensioner/gripper device, clamps the rope and hooks onto the switch eyebolt.

Correct tension is observed through the indicator window on the switch, once tensioned, switch contacts can be set to operational condition (*safety contacts closed, auxiliary contacts open*) by pressing the blue reset button on the switch cover.

All Safety rope switches incorporate wire-breakage monitoring, pulling or breakage of the rope, positively opens safety contacts closing auxiliary contacts, mechanically latching the switch which can only be returned to the operational condition by pressing blue reset button as required by ISO13850. ATEX versions available on request.

- Rugged die-cast metal body (painted yellow) or stainless steel 316
- Enclosure protection: IP67, IP69K (stainless steel versions)
- Ambient temperature: -25...+80°C
- Typical operating force: <125N (<300 mm deflection)
- Mechanical life: 1.000 000
- Thermal current (Ith): 10A
- Rated insulation voltage: 500V
- Spare replacement lid: With or without LED (*available on request*)
- Standards: EN60947-5-1/-5-5, EN62061 (*up to SIL3*), UL508, ISO13850, ISO13849-1 (*up to PLe*)

type	contacts		mounting position	max. protection length		LED indication	price
	NC	NO		1 switch	2 switches		

GLH series - Heavy duty safety rope switches

Heavy duty safety rope pull switch protect long conveyor lengths. Robust housings survive indoor or outdoor use including washdown (*IP67 rating*). Lengths over 2 km can be achieved with less than 20 switches, shorter rope spans up to 200m can be achieved using just one switch providing a cost effective solution.

Robust housings survive indoor and outdoor use, including washdown to IP67 and (*IP69K on stainless steel versions only*).

- Rope span (per switch): 100m (*single head*) - 200m (*dual head*)
- Mounting / position: 4 x M5 / any position
- Cable/conduit entry: 4 x M20 cable entries

Note: Optional bi-colour LED indicates switch status from a distance

Indication of rope status: Steady - Green = machine running
Flashing - Red = machine stopped

GLH - Die-cast housing

				IP67			
141041	4	2	centre	200m	250m	—	7 250.00
141029*	4	2	centre	200m	250m	•	7 900.00
141037	4	2	left	100m	125m	—	4 080.00
141053*	4	2	left	100m	125m	•	4 730.00
141038	4	2	right	100m	125m	—	4 080.00
141054*	4	2	right	100m	125m	•	4 730.00

GLH-SS - Stainless Steel 316 housing

				IP69K			
145025	4	2	centre	200m	250m	—	10 900.00
145029*	4	2	centre	200m	250m	•	11 800.00
145037	4	2	left	100m	125m	—	8 470.00
145053*	4	2	left	100m	125m	•	9 440.00
145038	4	2	right	100m	125m	—	8 470.00
145054*	4	2	right	100m	125m	•	9 440.00

* LED indication - provide voltage requirement by adding following to end of part number:
A = 24 VDC / B = 110VAC / C = 230 VAC

Accessories - For rope operated switches

Accessories - Rope tensioner/gripper (quick fixing) - for rope operated switches

type	description	length (mm)	material	price
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Tensioning of the rope is achieved using IDEM's patented tensioner/gripper accessory. Traditional turnbuckle/clamp systems are difficult to tension and adjust, requiring frequent re-tensioning or maintenance, making viewing of the switch tension window difficult.

IDEMs tensioner/gripper accessory offers greater reliability, significantly reducing installation time by offering an eyehook, tensioner thimble and high strength gripper in one assembly, enabling rapid connection to the switch eyebolts with fast accurate tensioning of the rope while in close proximity to the viewing window of the switch.

140020	rope tensioner/gripper for rope switches	190...248	galvanised	1 340.00
140019	rope tensioner/gripper for rope switches	190...248	stainless steel	2 130.00
140044	red emergency-stop mushroom pushbutton		twist release	568.00
140140	red SS emergency-stop mushroom pushbutton		twist release	1 450.00

Accessories for rope switches



Robustness in harsh environmental conditions



142052



144009A



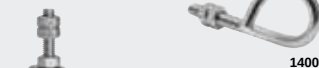
140019



140043



140021



140047-S



140099



140004



140057

GLS series - Standard duty safety rope switches

Guardian Line – General / standard duty safety rope switch is suitable to protect conveyor lengths up to 80m using two switches or 60m using a single switch. An emergency stop button can be fitted on either side, offering a traditional emergency stop function on the switch.

An optional bi-colour LED is also available to indicate the switch status from a distance. Rugged internal sealing and a robust LED lens permits the use of high pressure hosing, suitable for indoor and outdoor use.

- Rope span (*per switch*): 60m (*single switch*) - 80m (*dual switch*)
- Cable/conduit entry: 3 x M20 cable entries

type	contacts		mounting position	max. protection length		description	LED indication	price
	NC	NO		1 switch	2 switches			
GLS Die-cast housing (IP67)								
142052	2	2	left/right	60m	80m	rope switch	—	3 500.00
142058*	2	2	left/right	60m	80m	rope switch	•	4 150.00
GLS-SS Stainless steel 316 housing (IP69K)								
144003	2	2	left/right	60m	80m	rope switch	—	6 960.00
144009*	2	2	left/right	60m	80m	rope switch	•	7 920.00
* LED indication - provide voltage requirement by adding following to end of part number: A = 24 VDC / B = 110VAC / C = 230 VAC								

* LED indication - provide voltage requirement by adding following to end of part number:
A = 24 VDC / B = 110VAC / C = 230 VAC

GLM series - Mini duty safety rope switches

Compact, robust die-cast safety rope pull switch to protect short conveyor lengths up to 50m using two switches or 30m using a single switch, providing a reliable, cost-effective safety solution for conveyor systems. An emergency stop button can be fitted to the side of the switch to offering a traditional emergency stop function close to the switch.

143001	2	1	left/right	30m	50m	rope switch	—	2 840.00
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Mounting accessories for rope operated switches

type	description		length (mm)	material	price
140020	rope tensioner/gripper for rope operated switches		190...248	galvanised	1 340.00
140019	rope tensioner/gripper for rope operated switches		190...248	stainless steel	2 130.00
140021	universal pulley for rope operated switches		77 mm	stainless steel	911.00
140064	universal pulley for rope operated switches		77 mm	galvanised	596.00
140045	standard eyebolt for rope operated switches (8 pack)		84 mm	stainless steel	937.00
140046	standard eyebolt for rope operated switches (8 pack)		84 mm	galvanised	487.00
140099	roller eyebolt with nuts (non adjusting)		71 mm	die cast metal	887.00
140048	roller eyebolt with nuts (adjustable)		107-140 mm	die cast metal	1 140.00
140047-S	pigtail eyebolt (short) M10 46 mm thread (1 /pack)		114 mm	stainless steel	136.00
140043	safety spring for rope operated switches		220 mm	stainless steel	625.00
140165	mounting brackets for rope op. switches (1 /pack)		127 mm	stainless steel	444.00
140059	anti-tamper screwdriver for rope operated switches		T20	—	71.00

❖ GLM and GLS series can be mounted using one bracket. GLHD needs two.

Steel cable (polypropylene covered) for rope operated switches

4.0 mm outside diameter. steel inner - polypropylene cover

140037	insulated steel cable for rope operated switches	30m	steel/PVC	1 370.00
140038	insulated steel cable for rope operated switches	50m	steel/PVC	1 890.00
140040	insulated steel cable for rope operated switches	100m	steel/PVC	3 280.00
140068	insulated steel cable for rope operated switches	500m	steel/PVC	11 100.00

Rope kits for rope operated switches

Rope kits Rope kits comprise: tensioner/gripper assembly + allen key, quick link (up to 50m), length rope terminated one end and No. eyebolts required for length of rope

type	length	description		No. of eyebolts	tension/gripper	price
140004	20m	rope kit for rope operated switches		9	1 + QL	3 150.00
140005	30m	rope kit for rope operated switches		12	1 + QL	3 560.00
140006	50m	rope kit for rope operated switches		20	1 + QL	4 240.00
140007	80m	rope kit for rope operated switches		30	2	4 730.00
140008	100m	rope kit for rope operated switches		37	2	5 140.00
140009	126m	rope kit for rope operated switches		45	2	5 690.00

Contact blocks (spare) for rope operated switches

140057	2	1	3 pole	contact block for rope operated switch	end fixing	512.00
140061	2	2	4 pole	contact block for rope operated switch	side fixing	646.00
140062	3	1	4 pole	contact block for rope operated switch	side fixing	646.00
140063	4	—	4 pole	contact block for rope operated switch	side fixing	646.00

Conveyor belt alignment switches



Belt alignment monitoring



500001



174401



230001



232025A

Conveyor belt alignment switches

Conveyor belt alignment switches are mounted on sections of plant conveyors to protect against excessive belt drift due to unintentional movement. Should the belt position drift, the roller arm of the switch will move to a pre-determined position causing activation of a control circuit providing positively opening NC safety contacts (to **EN60947-5-1**) at the point of tripping.

2 internal contact blocks, one to provide a **"WARNING"** signal the other to provide a **"STOP"** signal.

Rugged die-cast metal body (*painted yellow*) or Stainless Steel 316

Switching range:	"Warning" signal	10...18°C	(factory setting 14°C)
	"Stop" signal	15...35°C	(factory setting 25°C)
Operating torque:	Medium duty	1.8Nm...2.8Nm	(factory setting 1.8Nm)
	Heavy duty	3.0Nm...5.0Nm	(factory setting 3.0Nm)
• Enclosure protection:	IP67 - IP69K (<i>in stainless steel</i>)		
• Ambient temperature:	-25...+80°C		
• Vibration resistance:	10-500Hz 0.35 mm		
• Shock resistance:	11ms 15g		
• Mechanical life:	150.000 operations		
• Thermal current (Ith):	10A		
• LED indication:	Available on request		
• Standards:	EN60947-5-1, EN620		
• Spare replacement lid:	With or without LED (<i>available on request</i>)		

type	contacts		roller dimensions		factory settings			duty	price
	NC	NO	Ø	length	torque	warning	stop		

Python line series - Conveyor belt alignment switches

- Cable/conduit entry: 4 x M20 cable entries

Die-cast (*painted yellow*) housing

500001	2	2	35 mm	120 mm	1.8Nm	14°C	25°C	medium	8 720.00
500005	2	2	35 mm	230 mm	3.0Nm	14°C	25°C	heavy	10 500.00

Stainless steel 316 housing

501001	2	2	35 mm	120 mm	1.8Nm	14°C	25°C	medium	13 800.00
501005	2	2	35 mm	230 mm	3.0Nm	14°C	25°C	heavy	15 200.00

HLM-CBA series - Mini belt alignment switches

- Heavy duty die cast bodies (*painted red*)
- High mechanical life over 500.000 cycles
- Standards: ISO14119, EN60947-5-1, EN60204-1, ISO13849-1, EN62061, UL508

174401	2	2	22 mm	70 mm	1.10Nm			plastic roller	4 140.00
174451	2	2	22 mm	70 mm	1.40Nm			stainless steel roller	5 080.00

Emergency stop stations

IDEM's emergency stop switches provide robust emergency stop protection for machines and exposed conveyors. They are suitable for use within all industry sectors.

- Yellow Polyester (*IP67*) or stainless steel 316 body (*IP69K*)
- Safety trip mechanism opens safety contacts if lid removed - extra degree of anti-tamper
- Button protection shroud version with padlock holes to enable "Lock Out"
- 3 and 4 pole contact blocks provide positively operated switch contacts
- ATEX versions available on request

Ambient temperature:	-25...+80°C		
Mechanical life:	1.500.000 operations		
Thermal current (Ith):	10A		
Cable/conduit entry:	2 x M20 (3-pole) / 3 x M20 (4-pole)		
Standards:	EN60947-5-1, EN60947-5-5, EN62061 UL508, ISO13850, ISO13849-1		

Polyester housing

(*IP67*)

230001	2	1		plastic (<i>polyester</i>) emergency stop station	839.00
230003	2	1		plastic (<i>polyester</i>) emergency stop station with button shroud	1 010.00

Stainless steel housing

(*IP69K*)

231001	2	1		stainless steel E-stop station	3 820.00
231005	2	1		SS E-stop station with button shroud	4 050.00
232019*	3	1		SS E-stop station with dual colour LED	5 080.00
232023*	2	2		SS E-stop station dual colour LED/button shroud	5 310.00
232025*	3	1		SS E-stop station dual colour LED/button shroud	5 310.00
232023-AS	2	2		SS E-stop station dual colour LED (<i>steady</i>)/button shroud	5 190.00

* Please provide voltage requirement by adding following to end of part number:

A = 24 VDC / B = 110 VAC / C = 230 VAC

Tongue-operated switches



140107



200007-SS



208007



140111

202001-SS



205001



140108



140110

Tongue-operated switches (connects to most safety relays)

IDEM Tongue-operated safety interlock switches fit to the leading edge of sliding, hinged or lift off machine guards to provide positively operated switching contacts and a tamper resistant (*not easily defeatable*) key mechanism. Used independently to provide positively operated contacts to **EN60947-5-1** or in combination with any dual channel safety monitoring relays to provide up to category **4 PLe ISO13849-1**.

The switch is mounted to the frame of the guard or machine, and the actuator profile is fitted to the moving part (*frame*) of the guard and aligned to match a cam mechanism within the switch entry aperture, providing a positively operated (*not easily defeatable*) interlock switch. Inserting the actuator into the switch closes the safety contacts enabling the machine start circuit. Withdrawing the actuator positively opens the safety contacts.

Positive break contacts to EN60947-5-1 High functional safety to ISO13849-1

- Actuators for switches ordered separately (*see accessories section below*)
- Cable/conduit entry: 3 x M20 cable entries

type	No. entry	contacts		description	dimensions (mm)			price
	positions	NC	NO		(H)	(W)	(D)	

Type KP - Kobra Tongue-operated switches (*non-locking*)

KP and K-SS switches provide industry standard fixing points and a rotating head for up to 4 actuator entry positions. The double seal gasket and stainless steel internal screws reduce the likelihood of rust build up inside the switch. IDEMs patented CAM system ensures long term reliability, even under harsh environmental conditions.

- Enclosure protection: IP67 - rugged polyester body with stainless steel head
- Ambient temperature: -25...+80°C
- Thermal current (Ith): 10A
- Rated Ins/withstand voltage: 500 VAC/2500 VAC
- Standards: ISO14119, EN60947-5-1, EN60204-1, ISO13849-1, EN62061, UL508

200007-SS	4	3	1	Tongue-operated switches	98	58	34.5	1 610.00
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Type K-SS stainless steel Tongue-operated switches

- Enclosure protection: IP69K - rugged stainless steel 316 body

208007	4	3	1	SS Tongue-operated switches	98	58	37.5	3 680.00
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KLM series - Guard locking switch (*Metal*)

Solenoid locking interlock safety switch featuring Guard Holding up to 3000N (300Kg) (F1Max)

KLM guard locking safety switches have rugged die cast housings with a high holding force of 3000N to keep medium/large guard doors closed until hazards are removed. The slim profile is designed to fit on 50 mm frame sections or where space is restricted. The head rotates providing up to 8 actuator entry positions. 2 independent contact blocks individually monitor lock and door status.

Internal switch selectable for power feed to LED or as a voltage free auxiliary circuit to indicate lock status.

- Enclosure protection: IP67 - Rugged polyester body with stainless steel head
- Solenoid supply voltage: 24 VAC/DC or 230 VAC (*available in 110 VAC on request*)
- Ambient temperature: -25...+50°C
- Thermal current (Ith): 10A
- Rated Ins/withstand voltage: 500 VAC/2500 VAC
- Manual release: 1 manual release

202001-SS	8	3	1	locking interlock safety switches	24 VDC	176	46	47	5 940.00
202007-SS	8	3	1	locking interlock safety switches	230 VAC	176	46	47	6 050.00

KL3-SS series - Stainless steel Tongue-operated switches

In accordance with EHEDG (*European Hygienic Engineering & Design Group*) guidelines for hygienic design, mirror-polished surface to Ra10 designed to cope with direct food splash and cleaning in tough applications of food processing industries.

IP69K enclosure protection permits high pressure hosing with detergent at high temperature.

- Enclosure protection: IP69K - Mirror polished 316 stainless steel

205001	8	3	1	locking interlock safety switches	24 VDC	177	48	47	11 900.00
205007	8	3	1	locking interlock safety switches	230 VAC	177	48	47	12 100.00

Accessories for above Tongue-operated switches

140123	—	manual release key (<i>front and side</i>) for	KLM and KL3-SS	414.00
140107	standard	standard actuator only	all tongue switches	188.00
140108	flat	flat actuator only	all tongue switches	188.00
140110	flexible	die-cast heavy duty flexible actuator only	all tongue switches	674.00
140111	flexible	stainless steel heavy duty flexible actuator only	all tongue switches	1 350.00

RFID coded non-contact safety switches



405104



110004



114004



172007

RFID coded non-contact safety switches 24VDC SIL 3 - SILCL 3 - PLe - Cat. 4

RFID non-contact safety sensors provide highly-reliable, tamper-proof personnel protection for monitoring protective doors, gates and guards, they uniquely identify passive RFID transponders ensuring high coding levels and effective protection.

Master coded: The actuator is free and not specifically assigned to the sensor
Unique coding: Factory programmed and permanently assigned to sensor during set-up

- Output: 2 NC safety outputs and 1 NO auxiliary output
- Connection type: M12 connector - (Pigtail M12/8-pin - 250 mm), See sensor connectors and cables page
- High EMC immunity and IP67/IP69K protection ensure excellent reliability in harsh environments.
- Resistant to aggressive media, e.g. cleaning agents used in the food and packaging industry

type	model	detection distance	circuits	description	dimensions (mm) (H) (W) (D)			price
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RFID safety switches supplied as sensor/actuator combination

SPF - universal (22 mm fixing centres)

405104 SPF 14 mm 2NC/1NO RFID coded safety switch 50 25 13 **3 650.00**

LPF - European industry standard fitting (78 mm fixing centres)

404104 LPF 14 mm 2NC/1NO RFID coded safety switch 88 25 13 **3 710.00**

Coded non contact safety switches 24 VDC

IDEM coded non contact safety switches, enable conformance to **EN60947-5-3** to be used as directed by **ISO12100**, **ISO14121** and **EN60204-1**.

They have coded magnetic detection. Providing a wide detection distance and high tolerance to misalignment. Used in combination with most dual channel safety monitoring relays (up to PLe as per **ISO13849-1**).

- Compact and robust high specification polyester housing
- Visual LED switch status indication (*on coded version only*)
- Coded magnetic operation – Tamper resistant.
- Supplied as sensor/actuator combination

MPC - Miniature industry standard (22 mm fixing centres)

114104 MPC 14 mm 2 NC compact coded safety switches 36 26 13 **2 530.00**

LPC - European industry standard fitting (78 mm fixing centres)

110004 LPC 14 mm 2 NC rectangular coded safety switches 88 25 13 **2 570.00**

Magnetic non-contact switches (*non coded*) Up to: PLe ISO13849-1

IDEM's magnetic non-contact safety interlocks are designed to conform to **IEC 60947-5-3** and be used as directed by **ISO12100**, **ISO14121** and **ISO14119**. They feature magnet and reed technology, providing a high tolerance to misalignment and extreme temperatures.

MPR - Miniature industry standard (22 mm fixing centres)

114004 MPR 12 mm 2 NC compact magnetic switches 36 26 13 **2 260.00**

LPR - European industry standard fitting (78 mm fixing centres)

110012 LPR 12 mm 2 NC rectangular magnetic switches 88 25 13 **3 010.00**

Normally closed (NC) circuits are closed with the actuator is present.

Safety limit switches (*die-cast metal body*)

type	model	detection distance	circuits	description	dimensions (mm) (H) (W) (D)			price
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172007 LSMM 12 mm 2NC/1NO roller plunger limit switch 73 35 16 **1 110.00**

Non contact sensors - Position monitoring



Rope-operated pull lever safety switches



Rope-operated pull lever limit switches (IP65)

- Heavy-duty metal body
- Supplied with cable gland (PG11)

type	description	operating force (N)	contacts	price
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PLNU series - Heavy-duty non-latching rope-operated limit switches

- Direct (*positive*) opening action - safety function according to IEC/EN 60947-5-1
- Thermal current: Ith: 10A Ui: 400 VAC
- Dimensions: (H) 89 x (W) 84 x (D) 40.5 mm

PLNU1AT25W	rope operated limit switch (<i>non-latching</i>)	25N	1NO + 1NC	1 380.00
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P2LU series - Heavy-duty latching rope-operated limit switches

Latching (*hand reset*) limit switches EN 418 compliant

- Latching with push button "Reset" facility on switch
- Thermal current: Ith: 6A Ui: 400 VAC

P2LU series	(H) 175 x (W) 85 x (D) 47 mm
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P2LU1SAT75AG	rope operated limit switch (<i>latching/hand reset</i>)	7.5 kg	1NO + 1NC	2 930.00
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P2LU1SAT15AG	rope operated limit switch (<i>latching/hand reset</i>)	15 kg	1NO + 1NC	2 930.00
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Heavy duty rope-operated limit switches with pre-tensioning facility EN418 compliant

- 2 NC contacts (*when pre-tensioned*) 1 opens if rope breaks the other opens when rope is pulled
- Large field of overlap for easier regulation of pre-tensioning
- Latching with push button "Reset" facility on switch
- Thermal current: Ith: 6A Ui: 400 VAC

PLN series - 60N	(H) 82 x (W) 104 x (D) 40.5 mm
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PLN131311	rope operated limit switch (<i>latching/hand reset</i>)	60N - 6kg	1NO + 1NO	1 740.00
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P2L series - 120N	(H) 161 x (W) 100 x (D) 48.5 mm
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P2L131312	rope operated limit switch (<i>latching/hand reset</i>)	120N - 12kg	1NO + 1NO	3 200.00
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Accessories for rope-operated switches

P33032	adjustable rope terminal clamp Ø 5 mm			30.50
P33033	rope eye of Ø 5 mm (<i>cable end thimble</i>)			12.60
P33034	turn buckle M6 x 60 for rope tensioning			138.00
P33035	threaded eye bolt M8 guide for rope			47.00
P33036	steel rope 0.5 mm PVC sheathed (<i>red insulated</i>)	(100 meter)		6 060.00

Safety limit switches (*slow break*)

Quickly and easily detect the position of moving parts and safely install machinery.

KB Q1 L11	slotted lever actuator	safety limit switch	1 NO + 1 NC	737.00
KB N1 L11	key operated (<i>straight key</i>)	safety limit switch	1 NO + 1 NC	745.00
KB N2 L11	key operated (<i>angled key</i>)	safety limit switch	1 NO + 1 NC	745.00

Spare keys for safety limit switches

KX N1	straight key	for safety limit switches	—	113.00
KX N2	angled key	for safety limit switches	—	116.00
KX N3	straight "T" key	for safety limit switches	—	86.00
KX N4	angled "T" key	for safety limit switches	—	86.00

RS1 series - Rope operated limit switches (H) 104 x (W) 30.5 x (D) 35 mm IP65

- Double-insulated housing glass fibre-reinforced self extinguishing
- Self-cleaning silver-alloy contacts, Snap action contacts
- Thermal current: Ith:10A Ui: 250 VAC

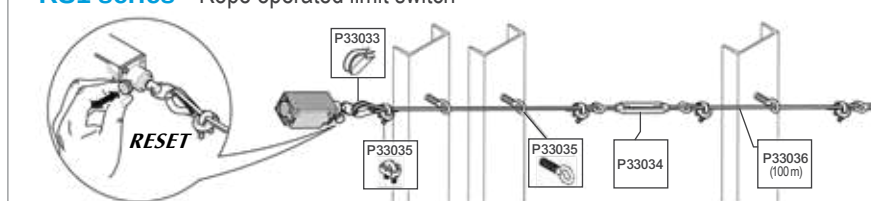
Non-latching rope operated limit switches (*snap action*)

RS11310	rope operated limit switch (<i>non latching</i>)	25N	1NO + 1NC	1 110.00
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Latching (*hand reset*) limit switches EN 418 compliant

RS131310	rope operated limit switch (<i>latching/hand reset</i>)	25N	1NO + 1NC	1 230.00
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RS1 series - Rope operated limit switch



Safety light curtains



SAFETY LEVEL	SAFETY LEVEL
TYPE 4	TYPE 2
SIL 3 - SILCL 3 PL e - Cat. 4	SIL 1 - SILCL 1 PL c - Cat. 2



Finger and hand protection EOS...



Body protection and access control EOS...

EOS series - Safety light curtains

EOS series is a compact safety light curtain range with competitive performance and innovative features. Includes models with integrated safety functions such as self-monitoring static outputs, control of external contactors (EDM) and selectable automatic or manual restart. 2 safety PNP static outputs. Easy connection and installation thanks to the M12 connectors and the use of unshielded cables up to 100 meters.

- Power supply: 24 VDC $\pm$ 20%
- Dimensions: (W) 28 x (D) 30 mm
- Restart: Selectable manual/automatic Start/Restart
- Status display: LEDs for light curtain's status and diagnostic
- Integrated function: Integrated External Device Monitoring (EDM) function
- Mounting: Via back slot with provided standard mounting brackets
- Connection: Emitter: M12 5-pin - Receiver: M12 8-pin (see pages K-23...24)
- OSSD safety outputs: 2 PNP - 400 mA at 24 VDC with short-circuit, overload, polarity reversal protection



Scan to watch video

type	resolution	protected height	No. beams	description	overall height	connection type	price
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For finger and hand detection - Safety light curtains

IP65/67

EOS2 X - Safety light curtain with built-in control functions - Type 2

- Detection: Hand detection (30 mm resolution)
- Maximum range: Selectable 4/12 meter
- Safety Level: Type 2, SIL 1/SILCL 1, PL c, Cat. 2

1320211	30 mm	310 mm	16	safety light curtain	363 mm	M12 plug	12 600.00
1320212	30 mm	460 mm	23	safety light curtain	513 mm	M12 plug	14 800.00
1320213	30 mm	610 mm	31	safety light curtain	663 mm	M12 plug	17 000.00
1320214	30 mm	760 mm	38	safety light curtain	813 mm	M12 plug	19 600.00
1320215	30 mm	910 mm	46	safety light curtain	963 mm	M12 plug	22 100.00
1320217	30 mm	1210 mm	61	safety light curtain	1263 mm	M12 plug	27 000.00
1320219	30 mm	1510 mm	76	safety light curtain	1563 mm	M12 plug	32 300.00

EOS4 X - Safety light curtain with built-in control functions - Type 4

- Detection: Finger detection (14 mm resolution)
- Maximum range: Selectable 3/6 meter
- Safety Level: Type 4, SIL 3/SILCL 3, PL e, Cat. 4

1310010	14 mm	160 mm	15	safety light curtain	213 mm	M12 plug	18 000.00
1310011	14 mm	310 mm	30	safety light curtain	363 mm	M12 plug	23 400.00
1310012	14 mm	460 mm	45	safety light curtain	513 mm	M12 plug	28 700.00
1310013	14 mm	610 mm	60	safety light curtain	663 mm	M12 plug	33 900.00
1310014	14 mm	760 mm	75	safety light curtain	813 mm	M12 plug	39 300.00
1310015	14 mm	910 mm	90	safety light curtain	963 mm	M12 plug	44 600.00
1310016	14 mm	1060 mm	105	safety light curtain	1113 mm	M12 plug	49 600.00
1310017	14 mm	1210 mm	120	safety light curtain	1263 mm	M12 plug	55 200.00

- Detection: Hand detection (30 mm resolution)
- Maximum range: Selectable 4/12 meter
- Safety Level: Type 4, SIL 3/SILCL 3, PL e, Cat. 4

1310211	30 mm	310 mm	16	safety light curtain	363 mm	M12 plug	15 000.00
1310212	30 mm	460 mm	23	safety light curtain	513 mm	M12 plug	17 500.00
1310213	30 mm	610 mm	31	safety light curtain	663 mm	M12 plug	20 000.00
1310214	30 mm	760 mm	38	safety light curtain	813 mm	M12 plug	22 900.00
1310215	30 mm	910 mm	46	safety light curtain	963 mm	M12 plug	25 900.00
1310217	30 mm	1210 mm	61	safety light curtain	1263 mm	M12 plug	31 700.00
1310219	30 mm	1510 mm	76	safety light curtain	1563 mm	M12 plug	37 500.00

Note: Heights (from 160 to 2200 mm) and extended range up to 20 meters available on request.

For access control / body protection - Safety light curtains

IP65/67

EOS2 X - Safety light curtain with built-in control functions - Type 2 - Max range: 12 meter

1320610	—	510 mm	2	safety light curtain	653 mm	M12 plug	11 800.00
1320612	—	910 mm	4	safety light curtain	1053 mm	M12 plug	15 000.00

EOS4 X - Safety light curtain with built-in control functions - Type 4 - Max range: 12 meter

1310610	—	510 mm	2	safety light curtain	653 mm	M12 plug	13 000.00
1310612	—	910 mm	4	safety light curtain	1053 mm	M12 plug	17 100.00

EOS4 XH - Safety light curtain with built-in control functions - Type 4 - Max range: 20 meter

1310660	—	510 mm	2	safety light curtain	653 mm	M12 plug	15 300.00
1310662	—	910 mm	4	safety light curtain	1053 mm	M12 plug	19 000.00

Mounting accessories for safety light curtains (std L-shaped brackets included with light curtains)

1310980	SFB E180	brackets	set of (4) x 180° swivel brackets for	EOS2/4	1 270.00
1310969	SFB FAST	brackets	set of (4) x FAST coupling brackets for	EOS2/4	2 390.00
1310973	SAV 8E	dampers	set of (8) vibration dampers for	EOS2/4	820.00
1310976	SFB 4E	brackets	set of (4) x adjustable brackets for	EOS2/4	477.00
1310997	FE 4	brackets	set of (4) flat brackets for	EOS2/4	874.00

Safety light curtains with muting



Safegate - Safety light curtains (with integrated muting functionality)

Safety light curtains with integrated Muting function for human material differentiation applications. Safegate guarantees the integration of the muting sensors directly to the safety light curtain.

Programmable models (SMPO) functional parameters configuration can be managed via Safegate Configuration Software (SCS).

Hardware configuration:

No programming necessary, allows parameterisation and muting logic configuration.

Software configuration:

Allows configuration of functional parameters, muting and additional functions (e.g. Filters, delays, partial muting etc).

3 Pre-Configured Muting Logic:

Exit-Only (Parallel or Crossed Beams), Entry-Exit (Parallel Beams), Entry-Exit (Crossed Beams).

Muting sensors:

MA Muting Arms, MZ Muting Brackets, any dark-on M12 5-pole photocell

General features:

- Power supply: 24 VDC $\pm$ 20%
- Dimensions: (W) 50 x (D) 55 mm
- Restart: Selectable (manual/automatic) Start/Restart
- Status display: LEDs for light curtain status and diagnostics
- Integrated function: External Device Monitoring (EDM) function
- Muting: Integrated muting function
- Mounting: Via back slot with provided standard mounting brackets
- Connection: Emitter: M12 5-pin - Receiver: M12 12-pin (see pages K-23...24)
- OSSD safety outputs: 2 PNP - 400 mA at 24 VDC with short-circuit, overload, polarity reversal protection



type	protected height	No. beams	description	overall height	connection type	price
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For access control - Safety light curtain with integrated muting function IP65/67

SAFEGATE SMPO - Integrated status lamp and programmable functions – Type 4

- Maximum range: 12 meter

1390680	510 mm	2	safety light curtain	710 mm	M12 plug	26 000.00
1390682	910 mm	4	safety light curtain	1110 mm	M12 plug	31 500.00

Hand detection 30 mm resolution

1390283	610 mm	31	safety light curtain	720 mm	M12 plug	33 900.00
1390285	910 mm	46	safety light curtain	1020 mm	M12 plug	38 900.00
1390287	1210 mm	61	safety light curtain	1320 mm	M12 plug	43 900.00

MA muting arms - with integrated photocells

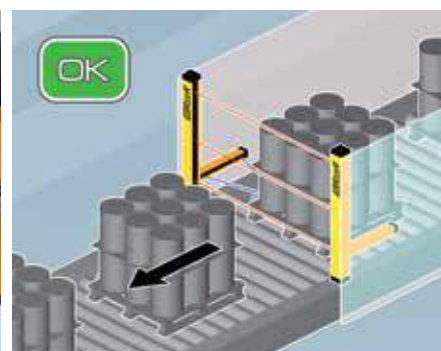
type	muting logic	No. beams	description	maximum range	connection type	price
1390800	exit - only	2	crossed beams photocells	2.5 m	M12 plug	8 410.00
1390802	entry - exit	2	crossed beams photocells	2.5 m	M12 plug	12 700.00
1390804	exit - only	2	parallel beams photocells	3.5 m	M12 plug	8 610.00
1390805	entry - exit	4	parallel beams photocells	3.5 m	M12 plug	15 900.00

MZ muting brackets - with integrated M5 5-beam photocells

1390808	exit - only	2	crossed beams photocells	3.5 m	M12 plug	9 830.00
1390809	entry - exit	2	crossed beams photocells	3.5 m	M12 plug	13 300.00
1390810	entry - exit	4	parallel beams photocells	3.5 m	M12 plug	19 300.00

Human material differentiation

- Restriction of unauthorised access into dangerous zones





FREE DESIGNER SOFTWARE included with M1/M1S units



Mosaic - A unique safety controller: Modular, Expandable, Configurable

Mosaic is a modular configurable safety controller capable of managing all safety functions of machinery or plants. Made up of a Master unit which can operate as a stand-alone device or control up to 14 expansion units in a system.

Capable of monitoring several safety sensors and signals such as: light curtains - photocells - laser scanners - emergency stops - electromechanical switches - safety door switches - magnetic switches - safety mats and edges - two-hand controls - hand grip switches - encoders and proximities for safety speed control - load cells - pressure switches - temperature, flow and level measurements (*regardless of brand*).

- Power supply: 24V DC $\pm$ 20%
- Safety level: SIL 3, PL e, SILCL 3, Cat. 4
- Connections: Removable (*screw terminal*) blocks
- Mounting: DIN rail mounting according to EN 50022-35 standard
- Dimensions: (H) 99 x (W) 22.5 x (D) 114 mm

Advantages

- Tamper-proof system configuration
- Reduced control panel dimension, design and construction time
- Logic configured via graphic interface, eliminating laborious wiring as with traditional solutions
- **Simulation function** allows to validate system functionality without connecting to a machine



Scan to watch video

type	model	digital inputs	Start / Restart inputs	OSSD safety outputs	status outputs	description	price
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Mosaic master units

Master units can operate as stand-alone device or expanded with additional I/O modules.

M1 - Standard master unit

- 2 pairs SIL 3 OSSD safety outputs (*PNP 400 mA*)
- 2 inputs for Start/Restart interlock and external device monitoring (*EDM*)
- 2 programmable digital status outputs (*PNP 100 mA*)
- 4 test outputs (*for sensor monitoring*)

1100000	M1	8	2	2 pairs	2	standard master controller	9 050.00
1100005	MZERO	16	4	4 pairs	4	standalone safety controller	13 300.00

M1S/M1S COM - Enhanced master unit

- 4 single SIL 3 OSSD or (*2 pairs*) safety outputs (*PNP 400 mA*)
- 4 inputs for Start/Restart interlock and external device monitoring (*EDM*)
- 4 programmable digital status outputs (*PNP 100 mA*)
- 4 test outputs (*for sensor monitoring*)
- Remote monitoring and built-in Ethernet IP, Modbus TCP, EtherCAT and Profinet (*M1S COM only*)

1100003	M1S	8	4	4 or (<i>2 pairs</i>)	4	enhanced master controller	11 400.00
1100006	M1S COM	8	4	4 or (<i>2 pairs</i>)	4	master controller builtin comms	17 100.00

Accessories for M1/M1S/COM master units

1100060	MCM	memory card to store or duplicate master unit configuration as a backup					977.00
1100061	MSC	rear bus connector required to connect to any expansion module					377.00
1100039	USB	USB configuration cable for M1S/M1S COM (Type C, length 1.8 m)					645.00
1100062	USB	USB configuration cable for M1/MZERO (A-mini B, length 1.8 m)					445.00

Mosaic - Expansion modules

Input/output expansion modules		provides additional digital inputs and outputs to the master unit					
1100010	M18O2	2x pairs SIL 3 OSSD safety outputs, 8x digital inputs, 2x status outputs					7 470.00
1100011*	M18O4	4x single SIL 3 OSSD safety outputs, 8x digital inputs, 4x status outputs					8 600.00
1100021	M116	16x digital inputs and 4x test outputs (<i>for sensor monitoring</i>)					7 170.00
1100025*	MA4	4x 4-20mA (or 0-10V) analogue inputs (<i>for analogue sensors</i>)					19 700.00

* Only compatible with M1S and M1SCOM enhanced Master unit.

1100031	MO4	4x pairs SIL 3 OSSD safety outputs, 4x status output					8 410.00
1100032	MO4LHC	4x single high current SIL 3 OSSD safety outputs (2A), 8x status output					9 050.00

Status outputs		provides additional non-safety outputs to the master unit					
1100092	MOS16	16x programmable digital (<i>non-safety</i>) signal outputs					6 340.00

Safety relays		provides safety relay outputs with guided contacts					
1100041	MR4	4x safety relay outputs with guided contacts (6A 250 VAC)					5 150.00
1100043	MOR4S8	4x configurable safety relay outputs with guided contacts					9 050.00

Communication		for connection to the most common industrial Field-bus systems			
1100050	MBP	Profibus DP	module for diagnostics and data communication		10 100.00
1100051	MBD	DeviceNET	module for diagnostics and data communication		12 700.00
1100052	MBC	CANopen	module for diagnostics and data communication		9 350.00
1100054	MBEI	EtherNET IP	module for diagnostics and data communication		7 410.00
1100082	MBMR	Modbus RTU	module for diagnostics and data communication		11 700.00
1100133	MBE COM	Multi-protocol	Ethernet IP, Modbus TCP, EtherCAT and Profinet		5 870.00

Safety interfaces and relays

Allows four different operating modes offering the possibility to connect and control different types of safety devices including: Safety Light Curtains, Solid-State-Output Devices (*i.e. RFID safety switch*), Dual-Channel Emergency Stops, Two-Hand Controls and Type 2 Safety Photocells

- Power supply: 24 VDC $\pm$ 20%
- Electrical connection: On terminal block
- Dimensions: Relays - (H) 101 x (W) 35 x (D) 120 mm
Interfaces - (H) 99 x (W) 22.5 (35 mm - ADSRM) x (D) 114 mm



Multifunction safety relay



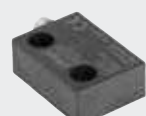
1330801

1330904

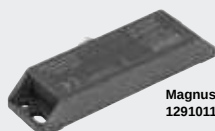


R-Safe RFID sensor

Serial connection - Up to 16 sensors with individual status output



Magnus MG S
1291001



Magnus MG B
1291011

type	model	no. of inputs	safety inputs	safety outputs	status outputs	description	price
Multifunction safety Interface				DIN rail mounting		PL e - Cat. 4	
1330941	SR SELECT	2	2	2NO	1	multifunction	4 420.00
Safety interface for emergency stop buttons and safety switches						PL e - Cat. 4	
1330913	ADSRE4	1	2 of 1	3NO+1NC	—	auto / manual start restart	4 300.00
1330803	SR E4	1	2	2NO	—	auto/manual start restart	3 560.00
Safety interface for safety light curtains						Type 4 - SIL 3 - SILCL 3 - PL e - Cat. 4	
1330801	SR ZERO	—	2	2NO+1NC	1	relay module for EOS X	2 460.00
1330802	SR ZERO A	—	2	2NO	1	relay module for EOS X	1 970.00
1330900	SR ONE	—	2	2NO	1	relay module for EOS X	3 500.00
1330904	SR ONE M	6	4	2NO	2	muting safety light curtain	4 780.00
Safety speed monitoring interface						(H) 108 x (W) 22.5 x (D) 114.5 mm	
1100078	SVMRO	2	2	2NO	2	over/zerospeed detection	11 000.00
1100088	SVMROU	2	2	2NO	2	underspeed detection	11 000.00
Safety interface for two-hand control						PL e - Cat. 4 Type III C (EN574)	
1330805	SR T	1	2	2NO	—	two hand control	3 810.00

RFID safety switches 24 VDC SIL 3 - SILCL 3 - PL e - Cat. 4

R-Safe RFID non-contact safety sensors ensure reliable, tamper-proof protection by monitoring protective doors, gates, and guards, uniquely identifying passive RFID transponders for high coding levels and effective anti-manipulation. Offers easy installation and integration into safety systems up to PL e/SIL 3, with sensors capable of being individually coded in two ways.



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- Generic coding:** The actuator is free and not specifically assigned to the sensor (*one actuator can work with multiple sensors*)
- Teach-in coding:** Programmed via teach-in and permanently assigned to sensor during set-up
- Indication: Super bright LED status indicators for immediate diagnostics
 - Output: 2 safety inputs and outputs and 1 diagnostic output
 - Connection type: M12 Connector, M12 Pigtail, cable
 - Mounting: Screw mounting **S** - inter-axis 22 mm
 - Can be installed individually or in series with up to 16 units (*accessories required*)
 - IP67 and IP69K protection (*cable versions only*) ensure excellent reliability in harsh environments

BASIC: Automatic restart / **PLUS:** Selectable Manual/Automatic restart and serial status output

type		switching distance (mm)	description	dimensions (mm)			price
				(H)	(W)	(D)	
R-Safe RFID		<i>supplied as sensor/actuator combination</i>					
1295016	BASIC C S G C	12...25	Generic coding, M12 connector	28.5	57	18	2 560.00
1295006	PLUS C S G C	12...25	Generic coding, M12 connector	28.5	57	18	2 810.00
1295013	BASIC C S G P	12...25	Generic coding, M12 pigtail	28.5	57	18	2 890.00
1295003	PLUS C S G P	12...25	Generic coding, M12 pigtail	28.5	57	18	3 180.00
1295010	BASIC C S G 5	12...25	Generic coding, 5 m cable	28.5	57	18	2 800.00
1295000	PLUS C S G 5	12...25	Generic coding, 5 m cable	28.5	57	18	3 060.00
1295007	PLUS C S T C	12...25	Teach-In coding, M12 connector	28.5	57	18	2 950.00
1295004	PLUS C S T P	12...25	Teach-In coding, M12 pigtail	28.5	57	18	3 340.00
1295001	PLUS C S T 5	12...25	Teach-In coding, 5 m cable	28.5	57	18	3 200.00
Magnetic safety switches		24 VDC	<i>(robust thermoplastic enclosure (PBT))</i>				
• Coded magnetic operation – tamper resistant • Sensor with M8/4pin connector: 2 x NO contacts							
1291000	MGS20	3...10	MGS compact mag. safety switches	36	13	26	1 170.00
1291001	MGSM	3...10	MGS mag. unit for above switches	36	13	26	388.00
1291010	MGB20	4...16	MGB rectangular mag. safety switches	88	25	14	1 100.00
1291011	MGBM	4...16	MGB mag. unit for above switches	88	25	14	316.00

Safety lockout hasps



BD-K01



BD-K45



BD-D04



BD-G01



BD-P01



(Excluding lockout hasps, tags etc...)

BD-B102

Safety lockout hasps

Safety lockout hasps permit multiple padlocks to be used when isolating one energy source. The lockout hasp is placed through the isolating point and closed.

Each person carrying out maintenance or service attaches their unique individually keyed padlock through the lockout hasp, thereby ensuring complete safety during maintenance operations. The hasp can only be removed once all padlocks have been removed.

type	jaw size Ø	colour	accepts padlocks shackle Ø	number	description	price
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Lockout hasp (steel PA coated)

- Scissor action hasp with Ø25 mm or 38 mm jaw size
- Accepts padlocks with a shackle diameter up to 9 mm (*up to 6 padlocks can be attached*)
- Manufactured from high tensile steel, electroplated to prevent rust
- Padlock section nylon PA coated (*red*) for improved grip and visibility

BD-K01	25 mm	red	9 mm	6	safety lockout hasp	52.00
BD-K02	38 mm	red	9 mm	6	safety lockout hasp	65.00

Nylon lockout hasp (Ø3 mm shackle)

- Made from hard nylon /ABS - highly visible
- Recommended for electrical panels MCCBs, motor protection circuit breakers

BD-K45	(H) 48 mm	yellow	9 mm	4	nylon slider hasp	71.00
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Stainless steel butterfly lockout hasp (316 Stainless steel)

- Marine grade 316 stainless steel
- Fits most switchgear
- Sturdy and durable for use in corrosive environments and mines

BD-K33	(H) 48 mm	red	5 mm	7	heavy duty SS hasp	183.00
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Circuit breaker lockouts

- Fits most existing types of European and Asian circuit breakers
- Recommended for use in combination with a padlock for added safety

BD-D01	pin-out ≤ 12 mm	red	7 mm	1	std MCB lockout	23.60
BD-D04	pin-out ≤ 20 mm	red	7 mm	1	wide MCB lockout	23.60
BD-D11	toggle ≤ 16 mm	red	7 mm	1	MCCB clamp-on lockouts	59.00
BD-D12	toggle ≤ 41 mm	red	7 mm	1	MCCB clamp-on lockouts	89.00

Lockout padlocks (supplied with two keys per lock)

Maximum security lockout padlocks made for tough environmental situations

- Contain "DANGER" standard labels front and back
- Stainless steel shackle

BD-G01	38 x 20 mm	red	6.2 mm	medium	shackle safety padlock	89.00
BD-G21	76 x 20 mm	red	6.2 mm	long	shackle safety padlock	107.00
BD-G22	76 x 20 mm	yellow	6.2 mm	long	shackle safety padlock	107.00
BD-G41	150 mm	red	3.2 mm	SS cable	shackle safety padlock	121.00
BD-G42	150 mm	yellow	3.2 mm	SS cable	shackle safety padlock	121.00

For other colours replace last digit with: 3= blue, 4= green, 5= black, 6= white, 7= orange, 8= purple

Lockout tags use with padlocks to indicate equipment has been locked and should not be operated

- Visible "Danger / Do not operate" warning, also "Name / department / Date" for self marking
- Tag resistant to common industrial chemicals, PET coated with 10 mm buttonhole for padlocks

BD-P01	145 x 75 mm	red/wht	10 mm	1	danger lockout tags	6.50
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Integrated lockout stations for storing lockout padlocks, hasps and tags

- Made of engineering plastic PC, durable one-piece design

BD-B101	5 hook positions each accommodate 2 padlocks or 4 hasps and several tags	795.00
BD-B102	14 hook positions each accommodate 2 padlocks or 4 hasps and several tags	1 300.00

Electric slider / Heavy Duty hasp



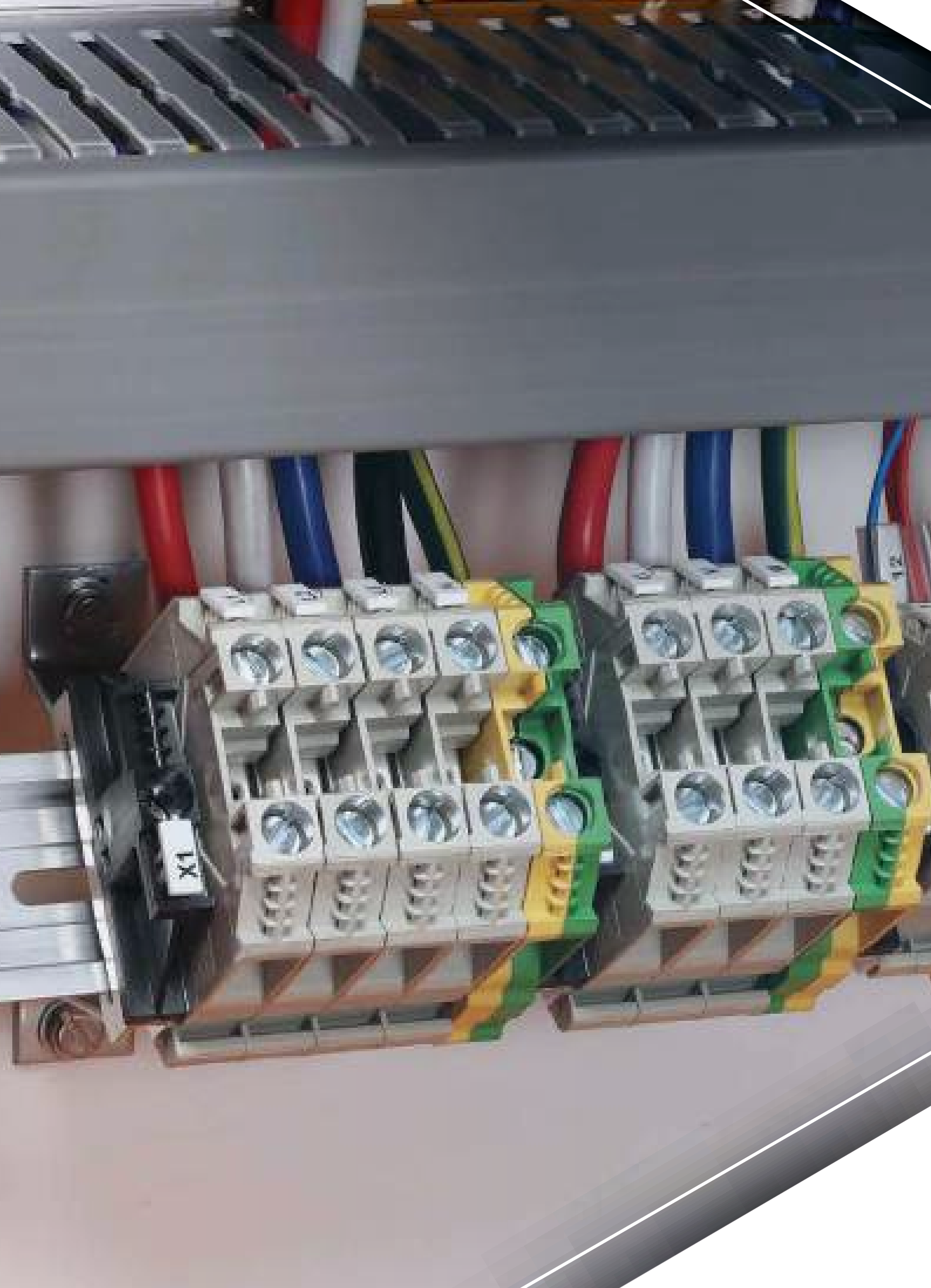
SM1P006 + BD-K45



HMW630JR + BD-K33

Smoke detectors

		Photoelectric smoke detectors				
		type	supply voltage	standby current	alarm	description
						price
		Q series smoke detectors				
		EN54 compliant				
		- Dual, bicolour LEDs (green: standby / red: alarm) offer 360° sensing - Standard detector (4 wire) with relay output 0.8A - 30 VDC / 0.4A - 250 VAC - Made of high endurance, solid and colour-fast fire-proof plastic - Termination base (with captive screws) for easy installation - Passed strict EMC tests, illuminating false alarms caused by interference from nearby devices				
		Smoke detector (Ø)102 mm x (H) 48 mm				
	Q01-4	Q01-4*	12 - 30 VDC	25 - 75µA	45 mA	photoelectric smoke detector
	Q05-4	Q05-4*	12 - 30 VDC	55 - 85µA	45 mA	combination smoke + heat detector
		8011 series smoke detectors				
		EN54 compliant				
		- Dual LEDs offer 360° sensing - Standard detector 2 wire – available in 4 wire (relay output) on request - Made of high endurance, solid and colour-fast fire-proof plastic - Termination base (with captive screws) for easy installation				
		Smoke detector (Ø)102 mm x (H) 47 mm				
	8011-3	8011-3*	12 - 30 VDC	25 - 75µA	40 mA	photoelectric smoke detector
		Accessories for above smoke detectors				
		06MB	Flush mount frame	for sensors	Q01-4, Q05-4, 8011-3	116.00
		QA31 series single station smoke detector				
		EN54 compliant				
		- Advanced photoelectric technology for precise detection - Equipped with 9 VDC battery and 220 VAC power plug - Low-battery warning (flashing LED indicates battery replacement) - Built-in manual test button, buzzer (90dB/meter) and flashing LED - Standard detector (4 wire) with relay output 0.8A- 30 VDC / 0.4A - 250 VAC - Independent stand-alone device – can be installed without any wiring				
		Single station smoke detector (Ø)105 mm x (H) 40 mm				
	QA31-4	QA31-4	100 - 220 VAC and/or 9V battery supply			photoelectric smoke detector
		Manual call point “in case of fire” break-glass devices				
		- Surface mount with plastic film on glass (H) 88 x (W) 88 x (D) 52 mm - Test key inserts from bottom - Suitable for majority of conventional fire alarm systems - Operating contact 6A 250 VAC				
	AH-0217	AH-0217*		emergency “break glass” manual call point enclosure		316.00
		Audible and visual indicating devices				
		Audible sounder and beacon IP44				
		Electronic sounder designed for use with fire alarm, security and industrial signalling systems.				
		32 - signal tones selectable by Dip switch - High sound output with low current consumption - Volume control as standard (0 - 20dB adjustable) - Two sets of input and output terminals for easy installation				
	AH-03127-BS	AH-03127-S*	24 VDC	14.5mA	surface mount (Ø92.5 mm) electronic sounder	924.00
		AH-03127-BS*	24 VDC	14.5mA	electronic sounder and illuminated beacon	1 080.00
		Fire alarm bell				
		- Bell with ABS plastic base for easy mounting and total insulation from electricity - Motor energised, low power consumption, long operating life				
		NQ418*	24 VDC	28mA	4" (100 mm) bell 90dB @1meter	324.00
	NQ418	NQ618*	24 VDC	28mA	6" (152 mm) bell 90dB @1meter	501.00
		* Works in conjunction with fire control systems				



Termination & Wiring



Screw connection
rail-mount
terminals
L-1/3...6



Push-in
rail-mount
terminals
L-2/7



Terminal
accessories
L-8...9



Slotted
cable trunking
L-11



Din mounting
rail
L-13



Drag-chain
cable carriers
L-14



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L-15...16



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L-17...21



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L-22...24



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Distribution
blocks & Busbar
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busbar & Braided
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Thermal transfer
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L-10/48...56

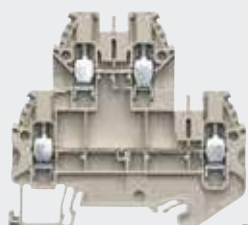
Screw connection rail-mount terminals



58.504.0055.0



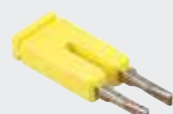
58.506.9055.0



58.504.7055.0



58.504.5155.0



Z7.284.7027.0

WT series - Terminal blocks - with screw connection technology

- Universal screw connection system (*one-piece thread for stress free connection and re-connection*)
- Compact dimensions - uniform design - universal marking system
- Double cross connection row accepts pluggable cross connectors (*plug-in bridge bars*)

type	model	colour	wire size mm ²	amperage IEC 947-7-1	term. width	maximum voltage	price
WT through terminals		1000V	<i>(universal terminal block)</i>				
58.503.0055.0	WT2.5	grey	0.14...4	24A	5 mm	1000 V	12.10
58.504.0055.0	WT4	grey	0.14...6	32A	6 mm	1000 V	13.20
58.506.0055.0	WT6	grey	0.2...10	41A	8 mm	1000 V	27.60
58.510.0055.0	WT10	grey	0.5...16	57A	10 mm	1000 V	31.80
58.503.0055.6	WT2.5BL	blue	0.2...4	24A	5 mm	1000 V	23.90
58.504.0055.6	WT4BL	blue	0.5...6	32A	6 mm	1000 V	25.70
58.506.0055.6	WT6BL	blue	0.14...10	41A	8 mm	1000 V	39.20
58.510.0055.6	WT10BL	blue	0.14...16	57A	10 mm	1000 V	46.00

WT earth terminals*yellow/green screw-less, clip-on earth terminals*

58.503.9055.0	WT2.5PE	yel/grn	0.14...4	—	5 mm	1000 V	45.00
58.504.9055.0	WT4PE	yel/grn	0.14...6	—	6 mm	1000 V	45.00
58.506.9055.0	WT6PE	yel/grn	0.2...10	—	8 mm	1000 V	63.00
58.510.9055.0	WT10PE	yel/grn	0.5...16	—	10 mm	1000 V	71.00

End plates*for above terminals*

07.313.2555.0	APWT2.5-10	grey	end plate		for term.	WT2.5/4/6/10	8.00
07.313.2655.0	TWWT2.5-10	grey	partition plate		for term.	WT2.5/4/6/10	11.10

Multi-tier terminal blocks

500V

58.504.5055.0	WT4D1/2	grey	0.14...6	32A	6 mm	500 V	44.00
58.504.5155.0	WT4D2/2	grey	0.14...6	32A	6 mm	500 V	51.00
58.504.7055.0	WT4E	grey	0.14...6	32A	6 mm	800 V	43.00
07.313.2955.0	APWT4D1/2	grey	end plate		for term.	WT4D1/2	11.10
07.313.3155.0	APWT4D2/2	grey	end plate		for term.	WT4D2/2	12.30
07.313.3355.0	APWT4E	grey	end plate for two-tier		for term.	WT4E	12.30
07.313.2855.0	TWWT4E	grey	partition for two tier		for term.	WT4E	14.10

Disconnect terminal block*hinged blade type*

58.503.2055.0	WT2.5TKM	grey	0.14...4	20A	5 mm	500 V	75.00
58.504.2055.0	WT4TKM	grey	0.14...6	24A	6 mm	500 V	79.00
07.313.2955.0	APWT4D1/2	grey	end plate		for term.	WT2.5/4TKM	11.10
07.313.2855.0	TWWT4E	grey	partition plate		for term.	WT2.5/4TKM	14.10

Plug-in cross connectors (bridging bars)*for WT and WTP terminal blocks*

WT series terminals feature a two-row, plug-in jumpering channel, permitting variable potential distribution through use of a chain arrangement, providing a vibration-proof connection.

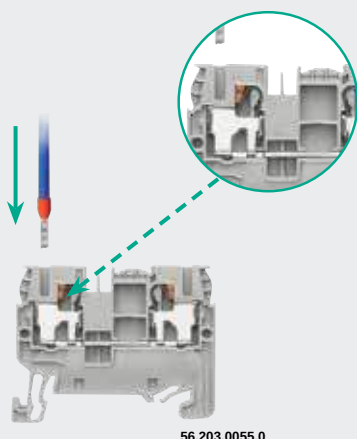
Any number of plug-in jumpers can be connected in succession as necessary.

- Robust combination of copper current bar and indestructible steel spring individually fabricated

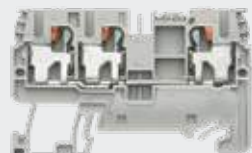
		poles					
Z7.284.7027.0	IBWTP1.5-2	2-pole	plug-in bridging bar	for term.	WTP1.5		8.00
Z7.284.7127.0	IBWTP1.5-3	3-pole	plug-in bridging bar	for term.	WTP1.5		14.70
Z7.284.7227.0	IBWTP1.5-4	4-pole	plug-in bridging bar	for term.	WTP1.5		23.30
Z7.284.7327.0	IBWTP1.5-5	5-pole	plug-in bridging bar	for term.	WTP1.5		31.20
Z7.280.6227.0	IBWKF2.5-2	2-pole	plug-in bridging bar	for term.	WT2.5/P2.5/4		9.20
Z7.280.6327.0	IBWKF2.5-3	3-pole	plug-in bridging bar	for term.	WT2.5/P2.5/4		17.80
Z7.280.6427.0	IBWKF2.5-4	4-pole	plug-in bridging bar	for term.	WT2.5/P2.5/4		27.00
Z7.280.6527.0	IBWKF2.5-5	5-pole	plug-in bridging bar	for term.	WT2.5/P2.5/4		36.10
Z7.280.7027.0	IBWKF2.5-10	10-pole	plug-in bridging bar	for term.	WT2.5/P2.5/4		81.00
Z7.280.8027.0	IBWKF2.5-20	20 pole	plug-in bridging bar	for term.	WT2.5/P2.5/4		172.00
Z7.261.1227.0	IBWKF4-2	2-pole	plug-in bridging bar	for term.	WT4		9.80
Z7.261.1327.0	IBWKF4-3	3-pole	plug-in bridging bar	for term.	WT4		19.00
Z7.261.1427.0	IBWKF4-4	4-pole	plug-in bridging bar	for term.	WT4		28.20
Z7.261.1527.0	IBWKF4-5	5-pole	plug-in bridging bar	for term.	WT4		38.00
Z7.261.2027.0	IBWKF4-10	10-pole	plug-in bridging bar	for term.	WT4		86.00
Z7.282.5227.0	IBWKF6-2	2-pole	plug-in bridging bar	for term.	WT6/WTP6/10		19.00
Z7.282.5327.0	IBWKF6-3	3-pole	plug-in bridging bar	for term.	WT6/WTP6/10		29.40
Z7.282.5427.0	IBWKF6-4	4-pole	plug-in bridging bar	for term.	WT6/WTP6/10		45.00
Z7.282.5527.0	IBWKF6-5	5-pole	plug-in bridging bar	for term.	WT6/WTP6/10		57.00
Z7.283.8227.0	IBWKF10-2	2-pole	plug-in bridging bar	for term.	WT10		39.20

See DIN mounting rail

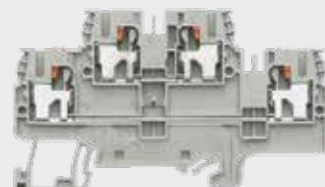
Push-in rail-mount terminals



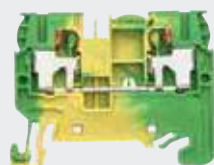
56.203.0055.0



56.203.5055.0



56 203 7055 0



56.203.9055.0



56.203.9355.0

Fasis WTP series - Terminal blocks - *with push-in connection technology*

- Terminate wires easily, directly and without tools (*wires simply push-in to terminals*)
- Integrated release lever - no contact with live parts - flat or star screwdriver release button
- Compact dimensions - uniform design - universal marking system
- Double cross connection row on all terminals for pluggable cross connectors (*plug-in bridge bars*)
- Designed for use in machinery and plant engineering, as well as power distribution for buildings
- Connects a control cabinet quickly, reducing installation time and keeps inventory costs to a minimum

type	model	wire size mm ²	amperage IEC 947-7-1	terminal width	terminal in	terminal out	max. voltage	price
Feed-through terminals with push-in connection								
56.202.0055.0	WTP1.5	0.14...1.5	17.5A	3.5 mm	1	1	500 V	17.20
56.203.0055.0	WTP2.5/4	0.2...4	30A	5 mm	1	1	800 V	14.70
56.203.5055.0	WTP2.5/4D1/2	0.2...4	32A	5 mm	1	2	800 V	23.30
56.203.5155.0	WTP2.5/4D2/2	0.2...4	32A	5 mm	2	2	800 V	30.60
56.203.7055.0	WTP2.5/4E	0.2...4	24A	5 mm	2	2	500 V	47.00
56.206.0055.0	WTP6/10	0.2...10	57A	8 mm	1	1	1000 V	39.20

Feed-through terminals

blue push-in terminals

56.202.0055.6	WTP1.5BL	0.14...1.5	17.5A	3.5 mm	1	1	500 V	17.20
56.203.0055.6	WTP2.5/4BL	0.2...4	30A	5 mm	1	1	800 V	20.20
56.206.0055.6	WTP6/10BL	0.2...10	57A	8 mm	1	1	1000 V	36.70

Earth terminals

yellow/green

- screwless, clip-on earth terminals / plug-in bridging bars

56.202.9055.0	WTP1.5PE	0.14...1.5	17.5A	3.5 mm	1	1	500 V	59.00
56.203.9055.0	WTP2.5/4PE	0.2...4	32A	5 mm	1	1	800 V	46.00
56.203.9355.0	WTP2.5/4D1/2PE	0.2...4	32A	5 mm	1	2	800 V	77.00
56.206.9055.0	WTP6/10PE	0.2...10	57A	8 mm	1	1	1000 V	92.00

End plates/partitions - For above WTP terminals

07.313.4455.0	APWTP1.5	terminal insulated end plate for	WTP1.5	8.00
07.312.6755.0	APFN2.5	terminal insulated end plate for	WTP2.5/4	9.80
07.312.6955.0	APFN2.5D1/2	terminal insulated end plate for	WTP2.5/4D1/2	11.10
07.312.7155.0	APFN2.5D2/2	terminal insulated end plate for	WTP2.5/4D2/2	12.30
07.312.7355.0	APFN2.5E	terminal insulated end plate for	WTP2.5/4 E	13.50
07.313.4155.0	APWTP6/10	terminal insulated end plate for	WTP6/10	12.90
07.312.6855.0	TWFN2.5	terminal insulated partition plate for	WTP2.5/4	9.80
07.312.7055.0	TWFN2.5D1/2	terminal insulated partition plate for	WTP2.5/4D1/2	11.10
07.312.7255.0	TWFN2.5D2/2	terminal insulated partition plate for	WTP2.5/4D2/2	12.30
07.312.7455.0	TWFN2.5E	terminal insulated partition plate for	WTP2.5/4E	13.50
07.313.4255.0	TWWTP6/10	terminal insulated partition plate for	WTP6/10E	12.90

Accessories for all Wieland terminals

End stops for all terminals

Z5.523.9353.0	WEF1/35	"snap-on"	8 mm	terminal end stop	16.60
Z5.523.9453.0	WEF2/35	"snap-on"	5 mm	terminal end stop	16.10
Z5.522.8553.0	9708/2S35	"screw-on"	8 mm	terminal end stop	12.30
Z5.523.5753.0	WE 1/U	"screw-on"	10 mm	terminal end stop	50.00

Test terminal

Z1.299.9753.0	PSWKC/F	0.14...4	plug-in test terminal for	WT/WTP 2.5/4	86.00
07.312.6053.0	ZP/APPS	—	end plate for above test terminal	PS WKC/F	41.00

Terminal markers for all Wieland terminals

- Universal marking system
- Maximum hold to the terminal
- Marking strips ideal for service and maintenance

41490/PS	10 x 5 mm	self marking tag for use with Cembre printer	card of 56 pcs	106.00
9704A/*B	numeral marking tags - strip 10 similar markers		(25 x strips of 10pcs = 250 per pack)	10.40
9704A/*GB	alphabetical marking strips 10 similar markers		(25 x strips of 10pcs = 250 per pack)	10.40
* Replace by:	1/2/3/4/5/6/7/8/9/0/+/- (example 9704A/5B)			
	❖ A/B/C/D/E/F/G/H/I/J/K/L/M/N/O/P/Q/R/S/T/U/V/W/X/Y/Z			
9705A/6	marker adaptor	(increases marking area to 6 digits)	all terminals	5.60

Bridging bars - (plug-in cross connectors, see page L-1)

See DIN mounting rail

Screw connection rail-mount terminals



57.510.0155.0



57.535.0155.0



56.135.1055.0 + 07.431.7053.8



57.504.9055.0



57.910.5055.0



57.904.5355.0



Z5.522.8553.0

WK series - Terminal blocks - with screw connection technology

- Universal marking system
- Reliable and maintenance-free
- Multi-tier blocks in two- and three-tier designs
- Approvals: SEV / ASEV / RINA / VDE / UL / CSA
- Conformity: IEC60947-7-1 / IEC60685-2-2 / IEC60685-1 / CEI22223-20/21 / VDE0611/ CSA C22.2 / UL1059

type	model	wire size mm ²	amperage IEC 947-7-1	terminal width		maximum voltage	price
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Through terminals blocks *universal EN50022 (DIN 35) and EN50035 (G rail)*

57.503.0055.0	WK2.5/U	0.5...2.5	26A	5 mm	—	1000 V	14.10
57.504.0055.0	WK4/U	0.5...4	35A	6 mm	—	1000 V	15.30
57.506.0055.0	WK6/U	0.5...6	46A	8 mm	—	1000 V	24.50
57.510.0155.0	WKN10/U	2.5...10	63A	10 mm	—	1000 V	39.80
57.516.0155.0	WKN16/U	4...16	85A	12 mm	—	1000 V	54.00
57.535.0155.0*	WKN35/U	10...35	125A	16 mm	—	1000 V	89.00
57.570.0155.0*	WKN70/U	10...70	192A	24 mm	—	1000 V	497.00

Stud terminal blocks *bolt to bolt through terminal*

56.135.1055.0	WRT35/M6	2.5...50	125A	27 mm	M6	1000 V	260.00
56.170.1055.0	WRT70	2.5...95	192A	32 mm	M8	1000 V	361.00
56.197.1055.0	WRT120	6...150	269A	42 mm	M10	1000 V	443.00
56.198.1055.0	WRT185	10...240	353A	55 mm	M12	1000 V	641.00
56.199.1055.0	WRT300	25...240	520A	55 mm	M16	1000 V	765.00

End plates/partitions - for above terminals

07.311.0155.0	AP2.5-4	terminal end plates	for term.	WK2.5/4	8.60
07.311.0255.0	AP6	terminal end plates	for term.	WK6	9.80
07.311.6655.0	APN10	terminal end plates	for term.	WK10	11.70
07.311.6755.0	APN16	terminal end plates	for term.	WK16	17.20
07.431.7053.8	ADWRT35	terminal cover (2 req. per terminal)	for term.	WRT35	39.80
07.431.7153.8	ADWRT70	terminal cover (2 req. per terminal)	for term.	WRT70	46.00
07.431.7253.8	ADWRT120	terminal cover (2 req. per terminal)	for term.	WRT120	59.00
07.431.7353.8	ADWRT185/300	terminal cover (2 req. per terminal)	for term.	WRT185/300	81.00
07.311.1155.0	TW2.5-4	terminal end plate/partition	for term.	WK2.5/4	12.30
07.311.1255.0	TW6	terminal end plate/partition	for term.	WK6	12.30
07.311.7655.0	TWN10	terminal end plate/partition	for term.	WK10	13.50
07.311.7755.0	TWN16	terminal end plate/partition	for term.	WK16	19.00

Earth terminal blocks *yellow/green screw-on earth terminals*

57.504.9055.0*	WK4SL/U	0.5...4	—	6 mm	—	1000 V	66.00
57.506.9055.0*	WK6SL/U	0.5...6	—	8 mm	—	1000 V	85.00
57.510.9055.0*	WKN10SL/U	2.5...10	—	10 mm	—	1000 V	121.00
57.516.9055.0*	WKN16SL/U	4...16	—	12 mm	—	1000 V	144.00
57.535.9055.0*	WKN35SL/U	10...35	—	16 mm	—	1000 V	262.00

Multi-tier terminal blocks

57.403.7055.0	WKN2.5E/U	0.14...2.5	24A	5 mm	2 tier	500 V	73.00
07.312.1755.0	APN2.5E	terminal end plate for above			for term.	WK2.5E/U	15.90
57.503.8855.0*	WK2.5-3D/U	0.5...2.5	24A	6 mm	3 tier	400 V	148.00
57.503.7855.0*	WK2.5-4KI/U	0.5...2.5	24A	6 mm	3 tier (sensor)	250 V	87.00

Fuse terminal blocks *accepts 20 x 5 mm fuses*

- Integrated lever-action fuse block with screw connection for mounting on DIN rail
- The standard block has a storage location for a replacement fuse.

57.904.5355.0*	WK4/THSI5/U	0.5...4	6.3A	8 mm	800 V	89.00
57.910.5055.0	WK10/SI/U	1...10	10A	12 mm	500 V	144.00
07.311.4155.0	AP10/SI	terminal end plate for above		for term.	WK10/Si/U	12.90

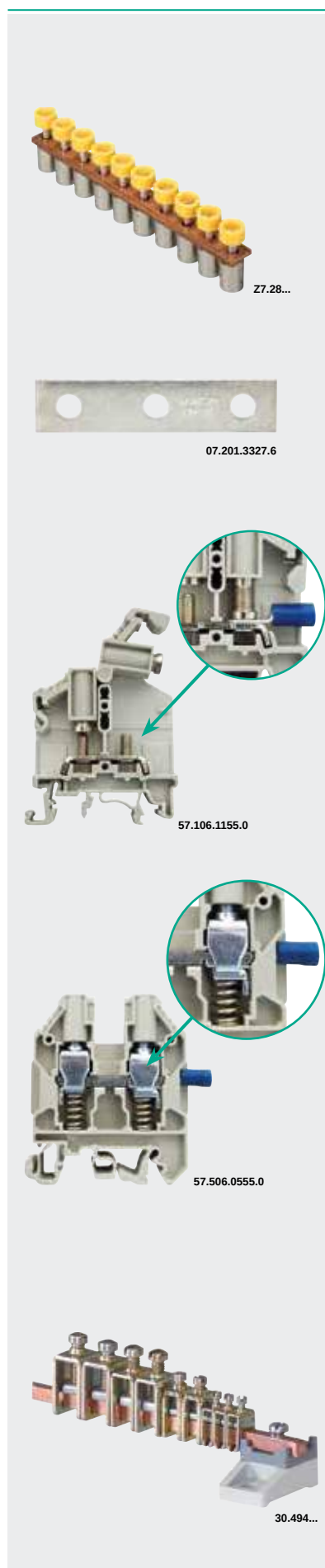
End stops for all terminals

Z5.523.9353.0	WEF1/35	screwless	rail mount	8 mm	"snap-on" term. end stop	16.60
Z5.523.9453.0	WEF2/35	screwless	rail mount	5 mm	"snap-on" term. end stop	16.10
Z5.522.8553.0	9708/2S35	screw mnt	rail mount	8 mm	"screw-on" term. end stop	12.30
Z5.523.5753.0	WE1/U	screw mnt	rail mount	10 mm	"screw-on" term. end stop	50.00

* Fully insulated terminal (no end plate required)

See DIN mounting rail

Screw & clamp connection terminals



Bridging bars screw-in type for WK series terminals

type	model	wire size mm ²	no. ways	description	for terminal	price
Z7.280.0027.0	VBWK2.5M	2.5	80-way	bridging bar for terminal	WK2.5/U	586.00
Z7.281.0027.0	VBWK4M	4	70-way	bridging bar for terminal	WK4/U	521.00
Z7.282.0027.0	VBWK6M	6	40-way	bridging bar for terminal	WK6/U	482.00
Z7.283.6027.0	VBWKN10M	10	40-way	bridging bar for terminal	WKN10/U	643.00
Z7.284.2027.0	VBWKN16M	16	30-way	bridging bar for terminal	WKN16/U	1 070.00
Z7.285.2027.0	VBWKN35M	35	20-way	bridging bar for terminal	WKN35/U	939.00

Jumper bars screw-in type for WK series terminals

07.201.1227.6	VBWRT35-2	35	2-way	jumper bar for terminal	WRT35	59.00
07.201.1327.6	VBWRT35-3	35	3-way	jumper bar for terminal	WRT35	79.00
07.201.3227.6	VBWRT70-2	70	2-way	jumper bar for terminal	WRT70	84.00
07.201.3327.6	VBWRT70-3	70	3-way	jumper bar for terminal	WRT70	108.00
07.201.5227.6	VBWRT120-2	120	2-way	jumper bar for terminal	WRT120	171.00
07.201.5327.6	VBWRT120-3	120	3-way	jumper bar for terminal	WRT120	213.00
07.201.7227.6	VBWRT185-2	185	2-way	jumper bar for terminal	WRT185	244.00
07.201.7327.6	VBWRT185-3	185	3-way	jumper bar for terminal	WRT185	341.00
07.201.9227.6	VBWRT300-2	300	2-way	jumper bar for terminal	WRT300	281.00
07.201.9327.6	VBWRT300-3	300	3-way	jumper bar for terminal	WRT300	453.00

WRT series - Terminal block with screw bolt connection (accommodates ring lugs)

Designed for secure and efficient electrical connections, featuring a standard through terminal with threaded stud termination. The incorporation of a hinged section nut allows for the easy accommodation of ring lugs, providing a secure and safe connection.

This design ensures that cables remain securely connected, even in the event of a loosened screw, thanks to the robust screw bolt system that delivers consistent torque application

- Universal screw bolt - ring lug connection system (M4)
- Hinged terminal screw for easy access of ring lugs
- Universal marking system

type	model	wire size (stranded)	amperage IEC 947-7-1	term. width	max. voltage	price
57.106.1155.0	WRT6	1.5...6	41A	11 mm	1000V	114.00
07.300.6955.0	APRT6	end plate for above terminal			for term. WRT6	17.20

WKN spring supported screw connection terminal block

This terminal features a spring-supported screw connection that is optimized for use with hook blade terminals. The innovative spring mechanism not only ensures a stable and safe connection but also prevents the hook blade lug from exiting the terminal, even in the event of a loosened screw.

With a standard through terminal and threaded stud termination, the WKN model also incorporates a hinged section nut for easy integration with ring lugs

57.506.0555.0	WKN6SF	0.5...6	41A	8 mm	800 V	84.00
57.510.0555.0	WKN10SF	2.5...10	57A	10 mm	800 V	93.00
07.313.2355.0	APN6SF	end plate for above terminal			for term. WKN 6 SF	9.80
07.313.2455.0	APN10SF	end plate for above terminal			for term. WKN 10 SF	12.30

WAK busbar termination (earth/neutral)

Busbar (1 meter length)

GI06006.1	6 x 6 mm	120A	1 meter	busbar for WAK terminals	339.00
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Busbar support

19.230.0040.0	KSO11/1ZKR	support	busbar support for 6 x 6 mm bars	63.00
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Terminals - slide-on - earth or neutral

- Steel - zinc plated (galvanised)

30.494.0010.0	AK4/1	0.5...4	41A	clamp terminal for 6 x 6 mm busbar	11.70
30.494.1010.0	AK16/1	1...16	76A	clamp terminal for 6 x 6 mm busbar	15.90
30.494.1110.0	AK25/3	2.5...25	41A	clamp terminal for 6 x 6 mm busbar	33.10
30.494.2510.0	AK35/3	2.5...35	125A	clamp terminal for 6 x 6 mm busbar	36.10

See DIN mounting rail

Screw clamp rail-mount terminals



304370



304120



304141



304151



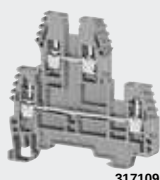
462121



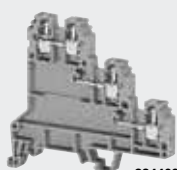
304300



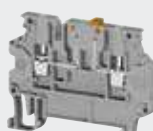
334210



317109



324409



304419

AVK series - Screw clamp terminals

type	wire size (mm²)	amperage EN60947-7-1	terminal width		description	price
Standard feed through terminals						
304120	2.5 mm	24A	5 mm	grey	rail mount screw clamp terminal	8.20
304130	4 mm	32A	6 mm	grey	rail mount screw clamp terminal	9.80
304140	6 mm	41A	8 mm	grey	rail mount screw clamp terminal	14.10
304150	10 mm	57A	10 mm	grey	rail mount screw clamp terminal	18.70
304121	2.5 mm	24A	5 mm	blue	rail mount screw clamp terminal	9.40
304131	4 mm	32A	6 mm	blue	rail mount screw clamp terminal	11.30
304141	6 mm	41A	8 mm	blue	rail mount screw clamp terminal	14.10
304151	10 mm	57A	10 mm	blue	rail mount screw clamp terminal	18.70
304240	16 mm	76A	12 mm	grey	rail mount screw clamp terminal	32.40
304290	25 mm	101A	12 mm	grey	rail mount screw clamp terminal	54.00
304250*	35 mm	125A	16 mm	grey	rail mount screw clamp terminal	62.00
304330*	50 mm	150A	20 mm	grey	rail mount screw clamp terminal	152.00
304190*	70 mm	192A	22 mm	grey	rail mount screw clamp terminal	270.00
304340*	95 mm	232A	25 mm	grey	rail mount screw clamp terminal	284.00
304350*	150 mm	309A	31 mm	grey	rail mount screw clamp terminal	392.00
304360*	240 mm	415A	36 mm	grey	rail mount screw clamp terminal	528.00

* Fully insulated (no end plate required)

304370	6 mm	41A	8 mm		plug-in auxiliary term. for 304 340/50/60	26.90
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End plates for above terminals

444120	end plate	2.5 - 10	1.5 mm	grey	for 2.5-4-6-10 mm terminals	4.70
444121	end plate	2.5 - 10	1.5 mm	blue	for 2.5-4-6-10 mm terminals	4.70
444170	end plate	16 mm	1.5 mm	grey	for 16 mm terminals	7.40
450250	end plate	25 mm	1.5 mm	grey	for 25 mm terminals	8.10
462120	partition	2.5 - 10	1.5 mm	grey	for 2.5-4-6-10 mm terminals	5.50
462121	partition	2.5 - 10	1.5 mm	blue	for 2.5-4-6-10 mm terminals	5.50
462170	partition	16 mm	1.5 mm	grey	for 16 mm terminals	11.40

Stud terminals (bolt and nut termination top and bottom)

304300	95 mm	232A	40 mm	grey	rail mount stud terminal	241.00
304310	150 mm	309A	48 mm	grey	rail mount stud terminal	374.00
304320	240 mm	415A	53 mm	grey	rail mount stud terminal	534.00

Covers for above stud terminals

466100	cover	—			hinged isolation cover for stud terminal 304 300	37.40
466110	cover	—			hinged isolation cover for stud terminal 304 310	47.00
466120	cover	—			hinged isolation cover for stud terminal 304 320	57.00

Earth terminals - (fully insulated no end cover required)

334170	2.5 mm	—	5 mm	grn/yell	rail mount earth terminal	33.40
334450	4 mm	—	6 mm	grn/yell	rail mount earth terminal	44.00
334460	6 mm	—	8 mm	grn/yell	rail mount earth terminal	44.00
334470	10 mm	—	10 mm	grn/yell	rail mount earth terminal	49.00
334200	16 mm	—	12 mm	grn/yell	rail mount earth terminal	119.00
334210	35 mm	—	16 mm	grn/yell	rail mount earth terminal	94.00
334190	50 mm	—	20 mm	grn/yell	rail mount earth terminal	298.00

Multi-tier terminals (PIK/PUK)

317109	2.5 mm	24A	5 mm	two tier	rail mount terminal	21.10
319109	4 mm	32A	6 mm	two tier	rail mount terminal	28.10
324109	2.5 mm	24A	6 mm	three tier	rail mount terminal	43.00
324409	2.5 mm	24A	6 mm	three tier	sensor terminal	43.00
449019	end plate	2.5/4 mm	1.5 mm	for 2.5/4 mm 2 tier terminal	317/9109	13.20
450139	end plate	2.5 mm	1.5 mm	for 2.5 mm 3 tier terminal	324109	6.90
450169	end plate	2.5 mm	1.5 mm	for 2.5 mm sensor terminal	324409	9.20

Disconnect terminals (AVK)

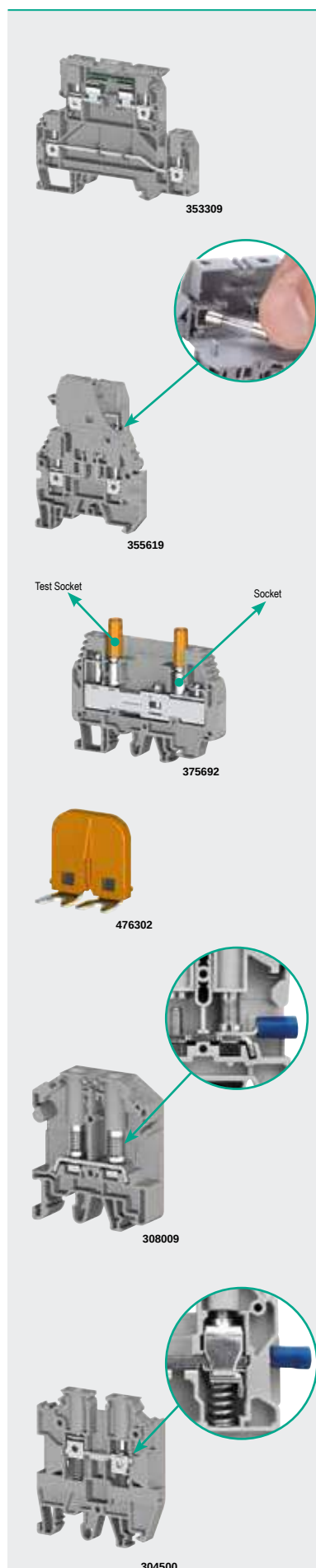
304419*	2.5 mm	16A	5 mm	grey	rail mounting disconnect terminal	29.70
304380*	4 mm	20A	6 mm	grey	rail mounting disconnect terminal	30.60
450330	end plate	2.5/4 mm	1.5 mm	for above disconnect terminals	304419/380	7.10

* 2.5/4 mm terminals accept plug-in bridge pieces 2/3/4/10 way (see page L-7)

Terminal accessories, see page L-8...9

See DIN mounting rail

Screw clamp rail-mount terminals



AVK series - Screw clamp terminals

type	wire size (mm ²)	amperage EN60947-7-1	terminal width	description		price
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Fuse terminals (AVK) - accept 5 x 20 mm fuses

Low profile fused terminal - for 5 x 20 mm fuses

351109	6 mm	6.3A	8 mm	low profile fused terminal	—	26.10
351229	6 mm	6.3A	8 mm	fused term. LED indication	24 VDC	54.00
351619	6 mm	6.3A	8 mm	fused term. LED indication	220 VAC	54.00

450049	end plate	—	1.5 mm	for above 351 ... fused terminals		9.50
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Fused terminal with pluggable fuse section (supports spare fuse)

355109*	4 mm	10A	6.2 mm	plug-in fuse terminal	—	47.00
355229*	4 mm	10A	6.2 mm	fused term. LED indication	24 VDC	75.00
355619*	4 mm	10A	6.2 mm	fused term. LED indication	220 VAC	75.00
450059	end plate	—	1.5 mm	for above 355 ... fused terminals		8.70

Two tier 1 x fused and 1 x through terminal (AVK) (supports spare fuse)

353309*	4 mm	6.3A	8 mm	two tier (one fused)		71.00
353329*	4 mm	6.3A	8 mm	fused term. LED indication	24 VDC	118.00
450209	end plate	—	1.5 mm	for above 353 ... fused terminals		16.60

* 355/353--- terminals accept plug-in bridge pieces (2/3/4/10 way) (see page L-8)

Comb bridging bars (cross-connection) for above 355/353 series terminals

type	ref.	poles	for term. width	description		price
476282	TKO6/2	2-pole	8 mm	comb bridge for std screw terminal	304 140	14.40
476283	TKO6/3	3-pole	8 mm	comb bridge for std screw terminal	304 140	17.60

* 355/353--- terminals accept plug-in bridge pieces (2/3/4/10 way) for more options, see page L-8

Special application terminals

WGO test / disconnect terminals

Used to perform required tests without disconnecting the system. Usually installed on secondary side of current transformers, permitting observation of testing equipment safe exchange of meters by bridging secondary side of transformer during exchange

375690	6 mm	41A	8 mm	terminal without test socket		76.00
375691	6 mm	41A	8 mm	terminal with test socket		89.00
375692	6 mm	41A	8 mm	terminal with double test socket		103.00
476302	2-pole			sliding bridge/cross connector	for above test terminals	8.50
476303	3-pole			sliding bridge/cross connector	for above test terminals	15.00
476304	4-pole			sliding bridge/cross connector	for above test terminals	18.20
450229	end plate	—		for above test terminals	375690/1/2	8.40

2PB6/NM - Terminal block with screw bolt connection (accommodates ring lugs)

Standard through terminal with threaded stud termination, incorporating a hinged section nut to accommodate a ring lug, provides a secure, safe connection preventing cable from disconnection in the event of loosened screw.

- Universal screw bolt - ring lug connection system (M4)
- Hinged terminal cover for easy access for ring lugs

PB6/NM - Terminal with stud connection to accept ring lugs

308009	0.5...6	41A	11 mm	bolt connection terminal block		69.00
451019	end plate	—		for above bolt connection terminal	308009	5.20

AVK Y series - Spring supported screw connection terminal block

Special application terminal with spring supported screw connection for use with hook blade terminals the spring provides a secure, safe connection, simultaneously preventing hook blade lug from exiting the terminal even in the event of a loosened connection.

304500	0.2...6	32A	6 mm	spring assisted terminal block		28.50
304510	0.5...10	41A	8 mm	spring assisted terminal block		29.80
304520	0.5...16	57A	10 mm	spring assisted terminal block		30.70
450300	end plate	—		for above spring assisted terminal	304500/10	5.50
450260	end plate	—		for above spring assisted terminal	304520	5.50

Terminal accessories, see page L-8...9

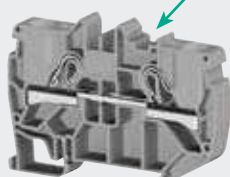
See DIN mounting rail

Push-in spring clamp terminals

PYK series - "Push-in" spring clamp terminals

Cable connection is made by simply "pushing" the cable into the terminal without the need for tools. Secure connection is guaranteed in all conditions saving time in terminating. If required, cable can easily be removed with the use of a screwdriver. The easy "push-in" termination together with "plug-in" bridging combs combine to speed up connection of terminals, providing a rapid, secure, safe connection over time.

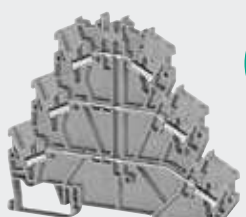
type	wire size (mm ²)	amperage EN60947-7-1	terminal width	description		price
Feed through terminals (PYK)						
307019	1.5 mm	17.5A	4.2 mm	rail mount spring clamp terminal		12.40
307109	2.5 mm	24A	5 mm	rail mount spring clamp terminal		11.60
307119	4 mm	32A	6 mm	rail mount spring clamp terminal		14.30
307129	6 mm	41A	8 mm	rail mount spring clamp terminal		29.40
307139	10 mm	57A	10 mm	rail mount spring clamp terminal		41.00
446639	end plate	—	1.2 mm	for 1.5 mm terminal	307019	2.80
446449	end plate	—	1.2 mm	for 2.5 mm terminal	307109	5.00
446459	end plate	—	1.2 mm	for 4.0 mm terminal	307119	5.40
446469	end plate	—	1.2 mm	for 6.0 mm terminal	307129	6.20
446479	end plate	—	1.2 mm	for 10.0 mm terminal	307139	7.40
Earth terminals - yellow/green screw-less, clip-on earth terminals						
336500	2.5 mm	24A	5 mm	rail mount spring clamp earth terminal		35.60
336510	4 mm	32A	6 mm	rail mount spring clamp earth terminal		48.00
336520	6 mm	41A	8 mm	rail mount spring clamp earth terminal		63.00
336530	10 mm	57A	10 mm	rail mount spring clamp earth terminal		103.00
446442	end plate	—	1.2 mm	for 2.5 mm earth terminal	336500	5.00
446452	end plate	—	1.2 mm	for 4.0 mm earth terminal	336510	5.40
446462	end plate	—	1.2 mm	for 6.0 mm earth terminal	336520	6.20
446472	end plate	—	1.2 mm	for 10.0 mm earth terminal	336530	7.40
Multi-tier terminals						
307179	2.5 mm	24A	5 mm	two tier	spring clamp terminal	38.30
307199	2.5 mm	24A	5 mm	three tier	spring clamp terminal	54.00
446519	end plate	—	1.2 mm	for 2.5 mm 2 tier terminal	307179	6.30
446529	end plate	—	1.2 mm	for 2.5 mm 3 tier terminal	307199	7.20
Disconnect terminals						
307169	2.5 mm	20A	5 mm	rail mount disconnect terminal		45.00
446509	end plate	—	1.2 mm	for disconnect terminal	307169	15.20
Fuse terminals - for 5 x 20 mm fuses			fully insulated - no end plate required			
307249	2.5 mm	10A	8 mm	rail mount fused terminal		75.00
307259	2.5 mm	10A	8 mm	fused term. LED indication	24 VDC	143.00
307269	2.5 mm	10A	8 mm	fused term. LED indication	220 VAC	143.00
PYK test terminal (plug-in)			plugs into standard PYK range terminals			
498559	1.5 mm	plug-in test terminal		(provides an additional terminal outlet)		46.00
Cross connectors (plug-in bridging bars)						
476602	UK1.5/2	2-pole	4.2 mm	plug-in bridge piece for terminals		14.90
476603	UK1.5/3	3-pole	4.2 mm	plug-in bridge piece for terminals		20.00
476604	UK1.5/4	4-pole	4.2 mm	plug-in bridge piece for terminals		24.80
476609	UK1.5/10	10-pole	4.2 mm	plug-in bridge piece for terminals		88.00
476222	UK2.5/2	2-pole	5 mm	plug-in bridge piece for terminals		15.50
476223	UK2.5/3	3-pole	5 mm	plug-in bridge piece for terminals		17.20
476224	UK2.5/4	4-pole	5 mm	plug-in bridge piece for terminals		18.30
476229	UK2.5/10	10-pole	5 mm	plug-in bridge piece for terminals		33.00
476232	UK4/2	2-pole	6 mm	plug-in bridge piece for terminals		16.10
476233	UK4/3	3-pole	6 mm	plug-in bridge piece for terminals		18.10
476234	UK4/4	4-pole	6 mm	plug-in bridge piece for terminals		19.70
476239	UK4/10	10-pole	6 mm	plug-in bridge piece for terminals		36.60
476242	UK6/2	2-pole	8 mm	plug-in bridge piece for terminals		17.20
476243	UK6/3	3-pole	8 mm	plug-in bridge piece for terminals		20.40
476244	UK6/4	4-pole	8 mm	plug-in bridge piece for terminals		22.80
476249	UK6/10	10-pole	8 mm	plug-in bridge piece for terminals		42.00
476252	UK10/2	2-pole	10 mm	plug-in bridge piece for terminals		23.50
476253	UK10/3	3-pole	10 mm	plug-in bridge piece for terminals		29.20
476254	UK10/4	4-pole	10 mm	plug-in bridge piece for terminals		34.20
476259	UK10/10	10-pole	10 mm	plug-in bridge piece for terminals		73.00
See DIN mounting rail						



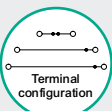
307139



336500



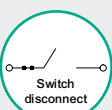
307199



Terminal configuration



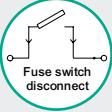
307169



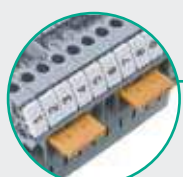
Switch disconnect



307249



Fuse switch disconnect



476602

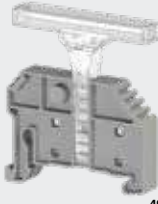
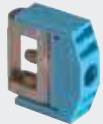
476604



476249

Bridging bars (cross-connection) for screw type through terminals

type	ref.	poles	for term. width	description		price
Screw-in bridging bars (internal)						
			for 2.5 - 240 mm terminals		AVK series	
474122	UK2.5/2	2-pole	5 mm	bridge piece for std + 2 tier terminal	304 120	15.70
474123	UK2.5/3	3-pole	5 mm	bridge piece for std + 2 tier terminal	304 120	21.10
474124	UK2.5/4	4-pole	5 mm	bridge piece for std + 2 tier terminal	304 120	26.10
474129	UK2.5/10	10-pole	5 mm	bridge piece for std + 2 tier terminal	304 120	92.00
474210	UK2.5/50	50-pole	5 mm	bridge piece for std + 2 tier terminal	304 120	244.00
474132	UK4/2	2-pole	6 mm	bridge piece for std + 2 tier terminal	304 130	14.60
474133	UK4/3	3-pole	6 mm	bridge piece for std + 2 tier terminal	304 130	20.70
474134	UK4/4	4-pole	6 mm	bridge piece for std + 2 tier terminal	304 130	26.80
474139	UK4/10	10-pole	6 mm	bridge piece for std + 2 tier terminal	304 130	67.00
474190	UK4/50	50-pole	6 mm	bridge piece for std + 2 tier terminal	304 130	316.00
480132	UK2.5/2	2-pole	6 mm	screw-in bridge piece for 3 tier terminal	324 109	21.60
480133	UK2.5/3	3-pole	6 mm	screw-in bridge piece for 3 tier terminal	324 109	33.10
480134	UK2.5/4	4-pole	6 mm	screw-in bridge piece for 3 tier terminal	324 109	41.00
480139	UK2.5/10	10-pole	6 mm	screw-in bridge piece for 3 tier terminal	324 109	103.00
474142	UK6/2	2-pole	8 mm	screw-in bridge piece for terminals	304 140	15.20
474143	UK6/3	3-pole	8 mm	screw-in bridge piece for terminals	304 140	21.50
474144	UK6/4	4-pole	8 mm	screw-in bridge piece for terminals	304 140	27.90
474149	UK6/10	10-pole	8 mm	screw-in bridge piece for terminals	304 140	66.00
474152	UK10/2	2-pole	10 mm	screw-in bridge piece for terminals	304 150	15.50
474153	UK10/3	3-pole	10 mm	screw-in bridge piece for terminals	304 150	22.00
474154	UK10/4	4-pole	10 mm	screw-in bridge piece for terminals	304 150	28.50
474159	UK10/10	10-pole	10 mm	screw-in bridge piece for terminals	304 150	68.00
474162	UK16/2	2-pole	12 mm	screw-in bridge piece for terminals	304 160	20.10
474163	UK16/3	3-pole	12 mm	screw-in bridge piece for terminals	304 160	29.00
474164	UK16/4	4-pole	12 mm	screw-in bridge piece for terminals	304 160	37.80
474169	UK16/10	10-pole	12 mm	screw-in bridge piece for terminals	304 160	91.00
474172	UK35/2	2-pole	16 mm	screw-in bridge piece for terminals	304 240	30.60
474173	UK35/3	3-pole	16 mm	screw-in bridge piece for terminals	304 240	45.00
474174	UK35/4	4-pole	16 mm	screw-in bridge piece for terminals	304 240	59.00
474179	UK35/10	10-pole	16 mm	screw-in bridge piece for terminals	304 240	142.00
478332	UK50/2	2-pole	20 mm	screw-in bridge piece for terminals	304 330	37.30
478333	UK50/3	3-pole	20 mm	screw-in bridge piece for terminals	304 330	57.00
478334	UK50/4	4-pole	20 mm	screw-in bridge piece for terminals	304 330	77.00
478342	UK95/2	2-pole	25mm	screw-in bridge piece for terminals	304 340	175.00
478343	UK95/3	3-pole	25mm	screw-in bridge piece for terminals	304 340	230.00
478344	UK95/4	4-pole	25mm	screw-in bridge piece for terminals	304 340	285.00
478352	UK150/2	2-pole	31 mm	screw-in bridge piece for terminals	304 350	256.00
478353	UK150/3	3-pole	31 mm	screw-in bridge piece for terminals	304 350	371.00
478354	UK150/4	4-pole	31 mm	screw-in bridge piece for terminals	304 350	466.00
478362	UK240/2	2-pole	36 mm	screw-in bridge piece for terminals	304 360	388.00
478363	UK240/3	3-pole	36 mm	screw-in bridge piece for terminals	304 360	571.00
478364	UK240/4	4-pole	36 mm	screw-in bridge piece for terminals	304 360	755.00
Comb type bridge pieces (external)						
476262	TKO2.5/2	2-pole	5 mm	comb bridge for std screw terminal	304 200	14.30
476263	TKO2.5/3	3-pole	5 mm	comb bridge for std screw terminal	304 200	15.20
476264	TKO2.5/4	4-pole	5 mm	comb bridge for std screw terminal	304 200	15.70
476269	TKO2.5/10	10-pole	5 mm	comb bridge for std screw terminal	304 200	26.80
476272	TKO4/2	2-pole	6 mm	comb bridge for std screw terminal	304 210	14.70
476273	TKO4/3	3-pole	6 mm	comb bridge for std screw terminal	304 210	15.90
476274	TKO4/4	4-pole	6 mm	comb bridge for std screw terminal	304 210	16.80
476279	TKO4/10	10-pole	6 mm	comb bridge for std screw terminal	304 210	29.10
476282	TKO6/2	2-pole	8 mm	comb bridge for std screw terminal	304 140	14.40
476283	TKO6/3	3-pole	8 mm	comb bridge for std screw terminal	304 140	17.60
476284	TKO6/4	4-pole	8 mm	comb bridge for std screw terminal	304 140	19.30
476289	TKO6/10	10-pole	8 mm	comb bridge for std screw terminal	304 140	35.10
476292	TKO10/2	2-pole	10 mm	comb bridge for std screw terminal	304 150	17.70
476293	TKO10/3	3-pole	10 mm	comb bridge for std screw terminal	304 150	20.40
476294	TKO10/4	4-pole	10 mm	comb bridge for std screw terminal	304 150	22.70
476299	TKO10/10	10-pole	10 mm	comb bridge for std screw terminal	304 150	45.00

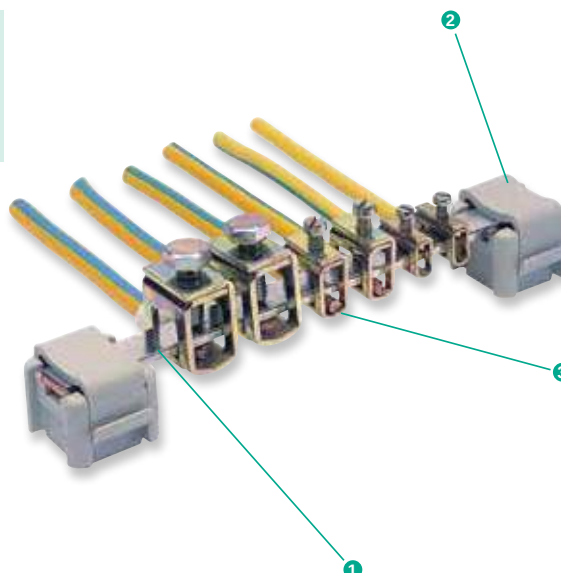
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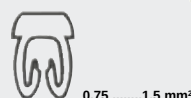
type	wire size (mm²)	ampereage EN60947-7-1	term. width	description		price
End stops for all terminals						
495049	end stop	screw type	7.5 mm	economical screw type terminal rail end stop		5.70
495059*	end stop	screwless	7.5 mm	clamp-on terminal rail end stop		8.00
495219*	end stop	screw type	7.5 mm	heavy duty screw type terminal rail end stop		15.40
495099*	end stop	screw type	7.5 mm	large HD 50 - 240 mm terminal rail end stop		18.10
* Accepts group marking support 49613A (below) ratchet type for height adjustment						
Modular group marking						
• Screw-type end bracket mounted 7.5 mm DIN-rail						
• Can be used together with screw connection feed-through one level terminals						
49613A	support	group marking support for all * terminal end stops (W) 6 mm				12.70
496300	support	group marking support for terminal end stop 495219 (W) 7 mm				6.60
496310	support	DIN rail mounting group marking support (W) 7 mm				7.30
Clamping yokes (slide onto 10 x 3 mm busbar)						
Clamping yokes can be slid onto a 10 x 3 mm flat busbar to make up any size earth or neutral bar with terminals to accommodate 4/10/35 mm² cables						
• Cross section: 4 ...35 mm²						
• Busbar size: 10 x 3 mm						
• Fixing screw: M3 (0.5 - 4 mm²)						
M4 (2.5 - 10 mm²)						
M5 (16 - 35 mm²)						
type	cable size mm²		insulation	description		price
525361	0.5 - 4	clamp	none	bar mount clamping yoke	BK4	3.30
525362	2.5 - 10	clamp	none	bar mount clamping yoke	BK10	5.70
525363	16 - 35	clamp	none	bar mount clamping yoke	BK35	15.60
525371	0.5 - 4	clamp	blue (neut.)	bar mount clamping yoke	IBK4	3.80
525372	2.5 - 10	clamp	blue (neut.)	bar mount clamping yoke	IBK10	7.10
525373	16 - 35	clamp	blue (neut.)	bar mount clamping yoke	IBK35	17.20
525381	0.5 - 4	clamp	grn/yel (E)	bar mount clamping yoke	IBK4	3.80
525382	2.5 - 10	clamp	grn/yel (E)	bar mount clamping yoke	IBK10	7.10
525383	16 - 35	clamp	grn/yel (E)	bar mount clamping yoke	IBK35	17.20
Accessories for above clamping yokes						
GI03010.1	10 x 3 mm	Cu flat copper bar for above clamping yokes			1 meter	329.00
528110	screw	universal support for single bars			(10 x 3/6 x 6/15 x 3 mm)	11.70
495109	rail mnt	DIN universal support for up to three bars			(10 x 3/6 x 6 mm)	22.10
The above clamping yokes can be slid onto the 10 x 3 busbar up to 50 mm² and the entire wiring matched to the installation.						

Clamping yokes and accessories

Below example of a complete clamping yoke.

1. GI03010.1
2. 528110
3. 52536...

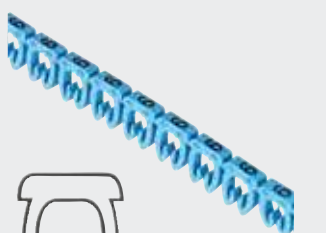




All other symbols



WM.....



519006

Wire markers (0.5 mm² - 6 mm²)

- Clip-on wire markers simply clip directly onto already installed cables
(no need to remove wire from terminals to mark them)
- Markers incorporate small guide pins, ensuring perfect alignment of markers when mounted on cables
- Mounted markers provide firm secure mounting onto wires (not easily removable)
- Made of polyimide 6.6 (ambient temperature -30°C...+70°C)
- Supplied in packs of all one numerical, alphabetical, symbol : Alphabet 200 pcs per pack
: Numerical 500 pcs per pack

type	character	colour	wire size mm ²	description	qty per pack	price per pack
WM01 marker for cables						
• Cross-section: 0.5 mm ² - 1.5 mm ²						
517000	"0"	black	0.5 - 1.5	clip-on cable marker	500	141.00
517001	"1"	brown	0.5 - 1.5	clip-on cable marker	500	141.00
517002	"2"	red	0.5 - 1.5	clip-on cable marker	500	141.00
517003	"3"	orange	0.5 - 1.5	clip-on cable marker	500	141.00
517004	"4"	yellow	0.5 - 1.5	clip-on cable marker	500	141.00
517005	"5"	green	0.5 - 1.5	clip-on cable marker	500	141.00
517006	"6"	blue	0.5 - 1.5	clip-on cable marker	500	141.00
517007	"7"	purple	0.5 - 1.5	clip-on cable marker	500	141.00
517008	"8"	grey	0.5 - 1.5	clip-on cable marker	500	141.00
517009	"9"	white	0.5 - 1.5	clip-on cable marker	500	141.00
519514/_*	/_*	yellow	0.5 - 1.5	clip-on cable marker	200	57.00
/_* Insert marking requirement A,B,C...Z/+/-/■/♦/ or other) Example 519514/A						

WM02 marker for cables

• Cross-section 1.5 mm ² - 2.5 mm ²						
518000	"0"	black	1.5 - 2.5	clip-on cable marker	500	165.00
518001	"1"	brown	1.5 - 2.5	clip-on cable marker	500	165.00
518002	"2"	red	1.5 - 2.5	clip-on cable marker	500	165.00
518003	"3"	orange	1.5 - 2.5	clip-on cable marker	500	165.00
518004	"4"	yellow	1.5 - 2.5	clip-on cable marker	500	165.00
518005	"5"	green	1.5 - 2.5	clip-on cable marker	500	165.00
518006	"6"	blue	1.5 - 2.5	clip-on cable marker	500	165.00
518007	"7"	purple	1.5 - 2.5	clip-on cable marker	500	165.00
518008	"8"	grey	1.5 - 2.5	clip-on cable marker	500	165.00
518009	"9"	white	1.5 - 2.5	clip-on cable marker	500	165.00
519524/_*	/_*	yellow	1.5 - 2.5	clip-on cable marker	200	66.00
/_* Insert marking requirement A,B,C...Z/+/-/■/♦/ or other) Example 519524/Z						

WM03 marker for cables

• Cross-section 4 mm ² - 6 mm ²						
519000	"0"	black	4.0...6.0	clip-on cable marker	500	186.00
519001	"1"	brown	4.0...6.0	clip-on cable marker	500	186.00
519002	"2"	red	4.0...6.0	clip-on cable marker	500	186.00
519003	"3"	orange	4.0...6.0	clip-on cable marker	500	186.00
519004	"4"	yellow	4.0...6.0	clip-on cable marker	500	186.00
519005	"5"	green	4.0...6.0	clip-on cable marker	500	186.00
519006	"6"	blue	4.0...6.0	clip-on cable marker	500	186.00
519007	"7"	purple	4.0...6.0	clip-on cable marker	500	186.00
519008	"8"	grey	4.0...6.0	clip-on cable marker	500	186.00
519009	"9"	white	4.0...6.0	clip-on cable marker	500	186.00
519534/_*	/_*	yellow	4.0...6.0	clip-on cable marker	200	75.00
/_* Insert marking requirement A,B,C...Z/+/-/■/♦/ or other) Example 519534/+						

Open Type					
Numbers	WM01	WM02	WM03	Qty.	Colour
0				500	Black
1				500	Brown
2				500	Red
3				500	Orange
4				500	Yellow
5				500	Green
6				500	Blue
7				500	Purple
8				500	Grey
9				500	White

Slotted cable trunking



Slotted trunking

Ezi Canal slotted cable ducting features an improved cover design for ease of opening and closing, permitting easy access to wiring in control panels. Meets maximum wire capacity requirements and space constraints (*from small control panels to large integrated systems*) to provide effective support for demanding wire management solutions.

Manufactured from high-impact, self-extinguishing, warp-proof rigid PVC material providing a shock proof insulated protection solution resistant to acids, oils and grease. Used for general purpose control panel wiring to provide improved aesthetics and a neater wire management solution in high density control panels.

- Simple open/close cover design for easy access to wiring in control panel
- Double score-line permits finger/slot or complete sidewall removal
- Coining process for burr-free edges to protect hands and wiring from abrasion
- Restricted slot design retains wire within slot for fast, easy wire installation or removal
- Duct and cover form a flush sidewall to provide increased capacity and improved appearance
- UL94 flammability rating V-0 for excellent flame retardation

Standard colour: Grey - others available on request (*volume dependant*)

Standard length: Supplied in two meter lengths, complete with covers

15% off list price: For full carton quantities of **TSL** trunking
 Add **/B** to end of part number (e.g **TSL025040N/B**)

type	dimensions (mm)		colour	description	slot A	finger B	carton qty	price each
	(W)	(H)			(mm)	(mm)	(L - 2 m)	
Narrow slotted trunking			Finger: 6 mm / Slot - 4 mm		(10 mm pitch)			
• Narrow slot/finger design to closely fit spacing of high density terminal blocks and I/O modules								
KKC1518	15	18	grey	PVC slotted cable trunking	5	7.5	112	68.00
TSL025025N	25	25	grey	PVC slotted cable trunking	4	6	48	85.00
TSL025040N	25	40	grey	PVC slotted cable trunking	4	6	40	115.00
TSL040040N	40	40	grey	PVC slotted cable trunking	4	6	24	148.00
TSL060040N	60	40	grey	PVC slotted cable trunking	4	6	24	190.00
TSL080040N	80	40	grey	PVC slotted cable trunking	4	6	18	222.00
TSL025060N	25	60	grey	PVC slotted cable trunking	4	6	30	153.00
TSL040060N	40	60	grey	PVC slotted cable trunking	4	6	28	177.00
TSL060060N	60	60	grey	PVC slotted cable trunking	4	6	18	218.00
TSL080060N	80	60	grey	PVC slotted cable trunking	4	6	14	280.00
TSL100060N	100	60	grey	PVC slotted cable trunking	4	6	12	327.00
TSL025080N	25	80	grey	PVC slotted cable trunking	4	6	28	189.00
TSL040080N	40	80	grey	PVC slotted cable trunking	4	6	20	217.00
TSL060080N	60	80	grey	PVC slotted cable trunking	4	6	12	271.00
TSL080080N	80	80	grey	PVC slotted cable trunking	4	6	8	316.00
TSL100080N	100	80	grey	PVC slotted cable trunking	4	6	8	369.00
TSL040100N	40	100	grey	PVC slotted cable trunking	4	6	16	307.00
TSL060100N	60	100	grey	PVC slotted cable trunking	4	6	12	322.00
TSL080100N	80	100	grey	PVC slotted cable trunking	4	6	8	375.00
TSL100100N	100	100	grey	PVC slotted cable trunking	4	6	8	414.00
Wide slotted trunking			Finger: 12 mm / Slot - 8 mm		(20 mm pitch)			
TSL040060W	40	60	grey	PVC slotted cable trunking	8	12	28	177.00
TSL060060W	60	60	grey	PVC slotted cable trunking	8	12	18	218.00
TSL080060W	80	60	grey	PVC slotted cable trunking	8	12	14	283.00
TSL100060W	100	60	grey	PVC slotted cable trunking	8	12	12	327.00
TSL040080W	40	80	grey	PVC slotted cable trunking	8	12	20	216.00
TSL060080W	60	80	grey	PVC slotted cable trunking	8	12	12	268.00
TSL080080W	80	80	grey	PVC slotted cable trunking	8	12	8	316.00
TSL100080W	100	80	grey	PVC slotted cable trunking	8	12	8	369.00
TSL040100W	40	100	grey	PVC slotted cable trunking	8	12	16	307.00
TSL060100W	60	100	grey	PVC slotted cable trunking	8	12	12	322.00
TSL080100W	80	100	grey	PVC slotted cable trunking	8	12	8	375.00
TSL100100W	100	100	grey	PVC slotted cable trunking	8	12	8	414.00
Spare covers for above narrow and wide slotted trunking								
TSM025	25	—	grey	spare PVC trunking covers	—	—	80	29.50
TSM040	40	—	grey	spare PVC trunking covers	—	—	80	35.40
TSM060	60	—	grey	spare PVC trunking covers	—	—	80	53.00
TSM080	80	—	grey	spare PVC trunking covers	—	—	80	71.00
TSM100	100	—	grey	spare PVC trunking covers	—	—	68	92.00
Trunking accessories								
553415	84	14	grey	sectionable cable retainer clip	(10 pcs)			85.00
For VTC125 - wiring duct cutter, see M-Cable & Testing Tools								

Above ZAR prices do not include VAT. E&OE

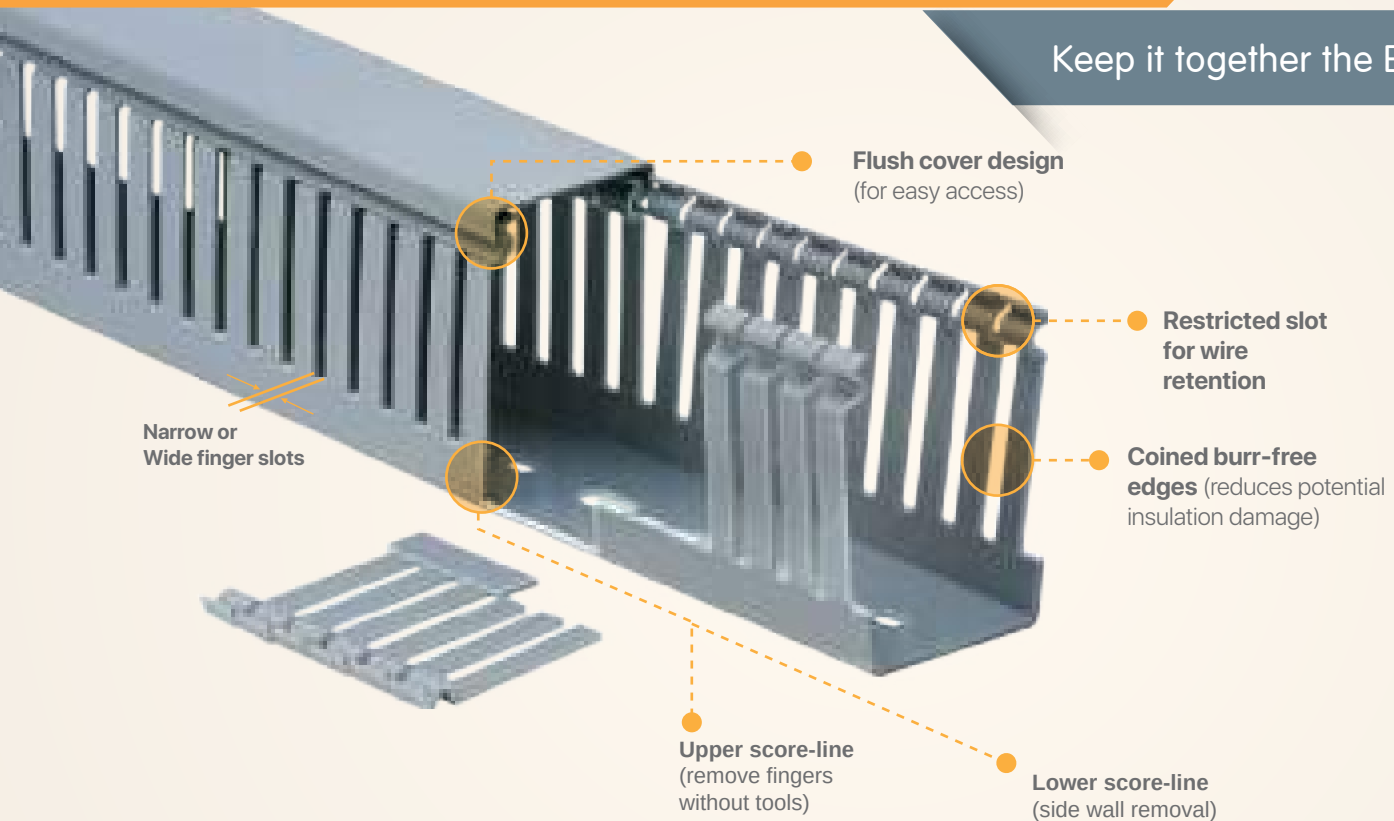


EZI CANAL
electrical cable ducting

Narrow & Wide Slotted Trunking

High impact, self-extinguishing, warp-proof rigid PVC

Keep it together the EZI way



Quick and easy to install

Simple open/close design for easy access to wiring.

Enhances aesthetics and clarity

Duct and cover form a flush sidewall to provide increased capacity.

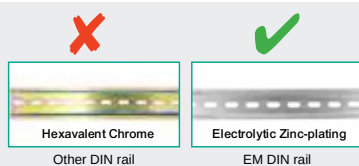
Provides complete electrical insulation

UL94 flammability rating for excellent flame retardation.



15% off list price for full carton quantities of TSL trunking.

Add **/B** to end of part number (e.g **TSL025040N/B**).

**DIN mounting rail**

Passivation process for Electro DIN rail does not contain hazardous substances and complies fully with RoHS directives 2002/95/EC. New **Electrolytic zinc-plating** treatment is far superior and fully replaces previous **Hexavalent chrome** treatment which contains Lead (*usually a "yellowish" finish*) now banned in most countries.

type	rail	depth	description		length	price
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Steel mounting rail EN 60715

- High quality, galvanic zinc plating - white passivation "Cr VI free" fully **RoHS** compliant

Standard mounting rail 1 mm thick

TS35	DIN 35	7.5 mm	standard DIN mounting rail	plain	2 meter	112.00
TS35/F5A*	DIN 35	7.5 mm	standard DIN mounting rail	perforated	2 meter	110.00
TS35/SF6*	DIN 35	10 mm	standard DIN mounting rail	perforated	2 meter	165.00

Heavy duty mounting rail 1.5 mm steel

TS35/C	DIN 35	15 mm	HD standard DIN mounting rail	plain	2 meter	195.00
TS35/CF5A*	DIN 35	15 mm	HD standard DIN mounting rail	perforated	2 meter	190.00

* Perforated - slot **F5A** = 18 x 5.2 mm / **F6** = 18 x 6.3 mm (25 mm between centres)

Stainless steel mounting rail (INOX) 1 mm thick

- Perforated slot - 18 x 6.3 mm (25 mm between centres)

TS35/F6 INOX	DIN 35	7.5 mm	stainless steel DIN mounting rail	perforated	2 meter	502.00
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Aluminium mounting rail 1.1 mm thick

- Perforated slot - 20 x 4.8 mm (35 mm between centres)

ADR1200/F5A	DIN 35	7.5 mm	aluminium DIN mounting rail	perforated	2 meter	105.00
CUT-ADR	DIN 35	7.5 mm	aluminium DIN rail cutter	(for aluminium rail only)		5 130.00

Accessories for DIN rail

type	rail	high	description		mounting hole	price
TS-S M5	bracket	48 mm	angled stand-off DIN rail support bracket		M5	12.80
TST20	bracket	20 mm	steel support brackets for raising DIN rail		M6	16.70
TST30	bracket	30 mm	steel support brackets for raising DIN rail		M6	19.20
TST40	bracket	40 mm	steel support brackets for raising DIN rail		M6	22.20
TST50	bracket	50 mm	steel support brackets for raising DIN rail		M6	24.30
TST70	bracket	70 mm	steel support brackets for raising DIN rail		M6	32.10
FIX KLIP M4	DIN 35	—	M4 DIN rail mounting clip for components		M4	14.00
FIX KLIP M5	DIN 35	—	M5 DIN rail mounting clip for components		M5	14.00

Category-M

Made in Germany

GLW
Crimping Technology
DIN rail cutter (for steel mounting rail only)

DIN rail is often cut by saw or angle grinder creating dust, noise, and a considerable risk of injury. The **RC200** is a high quality, professional DIN rail cutter designed for high output, offering "burr-free" precision cut and trim of standard DIN rails.

- Incorporates two cut profiles (7.5 x 35 and 15 x 35 mm) DIN rails
- Precision "burr-free" cut and trim of DIN rail to length without waste
- Increased work safety and quiet operation

type	rail	for depth	description		price
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RC200 DIN rail cutter for DIN 35 rail 7.5 and 15 mm deep

008328	cutter	7.5 + 15 mm	DIN rail cutter (2 profiles) for 7.5/15 mm high x 35 mm rail		
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Accessories for above RC200 DIN rail cutter

009465	scale	metric scale plate and length stop for above DIN rail cutter		RC200	see Cat M for pricing.
009102	clamp	table clamp for above DIN rail cutter		RC200	

Wiring duct cutter (professional) with 1 meter graduated dimension rule + length stop

For fast, accurate cutting of wiring ducts to length without burrs and with very little force

VTC 125 wiring duct cutter (made in Italy)

- Burr-free cut edges - No noise, no chips or dust
- Quick and easy cutting - ducts cut precisely to the millimetre

VTC125	trunking	125 mm	precision slotted wiring duct (trunking) cutter		all sizes
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Drag-chain cable carriers

HKP series - Cable carriers

Also known as "drag chains, cable carriers, energy chains or cable tracks", are designed to surround and guide flexible cables connected to moving automated machinery - keeps cables neatly out of the way.

They reduce wear and stress on cables and hoses, prevent entanglement and improve operator safety. These chains move either in (*linear*): moving in a straight line or circular (*rotary*): moving in circular arcs.

Designed with an ideal bend radius, allows for smooth movement which assists to eliminates excessive wear and tear, reduces the need for cable replacements, and decreases the potential dangers of exposed wiring.

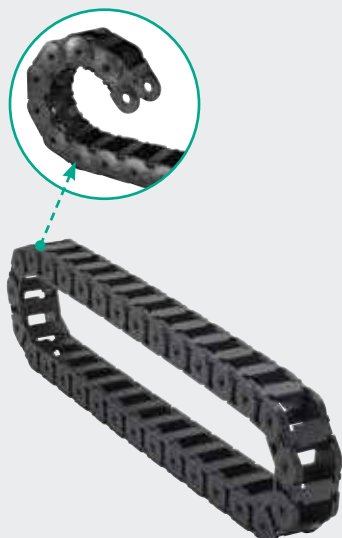
Supplied in **1 meter lengths** which can be connected to one another by internal/external connectors to make up any length requirement i.e. 1 meter can be connected and made longer by joining 2 x 1 meter lengths to make a 2 meters etc

General features:

- Open type
- Low noise
- High load resistance
- Chemical, water and temperature resistant
- Operating temperature: -25 / + 80 °C
- Supplied in 1 meter lengths (*extendable with connectors*)
- Multi-axis movement (*freely rotating between links*)
- Speed and acceleration (*specific speed, acceleration, as the case may be running*)
- Easy assembly and disassembly without threading, to the cable, tubing, pipe, pipe, etc.
- Corrosion resistance, ability or easily form into complex shapes, self-lubrication, and lower cost

Typical applications:

- Port cranes
- Machine tools
- Data centres
- Robotics
- Textile industries
- Green energy systems
- Process and automation equipment
- Vehicle transporters and washing systems



type	internal height	dimensions width	bending radius	material	description	price
15 x 15 mm cable carrier			1 meter length (extendable)			
HKP015015R1A	15 mm	15 mm	25 mm	plastic	open type cable carrier	708.00
Mounting accessories (for 15 x 15 cable carrier)						
HKP015015ZDA	15 mm	15 mm	—	plastic	internal connection	14.60
HKP015015ZEA	15 mm	15 mm	—	plastic	external connection	14.60
HKP015015ZKA	15 mm	15 mm	—	plastic	upper cable retainer/cover	7.30
20 x 25 mm cable carrier			1 meter length (extendable)			
HKP020025R3A	20 mm	25 mm	40 mm	plastic	open type cable carrier	571.00
Mounting accessories (for 20 x 25 cable carrier)						
HKP020025ZDA	20 mm	25 mm	—	plastic	internal connection	21.00
HKP020025ZEA	20 mm	25 mm	—	plastic	external connection	21.00
HKP020025ZKA	20 mm	25 mm	—	plastic	upper cable retainer/cover	8.10
40 x 60 mm cable carrier			1 meter length (extendable)			
HKP040060R5A	40 mm	60 mm	100 mm	plastic	open type cable carrier	848.00
Mounting accessories (for 40 x 60 cable carrier)						
HKP040060ZDA	40 mm	60 mm	—	plastic	internal connection	46.00
HKP040060ZEA	40 mm	60 mm	—	plastic	external connection	46.00
HKP040060ZKA	40 mm	60 mm	—	plastic	upper cable retainer/cover	10.50
HKP040060Z5A	40 mm	—	—	plastic	internal cable separator	17.00

Polyamide cable ties



Cable ties (standard)

Standard cable ties are produced exclusively in Polyamide 6.6 (Halogen-free)

Installation temperature: -10°...+85°C

Flammability rating: UL 94 class V2

Approvals:

UL62275 (E258930), TÜV EN62275:2015, Reach, RoHS, PAHs compliance

type	dimensions (mm)		colour	bundle Ø max. (mm)	tensile strength	description	pack qty	price (per pack)
	length	width						

Standard cable ties (black)

Black cable ties have additional carbon black providing a UV resistance for outdoor applications.

LH-M-100B	100	2.5	black	21 mm	80 N	standard cable tie	100	13.20
LH-M-150B	150	2.5	black	36 mm	80 N	standard cable tie	100	20.20
LH-I-150B	150	3.6	black	36 mm	180 N	standard cable tie	100	31.80
LH-I-250B	250	3.6	black	68 mm	180 N	standard cable tie	100	54.00
LH-I-370B	370	3.6	black	106 mm	180 N	standard cable tie	100	79.00
LH-S-200B	200	4.8	black	50 mm	230 N	standard cable tie	100	55.00
LH-S-300B	300	4.8	black	81 mm	230 N	standard cable tie	100	87.00
LH-S-390B	390	4.8	black	110 mm	230 N	standard cable tie	100	121.00
LH-HD-380B	380	7.6	black	108 mm	540 N	standard cable tie	100	219.00
LH-HD-550B	550	7.6	black	162 mm	540 N	standard cable tie	100	350.00
LH-HSD-530B	530	12.4	black	156 mm	1200 N	standard cable tie	100	649.00

Standard cable ties natural colour (white)

LH-M-100N	100	2.5	natural	21 mm	80 N	standard cable tie	100	13.20
LH-I-150N	150	3.6	natural	36 mm	180 N	standard cable tie	100	31.80
LH-I-250N	250	3.6	natural	80 mm	180 N	standard cable tie	100	54.00
LH-S-390N	390	4.8	natural	110 mm	230 N	standard cable tie	100	121.00

UV resistant cable ties

made with special additives ensuring extra resistance to UV rays

• Excellent resistance to UV rays		• Suitable for PV photovoltaic installations						
LH-M-100UV	100	2.5	black	21 mm	80 N	UVE cable tie	100	15.50
LH-I-150UV	150	3.6	black	35 mm	180 N	UVE cable tie	100	38.00
LH-S-200UV	200	4.8	black	50 mm	230 N	UVE cable tie	100	68.00
LH-S-300UV	300	4.8	black	79 mm	230 N	UVE cable tie	100	107.00
LH-HD-380UV	380	7.6	black	100 mm	540 N	UVE cable tie	100	265.00

Belturing plus heavy duty cable ties

Halogen-free

Ideal for photovoltaic installations

• Highly resistant to climatic conditions (including sea areas) Excellent resistance to UV rays
Produced with special techno-polymer providing exceptional UV resistance according to norm CEI EN 62275 (ISO 4892-2). Recommended for outdoor applications and prolonged UV exposure.

6450XE	180	6	black	45 mm	280 N	single head lock	100	237.00
6454XE	360	6	black	100 mm	280 N	single head lock	100	630.00
LH-E-HD-265B	265	9	black	62 mm	540 N	double head lock	100	347.00
LH-E-HD-360B	360	9	black	93 mm	540 N	double head lock	100	447.00

Cable tie supports

type	max. tie		hole Ø (mm)	colour	tensile strength	dimensions (mm)			pack qty	price (per pack)
	width					(H)	(W)	(D)		

Adhesive tie mounts (fixing with self-adhesive backing or screw)

LH-MP-12/3MB	3.6 mm	M3	black	88 kg	12.5	12.5	5.0	100	49.00
LH-MP-20/3MB	3.6 mm	M4	black	88 kg	19	19	5.0	100	70.00
LH-MP-30/3MB	4.8 mm	M4	black	110 kg	28	28	6.5	100	134.00
LH-MP-40/3MB	9.0 mm	M5	black	380 kg	40	40	8.5	100	286.00
LH-MP-20/3MN	3.6 mm	M4	natural	88 kg	19	19	5.0	100	70.00
LH-MP-30/3MN	4.8 mm	M4	natural	110 kg	28	28	6.5	100	134.00

Note: for correct application of the self-adhesive mount, surfaces must be thoroughly cleaned and degreased with solvent (alcohol or similar cleaning product)

Cradles (screw down)

ideal for fixing cables and pipes in civil and industrial applications

LH-SC-M3SB	3.6 mm	M3	black	88 kg	15	9.6	6.85	100	52.00
LH-SC-M3B	4.8 mm	M4	black	110 kg	17.8	12.7	8.15	100	55.00
LH-SC-M4B	7.6 mm	M4	black	260 kg	22.3	16	9.65	100	93.00
LH-SC-M5B	9.0 mm	M5	black	380 kg	25.4	16	10.8	100	121.00

Tensioning tools for cable ties

• Metal tool for tensioning cable ties with incorporated cable tie cutting device.

5406C	3.5 - 12.5	metal tensioning and cutting tool for cable ties					1	362.00
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Stainless steel cable ties



Cable ties (stainless steel)

For use in critical applications where strength, corrosion, radiation, vibration and temperature extremes are a factor. Unique ball locking mechanism permits simple, rapid installation and secure locking in any position. High tensile strength, non flammability, UV-resistant, high resistance to acids and corrosion for a strong durable solution to bundling and mechanical fastening in harsh environments.

- Self-locking head design speeds installation and locks at any length along the tie body
- Smooth surface, rounded edges assure cable protection and worker safety

type	length (mm)	wide (mm)	thick (mm)	AISI	bundle Ø max.	description	price per (100)
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AISI 304 stainless steel for general purpose applications

Working temperature: -60°C – +550°C

Metallic band and buckle

SST4/15-04	150	4.6	0.25	304	37 mm	stainless steel cable ties	221.00
SST4/25-04	250	4.6	0.25	304	63 mm	stainless steel cable ties	242.00
SST4/35-04	350	4.6	0.25	304	89 mm	stainless steel cable ties	292.00
SST4/45-04	450	4.6	0.25	304	115 mm	stainless steel cable ties	320.00
SST4/55-04	550	4.6	0.25	304	141 mm	stainless steel cable ties	391.00
SST7/25-04	250	7.9	0.25	304	63 mm	stainless steel cable ties	334.00
SST7/45-04	450	7.9	0.25	304	115 mm	stainless steel cable ties	448.00
SST7/60-04	600	7.9	0.25	304	154 mm	stainless steel cable ties	569.00
SST7/80-04	800	7.9	0.25	304	193 mm	stainless steel cable ties	689.00

AISI 316 stainless steel - Epoxy coated for extra corrosive environments

- Black band with metallic buckle
- Coated band with non-toxic, Halogen free polyester coating
- Provides additional edge protection, prevents corrosion between dissimilar materials

SSTP4/20-16	200	4.6	0.36	316	50 mm	stainless steel cable ties	398.00
SSTP4/30-16	300	4.6	0.36	316	76 mm	stainless steel cable ties	483.00
SSTP4/40-16	400	4.6	0.36	316	102 mm	stainless steel cable ties	604.00
SSTP4/50-16	500	4.6	0.36	316	128 mm	stainless steel cable ties	697.00
SSTP7/30-16	300	7.9	0.36	316	76 mm	stainless steel cable ties	626.00
SSTP7/40-16	400	7.9	0.36	316	102 mm	stainless steel cable ties	768.00
SSTP7/60-16	600	7.9	0.36	316	154 mm	stainless steel cable ties	1 060.00
SSTP7/80-16	800	7.9	0.36	316	193 mm	stainless steel cable ties	1 340.00

Marking tags - Stainless steel (cable tie max. width 4.6 mm)

Stainless steel tie-on tags for permanent identification of cables, conduits, pipes in arduous applications where high resistance to aggressive environments is essential. (per 100)

AISI 304 stainless steel

SSM1089-04	89	9.5	0.40	304	–	stainless steel marking tags	157.00
SSM1989-04	89	19	0.40	304	–	stainless steel marking tags	228.00

AISI 316 stainless steel

SSM1089-16	89	9.5	0.40	316	–	stainless steel marking tags	178.00
SSM1989-16	89	19	0.40	316	–	stainless steel marking tags	277.00

Custom laser engraved stainless steel tags

Custom laser marking of tags and cable ties. Upper/lower case characters, detailed marking, text and graphics, high quality, crisp, clean and permanent.

- Once laser engraved the inscription remains with the product for life

SSM1089-04/PS*	89	9.5	0.40	304	price per tag	20.00
SSM1989-04/PS*	89	19	0.40	304		20.00
SSM1089-16/PS*	89	9.5	0.40	316		20.00
SSM1989-16/PS*	89	19	0.40	316		20.00

* **Print area:** L:79 x W:8.5 – ♦ **Print area:** L:79 x W:18

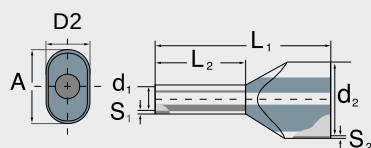
Please provide detailed information on required laser engraving of tags when ordering.

Accessories (cable tie gun)

- Tensioning tool (with auto cut) for all above stainless steel cable ties
- Adjustable tension value - (4 settings)

HS-600	tensioning and cutting tool for 4.6 and 7.9 mm SS cable ties	3 770.00
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Insulated ferrules & bootlace terminals



Crimped ferrule

**Ferrules / Wire end sleeves (Insulated)**

- Material: Tin-plated copper (min.thickness 3μ) / polypropylene collar
- CSA certified (certificate 2110332)
- DIN 46228 part 4, CSA C22.2 No. 65-93, 188-M1983

type	wire size mm²	colour	dimensions (mm)							pack	price
			L1	L2 ¹⁾	D1	S1	D2	D3	S2	qty	per pack
Wire end sleeves with insulating collar											
• Supplied in mini bags on a strip (10 x 100 pcs). bags can be torn from strip individually											
005606	0.50	 white	14.0	8.0	1.1	0.15	2.4	—	0.30	100	25.60
005644	0.75	 blue	14.0	8.0	1.3	0.15	2.7	—	0.30	100	25.90
005718*	1.0	 red	14.0	8.0	1.5	0.15	3.3	—	0.30	100	26.30
005738*	1.0	 red	16.0	10.0	1.5	0.15	3.3	—	0.30	100	37.70
005765*	1.5	 black	14.0	8.0	1.8	0.15	3.7	—	0.30	100	26.60
005791*	1.5	 black	16.0	10.0	1.8	0.15	3.7	—	0.30	100	39.40
005808	2.5	 grey	15.0	8.0	2.3	0.15	4.1	—	0.30	100	37.30
005829	2.5	 grey	17.0	10.0	2.3	0.15	4.1	—	0.30	100	52.00
005831*	2.5	 grey	18.0	10.0	2.3	0.15	4.7	—	0.30	100	53.00
005851	4.0	 orange	18.0	10.0	2.9	0.20	4.7	—	0.30	100	55.00
007739*	4.0	 grey	18.0	10.0	2.9	0.20	6.1	—	0.30	100	55.00
005871	6.0	 green	20.0	12.0	3.6	0.20	6.1	—	0.30	100	76.00
005896	10.0	 brown	21.0	12.0	4.6	0.20	7.4	—	0.40	100	95.00
005917	16.0	 white	23.0	12.0	6.0	0.20	8.6	—	0.50	100	136.00
005950	25.0	 black	29.0	16.0	7.5	0.20	10.9	—	0.50	50	140.00
005968	35.0	 red	30.0	16.0	8.5	0.20	12.3	—	0.50	50	157.00
005980	50.0	 blue	36.0	20.0	10.5	0.30	14.8	—	0.60	50	349.00
005988	70.0	 yellow	37.0	20.0	12.7	0.40	15.8	—	0.60	25	250.00
005990	95.0	 red	44.0	25.0	14.7	0.40	17.7	—	0.60	25	467.00
005915	120.0	 blue	48.0	27.0	16.7	0.50	20.7	—	0.70	25	570.00
005916	150.0	 yellow	58.0	32.0	18.7	0.50	22.6	—	1.00	25	667.00

* Broader collar to accommodate wires with thicker insulation

Twin wire end sleeves with insulating collar (accepts two cables)

type	wire size (mm²)	colour	dimensions (mm)							pack qty	price per pack
			L1	L2 ¹⁾	D1	S1	D2	A	S2		
• Accepts two wires into one insulated end sleeve • Supplied in mini bags on a strip (10 x 100 pcs). bags can be torn from strip individually											
005613	2 x 0.5	 white	15.0	8.0	1.5	0.15	2.4	4.6	0.30	100	45.00
005653	2 x 0.75	 blue	15.0	8.0	1.8	0.15	2.7	5.4	0.30	100	48.00
005722	2 x 1.0	 red	15.0	8.0	2.1	0.15	3.3	5.3	0.30	100	58.00
005740	2 x 1.0	 red	17.0	10.0	2.1	0.15	3.3	5.3	0.30	100	80.00
005770	2 x 1.5	 black	16.0	8.0	2.3	0.15	3.5	6.5	0.30	100	60.00
005794	2 x 1.5	 black	20.0	12.0	2.3	0.15	3.5	6.5	0.30	100	78.00
005816	2 x 2.5	 grey	19.0	10.0	2.9	0.20	4.1	7.7	0.40	100	83.00
005853	2 x 4.0	 orange	23.0	12.0	3.8	0.20	4.9	8.7	0.40	100	169.00
005873	2 x 6.0	 green	25.0	14.0	4.9	0.20	6.1	9.9	0.40	100	214.00
005898	2 x 10.0	 brown	26.0	14.0	6.5	0.20	7.1	12.9	0.50	100	307.00
005921	2 x 16.0	 white	31.0	16.0	8.5	0.20	9.8	16.8	0.60	50	225.00

Wire end sleeves with insulating collar supplied in belt strips

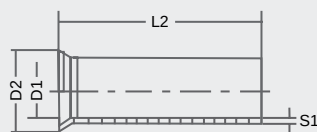
Wire end sleeves in belt form (K reels), for use in automatic cable preparation machines (see page M-4)
 Reel/cassette simply clips onto machines (500/1000 terminals per reel)

- Tape mounted supplied in type K box dispenser (box size = 150 x 150 x 18 mm)
- MC 25 - Wire stripping and crimping done in one operation using belt strip ferrules in type K box dispensers, controlled by a sophisticated cam mechanism achieving a stable working process.

type	wire size (mm ²)	colour	dimensions (mm)							reel qty	price per reel
			L1	L2 ¹⁾	D1	S1	D2	centre	S2		
005611	0.50	white	14.5	8.0	1.1	0.15	2.6	3.5	0.25	1000	475.00
005649	0.75	blue	14.5	8.0	1.3	0.15	2.7	3.6	0.25	1000	481.00
005720	1.0	red	14.5	8.0	1.5	0.15	3.0	3.9	0.30	1000	484.00
005767	1.5	black	14.5	8.0	1.8	0.15	3.2	4.2	0.30	1000	489.00
005813	2.5	grey	14.5	8.0	2.3	0.15	4.1	5.0	0.30	500	299.00

¹⁾ Other lengths available on request

Uninsulated ferrules & bootlace terminals



Ferrules / Wire end sleeves (uninsulated)

Uninsulated ferrule prevents wire strands from fraying and breaking and is extremely cost-effective. Its shorter length and uninsulated body offer advantages when making terminations in printed circuit board terminal blocks and in other terminal blocks with smaller clamps or narrow widths.

General features:

- Material: Tin-plated copper (*min.thickness 3μ*)
- CSA certified (*certificate 2110332*)
- DIN 46228 part 4, CSA C22.2 No. 65-93, 188-M1983
- Supplied in standard bulk pack quantity (*size dependant*)

type	wire size (mm ²)	dimensions (mm)				description	pack qty	price per pack
		L2 ¹⁾	D1	D2	S1			

Uninsulated wire end sleeve (cord end / bootlace terminals)

006010	0.50	—	10.0	1.0	2.1	0.15	uninsulated ferrules	1000	205.00
006015	0.75	—	10.0	1.2	2.3	0.15	uninsulated ferrules	1000	211.00
006022	1.0	—	10.0	1.4	2.5	0.15	uninsulated ferrules	1000	215.00
006031	1.5	—	10.0	1.7	2.8	0.15	uninsulated ferrules	1000	233.00
006045	2.5	—	12.0	2.2	3.4	0.15	uninsulated ferrules	1000	324.00
006053	4.0	—	12.0	2.8	4.0	0.2	uninsulated ferrules	1000	437.00
006060	6.0	—	12.0	3.5	4.7	0.2	uninsulated ferrules	1000	427.00
006068	10.0	—	12.0	4.5	5.8	0.2	uninsulated ferrules	500	324.00
006079	16.0	—	12.0	5.8	7.5	0.2	uninsulated ferrules	250	181.00
006091	25.0	—	15.0	7.3	9.5	0.2	uninsulated ferrules	100	142.00
006098	35.0	—	18.0	8.3	11.0	0.2	uninsulated ferrules	100	191.00
006102	50.0	—	18.0	10.3	13.0	0.3	uninsulated ferrules	100	357.00
006107	70.0	—	25.0	12.5	15.0	0.4	uninsulated ferrules	100	780.00
006109	95.0	—	25.0	14.5	17.0	0.4	uninsulated ferrules	50	507.00
006075	120.0	—	32.0	16.5	19.0	0.5	uninsulated ferrules	50	706.00

Available in smaller (from 0.25 mm²) and larger wire sizes (up to 240 mm²)

¹⁾ Other lengths available on request



4300-4661



4300-3129

4300-3149

Category-M

made in Sweden

pressmaster

Crimping tools for wire end sleeves

type	for terminals	conductor (mm ²)	cable entry	description	price
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Pressmaster - Professional self-adjusting crimping tool

- High precision die geometry for a clearly defined square crimp shape of the ferrule
- Automatic self-adjustment to required wire size

4300-4661	ferrules	0.14...10	side	professional self-adjusting crimping tool	
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Mobile frame system - with interchangeable dies for various terminals

Lightweight, compact ratchet crimp tool designed for most types of mechanical, electrical and electronic connectors. Easily interchangeable crimp dies are kept together with a special pin to simplify handling.

- Reliable crimping performance consistent and accurate with a parallel action stroke.
- Easy-access release for fast, simple exchange of crimp dies (*no special tools required*)

4300-3149	die dependant		side	MCT frame only for interchangeable dies	
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Interchangeable die sets for above tool frame

- A wide range of crimp dies to cover all applications in just one tool frame.
- Dies are kept in pairs and delivered in a modular reusable box.

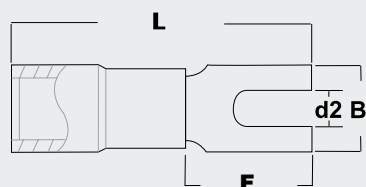
4300-3129	insulated	0.5 to 4	side	red/blue insulated terminal crimping die set	
4300-3128	insulated	4 to 6	side	yellow insulated terminal crimping die set	
4300-3137	uninsulated	0.75 to 2.5	side	cable lug crimping die set	
4300-3139	uninsulated	4 to 10	side	cable lug crimping die set	
4300-3127	end sleeves	0.25 to 10	side	wire end sleeve crimping die set	
4300-3153	end sleeves	16 to 25	side	wire end sleeve crimping die set	
4300-3154	end sleeves	35 to 50	side	wire end sleeve crimping die set	
4300-3146	open barrel	0.5 to 6	side	open barrel connector crimping die set	
4300-3136	coaxial	RG58/59/62/71	side	coaxial connector crimping die set	

Consult the category **M-Tools** section of our catalogue for hydraulic crimpers and die sets

see
Cat M for
pricing.

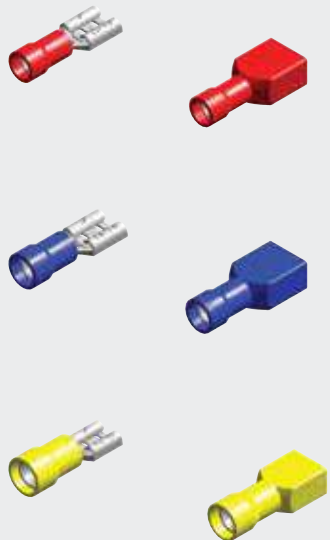
Pre-insulated terminals

- Maximum electrical rating: 600V
- Operating temperature: 105°C
- Material: Terminal: Copper (*tin plated*)
Insulation: Vinyl (PVC)

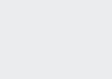
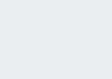
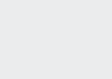
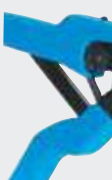
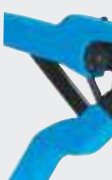


type	colour		wire size mm²	description	dimensions (mm)			pack qty	price
					d2	B	L		
Ring terminals									
R1-3V	red		0.5 - 1.5	insulated ring lug	3.2	5.5	16.7	100	84.00
R1-3.5MV	red		0.5 - 1.5	insulated ring lug	3.7	5.5	16.7	100	98.00
R1-4SV	red		0.5 - 1.5	insulated ring lug	4.3	6.6	19.6	100	96.00
R1-4LV	red		0.5 - 1.5	insulated ring lug	4.3	8.0	21.0	100	108.00
R1-5V	red		0.5 - 1.5	insulated ring lug	5.3	8.0	21.0	100	99.00
R1-6V	red		0.5 - 1.5	insulated ring lug	6.5	11.6	26.8	100	152.00
R1-8V	red		0.5 - 1.5	insulated ring lug	8.4	11.6	26.8	100	152.00
R1-10V	red		0.5 - 1.5	insulated ring lug	10.5	13.6	30.7	100	163.00
R1-12V	red		0.5 - 1.5	insulated ring lug	13	19.2	35.6	100	283.00
R2-3V	blue		1.5 - 2.5	insulated ring lug	3.2	6.4	17.5	100	102.00
R2-3.5MV	blue		1.5 - 2.5	insulated ring lug	3.7	6.4	17.5	100	111.00
R2-4SV	blue		1.5 - 2.5	insulated ring lug	4.3	6.6	19.5	100	103.00
R2-4LV	blue		1.5 - 2.5	insulated ring lug	4.3	8.5	22.0	100	140.00
R2-5SV	blue		1.5 - 2.5	insulated ring lug	5.3	8.5	22.0	100	123.00
R2-6V	blue		1.5 - 2.5	insulated ring lug	6.5	12.0	27.0	100	179.00
R2-8V	blue		1.5 - 2.5	insulated ring lug	8.4	12.0	27.0	100	177.00
R2-10V	blue		1.5 - 2.5	insulated ring lug	10.5	13.6	30.7	100	190.00
R2-12V	blue		1.5 - 2.5	insulated ring lug	13	19.2	35.6	100	294.00
R5-3V	yellow		4.0 - 6.0	insulated ring lug	3.2	7.2	22.0	100	189.00
R5-3.5SV	yellow		4.0 - 6.0	insulated ring lug	3.7	7.2	22.0	100	189.00
R5-4SV	yellow		4.0 - 6.0	insulated ring lug	4.3	7.2	25.5	100	183.00
R5-4LV	yellow		4.0 - 6.0	insulated ring lug	4.3	9.5	25.5	100	237.00
R5-5V	yellow		4.0 - 6.0	insulated ring lug	5.3	9.5	25.5	100	221.00
R5-6V	yellow		4.0 - 6.0	insulated ring lug	6.5	12.0	29.0	100	264.00
R5-8V	yellow		4.0 - 6.0	insulated ring lug	8.4	15.0	33.7	100	326.00
R5-10V	yellow		4.0 - 6.0	insulated ring lug	10.5	15.0	33.7	100	326.00
R5-12V	yellow		4.0 - 6.0	insulated ring lug	13.0	9.2	38.1	100	403.00
Fork / Spade terminals									
S1-3V	red		0.5 - 1.5	insulated fork lug	3.2	5.8	21.0	100	93.00
S1-3.5SV	red		0.5 - 1.5	insulated fork lug	3.7	5.8	21.0	100	91.00
S1-3.5MV	red		0.5 - 1.5	insulated fork lug	3.7	6.4	20.6	100	94.00
S1-4SV	red		0.5 - 1.5	insulated fork lug	4.3	6.4	20.6	100	91.00
S1-4MV	red		0.5 - 1.5	insulated fork lug	4.3	7.2	21.0	100	100.00
S1-5SV	red		0.5 - 1.5	insulated fork lug	5.3	8.0	21.0	100	107.00
S1-6SV	red		0.5 - 1.5	insulated fork lug	6.5	9.5	21.0	100	112.00
S2-3V	blue		1.5 - 2.5	insulated fork lug	3.2	5.8	21.0	100	111.00
S2-3.5SV	blue		1.5 - 2.5	insulated fork lug	3.7	5.8	21.0	100	110.00
S2-3.5MV	blue		1.5 - 2.5	insulated fork lug	3.7	6.4	21.0	100	111.00
S2-4SV	blue		1.5 - 2.5	insulated fork lug	4.3	6.4	21.0	100	108.00
S2-4LV	blue		1.5 - 2.5	insulated fork lug	4.3	8.5	22.0	100	132.00
S2-5SV	blue		1.5 - 2.5	insulated fork lug	5.3	8.5	22.0	100	127.00
S2-6SV	blue		1.5 - 2.5	insulated fork lug	6.5	9.5	22.0	100	131.00
S5-4SV	yellow		4.0 - 6.0	insulated fork lug	4.3	8.5	25.2	100	210.00
S5-5V	yellow		4.0 - 6.0	insulated fork lug	5.3	9.5	25.2	100	210.00
S5-6SV	yellow		4.0 - 6.0	insulated fork lug	6.5	9.5	25.2	100	200.00
Pin terminals									
PT1-10V	red		0.5 - 1.5	insulated pin lug	1.9	10.5	20.5	100	106.00
PT2-10V	blue		1.5 - 2.5	insulated pin lug	1.9	10.5	20.5	100	119.00
PT2-12V	blue		1.5 - 2.5	insulated pin lug	1.9	12.5	22.5	100	133.00
PT5-13V	yellow		4.0 - 6.0	insulated pin lug	2.8	13.7	26.2	100	253.00
Ferrule / butt connector									
BB1V	red		0.5 - 1.5	insulated ferrule	1.7	—	26.0	100	93.00
BB2V	blue		1.5 - 2.5	insulated ferrule	2.3	—	26.0	100	109.00
BB5V	yellow		4.0 - 6.0	insulated ferrule	2.3	—	26.0	100	188.00

Pre-insulated terminals

	type	colour		wire size mm ²	description	dimensions (mm)			pack qty	price
						d2	B	L		
	Flat-blade terminal									
	BT1-10V	red	■	0.5 - 1.5	insulated flat blade lug	2.4	10.7	20.7	100	92.00
	BT1-14V	red	■	0.5 - 1.5	insulated flat blade lug	3	14	24	100	105.00
	BT1-18V	red	■	0.5 - 1.5	insulated flat blade lug	2.4	18	28	100	107.00
	BT2-10V	blue	■	1.5 - 2.5	insulated flat blade lug	2.4	10.7	20.7	100	104.00
	BT2-13V	blue	■	1.5 - 2.5	insulated flat blade lug	2.4	13	23	100	108.00
	BT2-18V	blue	■	1.5 - 2.5	insulated flat blade lug	2.4	18	28	100	119.00
	BT5-10V	yellow	■	4.0 - 6.0	insulated flat blade lug	2.8	10	22.5	100	191.00
BT5-18V	yellow	■	4.0 - 6.0	insulated flat blade lug	3	18	30.5	100	211.00	
	Hook-blade terminal									
	LB1-3V	red	■	0.5 - 1.5	insulated hook blade lug	3.0	18.0	28.0	100	128.00
	LB1-4.6V	red	■	0.5 - 1.5	insulated hook blade lug	4.6	18.0	28.0	100	147.00
	LB2-3V	blue	■	1.5 - 2.5	insulated hook blade lug	3.0	18.0	28.0	100	145.00
	LB2-4.6V	blue	■	1.5 - 2.5	insulated hook blade lug	4.6	18.0	28.0	100	166.00
	LB5-3V	yellow	■	4.0 - 6.0	insulated hook blade lug	3.0	17.5	30.0	100	206.00
LB5-4.6V	yellow	■	4.0 - 6.0	insulated hook blade lug	4.6	17.5	30.0	100	232.00	
	Female disconnect terminals "push-on"									
	F1-2.8V/5	red	■	0.5 - 1.5	female disconnect	2.8	3.2	18.5	100	64.00
	F1-2.8VD/5*	red	■	0.5 - 1.5	female disconnect	2.8	3.2	18.5	100	120.00
	F1-4.8V/5	red	■	0.5 - 1.5	female disconnect	4.8	5.0	19.0	100	77.00
	F1-4.8VD/5*	red	■	0.5 - 1.5	female disconnect	4.8	5.0	19.0	100	141.00
	F1-6.4V	red	■	0.5 - 1.5	female disconnect	6.4	6.6	21.0	100	100.00
	F1-6.4VF	red	■	0.5 - 1.5	fully insulated disconnect	6.4	6.6	22.0	100	116.00
	F1-6.4VD*	red	■	0.5 - 1.5	female disconnect	6.4	6.6	21.0	100	154.00
	F1-6.4VQD*	■	red	0.5 - 1.5	fully insulated disconnect	6.4	6.6	21.5	100	191.00
	F2-2.8VD/5*	blue	■	1.5 - 2.5	female disconnect	2.8	3.2	18.5	100	129.00
	F2-4.8V/5	blue	■	1.5 - 2.5	female disconnect	4.8	5.0	19.0	100	84.00
	F2-4.8VD/5*	blue	■	1.5 - 2.5	female disconnect	4.8	5.0	19.0	100	151.00
	F2-6.4V	blue	■	1.5 - 2.5	female disconnect	6.4	6.6	21.0	100	105.00
	F2-6.4VF	blue	■	1.5 - 2.5	fully insulated disconnect	6.4	6.6	22.0	100	120.00
	F2-6.4VD*	blue	■	1.5 - 2.5	female disconnect	6.4	6.6	21.0	100	163.00
	F2-6.4VQD*	■	blue	1.5 - 2.5	fully insulated disconnect	6.4	6.6	21.5	100	202.00
	F2-8V	blue	■	1.5 - 2.5	female disconnect	8.0	8.4	24.0	100	150.00
	F2-8VD*	blue	■	1.5 - 2.5	female disconnect	8.0	8.4	24.0	100	216.00
	F5-6.4V	yellow	■	4.0 - 6.0	female disconnect	6.4	6.6	23.5	100	118.00
	F5-6.4VD*	yellow	■	4.0 - 6.0	female disconnect	6.4	6.6	23.5	100	231.00
	F5-6.4VQD*	■	yellow	4.0 - 6.0	fully insulated disconnect	6.4	6.6	24.5	100	280.00
	F5-9.5V	yellow	■	4.0 - 6.0	female disconnect	9.5	9.9	28.5	100	236.00
F5-9.5VD*	yellow	■	4.0 - 6.0	female disconnect	9.5	9.9	28.5	100	376.00	
* Twin-grip crimp ■ Square entry / twin-grip / fully insulated										
	Male disconnect terminals "push-on"									
	M1-2.8V/5	red	■	0.5 - 1.5	male disconnect	—	2.8	19.2	100	79.00
	M1-2.8VD/5*	red	■	0.5 - 1.5	male disconnect	—	2.8	19.2	100	138.00
	M1-4.8V/5	red	■	0.5 - 1.5	male disconnect	—	4.8	19.2	100	79.00
	M1-4.8VD/5*	red	■	0.5 - 1.5	male disconnect	—	4.8	19.2	100	141.00
	M1-6.4V	red	■	0.5 - 1.5	male disconnect	—	6.4	21.2	100	88.00
	M1-6.4VD*	red	■	0.5 - 1.5	male disconnect	—	6.4	21.2	100	141.00
	M2-2.8V/5	blue	■	1.5 - 2.5	male disconnect	—	2.8	19.2	100	83.00
	M2-2.8VD/5*	blue	■	1.5 - 2.5	male disconnect	—	2.8	19.2	100	162.00
	M2-4.8V/5	blue	■	1.5 - 2.5	male disconnect	—	4.8	19.2	100	84.00
	M2-4.8VD/5*	blue	■	1.5 - 2.5	male disconnect	—	4.8	19.2	100	167.00
	M2-6.4V	blue	■	1.5 - 2.5	male disconnect	—	4.8	21.2	100	92.00
	M2-6.4VD*	blue	■	1.5 - 2.5	male disconnect	—	4.8	21.2	100	162.00
	M5-6.4V	yellow	■	4.0 - 6.0	male disconnect	—	6.4	23.2	100	107.00
M5-6.4VD*	yellow	■	4.0 - 6.0	male disconnect	—	6.4	23.7	100	237.00	
* Twin-grip crimp										

Pre-insulated terminals

	type	colour	wire size mm ²	description	dimensions (mm)			pack qty	price	
					d2	B	L			
              	Piggy back disconnect terminals “push-on”									
	PB1-6.4V	red		0.5 - 1.5	piggy-back disconnect	6.4	6.6	21.0	100	168.00
	PB1-6.4VD*	red		0.5 - 1.5	piggy-back disconnect	6.4	6.6	21.0	100	220.00
	PB2-6.4V	blue		1.5 - 2.5	piggy-back disconnect	6.4	6.6	21.0	100	172.00
	PB2-6.4VD*	blue		1.5 - 2.5	piggy-back disconnect	6.4	6.6	21.0	100	229.00
	PB5-6.4V	yellow		4.0 - 6.0	piggy-back disconnect	6.4	6.6	23.5	100	185.00
	PB5-6.4VD*	yellow		4.0 - 6.0	piggy-back disconnect	6.4	6.6	23.5	100	298.00
	* Twin-grip crimp									
	Male bullet disconnect									
	BD1-4V	red		0.5 - 1.5	male bullet disconnect	—	4.0	21.0	100	92.00
	BD1-4VD*	red		0.5 - 1.5	male bullet disconnect	—	4.0	21.0	100	160.00
	BD2-5V	blue		1.5 - 2.5	male bullet disconnect	—	5.0	21.0	100	106.00
	BD2-5VD*	blue		1.5 - 2.5	male bullet disconnect	—	5.0	21.0	100	185.00
	BD5-5V	yellow		4.0 - 6.0	male bullet disconnect	—	5.0	23.0	100	131.00
	BD5-5VD*	yellow		4.0 - 6.0	male bullet disconnect	—	5.0	23.0	100	271.00
	* Twin-grip crimp									
Female bullet disconnect										
RE1-4VF	red		0.5 - 1.5	female bullet disconnect	—	4.0	22.0	100	113.00	
RE1-4VFD*	red		0.5 - 1.5	female bullet disconnect	—	4.0	22.5	100	186.00	
RE2-5VF	blue		1.5 - 2.5	female bullet disconnect	—	5.0	23.5	100	138.00	
RE2-5VFD*	blue		1.5 - 2.5	female bullet disconnect	—	5.0	23.5	100	213.00	
RE5-5VF	yellow		4.0 - 6.0	female bullet disconnect	—	5.0	25.5	100	148.00	
RE5-5VFD*	yellow		4.0 - 6.0	female bullet disconnect	—	5.0	25.0	100	291.00	
* Twin-grip crimp										
Quick-splice connectors										
SP1	red		0.5 - 1.5	quick-splice connector	—	20.0	26.8	100	117.00	
SP2	blue		1.5 - 2.5	quick-splice connector	—	20.0	26.8	100	106.00	
SP5	yellow		4.0 - 6.0	quick-splice connector	—	20.0	35.0	100	205.00	
      	Insulated cord-end (boot lace) terminals									
	CE007508F	blue		0.75	cord-end terminal	1.2	14.0	8.0	500	162.00
	CE010010F	red		1.0	cord-end terminal	1.4	16.0	10.0	500	182.00
	CE015010F	black		1.5	cord-end terminal	1.7	16.0	10.0	500	182.00
	CE025012F	grey		2.5	cord-end terminal	2.2	18.0	12.0	500	240.00
	CE040012F	orange		4.0	cord-end terminal	2.8	20.0	12.0	500	369.00
	CE060012F	green		6.0	cord-end terminal	3.5	20.0	12.0	500	424.00
	CE100012F	brown		10.0	cord-end terminal	4.5	22.0	12.0	500	521.00
	CE160012F	ivory		16.0	cord-end terminal	5.8	24.0	12.0	500	733.00
	CE250016F	black		25.0	cord-end terminal	7.3	30.0	16.0	500	1 180.00
      	Shrink solder seal sleeves IP67									
	Transparent heat shrinkable insulation sleeve provides encapsulation, inspection, strain relief and insulation. One piece design, consists of transparent heat shrinkable sleeve with coloured hot-melt glue on either side of tube with internal fast melting fluxed solder providing a insulated very convenient connection of wires.									
	- Waterproof, heat shrinkable, transparent sleeve provides precise inspection - Colored hot-melt adhesive for easy Identification and improved strain relief - Polyolefin heat shrink butt connectors - shrink ratio 2:1									
	Operating temperature: -55°C ~ +125°C (Min. shrink temp. 60°C)									
	Voltage resistant: >600V									
	Volume Resistivity (Ω cm): ≥10 15									
	Dielectric Strength (KV/mm): ≥25									
										
										
										
										
	JSL 1305-1									
	Crimping tools for pre-insulated terminals									
	Crimping profiles for different wire cross-sections (red/blue/yellow)									
	JSL 1305-1	universal crimping tool for: red / blue / yellow pre-insulated terminals								
										

Above ZAR prices do not include VAT. E&OE

Crimping lugs



ANE3-M8



ANE3-U5



ANE7-P20



HNN4

Insulated crimping lugs for copper conductors

ANE-M series lugs manufactured from electrolytic copper tube annealed and tin plated, designed to obtain the most efficient electrical conductivity and mechanical strength to resist vibration and pull out.

- Material: Electrolytic Copper - Insulated sleeve: PA6.6 (-20 to 115°C)
- Conformity: UNI EN 13600:2003

General features

- ANE-M lugs are annealed to guarantee optimum ductility which is an absolute necessity for connectors which will have to withstand the severe deformation arising when compressed and any bending of the palm during installation.
- The interior of the PA6.6 insulation sleeve is funnel shaped so as to ensure complete and easy introduction of the conductor strands.
- The PA6.6 insulated sleeve eliminates the need to insulate the terminal by either taping or using heat shrinkable tubes. Furthermore the PA6.6 sleeve avoids the possibility of conductor breakage at the barrel entrance.

type	cable (mm ²)	Ø stud (mm)	palm width (mm)	description	std pack qty	price per pack
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ANE-M series - Insulated crimping lugs

ANE2-M4	10	4.3	10	heavy duty ins. ring lug	100	1 710.00
ANE2-M5	10	5.3	10	heavy duty ins. ring lug	100	1 660.00
ANE2-M6	10	6.4	11	heavy duty ins. ring lug	100	1 280.00
ANE2-M8	10	8.4	15	heavy duty ins. ring lug	100	1 350.00
ANE3-M4	16	4.3	11.5	heavy duty ins. ring lug	100	1 800.00
ANE3-M5	16	5.3	11.5	heavy duty ins. ring lug	100	1 800.00
ANE3-M6	16	6.4	11.5	heavy duty ins. ring lug	100	1 350.00
ANE3-M8	16	8.4	15	heavy duty ins. ring lug	100	1 830.00
ANE5-M5	25	5.3	14	heavy duty ins. ring lug	100	2 480.00
ANE5-M6	25	6.4	14	heavy duty ins. ring lug	100	2 480.00
ANE5-M8	25	8.4	15	heavy duty ins. ring lug	100	2 520.00
ANE5-M10	25	10.5	18	heavy duty ins. ring lug	100	2 650.00
ANE7-M6	35	6.4	17	heavy duty ins. ring lug	50	1 700.00
ANE7-M8	35	8.4	17	heavy duty ins. ring lug	50	1 710.00
ANE7-M10	35	10.5	19	heavy duty ins. ring lug	50	1 830.00
ANE7-M12	35	13.2	21	heavy duty ins. ring lug	50	2 280.00
ANE10-M6	50	6.4	19	heavy duty ins. ring lug	50	2 180.00
ANE10-M8	50	8.4	19	heavy duty ins. ring lug	50	2 290.00
ANE10-M10	50	10.5	20	heavy duty ins. ring lug	50	2 420.00
ANE10-M12	50	13.2	21	heavy duty ins. ring lug	50	2 440.00

ANE-U series - Insulated fork lugs

ANE2-U4	10	4.3	9.8	heavy ins. duty fork lug	100	1 660.00
ANE2-U5	10	5.3	11.5	heavy ins. duty fork lug	100	1 710.00
ANE3-U4	16	4.3	10.0	heavy ins. duty fork lug	100	1 830.00
ANE3-U5	16	5.3	11.5	heavy ins. duty fork lug	100	1 830.00

ANE-P series - Insulated pin lugs

ANE2-P12	10	L-14.5	4.3	heavy duty pin lug	100	1 710.00
ANE3-P14	16	L-18.0	5.5	heavy duty pin lug	100	1 350.00
ANE5-P16	25	L-20.3	7.0	heavy duty pin lug	100	2 900.00
ANE7-P20	35	L-25.3	8.0	heavy duty pin lug	50	2 170.00

Category-M

Cembre - Crimpstar range - Ratchet crimping tools

HNN ratchet controlled tools in the Crimpstar range, are compact, lightweight and easy to use.

General features:

- High precision investment cast jaws
- Toggle action leverage to reduce operator effort
- Ergonomically designed non-slip moulded plastic grips
- Ratchet controlled to ensure precise and consistent crimping
- Emergency release lever (releases jaws before completion of crimp)
- Factory-set ratchet for crimping control (automatic release on completion of crimping operation)

see
Cat M for
pricing.

type	for terminals	conductor (mm ²)	cable entry	description	price
HNN3	insulated	1.5 to 10	side	manual indent ratchet crimping tool	
HNN4	insulated	10 to 16	side	manual indent ratchet crimping tool	

Crimping lugs



Crimping lugs for copper conductors

The copper lugs in the A-M range are crafted from high-purity electrolytic copper, ensuring superior electrical conductivity and mechanical strength.

Designed to withstand rigorous conditions, including vibration and pull-out resistance, these lugs are annealed to optimize ductility, which is crucial during crimping and installation.

The lugs are also tin-plated to prevent oxidation, further enhancing their durability in various applications

• Material: Electrolytic Copper - annealed and Tin plated

type	cable (mm ²)	Ø stud (mm)	palm width (mm)	description	std pack qty	price per pack
A03-M4	1.5	4.3	6.5	heavy duty crimping lug	100	225.00
A03-M5	1.5	5.3	7.5	heavy duty crimping lug	100	225.00
A03-M6	1.5	6.4	9.0	heavy duty crimping lug	100	225.00
A06-M4	2.5	4.3	7.5	heavy duty crimping lug	100	245.00
A06-M5	2.5	5.3	8.5	heavy duty crimping lug	100	245.00
A06-M6	2.5	6.4	9.0	heavy duty crimping lug	100	245.00
A06-M8	2.5	6.4	9.0	heavy duty crimping lug	100	257.00
A1-M4	4-6	4.3	8.0	heavy duty crimping lug	100	303.00
A1-M5	4-6	5.3	9.0	heavy duty crimping lug	100	328.00
A1-M6	4-6	6.4	11.0	heavy duty crimping lug	100	322.00
A1-M8	4-6	6.4	11.0	heavy duty crimping lug	100	354.00
A1-M10	4-6	6.4	11.0	heavy duty crimping lug	100	392.00
A2-M4	10	4.3	10	heavy duty crimping lug	100	450.00
A2-M5	10	5.3	10	heavy duty crimping lug	100	450.00
A2-M6	10	6.4	11	heavy duty crimping lug	100	450.00
A2-M8	10	8.4	15	heavy duty crimping lug	100	553.00
A2-M10	10	8.4	15	heavy duty crimping lug	100	591.00
A3-M4	16	4.3	11.5	heavy duty crimping lug	100	546.00
A3-M5	16	5.3	11.5	heavy duty crimping lug	100	546.00
A3-M6	16	6.4	11.5	heavy duty crimping lug	100	546.00
A3-M8	16	8.4	15	heavy duty crimping lug	100	598.00
A3-M10	16	8.4	15	heavy duty crimping lug	100	630.00
A3-M12	16	8.4	15	heavy duty crimping lug	100	771.00
A5-M6	25	6.4	14	heavy duty crimping lug	100	919.00
A5-M8	25	8.4	15	heavy duty crimping lug	100	919.00
A5-M10	25	10.5	18	heavy duty crimping lug	100	964.00
A5-M12	25	13.2	21	heavy duty crimping lug	100	1 150.00
A7-M6	35	6.4	17	heavy duty crimping lug	100	1 350.00
A7-M8	35	8.4	17	heavy duty crimping lug	100	1 350.00
A7-M10	35	10.5	19	heavy duty crimping lug	100	1 350.00
A7-M12	35	13.2	21	heavy duty crimping lug	50	768.00
A10-M6	50	6.4	19	heavy duty crimping lug	50	893.00
A10-M8	50	8.4	19	heavy duty crimping lug	50	893.00
A10-M10	50	10.5	20	heavy duty crimping lug	50	893.00
A10-M12	50	13.2	21	heavy duty crimping lug	50	1 040.00
A10-M16	50	13.2	21	heavy duty crimping lug	50	1 130.00
A14-M8	70	8.4	21	heavy duty crimping lug	50	1 470.00
A14-M10	70	10.5	21	heavy duty crimping lug	50	1 470.00
A14-M12	70	13.2	22	heavy duty crimping lug	50	1 470.00
A14-M16	70	17.0	26	heavy duty crimping lug	50	1 740.00
A19-M10	95	10.5	25	heavy duty crimping lug	25	1 060.00
A19-M12	95	13.2	25	heavy duty crimping lug	25	1 060.00
A19-M16	95	17.0	27	heavy duty crimping lug	25	1 210.00
A24-M8	120	10.5	28.5	heavy duty crimping lug	25	1 390.00
A24-M10	120	10.5	28.5	heavy duty crimping lug	25	1 390.00
A24-M12	120	13.2	28.5	heavy duty crimping lug	25	1 390.00
A24-M16	120	17.0	28.5	heavy duty crimping lug	25	1 630.00
A30-M10	150	10.5	31.5	heavy duty crimping lug	25	2 090.00
A30-M12	150	13.2	31.5	heavy duty crimping lug	25	1 930.00
A30-M16	150	17.0	31.5	heavy duty crimping lug	25	2 090.00
A37-M10	185	10.5	35.5	heavy duty crimping lug	15	1 590.00
A37-M12	185	13.2	35.5	heavy duty crimping lug	15	1 690.00
A37-M16	185	17.0	35.5	heavy duty crimping lug	15	1 790.00
A48-M12	240	13.2	39	heavy duty crimping lug	10	1 510.00
A48-M16	240	17.0	39	heavy duty crimping lug	10	1 930.00
A48-M20	240	21.0	39	heavy duty crimping lug	10	1 800.00

For contained palm lugs see page **L-24**

Above ZAR prices do not include VAT. E&OE

Crimping lugs



Contained palm crimping lugs

These crimping lugs feature a contained palm width, specifically designed for LV circuit breakers with reduced space termination. The contained palm permits immediate and easier installation.

type	cable (mm ²)	Ø stud (mm)	palm width (mm)	description	std pack qty	price per lug
A19B-M8/15.5	95	M8	15.5	contained palm cable lug	25	89.00
A24B-M8/19	120	M8	19.0	contained palm cable lug	25	180.00
A30B-M8/19	150	M8	19.0	contained palm cable lug	25	222.00
A37B-M10/24.5	185	M10	24.5	contained palm cable lug	15	246.00
A48-M10/31	240	M10	31.0	contained palm cable lug	10	322.00

L-M series - Uninsulated through connectors (ferrules)

L-M range of connectors are designed for jointing low voltage conductors. Are electrolytically tin plated with a minimum thickness of 3µm to avoid oxidation

These connectors are annealed to guarantee optimum ductility which is an absolute necessity for connectors which will have to withstand the severe deformation arising when compressed and any bending of the palm during installation.

They feature an internal taper at both ends to ease the introduction of the conductor and a central stop to ensure correct positioning.

Manufactured from electrolytic copper tube Cu-OF CW008A conform to UNI EN 13600:2013

type	cable (mm ²)	length (mm)	description	pack qty	price per pack
L03-M	1.5	L-15	heavy duty uninsulated crimp ferrules	100	335.00
L06-M	2.5	L-15	heavy duty uninsulated crimp ferrules	100	385.00
L1-M	4 - 6	L-22	heavy duty uninsulated crimp ferrules	100	553.00
L2-M	10	L-25	heavy duty uninsulated crimp ferrules	100	1 080.00
L3-M	16	L-27	heavy duty uninsulated crimp ferrules	100	1 140.00
L5-M	25	L-29	heavy duty uninsulated crimp ferrules	100	1 550.00
L7-M	35	L-33	heavy duty uninsulated crimp ferrules	100	2 460.00
L10-M	50	L-37	heavy duty uninsulated crimp ferrules	50	1 610.00
L14-M	70	L-39	heavy duty uninsulated crimp ferrules	50	2 010.00
L19-M	95	L-43	heavy duty uninsulated crimp ferrules	25	1 580.00
L24-M	120	L-47	heavy duty uninsulated crimp ferrules	25	2 350.00
L30-M	150	L-58	heavy duty uninsulated crimp ferrules	25	3 230.00
L37-M	185	L-64	heavy duty uninsulated crimp ferrules	15	2 650.00
L48-M	240	L-75	heavy duty uninsulated crimp ferrules	10	2 590.00

Category-M

Hydraulic crimping / cutting tools

type	for terminals	conductor (mm ²)	crimping force (kN)	description	price
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- Spring loaded handles, dies can be advanced using only one hand
- Supplied with sturdy plastic carrying case for tool with compartments for die sets

HT45 - Compact hydraulic crimping tool

Lightweight and compact, this tool is ideal for the compression of connectors on over head lines and other general applications.

HT45-E	die dependant	max. 150	50 kN	hydraulic crimping tool	
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HT51 - Two speed hydraulic crimping tool

• Supplied with:

Sturdy plastic carrying case for tool and (included) die sets:

ME 5-50, 7-50, 10-50, 14-50, 19-50, 24-50, 30-50, 37-50

KITHT51-1	die dependant	max. 240	50 kN	hydraulic crimping tool	
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HT131 - Hydraulic crimping tool for semi-circular slotted dies

Self contained, robust and sturdy, will accept all semicircular slotted dies, common to most 130 kN tools. The tool features a double speed action: a fast advancing speed for rapid approach of the dies to the connector and a slower more powerful speed for crimping.

For ease of operation and comfort of the operator the tool head can be fully rotated through 180 degrees.

• Supplied with:

Sturdy plastic carrying case for tool and (included) die sets:

ME 10-C, 14-C, 19-C, 24-C, 30-C, 37-C, 48-C

KITHT131-C-1	die dependant	max. 400	130 kN	hydraulic crimping tool	
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see
Cat M for
pricing.

Cable glands



Cable glands (compression)

Thread: Metric
 Protection degree: IP68-10
 Material: body: Nylon PA66 UL approved (*Flammability UL94V-2*)
 seal: EPDM
 Ambient temperature: -40°C...+100°C (*instantaneous heat resistance up to 120°C*)



type	thread size	thread length	compress area (mm)	colour	description	price
M - Metric thread cable glands (supplied with locknut)						
PMGB12-5	M12	8.5 mm	3-5.5	light grey	Metric compression gland	2.20
PMGB16-7	M16	10 mm	3-7	light grey	Metric compression gland	2.90
PMGB18-10	M18	10 mm	6-10	light grey	Metric compression gland	3.60
PMGB20-13.5	M20	10 mm	9-14	light grey	Metric compression gland	5.80
PMGB25-18	M25	12 mm	13-18	light grey	Metric compression gland	7.90
PMGB32-25	M32	12 mm	18-25	light grey	Metric compression gland	14.90
PMGB40-32	M40	15 mm	24-32	light grey	Metric compression gland	22.10
PMGB50-41	M50	15 mm	31-41	light grey	Metric compression gland	28.60
PMGB63-45	M63	18 mm	35-45	light grey	Metric compression gland	34.10
PMGB12-5B	M12	8.5 mm	3-6.5	black	Metric compression gland	2.20
PMGB16-7B	M16	10 mm	4-8	black	Metric compression gland	2.90
PMGB18-10B	M18	10 mm	6-10	black	Metric compression gland	3.60
PMGB20-13.5B	M20	10 mm	9-14	black	Metric compression gland	5.80
PMGB25-18B	M25	12 mm	13-18	black	Metric compression gland	7.90
PMGB32-25B	M32	12 mm	18-25	black	Metric compression gland	14.90
PMGB40-32B	M40	15 mm	26-31	black	Metric compression gland	22.10
PMGB50-41B	M50	15 mm	26-31	black	Metric compression gland	28.60
PMGB63-45B	M63	18 mm	35-45	black	Metric compression gland	34.10
PG - thread cable glands (supplied with locknut)						
PPGB7-5B	12.5	8 mm	3-5.5	black	PG compression gland	1.50
PPGB9-8B	15.2	8 mm	4-8	black	PG compression gland	2.20
PPGB11-10B	18.6	10 mm	6-10	black	PG compression gland	2.90
PPGB13.5-12B	20.4	10 mm	7-12.5	black	PG compression gland	2.90
PPGB16-11B	22.5	11 mm	6-11	black	PG compression gland	4.30
PPGB19-14B	24	11 mm	8.5-14	black	PG compression gland	5.70
PPGB21-18B	28.3	12 mm	12-18	black	PG compression gland	7.20
Metal cable glands (supplied with locknut)						
Thread: Metric						
Protection degree: IP68-10						
Material: body: Nickel plated brass						
seal: Nylon PA66, EPDM rubber						
Ambient temperature: -40°C...+100°C (<i>instantaneous heat resistance up to 120°C</i>)						
MGM8-4.5	M8	4 mm	3-4.5	nickel	metal compression gland	16.10
MGM12-6.5	M12	6.5 mm	3-6.5	nickel	metal compression gland	16.30
MGM16-8	M16	8 mm	4-8	nickel	metal compression gland	23.00
MGM18-10	M18	8 mm	5-10	nickel	metal compression gland	27.00
MGM20-12	M20	8 mm	6-12	nickel	metal compression gland	30.40
MGM20-12L	M20	11 mm	6-12	nickel	metal compression gland	32.00
MGM22-14	M22	8 mm	10-14	nickel	metal compression gland	36.60
MGM25-16	M25	9 mm	10-16	nickel	metal compression gland	57.00
MGM25-16L	M25	11 mm	10-16	nickel	metal compression gland	57.00
MGM32-22	M32	10 mm	15-22	nickel	metal compression gland	82.00
MGM40-30	M40	11 mm	22-30	nickel	metal compression gland	138.00
MGM50-38	M50	13 mm	32-38	nickel	metal compression gland	256.00
MGM63-44	M63	14 mm	37-44	nickel	metal compression gland	425.00
Stainless steel 316 (supplied with locknut)						
Thread: Metric						
Protection degree : IP68-10						
Material: body: Stainless steel 316						
seal: Nylon PA66, EPDM rubber						
Ambient temperature: -50°C...+180°C						
SSM12-6.5	M12	6.5 mm	3-6.5	S/S	stainless steel gland	78.00
SSM16-08	M16	8 mm	4-8	S/S	stainless steel gland	110.00
SSM20-12	M20	8 mm	6-12	S/S	stainless steel gland	135.00
SSM25-16	M25	9 mm	10-16	S/S	stainless steel gland	236.00
SSM32-22	M32	10 mm	15-22	S/S	stainless steel gland	372.00

Cable glands

  PSRM16-P-10B  PPGA20-E-14B  WLCM20S-7B  PLNM16B  EAM16/M20H  RAM32/M25H  PHPM20B	type	thread size	thread length	compress area (mm)	colour	description	price
	Strain relief cable glands <i>(supplied with locknut)</i> IP68-10						
	Material: Nylon PA66 UL approved <i>(Flammability UL94V-2)</i>						
	PSRM12-P-7B	M12	8.5 mm	4-7	black	nylon strain relief gland	19.90
	PSRM16-P-10B	M16	10 mm	6-10	black	nylon strain relief gland	23.50
	PSRM20S-P-12B	M20	10 mm	6-12.5	black	nylon strain relief gland	29.20
	90° Degree cable glands <i>(supplied with locknut)</i>						
	Material: Nylon PA66 UL approved <i>(Flammability UL94V-2)</i>						
	PPGA16-E-08B	M16	10 mm	4-7	black	90° compression gland	37.00
	PPGA20-E-14B	M20	15 mm	9-14	black	90° compression gland	51.00
	PPGA25-E-18B	M25	15 mm	13-18	black	90° compression gland	78.00
PPGA32-E-25B	M32	15 mm	18-25	black	90° compression gland	92.00	
Waterproof in-line connector IP68-10							
Material: Nylon PA66 UL approved <i>(Flammability UL94V-2)</i> seal: EPDM							
Ambient temperature: -40°C...+100°C <i>(instantaneous heat resistance up to 120°C)</i>							
WLCM20S-7B	M20	3-pole	4-7	black	waterproof connector	82.00	
WLCM20S-11B	M20	3-pole	6-11	black	waterproof connector	89.00	
WLCM25-16B	M25	4-pole	10-16	black	waterproof connector	133.00	
WLCM25-18B	M25	4-pole	13-19	black	waterproof connector	133.00	
Cable glands accessories							
Plastic locknuts <i>(metric)</i> <i>(spares)</i>							
PLNM12B	M12	locknut	—	black	nylon metric locknut only	0.80	
PLNM16B	M16	locknut	—	black	nylon metric locknut only	1.50	
PLNM20B	M20	locknut	—	black	nylon metric locknut only	2.20	
PLNM22B	M22	locknut	—	black	nylon metric locknut only	2.20	
PLNM25B	M25	locknut	—	black	nylon metric locknut only	2.90	
PLNM32B	M32	locknut	—	black	nylon metric locknut only	5.00	
PLNM40B	M40	locknut	—	black	nylon metric locknut only	7.90	
PLNM50B	M50	locknut	—	black	nylon metric locknut only	11.40	
PLNM63B	M63	locknut	—	black	nylon metric locknut only	14.30	
Adaptors <i>(metallic)</i> enlargers / reducers							
type	from male	to female	thread length	colour	description	price	
Nickel plate							
EAM12/M16H	M12	M16	6 mm	nickel	M enlargement adaptors	37.00	
EAM16/M20H	M16	M20	6 mm	nickel	M enlargement adaptors	44.00	
EAM20/M25H	M20	M25	6.5 mm	nickel	M enlargement adaptors	59.00	
EAM25/M32H	M25	M32	7.5 mm	nickel	M enlargement adaptors	99.00	
EAM32/M40H	M32	M40	8 mm	nickel	M enlargement adaptors	149.00	
EAM40/M50H	M40	M50	9 mm	nickel	M enlargement adaptors	186.00	
RAM16/M12H	M16	M12	6 mm	nickel	M reduction adaptors	15.00	
RAM20/M16H	M20	M16	6 mm	nickel	M reduction adaptors	24.90	
RAM25/M20H	M25	M20	6.5 mm	nickel	M reduction adaptors	41.00	
RAM32/M25H	M32	M25	7.5 mm	nickel	M reduction adaptors	74.00	
RAM40/M32H	M40	M32	8 mm	nickel	M reduction adaptors	102.00	
RAM50/M40H	M50	M40	9 mm	nickel	M reduction adaptors	183.00	
Nylon blanking plugs <i>(supplied with locknut)</i> IP68							
Material: Nylon PA66 UL approved <i>(Flammability UL94V-2)</i>							
type	thread size	thread length	compress area (mm)	colour	description	price	
PHPM12B	M12	9.5 mm	—	black	screw-in blanking plugs	3.60	
PHPM16B	M16	10 mm	—	black	screw-in blanking plugs	5.00	
PHPM20B	M20	11 mm	—	black	screw-in blanking plugs	7.20	
PHPM22B	M22	11 mm	—	black	screw-in blanking plugs	8.60	
PHPM25B	M25	11 mm	—	black	screw-in blanking plugs	10.70	
PHPM32B	M32	11 mm	—	black	screw-in blanking plugs	17.10	
PHPM40B	M40	12 mm	—	black	screw-in blanking plugs	29.90	
PHPM50B	M50	12 mm	—	black	screw-in blanking plugs	39.80	
PHPM63B	M63	12 mm	—	black	screw-in blanking plugs	50.00	

Corrugated conduit



Corrugated Conduit (flexible)

Product material: Polypropylene
Ambient temperature: -40°C...+120°C (*instantaneous heat resistance up to 140°C*)
Features: High flexibility, twist resistance, good bending performance, can withstand heavy loads; acid resistant, lubricants, coolant, etc.,
Applications: Machinery manufacturing, insulation protection, lighting, automobile manufacturing, aviation equipment, subway, train, automation control and other industries.

type	IDØ (mm)	colour	ODØ (mm)	description	meters (per roll)	price (per roll)
AD13.0	10	black	13.0	plastic convoluted tubing	25	162.00
AD15.8	12	black	15.8	plastic convoluted tubing	25	192.00
AD21.2	17	black	21.2	plastic convoluted tubing	25	257.00
AD25.0	20	black	25.0	plastic convoluted tubing	25	325.00
AD34.5	29	black	34.5	plastic convoluted tubing	25	488.00
AD42.5	36	black	42.5	plastic convoluted tubing	25	782.00
AD54.5	48	black	54.5	plastic convoluted tubing	25	1 360.00

Mounting accessories - for above corrugated conduit

Support bracket - for corrugated conduit				PA (Polyamide)	for conduit	
PJ-VH-13.0	—	black	holder	support bracket for conduit	AD-13	12.10
PJ-VH-15.8	—	black	holder	support bracket for conduit	AD15.8	13.50
PJ-VH-21.2	—	black	holder	support bracket for conduit	AD21.2	17.10
PJ-VH-25.0	—	black	holder	support bracket for conduit	AD25	20.60
PJ-VH-34.5	—	black	holder	support bracket for conduit	AD34.5	32.70
PJ-VH-42.5	—	black	holder	support bracket for conduit	AD42.5	37.70
PJ-VH-54.5	—	black	holder	support bracket for conduit	AD54.5	48.00

Quick connectors - through hole mounting

PA66

QCM12-AD13	M12	black	straight	quick connect connector	AD-13	8.60
QCM16-AD15.8	M16	black	straight	quick connect connector	AD15.8	10.00
QCM20-AD15.8	M20	black	straight	quick connect connector	AD15.8	10.00
QCM20-AD21.2	M20	black	straight	quick connect connector	AD21.2	12.10
QCM25-AD25	M25	black	straight	quick connect connector	AD25	12.80
QCM32-AD34.5	M32	black	straight	quick connect connector	AD34.5	19.20
QCM40-AD42.5	M40	black	straight	quick connect connector	AD42.5	26.30
QCM50-AD54.5	M50	black	straight	quick connect connector	AD54.5	46.00
QCM63-AD54.5	M63	black	straight	quick connect connector	AD54.5	50.00
EQCM16-AD13	M16	black	90°	elbow quick connector	AD-13	21.40
EQCM20-AD21.2	M20	black	90°	elbow quick connector	AD-21.2	29.90
EQCM25-AD28.5	M25	black	90°	elbow quick connector	AD28.5	39.00
EQCM32-AD34.5	M32	black	90°	elbow quick connector	AD34.5	51.00
EQCM40-AD42.5	M40	black	90°	elbow quick connector	AD42.5	75.00
EQCM50-AD54.5	M50	black	90°	elbow quick connector	AD54.5	109.00

Weatherproof connectors - through hole mounting

IP68

PA66

WCTM16-AD13	M16	black	straight	weatherproof connector	AD-13	13.50
WCTM20-AD15.8	M20	black	straight	weatherproof connector	AD15.8	18.50
WCTM20-AD21.2	M20	black	straight	weatherproof connector	AD21.2	22.80
WCTM25-AD25	M25	black	straight	weatherproof connector	AD25	27.00
WCTM32-AD34.5	M32	black	straight	weatherproof connector	AD34.5	37.70
WCTM40-AD42.5	M40	black	straight	weatherproof connector	AD42.5	63.00
WCTM50-AD54.5	M50	black	straight	weatherproof connector	AD54.5	100.00
WCTM63-AD54.5	M63	black	straight	weatherproof connector	AD54.5	114.00
EWCM16-AD13	M16	black	90°	weatherproof connector	AD-13	52.00
EWCM20-AD15.8	M20	black	90°	weatherproof connector	AD15.8	74.00
EWCM20-AD21.2	M20	black	90°	weatherproof connector	AD21.2	102.00
EWCM25-AD25	M25	black	90°	weatherproof connector	AD25	107.00
EWCM32-AD34.5	M32	black	90°	weatherproof connector	AD34.5	124.00
EWCM40-AD42.5	M40	black	90°	weatherproof connector	AD42.5	151.00

Spiral wrapping band (HDPE (Heavy-Duty Polyethylene))

type	IDØ (mm)	colour	ODØ (mm)	bundle Ø max. (mm)	description	meters (per roll)	price (per roll)
Ambient temperature: -50°C...+80°C							
Features: Easy installation, no tools required, provides safe protection for cables, wires, hoses, & tubing, protects against abrasion, chafing, cuts, prevents tangling.							
PJ-SWB-06	4	black	6	4...20	spiral binding	10	20.60
PJ-SWB-12	9	black	12	9...65	spiral binding	10	53.00
PJ-SWB-19	15	black	19	15...120	spiral binding	10	149.00

Above ZAR prices do not include VAT. E&OE

Junction boxes IP66 / 67


COMBI


COMBI 206



COMBI 308



COMBI 407



COMBI 304



COMBI 116

Junction boxes IP66/67

Wiska COMBI junction boxes provide ultimate protection from environmental conditions in a compact, very attractive format, suitable for extreme outdoor and indoor installations.

- **High-quality material** of the COMBI junction boxes is UV- and Ozone resistant, therefore suitable for inside as well as outside installation
- **Bellied cover** allows 10% more installation space
- Captive and rust-free **quick-release** lid screws
- Self-sealing **membranes on the rear** enable a clean assembly for cable outputs from the wall
- **Weather proof - ultraviolet resistant - shatterproof - impact resistant - flame retardant - halogen free**
- Protection: IP66 / IP67
- Material: Polypropylene, reinforced glass fibre, sealing: thermoplastic elastomer
- Temperature: -30°C...+100°C
- Glow wire test: 750°C
- Patented combination:
 - a) - Integrated thread for Metric cable gland entry without locknuts
 - b) - Elastic self-sealing puncture-membrane for cable entry on the sides and rear
- Mounting: Mounting holes located outside the sealing area but within the lid
- Colour: RAL 7035 (light grey) or RAL 9005 (black)

type	cable entry sides	rear	thread Ø	colour	description	dimensions (mm) (H) (W) (D)	price
Screw-on lid/cover IP66 - IP67 (when used with cable gland)							
• Captive rust free quick release (1/4 turn) lid screws of plastic • Combined threaded M20/membrane entries (407 and 1210 also have M25 knockouts)							
COMBI 206	IP66/67		(captive - quick release lid screws)				
10109569	6	2	M20	■ grey	weatherproof junction box	85 49 51	72.00
10109571	6	2	M20	■ black	weatherproof junction box	85 49 51	72.00
COMBI 308	IP66/67		(captive - quick release lid screws)				
10060400	8	—	M20	■ grey	weatherproof junction box	85 85 51	75.00
10060581	8	—	M20	■ black	weatherproof junction box	85 85 51	75.00
COMBI 407	IP66/67		1 x M20 cable entry can be knocked-out for M25 entry				
10105595	7	2	M20/25	■ grey	weatherproof junction box	95 95 60	116.00
10105601	7	2	M20/25	■ black	weatherproof junction box	95 95 60	116.00
COMBI 607	IP66/67		1 x M25 cable entry can be knocked-out for M20 entry				
10060531	7	3	M25	■ grey	weatherproof junction box	110 110 66	144.00
10060648	7	3	M25	■ black	weatherproof junction box	110 110 66	229.00
COMBI 1210	IP66/67		all M20 cable entries can be knocked-out for M25 entry				
10101459	10	4	M20	■ grey	round w/proof junction box	160 140 81	238.00
10101460	10	4	M20	■ black	round w/proof junction box	160 140 81	361.00

COMBI 304 round housing - Ø 82 mm

- Flat lid - bayonet cap (quarter turn screw fixing)
- Unique hook closing mechanism preventing unauthorised access. (tool required to gain access)
- Mounting via external lugs

10110629	4	—	M20	■ grey	weatherproof junction box	Ø 82 57	116.00
10110630	4	—	M20	■ black	weatherproof junction box	Ø 82 57	116.00

Push-on lid/cover IP66 Push-on lid/cover - for easy access to internal wiring

- Cable entry: Elastic self-sealing puncture-membranes for cable entry on sides and in the base

COMBI 108	IP66		(push-on lid/cover)				
10060522	10	2	—	■ grey	weatherproof junction box	76 76 51	61.00
COMBI 116	IP66		(push-on lid/cover)				
10109563	18	4	—	■ grey	weatherproof junction box	152 76 51	96.00

Accessories for above junction boxes

10108836	external mounting feet for COMBI		308/407/607/1210			59.00
22001132	SP-HKT 11/5	5-pole	internal terminal for COMBI 108/116/206/304/308/407			120.00
22000407	SP-HKT607	5-pole	internal mounting terminal for COMBI 607			122.00
10109800	ZER 4-12	Ø 4-11	strain relief ring for securing cable internally (10 pcs)			52.00
10110766	ZER 11-18	Ø 11-18	strain relief ring for securing cable internally (10 pcs)			56.00

Cable glands IP68



Wiska **SPRINT** cable glands provide ultimate protection from environmental conditions.

Suitable for extreme outdoor installations. -40°C...+100°C

- Protection: **IP68** to EN 60520 / **IP69K** to DIN 40 050-T9
- UV resistant: Type A, ISO 4892-2, UL-file QCRV2.E179850
- Flame protection: Glow wire test 750° acc.to EN60695-2-11
- Self-locking cap nut thread offering vibration protection
- Increased wall thickness for greater stability
- Smooth internal channel preventing cable jam on insertion
- Claw shape provides large sealing area and excellent adaptation to irregular cable profiles
- Material: Gland - Polyamide
Gasket - EPDM (*highly resistant to chemicals, environment and ultraviolet*)

Metric cable glands *grey (or) black*

type	thread diameter	compress area (mm)	description	dimensions (mm)			price
				(TL)	(L)	(SW)	

ESKV light grey RAL 7035 • Locknut to be ordered separately

10066410	M12 X 1.5	3 - 7	compression gland (grey)	29 - 43	9	16	8.40
10066411	M16 X 1.5	4.5 - 10	compression gland (grey)	31 - 37	9	20	8.40
10066412	M20 X 1.5	6 - 13	compression gland (grey)	36 - 45	10	24	8.40
10066413	M25 X 1.5	9 - 17	compression gland (grey)	38 - 47	10	29	12.90
10066414	M32 X 1.5	13 - 21	compression gland (grey)	42 - 51	12	36	25.00
10066415	M40 X 1.5	16 - 28	compression gland (grey)	52 - 65	12	46	61.00
10066416	M50 X 1.5	21 - 35	compression gland (grey)	59 - 72	14	55	91.00
10066417	M63 X 1.5	34 - 48	compression gland (grey)	64 - 78	15	68	148.00

EMUG locknuts for above

Material: *Light grey Polyamide/glassfibre reinforced*

10060770	M12 x 1.5	—	gland locknut (grey)	—	—	18	1.30
10060771	M16 x 1.5	—	gland locknut (grey)	—	—	22	2.00
10060772	M20 x 1.5	—	gland locknut (grey)	—	—	27	2.00
10060773	M25 x 1.5	—	gland locknut (grey)	—	—	32	2.60
10060774	M32 x 1.5	—	gland locknut (grey)	—	—	40	3.30
10060775	M40 x 1.5	—	gland locknut (grey)	—	—	50	7.70
10060776	M50 x 1.5	—	gland locknut (grey)	—	—	60	10.30
10060777	M63 x 1.5	—	gland locknut (grey)	—	—	75	17.30

ESKV black RAL 9005 • Locknut to be ordered separately

10066120	M12 x 1.5	3 - 7	compression gland (black)	29 - 43	9	16	8.40
10066121	M16 x 1.5	4.5 - 10	compression gland (black)	31 - 37	9	20	8.40
10066122	M20 x 1.5	6 - 13	compression gland (black)	36 - 45	10	24	8.40
10066123	M25 x 1.5	9 - 17	compression gland (black)	38 - 47	10	29	12.90
10066124	M32 x 1.5	13 - 21	compression gland (black)	42 - 51	12	36	25.00
10066125	M40 x 1.5	16 - 28	compression gland (black)	52 - 65	12	46	86.00
10066126	M50 x 1.5	21 - 35	compression gland (black)	59 - 72	14	55	91.00
10066127	M63 x 1.5	34 - 48	compression gland (black)	64 - 78	15	68	204.00

EMUG locknuts for above

Material: *Black polyamide/glassfibre reinforced*

10061780	M12 x 1.5	—	gland locknut (black)	—	—	18	1.30
10061781	M16 x 1.5	—	gland locknut (black)	—	—	22	2.00
10061782	M20 x 1.5	—	gland locknut (black)	—	—	27	2.00
10061783	M25 x 1.5	—	gland locknut (black)	—	—	32	2.60
10061784	M32 x 1.5	—	gland locknut (black)	—	—	40	3.30
10061785	M40 x 1.5	—	gland locknut (black)	—	—	50	16.70
10061786	M50 x 1.5	—	gland locknut (black)	—	—	60	28.90
10061787	M63 x 1.5	—	gland locknut (black)	—	—	75	37.20

EMSKV Metal cable glands • Locknut to be ordered separately

Material:		Cable gland: Nickle-plated brass		polyamide			price
10065000	M12 x 1.5	3 - 7	metal compression gland	23 - 30	5	16	52.00
10065001	M16 x 1.5	4.5 - 10	metal compression gland	26 - 34	5	20	66.00
10065002	M20 x 1.5	6 - 13	metal compression gland	29 - 37	6	24	80.00
10065003	M25 x 1.5	9 - 17	metal compression gland	33 - 42	7	29	124.00
10065004	M32 x 1.5	13 - 21	metal compression gland	36 - 44	8	36	205.00
10065005	M40 x 1.5	16 - 28	metal compression gland	44 - 55	8	46	384.00
10065006	M50 x 1.5	21 - 35	metal compression gland	51 - 62	9	55	548.00
10065007	M63 x 1.5	34 - 48	metal compression gland	56 - 67	10	68	1 160.00

EMMU locknuts for above

Material: *Nickle-plated brass*

10063141	M12 x 1.5	—	metal gland locknut	—	—	15	3.90
10063142	M16 x 1.5	—	metal gland locknut	—	—	19	5.80
10063143	M20 x 1.5	—	metal gland locknut	—	—	24	7.10
10063144	M25 x 1.5	—	metal gland locknut	—	—	30	10.90
10063145	M32 x 1.5	—	metal gland locknut	—	—	36	17.30
10063146	M40 x 1.5	—	metal gland locknut	—	—	46	28.20
10063147	M50 x 1.5	—	metal gland locknut	—	—	60	61.00
10063148	M63 x 1.5	—	metal gland locknut	—	—	70	91.00

Above ZAR prices do not include VAT. E&OE

Cable gland accessories

Cable gland accessories

SPRINT cable glands can be further enhanced to be applied for diverse applications by the introduction of various special inserts for blind, reduced cable diameters, multiple cable sealing.

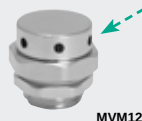
type	model	for gland	compress area (mm)	colour	description		price
Grommets		membrane cable entry with strain relief			-40°C...65°C		
CLIXX		push-in grommet enabling the simplest cable entry through a membrane with cable strain relief built-in.					
• Reliable sealing:		IP66 and IP67 to EN 60 529 weather proof, UV resistant					
• Space-saving:		Flat design, minimal space requirement					
• Easiest assembly:		Ext. mounting from one side - no thread, no locknuts					
• Incorporated:		Strain relief to EN 50 262 Type A					
• Time-saving:		Simple one-hand-only assembly reduce installation time by 80%					
• For wall thickness:		0.8 - 3.5 mm					
• Material:		Polypropylene / Thermoplastic elastomere					
10101861	CLIXX 16	M16	4.5...10	grey	membrane cable entry		9.00
10101359	CLIXX 20	M20	6...13	grey	membrane cable entry		7.70
10101862	CLIXX 25	M25	9...17	grey	membrane cable entry		12.20
MultiCLIXX		Multiple membrane cable entry with strain relief					
• Multiple cable entries		2 x Ø 4...8 mm + 2 x Ø 7...12 mm					
• Fast installation:		Push in - insert cable - done (for maximum time saving)					
• Strain relief:		EN 62444, Type A - for up to four cables at the same time					
10108616	EMTZ	M32	2 x 4-8 / 7-12	grey	multiple membrane entry		49.00
Reduction sealing inserts		for reduced cable diameters with existing gland			IP68		
• Material:		EPDM					
• Operating temperature:		-40°C...100°C					
10062183	RDE 12	M12	1...3	gland reduction sealing inserts			5.20
10062184	RDE 16	M16	2...6	gland reduction sealing inserts			6.50
10062185	RDE 20	M20	4...8	gland reduction sealing inserts			6.50
10060768	RDE 25	M25	7...12	gland reduction sealing inserts			8.40
10062186	RDE 32	M32	9...14	gland reduction sealing inserts			18.60
10062187	RDE 40	M40	12...20	gland reduction sealing inserts			43.00
Adaptors (plastic)							
• Temperature range:		-40°C to 100°C					
• Material:		Polyamide, reinforced glass fibre					
• Colour		RAL 7035	• Glow wire test		650 °C		
type	model	from male	to female	description		TL (mm)	price
Enlargement adaptors		metric to metric					
10063570	KEM 12/16	M12	M16	enlarging	adaptor	27	11.60
10063571	KEM 16/20	M16	M20	enlarging	adaptor	27	11.60
10063572	KEM 20/25	M20	M25	enlarging	adaptor	27	14.80
10063573	KEM 25/32	M25	M32	enlarging	adaptor	28	46.00
10063574	KEM 32/40	M32	M40	enlarging	adaptor	30	69.00
10063575	KEM 40/50	M40	M50	enlarging	adaptor	30	119.00
Reduction adaptors		metric to metric					
10063577	KRM 16/12	M16	M12	reduction	adaptor	16	9.70
10063579	KRM 20/16	M20	M16	reduction	adaptor	17	9.70
10063582	KRM 25/20	M25	M20	reduction	adaptor	17	18.00
10063584	KRM 32/20	M32	M20	reduction	adaptor	19	34.00
10063585	KRM 32/25	M32	M25	reduction	adaptor	19	34.00
10063588	KRM 40/32	M40	M32	reduction	adaptor	19	66.00
10063591	KRM 50/40	M50	M40	reduction	adaptor	21	90.00
PG to Metric adaptors		PG to metric					
10063650	APM 7/12	PG 7	M12	metric to PG	adaptor	27	12.90
10063653	APM 9/16	PG 9	M16	metric to PG	adaptor	27	14.10
10063655	APM 11/16	PG 11	M16	metric to PG	adaptor	27	15.40
10063659	APM 13.5/20	PG 13.5	M20	metric to PG	adaptor	28	16.70
10063661	APM 16/20	PG 16	M20	metric to PG	adaptor	28	17.30
10063662	APM 16/25	PG 16	M25	metric to PG	adaptor	28	17.30
10063664	APM 21/25	PG 21	M25	metric to PG	adaptor	30	20.60
10063667	APM 29/32	PG 29	M32	metric to PG	adaptor	19	28.20
10063670	APM 36/40	PG 36	M40	metric to PG	adaptor	21	76.00
10063673	APM 42/40	PG 42	M40	metric to PG	adaptor	21	140.00

Above ZAR prices do not include VAT. E&OE

L-30



PVM8



MVM12

New



BCGM20G



BCGM20B



SPR...

Vent pressure equalisation devices

Vent plugs/glands incorporate an internal membrane, designed to balance internal enclosure temperature and release pressure caused by differing internal temperatures to the outside ambient avoiding internal condensation without compromising the IP rating of the enclosure.

- Long service life in extreme environments
- Reduces fogging and internal condensation, improves heat emission efficiency in sealed enclosures

Vent plugs

(pressure equalisation for sealed enclosures)

IP68

type	thread size	colour	influent pressure	mi/min P;7kpa	description	price
Nylon PA66 - UL approved (Flammability UL94V-2)						
PVM8	M8	grey	>5 bar	>1200	screw-in vent plugs	16.50
PVM12	M12	grey	>5 bar	>2200	screw-in vent plugs	16.50
PVM16	M16	grey	>5 bar	>4600	screw-in vent plugs	38.30
10106591	M20	grey	>5 bar	>5230	screw-in vent plugs	150.00
10106593	M40	grey	>5 bar	>6820	screw-in vent plugs	339.00
PVM8B	M8	black	>5 bar	>1200	screw-in vent plugs	16.50
PVM12B	M12	black	>5 bar	>2200	screw-in vent plugs	16.50
PVM16B	M16	black	>5 bar	>4600	screw-in vent plugs	38.30

Nickel plated brass

MVM8	M8	nickel	>5 bar	>1000	screw-in vent plugs	56.00
MVM12	M12	nickel	>5 bar	>2000	screw-in vent plugs	56.00
MVM16	M16	nickel	>5 bar	>3800	screw-in vent plugs	84.00

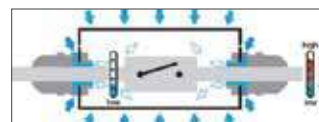
Ventilating gland

(pressure equalization for sealed enclosures)

IP67

Vent glands are essential components used in various applications to equalize pressure and prevent moisture ingress in sealed enclosures, ensuring that the internal components are protected from environmental factors. Normally:

1. The enclosure becomes warm during use, and a temperature difference can develop between the inside and outside.
2. This difference creates a vacuum, drawing air in from outside.
3. If the air cools and pressure does not equalise, condensation may form, potentially causing electrical breakdowns or short circuits. Therefore:
4. Using the breathable cable gland balances the enclosure's internal pressure with the surrounding pressure, fully maintaining its verified protection class.



type	thread Ø	colour	compress area (mm)	air flow rate	description	price
Breathable gland (compression gland and pressure equalisation element in one)						
BCGM12G	M12	grey	4 - 8	14 l/h	PA66 ventilating gland	20.60
BCGM16G	M16	grey	5 - 10	22 l/h	PA66 ventilating gland	22.80
BCGM20G	M20	grey	6 - 12	42 l/h	PA66 ventilating gland	24.20
10100666	M25	grey	9 - 17	65 l/h	PA66 ventilating gland	412.38
10100801	M32	grey	13 - 21	115 l/h	PA66 ventilating gland	574.32
BCGM12B	M12	black	4 - 8	14 l/h	PA66 ventilating gland	20.60
BCGM16B	M16	black	5 - 10	22 l/h	PA66 ventilating gland	22.80
BCGM20B	M20	black	6 - 12	42 l/h	PA66 ventilating gland	24.20
10100667	M25	black	9 - 17	65 l/h	PA66 ventilating gland	412.38
10100802	M32	black	13 - 21	115 l/h	PA66 ventilating gland	574.32

Blind plugs for glands

for tight sealing of unused cable inlet

type	Ø dia	colour	material	description	price
• Operating temperature: -40°C ...100°C					
SPR-024-B	2.4 mm	black	EPDM	blind plugs for unused glands	1.00
SPR-034-B	3.4 mm	black	EPDM	blind plugs for unused glands	1.00
SPR-060-B	6.0 mm	black	EPDM	blind plugs for unused glands	2.90
SPR-071-B	7.0 mm	black	EPDM	blind plugs for unused glands	3.60
SPR-100-B	10 mm	black	EPDM	blind plugs for unused glands	3.60
SPR-120-B	12 mm	black	EPDM	blind plugs for unused glands	5.00
SPR-140-B	14 mm	black	EPDM	blind plugs for unused glands	5.00
SPR-158-B	15.8 mm	black	EPDM	blind plugs for unused glands	9.30
SPR-178-B	17.8 mm	black	EPDM	blind plugs for unused glands	9.30
SPR-215-B	21.5 mm	black	EPDM	blind plugs for unused glands	10.70
SPR-245-B	24.5 mm	black	EPDM	blind plugs for unused glands	12.10
SPR-306-B	30.6 mm	black	EPDM	blind plugs for unused glands	19.20

Above ZAR prices do not include VAT. E&OE

Heat-shrink busbar protection



Heat shrink tubing

Provides an effective halogen-free, flexible, flame retardant, abrasion resistant insulation protection for cables and busbars in electrical and electronics applications.

type	inside dia Ø	shrink ratio	after recovery		description	roll length (meters)	price per roll
			dia Ø	wall thickness			

JD-HFT - Halogen free heat-shrinkable tubing

General purpose heat shrink tubing for use in enclosed areas where a flame retardant, halogen-free environment is required.

- Material: Polyolefin
- Colour: Black (other colours available on request)
- Shrink temperature: 90°C
- Operating temperature: -55°C...125°C

JD-HFT015-0	1.5 mm	3:1	0.5	≤ 0.40 mm	heat shrink tubing	200 m	878.00
JD-HFT030-0	3 mm	3:1	1.0	≤ 0.55 mm	heat shrink tubing	200 m	1 050.00
JD-HFT060-0	6 mm	3:1	2.0	≤ 0.60 mm	heat shrink tubing	100 m	1 040.00
JD-HFT090-0	9 mm	3:1	3.0	≤ 0.70 mm	heat shrink tubing	50 m	789.00
JD-HFT120-0	12 mm	3:1	4.0	≤ 0.70 mm	heat shrink tubing	50 m	966.00
JD-HFT180-0	18 mm	3:1	6.0	≤ 0.80 mm	heat shrink tubing	50 m	1 760.00
JD-HFT240-0	24 mm	3:1	8.0	≤ 1.00 mm	heat shrink tubing	25 m	1 540.00
JD-HFT390-0	39 mm	3:1	13.0	≤ 1.25 mm	heat shrink tubing	25 m	2 830.00

Other colours (replace last digit "0" with: "R" (red) "B" (blue) "W" (white))

+ 10%

JDD-BT-1KV heat-shrinkable bus bar insulation protection (medium wall)

Track resistant polyolefin heat-shrinkable bus bar tubing used to protect and insulate rectangular, square or round bus bars – halogen free, low smoke.

Busbar tubing calculation: add four sides and divide by 3.4+10%

- Material: Polyolefin
- Colour: Black (other colours available on request)
- Shrink ratio: 2:1
- Shrink temperature: 110°C
- Operating temperature: -55°C...125°C
- Tensile strength: ≥ 10.4MPa
- Elongation at break: ≥ 500%
- Dielectric strength: ≥ 25kV/mm

JDDBT020-0	20.0	2:1	8	1.10 mm	heat shrink tubing	100 m	2 800.00
JDDBT030-0	30.0	2:1	12	1.10 mm	heat shrink tubing	50 m	2 210.00
JDDBT040-0	40.0	2:1	16	1.10 mm	heat shrink tubing	50 m	2 550.00
JDDBT050-0	50.0	2:1	20	1.10 mm	heat shrink tubing	25 m	1 550.00
JDDBT060-0	60.0	2:1	24	1.10 mm	heat shrink tubing	25 m	2 050.00
JDDBT080-0	80.0	2:1	28	1.20 mm	heat shrink tubing	25 m	2 870.00
JDDBT100-0	100.0	2:1	50	1.20 mm	heat shrink tubing	25 m	4 100.00

Other colours (replace last digit "0" with: "R" (red) "B" (blue) "W" (white))

+ 10%

HFR - Expandable braided sleeving

Braided expandable sleeving provides excellent protection, durable abrasion resistance with excellent flame-retardant properties for the protection of wires, cables, wire harnesses, pipes and industrial hoses.

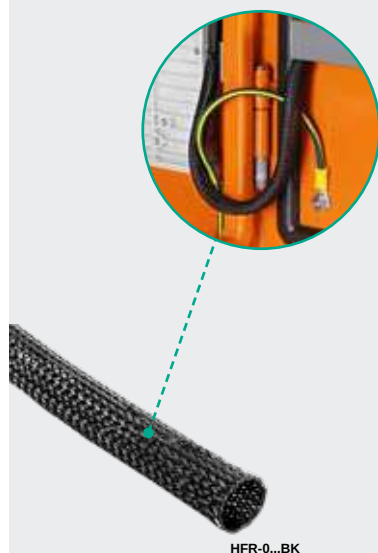
- Material: Polyester monofilament
- Standard colour: Black
- Operating temperature: -50°C...+150°C (melt point 230°C)
- Flammability: Flame retardant UL94 V-O
- Certified: RoHS, UL, CSA

type	nominal size *	expanded range Ø		description	carton length	price
		min.	max.			
HFR-008BK	8 mm	5 mm	16 mm	expandable braided sleeving	100 m	778.00
HFR-010BK	10 mm	7 mm	19 mm	expandable braided sleeving	100 m	1 110.00
HFR-012BK	12 mm	8 mm	24 mm	expandable braided sleeving	50 m	612.00
HFR-015BK	15 mm	10 mm	27 mm	expandable braided sleeving	50 m	855.00
HFR-020BK	20 mm	14 mm	30 mm	expandable braided sleeving	50 m	1 020.00
HFR-030BK	30 mm	20 mm	50 mm	expandable braided sleeving	50 m	1 740.00
HFR-040BK	40 mm	30 mm	60 mm	expandable braided sleeving	50 m	2 540.00
HFR-050BK	50 mm	40 mm	80 mm	expandable braided sleeving	50 m	3 280.00

* Nominal size indicates flat width

Application tools for above products

KD-8-3	handheld hot knife to cut and seal braided sleeving (to prevent fraying)	2 040.00
CS-800	hot gun 100-590°C digital temperature control for heatshrink tubing	1 480.00



HFR-0...BK

Distribution Terminals

Distribution terminals - (7,11,15 way)

General features:

Maximum operating temperature:	-5°C...+85°C (heat resistance to +130°C)
Insert material:	Brass with zinc plated screws
Insulating body material:	Support material polyamide – cover polycarbonate
Mounting:	DIN rail mounting (EN50022) or screw down
Standards:	EN 60998-1, EN 60998-2-1

type	No. ways	description	max. wire size (mm ²)					dimensions (mm)			price
			input	10	16	25	35	(H)	(W)	(D)	

Multi way terminal posts

(DIN rail mountable) 750V

M107V	7	green (earth) bar	2x16	5x	—	—	—	59	19	34	53.00
M1011V	11	green (earth) bar	2x16	9x	—	—	—	88	19	34	75.00
M1015V	15	green (earth) bar	2x16	13x	—	—	—	114	19	34	98.00
M107B	7	blue (neutral) bar	2x16	5x	—	—	—	59	19	34	53.00
M1011B	11	blue (neutral) bar	2x16	9x	—	—	—	88	19	34	75.00
M1015B	15	blue (neutral) bar	2x16	13x	—	—	—	114	19	34	98.00
M107G	7	grey (phase) bar	2x16	5x	—	—	—	59	19	34	53.00
M1011G	11	grey (phase) bar	2x16	9x	—	—	—	88	19	34	75.00
M1015G	15	grey (phase) bar	2x16	13x	—	—	—	114	19	34	98.00

Multi-pole protected distribution terminals

(DIN rail mountable) 750V

1MR series - Distribution terminals

- DIN rail or chassis mounting
- Low profile 45 mm deep (height of standard MCBs)
- Supplied with insulated DIN rail cover
- Rated voltage: 750V

type	No. ways	amps	no. bars	max. wire size (mm ²)					dimensions (mm)			price
				input	10	16	25	35	(H)	(W)	(D)	

2-pole - (1Ph+N)

Ipk 12kA - Icc rms 6kA - Icw rms (1s) 1.9kA

1MR6372	7	63A	2	2x16	5x	—	—	—	68	59	45	131.00
1MR63112	11	63A	2	2x16	9x	—	—	—	68	88	45	162.00

Ipk 22kA - Icc rms 11kA - Icw rms (1s) 6kA

1MR12572	7	125A	2	35 mm ²	5x	—	1x	—	47	68	45	215.00
1MR125112	11	125A	2	35 mm ²	6x	2x	2x	—	47	105	45	308.00
1MR125152	15	125A	2	35 mm ²	10x	2x	2x	—	47	134	45	358.00

4-pole - (3ph+N)

Ipk 22kA - Icc rms 11kA - Icw rms (1s) 6kA

1MR12574	7	125A	4	35 mm ²	5x	—	1x	—	98	72	45	332.00
1MR125114	11	125A	4	35 mm ²	6x	2x	2x	—	98	109	45	477.00
1MR125154	15	125A	4	35 mm ²	10x	2x	2x	—	98	138	45	571.00

Additional terminal bars **M107/1011/1015** can easily be clipped onto above distribution terminals

160A stepped distribution block 70 mm deep profile

Ipk 24kA - Icc rms 12kA - Icw rms (1s) 8kA

1MR160134	13	160A	4	50 mm ²	—	8x	2x	2x	136	186	70	1 080.00
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3MR series - Distribution terminal

Separated incoming terminals (two extra large incoming phase terminals on either side)

Ipk 22kA - Icc rms 11kA - Icw rms (1s) 6kA

3MR125164	16	125A	4	35 mm ²	11x	2x	2x	—	107	202	45	761.00
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Ipk 24kA - Icc rms 12kA - Icw rms (1s) 8kA

3MR160164	16	160A	4	50 mm ²	11x	—	2x	2x	107	233	45	1 560.00
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M1011B



M1011V



M107G



1MR6372



1MR12572



1MR12574

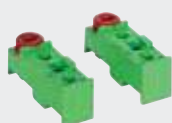


1MR160134

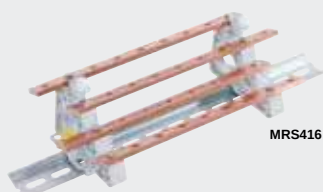


3MR160164

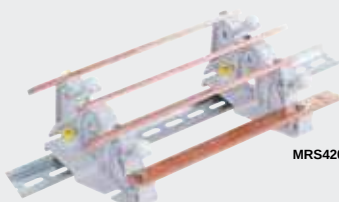
Busbar supports



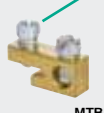
MRS122



MRS416



MRS420



MTB

Busbar supports

The MRS range of busbar supports are four pole (3Ph+N) with stepped phases for easy access and termination. Ideally combined with drilled and threaded copper busbars to make up distribution terminals of any size.

Insulating protection covers are available (*in one-meter lengths*) to provide protection against accidental touch of the bars. Ipk ratings are influenced by bar dimensions and the distance between supports.

General features:

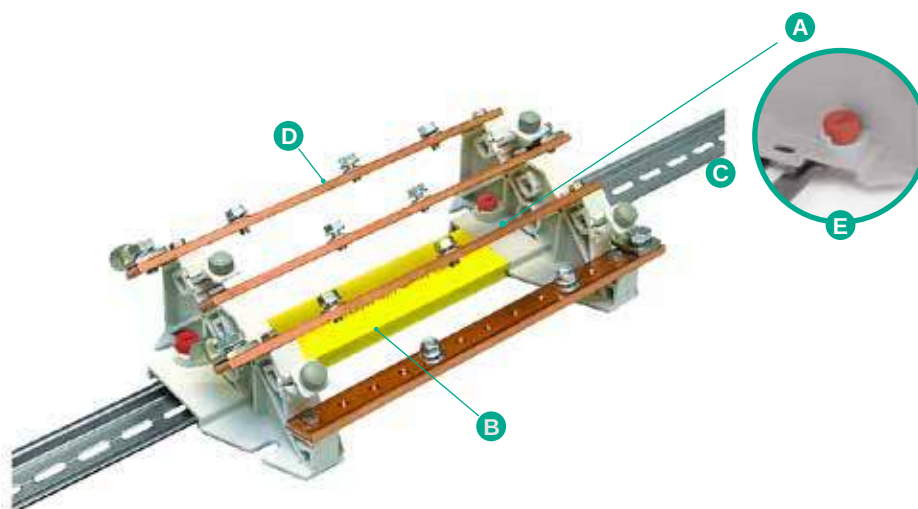
Maximum operating temperature:	+85°C
Heat resistance:	+130°C
Insulating body material:	Polyamide
Mounting:	DIN rail or chassis mount
Standards:	CEI EN 17-13/1 EN 60439

type	amps	no. bars	max bar width	description		dimensions (mm) (H) (W) (D)			price
Multi-pole busbar supports									
• DIN rail or chassis mount • With mounting accessories for <i>(optional)</i> protection cover and busbar mounting									
2-pole supports (1Ph+N)				supplied in pairs (2pcs)					
MRS122	65A	2	12 mm	1P+N	busbar supports (2 pcs)	47	14	18	271.00
4-pole stepped supports (3Ph+N)				supplied in 4 pcs (2 pair per set)					
160A - 4-pole busbar support									
MRS416*	160A	4	16 mm	3P+N	busbar supports (4 pcs)	90	25	57	992.00
250A - 4-pole busbar support									
MRS420*	250A	4	20 mm	3P+N	busbar supports (4 pcs)	132	67	59	1 380.00
* With eccentric pivot for safe mounting on DIN rail									
Terminal protection covers (for above supports)									
MRC2150	screen	protection cover for busbar support			MRS416	(1 meter length)			359.00
MRC2250	screen	protection cover for busbar support			MRS420	(1 meter length)			456.00
MTB	DIN rail earthing terminal			(for connecting earth wire to DIN rail)					23.10

Busbar - System

Example of a complete MRS busbar system:

- A - MRS420 - 4-pole busbar support
- B - DIN rail protection screen cover (*on request*)
- C - Perforated DIN rail, see page L-13
- D - Thread copper bar, see page L-36
- E - Eccentric pin for fixing the terminal block on the DIN rail guarantees maximum safety and reliability



Earth and neutral bar systems

Brass earthing and neutral terminals

- Brass bars with galvanised steel screws (*with cross head*)

type	wire sizes mm ²				No. of ways	screw Ø	dimensions (mm)			price
	1.5...4	2.5...6	4...16	16...35			(H)	(W)	(L)	

Single connection per hole

MRS1501	—	113	—	—	113	M4	9	6	1 meter	466.00
MRS1506	—	—	116	—	116	M5	12	8	1 meter	627.00
1300110	rail or base mount double support for brass rod									11.60

Double connection per hole M4 mounting holes

- Dual input up to 50 mm² (*2 x M10 bolt connections*)

MRS3000	—	2 x 6	—	—	12	M5	9	19	102	162.00
MRS3005	—	2 x 12	—	—	24	M5	9	19	144	220.00
MRS3010	—	2 x 24	—	—	48	M5	9	19	230	370.00

Chassis mounting earthing terminals

- Universal fixing: chassis mount or direct copper bar mount
- M6 mounting screws and input termination supplied with nuts, spacers and washers

MRS2000	8	8	3	1	20	M5	6	13	215	374.00
MRS5000	19	24	6	1	50	M5	6	13	462	558.00

Double connection per hole

- Universal fixing: chassis mount or direct copper bar mount
- M8 bolt to accommodate cable lug up to 95 mm²
- M6 mounting screws supplied with nuts, spacers and washers

MRS3500	2 x 14	2 x 19	2 x 7	2 x 1	82	M5	13	20	462	1 190.00
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Brass tap-off distribution block - direct busbar mounted (*drilled or clamp-on*)

- For direct connection onto Busbar, to tap off cables (*4 x 2.5...25 mm² + 4 x 4...35 mm²*)

BOC 1000	brass bolt-on busbar mounting terminal		(8 x outputs)	434.00
BOC 1005	brass clamp-on busbar mounting terminal		(for 5 mm bars)	692.00
BOC 1010	brass clamp-on busbar mounting terminal		(for 10 mm bars)	872.00

Distribution terminals

Single pole distribution terminals

DIN rail mountable - 7, 11, 15 way

Insulating body: PA 66 UL94-V0
 Insert material: Brass, screws galvanised steel
 Mounting: DIN rail mounting
 Base colours: Green, Blue, Grey
 Protection cover: PC UL94-V0, transparent yellow
 Standards: EN 60947-7-1

type	no. ways	base colour	wire size mm ²			description	length (mm)	price
			In (2x)	No.	Out			

Unipolar terminal blocks

ITB1030	7	green	2.5 - 16	5 x	1.5 - 6	earth distribution block	63	46.00
ITB1035	11	green	2.5 - 16	9 x	1.5 - 6	earth distribution block	95	65.00
ITB1040	15	green	2.5 - 16	13 x	1.5 - 6	earth distribution block	125	82.00
ITB1015	7	blue	2.5 - 16	5 x	1.5 - 6	neutral distribution block	63	46.00
ITB1020	11	blue	2.5 - 16	9 x	1.5 - 6	neutral distribution block	95	65.00
ITB1025	15	blue	2.5 - 16	13 x	1.5 - 6	neutral distribution block	125	82.00
ITB1000	7	grey	2.5 - 16	5 x	1.5 - 6	phase distribution block	63	46.00
ITB1005	11	grey	2.5 - 16	9 x	1.5 - 6	phase distribution block	95	65.00
ITB1010	15	grey	2.5 - 16	13 x	1.5 - 6	phase distribution block	125	82.00
ITB2000	DIN rail mount support for horizontal mounting of up to 4 of above terminals							18.40

Spider connector for threaded bars 12 mm wide

- Material: Passivated galvanised steel
- Connections: 1 or 2 cables 1.5...10 mm²
- Complete with: M5 x 12 screws

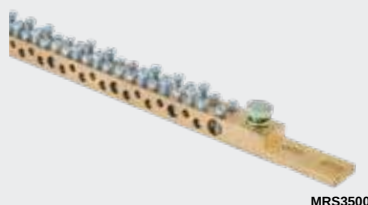
MCR1100	spider connector to connect cables to 12 mm threaded bar	1.5...10 mm ²	13.50
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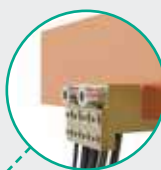
MRS1501



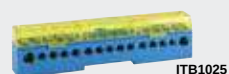
MRS3005



MRS3500



BOC 1000



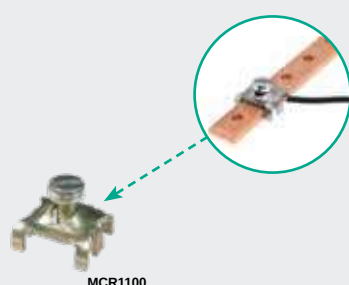
ITB1025



ITB1035



ITB1000



MCR1100

Distribution blocks & threaded copper bars



Distribution blocks permit simple termination from one main incomer supply (up to 500A) to be distributed to many other lower current outputs downstream. Equipped with an opening transparent protection screen for easy inspection of terminations.

type	rated	feed-in terminals		max. output					I _{cw} (kA)	I _{pk} (kA)	dimensions (mm)			price
	current	max. cable	busbar	terminals (mm²)							dimensions (mm)			
	(A)	(mm²)	W (mm)	—	6	10	16	35			(H)	(W)	(D)	

RP series - Power distribution blocks

- Insulating body: PA 66 UL 94-V0, Cover: PC, transparent yellow.
- Conduction block: Tinned copper
- Index protection: IP20
- Compliant with standard EN 60947-7-1

Single pole power distribution blocks - can receive Cable or Flexible/rigid bars (in some cases)

RPU2995	80A	6...16	–	–	4x	–	2x	–	3	22	66	30	46	191.00
RPU3000	125A	10...35	9	–	–	–	9x	–	4.4	30	75	40	48	400.00
RPU3005	160A	10...70	13	–	–	–	9x	–	11	30	75	40	48	560.00
RPU3010	250A	35...120	15.5	–	–	4x	5x	2x	21	51	96	47	50	776.00
RPU3015	400A	95...185	20	–	–	4x	5x	2x	21	51	96	47	50	863.00
RPU3020	500A	–	24	–	–	4x	5x	2x	21	51	96	47	50	940.00

Three pole power distribution blocks - can receive Cable or Flexible/rigid bars (in some cases)

RPT3000	125A	10...35	9	–	–	–	6x	–	4.4	30	75	85	48	967.00
RPT3005	160A	10...70	13	–	–	–	6x	–	11	30	75	85	48	1 140.00

Multi-pole distribution blocks

DIN rail mountable

EN 60947-7-1

- Mounting: DIN rail or chassis mounting
- Insulating structure: Self-extinguishing to UL94-V0 - Insulation between phases
- Conductor material: Brass conductors - galvanised steel screws
- Protection cover: PC UL94-V0, transparent yellow - front removal

4-pole (3ph+N) distribution blocks *DIN rail mounting*

Low profile version 50 mm deep (fits into same space as standard MCBs)

RPQ1000	125A	10...35	–	–	5	–	1	–	4.2	20	84	66	50	318.00
RPQ1005	125A	10...35	–	–	7	–	2	1	4.2	20	84	100	50	405.00
RPQ1010	125A	10...35	–	–	11	–	2	1	4.2	20	84	132	50	559.00

Separated input terminals

Front entry input terminals - (2 phases on each side)

RPQ1015	160A	10...50	–	–	–	–	8	3	9	22	85	168	70	1 100.00
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Side entry input terminals - (all inputs from left side)

RPQ1018	160A	10...50	–	–	–	–	8	3	9	22	95	154	67	1 210.00
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Threaded copper bars

(bolts/screws, washers not supplied)

- Pre-punched and threaded copper bars (ready for use)
- Electrolytic copper Cu-ETP 99.90% (rounded corners)
- Current (A) based on ΔT temperature rise as per DIN 43671 (reference room temperature of 35°C)

type	In (A) ΔT		screw Ø	hole centers	description	dimensions (mm)			price (ea)
	30°C	50°C				(H)	(W)	(L)	
BRF1000	160A	212A	M5	18 mm	threaded copper busbar	12	4	1 meter	592.00
BRF1005	183A	241A	M5	18 mm	threaded copper busbar	12	5	1 meter	723.00
BRF1010	218A	289A	M6	25 mm	threaded copper busbar	15	5	1 meter	855.00
BRF1015	274A	363A	M6	25 mm	threaded copper busbar	20	5	1 meter	1 040.00
BRF1020	400A	530A	M6	25 mm	threaded copper busbar	32	5	1 meter	1 660.00
BRF1045	573A	756A	M8	25 mm	threaded copper busbar	30	10	1 meter	3 180.00

Busbar supports

4-pole (3ph+N) insulated busbar supports

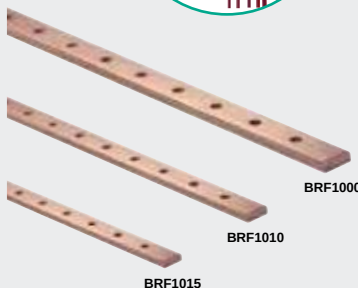
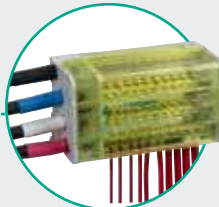
- Polyamide 66 reinforced with 30% fiberglass
- Self-extinguishing UL 94-V0 - Halogen free
- Working temperature: -40°C ...+130°C
- Glow wire test: 960°C
- Supplied with screws and nuts for mounting on panels

250A - DIN rail or chassis mount busbar support (1 piece per pack)

PSP1002	250A	busbar support for 15/20 mm x 5 mm bars	190	20	105	290.00
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400A - panel mount busbar support (2 piece per pack)

PSP1005	400A	Busbar support for 15/20/30 mm x 5/10 mm bars	216	34	117	1 200.00
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Busbar standoff insulators



ISO...



CLN...



SM...

SM...



SM...

SM...



ISO3005

Busbar standoff insulators

The "stand off" insulator is used as an insulating support for active conductors to guarantee excellent electrical insulation capability; it can be used as a support for electrical devices, giving high mechanical resistance values, as well as a spacing and/or stiffening element of a system made of conductor bars (*copper and/or aluminium*).

General features:

- Insulation: Polyamide 66 fibreglass reinforced (30%) (Halogen free)
- Self extinguishing: VO-UL94
- Glow wire test: 960°C
- Threaded inserts: Galvanized steel
- Rated voltage: 1000 VAC / 1500 VDC
- Working temperature: -40°C...130°C
- Colour: Black
- Conformity: IEC/EN60004-1 and IEC/EN 61439-1

type	height (H)	Ø width socket	threaded	torque (Nm)	description	price
ISO - Insulators		<i>injection moulded</i>		<i>UL approved (file No. 300607)</i>		
ISO2010	20 mm	15 mm	M6	8	busbar standoff insulators	43.00
ISO2020	25 mm	15 mm	M6	10	busbar standoff insulators	48.00
ISO2030	30 mm	26 mm	M8	25	busbar standoff insulators	85.00
ISO2040	35 mm	28 mm	M8	25	busbar standoff insulators	91.00
ISO2055	40 mm	28 mm	M8	25	busbar standoff insulators	119.00
ISO2070	45 mm	33 mm	M8	25	busbar standoff insulators	132.00
ISO2085	50 mm	29 mm	M8	25	busbar standoff insulators	161.00
ISO2100	60 mm	42 mm	M10	50	busbar standoff insulators	202.00
CLN - Spacer columns		<i>Injection moulded</i>		<i>UL approved (file No. 300607)</i>		
ISO2140	20 mm	20 mm	M6	8	spacing columns	50.00
ISO2155	25 mm	20 mm	M6	8	spacing columns	52.00
ISO2170	30 mm	20 mm	M6	8	spacing columns	52.00
ISO2185	35 mm	20 mm	M6	10	spacing columns	57.00
ISO2200	40 mm	20 mm	M6	10	spacing columns	63.00
ISO2270	55 mm	00 mm	M6	10	spacing columns	185.00
ISO2280	65 mm	00 mm	M6	10	spacing columns	207.00
ISO2245	30 mm	30 mm	M8	25	spacing columns	128.00
ISO2257	40 mm	30 mm	M8	25	spacing columns	131.00
ISO2267	50 mm	30 mm	M8	25	spacing columns	172.00
ISO2295	70 mm	30 mm	M8	25	spacing columns	225.00

**SM - Econo busbar insulators****General features:**

- Insulation: Polyester, fibreglass reinforced (20%)
- Self extinguishing: VO-UL94
- Threaded inserts: Galvanized steel
- Rated voltage: 1000 VAC / 1500 VDC
- Working temperature: -20°C...120°C
- Colour: Red RAL 3031

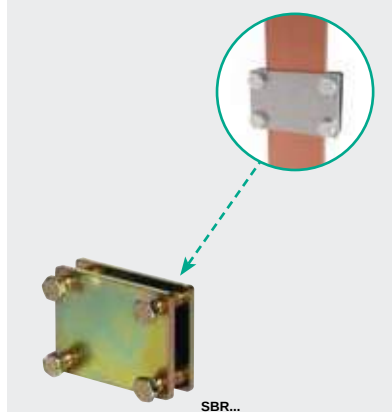
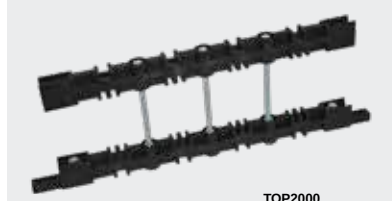
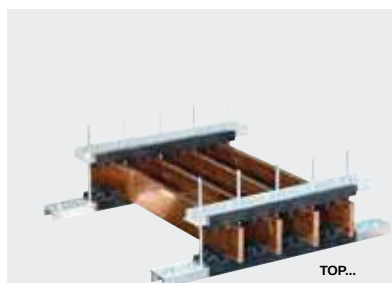
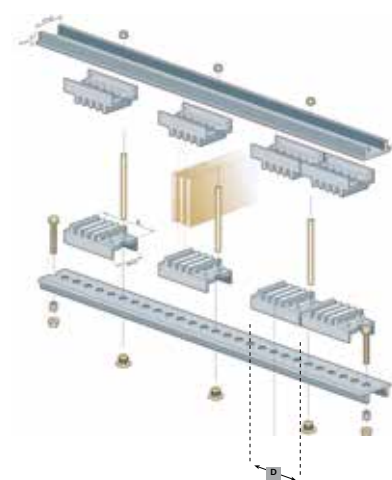
SM20	20 mm	00 mm	M6	6	busbar standoff insulators	25.20
SM25	25 mm	23 mm	M6	8	busbar standoff insulators	26.70
SM30	30 mm	26 mm	M8	10	busbar standoff insulators	33.00
SM35	35 mm	28 mm	M8	13	busbar standoff insulators	35.90
SM40	40 mm	34 mm	M8	13	busbar standoff insulators	48.00
SM45	45 mm	28 mm	M8	13	busbar standoff insulators	51.00
SM51	51 mm	29 mm	M8	27	busbar standoff insulators	53.00
SM60	60 mm	34 mm	M10	27	busbar standoff insulators	97.00
SM76	76 mm	36 mm	M10	54	busbar standoff insulators	107.00

Threaded stud kits for insulators

- Galvanized steel class 8.8 (*complete with threaded stud, nut, flat washer and spring lock washer*)

type	length (mm)	Ø	description	price
ISO3005	30 mm	M6	threaded stud kit for insulators	46.00
ISO3015	35 mm	M8	threaded stud kit for insulators	60.00
ISO3020	40 mm	M10	threaded stud kit for insulators	69.00

Busbar supports



TOP - Universal busbar support – up to 4500A (IEC 60439-1)

- Universal busbar support system
- Adjustable distance between phases
- High short-circuit strength up to 100kA (see **Annex-11** for ratings)
- Non-magnetic aluminium alloy profile (EN AW-6060) prepunched (12.5 mm pitch)
- Quick and simplified universal fitting - cost effective
- For bars 30-120 mm wide / 5 or 10 mm thick
- Type tested according to IEC 60439-1 certification: ACAE LOVAG (65 / 75 / 100kA eff 1 sec)

type	for busbar thickness	no. bars	description	price
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Ω TOP - Universal busbar support – up to 4500A (IEC 60439-1)

Three pole system kits (3Ph)

Supplied with: Insulated supports (6) and all screws, nuts, washers

TOP1005	5 mm	1 - 2	TOP2/5T	universal busbar support kit	466.00
TOP1025	10 mm	1	TOP1/10T	universal busbar support kit	462.00
TOP1035	10 mm	1 - 2	TOP2/10T	universal busbar support kit	542.00
TOP1045	10 mm	1 - 3	TOP3/10T	universal busbar support kit	710.00

Four pole system kits (3Ph+N)

Supplied with: Insulated supports (8) and all screws, nuts, washers

TOP1010	5 mm	1 - 2	TOP2/5TN	universal busbar support kit	589.00
TOP1030	10 mm	1	TOP1/10TN	universal busbar support kit	600.00
TOP1040	10 mm	1 - 2	TOP2/10TN	universal busbar support kit	695.00
TOP1050	10 mm	1 - 3	TOP3/10TN	universal busbar support kit	910.00

Accessories

TOP1000	pre-punched aluminium profile (12.5 mm pitch) (2 metre length)				632.00
TOP1100	bracket for horizontal mounting of busbar system profiles				180.00
TOP1105	bracket for vertical mounting of busbar system profiles				123.00
TOP1055	rislan tube to insulate tie rods (only required for minimum distance)				18.40

TOP Junior - Fixed busbar support – up to 1600A (IEC 61439-2)

- Universal busbar support system
- Distance between phases 70 mm
- High short-circuit strength up to 60kA (see **Annex-11** for ratings)
- Polyamide 6/6 reinforced with 30% fibreglass - self-extinguishing UL 94-V0
- Single reference for use with 5 or 10 mm thick bars
- For bars 30-80 mm wide / 5 or 10 mm thick
- Type tested according to IEC 61439-2 certification: ACAE LOVAG (65kA eff 1 sec)

Four pole system kit (3Ph+N)

Supplied with: Insulated supports (2) and all screws, nuts, washers

TOP2000	5/10 mm	2/1	TOP J 5 - 10	universal busbar support kit	1 490.00
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Busbar clamps (galvanized steel 5 mm thick)

- Permits direct connection of flexible and solid bars, from main bar (without drilling)

type	max. bar width	flexi bar width	plate dimensions	description	price
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Rectangular busbar clamps

SBR1000	50 mm	20/24 mm	77 x 51 mm	busbar connection clamps	273.00
SBR1005	50 mm	32 mm	77 x 59 mm	busbar connection clamps	274.00
SBR1010	50 mm	40 mm	77 x 67 mm	busbar connection clamps	278.00
SBR1020	80 mm	32 mm	107 x 59 mm	busbar connection clamps	296.00
SBR1025	80 mm	50 mm	107 x 77 mm	busbar connection clamps	304.00

Square busbar clamps

SBQ1000	30 mm	30 mm	53 x 53 mm	busbar connection clamps	299.00
SBQ1005	40 mm	40 mm	63 x 63 mm	busbar connection clamps	315.00
SBQ1015	63 mm	63 mm	90 x 90 mm	busbar connection clamps	402.00
SBQ1020	80 mm	80 mm	115 x 115 mm	busbar connection clamps	495.00
SBQ1025	100 mm	100 mm	135 x 135 mm	busbar connection clamps	588.00

Flexible copper busbar



Coflex series - Insulated flexible busbars

COFLEX is designed with high conductivity electrolytic copper laminates (CuETP), protected within a durable highly resistant self extinguishing PVC insulation, guaranteeing excellent electrical insulation in aggressive high temperature environments.

- Conductor: Electrolytic copper Cu-ETP 99.90% (laminated thickness 0.8 - 1.0 mm)
- Insulation: Self-extinguishing PVC UL 94-V0 (thickness 2 mm)
- Dielectric rigidity: 20 kV / mm
- Max. elongation: 365%
- Rated voltage: 1000 VAC / 1500 VDC
- Working temperature: -40°C...+105°C
- Standard length: 2 meters



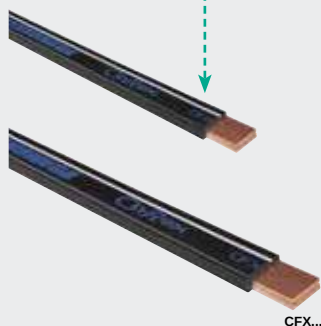
Saving of time



Footprint Reduced



Saving of copper



CFX...



DZP3000

type	conductor size (mm)						Δ T (°K) see Annex-13 max. current capacity (A) at Δ T (°K) as per IEC 439-1					price
	width	No. Laminations	thick	total thickness	cross section (mm²)	length (metre)						
							65°C	50°C	40°C	30°C	20°C	

Insulated flexible busbars (2 metre lengths)

CFX 1005	9	3	0.8	2.4	21.6	2	160	140	125	108	89	511.00
CFX 1020	9	6	0.8	4.8	43.2	2	285	250	224	194	158	932.00
CFX 1023	13	6	0.5	3	39	2	285	250	224	194	158	817.00
CFX 1035	15.5	4	0.8	3.2	49.6	2	365	320	286	248	202	1 050.00
CFX 1045	15.5	6	0.8	4.8	74.4	2	456	400	358	310	253	1 550.00
CFX 1060	20	3	1.0	3	60	2	399	350	313	271	221	1 250.00
CFX 1070	20	5	1.0	5	100	2	490	430	385	333	272	2 000.00
CFX 1076	20	8	1.0	8	160	2	638	560	501	434	354	3 100.00
CFX 1090	24	3	1.0	3	72	2	456	400	358	310	253	1 470.00
CFX 1100	24	5	1.0	5	120	2	581	510	456	395	323	2 370.00
CFX 1115	24	10	1.0	10	192	2	912	800	716	620	506	4 530.00
CFX 1135	32	5	1.0	5	160	2	741	650	581	503	411	3 100.00
CFX 1145	32	8	1.0	8	256	2	992	870	778	674	550	4 940.00
CFX 1150	32	10	1.0	10	320	2	1163	1020	912	790	645	6 500.00
CFX 1170	40	5	1.0	5	200	2	884	775	693	600	490	3 990.00
CFX 1180	40	8	1.0	8	320	2	1180	1035	926	802	655	6 290.00
CFX 1185	40	10	1.0	10	400	2	1343	1178	1054	912	745	7 920.00
CFX 1200	50	5	1.0	5	250	2	1055	925	827	717	585	5 070.00
CFX 1210	50	8	1.0	8	400	2	1357	1190	1064	922	753	8 040.00
CFX 1215	50	10	1.0	10	500	2	1573	1380	1234	1069	873	10 200.00
CFX 1230	63	5	1.0	5	315	2	1209	1060	948	821	670	6 530.00
CFX 1240	63	8	1.0	8	504	2	1596	1400	1252	1084	885	10 200.00
CFX 1245	63	10	1.0	10	630	2	1391	1615	1444	1251	1021	12 700.00
CFX 1260	80	5	1.0	5	400	2	1459	1280	1145	991	810	6 810.00
CFX 1270	80	8	1.0	8	640	2	1833	1608	1438	1246	1017	11 500.00
CFX 1275	80	10	1.0	10	800	2	2028	1779	1591	1378	1125	13 900.00
CFX 1285	100	5	1.0	5	500	2	1750	1535	1373	1189	971	10 300.00
CFX 1300	100	10	1.0	10	1000	2	2394	2100	1878	1627	1328	20 200.00

Derating coefficient for bars in parallel

Number of bars	2 bars	3 bars	4 bars
Coefficient to use x	1.8	2.5	3.2

Accessories

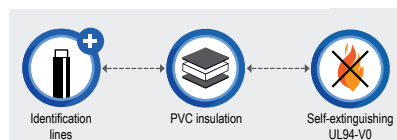
Simple support with spacer

- For use with insulated flexible bars up to 32 x 10 mm
- Possibility to fit up to 4 flexible bars
- Mounts into panel board by means of screw (not supplied) inserted at the base of spacer
- Excellent heat dissipation due to the spacing between bars

DZP3000 panel mount spacer and overlapping support for flexible bars up to 32 x 10 mm

55.00

Flexible copper braided links



JLK...



.../R

.../B

Insulated copper braided linkshighly flexible braided copper link with PVC insulation

No cutting - no stripping - no lug - no crimping

J-LINK is a ready-to-use flexible prefabricated shunt made of tinned copper braid, coated with PVC insulation. for the quickest, most convenient solution to create electrical connections from 125 to 630 A.

- Conductor: Tinned electrolytic copper braid Cu-ETP 99.90% (wire strand 0.20 mm)
- Insulation: Self-extinguishing PVC UL94V0 (thickness 1.8 - 2 mm)
- Dielectric rigidity: 20 kV / mm
- Rated voltage: 1000 VAC / 1500 VDC
- Working temperature: -40°C ... +105°C
- Standard length: 330 ... 1030 mm lengths

type	conductor size (mm)				ΔT (°K) see Annex-13 max. current capacity (A) at ΔT (°K) as per IEC 439-1			description	price
	width	thickness	length	cross sec. (mm²)					
					45°C	35°C	25°C		
25 mm² insulated braided links <i>mounting holes: Ø d1=8.5 / Ø d2=10.5 mm</i>									
JLK1005	20	4.3	330	25	185	175	145	insulated braided shunt	243.00
JLK1010	20	4.3	430	25	185	175	145	insulated braided shunt	294.00
JLK1015	20	4.3	530	25	185	175	145	insulated braided shunt	330.00
JLK1020	20	4.3	630	25	185	175	145	insulated braided shunt	372.00
JLK1021	20	4.3	730	25	185	175	145	insulated braided shunt	424.00
JLK1023	20	4.3	930	25	185	175	145	insulated braided shunt	520.00
35 mm² insulated braided links <i>mounting holes: Ø d1=8.5 / Ø d2=10.5mm</i>									
JLK1030	20	4.9	330	35	225	205	170	insulated braided shunt	306.00
JLK1035	20	4.9	430	35	225	205	170	insulated braided shunt	373.00
JLK1040	20	4.9	530	35	225	205	170	insulated braided shunt	435.00
JLK1045	20	4.9	630	35	225	205	170	insulated braided shunt	490.00
JLK1046	20	4.9	730	35	225	205	170	insulated braided shunt	569.00
JLK1048	20	4.9	930	35	225	205	170	insulated braided shunt	699.00
JLK1049	20	4.9	1030	35	225	205	170	insulated braided shunt	767.00
50 mm² insulated braided links <i>mounting holes: Ø d1=8.5 / Ø d2=10.5 mm</i>									
JLK1055	20	5	330	50	280	250	220	insulated braided shunt	378.00
JLK1060	20	5	430	50	280	250	220	insulated braided shunt	470.00
JLK1065	20	5	530	50	280	250	220	insulated braided shunt	561.00
JLK1070	20	5	630	50	280	250	220	insulated braided shunt	624.00
JLK1071	20	5	730	50	280	250	220	insulated braided shunt	720.00
JLK1073	20	5	930	50	280	250	220	insulated braided shunt	882.00
JLK1074	20	5	1030	50	280	250	220	insulated braided shunt	964.00
85 mm² insulated braided links <i>mounting holes: A=8.5 / B=10.5 mm</i>									
JLK1145	24	6.5	330	85	350	320	270	insulated braided shunt	622.00
JLK1150	24	6.5	430	85	350	320	270	insulated braided shunt	766.00
JLK1155	24	6.5	530	85	350	320	270	insulated braided shunt	912.00
JLK1160	24	6.5	630	85	350	320	270	insulated braided shunt	1 050.00
JLK1165	24	6.5	730	85	350	320	270	insulated braided shunt	1 230.00
JLK1175	24	6.5	930	85	350	320	270	insulated braided shunt	1 560.00
JLK1180	24	6.5	1030	85	350	320	270	insulated braided shunt	1 710.00
120 mm² insulated braided links <i>mounting holes: Ø d1=10.5 / Ø d2=10.5 mm</i>									
JLK1075	30	7.5	330	120	440	400	335	insulated braided shunt	963.00
JLK1080	30	7.5	430	120	440	400	335	insulated braided shunt	1 130.00
JLK1085	30	7.5	530	120	440	400	335	insulated braided shunt	1 340.00
JLK1090	30	7.5	630	120	440	400	335	insulated braided shunt	1 550.00
JLK1095	30	7.5	730	120	440	400	335	insulated braided shunt	1 710.00
JLK1097	30	7.5	930	120	440	400	335	insulated braided shunt	2 120.00
JLK1098	30	7.5	1030	120	440	400	335	insulated braided shunt	2 260.00
240 mm² insulated braided links <i>mounting holes: Ø d1=12.5 / Ø d2=10.5 mm</i>									
JLK1100	32	12.5	330	240	730	680	565	insulated braided shunt	1 910.00
JLK1105	32	12.5	430	240	730	680	565	insulated braided shunt	2 230.00
JLK1110	32	12.5	530	240	730	680	565	insulated braided shunt	2 580.00
JLK1115	32	12.5	630	240	730	680	565	insulated braided shunt	2 970.00
JLK1120	32	12.5	730	240	730	680	565	insulated braided shunt	3 260.00
JLK1130	32	12.5	930	240	730	680	565	insulated braided shunt	4 200.00
JLK1135	32	12.5	1030	240	730	680	565	insulated braided shunt	4 520.00

Phase colours: Besides standard white (above), colours red and blue can be ordered on request by adding .../R (red) or .../B (blue) to above (white) part numbers.

+ 20%

Derating coefficient for bars in parallel

Number of bars	2 bars	3 bars
Coefficient to use	x 1.6	x 2

Above ZAR prices do not include VAT. E&OE

L-40

Flexible copper earthing braids

Flat tinned copper earthing braids

highly flexible braided copper earthing link

No cutting - no stripping - no lug - no crimping

Copper braid used as a super flexible conductor for all electric connection requirements, including power, earthing and equipotential connections.

Accommodates higher current density than cables and copper bars with the same cross-section. Tinned copper flat braid, used as a ground strap, provides an excellent, low resistance ground path. Supplied cut with terminated ends punched hole, ready for connection.

General features:

- Conductor: Tinned electrolytic copper braid Cu-ETP 99.90%
- Resistivity: 0.0172 Ω mm²/m
- Mechanical resistance: Min. 200 MPa
- Standard length: 150 ... 300 mm lengths
- Mounting: Punched hole, ready for connection

Typically application:

Switchgears, Connectors, ground electric connection, the energy industry for wind turbines, generators, substations, transformers, hydro turbines, circuit breakers and rectifiers.



Flat tinned copper earthing braids



type	conductor size (mm)				current rating (A)	terminal holes Ø (mm)	description	price
	width	thickness	length	cross sec. (mm²)				
10 mm² earthing braided links								
TMS1010	17	2.8	150	10	85	8.5	copper earthing braids	62.00
TMS1015	17	2.8	200	10		8.5	copper earthing braids	62.00
TMS1020	17	2.8	250	10		8.5	copper earthing braids	89.00
TMS1025	17	2.8	300	10		8.5	copper earthing braids	90.00
16 mm² earthing braided links								
TMS1035	17	3.1	150	16	120	8.5	copper earthing braids	86.00
TMS1040	17	3.1	200	16		8.5	copper earthing braids	99.00
TMS1045	17	3.1	250	16		8.5	copper earthing braids	103.00
TMS1050	17	3.1	300	16		8.5	copper earthing braids	115.00
25 mm² earthing braided links								
TMS1055	25	2.8	150	25	150	10.5	copper earthing braids	101.00
TMS1060	25	2.8	200	25		10.5	copper earthing braids	115.00
TMS1065	25	2.8	250	25		10.5	copper earthing braids	131.00
TMS1070	25	2.8	300	25		10.5	copper earthing braids	150.00
35 mm² earthing braided links								
TMS1075	21	3.6	150	35	195	10.5	copper earthing braids	129.00
TMS1080	21	3.6	200	35		10.5	copper earthing braids	150.00
TMS1085	21	3.6	250	35		10.5	copper earthing braids	171.00
TMS1090	21	3.6	300	35		10.5	copper earthing braids	193.00
50 mm² earthing braided links								
TMS1100	25	4.8	150	50	250	10.5	copper earthing braids	190.00
TMS1105	25	4.8	200	50		10.5	copper earthing braids	222.00
TMS1110	25	4.8	250	50		10.5	copper earthing braids	256.00
TMS1115	25	4.8	300	50		10.5	copper earthing braids	292.00
75 mm² earthing braided links								
TMS1120	30	5.5	200	75	330	10.5	copper earthing braids	379.00
TMS1125	30	5.5	250	75		10.5	copper earthing braids	443.00
TMS1130	30	5.5	300	75		10.5	copper earthing braids	438.00
100 mm² earthing braided links								
TMS1135	30	6.5	200	100	370	12.5	copper earthing braids	523.00
TMS1140	30	6.5	250	100		12.5	copper earthing braids	610.00
TMS1145	30	6.5	300	100		12.5	copper earthing braids	696.00

Distribution blocks



Distribution blocks

- 1 pole (*stackable horizontally*) clips together to add additional poles
- Rapid horizontal installation on 35 mm DIN rail
- Extremely compact, all side finger-safe DIN EN 50274
- Terminal body: Brass (CuZn39Pb2) Housing: Self-extinguishing, halogen free
- 1000V AC/DC - DIN/EN 60947-7-1

type	max. current rating	feed-in terminals		output terminals mm ²				description	designation	price
		max. cable (mm ²)	busbar (mm)	10	16	25	50			

HLAK - Main line/branch terminals

080110-0-4	152A	25 mm ²	—	2x				rail mount terminals	Line	79.00
	152A	25 mm ²	—	2x				rail mount terminals	Neutral	79.00
	152A	25 mm ²	—	2x				rail mount terminals	Earth	79.00
080210-0-4	202A	35 mm ²	—		2x			rail mount terminals	Line	106.00
	202A	35 mm ²	—		2x			rail mount terminals	Neutral	107.00
	202A	35 mm ²	—		2x			rail mount terminals	Earth	107.00
080310-0-4	300A	70 mm ²	—			2x		rail mount terminals	Line	332.00
	300A	70 mm ²	—			2x		rail mount terminals	Neutral	334.00
	300A	70 mm ²	—			2x		rail mount terminals	Earth	334.00

type	rated current	feed-in terminals		output terminals mm ²				description	designation	price
		max. cable (mm ²)	busbar (mm)	10	16	25	35			

UVB - Sub-distribution blocks for copper conductors

080010-0-4	100A	2x 25	—	6x				distribution block	Line	184.00
	100A	2x 25	—	6x				distribution block	Neutral	188.00
	100A	2x 25	—	6x				distribution block	Earth	188.00
080030-0-4	200A	70	—	6x		1x		distribution block	Line	345.00
	200A	70	—	6x		1x		distribution block	Neutral	349.00
	200A	70	—	6x		1x		distribution block	Earth	349.00

PDB - Power distribution blocks

Al/Cu

- Suitable for Copper or Aluminium conductors (*current ratings for copper conductors*)
- DIN rail mounting or direct chassis plate mount (*horizontal or vertical*)
- Hexagon head screws for high torque connections (*captive screws*)
- Transparent cover for easy inspection of termination

082040-0-3	164A	2.5...25	—	3x	3x			distribution block	grey	289.00
082050-0-3	214A	4...35	—	4x	2x			distribution block	grey	349.00
082060-0-3	215A	10...70	15.5 x 5	3x	2x			distribution block	grey	660.00
082070-0-3	270A	16...95	—		8x	2x		distribution block	grey	500.00
082080-0-3	400A	35...120	24 x 10	4x	3x	2x		distribution block	grey	849.00
082090-0-3	490A	95...185	24 x 10	4x	3x	2x		distribution block	grey	1 180.00

SSAK - Busbar connection terminals

690V

IEC 60947-7-1

Fastens directly onto busbars (3-10 mm thick) and provides 2 x outgoing 16 mm² cable terminals

- For direct cable connection to copper bars 3-10 mm thickness

type	rated current	feed-in terminals busbar (thickness)	branch terminal 1-16 mm ²	description		designation	price
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Insulated conductor connection terminals

(H) 47.8 x (W) 15.2 x (D) 55.2 mm

- All insulated, finger-safe PA6 (*self extinguishing, halogen free*)

086105-0-4	114A	3...10 mm thick	2x 1...16 mm ²	busbar connect terminal	Line	163.00
086105-1-4	114A			busbar connect terminal	Neutral	163.00
086105-2-4	114A			busbar connect terminal	Earth	163.00
086105-3-4	114A			busbar connect terminal	Line	163.00

Uninsulated conductor connection terminals

086105-9-2	114A	3...10 mm thick	2x 1...16 mm ²	busbar connect terminal	—	100.00
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Feed in Terminals

(H) 27.1 x (W) 17.3 x (D) 24.7 mm (without pin)

Designed for ease of feed-in to common bridging busbars used with MCB's in distribution boards

- Universal, configurable for front or (*either*) side power feed
- Screw clamp termination ensuring touch safety

084551-1-4	—	50 mm ²	insulated feed-in terminal short pin (15 mm)	grey	269.00
084553-1-4	—	50 mm ²	insulated feed-in terminal long pin (29.5 mm)	grey	200.00

Busbar supports

SBC ER – Compact adjustable busbar support - IEC 61439-1 4000A

Multipolar busbar support to carry high currents with high short circuit withstand in almost every low voltage system enclosure on the market

- Easy to install – cost effective
- Adjustable distance between phases (5 mm increments) minimum = 70 mm
- Up to 75kA rms Isc - 165kA peak Isc (distance between supports dependant)
- For bars 30...125 mm wide x 5/10 mm thick (1...3 bars per phase)
- High dielectrical resistance
- High mechanical strength Vertical bars
- High short circuit strength (see **Annex-12**)
- Universal multipole (*edgewise mounting*) busbar support system.



5025 5110

type	for busbar thickness	No. bars per phase	insulation voltage	interphase distance	description	pcs per pack	price (per pack)
5025 5110	10 mm	1-2	1000V	adjustable	busbar support inserts	(8 pcs)	1 020.00
5025 5105	5 mm	1-3	1000V	adjustable	busbar support inserts	(8 pcs)	948.00
5025 5100	universal clamping stud kit for bars 25 to 200 mm (H)				<i>per pack</i>	(4 pcs)	1 260.00
5025 5101	metal clamping stud kit for bars 25 to 100 mm (H)				<i>per pack</i>	(2 pcs)	1 370.00
5025 5124	profile	perforated support profile for inserts			<i>length 380 mm</i>	(4 pcs)	1 940.00
5025 5125	profile	perforated support profile for inserts			<i>length 480 mm</i>	(4 pcs)	2 090.00
5025 5126	profile	perforated support profile for inserts			<i>length 580 mm</i>	(4 pcs)	2 360.00
5025 5128	profile	perforated support profile for inserts			<i>length 780 mm</i>	(4 pcs)	2 670.00

One complete busbar support systems:

- 2 x support inserts (per phase) (3P = 6 / 4P = 8)
- 2 x clamping studs
- 2 x support profiles (1 x top, 1 x bottom)



5024 6400

SBC 10 – Compact busbar support – IEC 60439-1

2500A

Multipole (*edgewise mounting*) busbar support system - fixed interphase distance.

High current carrying capacities:

SB C 10 multipolar edgewise busbar supports are suitable for main switchboard applications where high current carrying capacity is required.

Easy installation:

Edgewise mounted, the SB C 10 can be installed in low voltage switchboards for main and/or distribution busbar use in a horizontal and vertical position. Its installation standard dimensions mean it can be integrated in almost all LV systems on the market.

- For bars 30...120 mm wide x 10 mm thick (*one or two bars per phase*)
- Up to 50 kA rms Isc - 110kA peak Isc (*distance between supports dependant*)
- Reverse support to accommodates busbar offset (*for joining bars*)

5024 6400	10 mm	1/2	800V	75/90 mm	3-pole busbar support	(ea)	516.00
5024 6700	10 mm	1/2	1000V	90 mm	4-pole busbar support	(ea)	523.00

For complete system, order: 2 x supports + 1 x mounting accessory kit (below)

Mounting accessory kits - (2 x M8 threaded studs/insulation spacers/nuts)

5020 2030	mounting accessory kit	(rods/spacers/nuts)	for 30 mm busbars	387.00
5020 2040	mounting accessory kit	(rods/spacers/nuts)	for 40 mm busbars	408.00
5020 2050	mounting accessory kit	(rods/spacers/nuts)	for 50 mm busbars	409.00
5020 2060	mounting accessory kit	(rods/spacers/nuts)	for 60 mm busbars	433.00
5020 2080	mounting accessory kit	(rods/spacers/nuts)	for 80 mm busbars	464.00
5020 2100	mounting accessory kit	(rods/spacers/nuts)	for 100 mm busbars	520.00



5020 2030

SB E 44 – Four-pole stair type busbar support system

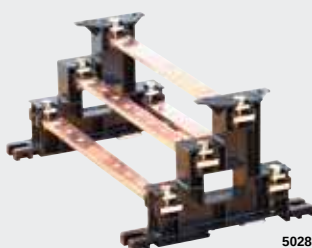
300A

Four-pole stair type busbar support system.

(H) 180 x (W) 25 x (D) 126 mm

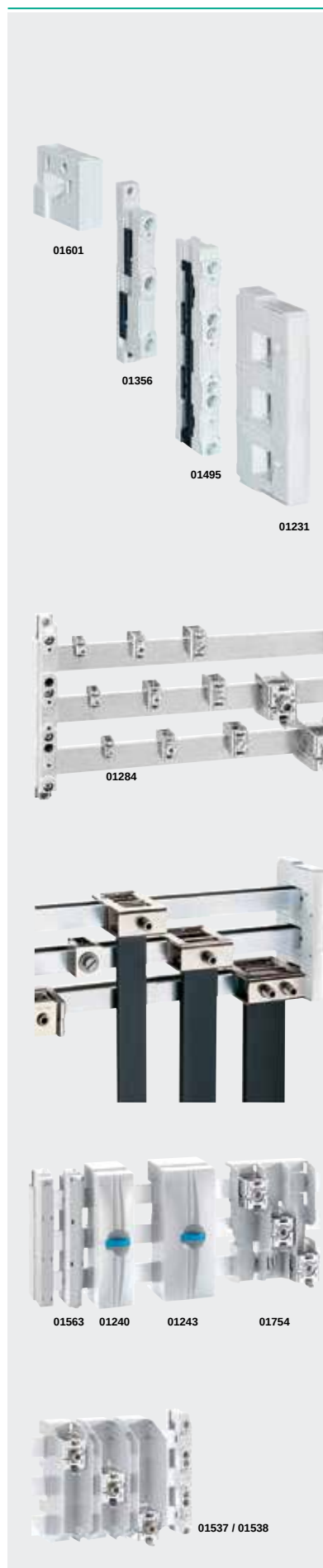
- For flat bars 15/20/30 mm wide x 5 mm thick (*solid or perforated*)
- Up to 22 kA rms Isc - 50kA peak Isc (*distance between supports dependent*)
- DIN rail mountable or bolt down
- Thermoplastic
- Self-extinguishing UL94VO

5028 0410	5 mm	1	1000V	35.5 mm	4-pole stair type support	(ea)	380.00
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5028 0410

Busbar systems & accessories



60 mm - System classic

The 60 mm system is an extremely compact busbar system with 60 mm spacing between busbars arranged in horizontal format, permitting simple attachable "clip-on" accessories such as connections for various cable and/or flexible or solid busbars, fuse holders and switches as well as easy connectors which accommodate circuit breakers, contactors etc.

type	for busbar size (mm) width	thick	no. poles	description	amps	price
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Busbar supports up to 630A

- Horizontal mounting of busbars (15 - 20 - 25 - 30 mm wide)
- Permits direct mounting of accessories: various termination, fuse/circuit breaker protection

01601	15 - 30 mm	5/10 mm	1	universal busbar support	630A	214.00
01356	15 - 30 mm	5/10 mm	2	universal busbar support	630A	352.00
01495	15 - 30 mm	5/10 mm	3	universal busbar support	630A	321.00
01484*	15 - 30 mm	5/10 mm	3	busbar support (with control terminals)	630A	541.00
01485	15 - 30 mm	5/10 mm	4	universal busbar support	630A	539.00

* With integrated 16mm termination for control wiring/connection

"H" profile busbar supports up to 1600A

- Horizontal mounting of "H" profile busbars 30 mm wide
- Permits direct mounting of accessories: various termination, fuse/circuit breaker protection

01116	30 mm	"H" profile	1	"H" profile busbar support	1600A	495.00
01231	30 mm	"H" profile	3	"H" profile busbar support	1600A	1 270.00

01116 (1 pole) attaches to **01231** (3-pole) to make a 4-pole support

End covers for busbar supports (provides insulated protection of busbar ends)

01573	end cover for		3	01495 / 01484 busbar supports		107.00
01131	end cover for		4	01485 busbar supports		298.00
01373	end cover for		1	01116 busbar supports		91.00
01234	end cover for		3	01231 busbar supports		134.00

Busbar termination (for connecting cables directly onto busbars)

For cable conductors

- "Clip-on" terminals for cable conductors
- Direct clamping onto busbars no drilling required

type	for busbar size (mm) width	thick	no. poles	cable size mm ² min max	description	amps	price
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01284	15 - 30 mm	5 mm	1	1.5 16	conductor terminal	180A	25.70
01285	15 - 30 mm	5 mm	1	4 35	conductor terminal	270A	38.50
01287	15 - 30 mm	5 mm	1	16 70	conductor terminal	400A	51.00
01289	15 - 30 mm	10 mm	1	1.5 16	conductor terminal	180A	42.00
01290	15 - 30 mm	10 mm	1	4 35	conductor terminal	270A	63.00
01292	15 - 30 mm	10 mm	1	16 70	conductor terminal	400A	70.00
01203	15 - 30 mm	10 mm	1	16 120	conductor terminal	440A	132.00

CRITO® ProfiClip brace terminals for cable conductors (for standard and "H" profile bars)

01318	20 - 30 mm	5/10 mm	1	95 185	conductor terminal	500A	493.00
01760	20 - 30 mm	5/10 mm	1	120 300	conductor terminal	600A	704.00

3 phase clamp-on terminals (fully insulated, internally partitioned)

01563	15 - 30 mm	5/10 mm	3	1.5 16	conductor terminal	80A	582.00
01240	15 - 30 mm	5/10 mm	3	6 50	conductor terminal	300A	687.00
01243	15 - 30 mm	5/10 mm	3	35 120	conductor terminal	440A	1 240.00
01199	20 - 30 mm	5/10 mm	3	95 185	conductor terminal	460A	1 990.00
01754	20 - 30 mm	5/10 mm	3	120 300	conductor terminal	560A	2 600.00
01537*	20 - 30 mm	5/10 mm	3	120 300	conductor terminal	560A	2 500.00

* Adjustable phase separation distance to align with connected component (supplied without cover)

CRITO® brace terminals for flat and flexible copper busbars

				max. bar size wide	thick			
01319	30 mm	10 mm	1	30	20	busbar connection	750A	487.00
01069	30 mm	10 mm	1	55	28	busbar connection	1600A	2 070.00
01070	30 mm	10 mm	1	68	28	busbar connection	1600A	2 540.00
01071	30 mm	10 mm	1	105	28	busbar connection	1600A	3 870.00
01538*	20 - 30 mm	5/10 mm	3	32	20	busbar connection	800A	2 430.00

* Adjustable phase separation distance (to align with connected component) supplied without cover

Busbar systems & accessories

EQUES series - Easy connectors

Direct busbar mountable "clip-on" adaptors accept various devices such as MCB's, circuit breakers, fuse holders, contactors etc. without drilling busbars.

type	for busbars (mm) width	thick	no. rails	wires mm ²	dimensions (mm) W H	description	amps	price
Easy connectors 25 - 32 - 63A								
- Direct busbar mounting adaptors for busbars 15 - 20 - 25 - 30 mm wide and "H" profile - With integrated DIN rail and pre-wired power leads from connected busbars								
32430	15 - 30	5/10/"H"	1	4	45 200	easy connector	25A	682.00
32431	15 - 30	5/10/"H"	2	4	45 200	easy connector	25A	723.00
32441	15 - 30	5/10/"H"	1	6	54 200	easy connector	32A	824.00
32442	15 - 30	5/10/"H"	2	6	54 200	easy connector	32A	735.00
32454	15 - 30	5/10/"H"	1	10	54 200	easy connector	63A	952.00
32455	15 - 30	5/10/"H"	2	10	54 200	easy connector	63A	1 010.00
32459	15 - 30	5/10/"H"	2	10	81 200	easy connector	63A	1 010.00

Universal power connectors (to accommodate MCCB's and switchgear)

- For commercially available switchgear (*M4 fixing screws*)
- For top connection to busbar system (*bottom connection available on request*)

32214	15 - 30	5/10/"H"	top connection	108	222	busbar adaptor	200A	1 960.00
32215	15 - 30	5/10/"H"	bottom connection	108	222	busbar adaptor	200A	2 010.00
32168	15 - 30	5/10/"H"	top connection	110	320	busbar adaptor	250A	2 280.00
32004*	15 - 30	5/10/"H"	top/bottom	184	320	busbar adaptor	630A	4 600.00

* With top or bottom connection

Busbar mounted fuse bases

type	for busbars (mm) width	thick	no. rails	fuse size	description	amps	price
Clamps directly onto busbar (<i>no drilling required</i>)							
NH DIN fuse holders (blade type fuses)							
03370	15 - 30	5/10/"H"	1 pole	"00"	busbar mounted NH fuse base	160A	398.00
03656	15 - 30	5/10/"H"	3-pole	"00"	busbar mounted NH fuse base	160A	1 320.00
03301	15 - 30	5/10/"H"	3-pole	"1"	busbar mounted NH fuse base	250A	6 700.00
03693	15 - 30	5/10/"H"	3-pole	"2"	busbar mounted NH fuse base	400A	8 780.00

NH fuse protection covers

79448			1 pole	"00"	grip lug cover for NH fuses	—	61.00
79449			1 pole	1-2-3	grip lug cover for NH fuses	—	81.00

Cylindrical fuse holders 10 x 38 mm**1 pole busbar mounted fuse holder for 10 x 38 cylindrical fuses**

31570	30 mm	5/10	1 pole	10 x 38	1000 VDC busbar mount f/holder	30A	115.00
31572	20 mm	5/10	1 pole	10 x 38	1000 VDC busbar mount f/holder	30A	113.00

3-pole busbar mounted fuse holder for 10 x 38 cylindrical fuses

- Vertical mount compact (*27 mm wide*) 3-pole in-line fuse holder

31954	15-30	5/10/"H"	3-pole	10 x 38	busbar mount fuse base	160A	1 420.00
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Bus-mounted fuse switch disconnectors (top or bottom connection)

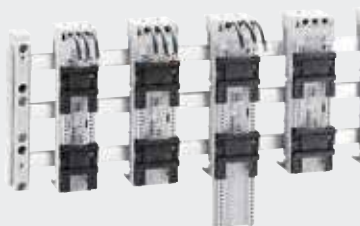
- Bus-mounting fuse switch disconnector, top/bottom connection

Horizontal mount

33216	15 - 30	5/10/"H"	3-pole	"000"	busbar mounted NH fuse base	125A	2 310.00
33398	15 - 30	5/10/"H"	3-pole	"00"	busbar mounted NH fuse base	160A	2 350.00
33601	15 - 30	5/10/"H"	3-pole	"1"	busbar mounted NH fuse base	250A	6 280.00
33602	15 - 30	5/10/"H"	3-pole	"2"	busbar mounted NH fuse base	400A	9 710.00
33603	15 - 30	5/10/"H"	3-pole	"3"	busbar mounted NH fuse base	630A	14 700.00

Vertical mount (in-line)

33234	15 - 30	5/10/"H"	3-pole	"00"	in-line bus mounted NH fuse base	160A	4 020.00
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324...



32215

32168

32004



03656

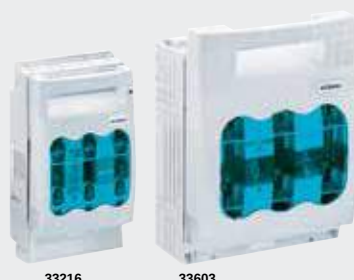
03301



31570



31572



33216

33603

Busbar systems & accessories



100 mm - Universal busbar support system

The 100 mm system is a compact busbar system with 100 mm spacing between busbar centres. Busbars are arranged in a horizontal format, permitting simple attachable "clip-on" accessories such as connections for various cable and/or flexible or solid busbars, fuse holders and switches as well as easy connectors which accommodates circuit breakers, contactors etc.

type	for busbar size (mm) width	thick	no. poles	description	rated current	price
Busbar supports 100 mm 1250A (3-pole)						
- Horizontal mounting of undrilled busbars 30 - 40 - 50 - 60 mm wide - Permits direct mounting of accessories: various termination, fuse/circuit breaker protection						
01479	30 - 60 mm	10 mm	3	universal 100 mm busbar support	1250A	974.00
End covers for above busbar supports <i>provides insulated protection of busbar ends</i>						
01254	end cover		3	for above 01479 busbar supports		240.00

Busbar supports 185 mm 2500A (3-pole)

The 185 mm busbar support system accepts busbars from 30 to 120 mm wide mounted horizontally with 185 mm spacing between busbar centres. The wide spacing of busbars offers short-circuit ratings in excess of 100 kA.

01230	30 - 120 mm	10 mm	3	universal 185 mm busbar support	2500A	1 130.00
End covers for above busbar supports <i>provides insulated protection of busbar ends</i>						
33341	end cover		3	for above 01230 busbar supports		1 150.00

Accessories for busbar systems

Busbar covers

01245	30	10	single busbar cover (<i>clips directly onto busbar</i>)	1 m	466.00
01252	30	"H" profile	single busbar cover (<i>clips directly onto busbar</i>)	2 m	780.00
01025	3-pole reserve section cover (<i>requires 01026 support for cover</i>)			0.7 m	744.00
01026	support for reserve section cover 32 mm high (<i>clips directly onto busbars</i>)				179.00
01320	support for reserve section cover 107 mm high (<i>clips directly onto busbars</i>)				232.00

System cover (*can be used to make up any sized cover for busbars, terminals etc.*)

01136	(left + right) support for cover section		(<i>clips directly onto busbars</i>)			548.00
01554	front cover section		(<i>requires 01136 supports</i>)	1.1 m		1 060.00
01555	top/bottom cover section		(<i>requires 01136 supports</i>)	1.1 m		683.00

Surface/rail mount fuse holders and switch disconnectors

type		no. poles	fuse size	description	rated current	price
Cylindrical fuse holders						
- Modular DIN rail mounting, shock protection to DIN VDE 0660, IEC/EN 60947-3 - Silicone and chlorine free, self extinguishing to UL94 - Creepage resistance CTI 200						
31110	DIN rail mounting	1	10 x 38	cylindrical fuse holder	32A	79.00
31113	DIN rail mounting	3	10 x 38	cylindrical fuse holder	32A	249.00
31115	DIN rail mounting	1	14 x 51	cylindrical fuse holder	50A	578.00
31118	DIN rail mounting	3	14 x 51	cylindrical fuse holder	50A	653.00
31120	DIN rail mounting	1	22 x 58	cylindrical fuse holder	125A	819.00
31123	DIN rail mounting	3	22 x 58	cylindrical fuse holder	125A	2 460.00

NH fuse switch disconnectors

3-pole switching DIN VDE 0660, IEC/EN 60947-3

- Shock protection with integrated positive action closure and arc chambers
- Mechanical fuse retention in disconnector lid
- IP30 front degree of protection
- Silicone and chlorine free, self extinguishing to UL94
- See product datasheet for DC application rating

33217	fuse switch/holder	3	C00	fuse switch disconnector	125A	1 630.00
33222	fuse switch/holder	3	00	fuse switch disconnector	165A	1 380.00
33201	fuse switch/holder	3	1	fuse switch disconnector	250A	4 420.00
33202	fuse switch/holder	3	2	fuse switch disconnector	400A	7 120.00
33203	fuse switch/holder	3	3	fuse switch disconnector	630A	9 130.00
33204	fuse switch/holder	3	4	fuse switch disconnector	1600A	35 900.00

Cable & Component Identification

MG4 is CEMBRE's newest solution for identification & labelling requirements, designed to offer a high quality and long-lasting print for text, logos, electrical symbols, QR codes and all kinds of vector images.



Single Cables

- Cable tags for holders
- Slide / clip on tags
- Wraparound cable markers
- Push in markers
- Cable & conduit tags

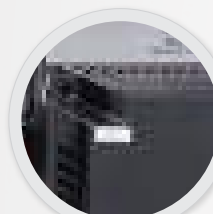
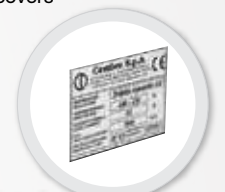
Modular Components

- Legends & labels
- Mounting rails



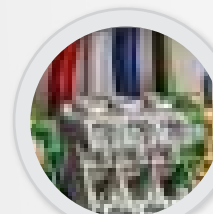
Plates and Labels

- Panel plates & covers
- Panel legends
- Security labels
- Warning labels



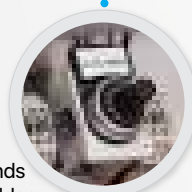
Components & Equipment

- Pre-cut legend



Terminal Block Markers

- Compatible with a wide range of brands



Components & Equipment

- PLC legends
- Rail mount legends
- Legends and holders
- Pushbutton holders & legends



Conduits, Pipes & Multi-Core

- Cable and conduit tags



- Legend holder



Panel Marking Overview

Scan the QR code to watch **tutorial videos on how to mark** various media types using Cembre's identification media



Scan to watch

Thermal transfer printer



MG4

FREEDOM TO PRINT EVERYWHERE

Thermal Transfer Sheet Printer Markingenius

With MG4, Cembre offers innovative solutions in order to improve the quality of work of its users by exploiting the technology and experience in industrial marking gained from 20 years within this business sector.



Scan to Watch

— ALWAYS CONNECTED! —



Share



Touch Display



USB



APP



Status Monitor



LAN



Wi-Fi Direct



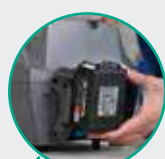
Battery Rechargeable



Wi-Fi



MG4



MG4 + CB1852L



CB1852L



ASC55-EU

MARKINGENIUS MG4 - Exclusively designed for the identification of conductors and electrical components.

Plug & Play Thermal Transfer Printer: For tags, markers, legends, and labels on cables, pipes, tubes, terminal blocks, panels, components, and equipment .

Large on-Board Touch Screen: Allows easy management of print projects. The MG4's reliability and robustness make it ideal for intensive use in various applications

Versatile Power Options: MG4 operates on mains power or optional CEMBRE rechargeable batteries. Use it in the office, production, or on-site. The interchangeable battery, compatible with all CEMBRE tools, ensures full portability.

Efficient Ribbon Save System: Each monochrome ribbon prints over 300,000 MG-TPMF 4x10 mm labels. Pigment dries instantly, making printed sheets immediately ready for use.

MARKINGENIUS MG4 printer (H) 236 x (W) 240 x (D) 409 mm / 6.1 kg

- **Speed:** Prints 112 MG-TPMF (4 x 10 mm) cable tags in less than 12 seconds
- **Convenience:** Software provides quick and easy upload of data to be printed
- **Economy:** Prints up to 300 000 MG-TPMF 4 x 10 cable tags with a single ribbon
- **Quality:** Printer resolution 300 x 600 dpi
- **Connectivity:** Via USB, LAN, WIFI or WIFI direct (*in the absent of a network*)
- **Training:** Continuous support service and free training post purchase via trained specialist

Following supplied with MG4 printer:

- MG2-PWC (991000) support template for tags (MG-TPM)
- MG2-PLT (991002) support template for legends, labels and signs and all serieFLAT media
- MG2-QTB (991011) support template for terminal block markers (MG-CPM-01,02,03,04,07)
- Mains/USB cable, protective cover, Black ribbon and take up core, installation/operating docs
- GENIUSPRO (software - 5 multiple licences and manual)

type	description	
MG4	MARKINGENIUS MG4 thermal transfer printer for marking tags and legends	see Cat M for pricing.

Accessories and spares for MG4 Printers

MG2-ETR ribbons for MARKINGENIUS MG4 thermal transfer printer ribbon

type	width (mm)	length (meters)	colour	description	Pantone ref.	price
991600	120	200	black	thermal transfer printer ribbon	Black C	3 100.00
991601	120	200	blue	thermal transfer printer ribbon	2935C	5 510.00
991602	120	200	red	thermal transfer printer ribbon	186C	5 510.00
991606	120	200	white	thermal transfer printer ribbon	—	5 510.00
CVB-039	canvas bag			transportation bag	—	2 000.00
CB1852L	battery		18V - 5.2 Ah Li-Ion rechargeable battery		—	3 020.00
ASC55-EU	charger		220 - 240 V battery charger	CB1852L	—	1 320.00

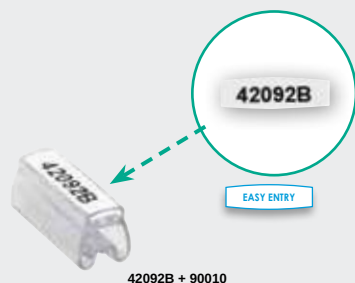
Support templates for MG4 printer

991000*	MG2-PWC	support template for cable tags	MG-TPM	4 110.00
991002*	MG2-PLT	support template for legends, labels, signs and all serie	FLAT	4 110.00
991011*	MG2-QTB	support template for terminal markers	MG-CPM-01/02/03/04/07/11	4 110.00
991008	MG2-QTB	support template for terminal markers	MG-CPM-01	4 110.00
991004	MG2-WTB	support template for terminal markers	MG-CPM-05/12	4 110.00
991010	MG2-PTM	support template for cable tags	MG-TDMO & MG-TDM (4 - 16 mm)	4 110.00

* Usually supplied with MG4 printer

991670	MG2-CKP	print head cleaning kit (template, pad & cleaning fluid)		4 940.00
992150	MG2-CNP	replacement pads for above cleaning kit	MG2-CKP (5 pcs)	4 910.00
991671	MG2-CHS	replacement cleaning fluid for above cleaning kit	MG2-CKP	1 720.00

Cable identification tags 4 mm



42092B + 90010



PMF-00



PMF-01



PMF-03

Cable tags precut 4 mm push-in marker tags for PMF holders - new "easy-entry" profile

SeriesFLAT MG-TPMF tags are used for marking cables, conduit, tubes, conductors and components. Presented in stem format, tags are simply snapped off their stems and inserted into appropriate holders for perfect protection against degradation by chemical and environmental agents over time. Tag stems can also be labelled to indicate specific job or application notes.

type	size (mm)	for cable (mm ²)	SW code	colour	description	tags per sheet	tags per box	price per box
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MG-TPMF slide-in marking tags for PMF transparent holders - "easy entry"

- Material: Rigid PVC, self extinguishing class VO: UL 94
- Operating temperature: -30°C...+60°C
- Support template: **991002 MG2-PLT** (usually supplied with MG4 printer)

42091B	4 x 12	—	505	white	slide-in tags for PMF holders	80	4000	4 710.00
42092B	4 x 15	—	503	white	slide-in tags for PMF holders	80	4000	4 710.00
42093B	4 x 20	—	504	white	slide-in tags for PMF holders	64	1600	2 540.00
42096B	4 x 30	—	509	white	slide-in tags for PMF holders	48	1200	2 950.00
42097B	4 x 40	—	508	white	slide-in tags for PMF holders	32	800	2 600.00
42041B	4 x 12	—	505	yellow	slide-in tags for PMF holders	80	4000	5 670.00
42042B	4 x 15	—	503	yellow	slide-in tags for PMF holders	80	4000	5 670.00
42043B	4 x 20	—	504	yellow	slide-in tags for PMF holders	64	1600	3 080.00
42046B	4 x 30	—	509	yellow	slide-in tags for PMF holders	48	1200	3 340.00
42047B	4 x 40	—	508	yellow	slide-in tags for PMF holders	32	800	2 950.00

Other colours available on request

PMF transparent tag holders for MG-TPMF seriesFLAT pre-printed 4 mm cable tags

PMF holders are specifically designed to accommodate appropriately sized cables. They slide on to cables to receive a pre-printed marking tag into a protected sleeve on the holder.

type	for tag (mm)	for cable (mm ²)	colour	description	std pack qty	price per pack
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- Material: Plasticised PVC, self extinguishing to class VO: UL 94
- Operating temperature: -40°C...+80°C
- Free of Cadmium, Lead, Silicon, Teflon. Resistant to alkali, alcohol, acids and solvents

PMF-00 for cable ext. Ø diameter 1.3 - 2.2 mm						
90010	4 x 12	0.25-0.5	t/parent	slide-on transparent tag holder	7000	2 680.00
90020	4 x 15	0.25-0.5	t/parent	slide-on transparent tag holder	6000	3 170.00
90040	4 x 20	0.25-0.5	t/parent	slide-on transparent tag holder	4000	2 450.00
90070	4 x 30	0.25-0.5	t/parent	slide-on transparent tag holder	2000	2 190.00
90090	4 x 40	0.25-0.5	t/parent	slide-on transparent tag holder	2500	3 250.00
PMF-01 for cable ext. Ø diameter 2 - 3.7 mm						
90110	4 x 12	0.5 - 2.5	t/parent	slide-on transparent tag holder	5000	2 430.00
90120	4 x 15	0.5 - 2.5	t/parent	slide-on transparent tag holder	4000	2 210.00
90140	4 x 20	0.5 - 2.5	t/parent	slide-on transparent tag holder	3000	2 000.00
90170N	4 x 30	0.5 - 2.5	t/parent	slide-on transparent tag holder	1500	1 890.00
90190N	4 x 40	0.5 - 2.5	t/parent	slide-on transparent tag holder	500	670.00
PMF-02 for cable ext. Ø diameter 3.4 - 4.3 mm						
90210	4 x 12	2.5 - 4	t/parent	slide-on transparent tag holder	4000	2 310.00
90220	4 x 15	2.5 - 4	t/parent	slide-on transparent tag holder	3000	1 890.00
90240	4 x 20	2.5 - 4	t/parent	slide-on transparent tag holder	2000	1 420.00
90270N	4 x 30	2.5 - 4	t/parent	slide-on transparent tag holder	500	670.00
90290N	4 x 40	2.5 - 4	t/parent	slide-on transparent tag holder	500	730.00
PMF-03 for cable ext. Ø diameter 4 - 6.3 mm						
90310	4 x 12	4 - 10	t/parent	slide-on transparent tag holder	2000	1 260.00
90320	4 x 15	4 - 10	t/parent	slide-on transparent tag holder	2000	1 370.00
90340	4 x 20	4 - 10	t/parent	slide-on transparent tag holder	1000	903.00
90370N	4 x 30	4 - 10	t/parent	slide-on transparent tag holder	500	730.00
90390N	4 x 40	4 - 10	t/parent	slide-on transparent tag holder	500	845.00
PMF-04 for cable ext. Ø diameter 6 - 10 mm						
90420	4 x 15	10 - 25	t/parent	slide-on transparent tag holder	1000	903.00
90440N	4 x 20	10 - 25	t/parent	slide-on transparent tag holder	1000	1 160.00
90470	4 x 30	10 - 25	t/parent	slide-on transparent tag holder	500	933.00
90490N	4 x 40	10 - 25	t/parent	slide-on transparent tag holder	250	608.00
PMF-05 for cable ext. Ø diameter 9 - 15 mm						
90520N	4 x 15	25 - 70	t/parent	slide-on transparent tag holder	500	785.00
90540	4 x 20	25 - 70	t/parent	slide-on transparent tag holder	250	499.00
90570N	4 x 30	25 - 70	t/parent	slide-on transparent tag holder	250	758.00
90590	4 x 40	25 - 70	t/parent	slide-on transparent tag holder	100	407.00

Larger sizes up to 240 mm² available on request

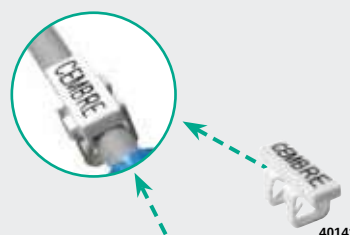
Cable identification tags 4 mm



PMF-AC...



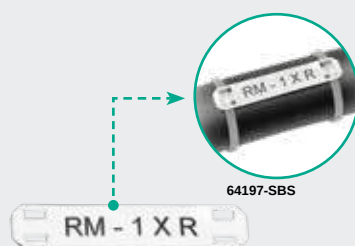
PMF-ET...



40141



40390



64197-SBS



MG-KMP - Wraparound cable markers



POSITION

WRAP

Transparent tag holders to receive 4 mm pre-printed tags

PMT holders are specifically designed to receive a pre-printed marking tag into a protected sleeve on the holder.

type	for tag (mm)	mounting	colour	description	std pack	price per pack
PMF transparent holders for MG-TPMF series FLAT cable tags 4 mm						
- Material: Plasticised PVC, self extinguishing to class VO: UL 94 - Free of Cadmium, Lead, Silicon, Teflon. Resistant to alkali, alcohol, acids and solvents						
PMF-AC self adhesive tag holders for surface mounting of 4 mm tags						
66010N	4 x 12	adhesive	t/parent	self adhesive 4 mm tag holder	4000	8 190.00
66020N	4 x 15	adhesive	t/parent	self adhesive 4 mm tag holder	4000	10 900.00
66040N	4 x 20	adhesive	t/parent	self adhesive 4 mm tag holder	3000	11 500.00
66070N	4 x 30	adhesive	t/parent	self adhesive 4 mm tag holder	2000	10 600.00
66090N	4 x 40	adhesive	t/parent	self adhesive 4 mm tag holder	1000	7 420.00
PMF-ET tie-on tag holders for mounting on cables, hoses, tubes, conduits with cable ties						
Tie on holder (max cable tie width 6 mm) longitudinal mounting of cables, tubes, conduit						
63020	4 x 15	tie mount	1 tie	t/parent tie-on transparent tag holder	2000	3 800.00
63040N	4 x 20	tie mount	1 tie	t/parent tie-on transparent tag holder	2000	4 390.00
63070	4 x 30	tie mount	1 tie	t/parent tie-on transparent tag holder	1000	3 180.00
63090	4 x 40	tie mount	2 ties	t/parent tie-on transparent tag holder	500	1 800.00

MG series one piece cable marking tags (without holder - directly mounts onto cable)

MG one piece tags require no holders and can be directly mounted onto cable without tools. A sheet of tags takes 10 seconds to print. Partially printed sheets may be re-used to avoid wastage. MG - one piece marking tags mount onto cables via the two range-taking apertures

Material: Polycarbonate, Halogen Free, self extinguishing to class VO: UL 94						
991010	Use support template MG2-PTM for all MG series markers					4 110.00

type	size (mm)	for cable (mm ²)	SW code	colour	description	tags per sheet	box	price per per box
MG-TDM slide-on one piece marking tags (pre - termination)								
MG-TDM-01		for cable external Ø diameter		1.6 - 3.25 mm				
40141	4 x 16	0.5-1.5	123	yellow	slide-on cable marker tags	40	800	1 900.00
MG-TDM-02		for cable external Ø diameter		2 - 4.4 mm				
40241	4 x 16	1 - 6	124	yellow	slide-on cable marker tags	40	640	1 520.00
MG2-TDMO clip-on one piece marking tags (post termination)								
MG2-TDMO-01		for cable external Ø diameter		2 - 2.9 mm				
40390	4 x 12	0.5 - 1.5	125	white	slide-on cable marker tags	40	880	1 910.00
40391	4 x 16	0.5 - 1.5	128	white	slide-on cable marker tags	40	880	2 140.00
MG2-TDMO-02		for cable external Ø diameter		2.9 - 3.5 mm				
40490	4 x 12	1.5 - 2.5	126	white	slide-on cable marker tags	40	640	1 330.00
40491	4 x 16	1.5 - 2.5	129	white	slide-on cable marker tags	40	640	1 520.00
MG2-TDMO-03		for cable external Ø diameter		4 - 4.6 mm				
40590	4 x 12	4 - 6	127	white	slide-on cable marker tags	40	560	1 220.00
40591	4 x 16	4 - 6	130	white	slide-on cable marker tags	40	560	1 370.00

MG-ETF cable and conduit tags (cable tie mounting)

- For marking large diameter cables, hoses, tubes and conduit
- Max. cable tie width: 4.8 mm
- Support template: **991002** **MG2-PLT** (usually supplied with MG4 printer)

64193-SBS	13 x 57	—	581	white	11 x 35 mm tie mount cable tags	14	800	6 340.00
64143-SBS	13 x 57	—	581	yellow	11 x 35 mm tie mount cable tags	14	800	7 650.00
64293-SBS	15 x 95	—	584	white	13 x 73 mm tie mount cable tags	5	250	4 950.00
64197-SBS	28 x 57	—	591	white	26 x 35 mm tie mount cable tags	6	300	4 160.00
64147-SBS	28 x 57	—	591	yellow	26 x 35 mm tie mount cable tags	6	300	4 850.00

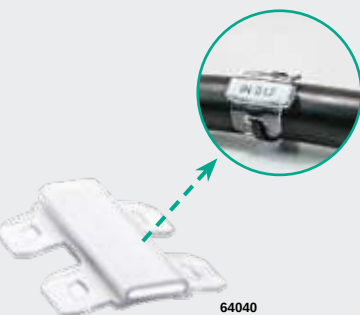
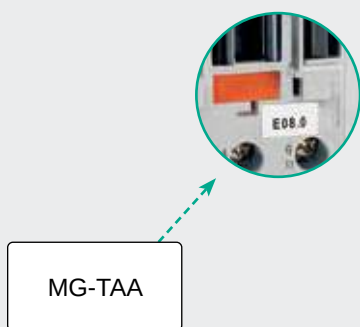
Other colours, halogen free options, available on request.

MG-KMP Wraparound cable markers (self adhesive, pre-cut, halogen free)

Suitable for identifying large diameter cables, tubes and conduit. Printing is exceptionally clear and legible and is protected from chemical and atmospheric agents.

49950-015	10 x 15	4.3 - 7	381	white	tie mount cable tags	18	900	9 940.00
49951-023	15 x 23	6 - 10	385	white	tie mount cable tags	8	400	6 410.00

Cable identification tags 9 mm



9 mm marking tags and holders

type	size (mm)	SW code	colour	description	tags per sheet	box	price per box
MG-TAPW 9 mm push-in precut marking legends for PMT series legend holders (<i>below</i>)							
- Presented in stem format - Tags are simply snapped off their stems and inserted into the appropriate holders - Support template: 991002 MG2-PLT (<i>usually supplied with MG4 printer</i>)							
Material: Rigid PVC, self extinguishing to class VO: UL 94							
Operating temperature: -30°C...+60°C							
49090N	9 x 20	362	white	push-in legends for PMT holders	55	2750	10 100.00
49091N	9 x 35	364	white	push-in legends for PMT holders	33	1650	9 500.00
49095N	9 x 70	378	white	push-in legends for PMT holders	11	550	11 100.00
49040N	9 x 20	362	yellow	push-in legends for PMT holders	55	2750	12 300.00
49041N	9 x 35	364	yellow	push-in legends for PMT holders	33	1650	11 500.00
49045N	9 x 70	378	yellow	push-in legends for PMT holders	11	550	9 980.00

MG-TAA 9 mm self adhesive, precut legends supplied on a sheet

- Self adhesive, can be applied to panels, components and equipment - Support template: 991002 MG2-PLT (<i>usually supplied with MG4 printer</i>)							
Material: Rigid PVC, self extinguishing to class VO: UL 94							
Operating temperature: -30°C...+60°C							
49290N	9 x 12	960	white	precut self adhesive blank legends	88	2200	8 360.00
49397N	9 x 15	961	white	precut self adhesive blank legends	77	1925	11 100.00
49190N	9 x 20	962	white	precut self adhesive blank legends	55	1375	8 600.00
49191N	9 x 35	964	white	precut self adhesive blank legends	33	825	10 100.00
49240N	9 x 12	960	yellow	precut self adhesive blank legends	88	2200	8 900.00
49347N	9 x 15	961	yellow	precut self adhesive blank legends	77	1925	10 600.00
49140N	9 x 20	962	yellow	precut self adhesive blank legends	55	1375	9 490.00
49141N	9 x 35	964	yellow	precut self adhesive blank legends	33	825	9 340.00

PMT transparent legend holders to receive **MG-TAPW** 9 mm pre-printed tags (*above*)

Material:			Plasticised PVC, self extinguishing to class VO: UL 94			
Operating temperature:			-40°C...+80°C			
Free of Cadmium, Lead, Silicon and Teflon. Resistant to alkali, alcohol, acid and many other solvents						
type	for tags (mm)	mounting	colour	description	std pack qty	price per pack
self adhesive tag holder for surface mounting of 9 mm marking tags						
59042N	9 x 20	adhesive	t/parent	self adhesive tag holder	500	3 250.00
59050N	9 x 35	adhesive	t/parent	self adhesive tag holder	500	6 510.00
PMF-ET tie-on tag holders for mounting on cables, hoses, tubes, conduits with cable ties						
• Tie on holder (max cable tie width 6 mm) longitudinal mounting of cables, tubes, conduit						
64040	9 x 20	1 tie	t/parent	tie-on transparent tag holder	1000	2 430.00
64050	9 x 35	2 tie	t/parent	tie-on transparent tag holder	500	1 760.00
PMT-CT tie-on tag holders for mounting on cables, hoses, tubes, conduits with cable ties						
54013	9 x 55	2 tie	t/parent	55 mm t/parent tie-on tag holder	500	2 060.00
54014	9 x 90	2 tie	t/parent	90 mm t/parent tie-on tag holder	250	1 650.00

Rail holder and protective covers for 9 mm legends (*above*)

Legend rails provide an alternative to direct marking on components. 15 mm legends simply slide into rail and can be protected by using optional RT-CCP transparent protective strip.

- Legend rail for 9 mm labels
- Non-deformable up to 90°C
- Rigid dielectric high impact PVC. Lead-free, self extinguishing to class VO: UL 94

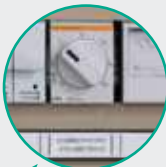
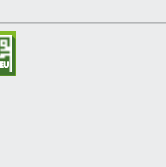
RTA-TAPW self adhesive rail, accepts 9 mm legends

990506N	1 meter	adhesive	grey	adhesive rail holder for 9 mm legend	25	4 950.00
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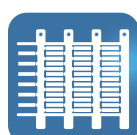
RT-CCWS transparent protective strip for above rail

990734	1 meter	RT-CCWS	t/parent	protective strip for above 9 mm rails	25	2 070.00
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Cable identification tags 15 mm

PVC SF 30°C 60°C UL RoHS		15 mm marking tags and holders Operating temperature: -30°C...+60°C Material: Rigid PVC, self extinguishing to class VO: UL 94 Support template: 991002 MG2-PLT (usually supplied with MG4 printer)																																																																																																																																							
MG-TAP 		<table><tr><th>type</th><th>size (mm)</th><th>SW code</th><th>colour</th><th colspan="2">description</th><th>tags per sheet</th><th>box</th><th>price per box</th></tr><tr><td colspan="9">MG-TAP slide-in marking legends for PMT-AC/ET/DT, PLR, PTPR legend holders (below)</td></tr><tr><td colspan="9"> Presented in stem format Tags are simply snapped off their stems and inserted into the appropriate holders </td></tr><tr><td>47090N</td><td>15 x 17</td><td>165</td><td>white</td><td colspan="2">slide-in markers for 15 mm holders</td><td>42</td><td>1050</td><td>2 730.00</td></tr><tr><td>47091N</td><td>15 x 27</td><td>166</td><td>white</td><td colspan="2">slide-in markers for 15 mm holders</td><td>28</td><td>1400</td><td>4 360.00</td></tr><tr><td>47092N</td><td>15 x 49</td><td>167</td><td>white</td><td colspan="2">slide-in markers for 15 mm holders</td><td>14</td><td>700</td><td>4 970.00</td></tr><tr><td>47093</td><td>15 x 67</td><td>188</td><td>white</td><td colspan="2">slide-in markers for 15 mm holders</td><td>14</td><td>350</td><td>4 620.00</td></tr></table>	type	size (mm)	SW code	colour	description		tags per sheet	box	price per box	MG-TAP slide-in marking legends for PMT-AC/ET/DT, PLR, PTPR legend holders (below)									Presented in stem format Tags are simply snapped off their stems and inserted into the appropriate holders									47090N	15 x 17	165	white	slide-in markers for 15 mm holders		42	1050	2 730.00	47091N	15 x 27	166	white	slide-in markers for 15 mm holders		28	1400	4 360.00	47092N	15 x 49	167	white	slide-in markers for 15 mm holders		14	700	4 970.00	47093	15 x 67	188	white	slide-in markers for 15 mm holders		14	350	4 620.00																																																																								
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Media - Types



Sheet



Roll



Conduit



Legend



Terminal



Panel

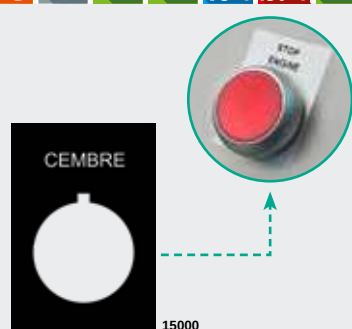
Cable identification tags 15 mm



New



990454



15000



88916

Legend holders/base to receive MG-TAP 15 mm pre-printed legends

PMT holders are specifically designed to receive a pre-printed marking legends into a protected sleeve.

type	for tags (mm)	mount	colour	size (mm)	description	tags per sheet	box	price per box
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Holder/base to receive MG-TAP 15 mm pre-printed legends

PLR *rectangular legend support/base - rivet fixing*

34202	15 x 17	rivet	black	17 x 20	legend holder/base	100		1 690.00
34302	15 x 27	rivet	black	17 x 30	legend holder/base	100		1 820.00
34402	15 x 49	rivet	black	17 x 52	legend holder/base	100		2 250.00
34502	15 x 67	rivet	black	17 x 70	legend holder/base	100		2 510.00

PTPR-22 *legend holder for standard Ø 22.5 mm pushbuttons*

34102	15 x 27	Ø 22.5	black	48 x 30	rivet p/button legend	100		1 690.00
34702	15 x 27	Ø 22.5	black	48 x 30	adhesive p/button legend	100		2 310.00

MG-TAP-CCS transparent protective covers for above legend supports

990508N	15 x 17	165	t/parent		covers for legend supports	42	1050	4 400.00
990510N	15 x 27	166	t/parent		covers for legend supports	28	1400	8 570.00
990513N	15 x 49	167	t/parent		covers for legend supports	14	700	8 190.00
990514N	15 x 67	168	t/parent		covers for legend supports	14	350	7 880.00

Rail holder and protective covers for MG-17.5 15 mm legends

Legend rails provide an alternative to direct marking on components. 15 mm legends simply slide into rail and can be protected by using optional RT-CCP transparent protective strip.

- Legend rail for 15 mm labels
- Rigid dielectric high impact PVC. Lead-free, self extinguishing to class VO: UL 94
- Non-deformable up to 90°C

RTR-TAP *pre-drilled rail, accepts MG-17.5-R 15 mm legends*

990454	430 mm	rivet	black		rail holder for 15 mm legend	25		1 880.00
990664	650 mm	rivet	black		rail holder for 15 mm legend	25		2 710.00

RTA-TAP *self adhesive rail, accepts MG-17.5-R 15 mm legends*

990525N	1 meter	adhesive	black		adhesive rail holder for 15 mm legend	25		3 960.00
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RT-CCPS *transparent protective strip for above rail*

990735	1 meter	RT-CCPS	t/parent		protective strip for above rails	25		2 070.00
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Push button legends Ø 22.5 mm precut

- Operating temperature: -30°C...+60°C
- Material: Rigid PVC, self extinguishing to class VO: UL 94
- Support template: 991002 MG2-PLT (usually supplied with MG4 printer)

type	size (mm)	SW code	colour	description	tags per sheet	box	price per box
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MG-PTS *Ø22.5 mm precut legends for pushbuttons*

15090	40 x 30	1000	white	Ø 22.5 mm pushbutton legend	6	300	6 240.00
15040	40 x 30	1000	yellow	Ø 22.5 mm pushbutton legend	6	300	7 520.00
15000	40 x 30	1000	black	Ø 22.5 mm pushbutton legend	6	300	9 330.00
15091	50 x 30	1001	white	Ø 22.5 mm pushbutton legend	6	300	6 240.00
15041	50 x	1001	yellow	Ø 22.5 mm pushbutton legend	6	300	7 520.00

MG-VRT-A *Panel plates self adhesive, customisable*

Rigid PVC self adhesive panel plates used to create name plates, rating plates, data plates using company logos, technical data, serial numbers, certification, etc.

- Material: Rigid PVC - self extinguishing to class VO: UL 94
- Support template: 991002 MG2-PLT (usually supplied with MG4 printer)

88916	25 x 50	853	white	precut self adhesive blank labels	8	200	4 950.00
88900N	32 x 58	200	white	precut self adhesive blank labels	6	150	5 070.00
88945	35 x 75	825	white	precut self adhesive blank labels	3	75	4 920.00
88918	50 x 50	858	white	precut self adhesive blank labels	4	100	4 900.00
88901	42 x 78	202	white	precut self adhesive blank labels	2	50	4 510.00
88902	62 x 88	203	white	precut self adhesive blank labels	1	25	5 030.00
88903	52 x 107	204	white	precut self adhesive blank labels	2	50	4 510.00
88913	92 x 118	813	white	precut self adhesive blank labels	1	25	5 030.00
88904	105 x 110	812	white	precut self adhesive blank labels	1	25	5 030.00

Component identification labels

PVC CE SF -30°C +60°C UL 2011/65/EU 		Self adhesive precut legends for marking - Self adhesive - can be applied to panels, components and equipment - Material: Rigid PVC - self extinguishing to class VO: UL 94 - Support template: 991002 MG2-PLT (usually supplied with MG4 printer)					
type	size (mm)	SW code	colour	description	tags per sheet	box	price per box
MG-TAA self adhesive, precut legends							
49196	7 x 20	179	white	precut self adhesive blank legends	60	1500	6 960.00
49597	7 x 44	795	white	precut self adhesive blank legends	28	700	10 100.00
49498	8.5 x 30	720	white	precut self adhesive blank legends	33	825	10 100.00
49290N	9 x 12	960	white	precut self adhesive blank legends	88	2200	8 360.00
49397N	9 x 15	961	white	precut self adhesive blank legends	77	1925	11 100.00
49190N	9 x 20	962	white	precut self adhesive blank legends	55	1375	8 600.00
49191N	9 x 35	964	white	precut self adhesive blank legends	33	825	10 100.00
49193N	15 x 27	966	white	precut self adhesive blank legends	28	700	7 050.00
49194N	15 x 49	967	white	precut self adhesive blank legends	14	350	6 690.00
49195	15 x 67	977	white	precut self adhesive blank legends	14	350	13 500.00
49293	20 x 48	850	white	precut self adhesive blank legends	10	250	6 680.00
49294	20 x 72	851	white	precut self adhesive blank legends	5	125	7 690.00
MG-VYT self adhesive precut labels							
- Dielectric PVC film labels used for internal and external marking - Support template: 991002 MG2-PLT (usually supplied with MG4 printer)							
46915	6 x 15	181	white	precut self adhesive blank labels	105	5250	4 740.00
44891	7 x 10	191	white	precut self adhesive blank labels	120	6000	4 910.00
46928	7 x 15	182	white	precut self adhesive blank labels	60	3000	4 710.00
46935	7 x 20	190	white	precut self adhesive blank labels	60	3000	4 710.00
46914	9 x 12	160	white	precut self adhesive blank labels	80	4000	4 750.00
44895	9 x 15	161	white	precut self adhesive blank labels	70	3500	4 580.00
44896N	9 x 20	162	white	precut self adhesive blank labels	55	2750	4 890.00
46910N	9 x 35	164	white	precut self adhesive blank labels	33	1650	4 860.00
46921N	15 x 27	186	white	precut self adhesive blank labels	28	1400	5 120.00
46933N	15 x 49	187	white	precut self adhesive blank labels	14	700	4 750.00
46925	25 x 50	612	white	precut self adhesive blank labels	8	400	4 680.00
46926	25 x 80	613	white	precut self adhesive blank labels	4	200	4 680.00
Other sizes available on request.							
MG-VRT-R customisable panel plates							
Rigid PVC panel plates used to create name plates, rating plates, data plates using company logos, technical data, serial numbers, certification, etc. CPT transparent polycarbonate covers can be used for increased durability							
- Material: Rigid PVC - self extinguishing to class VO: UL 94 - Support template: 991002 MG2-PLT (usually supplied with MG4 printer)							
48900N	32 x 58	200	white	precut customisable panel plates	6	300	6 240.00
48901	42 x 78	202	white	precut customisable panel plates	2	100	5 850.00
48902	62 x 88	203	white	precut customisable panel plates	1	50	6 060.00
48903	52 x 107	204	white	precut customisable panel plates	2	100	5 850.00
48913	92 x 118	813	white	precut customisable panel plates	1	50	6 060.00
CPT transparent rivet fixing protection covers for panel plates (above)							
Polycarbonate covers can be used to increase durability (Ø 3 mm mounting holes)					pack qty	per pack	
47590	37 x 79	-	t/parent	covers for 32 x 58 panel plates	10	931.00	
47591	47 x 98	-	t/parent	covers for 42 x 78 panel plates	10	974.00	
47594	67 x 109	-	t/parent	covers for 62 x 88 panel plates	10	1 090.00	
47592	57 x 127	-	t/parent	covers for 52 x 107 panel plates	10	993.00	
47593	97 x 140	-	t/parent	covers for 92 x 118 panel plates	10	1 950.00	

Metal Detectable - Media

In food & beverage, pharmaceuticals, and cosmetics, maintaining top product quality is vital for end-user safety. **Cembre's new MD (Metal Detectable)** media ensure reliable detection with a special additive that is easily detected by metal detectors and X-rays.





MG-CPM terminal block markers

Terminal block markers are available in versions to suit the particular clip formats of the most widely used terminals, they provide an elevated mechanical robustness, high dimensional stability and are Halogen free. To optimise application time, additional data such as job details, location, etc - can be printed on the stems.

type	size (mm)	SW code	colour	description	tags per sheet	box	price per box
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MG-CPM terminal block markers

- Material: Polycarbonate, Halogen free self extinguishing to class VO: UL 94
- Support template: **991011 MG2-QTB** (usually supplied with **MG4 printer**)

MG-CPM-01

For terminals - **Klemsan**, Weidmuller, ABB Entelec, Wago, Allen Bradley, ContaClip, Connectwell

41094*	5 x 7	13	white	terminal block marking tag	56	1960	3 850.00
41090N	5 x 10	14	white	terminal block marking tag	56	1960	3 400.00
41190N	5 x 10	22	white	terminal block marking tag	48	1680	3 300.00
41091N	5 x 15	16	white	offset terminal block marking tag	48	1680	3 740.00
41095	6 x 10	17	white	modular terminal block marking tag	48	1680	3 300.00
41096	8 x 10	18	white	modular terminal block marking tag	32	1120	3 420.00

* Use support template **991008**

MG-CPM-04

For terminals - Phoenix Contact UK/UT/ST, ABB Entelec, Wago, Cabur, Connectwell

41390N	5 x 10	42	white	terminal block marking tag	48	1680	3 300.00
41391	6 x 10	45	white	modular terminal block marking tag	48	1344	2 640.00
41396	8 x 10	48	white	modular terminal block marking tag	32	1120	3 420.00

MG-CPM-05

For terminals - **Wieland**, Telemechanique, Legrand

Support template:	991004 MG2-WTB	support template for MG-CPM-05					
41490	5 x 10	51	white	terminal block marking tag	56	1960	3 850.00
41494	5 x 10	51	white	modular terminal marking tag	56	1960	3 850.00

MG-CPM-07

For terminals - Phoenix Contact ST/STU/STS/STI/STN/STTB, Siemens 8WH, Schlegel

41691	5 x 10	71	white	terminal block marking tag	48	1680	3 300.00
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MG-CPM-11

For terminals - **Finder**, **Klemsan**, Allen Bradley, Weidmuller WDU, Conta Clip RK, Omron

46392	6 x 12	106	white	terminal block marking tag	48	1344	2 640.00
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MG-CPM-13

For terminals - **Finder**, **Klemsan**, Allen Bradley, Weidmuller WDU, Conta Clip RK, Omron

41790	5 x 12	113	white	terminal block marking tag	56	1960	3 850.00
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MG-CPM-15

For terminals - **Klemsan**, Wallen Bradley, Weidmuller, Conta Clip RK, Wago Top Job

42908	5 x 5	402	white	terminal block marking tag	48	1680	3 740.00
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MG-SIGNS-VY self adhesive panel labels, warning, hazard, prohibition

Material:	PVC film						
991104	50	260	yellow	self adhesive triangle warning sign	4	200	5 210.00
991105	100	242	yellow	self adhesive triangle warning sign	1	50	5 030.00
991109	34 x 74	246	yellow	self adhesive rectangular label	2	100	5 130.00
991110	52 x 105	247	yellow	self adhesive rectangular label	2	100	5 130.00
991106	Ø 62	232	yellow	round label for 22.5 mm hole	1	50	5 030.00
991107	Ø 90	233	yellow	round label for 22.5 mm hole	1	50	5 030.00

Thermal transfer printer



Rolly3000

Thermal transfer printer for customised marking of tags on rolls

ROLLY3000 is designed for volume printing of all Cembre flat material on rolls, eg. Cable tags for holders, tie-on, wraparound cable markers, legend strips and labels.

Carriage loading and unloading operations are rapid and support templates are easily interchangeable.

As pigment deposited from the ribbon dries instantaneously, printed sheets are immediately ready for use.

ROLLY3000 package comprises: (H) 288 x (W) 252 x (D) 460 mm

- ROLLY3000 printer
- Mains and USB cable, Black printer ribbon, installation/operating documentation, GENIUSPRO - software

type	description	price
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ROLLY3000 printer Thermal transfer printer for marking of tags and legends

- **Speed** Prints 1000 TPM-ROLL 4 x 10 cable tags in less than 2 minutes
- **Convenience** Software provides quick and easy upload of data to be printed
- **Economy** Prints up to 140.000 TPM-ROLL 4 x 10 cable tags with a single ribbon
- **Quality** Printer resolution 300 dpi

ROLLY3000	Thermal transfer printer for marking tags and legends on rolls	129 000.00
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Accessories for ROLLY3000 printer

type	width (mm)	length (met.)	colour	description	Pantone ref.	price
842112	112	200	black	TPS-060 thermal t/fer printer ribbon	Black C	3 750.00

TPM-ROLL push-in 4 mm marking tags on a roll for PMF, PMT-AC tag holders

- Presented on a roll for ROLLY3000 printers
- Tags are simply inserted into appropriate holders and snapped off their branches

Material: Rigid PVC, self extinguishing to class VO: UL 94
Operating temperature: -30°C...+60°C

type	size (mm)	SW code	colour	description	tags per roll	price per roll
44091B	4 x 12	4022	white	push-in tags for PMF 4 mm holders	12552	15 600.00
44092B	4 x 15	4023	white	push-in tags for PMF 4 mm holders	12552	15 600.00
44093B	4 x 20	4005	white	push-in tags for PMF 4 mm holders	10200	17 000.00
44096B	4 x 30	4026	white	push-in tags for PMF 4 mm holders	6270	15 400.00
44097B	4 x 40	4007	white	push-in tags for PMF 4 mm holders	5005	14 700.00
44041B	4 x 12	4022	yellow	push-in tags for PMF 4 mm holders	12552	21 900.00
44042B	4 x 15	4023	yellow	push-in tags for PMF 4 mm holders	12552	21 900.00
44043B	4 x 20	4005	yellow	push-in tags for PMF 4 mm holders	10200	23 700.00
44046B	4 x 30	4026	yellow	push-in tags for PMF 4 mm holders	6270	22 200.00
44047B	4 x 40	4007	yellow	push-in tags for PMF 4 mm holders	5005	21 600.00

TAR-ROLL push-in 9 mm marking tags for PMT and RT-TAPW tag holders

75098	9 x 20	4301	white	push-in tags for PMT 9 mm holders	5800	21 400.00
75099	9 x 70	4300	white	push-in tags for PMT 9 mm holders	1450	24 400.00
75049	9 x 70	4300	yellow	push-in tags for PMT 9 mm holders	1450	28 700.00

ETF-ROLL tie-on, precut one piece 13 mm markers (max cable tie width 4.8 mm)

44192-SBS	13 x 57	4400	white	tie-on cable and conduit tags	1775	14 400.00
44142-SBS	13 x 57	4400	yellow	tie-on cable and conduit tags	1775	17 900.00

STRIP-ROLL-R modular component legend strips on a roll

- For use with RTA-TAP rail legend holder (page L-53)
- SW code - 5002 - 430 mm / SW 5102 - 630 mm / SW 502 - 1000 mm

13160	15 mm	-	white	modular component legend strip	25 meter	8 790.00
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TTL self-adhesive thermal transfer labels on a roll (Polyester film)

8400008WPYG	7 x 15	4102	white	self adhesive labels on a roll	32000	14 000.00
8401010WPYG	7 x 20	4101	white	self adhesive labels on a roll	24000	11 800.00
8400092WPYG	9 x 15	4107	white	self adhesive labels on a roll	26660	13 000.00
8400017WPYG	9 x 20	4106	white	self adhesive labels on a roll	19995	11 200.00
8400094WPYG	9 x 38	4108	white	self adhesive labels on a roll	13330	13 900.00
8401008WPYG	15 x 27	4120	white	self adhesive labels on a roll	13320	15 100.00
8400038WPYG	22 x 40	4164	white	self adhesive labels on a roll	4800	8 960.00
8400073WPYG	25 x 45	4168	white	self adhesive labels on a roll	5710	14 200.00
8400042WPYG	30 x 50	4175	white	self adhesive labels on a roll	2420	7 920.00
8400072WPYG	30 x 80	4176	white	self adhesive labels on a roll	2420	12 100.00
8400051WPYG	40 x 80	4188	white	self adhesive labels on a roll	2800	17 600.00
8400083WPYG	40 x 90	4121	white	self adhesive labels on a roll	1860	13 800.00



44091B



44192-SBS



84...WPYG



Cable & Testing Tools

M



Hand-operated
cable strippers

M-1...2



Hand-operated
crimping tools

M-3



Cable preparation
tools

M-4



Hydraulic &
Battery-operated cable
preparation tools

M-5...7



DIN rail &
Cable trunking
cutters

M-8



Digital & Clamp
multimeters

M-9...10



Portable network
analyser

M-11



Thermal camera &
Electrical installation
tester

M-12...13



Training kits
& Courses

M-14

Hand-operated cable strippers



30199



20100



20050



20090



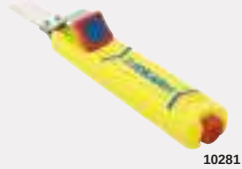
30120

Jokari a market leader in stripping technology for all types of wires, cables and conductors. Producing professional tools for most application areas in which wires must be processed easily, quickly and safely.

- Highest standards of workmanship and material
- Durable, reliable performance guaranteed

type	tool name	description	wire size	price
Allrounder <i>for stripping of standard round and flat cables up to Ø 15 mm</i>				
For removing of the coating, longitudinal sections, stripping of solid or flexible wires for exposing of wire lengths for specific connections, and a broad working range.				
• Round cables Ø 4...15 mm, Flat cables max. 15 mm wide and flexible wire 1.5...50 mm² • Extra blade for longitudinal cut. 2 stripping notches with length stop for stripping conductors • Removable length stop, suitable for left and right hand use, can be stored in the tool handle.				
30900	Allrounder	universal stripper for round and flat cables	Ø 4 - 15 mm	383.00
PV Strip Pro <i>for stripping of solar / photovoltaic cables up to Ø 15 mm</i>				
The Jokari PV-Strip Pro is a versatile tool designed for stripping solar and photovoltaic cables from 1.5 to 16 mm ² . Ideal for professionals, it ensures fast, efficient, and reliable cable stripping in various PV installations.				
• Additional blade for making a longitudinal cut • Precise alignment of the blades to standard solar cables • Light weight because of body made of high-quality, wear-resistant polyamide,				
30199	PV Strip Pro	universal stripper for solar cables	Ø 1.5 - 16 mm	648.00
Secura 2K <i>soft grip (professional wire stripper)</i>				
Automatic wire stripper for single, multiple and fine stranded cables 0.2...6.0 mm ² with std insulation.				
• No adjustment necessary for different cross-sections • Integrated safety wire cutter for wires up to 2.5 mm² • Strip length stopper adjustable 6 to 18 mm • Ergonomic security soft grip handle (<i>non-tiring long operation</i>)				
20100	Secura 2K	soft-grip wire stripper (<i>incorporating cutter</i>)	0.2 - 6 mm ²	791.00
29100		spare blade set for above soft-grip stripper		329.00
Super 4 plus <i>wire stripper (econo version)</i>				
• Automatic wire stripper for solid and standard wires 0.2 - 6 mm² • Integrated safety cutter for wires up to max. 2.5 mm² • Strip length stopper adjustable: 6 to 15 mm • No adjustment necessary for different cross-sections				
20050	Super 4 plus	econo wire stripper (<i>incorporating wire cutter</i>)	0.2 - 6 mm ²	442.00
No. 6-16 <i>stripper for larger wire sizes 6 - 16 mm²</i>				
Suitable for solid and stranded conductors 6...16 mm ² for removing the outer sheath from PVC-Flex.				
• Automatic wire stripper suitable for wires 6 - 16 mm² (<i>no adjustments required</i>) • Special cut permits removal of outer sheath of 3 core-flex 3 x 0.75 mm and solar cables • Adjustable strip length: 15 - 18 - 20 mm				
20090	No.6-16	wire stripper for larger cross-section wires	6 - 16 mm ²	1 320.00
Universal No.12 - Cable stripper				
For quick, precise cable stripping of all common round and multicore cables Ø 8...13 mm.				
• No adjustment of cutting depth necessary • Ideal for cable stripping confined spaces such as in junction boxes • Blades with special Titanium-Nitride coating (TIN) to achieve longer life, faster cutting and less wear				
30120	Universal No.12	universal for all round cables (<i>no adjustment</i>)	Ø 8 - 13 mm	294.00
Secura No.15 - Super stripper				
• No cutting depth adjustments required • Integrated, multi-functional slide-out blade • Locking mechanism prevents unwanted opening of the tool • Absolutely straight-forward longitudinal cuts - with innovative internal cable duct • Special outlined blades for effortless stripping of wires of diameters 0.2 - 0.3 - 0.8 - 1.5 - 2.5 - 4.0 mm²				
30155	Secura No.15	same as No.12 + wire stripper 0.2...4 mm ² and blade	Ø 8 - 13 mm	638.00
Flat cable stripper				
For PVC insulated and sheathed cables e.g. Twin Flat Cable 2 x 1/1.5/2.5 mm ²				
Twin and Earth Cable 3 x 1.0 mm ² , 3 x 1.5 mm ² , 3 x 2.5 mm ²				
• Removes outer sheath and inner conductor insulation (<i>no adjustment necessary</i>) • Adjustable strip length: 15 - 18 - 20 mm				
20030	EM-Set FKZ	for flat twin and twin + earth cables	0.75...2.5 mm ²	1 210.00

Hand-operated cable strippers



10281



10350



70000



30161



62000

Specialised wire strippers

- Highest standards of workmanship and material - durable, reliable performance guaranteed
- Blades with special Titanium-Nitride coating (TIN) to achieve longer life, faster cutting and less wear

type	tool name	description	wire Ø	price
Cable knives <i>cable knife contains spare blade (inside handle)</i>				
• For stripping outer sheath from all standard round cables • Automatic swivel blade (<i>screw adjustable for cutting depth</i>)				
10160	Secura No.16	cable knife (<i>adjustable blade depth</i>)	4 - 16 mm	277.00
10280	Secura No.28H	cable knife with additional hooked blade	8 - 28 mm	306.00
10281	Secura No.28G	cable knife with additional straight blade	8 - 28 mm	306.00
19000	—	spare blade for above cable knives	(3 pc set)	270.00
Cable knife system 4-70 <i>with newly developed hook blade protection mechanism</i>				
• Bracket change system permits stripping of cables from Ø 4...70 mm diameter with just one tool • Perfect ergonomic design ensures easy, comfortable handling				
70000	System 4-70	knife with protected hook blade with bracket No. 28	8 - 28 mm	906.00
79016	Bracket No. 16	bracket for system 4 - 70 for cables with diameter	4 - 16 mm	258.00
79035	Bracket No. 35	bracket for system 4 - 70 for cables with diameter	27 - 35 mm	292.00
79050	Bracket No. 50	bracket for system 4 - 70 for cables with diameter	35 - 50 mm	292.00
79070	Bracket No. 70	bracket for system 4 - 70 for cables with diameter	50 - 70 mm	292.00
19000	—	spare blade for above cable knives	(3 pc set)	270.00
Coax cable strippers <i>for coaxial cables</i>				
Secura Coaxi No.1 , strips coaxial cables in two easy and quick motions, stripping the outer sheathing and inner dielectric coat precisely without any damage to the wires or essential shielding.				
• Quick, easy stripping of coaxial cable types - TV antenna cables, RG58/59, PVC-Flex 3 x 0.75 mm² • No adjustment necessary, without damaging the inner metal shield				
30600	Coaxi No. 1	Coax/RG59/59, CAT and PVC cables 3 x 0.75 mm²	Ø 4.8 - 7.5 mm	320.00
PC-Strip <i>for PVC-insulated data communications and control cables</i>				
Special sheathing and insulation stripping tool for PVC-insulated data communications and control cables.				
• No adjustment of cutting depth necessary (<i>wire stripping range 0.2 - 4.0 mm²</i>)				
30160	PC-Strip	data/network/printer/control cables 0.2...4 mm²	Ø 5 - 15 mm	709.00
PC-CAT <i>for CAT5, CAT6, CAT7, Twisted-Pair-Cable</i>				
For PVC-insulated data communications and control cables Cat5, Cat6, Cat7, twisted-pair, network and thinly insulated cables. Also for stripping individual wires (0.2...0.8 mm²)				
• No adjustment of cutting depth necessary (<i>wire stripping range: 0.2...0.8 mm²</i>) • Integrated, multi-functional slide-out blade				
30161	PC-CAT	CAT5 / 6 / 7 cable or twisted pair 0.2...4 mm²	Ø 4.5 - 10 mm	565.00
Quadro Plus <i>4 functions in one - cutting - twisting - stripping - crimping</i>				
Ergonomic, automatic wire stripper and crimping pliers for wires from 0.5...2.5 mm² wire stopper for perfect length, for quick precise stripping and crimping on insulated sleeves.				
• Self adjusting blades cause no damage to conductors • Integrated twisting device prevents splaying of wire strands • Trapezium crimping to VDE 0609 • Cartridge accepts insulated ferrules (<i>in strips</i>) 0.5...2.5 mm² • Incorporated side cutter for wires up to 2.5 mm²				
62000	Quadro	insulated carrying case with 2 spare cartridges	0.5 - 2.5 mm²	4 570.00
60100	—	spare quick-change cartridges for Quadro tool	—	193.00



Scan the QR Code ►
to explore the Jokari range



Hand-operated crimping tools

Manual crimping tools for wire ferrules (bootlace terminals)

Proteus 10S - Professional self-adjusting crimping tool providing a square crimp cross section suitable for wire ferrules 0.14...10 mm². Ergonomically shaped handles with selected surface textures for comfortable, frequent use.

- Professional self-adjusting crimping tool providing a square crimp profile on wire ferrules
- Full cycle ratchet mechanism ensuring consistent, reliable crimp (*release on completion of crimping operation*)
- Ergonomic handles, light weight, low handle force and optimum opening for comfortable crimping
- Release lever to clear miscrimps and obstructions (*releases jaws before completion of crimp*)
- Non-slip rubber grip pad for applying pressure against a surface

type	for terminals	conductor (mm ²)	cable entry	description	price
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Pressmaster - Professional self-adjusting crimping tool

- High precision die geometry for a clearly defined square crimp shape of the ferrule
- Automatic self-adjustment to required wire size

4300-4661	ferrules	0.14...10	side	professional self-adjusting crimping tool	2 310.00
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Mobile frame system - with interchangeable dies for various terminals

Lightweight, compact ratchet crimp tool designed for most types of mechanical, electrical and electronic connectors. Easily interchangeable crimp dies are kept together with a special pin to simplify handling.

- Reliable crimping performance consistent and accurate with a parallel action stroke.
- Easy-access release for fast, simple exchange of crimp dies (*no special tools required*)

4300-3149	die dependant		side	MCT frame only for interchangeable dies	601.00
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Interchangeable die sets for above tool frame

- A wide range of crimp dies to cover all applications in just one tool frame.
- Dies are kept in pairs and delivered in a modular reusable box.

4300-3129	insulated	0.5 to 2.4	side	red/blue insulated terminal crimping die set	430.00
4300-3128	insulated	4 to 6	side	yellow insulated terminal crimping die set	368.00
4300-3137	uninsulated	0.75 to 2.5	side	cable lug crimping die set	368.00
4300-3139	uninsulated	4 to 10	side	cable lug crimping die set	368.00
4300-3127	end sleeves	0.25 to 10	side	wire end sleeve crimping die set	368.00
4300-3153	end sleeves	16 to 25	side	wire end sleeve crimping die set	368.00
4300-3154	end sleeves	35 to 50	side	wire end sleeve crimping die set	368.00
4300-3146	open barrel	0.5 to 6	side	open barrel connector crimping die set	601.00
4300-3136	coaxial	RG58/59/62/71	side	coaxial connector crimping die set	429.00

Z&F - Crimping tools (for insulated and uninsulated ferrules)

Crimpfit 2.4	end sleeves	0.5 to 2.4		economic crimping tool (<i>front and side entry</i>)	899.00
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Crimping tool with ratchet closing control

Crimpfit F6L	end sleeves	0.5 to 6	side	crimping tool for wire end ferrules (<i>5 profiles</i>)	1 440.00
Crimpfit F16L	end sleeves	6 to 16	side	crimping tool for wire end ferrules (<i>3 profiles</i>)	1 440.00
Crimpfit F25L	end sleeves	6 to 25	side	crimping tool for wire end ferrules (<i>4 profiles</i>)	1 530.00

Crimpfit IT6L (for pre-insulated cable lugs)

- Crimping tool for PVC, PC and DPA insulated lugs, with ratchet closing control
- Crimping profiles for different wire cross-sections (*red/blue/yellow*)

Crimpfit IT6L	insulated	0.5 to 6	side	crimping tool for pre-insulated lugs (<i>3 profiles</i>)	1 420.00
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Jeesoon - Crimping tool for pre-insulated terminals

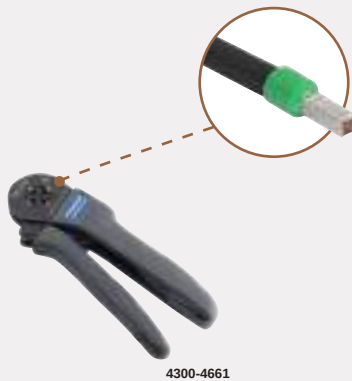
- With ratchet closing control
- Crimping profiles for different wire cross-sections (*red/blue/yellow*)

JSL 1305-1	insulated	0.5 to 6	side	crimping tool for pre-insulated terminals	657.00
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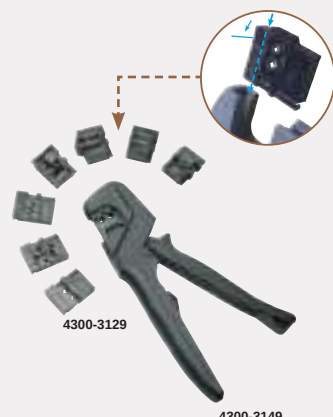
Cembre - Crimpstar range - Ratchet crimping tools

- Ergonomically designed non-slip moulded plastic grips
- Factory-set ratchet for crimping control (*automatic release on completion of crimping operation*)
- Emergency release lever (*releases jaws before completion of crimp*)

HP3	insulated	0.25 to 6	side	red/blue/yellow ratchet crimping tool	1 690.00
HNN3	insulated	1.5 to 10	side	manual indent ratchet crimping tool	1 900.00
HNN4	insulated	10 to 16	side	manual indent ratchet crimping tool	1 810.00
HN-A25	uninsulated	10 to 25	side	manual hexagona ratchet crimping tool	3 050.00
HNKE4	end sleeves	0.5 to 4	side	wire end sleeve crimping tool	1 940.00
HNKE16	end sleeves	4 to 16	side	wire end sleeve crimping tool	2 180.00
HNKE50	end sleeves	25 to 50	side	wire end sleeve crimping tool	2 010.00



4300-4661



4300-3129

4300-3149



IT6L



JSL 1305-1



HNKE50

Cable preparation tools



Professional hand tools for cable preparation

type	wire sizes mm ²	tool length	description	dimensions (mm)			price
				H	W	D	

Cable shears (cutters)

- For cutting single/multi-strand and fine wire aluminium and copper cables
- Easy, clean cut with one hand operation - no crushing or deformation of cables

700 015 36	Cu 70	170 mm	cable shears for stranded conductors up to 70 mm ²				711.00
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 Professional scissors *supplied with carry case and swivel belt hook*

Robust-A professional scissors with special steel frame for high resistance and a long life

- Safe and easy operation even when wearing work gloves
- Dual compound material - soft rubber inserts to maximise grip
- Extremely lightweight and robust for safe, easy handling and comfort
- Easy cutting of conductors up to 50 mm² using the shaped grooves in each blade

SC5X	scissors		professional workmans scissors	162	77	18	550.00
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Crimping tools for insulated and uninsulated ferrules (bootlace terminals)

Entry-level crimping tool for 0.25 – 2.5 mm² ferrules PE 7.1

- Forged body - milled trapezoidal crimp profile

610 001 0	0.25...2.5	150 mm	entry-level crimping tool for ferrules 0.25...2.5 mm ²				549.00
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 Professional crimping tool for 0.08 - 16 mm² ferrules **PEW 8.185 / PEW8.87**

- The established, patented tool further improved
- High-precision die geometry leads to a clearly defined square crimp shape of the ferrule
- Automatic self-adjustment to requested wire size

610 185 3	0.08-16	side entry	professional crimping tool for ferrules 0.08 - 16 mm ²				3 660.00
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610 087 3	0.08-10	front entry	professional crimping tool for ferrules 0.08 - 10 mm ²				3 720.00
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Automatic machines for cable preparation

type	wire sizes (mm ²)	measuring length (mm)	description	dimensions (mm)			price
				H	W	D	

Cable cutting machine

supply voltage 100...240 VAC 50/60Hz

LC 100 offers significant potential savings. Measuring and transport rollers automatically adjust to wire diameter on insertion. Enter the desired length and quantity on the control panel and the production can begin. Included software enables recurring cutting jobs to be saved as projects.

- Easy to use, faster material change
- Cable cross-section is automatically detected
- Simple and fast data entry via clear graphical display and control panel
- High measuring accuracy through separate measuring and transporting roller

LC 100	0.8...10	2 mm...1000 meter	automatic wire cutter	194	228	301	78 500.00
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CS 60 - Stripping machine

supply voltage - 230 VAC 50Hz

CS 60 settings are made by large user-friendly dials. A graphic display indicates values entered within seconds, the cross section settings and stripping length are performed. Insulation of cables not fully stripped to prevent fanning of the wire strands.

- Mobile use by carrying handle
- Fast setting of length and cross section
- Large graphic display facilitates adjustment
- The automatic clamping force adjustment protects sensitive insulations

CS 60	0.8...6	2...20 mm	automatic wire stripper	221	141	363	74 900.00
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Stripping and crimping machines (combined)

type	wire sizes mm ²	crimping length (mm)	description	dimensions (mm)			price
				H	W	D	

Electric stripping and crimping machine

supply voltage - 230 VAC 50Hz

Wire stripping and crimping done in one operation using belt strip ferrules in type K box dispensers Controlled by a sophisticated cam mechanism achieving a stable working process.

- Cycle time: 1.5s
- Easy to use, silent operation
- Cross-sectional change in a few simple steps.

MC 25	0.25...2.5	8 mm	automatic stripper/crimper	270	165	320	156 000.00
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Hydraulic cable preparation tools



Hydraulic crimping / cutting tools

type	for terminals	conductor (mm ²)	crimping force (kN)	description	price
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HT and TC series - Hydraulic tools

lightweight and compact

- Spring loaded handles, dies can be advanced using only one hand
- Pressure release system can easily be operated at any stage of compression
- For ease of operation and comfort of operator, tool head can be fully rotated 180°
- Supplied with sturdy plastic carrying case for tool with compartments. (see dies sets)

HT45 compact hydraulic crimping tool

HT45-E	die dependant	max. 150	50 kN	hydraulic crimping tool	17 900.00
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HT51 -2 speed hydraulic crimping tool

- Supplied with sturdy plastic carrying case for tool and (included) die sets:
ME 5-50, 7-50, 10-50, 14-50, 19-50, 24-50, 30-50, 37-50

KITHT51-1	die dependant	max. 240	50 kN	hydraulic crimping tool	29 300.00
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HT131 hydraulic crimping tool for semi-circular slotted dies

- Supplied with sturdy plastic carrying case for tool and (included) die sets:
ME 10-C, 14-C, 19-C, 24-C, 30-C, 37-C, 48-C

KITHT131-C-1	die dependant	max. 400	130 kN	hydraulic crimping tool	41 000.00
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RH series - Hydraulic presshead

Hydraulic presshead complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max.

RHC131	die dependant	max. 400	130 kN	hydraulic presshead only	16 000.00
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TC series - Hydraulic cutting tool

Hand operated hydraulic tool specifically designed to cut Copper, Aluminium-Steel cables. Double speed action: a fast advancing speed for rapid approach of blades to cable and a slower more powerful speed for cutting.

- HT-TC... can cut copper, aldreyl, aluminium, aluminium-steel cables and steel ropes and steel rods

type	max. cutting diameter Ø	length	width	description	price
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TC026 compact hydraulic cutting tool

supplied with canvas carrying bag for tool

HT-TC026	Ø 25 mm	382 mm	129 mm	hydraulic cutting tool	29 300.00
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TC series -2 speed hydraulic cutting tool

supplied with plastic carrying case for tool

HT-TC041N	Ø 45 mm	550 mm	144 mm	hydraulic cutting tool	39 400.00
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TC series hydraulic cutting head

supplied with canvas carrying bag for tool

Hydraulic cutting head complete with quick automatic coupler for connection to a hydraulic pump with a working pressure of 700 bar max.

TC050	Ø 50 mm	325 mm	112 mm	hydraulic cutting head	26 500.00
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Larger sizes available on request.

Hydraulic foot operated pump

- Pressure release can easily be operated at any stage of compression
- Supplied with 3 meter long high pressure flexible hose with self-lock quick coupler

PO - Foot operated double speed pump

develops a maximum pressure of 700 bar

- Supplied with solid shaped stand providing stability during operation
- Supplied with sturdy plastic carrying case for tool

PO7000	700 BAR	680 mm	200 mm	hydraulic foot operated pump	36 400.00
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Manual crimping tool

- Heat treated steel crimp jaws
- Handles of anti-slip plastic with hilt

TN series (indent crimp)

adjustable for different conductor sizes

- Easily adjustable die positioning by knurled screw and reference vernier scale

TN70SE	uninsulated	6 to 70	indent	adjustable manual crimping tool	5 590.00
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TN120SE	uninsulated	10 to 120	indent	adjustable manual crimping tool	6 560.00
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Battery-operated cable preparation tools / Thermal transfer printer



KIT-BX500ND-1



B-TC320NDF



KIT-B-FL750-1



MG4

Cordless hydraulic crimping tools (18.0 V Li-Ion high power batteries)

- Pressure release button
- Extremely quiet, minimal vibration
- One hand operation, improved balance for better handling
- Tool head rotates 180° for ease of operation in confined spaces
- Durable moulded body with high resistance to wear and damage in all operating conditions

type	for terminals	conductor (mm²)	crimping force (kN)	description	price
BX500 series - "Inline" type crimping tool					
KIT-BX500ND-1 is a one-handed, inline cordless crimping tool designed for crimping electrical connectors on conductor cross sections up to 300 mm². Compatible with all CEMBRE 50kN die sets, it offers balanced control.					
• Wide opening head, ideal for derivations from running conductors • One Li-Ion 18.0V 2.0Ah batteries and charger included • Supplied with: A durable plastic carry case, 1 battery, charger, and die set for Cu lugs from 25 to 185 sqmm (ME5-50 to ME37-50)					
KIT-BX500ND-1	die dependant	max. 300	60 kN	battery operated crimping tool	42 600.00
TC320 series - "inline" type cutting tool					
B-TC320NDF is a cordless tool designed for cutting copper, aluminium, and telecommunication cables up to 32 mm. It features high-strength steel blades and a 180° rotating head for versatile operation, suitable for temperatures from -15 to +50°C.					
• LED light illuminating working area • Li-Ion 18.0V 2.0Ah high power battery • Battery is equipped with led indicators that indicate the remaining battery life • Specifically designed to cut Copper, Aluminium and Telecommunications cables • Supplied with: Plastic carrying case for tool, 2 x battery, charger and (included) die sets:					
B-TC320NDF	die dependant	max cutting Ø 32 mm		battery operated cutting tool	51 500.00
FL750 series - "Pistol" portable punching tool					
KIT-B-FL750-1 is a versatile cordless punching tool powered by an 18.0V lithium-ion battery. It features a 360° rotating and 180° pivoting head for easy access in tight spaces and can punch materials up to 3.5 mm thick.					
• Plastic carrying case for tool, battery, charger • Kit includes round punch - KIT-RD 18.8, 20.5, 22.6, 28.5SS					
KIT-B-FL750-1	die dependant	max cutting Ø 32 mm		battery operated punching tool	56 800.00
B1300 series - Portable crimping tool					
• LED light illuminating working area • Li-Ion 18.0V 5.2Ah high power battery • Crimping cycle data stored (up to 200.000 events) in memory for later transfer to PC • Digital display indicating: crimp pressure, available battery life, service/maintenance information • Supplied with: Plastic carrying case for tool, 2 x battery, charger and (included) die sets: ME 10-C, 14-C, 19-C, 24-C, 30-C, 37-C, 48-C					
KITB1300-C-1	die dependant	max. 400	132 kN	battery operated crimping tool	91 200.00
See dies sets					
MARKINGENIUS MG4 (thermal transfer printer) (H) 236 x (W) 240 x (D) 409 mm / 6.1 kg					
Exclusively designed for the identification of conductors and electrical components.					
Plug & Play Thermal Transfer Printer: For tags, markers, legends, and labels on cables, pipes, tubes, terminal blocks, panels, components, and equipment					
Large on-Board Touch Screen: Allows easy management of print projects. The MG4's reliability and robustness make it ideal for intensive use in various applications					
Versatile Power Options: MG4 operates on mains power or optional CEMBRE rechargeable batteries. Use it in the office, production, or on-site. The interchangeable battery, compatible with all CEMBRE tools, ensures full portability					
Efficient Ribbon Save System: Each monochrome ribbon prints over 300,000 MG-TPMF 4x10 mm labels. Pigment dries instantly, making printed sheets immediately ready for use					
type	description				price
MG4	MARKINGENIUS MG4 thermal transfer printer for marking tags and legends				68 000.00

Die sets for crimping tools

Die sets for hydraulic and battery operated crimping tools

type	for terminals	conductor (mm ²)	crimping type	for crimping tool	price
Die sets for uninsulated terminals					
ME1	cable lugs	4...6	hexagonal	HT45-E	920.00
ME2	cable lugs	10	hexagonal	HT45-E	723.00
ME3	cable lugs	16	hexagonal	HT45-E	723.00
ME5	cable lugs	25	hexagonal	HT45-E	723.00
ME7	cable lugs	35	hexagonal	HT45-E	723.00
ME10	cable lugs	50	hexagonal	HT45-E	723.00
ME14	cable lugs	70	hexagonal	HT45-E	723.00
ME19	cable lugs	95	hexagonal	HT45-E	723.00
ME24	cable lugs	120	hexagonal	HT45-E	723.00
ME30	cable lugs	150	hexagonal	HT45-E	723.00
ME1-50	cable lugs	4...6	hexagonal	HT51/BX500ND	1 010.00
ME2-50	cable lugs	10	hexagonal	HT51/BX500ND	723.00
ME3-50	cable lugs	16	hexagonal	HT51/BX500ND	723.00
ME5-50	cable lugs	25	hexagonal	HT51/BX500ND	723.00
ME7-50	cable lugs	35	hexagonal	HT51/BX500ND	723.00
ME10-50	cable lugs	50	hexagonal	HT51/BX500ND	723.00
ME14-50	cable lugs	70	hexagonal	HT51/BX500ND	723.00
ME19-50	cable lugs	95	hexagonal	HT51/BX500ND	723.00
ME24L-50	cable lugs	120	hexagonal	BX500ND	871.00
ME30L-50	cable lugs	150	hexagonal	BX500ND	871.00
ME24-50	cable lugs	120	hexagonal	HT51/BX500ND	871.00
ME30-50	cable lugs	150	hexagonal	HT51/BX500ND	871.00
ME37-50	cable lugs	185	hexagonal	HT51/BX500ND	871.00
ME48-50	cable lugs	240	hexagonal	HT51/BX500ND	2 720.00
MA1-50	nest	4...6	indent	HT51/BX500ND	657.00
MA2.3-50	nest	10	indent	HT51/BX500ND	657.00
MA5-50	nest	25	indent	HT51/BX500ND	657.00
PA5-50	indentor	4...25	indent	HT51/BX500ND	1 960.00
MA7-50	nest	35	indent	HT51/BX500ND	640.00
MA10-50	nest	50	indent	HT51/BX500ND	640.00
PA10-50	indentor	35...50	indent	HT51/BX500ND	1 960.00
MA14-50	nest	70	indent	HT51/BX500ND	683.00
MA19-50	nest	95	indent	HT51/BX500ND	683.00
PA19-50	indentor	70...95	indent	HT51/BX500ND	1 960.00
MA24-50	nest	120	indent	HT51/BX500ND	640.00
PA24-50	indentor	120	indent	HT51/BX500ND	1 960.00
ME7-C	cable lugs	35	hexagonal	HT/RHC131/B1300	1 670.00
ME10-C	cable lugs	50	hexagonal	HT/RHC131/B1300	1 670.00
ME14-C	cable lugs	70	hexagonal	HT/RHC131/B1300	1 670.00
ME19-C	cable lugs	95	hexagonal	HT/RHC131/B1300	1 670.00
ME24-C	cable lugs	120	hexagonal	HT/RHC131/B1300	1 670.00
ME30-C	cable lugs	150	hexagonal	HT/RHC131/B1300	1 670.00
ME37-C	cable lugs	185	hexagonal	HT/RHC131/B1300	1 670.00
ME48-C	cable lugs	240	hexagonal	HT/RHC131/B1300	1 670.00
ME60-C	cable lugs	300	hexagonal	HT/RHC131/B1300	1 670.00
ME80-C	cable lugs	400	hexagonal	HT/RHC131/B1300	1 670.00
MA7-C	nest	35	indent	HT/RHC131/B1300	904.00
MA10-C	nest	50	indent	HT/RHC131/B1300	904.00
PA10-C	indentor	10...50	indent	HT/RHC131/B1300	2 000.00
MA14-C	nest	70	indent	HT/RHC131/B1300	904.00
MA19-C	nest	95	indent	HT/RHC131/B1300	904.00
MA24-C	nest	120	indent	HT/RHC131/B1300	904.00
PA24-C	indentor	70...120	indent	HT/RHC131/B1300	2 000.00
MA30-C	nest	150	indent	HT/RHC131/B1300	904.00
MA37-C	nest	185	indent	HT/RHC131/B1300	904.00
MA48-C	nest	240	indent	HT/RHC131/B1300	904.00
PA48-C	indentor	150...240	indent	HT/RHC131/B1300	2 000.00
MA60-C	nest	300	indent	HT/RHC131/B1300	1 560.00
PA60-C	indentor	300	indent	HT/RHC131/B1300	2 000.00
Die sets for insulated terminals					
MN2RF-50	cable lugs	10	radial	HT51/BX500ND	985.00
MN3RF-50	cable lugs	16	radial	HT51/BX500ND	985.00
MN5RF-50	cable lugs	25	radial	HT51/BX500ND	985.00
MN7RF-50	cable lugs	35	radial	HT51/BX500ND	985.00
MN10RF-50	cable lugs	50	radial	HT51/BX500ND	985.00



ME1



ME7



MA1-50



MA19-50



MA7-C



MN2RF-50



MN10RF-50

DIN rail & cable trunking cutters



008328



VTC125

DIN rail cutter (professional)
DIN rail cutter (for steel mounting rail only)

DIN rail is often cut by saw or angle grinder creating dust, noise and a considerable risk of injury. The **RC200** is a high quality, professional DIN rail cutter designed for high output, offering "burr-free" precision cutting and trimming of standard DIN rails.

- Increased work safety and quiet operation
- Quick and professional burr-free processing
- Metric scale plate and table clamp (optional)
- Incorporates two cut profiles (7.5 x 35 and 15 x 35 mm) DIN rails.
- Precision "burr-free" cut and trim of DIN rail to length without waste

type	rail cutter	for rail depth (mm)	description	price
DIN rail cutter (professional)				
RC200 DIN rail cutter for DIN 35 rail 7.5 and 15 mm deep				
008328	cutter	7.5 + 15	DIN rail cutter (2 profiles) for 7.5/15 mm high x 35 mm rail	15 600.00
Accessories for above RC200 DIN rail cutter				
009465	scale	metric scale plate and length stop for above DIN rail cutter		2 720.00
009102	clamp	table clamp for above DIN rail cutter		1 140.00

Made in Italy


Wiring duct cutter (professional)

type	duct cutter	max. cut width	max. length stop	description	price
Bench mounting wiring duct (slotted trunking) cutter					
VTC125 provides fast, precise and burr-free cutting of wiring ducts, without leaving chips behind. It enables low-noise and emission-free working. The scale with length stop ensures the wiring ducts are cut to length quickly and with millimetre precision					
For fast, accurate cutting of wiring ducts to lengths, without burrs and with very little force					
• Blade guard guarantees secure operation • Burr-free cut edges - No noise, no chips or dust • Quick and easy cutting - ducts cut precisely to the millimetre • Supplied with a 1 meter graduated dimension rule with length stop • Hardened (replaceable) cutting blade - max. cutting width 125 mm					
VTC125	cutter	125 mm	1000 mm	precision slotted wiring duct cutter	18 800.00

L-Termination and wiring


Ezi Canal slotted cable ducting features an improved cover design for ease of opening and closing, permitting easy access to wiring in control panels.

- Simple open/close cover design for easy access to wiring in control panel
- Double score-line permits finger/slot or complete sidewall removal
- Coining process for burr-free edges to protect hands and wiring from abrasion

Standard colour: Grey - others available on request (volume dependant)
 Standard length: Supplied in two meter lengths, complete with covers

type	dimensions (mm)		colour	description	slot A (mm)	finger B (mm)	carton qty (L - 2 m)	price each
	(W)	(H)						
Narrow slotted trunking			Finger: 6 mm / Slot - 4 mm		(10 mm pitch)			
• Narrow slot/finger design to closely fit spacing of high density terminal blocks and I/O modules								
KKC1518	15	18	grey	PVC slotted cable trunking	5	7.5	112	see Cat L for pricing.
TSL025025N	25	25	grey	PVC slotted cable trunking	4	6	48	
TSL025040N	25	40	grey	PVC slotted cable trunking	4	6	40	
TSL040040N	40	40	grey	PVC slotted cable trunking	4	6	24	
TSL060040N	60	40	grey	PVC slotted cable trunking	4	6	24	
TSL080040N	80	40	grey	PVC slotted cable trunking	4	6	18	



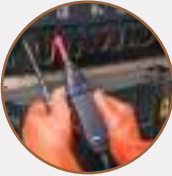
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Digital multimeters

1000V
CAT IV



IP
54



P01191773



P01196773



P01298076

Voltage Absence Tester (VAT) CAT IV 1000 V

Installations connected to an electricity distribution network, require measurements to be performed with power off to avoid electrical hazards (EN 50110-1 standard, DIN VDE 0682-401, NF C 18-510, etc.)

Securing the installation to ensure that it is non-current-carrying, requires the use of a Voltage Absence Tester.

- **Comprehensive integrated autotest** - indication of type of fault also displays a text message for information.
- **IP65 protection** for indoor and outdoor use, significantly higher than the IP54 rating required by the standard.
- **Audible and visual continuity** indication up to 100 Ω , in compliance with standards recommendations.
- **Removable test probes** to meet specific requirements in certain applications (*various models available*)

AC and DC voltage testing Voltage detection takes priority, is automatic and indicated by distinct visual (*bargraph*) and intermittent beep. Stray voltages can be detected by pressing two buttons simultaneously to switch to low impedance mode.

2-wire phase rotation with microprocessor Simple and quick, the 2-wire phase rotation function with microprocessor is useful in all circumstances, including installations powered by an electrical generator set or behind an isolating transformer.

Continuity and resistance testing Checks that conductors are correctly connected. Continuity ($R < 100 \Omega$) is indicated by a continuous audio signal whilst the resistance value is displayed directly.

Residual Current Device (RCD) trip test up to 30 mA By simultaneously pressing the double command, you can cause a fault current sufficient to trip the RCD to flow through a low-impedance load.

Ergonomics specially designed for use in the field Digital display, removable test probes ensure excellent handling. A built-in torch illuminates the point of measurement.

type	model	description	price
Voltage Absence Tester		IP65 enclosure	228 x 60 x 39 mm
Display:		LEDs + backlit digital display	
Voltage:		12 VAC - 1.000 VAC / 12 VDC - 1.400 VDC	
Impedance:		> 500 k Ω / Polarity indication	
Android application:		Not applicable	
RCD tripping:		By low-impedance load switching (<i>approx. 30 mA at 230 V</i>)	
Continuity & Resistance:		Buzzer trigger threshold 100 Ω typical (<i>150 Ω max.</i>)	
Extended continuity test:		0.5 Ω to 2.999 k Ω	
Phase rotation:		2-wire type with microprocessor - Ph/Ph voltage 50 V - 1.000 VAC	
Buzzer:		Intermittent for Voltage Detection - Continuous for continuity	
Standards and elec safety:		IEC 61243-3:2009, EN 61243-3:2010, IEC 61010 1.000 V CAT I	
Delivered with: manual, set removable test probes, 2x 1.5 V LR03/AAA batteries, Velcro strap.			
P01191773	C.A 773	CAT IV 1.000 V Voltage Absence Tester (VAT)	4 550.00

Digital multimeter (CAT IV 600 V) IP54

General-purpose professional measuring instrument with TRMS measurements (*sinusoidal, distorted and DC signals*) measurement accuracy, rugged design, reliability of an on-site instrument.

- Double backlit display
- Min/Max memorization
- Large 6000-count display
- Temperature and capacitance measurements

Display:	2 x 6000 counts, backlit
Bargraph:	(63 elements) Bi-mode (<i>full scale / central zero</i>)
Acquisition:	TRMS AC / DC
Measurement rate:	5 measurements per second
Automatic / manual ranges:	Yes / Yes
AC/DC voltage:	600 mV / 6 / 60 / 600 / 1.000 V - accuracy 0.2% - 40Hz to 3kHz
LowZ AC voltage:	Low-impedance setting with Low-pass Filter
AC/DC current:	6.000 A / 10.00 A (20 A/30s)
Resistance measurement:	600 / 6.000 Ω / 60 / 600 k Ω / 6 / 60 M Ω , Audible continuity, Diode test
Frequency:	600 Hz / 6 kHz / 50 kHz
Capacitance:	8 cal.: 6.000 nF to 60.00 mF
Temperature:	-59.6 to +1.200°C / -4 to +2.192°F
Hold facility:	Yes Min / MAX (100 ms)
Min / MAX (100 ms):	Yes
Automatic power-off:	Yes (<i>can be deactivated</i>)
Safety:	IEC 61010-1, IEC 61010-2-033 CAT IV 600 V / CAT III 1000V
Power supply:	1x 9 V 6LR61 battery
Dimensions / weight:	90 x 190 x 45 / 400 g

Delivered with: Set leads, set test probes, 1x 9V 6LR61 battery, K thermocouple temp sensor

P01196773	C.A5273	digital multimeter hand held for all applications	6 260.00
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Accessories for above C.A5273 multimeter

P01298076		carrying bag with MultiFix multi-position mounting accessory	1 040.00
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Portable clamp multimeters

1000V
CAT IV



IP
54



P01120925



P01120947

Digital Power and harmonics clamp multimeter

General-purpose professional clamp-on measuring instrument with True RMS measurement accuracy, reliable and particularly resistant to falls.

Clamping diameter:	Ø34 mm
Display:	Large 6000-count, backlit LCD screen
Amp (RMS)	AC 600 A
	DC, AC+DC 900 A
Volt AC (RMS)	AC 1000 V - 1%
Volt DC	DC, AC+DC 1400 V - 1%
Automatic AC/DC detection:	Yes (V and A)
Frequency for V/I:	Yes / Yes
Resistance measurement:	60 kΩ
Audible continuity:	Yes (< 1 Ω...599Ω)
Diode test:	(semi-conductor junction)
Temperature (type K):	-60.0 to +1000 °C
Power:	W, var, VA, PF Yes - single-phase and total three-phase
Harmonic analysis:	THDf / THDr
Phase rotation:	(2-wire method)
Motor-inrush function:	Yes
True-inrush function:	Yes
"Min / Max" / Peak function:	Yes / Yes
Auto Power off / "Hold" function:	Yes
Low battery indication:	Yes
Electrical safety as per:	IEC 61010 CAT IV 600V, CAT III 1000 V
Dimensions / weight:	78 x 222 x 42 / 340g

Delivered with: 1 set of PVC leads (black/red) with insulated elbowed male banana plug / insulated straight male banana plug, 2 test probes / insulated female plug (black/red) 1 safety crocodile clip (black) 1 x 9 V 6LR61 battery, 1 Multifix shoulder bag, mini-CD containing the User Manual.

type	model	description	price
P01120925	F205	digital clamp multimeter/tong tester for all applications	8 070.00

Power and harmonics clamp multimeter IP54

Current 1000 A, Voltage 1000 V, power, harmonics and recorder

Clamping diameter:	Ø48 mm
Display:	Large triple 10 000 count, backlit screen
Amp (RMS)	AC 150mA to 1000 A - 1%
	DC, AC+DC 150mA to 1500 A - 1%
Volt AC (RMS)	AC 100 mV to 1000 V - 1%
Volt DC	DC, AC+DC 100 mV to 1000 V - 1%
Automatic AC/DC detection:	Yes (V and A)
Resistance measurement:	100 kΩ (continuity buzzer)
Audible continuity:	Yes (< 40 Ω)
Frequency:	15Hz to 20kHz
Power:	W, VA, var Yes - single-phase and total three-phase
PF and cos φ (DPF):	Yes
Total Harmonic Distortion:	THDf % / THDr %
Harmonic decomposition:	Yes - up to 25th order
Crest factor (CF) / Motor InRush:	Yes
Current surge (True InRush):	Yes
"Min Max" / Peak function:	Yes / Yes
Auto power off / "Hold" function:	Yes
REC storage function:	Yes - (up to 3000 measurements)
Data logging:	Yes
PC / Bluetooth interface:	Yes
Electrical safety as per:	IEC 61010 CAT IV 1000V, CAT III 1000 V

Delivered with: Multifix shoulder bag, Power Analyser Transfer (PAT) software, 2 voltage leads (red/black), 2 test probes (red/black), 2 crocodile clips (red/black), 4x 1.5 V AA alkaline batteries, operating manual.

P01120947	F407	digital clamp multimeter/tong tester for all applications	12 500.00
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Accessories for above F205/F407 multimeters

P01102100Z	mounting	hands free mounting clip	455.00
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Portable network analyser

1000V
CAT IV



IP
54



P01157151



P01157151 + P01102204



P01120580

Chauvin Arnoux - PEL103 Power & Energy Loggers IP54 casing

Portable, advanced yet simple to use Power and Energy logger, designed for energy audits (ISO 50001 standard) or one-off measurements of the Power and Energy values in low-voltage electrical networks (1000 V CAT III)

PEL100 series Power and Energy loggers provide a complete solution to measuring and identifying energy consumption in any industry, they can be used handsfree, remotely without interruption to the mains power.

The logger tracks even the slightest consumption in an electrical network, providing all Power and Energy measurement recording on the internal 2GB SD card, while simultaneously permitting real-time monitoring on its backlit 4 line LCD display.

Recordings are time/date stamped for ease of comparing measured gains achieved before and after installation modification. Easily transfer recorded data to a PC via the free PEL data transfer software and SD card with USB adaptor (included).

Designed to fit inside most electrical cabinets thanks to its magnetic base or hook for easy mounting.

Key Features of the PEL103 include:

Measurements and display of:

- RMS frequency, voltage and current measurements
- Voltage measurement ranges 10 to 1000V AC/DC $\pm 0.2\%$ + 0.5 V
- Current measurement ranges 5 mA to 10 kAAC / 50 mA to 1.4 kADC $\pm 0.5\%$
- VA, W and var power values
- Power Factor (PF), $\cos \phi$, $\tan \phi$ and crest factor
- Total Harmonic Distortion (THD) for currents and voltages
- DC, 50 Hz, 60 Hz and 400 Hz measurements
- Phase rotation indication and MIN/MAX indication of all parameters
- VAh, Wh (source, load) and varh (4 quadrant) energy values, total energy
- Harmonics: up to the 50th order for currents and voltages (an essential feature to help identify problems)
- Network types include:** Three phase (with or without neutral), split phase, single phase
- Automatic recognition:** Of the type of sensor connected
- Communication / Data transfer:** USB, Ethernet and Bluetooth / PEL transfer PC software (included)
- Records:** Measurements and calculation results on SD card (included)
- Acquisition rate:** 128s/period



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PEL 103 Power and Energy logger (KIT) (created as a complete kit with following accessories)

- 1 x PEL103 Power and Energy Logger: Analyser with backlit LCD screen
- 3 x MA193 (450 mm) flexible current clamps: MINIFLEX MA193 flexible current sensors - 200mA to 10 kA
- 4 x Measurement leads and crocodile clips: Robust high quality test leads for frequent use/built to last
- 1 x Set of coloured rings and Inserts: For easy identification of connections and leads
- 1 x 2GB SD card (internal): SD card to USB adaptor

SD card to USB adapter, USB cable, mains cable, MultiFIX mounting system, operating manual (on CD)
PEL transfer PC software enabling data to be transferred to PC, all in a convenient canvas carrying bag.

type	model	description	dimensions (mm)			price (ea)
			(H)	(W)	(D)	

PEL 103 Power and Energy logger (KIT)

P01157151	PEL103 (KIT)	portable power and energy logger/analyser	256	125	37	60 700.00
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Accessories for PEL103 Power and Energy logger

P01120434B	MN 93A	compact tong clamps for PEL102/3	Ø20 mm	0.005 - 100A		6 260.00
P01120323B	C193	compact tong clamps for PEL102/3	Ø52 mm	1 - 1000A		8 980.00
P01120580	MA193-250	Ampflex 250 mm flexible current sensor	Ø70 mm	200mA - 10kA		5 540.00
P01120526B*	A193-450	Ampflex 450 mm flexible current sensor	Ø140 mm	100mA - 10kA		5 540.00
P01101959	CA833X-F	for reading from 5A secondary CT's		5A adaptor		29 900.00
P01102204	self-power	mains adaptor for self powering PEL from supply		mains adaptor		6 430.00
P01295174*	mains lead	mains power cable - (2P EUR)				319.00
P01295476*	test leads	spare measurement leads (3m) with crocodile clips		KIT (black)		2 960.00
P01102080*	set	ID rings and inserts (for ends of leads and sensors)		diff. colours		867.00
P01298078*	bag no.23	canvas carrying bag for PEL analyser and access				1 720.00

* Items supplied with standard PEL KIT.

Data processing software power quality & installation supervision

Automatically recognizes the instrument connected to the PC and opens the corresponding menu, providing direct access to the configuration and saved data. Includes many predefined report templates for quick generation in compliance with applicable standards.

Users can create personalised models to fit their requirements and add comments directly.

- Configuration of all the functions of instruments connected to a PC or via Bluetooth
- Recovery of the recorded measurement data and backup of measurement files
- Opening of saved files / processing and creation of reports (EN50160)
- Export into an Excel spreadsheet or PDF format / Database management

P01102095	DataView	powerful configuration/transfer/measurement data processing software				13 700.00
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Above ZAR prices do not include VAT. E&OE

Thermal camera

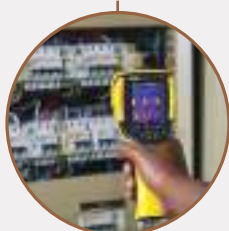
1000V
CAT IV



IP
54



P01651904



DIACAM 2 series - Thermal Camera

DIACAM 2 is a high performance thermal camera making it simple to perform thermal inspections for energy audits, ensuring trouble-free industrial, electrical or mechanical maintenance.

The wide 2.8-inch screen with auto brightness adjustment provides comfortable reading with a field of view of 38° x 28° and the camera is focus-free. A built-in sliding cover protects the highly sensitive lens.

Contextual help guides users step-by-step, limiting the risk of errors. Particularly rugged, with IP54 ingress protection, the camera can withstand falls from 2 metres.

Industrial maintenance For electrical maintenance, can detect electrical equipment malfunctions, particularly abnormal overheating before a fault occurs, avoiding the considerable cost of halting production to carrying out repairs.

Report creation The supplied CAMReport® software, used to create automatic reports can be exported in Word or PDF format, simplifying printing and archiving.

Features:

- Flexible use thanks to its Laser pointer and focus-free capability with 38° x 28° field of view
- Exceptional 9-hour continuous use
- Recovery of data from other measuring instruments (*current, humidity, dew point, etc.*)
- Recording and storage in memory of the configurations for each application
- Allows you to record voice comments directly on the image
- Comfortable grip, perfect balance with direct access to all functions with just one hand
- Wide 2.8-inch screen with automatic or manual brightness control
- Slide-down protective lens cover
- Quick start-up

Detector:

Type: UFPA microbolometer, 8 ~14 µm
Frequency: 9 Hz
Sensitivity (N.E.T.D): 80 mK @ 30°C (0.08 °C @ 30 °C)

Temperature Measurement:

Temperature range: -20 °C to +250 °C
Accuracy: ±2 °C or ±2 % of reading

Image Performance:

Thermal image: -20 °C to +250 °C
Field of view: 38° x 28°
IFOV (*spatial resolution*): 4.1 mrad
Focus: Fixed
Minimum focal distance: 30 cm
Real image: Yes (320 x 240 pixels)
Display mode: Thermal image, real image with automatic parallax compensation (*merging of both images possible with PC software*)

Analytical Functions:

Measuring Tools: Manual cursor + automatic detection + Min Max Avg on adjustable area + temperature profile + isotherm
Parameter settings: Emissivity, environmental temperature, distance, relative humidity
Vocal comments: Yes via Bluetooth (*earphones provided*)
Data storage: On 2 GB micro SD card (*approx. 4.000 images*) replaceable up to 32 GB
Image format: PNG - thermal and real images recorded simultaneously
Laser pointer: Yes

Image Display:

Settings: Automatic or manual adjustment of the min max for the palette
Freezing of image: Animated or fixed image
Display of image: Multi-palette
Screen: 2.8 inch

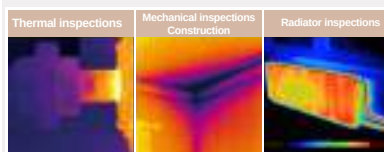
Power Supply:

Type: NiMH rechargeable batteries with low self-discharge
Recharging method: External charger (*supplied*)
Battery life: 9 hrs (*typical*) / 50% brightness and Bluetooth deactivated
Dimensions / weight: 225 x 125 x 83 / 700 g

Delivered with: C.A 1954 thermal camera in a site-proof case with 4 NiMH batteries and battery charger, micro SD HC card, USB cable, Bluetooth earpiece, specimen measurement report, CAM Report® software on CD-Rom and user's manual.



Scan to watch video



Thermal Camera - DIACAM 2		IP54	
type	model	description	price
P01651904	C.A 1954	high performance thermal camera	41 300.00

Electrical installation tester

1000V
CAT IVIP
54

Electrical installation tester

Designed for checking safety on electrical installations, the **C.A 6133** tester can be used to test new before powering up, installations check existing installations whether in operation or not, and troubleshoot malfunctions. For certification organizations, these portable instruments are simple, effective and, above all, compliant with applicable standards.

The C.A 6133 is designed to be exceptionally simple to use. All measurements and functions are accessible directly on the front panel of these compact, lightweight instruments. Explicit markings on terminals prevent any risk of connection errors.

- Earth measurement by stake and loop methods
- Continuity measurement at 0.2A
- Insulation testing
- RCD testing: Current and trip time
- Automatic test sequences
- Storage of test results
- ANDROID application for report generation
- Power supply by mains-rechargeable batteries, USB socket or vehicle cigarette lighter

The C.A 6133 is equipped with a cable compensation function to ensure reliable measurements and can be used for Voltage, Continuity, Resistance, Insulation and Loop measurements. Current can be measured with (optional) MN73A external clamp. The tester also checks the phase rotation and can test type A & AC RCDs in ramp or pulse mode. To save time the C.A6133 can automatically run test sequences and store the results. For example, it is possible to store a sequence such as AUTO LOOP - RCD - MΩ to speed up work in the field.

Ergonomics:

- Stand for positioning on a bench or table
- Magnetized casing for magnetic mounting
- 4-point strap for effortless hands-free use
- Backlit screen for easy reading, even in low light conditions
- Terminals with explicit markings (L, N, PE, H, S, E, +, com connections) prevent connection errors
- Remote-control probe for starting tests remotely
- A three-pole cable for direct measurements on 2P + E sockets

The "IT Report" dedicated to electrical installation testing enables users to download test results via Bluetooth and to generate and view the measurement report.

Voltage measurement:	550 VAC / 800 VDC
Continuity:	At 200mA,
Resistance:	From 1 to 99.99 kΩ
Insulation: test voltage	250V, 500V or 1.000 V (0.01 - 999.9 MΩ / 10 kΩ or 100 kΩ / ± (3% R + 3 cts)
Type AC & A RCDs:	30mA, 100mA, 300 mA, 500 mA, 650 mA
RCD in pulse mode:	Tripping time
RCD in ramp mode (30 mA):	Tripping current
Phase rotation:	45 to 550V; 45 to 65 Hz
Frequency measurement:	30 Hz to 999.9 Hz
Insulation:	Additional 1.000 V test voltage
3P earth (stakes):	Up to 2.000 Ω
Automatic RCD test sequence:	No trip - pulse - ramp
Automatic test sequence:	Loop - RCD - MΩ
Data storage:	30 sites with 99 tests each
Power supply:	By rechargeable batteries with built-in charger
Bluetooth communication:	Yes

Recharging possible via the mains, USB socket or vehicle cigarette lighter socket

Automatic recognition of the optional MN73A external clamp

Delivered with: Carrying bag containing: 1 neck strap, 1 three-pole EURO mains cable, 3 safety cables with crocodile clips, 1 test probe, USB 2A power supply + USB cable, 6 Ni MH rechargeable batteries, test report with measurement report



P01146013

type	model	description	price
P01146013	C.A 6133	electrical installation tester for all applications	17 600.00
Accessories for above C.A 6133 Installation tester			
P01120439	MN73A	current clamp for above electrical installation tester	8 570.00
P01102157		remote-control probe for electrical installation tester	1 330.00

Take
Your
**Automation
Skills**
to the Next
Level



Sign up for our comprehensive
training program today!



PLC starter kit



EMPOWER-RIG

Delta training kit *(Practical tools for industrial automation training and simulation)*

The Delta PLC starter kit and EMPOWER rig offers the ultimate training solutions for advancing your skills in industrial automation.

Designed for both professionals and students, these kits provide a comprehensive, real-world experience that bridges the gap between theory and application.

Whether you're just starting or looking to deepen your expertise, the Delta PLC starter kit and EMPOWER rig ensure you are fully equipped to tackle the challenges of modern industrial automation.

Register now and start your journey towards mastering industrial automation.

Delta PLC starter kit offers:

- **Simplified entry into automation:** Whether you're a beginner or an expert, this kit simplifies your entry into Delta PLCs and HMIs, providing the tools needed to build a solid foundation in automation technology.
- **Hands-on experience:** Work with real hardware to gain the practical skills necessary for success in manufacturing, process control, building automation, material handling, and energy management.

PLC starter kits *training kits for simplified entry into PLC and HMI applications*

PLC starter kits are ideal for experts as well as beginners, simplifies entry into the world of Delta PLCs and HMIs, familiarising users with the programming environment.

type	description	price
UT-14SS2-A	starter kit for learning programming of PLC /HMI	9 300.00
UT-12SE-A1	as above, but with hardware for Ethernet communication	15 300.00
UT-AS332-C	starter kit for learning programming of PLC	11 400.00

"All-in-one" training rig offers:

- **Realistic training environment:** This desktop unit integrates key components such as an AS218 PLC, DOP-107 HMI, and ME300 VFD, along with other essential automation elements, into a single, cohesive training system that simulates real-world automation scenarios.
- **Comprehensive learning:** Design and program control systems, visualise data, and execute automation tasks just like in actual industrial applications.
- **Interconnected systems:** Expand your learning by interlinking up to two additional rigs, simulating complex multi-system environments.

EMPOWER rig *desktop "all-in-one" automation kit*

The EMPOWER rig is the latest all in one automation training kit. This desktop type unit consists of an AS218 PLC, DOP-107 HMI, and ME300 VFD, as well as other complementary items, all integrated into a single station.

Additionally up to 2 additional rigs can be interlinked to simulate larger systems.

type	description	price
EMPOWER-RIG	all-in-one automating training rig	12 500.00

All-In-One - Training kit

Comprising of:

1. ME300 VFD
2. DOP-107 HMI
3. AS218 PLC



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Delta training videos



Indicative rated motor current conversion table

Rated power		3-phase 3-pole 50 hz					Single phase	
		400V	415V	440V	500V	690V	220V	240V
kW	Hp	A	A	A	A	A	A	A
0.37	0.5	0.7	0.6	0.6	0.5	0.4	3.9	3.6
0.55	0.75	1.0	1.0	0.9	0.8	0.6	5.2	4.8
0.75	1	1.4	1.3	1.2	1.1	0.8	6.6	6.1
1.1	1.5	2.0	1.9	1.8	1.6	1.2	9.6	8.8
1.5	2	2.7	2.6	2.5	2.2	1.6	13	12
2.2	3	4.0	3.8	3.6	3.2	2.3	19	17
4	5.5	7.2	7.0	6.6	5.8	4.2	32	29
5.5	7.5	9.9	9.6	9.0	7.9	5.8	41	38
7.5	10	13.5	13.0	12.3	10.8	7.8	7.5	10
10	13.5	18.0	17.4	16.4	14.4	10.5		
11	15	19.8	19.1	18.0	15.9	11.5		
15	20	27.1	26.1	24.6	21.7	15.7		
18.5	25	33.4	32.2	30.3	26.7	19.4		
22	30	40	38	36	32	23		
30	40	54	52	49	43	31		
37	50	67	64	61	53	39		
45	60	81	78	74	65	47		
55	75	99	96	90	79	58		
75	100	135	130	123	108	78		
90	125	162	157	148	130	94		
110	150	198	191	180	159	115		
132	180	238	230	217	191	138		
160	220	289	278	262	231	167		
200	270	361	348	328	289	209		
220	300	397	383	361	318	230		
250	340	451	435	410	361	261		
315	430	568	548	517	455	329		
355	480	641	617	582	512	371		
375	500	677	652	615	541	392		

Note: Rated 3Ø current calculated with a power factor of 0,8
Consult contactor supplier data sheet for maximum power application
3Ø motor power calculation: $P = \sqrt{3} I V \cos\phi$
1Ø motor power calculation : $P = I V \cos\phi$

Contactor utilisation	
Category AC-1	Continuous current rating: All AC loads with a power factor 0.95 - heating, distribution
Category AC-2	Starting, plugging and inching of slip ring motors - starting + 2.5 times rated motor current - stopping < mains supply voltage
Category AC-2	Starting and stopping squirrel cage motors - closing and opening at 6 to 8 times rated motor current - stopping the voltage is at + 20% of mains supply voltage - light breaking
Category AC-4	Plugging and inching of squirrel cage - closing and opening 6 to 8 times rated motor current - severe breaking

Switch category of use	
A	Connecting and disconnecting under no-load conditions
B	Switching of resistive loads, including moderate overloads

AC switch utilisation category (IEC 60947-3)	
Category AC-20	Connecting and disconnecting under no-load conditions
Category AC-21	Switching of resistive loads, including moderate overloads
Category AC-22	Switching of mixed resistive and and inductive loads, including moderate overloads
Category AC-23	Switching of motor loads or highly inductive loads

DC switch utilisation category (IEC 60947-5-1)	
Category DC-20	Connecting and disconnecting under no-load conditions
Category DC-21	Switching of resistive loads, including moderate overloads
Category DC-22	Switching of mixed resistive and and inductive loads, including moderate overloads

Type 2 co-ordination tables

80kA 400V (IEC/EN60947-4-1), Direct-on-line starters with fuses

Motor		Fuse rating					
Rated output (KW)	Rated current (A)	Fuse switch type	gG	aM	Contactor	Thermal overload	Current range (A)
0.37	1.1	3631 3003	6	4	BF09A	RF380160	1-1.6
0.55	1.5	3631 3003	10	4	BF09A	RF380160	1-1.6
0.75	1.9	3631 3003	10	4	BF09A	RF380250	1.6-2.5
1.1	2.7	3631 3003	16	6	BF09A	RF380400	2.5-4
1.5	3.6	3631 3003	16	10	BF09A	RF380400	2.5-4
2.2	4.9	3631 3003	25	10	BF09A	RF380650	4-6.5
3	6.5	3631 3003	32	16	BF12A	RF381000	6.3-10
4	8.5	3631 3003	32	20	BF16A	RF381000	6.3-10
5.5	11.5	3831 3011	50	25	BF25A	RF381400	9-14
7.5	15.5	3831 3011	63	32	BF32A	RF381800	13-18
11	22	3831 3011	80	40	BF32A	RF382500	20-25
15	29	3831 3011	100	63	BF50	RF95333	20-22
18.5	35	3831 3011	125	80	BF50	RF95342	28-32
22	41	3831 3024	160	100	BF65	RF95350	35-50
30	55	3831 3024	200	100	BF95	RF95365	46-65
37	66	3831 3024	200	125	BF95	RF95382	60-82
45	80	3831 3024	250	160	BF160	RF200100	60-100
55	97	3831 3039	315	200	BF195	RF200100	90-150
75	132	3831 3039	400	250	B250	RF200150	120-200
90	160	3831 3039	400	315	B250	RF420250	150-250
110	195	3831 3039	400	355	B310	RF420250	150-250
132	230	3811 3063	630	400	B400	RF420250	150-250
160	280	3811 3063	630	500	B400	RF420300	180-300
200	350	3811 3063	630	630	B500	RF420400	250-420

80kA 400V (IEC/EN60947-4-1), Direct-on-line starters with fuses

Motor		Fuse rating						
Rated output (KW)	Rated current (A)	Fuse switch type	gG	aM	Line	Delta	Star	Current range (A)
4	8.6	3631 3003	20	10	BF9A	BF9A	BF9A	
5.5	11.5	3631 3003	25	16	BF12A	BF12A	BF9A	
7.5	15.2	3631 3003	32	20	BF16A	BF16A	BF9A	6.3-10
11	22	3631 3005	40	25	BF25A	BF25A	BF9A	9-14
15	29	3631 3005	50	32	BF25A	BF25A	BF12A	13-18
18.5	35	3638 3011	63	40	BF25A	BF25A	BF18A	17-23
22	41	3638 3011	80	50	BF32A	BF32A	BF18A	24-32
30	55	3638 3011	100	63	BF38A	BF38A	BF25A	32-38
37	66	3638 3011	125	80	BF50	BF50	BF32A	35-50
45	80	3638 3011	125	100	BF65	BF65	BF32A	35-50
55	97	3831 3024	160	125	BF80	BF80	BF38A	46-65
75	132	3831 3024	200	160	BF80	BF80	BF50	60-100
90	160	3831 3024	250	200	B115	B115	BF65	90-150
110	195	3831 3024	250	200	B115	B115	BF65	120-200
132	230	3831 3039	315	250	BF160	BF160	BF80	120-200
160	280	3831 3039	400	315	BF195	BF195	B115	120-200
250	430	3811 3063	500	500	B250	B250	BF160	150-250
295	540	3811 3063	630	630	B310	B310	BF195	240-400

50kA 400V, between SM circuit breakers and contactors series BG and BF

P(kW)	I0(A)	Current adjustment	Circuit breaker	Contactor
<0.6	-	0.1 - 0.16	SM1R0016	BG6...
0.06	-	0.16 - 0.25	SM1R0025	BG6...
0.09	-	0.25 - 0.4	SM1R0040	BG6...
0.12	-	0.4 - 0.63	SM1R0063	BG6...
0.25	0.85	0.63 - 1	SM1R0100	BG6...
0.55	1.4	1 - 1.6	SM1R0160	BG6...
0.75	1.9	1.6 - 2.5	SM1R0250	BG6...
1.5	3.5	2.5 - 4	SM1R0400	BG6...
2.2	4.8	4 - 6.5	SM1R0650	BG6...
4	8	6.3 - 10	SM1R1000	BG9.../BF9...
5.5	11	9 - 14	SM1R1400	BF12...
7.5	15	13 - 18	SM1R1800	BF16...
11	21	20 - 25	SM1R2500	BF25...
15	29	22 - 32	SM1R3200	BF32...
18.5	35	28 - 40	SM1R4000	BF40...
22	41	40 - 50	SM2R5000	BF50...
30	55	45 - 63	SM2R6300	BF65...
37	67	57 - 75	SM3R7500	BF80...
45	80	80 - 100	SM3R9900	

Brake resistor chart for Delta drives

Drive FRAME	Resistor connection per brake unit	Resistor	ME 300	MS 300	C2000+	ED	Breaking Unit(s)	Total qty resistors
230V 1ph drives - 125% Braking torque/ 10 % ED								
200W	Single	RXLG-80W/750RJ	Yes	Yes			Built in	1
400W	Single	RXLG-80W/200RJ	Yes	Yes			Built in	1
750W	Single	RXLG-80W/200RJ	Yes	Yes			Built in	1
1.5kW	Single	RXLG-200W/91RJ	Yes	Yes			Built in	1
2.2kW	Single	RXLG-300W/70RJ	Yes	Yes			Built in	1
3.7kW	2 in parallel	RXLG-300W/70RJ				Yes	Built in	2
400V 3ph drives - 125% Braking torque/ 10 % ED								
400W	Single	RXLG-80W/750RJ	Yes	Yes			Built in	1
750W	Single	RXLG-80W/750RJ	Yes	Yes	Yes		Built in	1
1.5kW	Single	RXLG-200W/360RJ	Yes	Yes	Yes		Built in	1
2.2kW	Single	RXLG-300W/250RJ	Yes	Yes	Yes	Yes	Built in	1
4kW	2 in parallel	RXLG-300W/250RJ	Yes	Yes	Yes	Yes	Built in	1
5.5kW	Single	RXLG-1KW/75RJ	Yes	Yes	Yes	Yes	Built in	1
7.5kW	Single	RXLG-1KW/75RJ	Yes	Yes	Yes	Yes	Built in	1
11kW	Single	RXLG-1.5KW/43RJ		Yes	Yes	Yes	Built in	1
15kW	Single	RXLG-2kW/32RJ		Yes	Yes	Yes	Built in	1
18.5kW	Single	RXLG-2kW/32RJ		Yes	Yes	Yes	Built in	1
22kW	Single	RXLG-3kW/26RJ		Yes	Yes	Yes	Built in	1
30kW	Single	RXLG-4,8KW/16RJ			Yes	Yes	Built in	
37kW	Single	RXLG-4,8KW/16RJ			Yes	Yes	VFDB4045	1
45kW	Single	RXLG-6KW/14RJ			Yes	Yes	VFDB4045	1
55kW	Single	RXLG-4KW/20RJ			Yes		VFD4030 *2	2
75kW	Single	RXLG-4,8KW/16RJ			Yes		VFD4045 *2	2
90kW	Single	RXLG-6KW/14RJ			Yes		VFD4045 *2	2
110kW	2 in parallel	RXLG-6KW/14RJ *2			Yes		VFDB4110	2
132kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160	4
160kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160	4
185kW	4 in parallel	RXLG-6KW/14RJ *4			Yes		VFDB4185	4
200kW	2 in parallel	RXLG-6KW/14RJ *2			Yes		VFDB4110*2	4
220kW	2 in parallel	RXLG-6KW/14RJ *2			Yes		VFDB4110*2	4
250kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160*2	8
280kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160*2	8
315kW	4 in parallel	RXLG-4,8KW/16RJ *4			Yes		VFDB4160*2	8
355kW	4 in parallel	RXLG-6KW/14RJ *4			Yes		VFDB4185*2	8
400kW	3 in parallel	RXLG-6KW/14RJ *3			Yes		VFDB4160*3	9
450kW	3 in parallel	RXLG-6KW/14RJ *3			Yes		VFDB4185*3	9
500kW	4 in parallel	RXLG-6KW/14RJ *4			Yes		VFDB4185*3	12
560kW	3 in parallel	RXLG-6KW/14RJ *3			Yes		VFDB4160*4	12

Drive rating chart C2000 525 - 690V for Delta drives

Drive series	Light Duty (Default)				Heavy Duty			
	120% of rated current can endure for 1 minute				150% of rated current can endure for 1 minute, 180% can endure for 3 seconds			
	525V	575V	690V	Rated Amps	525V	575V	690V	Rated Amps
	kW	kW	kW		kW	kW	kW	
Nominal voltage range 525V - 600V (- 15% - + 10%)								
VFD037C53A-21	3.3	3.7	-	6.7	2	2.2	-	4.6
VFD055C53A-21	5	5.5	-	9.9	3.3	3.7	-	6.9
VFD075C53A-21	6.8	7.5	-	12.1	3.3	3.7	-	8.3
VFD110C53A-21	10	11	-	18.7	6.8	7.5	-	13
VFD150C53A-21	13	15	-	24.2	6.8	7.5	-	16.8
Nominal voltage range 525V - 690V (- 15% - + 10%)								
VFD220C63B-21	17	18	22	30	11.41	12.5	15	20
VFD300C63B-21	22	25	30	36	14	15.4	18.5	24
VFD370C63B-21	28	31	37	45	16.73	18.3	22	30
VFD450C63B-21	34	38	45	54	22.82	25	30	36
VFD550C63B-21	42	46	55	67	28.15	30.8	37	45
VFD750C63B-21	57	63	75	86	34.23	37.5	45	54
VFD900C63B-21	68	75	90	104	41.84	45.8	55	67
VFD1100C63B-21	84	92	110	125	57	62.5	75	86
VFD1320C63B-21	100	110	132	150	68.47	75	90	104
VFD1600C63B-21	122	133	160	180	95.1	91.6	110	125
VFD2000C63B-21	152	167	200	220	100.43	110	132	150
VFD2500C63B-21	190	208	250	290	121.73	133.3	160	180
VFD3150C63B-21	240	262	315	350	152.17	166.6	200	220

Drive rating chart C2000+

Drive series	(Default) Heavy Duty		Super Heavy Duty	
	150% (60sec) / 180% (3 sec)		150% (60sec) / 200% (3 sec)	
	kW	Rated Amps	kW	Rated Amps
VFD007C4EA-21*	0.75	3	0.4	1.7
VFD015C4EA-21*	1.5	4	0.75	3
VFD022C4EA-21*	2.2	6	1.5	4
VFD040C4EA-21*	4	10.5	3.7	9
VFD055C4EA-21*	5.5	12	4	10.5
VFD075C4EA-21*	7.5	18	5.5	12
VFD110C4EA-21*	11	24	7.5	18
VFD150C4EA-21*	15	32	11	24
VFD185C4EA-21*	18.5	38	15	32
VFD220C4EA-21*	22	45	18.5	38
VFD300C4EA-21*	30	60	22	45
VFD370C43S-00	37	73	30	60
VFD450C43S-00	45	91	37	73
VFD550C43A-00	55	110	45	91
VFD750C43A-00	75	150	55	110
VFD900C43A-00	90	180	75	150
VFD1100C43A-00	110	220	90	180
VFD1320C43A-00	132	260	110	220
VFD1600C43A-00	160	310	132	260
VFD1850C43A-00	185	370	160	310
VFD2000C43A-00	200	395	160	310
VFD2200C43A-00	220	460	185	370
VFD2500C43A-00	250	481	200	395
VFD2800C43A-00	280	550	220	460
VFD3150C43A-00	315	616	280	550
VFD3550C43A-00	355	683	315	616
VFD4000C43A-00	400	770	355	683
VFD4500C43A-00	450	866	355	683
VFD5000C43A-00	500	930	450	866
VFD5600C43A-00	560	1094	500	930

Drive rating chart CP2000 / CFP2000

Drive series	(Default) Light Duty		Normal Duty	
	120% (1min)		120% (1min) / 160% (3 sec)	
	kW	Rated Amps	kW	Rated Amps
VFD015CP/FP	1.5	4.2	0.75	3
VFD022CP/FP	2.2	5.5	1.5	4
VFD040CP/FP	4	10.5	3.7	9
VFD055CP/FP	5.5	13	4	10.5
VFD075CP/FP	7.5	18	5.5	12
VFD110CP/FP	11	24	7.5	18
VFD150CP/FP	15	32	11	24
VFD185CP/FP	18.5	38	15	32
VFD220CP/FP	22	45	18.5	38
VFD300CP/FP	30	60	22	45
VFD370CP/FP	37	73	30	60
VFD450CP/FP	45	91	37	73
VFD550CP/FP	55	110	45	91
VFD750CP/FP	75	150	55	110
VFD900CP/FP	90	180	75	150
VFD1100CP/FP	110	220	90	180
VFD1320CP/FP	132	260	110	220
VFD1600CP/FP	160	310	132	260
VFD1850CP/FP	185	370	160	310
VFD2200CP/FP	220	460	185	370
VFD2800CP/FP	280	530	220	460
VFD3150CP/FP	315	616	280	550
VFD3550CP/FP	355	683	315	616
VFD4000CP/FP	400	770	355	683

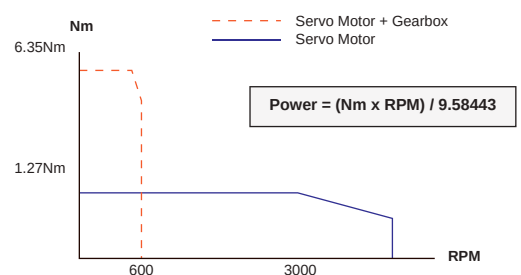
Drive dual rating chart ME300 / MS300

Dual rating allows drives to be used across a range of applications according to overload capacity required, for example:

Light Duty / Normal Duty - Fan and pump application
Heavy Duty - Compressor, crusher, spindle and conveyor

Drive series	(Default) Heavy Duty		Normal Duty	
	150% (60sec) / 200% (3sec)		120% (60sec) / 150% (3sec)	
	kW	Rated Amps	kW	Rated Amps
VFD1A6ME/MS21	0.2	1.6	0.3	1.8
VFD2A8ME/MS21	0.4	2.8	0.55	3.2
VFD4A8ME/MS21	0.75	4.8	0.9	5
VFD7A5ME/MS21	1.5	7.5	1.8	8.5
VFD11A6ME/MS21	2.2	11	3	12.5
VFD1A5ME/MS43	0.4	1.5	0.55	1.8
VFD2A7ME/MS43	0.75	2.7	1.1	3
VFD4A2ME/MS43	1.5	4.2	1.6	4.6
VFD5A5ME/MS43	2.2	5.5	2.8	6.5
VFD9A0ME/MS43	4	9	4.5	10.5
VFD13A6ME/MS43	5.5	13	6	15.7
VFD17A6ME/MS43	7.5	17	8.5	20.5
VFD25AMS43AFS	11	25	12	28
VFD32AMS43AFS	15	32	17	36
VFD38AMS43AFS	18.5	38	20	41.5
VFD45AMS43AFS	22	45	24	49

Gear ratio chart



Example

Servo Motor - ECMA-C10604RS
Rated Torque - 1.27 Nm
Rated Speed - 3000 RPM

Gearbox - WAB-060-005-K-P1
Ratio - 5:1
Rated Torque - 60 Nm

$T_{out} = T_m \times R$
 $T_{out} = 1.27 \times 5$
 $T_{out} = 6.35\text{Nm}$

$S_{out} = S_m / R$
 $S_{out} = 3000 / 5$
 $S_{out} = 600\text{ RPM}$

T_{out} = Torque Output
 S_{out} = Speed Output
 T_m = Motor rated Torque

S_m = Motor rated Speed
 R = Gearbox reduction ratio

Cascading according to IEC 60947-2 MCCB x160, x250, x630, P630, h1000, h1600

Cascading value in kA according to IEC 60947-2. Network: 3 phases + neutral, 380-415 VAC

Upstream Circuit Breaker

	MCBs	MCCBs
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HHA		HNA		HHB		HNB		HMJ		HEJ		HMW		HEW		HNE		HEE		HNF		HEF	
25kA	x160	40kA	x160	25kA	x250	40kA	x250	50kA	x830	70kA	50kA	50kA	70kA	630A	70kA	50kA	50kA	70kA	50kA	50kA	70kA	1600A	
160A		160A		250A	250A	250A	250A	630A									1000A			1600A			
Thermal Magnetic												Electronic											
25		40		20		20																	
25		40		25		40		15		15		15		15		15		15		15		15	
25		40		25		40		15		15		15		15		15		15		15		15	
25		40		25		40		25		25		20		20		20		20		20		20	
25		40		25		40		50		55		30		30		30		30		30		30	
25		40		25		40		50		70		25		25		25		25		25		25	
25		40		25		40		25		25		20		20		20		20		20		20	
25		40		25		40		25		25		20		20		20		20		20		20	
25		40		25		40		27		27		33		33		33		15		15		15	
25		40		25		40		27		27		33		33		33		15		15		15	
25		40		25		40		27		27		33		33		33		15		15		15	

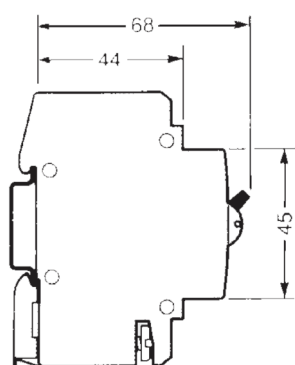
	MCBs	MCCBs
1. Definition	MCBs are circuit breakers designed to protect circuits with a maximum rating of 100 amperes.	MCCBs are circuit breakers designed to protect circuits with a maximum rating of 100 amperes or more.
2. Applications	MCBs are typically used in residential and commercial applications for protecting individual circuits.	MCCBs are typically used in industrial and commercial applications for protecting main distribution circuits.
3. Features	MCBs are compact, lightweight, and easy to install. They often feature a manual reset button.	MCCBs are larger, heavier, and more complex. They often feature adjustable trip settings and a manual reset button.
4. Cost	MCBs are generally less expensive than MCCBs.	MCCBs are generally more expensive than MCBs.
5. Selection	When selecting an MCB, consider the circuit's voltage, current, and the type of load (resistive, inductive, or capacitive).	When selecting an MCCB, consider the circuit's voltage, current, and the type of load (resistive, inductive, or capacitive). Additionally, consider the MCCB's trip settings and breaking capacity.

	HHA	HNA	HHB	HNB	HMJ	HEJ	HMW	HEW	HNE	HEE	HNF	HEF
	25kA	40kA	25kA	40kA	50kA	70kA	50kA	70kA	50kA	70kA	50kA	70kA
	x160	x160	x250	x250	x830		P630		h1000		h1600	
	160A	160A	250A	250A	630A		630A		1000A		1600A	
	Electronic											
	Thermal Magnetic											
	25	40	20	20								
	25	40	25	40	15	15	15	15	15	15	15	15
	25	40	25	40	15	15	15	15	15	15	15	15
	25	40	25	40	25	25	20	20	20	20	20	20
	25	40	25	40	25	25	20	20	20	20	20	20
	25	40	25	40	50	55	30	30	30	30	30	30
	25	40	25	40	50	70	25	25	25	25	25	25
	25	40	25	40	25	25	20	20	20	20	20	20
	25	40	25	40	27	27	33	33	15	15	15	15
	25	40	25	40	27	27	33	33	15	15	15	15
	25	40	25	40	27	27	33	33	15	15	15	15

[illegible]

Note: Cascading table based on 3Ph 415V networks. MJT - only for 230V networks.

Use of MCBs in DC systems



Protection and control of circuits against overloads and short circuits – in commercial and industrial electrical distribution systems

EN 60898-1
NF C 61-410
IEC 60947-2
SANS 60947-2

DC applications

Because of their quick make and break design and excellent arc quenching capabilities, Hager circuit breakers are suitable for use on DC. When selecting a circuit breaker for any DC application it is necessary to consider 2 main points:

a) System voltage

The system voltage and the type of system determines the number of poles required to provide the necessary breaking capacity and arc control. The table gives the maximum DC voltage and breaking capacity for one pole or two poles connected in the series.

The positioning of these breaking poles in the system depends on whether the system is earthed or insulated and if it is earthed whether one polarity is earthed or the centre point is earthed.

b) Type of DC systems: 3 different types

- Network connected to the earth - one polarity earthed (+ve or -ve):
If -ve is earthed, all poles will be placed in series in the +ve leg.
If the +ve is earthed, all poles will be placed in the -ve leg.
Note: an extra pole will be needed on the earthed polarity to provide isolation.
- Network connected to the earth - middle point earthed:
The number of poles required to break I_{sc} should be placed on each polarity.
- Network insulated to the earth:
The number of poles required to break I_{sc} should be split between the two polarities.

Table 1			Breaking capacity (kA) L/R = 15ms				
Range	In	No. of poles in series needed for breaking	≤48V	60V	125V	250V	500V
MV	6 to 40A	1P	15	–	–	–	–
MA	2 to 63A	1P	15	–	–	–	–
		2P	20	20	–	–	–
		3P	25	25	20	–	–
NF	2 to 40A	4P	35	35	25	–	–
		1P	15	–	–	–	–
		2P	20	20	–	–	–
NFN	50 to 63A	3P	25	25	20	–	–
		4P	35	35	25	15	10
NGN, NCN	2 to 63A	1P	15	15	10	–	–
		2P	20	20	15	6	–
		3P	25	25	20	10	–
NRN	6 to 25A	4P	35	35	25	15	10
		1P	25	25	20	–	–
		2P	35	35	25	15	–
		3P	40	40	35	20	–
	32 to 40A	4P	45	45	40	25	10
		1P	20	20	15	–	–
		2P	25	25	20	10	–
		3P	30	30	30	15	–
	50 to 63A	4P	35	35	35	20	10
		1P	15	15	10	–	–
		2P	20	20	15	6	–
		3P	25	25	20	10	–
HLF	80 to 125A	4P	35	35	35	20	10
		1P	12	12	8	–	–
		2P	15	15	10	4	–
		3P	25	25	25	10	–
HMC, HMD	80 to 125A	4P	30	30	30	15	5
		1P	15	15	10	–	–
		2P	20	20	15	6	–
		3P	30	30	30	15	–

Table 2 magnetic trip		1	2	3	4
		I_{t1}	I_{t2}	I_{rm1}	I_{rm2}
Curve B	AC 50Hz	1.13 In	1.45 In	3 In	5 In
	DC	1.13 In	1.45 In	4 In	7 In
Curve C	AC 50Hz	1.13 In	1.45 In	5 In	10 In
	DC	1.13 In	1.45 In	7 In	15 In
Curve D	AC 50Hz	1.13 In	1.45 In	10 In	20 In
	DC	1.13 In	1.45 In	15 In	30 In

DC applications for DF Electric gG fuse-links

DC applications for DF gG fuse-links

Fuses are generally suitable for both AC and DC applications. The DC performance of fuse-links is different and AC ratings cannot be used for DC applications.

NH gG 500V		(L/R = 15ms)	
Size	Rated Current	Max. DC Voltage	DC Breaking Capacity
000 00	2A...100A 125A...160A	250 VDC	80 kA
0 0S	6A...160A 200A...250A	250 VDC 125 VDC	80 kA
1	50A...250A 315A...355A	250 VDC 80 VDC	80 kA
2	63A...400A 425A...500A	250 VDC 80 VDC	80 kA
3	250A...630A 800A	250 VDC 80 VDC	80 kA
4	315A...1000A 1250A	250 VDC 80 VDC	80 kA

NH gG 690V		(L/R = 15ms)	
Size	Rated Current	Max. DC Voltage	DC Breaking Capacity
000/00	2A...100A	250 VDC	25 kA
0	6A...100A	440 VDC	25 kA
1	50A...200A	440 VDC	25 kA
2	63A...315A	440 VDC	25 kA
3	250A...500A	440 VDC	25 kA
4	400A...800A	440 VDC	25 kA

DF Electric aR NH semiconductor fuse-link charts

Due to the high power dissipation of NH aR fuse links, it is necessary to apply a derating factor that determines the maximum allowable continuous current when these fuse links are installed in open type NH bases or in a fuse switch disconnector.

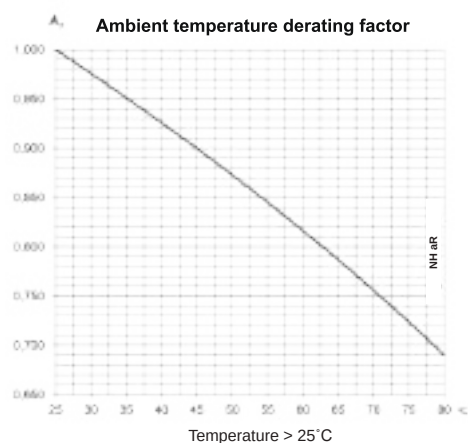
Fuse load constant C_L				$I_{MAX.} = I_n \times C_L$
Size	I_n (A)	Open Type Bases	Fuse Switch Disconnectors	
NH000	16	1	1	
	20	1	1	
	25	1	1	
	32	1	1	
	40	1	1	
	50	1	1	
	63	1	1	
	80	1	0.95	
	100	1	0.90	
	125	0.95	0.85	
	160	0.90	0.75	
	200	0.80	0.70	
	250	0.80	0.60	
NH1	40	1	0.95	
	50	0.90	0.85	
	63	0.90	0.85	
	80	0.90	0.85	
	100	0.90	0.85	
	125	0.75	0.70	
	160	0.75	0.70	
	200	0.75	0.70	
	250	0.75	0.70	
	315	0.75	0.65	
	350	0.70	0.65	
	400	0.70	0.60	

Fuse load constant C_L				$I_{MAX.} = I_n \times C_L$
Size	I_n (A)	Open Type Bases	Fuse Switch Disconnectors	
NH2	200	0.70	0.65	
	250	0.70	0.65	
	315	0.70	0.65	
	350	0.70	0.65	
	400	0.70	0.65	
	450	0.65	0.60	
	500	0.65	0.60	
	550	0.65	0.60	
	630	0.65	0.55	
	700	0.65	0.55	
NH3	500	0.70	0.65	
	550	0.70	0.65	
	630	0.70	0.65	
	700	0.70	0.60	
	800	0.70	0.60	
	900	0.65	0.55	
	1000	0.60	0.50	

Ambient temperature correction coefficient (A1)

When the utilization ambient temperature is higher than 25°C, the fuse-link must be "de-rated". The rated current of fuse link must be multiplied by a derating factor A1 to find the maximum operating current.

$I_{max} = I_n \times A1$



Calculating capacitor size requirements for power factor correction

It is imperative that correct capacitor sizes be selected when calculating capacitor requirements. In the case of group compensation it is recommended that the first capacitor step be equal to half the value of the following steps, to allow a smooth overall more finely tuned correction system.

Table 2 below will assist in calculating capacitor values required in specific applications. Prior knowledge of the following is required:

- Power factor before applying capacitors (*left column*)
- Required power factor after applying capacitors (*top row*)
- Total consumption in kW (per kW)

The correct capacitor size can then be calculated by crossing the horizontal and vertical values of table 2.

Example:

- Convert the plant load to kW (kVA x Power Factor = kW)
400 kVA x 0.70 PF = 280kW (useful power).
- To correct a load of 400 kVA at 0.70 PF to 0.96. Follow the 0.70 value (in the left vertical column table 2) horizontally until below the 0.96 value (in the top horizontal row) the value is 0.729.
- Capacitor required to correct from 0.70 to 0.96 (Power x Capacitor from table value)

$$280\text{kW} \times 0.729 = 204.12 \text{ kVar}$$

Savings:

$$280\text{kW} \text{ at } 0.70 \text{ PF} = 400 \text{ kVA}$$

$$280\text{kW} \text{ at } 0.96 \text{ PF} = 292 \text{ kVA}$$

$$\text{Reduction} = 108 \text{ kVA (27\% less of transformer load)}$$



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PFC Calculator.
Visit our website
www.em.co.za/powerfactor

Table 2

PF load before applying capacitors	Target power factor												
	0.80	0.85	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	Unity
0.40	1.537	1.668	1.805	1.832	1.861	1.924	1.959	1.988	2.037	2.003	2.085	2.146	2.288
0.41	1.474	1.605	1.742	1.769	1.798	1.831	1.860	1.896	1.935	1.973	2.021	2.082	2.225
0.42	1.413	1.544	1.681	1.709	1.738	1.771	1.800	1.836	1.874	1.913	1.961	2.022	2.164
0.43	1.356	1.487	1.624	1.651	1.680	1.713	1.742	1.778	1.816	1.855	1.903	1.964	2.107
0.44	1.290	1.421	1.558	1.585	1.614	1.647	1.677	1.712	1.751	1.790	1.837	1.899	2.041
0.45	1.230	1.360	1.501	1.532	1.561	1.592	1.626	1.659	1.695	1.737	1.784	1.846	1.988
0.46	1.179	1.309	1.446	1.473	1.502	1.533	1.567	1.600	1.636	1.677	1.725	1.786	1.929
0.47	1.130	1.260	1.397	1.425	1.454	1.485	1.519	1.552	1.588	1.629	1.677	1.758	1.881
0.48	1.076	1.206	1.343	1.370	1.400	1.430	1.464	1.497	1.534	1.575	1.623	1.684	1.826
0.49	1.030	1.160	1.297	1.326	1.355	1.386	1.420	1.453	1.489	1.530	1.578	1.639	1.782
0.50	0.982	1.112	1.248	1.276	1.303	1.337	1.369	1.403	1.441	1.481	1.529	1.590	1.732
0.51	0.936	1.066	1.202	1.230	1.257	1.291	1.323	1.357	1.395	1.435	1.483	1.544	1.686
0.52	0.894	1.024	1.160	1.188	1.215	1.249	1.281	1.315	1.353	1.393	1.441	1.502	1.644
0.53	0.850	0.980	1.116	1.144	1.171	1.205	1.237	1.271	1.309	1.349	1.397	1.458	1.600
0.54	0.809	0.939	1.075	1.103	1.130	1.164	1.196	1.230	1.268	1.308	1.356	1.417	1.559
0.55	0.769	0.899	1.035	1.063	1.090	1.124	1.156	1.190	1.228	1.268	1.316	1.377	1.519
0.56	0.730	0.860	0.996	1.024	1.051	1.085	1.117	1.151	1.189	1.229	1.277	1.338	1.480
0.57	0.692	0.822	0.958	0.986	1.013	1.047	1.079	1.113	1.151	1.191	1.239	1.300	1.442
0.58	0.655	0.785	0.921	0.949	0.976	1.010	1.042	1.076	1.114	1.154	1.202	1.263	1.405
0.59	0.618	0.748	0.884	0.912	0.939	0.973	1.005	1.039	1.077	1.117	1.165	1.226	1.368
0.60	0.584	0.714	0.849	0.878	0.905	0.939	0.971	1.005	1.043	1.083	1.131	1.192	1.334
0.61	0.549	0.679	0.815	0.843	0.870	0.904	0.936	0.970	1.008	1.048	1.096	1.157	1.299
0.62	0.515	0.645	0.781	0.809	0.836	0.870	0.902	0.934	0.974	1.014	1.062	1.123	1.265
0.63	0.483	0.613	0.749	0.777	0.804	0.838	0.870	0.904	0.942	0.982	1.030	1.091	1.233
0.64	0.450	0.580	0.716	0.744	0.771	0.805	0.837	0.871	0.909	0.949	0.997	1.058	1.200
0.65	0.419	0.549	0.685	0.713	0.740	0.774	0.806	0.840	0.878	0.918	0.966	1.027	1.169
0.66	0.388	0.518	0.654	0.682	0.709	0.743	0.775	0.809	0.847	0.887	0.935	0.996	1.138
0.67	0.358	0.488	0.624	0.652	0.679	0.713	0.745	0.779	0.817	0.857	0.905	0.966	1.108
0.68	0.329	0.459	0.595	0.623	0.650	0.684	0.716	0.750	0.788	0.828	0.876	0.937	1.079
0.69	0.299	0.429	0.565	0.593	0.620	0.654	0.686	0.720	0.758	0.798	0.840	0.907	1.049
0.70	0.270	0.400	0.536	0.564	0.591	0.625	0.657	0.691	0.729	0.769	0.811	0.878	1.020
0.71	0.242	0.372	0.508	0.536	0.563	0.597	0.629	0.663	0.701	0.741	0.783	0.850	0.992
0.72	0.213	0.343	0.479	0.507	0.534	0.568	0.600	0.634	0.672	0.712	0.754	0.821	0.963
0.73	0.186	0.316	0.452	0.480	0.507	0.541	0.573	0.607	0.645	0.685	0.727	0.794	0.936
0.74	0.159	0.289	0.425	0.453	0.480	0.514	0.546	0.580	0.618	0.658	0.700	0.767	0.909
0.75	0.132	0.262	0.398	0.426	0.453	0.487	0.519	0.553	0.591	0.631	0.673	0.740	0.882
0.76	0.105	0.235	0.371	0.399	0.426	0.460	0.492	0.526	0.564	0.604	0.652	0.713	0.855
0.77	0.079	0.209	0.345	0.373	0.400	0.434	0.466	0.500	0.538	0.578	0.620	0.687	0.829
0.78	0.053	0.183	0.319	0.347	0.374	0.408	0.440	0.474	0.512	0.552	0.594	0.661	0.803
0.79	0.026	0.156	0.292	0.320	0.347	0.381	0.413	0.447	0.485	0.525	0.567	0.634	0.776
0.80	-	0.130	0.266	0.294	0.321	0.355	0.387	0.421	0.459	0.499	0.541	0.608	0.750
0.81	-	0.104	0.240	0.268	0.295	0.329	0.361	0.395	0.433	0.473	0.515	0.582	0.724
0.82	-	0.078	0.214	0.242	0.269	0.303	0.335	0.369	0.407	0.447	0.489	0.556	0.698
0.83	-	0.052	0.188	0.216	0.243	0.277	0.309	0.343	0.381	0.421	0.463	0.530	0.672
0.84	-	0.026	0.162	0.190	0.217	0.251	0.283	0.317	0.355	0.395	0.437	0.504	0.645
0.85	-	-	0.136	0.164	0.191	0.225	0.257	0.291	0.329	0.369	0.417	0.478	0.620
0.86	-	-	0.109	0.140	0.167	0.198	0.230	0.264	0.301	0.343	0.390	0.450	0.593
0.87	-	-	0.083	0.114	0.141	0.172	0.204	0.238	0.275	0.317	0.364	0.424	0.567
0.88	-	-	0.054	0.085	0.112	0.143	0.175	0.209	0.246	0.288	0.335	0.395	0.538
0.89	-	-	0.028	0.059	0.086	0.117	0.149	0.183	0.230	0.262	0.309	0.369	0.512
0.90	-	-	-	0.031	0.058	0.089	0.121	0.155	0.192	0.234	0.281	0.341	0.484
0.91	-	-	-	-	0.027	0.058	0.090	0.124	0.161	0.203	0.250	0.310	0.453
0.92	-	-	-	-	-	0.031	0.063	0.097	0.134	0.176	0.223	0.283	0.426
0.93	-	-	-	-	-	-	0.032	0.066	0.103	0.145	0.192	0.252	0.395

Capacitor ratings at different voltages

kVAr at				capacitance total (uF)	capacitance in delta (uF)	current in delta (A)				line current (A)			
525V	440V	415V	400V			525V	440V	415V	400V	525V	440V	415V	400V
	10	9	8	164	82		8	7	7		13	12	12
	15	13	12	247	123		11	11	10		20	19	18
	20	18	17	329	164		15	14	14		26	25	24
	25	22	21	411	206		19	18	17		33	31	30
	30	27	25	493	247		23	21	21		39	37	36
	40	36	33	658	329		30	29	28		52	50	48
	45	40	37	740	370		34	32	31		59	56	54
	50	44	41	822	411		38	36	34		66	62	60
	60	53	50	987	493		45	43	41		79	74	72
	75	67	62	1234	617		57	54	52		98	93	89
	80	71	66	1316	658		61	57	55		105	99	95
	90	80	74	1480	740		68	64	62		118	111	107
	100	89	83	1645	822		76	71	69		131	124	119
	120	107	99	1974	987		91	86	83		157	149	143
	125	111	103	2056	1028		95	89	86		164	155	149
	150	133	124	2467	1234		114	107	103		197	186	179
	175	156	145	2879	1439		133	125	121		230	217	209
	180	160	149	2961	1480		136	129	124		236	223	215
	200	178	165	3290	1645		152	143	138		262	248	239
	210	187	174	3454	1727		159	150	145		276	260	251
	225	200	186	3701	1851		170	161	155		295	278	268
	240	214	198	3948	1974		182	171	165		315	297	286
	250	222	207	4112	2056		189	179	172		328	309	298
	270	240	223	4441	2221		205	193	186		354	334	322
	275	245	227	4524	2262		208	196	189		361	340	328
	300	267	248	4935	2467		227	214	207		394	371	358
	325	289	269	5346	2673		246	232	224		426	402	388
	330	294	273	5428	2714		250	236	227		433	408	394
	350	311	289	5757	2879		265	250	241		459	433	418
	360	320	298	5922	2961		273	257	248		472	446	429
	375	334	310	6169	3084		284	268	258		492	464	447
	400	356	331	6580	3290		303	286	275		525	495	477
	420	374	347	6909	3454		318	300	289		551	520	501
	425	378	351	6991	3496		322	304	293		558	526	507
	450	400	372	7402	3701		341	322	310		590	557	537
	475	423	393	7814	3907		360	339	327		623	588	567
	480	427	397	7896	3948		364	343	331		630	594	573
	500	445	413	8225	4112		379	357	344		656	619	596
	600	534	496	9870	4935		455	429	413		787	743	716
	700	623	579	11515	5757		530	500	482		919	866	835
10	7	6	6	116	58	6	5	5	5	11	9	9	8
20	14	12	12	231	116	13	11	10	10	22	18	17	17
30	21	19	17	347	173	19	16	15	15	33	28	26	25
40	28	25	23	462	231	25	21	20	19	44	37	35	34
50	35	31	29	578	289	32	27	25	24	55	46	43	42
60	42	37	35	693	347	38	32	30	29	66	55	52	50
70	49	44	41	809	404	44	37	35	34	77	65	61	59
80	56	50	46	924	462	51	43	40	39	88	74	70	67
90	63	56	52	1040	520	57	48	45	44	99	83	78	75
100	70	62	58	1155	578	63	53	50	48	110	92	87	84
120	84	75	70	1387	693	76	64	60	58	132	111	104	101
140	98	87	81	1618	809	89	74	70	68	154	129	122	117
160	112	100	93	1849	924	102	85	80	77	176	147	139	134
180	126	112	104	2080	1040	114	96	90	87	198	166	156	151
200	140	125	116	2311	1155	127	106	100	97	220	184	174	168
220	155	137	128	2542	1271	140	117	110	106	242	203	191	184
240	169	150	139	2773	1387	152	128	120	116	264	221	209	201
260	183	162	151	3004	1502	165	138	130	126	286	240	226	218
280	197	175	163	3235	1618	178	149	141	135	308	258	243	235
300	211	187	174	3466	1733	190	160	151	145	330	276	261	251
320	225	200	186	3697	1849	203	170	161	155	352	295	278	268
400	281	250	232	4622	2311	254	213	201	193	440	369	348	335

Standard rated capacitor voltage 440V or 525V

- Notes:**
1. "capacitance total" refers to total calculated capacitance of the delta connected capacitor at rated capacitor voltage
 2. "capacitance in delta" refers to calculated capacitance between any two terminals of delta wired capacitor
 3. "line current" refers to calculated current at terminals of delta capacitor
 4. calculated values may vary in practice due to tolerances allowed in manufacturing standards, and the effect of cables, discharge resistors, etc

Capacitor selection regarding harmonics

Capacitor without reactor		Capacitor without reactor	Capacitor with reactor	Capacitor with reactor
		Standard type	Standard class	Reinforced class
S.H S.T		15-25%	25-35%	35-50%
	THDU/ THDI	≤ 3% / ≤ 10%	≤ 4% / ≤ 20%	≤ 6% / ≤ 40%

- Notes:**
- S.H and S.T are given in kVA
 - S.H: weighted power of harmonic generators in kVA
 - S.T: power of the transformer HV/LV

Servo combination selection chart

Step 1: Select a Servo Drive			Step 2 : Select a servo Motor				Step 3: Select Power Cable				Step 4: Select Encoder Cable	
Servo Drive	A3/B3 Motor	OR	A2 Motor	OR	A3/B3 Motor + Brake IP 67	OR	Power Cable A3/ B3 Motor IP67	Power Cable A2 Motor	B3/A3 Power Cable + Brake IP67	Power Cable + Brake A2	Encoder Cable A3/ B3 IP67	Encoder Cable A2
ASD-B3A-0121-x	ECM-B3L-CM0401RJ1		ECMA-C10401RS				ACS3-CAPW5105	ASD-ABPW0005			ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CABDC2
ASD-B3A-0421-x	ECM-B3M-CM0604RJ1		ECMA-C10604RS		ECM-B3M-CM0604SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105		ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CABDC2
ASD-B3A-0721-x	ECM-B3M-CM0807RJ1		ECMA-C10807RS		ECM-B3M-CM0807SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105	ASD-ABPW0105	ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CABDC2
ASD-B3A-1021-x	ECM-B3M-C21010RS1		ECMA-C11010RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1105	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CABDC2
ASD-B3A-1521-x	ECM-B3M-E21315RS1		ECMA-E11315RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1105	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CABDC2
ASD-A3-0121-x	ECM-B3L-CM0401RJ1		ECMA-C10401RS				ACS3-CAPW5105	ASD-ABPW0005			ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CAADC2
ASD-A3-0421-x	ECM-B3M-CM0604RJ1		ECMA-C10604RS		ECM-B3M-CM0604SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105		ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CAADC2
ASD-A3-0721-x	ECM-B3M-CM0807RJ1		ECMA-C10807RS		ECM-B3M-CM0807SJ1		ACS3-CAPW5105	ASD-ABPW0005	ACS3-CAPW6105	ASD-ABPW0105	ACS3-CAEN1105	ASD-ABEN0005 + ACS3-CAADC2
ASD-A3-1021-x	ECM-B3M-C21010RS1		ECMA-C11010RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1105	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2
ASD-A3-1521-x	ECM-B3M-E21315RS1		ECMA-E11315RS				ACS3-CAPWA205	ASD-CAPW1005		ASD-CAPW1305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2
ASD-A3-2043-x	ECM-B3M-K21320RS1						ACS3-CAPWA205			ASD-CAPW1305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2
ASD-A3-3043-x	ECM-B3M-L21830RS1						ACS3-CAPWC405			ASD-CAPW2305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2
ASD-A3-4543-x	ECM-B3M-L21845RS1						ACS3-CAPWC405			ASD-CAPW2305	ACS3-CAENA105	ASD-CAEN1005 + ACS3-CAADC2
ASD-A3-5543-x	ECM-B3M-L21859R31						ACS3-CAPWE605				ACS3-CAENA105	
ASD-A3-7543-x	ECM-B3M-LA1875R31						ACS3-CAPWE605				ACS3-CAENA105	
ASD-A3R-1B43-x	ECM-B3M-LA221BR31						ACS3-CAPWE605				ACS3-CAENA105	
ASD-A3R-1F43-x	ECM-B3M-LA221FR31						ACS3-CAPWE605				ACS3-CAENA105	
ASD-A2-0121-M			ECMA-C10401RS					ASD-ABPW0005				ASD-ABEN0005
ASD-A2-0421-M			ECMA-C10604RS					ASD-ABPW0005				ASD-ABEN0005
ASD-A2-0721-M			ECMA-C10807RS			ECMA-C10807SS		ASD-ABPW0005		ASD-ABPW0105		ASD-ABEN0005
ASD-A2-1021-M			ECMA-C11010RS			ECMA-C11010SS		ASD-CAPW1005		ASD-CAPW1105		ASD-CAEN1005
ASD-A2-1521-M			ECMA-E11315RS			ECMA-E11315SS		ASD-CAPW1005		ASD-CAPW1105		ASD-CAEN1005

TEKNOMEGA TOP busbar support fault level chart

Icc pk Short-circuit current peak value expressed in kA

Icc rms Effective value of short-circuit, duration equal to 1 second, expressed in kA

Icc pk (kA)	53 kA				74 kA					110 kA					143 kA					165 kA			187 kA			220 kA		
Icc rms (kA)	25 kA				35 kA					50 kA					65 kA					75 kA			85 kA			100 kA		
Space between phases (mm)	50	75	100	125	50	75	100	125	150	50	75	100	125	150	50	75	100	125	150	100	125	150	100	125	150	100	125	150

TOP 1010 (Top 2/5TN) (1 x 5mm bar per phase)

Bar Cross - Section (mm)	30 x 5	225	280	320	360	160	200	230	260	-	110	135	155	175	-	-	100	120	130	-	-	-	-	-	-	-	-	-
	40 x 5	265	320	370	415	190	230	265	300	-	125	155	180	200	-	-	120	135	155	-	-	-	-	-	-	-	-	-
	50 x 5	295	360	415	465	210	260	300	335	-	140	175	200	225	-	110	130	155	170	-	-	-	-	-	-	-	-	-
	60 x 5	330	405	470	525	235	290	335	375	-	160	195	225	250	-	120	150	170	195	-	-	-	-	-	-	-	-	-
	80 x 5	370	455	530	585	265	325	375	420	-	180	220	250	285	-	135	170	195	220	-	-	-	-	-	-	-	-	-

TOP 1010 (Top 2/5TN) (2 x 5mm bars per phase)

Bar Cross - Section (mm)	30 x 5	320	390	450	510	230	280	320	360	-	150	190	220	240	-	120	150	170	190	-	-	-	-	-	-	-	-	-
	40 x 5	370	450	520	580	260	320	370	420	-	180	220	250	280	-	140	170	190	220	-	-	-	-	-	-	-	-	-
	50 x 5	410	510	580	650	300	360	420	470	-	200	240	280	310	-	150	190	220	240	-	-	-	-	-	-	-	-	-
	60 x 5	460	570	660	730	330	410	470	520	-	220	270	320	350	-	170	210	240	270	-	-	-	-	-	-	-	-	-
	80 x 5	520	640	740	830	370	460	530	590	-	250	310	360	400	-	165	240	250	310	-	-	-	-	-	-	-	-	-

TOP 1025 (Top 1/10T) (1 x 10mm bars per phase)

Bar Cross - Section H x D (mm)	30 x 10	455	555	640	720	325	400	460	520	-	220	270	310	350	-	170	205	240	265	-	-	-	-	-	-	-	-	-
	40 x 10	525	645	745	835	375	460	530	600	-	255	310	360	400	-	195	240	275	310	-	-	-	-	-	-	-	-	-
	50 x 10	590	720	830	935	420	515	595	665	-	285	350	400	450	-	200	255	310	345	-	-	-	-	-	-	-	-	-
	60 x 10	645	790	900	900	460	565	650	730	-	310	380	490	490	-	200	255	340	380	-	-	-	-	-	-	-	-	-
	80 x 10	745	900	900	900	535	650	750	845	-	335	440	565	565	-	200	300	390	435	-	-	-	-	-	-	-	-	-
	100 x 10	830	900	900	900	590	730	840	900	-	335	490	635	635	-	200	300	400	490	-	-	-	-	-	-	-	-	-
	120 x 10	900	900	900	900	650	790	900	900	-	335	500	690	690	-	200	300	400	500	-	-	-	-	-	-	-	-	-

Icc pk (kA)	53 kA				74 kA				110 kA				143 kA				165 kA				187 kA				220 kA			
Icc rms (kA)	25 kA				35 kA				50 kA				65 kA				75 kA				85 kA				100 kA			
Space between phases (mm)	75	100	125	75	100	125	150	75	100	125	150	75	100	125	150	175	100	125	150	175	100	125	150	175	100	125	150	175

TOP 1040 (Top 2/10TN) (2 x 10mm bars per phase)

Bar Cross - Section H x D (mm)	30 x 10	785	900	900	560	650	720	790	380	440	490	530	270	335	370	410	-	240	265	-	-	205	270	320	310	-	-	-	-
	40 x 10	900	900	900	650	750	840	900	440	500	560	620	270	365	430	470	-	275	310	-	-	205	270	340	320	-	-	-	-
	50 x 10	900	900	900	720	840	900	900	460	560	630	690	270	365	455	530	-	310	345	-	-	205	270	340	320	-	-	-	-
	60 x 10	900	900	900	790	900	900	900	460	610	690	750	270	365	455	545	-	340	380	-	-	205	270	340	320	-	-	-	-
	80 x 10	900	900	900	900	900	900	900	460	610	770	870	270	365	455	545	-	390	435	-	-	205	270	340	320	-	-	-	-
	100 x 10	900	900	900	900	900	900	900	460	610	770	900	270	365	455	545	-	400	490	-	-	205	270	340	320	-	-	-	-
	120 x 10	900	900	900	900	900	900	900	460	610	770	900	270	365	455	545	-	400	500	-	-	205	270	340	320	-	-	-	-

TOP 1050 (Top 3/10TN) (3 x 10mm bars per phase)

Bar Cross - Section H x D (mm)	30 x 10	-	900	900	-	790	890	900	-	530	600	650	-	410	460	500	540	350	400	440	470	275	345	380	420	-	-	-	-
	40 x 10	-	900	900	-	900	900	900	-	620	690	750	-	470	530	580	630	350	440	500	540	275	345	440	480	-	-	-	-
	50 x 10	-	900	900	-	900	900	900	-	690	770	840	-	470	590	650	700	350	440	530	610	275	345	415	480	-	-	-	-
	60 x 10	-	900	900	-	900	900	900	-	750	840	900	-	470	590	710	770	350	440	530	620	275	345	415	480	-	-	-	-
	80 x 10	-	900	900	-	900	900	900	-	870	900	900	-	470	590	710	825	350	440	530	620	275	345	415	480	-	-	-	-
	100 x 10	-	900	900	-	900	900	900	-	900	900	900	-	470	590	710	825	350	440	530	620	275	345	415	480	-	-	-	-
	120 x 10	-	900	900	-	900	900	900	-	900	900	900	-	470	590	710	825	350	440	530	620	275	345	415	480	-	-	-	-

TOP junior compact busbar supports

Icc pk (kA)	53 kA	74 kA	110 kA	132 kA
Icc rms (kA)	25 kA	35 kA	50 kA	60 kA
Space between phases (mm)	70 mm			

TOP Junior 1/10 (1 x 10mm bar per phase)

Bar Cross - Section (mm)	30 x 10	540	385	260	200
	40 x 10	610	445	285	200
	50 x 10	695	495	285	200
	60 x 10	760	545	285	200
	80 x 10	870	630	285	200

Icc pk (kA)	53 kA	74 kA	110 kA	132 kA
Icc rms (kA)	25 kA	35 kA	50 kA	60 kA
Space between phases (mm)	70 mm			

TOP Junior 2/5 (1 x 5mm bar per phase)

Bar Cross - Section (mm)	30 x 10	270	190	130	105
	40 x 10	310	220	150	125
	50 x 10	350	250	165	129
	60 x 10	380	275	180	129
	80 x 10	390	310	210	129

Icc pk (kA)	53 kA	74 kA	110 kA	132 kA
Icc rms (kA)	25 kA	35 kA	50 kA	60 kA
Space between phases (mm)	70 mm			

TOP Junior 2/5 (2 x 5mm bar per phase)

Bar Cross - Section (mm)	30 x 10	380	270	180	150
	40 x 10	440	310	210	165
	50 x 10	490	350	235	165
	60 x 10	540	385	240	165
	80 x 10	620	445	240	165

Socomec busbar support fault levels

Adhering to the maximum distances between two supports ensures the busbar supports are able to withstand the given short circuit current values. At these values, deformation of the copper bars may occur. These deformations are permitted by standard IEC 60439-1 as long as they adhere to the insulation distances.

SBC 10 Busbar supports

Peak Isc		15kA	24kA	48kA	63kA	82kA	114kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		9kA	12kA	23kA	30kA	39kA	52kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
25 x 10	1	1000	1000	500	375	275	200	65	-
25 x 10	2	1000	1000	525	400	300	200	90	850
40 x 10	1	1000	1000	650	475	375	250	65	700
40 x 10	2	1000	1000	700	525	400	275	90	1250
50 x 10	1	1000	1000	725	550	425	300	65	850
50 x 10	2	1000	1000	800	600	475	325	90	1550
60 x 10	1	1000	1000	800	625	475	325	65	1000
60 x 10	2	1000	1000	900	675	525	350	90	1800
80 x 10	1	1000	1000	975	725	550	400	65	1300
80 x 10	2	1000	1000	1000	850	650	350	90	2300
100 x 10	1	1000	1000	1000	850	650	400	65	1550
100 x 10	2	1000	1000	1000	975	675	350	90	2750

SBC ER Busbar supports

Peak Isc		63kA	82kA	114kA	152kA	165kA	187kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		30kA	39kA	52kA	69kA	75kA	85kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
50 x 5	1	600	500	325	175	150	-	70	600
50 x 5	2	600	500	325	175	150	100	70	1050
60 x 5	1	625	525	350	200	175	-	70	700
60 x 5	2	625	525	350	200	175	125	70	1250
80 x 5	1	625	525	350	200	175	125	70	900
80 x 5	2	625	525	350	200	175	125	70	1550
100 x 5	1	650	550	375	225	200	175	70	1100
100 x 5	2	650	550	375	225	200	175	70	1900
50 x 10	1	1000	1000	650	250	200	150	70	850
50 x 10	2	1000	1000	650	250	200	150	70	1550
60 x 10	1	1000	1000	675	275	225	175	70	1050
60 x 10	2	1000	1000	675	275	225	175	70	1850
80 x 10	1	1000	1000	700	300	250	175	70	1300
80 x 10	2	1000	1000	700	300	250	175	70	2300
100 x 10	1	1000	1000	725	325	275	175	70	1550
100 x 10	2	1000	1000	725	325	275	175	70	2750
120 x 10	1	1000	1000	725	350	275	200	70	1900
120 x 10	2	1000	1000	725	350	275	200	70	3350

SBE 44 Busbar supports

Peak Isc		10kA	15kA	24kA	38kA	48kA	63kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		6kA	9kA	12kA	19kA	23kA	30kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
15 x 3	1	950	625	400	250	175	-	35	160
15 x 5	1	1000	825	500	300	175	-	35	220
20 x 5	1	1000	1000	675	300	175	-	35	280
20 x 8	1	1000	1000	775	300	175	-	35	370
32 x 5	1	1000	1000	675	250	170	-	35	410

SBP 44 Busbar supports

Peak Isc		10kA	15kA	24kA	48kA	63kA	82kA	space between phases	in cabinet 45° C bars 80° C
Rms Isc		6kA	9kA	12kA	23kA	30kA	39kA		
Bar (mm)	No.	Max. L (distance between centres of sets of supports in mm)						d (mm)	Iz (A)
20 x 5	1	1000	1000	800	350	200	125	50	280
25 x 5	1	1000	1000	1000	350	200	125	50	330
32 x 5	1	1000	1000	1000	350	200	120	50	390
25 x 10	1	1000	1000	1000	350	200	125	50	500
30 x 10	1	1000	1000	1000	350	200	120	50	580
32 x 10	1	1000	1000	1000	350	200	120	50	610

SANS 10142-1:2017

Edition 2

Single-core PVC insulated cables, unarmoured, with or without sheath.

(SANS 1507-3) Current-carrying capacity copper conductors.

Installation method 3 (*clipped direct*).

Cable current ratings				
Conventional rated thermal current (A)	Copper conductor section			
	Cable		Busbars	
	No.	Section (mm) ²	No.	Dim (mm)
15 A	1x	1.0	-	-
20 A	1x	1.5	-	-
27 A	1x	2.5	-	-
37 A	1x	4.0	-	-
47 A	1x	6.0	-	-
65 A	1x	10	-	-
87 A	1x	16	-	-
115 A	1x	25	-	-
140 A	1x	35	-	-
180 A	1x	50	1	15 x 5
235 A	1x	70	1	20 x 5
280 A	1x	95	-	-
330 A	1x	120	1	30 x 5
380 A	1x	150	-	-
433 A	1x	185	-	-
510 A	1x	240	-	-
590 A	2x	150	-	-
630 A	2x	185	1	30 x 10
740 A	2x	240	1	40 x 10
800 A	-	-	1	40 x 10
1000 A	-	-	1	50 x 10
1250 A	-	-	1	60 x 10
1600 A	-	-	1	80 x 10
2000 A	-	-	1	100 X 10

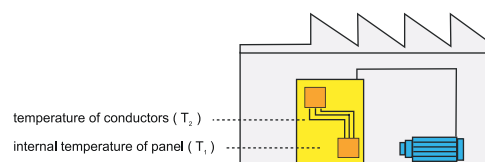
WÖHNER busbar support fault level chart						
I _{cc} kA pk	42	52.7	63	73.5	84	
I _{cc} kA eff. 1 s	20	25	30	35	40	
01485/01495/01356		D = 60 (mm)				
E	20 X 5	400	250	-	-	-
	30 x 5	600	350	250	-	-
	20 x 10	470	300	-	-	-
	30 x 10	650	600	450	300	250
01231("H" Profile)		D = 60 (mm)				
"H" Profile		1100	1000	770	700	550
01479		D = 100 (mm)				
E	30 X 10	600	400	-	-	-
	40 x 10	600	500	-	-	-
	50 x 10	600	500	-	-	-
	60 x 10	650	600	600	-	-
01230		D = 185 (mm)				
E	60 X 10	600	600	500	-	-
	80 x 10	600	600	500	-	-
	100 x 10	600	600	500	-	-
	120 x 10	600	600	500	-	-
	"H" Profile	600	600	600	600	600

Current rating of non-insulated flat busbar												
A correction factor complying with DIN 43671 can be determined for flat busbars using the table below. The factor is dependant on the relevant ambient temperature. This correction factor should be taken into account when conditions change and loading is continuous.												
	busbar temperature											
	50°C	55°C	60°C	65°C	70°C	75°C	80°C	85°C	90°C	100°C	110°C	120°C
air temp	correction factor k ₂											
20°C	1.00	1.15	1.20	1.25	1.35	1.42	1.48	1.55	1.62	1.70	1.80	1.90
25°C	0.95	1.05	1.1	1.20	1.25	1.35	1.40	1.45	1.55	1.65	1.75	1.85
30°C	0.80	0.92	1.0	1.10	1.15	1.25	1.32	1.40	1.45	1.55	1.70	1.80
35°C	0.70	0.80	0.90	1.00	1.10	1.15	1.25	1.30	1.40	1.50	1.60	1.70
40°C	0.55	0.66	0.80	0.90	1.00	1.10	1.15	1.25	1.30	1.45	1.55	1.65
45°C	0.40	0.52	0.65	0.75	0.90	0.95	1.05	1.15	1.25	1.35	1.50	1.60
50°C	0.30	0.35	0.50	0.65	0.80	0.90	1.00	1.05	1.15	1.30	1.40	1.55
55°C	—	—	0.35	0.55	0.65	0.75	0.90	0.95	1.05	1.20	1.35	1.45
60°C	—	—	—	0.30	0.50	0.65	0.75	0.85	0.95	1.10	1.25	1.40
30 x 10 busbar can under normal operating conditions be loaded with 630A. If the load is increased to 800 A - it represents a 1.27 increase factor. With 35°C ambient, one can expect between 80°C and 85°C busbar temperature												

Δ T (°K) calculation

eg.

T₁ (internal panel temperature) 50°C
T₂ (temperature of conductor) 100°C

temperature rise of conductor = T₂ - T₁ = Δ T(°K)eg. T₂ (100°C) - T₁ (50°C) = select from 50°K

IP rating chart

The system provides a classification from solid objects to liquids in relation to electrical equipment and enclosures.
IP rating consists of **2 codes** (i.e. IP65).

First digit	Protection against solid objects	Second digit	Protection against moisture
0	No protection	0	No protection
1	Protection against objects >50mm	1	Protection against vertically dripping water
2	Protection against objects >12.5mm	2	Protection against spraying water ±15° from vertical
3	Protection against objects >2.5mm	3	Protection against spraying water ±60° from vertical
4	Protection against objects 1.0mm	4	Protection against spraying water ±90° from vertical
5	Dust protection (limited ingress)	5	Protection against low pressure water jets
6	Dust tight protection	6	Protection against high pressure water jets
		7	Protection against temporary immersion (15cm and 1cm)
		8	Protection against continuous immersion under pressure

NB: IP69K refers to the product ability to resist ingress of high temperature (steam) and high pressure washdowns normally used to sanitise equipment.

IK rating chart

Degree of protection against mechanical wear and tear.
IK rating consists of **2 codes** (i.e. IK06).

Code		Height (cm)	Impact Energy (J)
01	0.2kg	7.5	0.15
02		10	0.20
03		17.5	0.35
04		25	0.50
05	0.5kg	35	0.70
06		20	1
07		40	2
08	1.7kg	29.5	5
09	5kg	20	10
10		40	20

Conversion tables

Length	From:	to	meter	foot	inch
	1 meter (m)		1	3.281	39.37
	1 inch (in / ")		0.0254	0.08378	1
	1 foot (ft / ')		0.3048	1	12
Weight	From:	to	kg	lb	oz
	1 kilogram (kg)		1	2.205	35.27
	1 pound (1b)		0.454	1	16
	1 ounce (oz)		0.028	0.0625	1
Pressure	From:	to	n/m²	bar	PSI
	1 n/m² or pascal		1	0.00001	0.000145
	1 bar		100000	1	14.504
	1 PSI		6849.76	0.0689476	1

Power Factor Correction

Individual motor compensation

Capacitor rating in kVAr			To improve P.F to 0.95 or better at all loads			
motor kW	2 pole 3000rpm	4 pole 1500rpm	6 pole 1000rpm	8 pole 750rpm	10 pole 600rpm	12 pole 500rpm
1.5	0.5	1	1	1.5	1.5	1.5
2.2	0.75	1	1	1.5	1.5	1.5
4	1.0	1.5	2	2.5	3	3
5.5	1.5	2	3	3.5	4	4
7.5	2.5	3	3.5	4	5	5
11	4	4	4.5	6	6	6
15	5	5	6	8	8	10
18.5	6	6	7	8	10	12
22	7	8	9	10	12	14
30	9	10	11	14	14	16
37	12	12	14	16	18	18
45	14	14	15	18	20	22
55	15	16	18	20	22	26
63	16	18	20	22	24	28
75	20	22	24	26	28	32
90	25	26	30	32	35	30
110	28	30	32	35	38	45
132	30	32	32.6	38	45	60

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41AC 4016.....	B-36	42700001.....	H-23	450250.....	L-5	47594.....	L-54	4829 0184.....	E-15	49041N.....	L-51
41AC 4025.....	B-36	42710001.....	H-23	450260.....	L-6	476222.....	L-7	4829 0185.....	E-15	49045N.....	L-51
41AC 4040.....	B-36	42720001.....	H-23	450300.....	L-6	476223.....	L-7	4829 0189.....	E-14	49090N.....	L-51
41AC 4063.....	B-36	42740001.....	H-23	450330.....	L-5	476224.....	L-7	4829 0195.....	E-14	49091N.....	L-51
41AC 4080.....	B-36	428.12563.....	I-4	450PV4-D-O-CP.....	A-34	476229.....	L-7	4829 0196.....	E-14	49095N.....	L-51
41AC 4120.....	B-36	428.12566.....	I-4	450PV4-O-CP.....	A-34	476232.....	L-7	4829 0200.....	E-12	491107.....	B-50
41AC 4160.....	B-36	428.12567.....	I-4	450S-5SPLR-O.....	A-33	476233.....	L-7	4829 0203.....	E-13	491110.....	B-50
41AC 7016.....	B-37	428.1663.....	I-3	451019.....	L-6	476234.....	L-7	4829 0204.....	E-13	491113.....	B-50
41AC 7020.....	B-37	428.1666.....	I-3	451250.....	B-49	476239.....	L-7	4829 0222.....	E-13	491115.....	B-50
41AC 7025.....	B-37	428.1667.....	I-3	451260.....	B-49	476242.....	L-7	4829 0280.....	E-12	491120.....	B-50
41AC 7040.....	B-37	428.3263.....	I-3	451270.....	B-49	476243.....	L-7	4829 0281.....	E-12	491125.....	B-50
41AC 7063.....	B-37	428.3266.....	I-3	451275.....	B-49	476244.....	L-7	4829 0500.....	E-12	491130.....	B-50
41AC 7080.....	B-37	428.32664.....	I-5	452.1663.....	I-5	476249.....	L-7	4829 0501.....	E-12	491135.....	B-50
41AC 7120.....	B-37	428.3267.....	I-3	452.1666.....	I-5	476252.....	L-7	4829 0502.....	E-12	491140.....	B-50
41AC 7160.....	B-37	428.6363.....	I-4	452.1667.....	I-5	476253.....	L-7	4829 0503.....	E-12	491145.....	B-50
41AC 9016.....	B-37	428.6366.....	I-4	452.3263.....	I-5	476254.....	L-7	4829 0504.....	E-12	491155.....	B-50
41AC 9025.....	B-37	428.6367.....	I-4	452.3266.....	I-5	476259.....	L-7	4829 0505.....	E-12	49140N.....	L-51
41AC 9040.....	B-37	42908.....	L-55	452.3267.....	I-5	476262.....	L-8	4829 0506.....	E-12	49141N.....	L-51
41AC 9063.....	B-37	4300-3127.....	M-3	45550001.....	H-23	476263.....	L-8	4829 0555.....	E-12	491601.....	B-48
41AC 9080.....	B-37	4300-3128.....	M-3	457.1663.....	I-5	476264.....	L-8	4829 0556.....	E-12	491602.....	B-48
41AC 9120.....	B-37	4300-3129.....	M-3	457.1666.....	I-5	476269.....	L-8	4829 0557.....	E-12	491604.....	B-48
41AC 9160.....	B-37	4300-3136.....	M-3	457.1667.....	I-5	476272.....	L-8	4829 0558.....	E-12	491605.....	B-48
41F-J1.....	J-26	4300-3137.....	M-3	457.3263.....	I-5	476273.....	L-8	4829 0574.....	E-12	491606.....	B-48
41F-J1B.....	J-26	4300-3139.....	M-3	457.3266.....	I-5	476274.....	L-8	4829 0575.....	E-12	491610.....	B-48
41F-J1R.....	J-26	4300-3146.....	M-3	457.3267.....	I-5	476279.....	L-8	4829 0577.....	E-12	491615.....	B-48
42-5003.....	E-24	4300-3149.....	M-3	46.030.1253.1.....	I-11	476282.....	L-6	4829 0581.....	E-15	491620.....	B-48
42-5005.....	E-24	4300-3153.....	M-3	46.031.4553.1.....	I-11	476283.....	L-6	4829 0583.....	E-15	491625.....	B-48
42-5009.....	E-24	4300-3154.....	M-3	46.031.5053.1.....	I-11	476284.....	L-8	4829 0584.....	E-15	491630.....	B-48
42-5011.....	E-24	4300-4661.....	M-3	46.032.4553.1.....	I-11	476289.....	L-8	4829 0593.....	E-15	491635.....	B-48
420000.....	B-46	43040001.....	H-23	46.032.5053.1.....	I-11	476292.....	L-8	4829 0594.....	E-15	491650.....	B-48
420001.....	B-46	43049024.....	J-10	46.050.1253.1.....	I-11	476293.....	L-8	4829 0595.....	E-15	491655.....	B-48
420002.....	B-46	43049024+.....	J-10	46.051.4553.1.....	I-11	476294.....	L-8	4829 0597.....	E-15	491730.....	B-50
420004.....	B-46	43050001.....	H-23	46.051.5053.1.....	I-11						

491830.....	B-50	5025 5100.....	L-43	518004.....	L-10	553291100040.....	J-4	57.535.9055.0.....	L-3	623380120040.....	J-5
491835.....	B-50	5025 5101.....	L-43	518005.....	L-10	553292200040.....	J-4	57.570.0155.0.....	L-3	623380240040.....	J-5
49190N.....	L-51	5025 5105.....	L-43	518006.....	L-10	553415.....	L-11	57.904.5355.0.....	L-3	623380480040.....	J-5
49191N.....	L-51	5025 5110.....	L-43	518007.....	L-10	553480120040.....	J-4	57.910.5055.0.....	L-3	623381100040.....	J-5
49192N.....	L-52	5025 5124.....	L-43	518008.....	L-10	553480240040.....	J-4	570.0016.....	I-3	623382400040.....	J-5
49193N.....	L-52	5025 5125.....	L-43	518009.....	L-10	553480360040.....	J-4	570.0032.....	I-3	623384000040.....	J-5
491940.....	B-48	5025 5126.....	L-43	519000.....	L-10	553480480040.....	J-4	570.0116.....	I-3	623390120040.....	J-5
491945.....	B-48	5025 5128.....	L-43	519001.....	L-10	553480600040.....	J-4	570.0132.....	I-3	623390240040.....	J-5
49194N.....	L-52	5028 0410.....	L-43	519002.....	L-10	553481100040.....	J-4	570.5052.....	I-10	623390480040.....	J-5
49195.....	L-52	503.12586-01.....	I-7	519003.....	L-10	553482400040.....	J-4	570.6001.....	I-10	623391100040.....	J-5
49196.....	L-54	503.12587-01.....	I-7	519004.....	L-10	553490120040.....	J-4	570.90163.....	I-2	623392200040.....	J-5
492003.....	B-49	503.1683.....	I-7	519005.....	L-10	553490240040.....	J-4	570.90164.....	I-2	63-001417-002.....	B-59
492004.....	B-49	503.1686.....	I-7	519006.....	L-10	553490360040.....	J-4	570.90165.....	I-2	63-002354-001.....	B-60
492006.....	B-49	503.1687.....	I-7	519007.....	L-10	553490480040.....	J-4	570.90324.....	I-2	63-028802-003.....	B-59
492008.....	B-49	503.3283.....	I-7	519008.....	L-10	553490600040.....	J-4	570.90325.....	I-2	63-073821-001.....	B-60
492009.....	B-49	503.3286.....	I-7	519009.....	L-10	553491100040.....	J-4	570.9063.....	I-2	63-073822-003.....	B-60
492010.....	B-49	503.3287.....	I-7	519514/.....	L-10	553492200040.....	J-4	570.9125.....	I-2	63-073822-004.....	B-60
492011.....	B-49	503.6386.....	I-7	519524/.....	L-10	56.135.1055.0.....	L-3	570.M0125.....	I-3	63-500600-601.....	B-59
492022.....	B-49	503.6387.....	I-7	519534/.....	L-10	56.170.1055.0.....	L-3	570.M0163.....	I-3	63-500600-611.....	B-59
492023.....	B-49	50415.....	D-33	51C2.....	F-6	56.197.1055.0.....	L-3	572.0120.....	I-6	63-500600-621.....	B-59
492024.....	B-49	50418.....	D-33	520.906S033401.....	K-19	56.198.1055.0.....	L-3	572.0200.....	I-6	63-500700-711.....	B-60
492037.....	B-49	50424.....	D-33	520.917S033401.....	K-19	56.199.1055.0.....	L-3	572.0220.....	I-6	63-500700-721.....	B-60
492038.....	B-49	50427.....	D-33	520.917S043401.....	K-19	56.202.0055.0.....	L-2	572.0310.....	I-6	63-500750-703.....	B-60
492039.....	B-49	505.1683.....	I-6	520.930S033401.....	K-19	56.202.0055.6.....	L-2	58.503.0055.0.....	L-1	63-811628-001.....	B-60
492040.....	B-49	505.1686.....	I-6	520.930S043401.....	K-19	56.202.9055.0.....	L-2	58.503.0055.6.....	L-1	63-811685-061.....	B-59
492117.....	B-49	505.1687.....	I-6	520.931S033401.....	K-19	56.203.0055.0.....	L-2	58.503.2055.0.....	L-1	63-811686-061.....	B-59
492118.....	B-49	505.3283.....	I-6	520.931S043401.....	K-19	56.203.0055.6.....	L-2	58.503.9055.0.....	L-1	63-811748-021.....	B-59
492119.....	B-49	505.3286.....	I-6	520.932S033401.....	K-19	56.203.5055.0.....	L-2	58.504.0055.0.....	L-1	63-811750-061.....	B-59
492120.....	B-49	505.32864.....	I-5	520.932S043401.....	K-19	56.203.5155.0.....	L-2	58.504.0055.6.....	L-1	63-811761-021.....	B-59
492121.....	B-49	505.3287.....	I-6	520.933S033401.....	K-19	56.203.7055.0.....	L-2	58.504.2055.0.....	L-1	63-823191-021.....	B-59
492122.....	B-49	505.6383.....	I-6	520.933S043401.....	K-19	56.203.9055.0.....	L-2	58.504.5055.0.....	L-1	63-823234-041.....	B-59
492123.....	B-49	505.6386.....	I-6	520.934S043401.....	K-19	56.203.9355.0.....	L-2	58.504.5155.0.....	L-1	63-823256-121.....	B-59
492124.....	B-49	505.6387.....	I-6	520.940S033401.....	K-19	56.206.0055.0.....	L-2	58.504.7055.0.....	L-1	63-823259-141.....	B-59
492137.....	B-49	51-001312-001.....	B-59	520.941S033401.....	K-19	56.206.0055.6.....	L-2	58.504.9055.0.....	L-1	63-823267-001.....	B-59
492138.....	B-49	51-500600-108.....	B-59	520.942S033401.....	K-19	56.206.9055.0.....	L-2	58.506.0055.0.....	L-1	63-823427-002.....	B-59
492139.....	B-49	51-500700-109.....	B-60	520.943S033401.....	K-19	560.1683.....	I-6	58.506.0055.6.....	L-1	63020.....	L-50
492140.....	B-49	51-930160-011.....	B-59	520.954S033401.....	K-19	560.1686.....	I-6	58.506.9055.0.....	L-1	63040N.....	L-50
492202.....	B-48	51-930499-011.....	B-59	520.955S033401.....	K-19	560.1687.....	I-6	58.510.0055.0.....	L-1	63070.....	L-50
492205.....	B-48	5120025.....	B-45	525361.....	L-9	560.3283.....	I-6	58.510.0055.6.....	L-1	63090.....	L-50
492210.....	B-48	5120050.....	B-45	525362.....	L-9	560.3286.....	I-6	58.510.9055.0.....	L-1	64040.....	L-51
492215.....	B-48	5120063.....	B-45	525363.....	L-9	560.3287.....	I-6	590.FEM2003.....	I-7	64050.....	L-51
492220.....	B-48	5120100.....	B-45	525371.....	L-9	561.1683.....	I-6	590.FEM3203.....	I-7	64143-SBS.....	L-50
492225.....	B-48	5120125.....	B-45	525372.....	L-9	561.1686.....	I-6	590.FEM6303.....	I-7	64147-SBS.....	L-50
492230.....	B-48	5120160.....	B-45	525373.....	L-9	561.16866.....	I-6	59002N.....	L-52	64193-SBS.....	L-50
492250.....	B-48	5120200.....	B-45	525381.....	L-9	561.1687.....	I-6	59010N.....	L-52	64197-SBS.....	L-50
492255.....	B-48	5120250.....	B-45	525382.....	L-9	561.16876.....	I-6	59020N.....	L-52	64293-SBS.....	L-50
492262.....	B-48	5120315.....	B-45	525383.....	L-9	561.3283.....	I-6	59030N.....	L-52	6450XE.....	L-15
49240N.....	L-51	5120400.....	B-45	528.9010033411.....	K-19	561.3286.....	I-6	59042N.....	L-51	6454XE.....	L-15
49290N.....	L-51	5120500.....	B-45	528.9120033411.....	K-19	561.32864.....	I-5	59050N.....	L-51	65000.....	L-52
49293.....	L-54	5120630.....	B-45	528.9140033411.....	K-19	561.32866.....	I-6	5TH23000.....	J-13	65010.....	L-52
49294.....	L-54	513.1653.....	I-4	528.9150033411.....	K-19	561.3287.....	I-6	5TH24000.....	J-14	65020.....	L-52
49347N.....	L-51	513.1653T.....	I-4	528.9170033411.....	K-19	561.32876.....	I-6			65030.....	L-52
49397N.....	L-51	513.1653TS.....	I-4	528.9300033411.....	K-19	561.6383.....	I-6			653180120000.....	J-7
4941 3602.....	B-12	513.1656.....	I-4	528.9310033411.....	K-19	561.6386.....	I-6	600110.....	J-28	653180120300.....	J-7
4941 3723.....	B-12	513.1656T.....	I-4	528.9320033411.....	K-19	561.63866.....	I-6	600111.....	J-28	653180240000.....	J-7
4941 3724.....	B-12	513.1656TS.....	I-4	528.9330033411.....	K-19	561.6387.....	I-6	600112.....	J-28	653180240300.....	J-7
4941 3740.....	B-12	513.1657.....	I-4	528.9400033411.....	K-19	561.63876.....	I-6	600113.....	J-28	653180480000.....	J-7
4941 3741.....	B-12	513.1657T.....	I-4	528110.....	L-9	563280120040.....	J-5	600114.....	J-28	653180480300.....	J-7
4942 3723.....	B-12	513.1657TS.....	I-4	540.941S052401.....	K-20	563280240040.....	J-5	600115.....	J-28	653181100000.....	J-7
49498.....	L-54	513.3253.....	I-4	540.943S052401.....	K-20	563280480040.....	J-5	600116.....	J-28	653181100300.....	J-7
4950 0011.....	B-12	513.3253T.....	I-4	540.955S052401.....	K-20	563281100040.....	J-5	60100.....	M-2	653182400000.....	J-7
4950 0012.....	B-12	513.3253TS.....	I-4	54013.....	L-51	563282400040.....	J-5	601280120040.....	J-6	653182400300.....	J-7
4950 0013.....	B-12	513.3256.....	I-4	54014.....	L-51	563290120040.....	J-5	601280240040.....	J-6	653184000000.....	J-7
4950 0014.....	B-12	513.3256T.....	I-4	5406C.....	L-15	563290240040.....	J-5	601280360040.....	J-6	653184000300.....	J-7
4950 0031.....	B-12	513.3256TS.....	I-4	548.12586.....	I-6	563290480040.....	J-5	601280480040.....	J-6	653190120000.....	J-7
4950 6030.....	B-12	513.3257.....	I-4	548.12587.....	I-6	563290600040.....	J-5	601280600040.....	J-6	653190120300.....	J-7
4950 6050.....	B-12	513.3257T.....	I-4	548.9300152401.....	K-20	563291100040.....	J-5	601281100040.....	J-6	653190240000.....	J-7
4950 6080.....	B-12	513.3257TS.....	I-4	548.9310152401.....	K-20	563292200040.....	J-5	601282400040.....	J-6	653190240300.....	J-7
4950 6120.....	B-12	513.6353T.....	I-4	548.9320152401.....	K-20	563480120040.....	J-5	601284000040.....	J-6	653190480000.....	J-7
4950 6200.....	B-12	513.6356T.....	I-4	548.9330152401.....	K-20	563480240040.....	J-5	601290120040.....	J-6	653190480300.....	J-7
495049.....	L-9	513.6357T.....	I-4	55011.....	E-21	563480480040.....	J-5	601290240040.....	J-6	653191100000.....	J-7
495059.....	L-9	517000.....	L-10	55012.....	E-21	563481100040.....	J-5	601290360040.....	J-6	653191100300.....	J-7
495099.....	L-9	517001.....	L-10	55013.....	E-21	563482400040.....	J-5	601290480040.....	J-6	653192200000.....	J-7
495109.....	L-9	517002.....	L-10	550S-5SPLR-O.....	A-33	563490120040.....	J-5	601290600040.....	J-6	653192200300.....	J-7
495219.....	L-9	517003.....	L-10	551280120000.....	J-3	563490240040.....	J-5	601291100040.....	J-6	654.0021.....	H-1
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49613A.....	L-9	517005.....	L-10	551281100000.....	J-3	563490600040.....	J-5	601380120040.....	J-6	654.0051.....	I-9
496300.....	L-9	517006.....	L-10	551282400000.....	J-3	563491100040.....	J-5	601380240040.....	J-6	654.0080.....	H-1
496310.....	L-9	517007.....	L-10	551290120000.....	J-3	563492200040.....	J-5	601380360040.....	J-6	654.0085.....	H-1
498559.....	L-7	517008.....	L-10	551290240000.....	J-3	568.1683.....	I-7	601380480040.....	J-6	654.0091.....	I-10
49950-015.....	L-50	517009.....	L-10	551290480000.....	J-3	568.1686.....	I-7	601380600040.....	J-6	654.0092.....	I-10
49951-023.....	L-50	518.12553T.....	I-4	551291100000.....	J-3	568.1687.....	I-7	601381100040.....	J-6	654.0120.....	I-6
		518.12556T.....	I-4	551292200000.....	J-3	568.3283.....	I-7	601382400040.....	J-6	654.0358.....	I-8
		518.12557T.....	I-4	551480120000.....	J-3	568.3286.....	I-7	601384000040.....	J-6	654.0359.....	I-8
		518.1653T.....	I-4	551480240000.....	J-3	568.3287.....	I-7	601390120040.....	J-6	654.0360.....	I-8
		518.1653TS.....	I-4	551481100000.....	J-3	568.6383.....	I-7	601390240040.....	J-6	654.0362.....	I-8
		518.1656T.....	I-4	551482400000.....	J-3	568.6386.....	I-7	601390360040.....	J-6	654.0363.....	I-8
		518.1656TS.....	I-4	551490120000.....	J-3	568.6387.....	I-7				

656.0926-000	I-9	692.919007141	K-21	73.700.0853.0	I-12	80189-00	I-20	9022SMA	J-6	92.031.9658.0	I-12
657.0121	I-9	692.930007141	K-21	73.710.0753.0	I-12	80189-01	I-20	9023SMA	J-6	92.032.9658.0	I-12
657.0936-000	I-9	69784	D-30	73.710.0853.0	I-12	80189-02	I-20	90240	L-49	92.931.3053.0	I-12
657.0938-000	I-9	69785	D-30	73.800.0853.0	I-13	80189-03	I-20	9026SMA	J-6	92.932.3053.0	I-12
658.0950-000	I-9	69786	D-30	73.800.2453.0	I-13	80190-00	I-20	90270N	L-49	920244	B-68
66010N	L-50	69787	D-30	73.800.4253.0	I-13	80190-01	I-20	9027SMA	J-6	920300	B-68
66020N	L-50	69788	D-30	73.800.7253.0	I-13	80190-02	I-20	90290N	L-49	9203SMA	J-5
66040N	L-50	69789	D-30	73.810.0853.0	I-13	80190-03	I-20	90310	L-49	9213SMA	J-5
66070N	L-50	699.913011010	K-21	73.810.2453.0	I-13	80190-04	I-20	90320	L-49	9225HD4BBL	H-20
66090N	L-50	699.913014010	K-21	73.810.4253.0	I-13	80191-00	I-20	90340	L-49	9233SMA	J-5
66502	D-26	699.913021110	K-21	73.810.7253.0	I-13	8025HA2BPT	H-20	90343	D-30	9238HA2BPT	H-20
66503	D-26	699.913024110	K-21	742F 2111	B-34	8025HD4BBL	H-20	90345	D-30	927224	B-68
66504	D-26	699.915011010	K-21	75049	L-56	805.3335	I-8	90347	D-30	927244	B-68
66512	D-26	699.915014010	K-21	75098	L-56	805.3337	I-8	90351	D-29	929121	B-68
66513	D-26	699.915021110	K-21	75099	L-56	8400008WPYG	L-56	90352	D-29	929221	B-68
66514	D-26	699.915024110	K-21	7505-SSPLR-O	A-33	8400017WPYG	L-56	90353	D-29	9311	J-1
66542	D-26	699.931011010	K-21	76.320.0729.0	I-12	8400038WPYG	L-56	90354	D-29	9323 2006	B-40
66543	D-26	699.931014010	K-21	76.320.0753.0	I-12	8400042WPYG	L-56	90358	D-29	9323 2008	B-40
66544	D-26	699.931021110	K-21	76.321.0729.0	I-12	8400051WPYG	L-56	90360	D-29	9323 4006	B-40
66552	D-26	699.931024110	K-21	76.321.0753.0	I-12	8400072WPYG	L-56	90361	D-29	9323 4008	B-40
66553	D-26			76.350.0736.1	I-12	8400073WPYG	L-56	90362	D-29	9323 4010	B-40
66554	D-26			76.350.0760.1	I-12	8400083WPYG	L-56	90363	D-29	9323 4012	B-40
668280120000	J-7	70.300.0640.0	I-13	76.352.0736.1	I-12	8400092WPYG	L-56	90367	D-30	9323 4016	B-40
668280240000	J-7	70.300.1040.0	I-13	76.352.0760.1	I-12	8400094WPYG	L-56	90368	D-30	9353 2006	B-40
668281100000	J-7	70.300.1640.0	I-13	78010-00	I-19	8401008WPYG	L-56	90369	D-30	9353 2008	B-40
668282400000	J-7	70.300.2440.0	I-13	78111-00	I-19	8401010WPYG	L-56	90370	D-30	9354 4006	B-40
668290120000	J-7	70.300.3253.0	I-13	78176-01	I-19	8409 1600	B-34	90370N	L-49	9354 4008	B-40
668290240000	J-7	70.300.4840.0	I-13	78180-00	I-19	842112	L-56	90371	D-30	9354 4010	B-40
668291100000	J-7	70.310.0640.0	I-13	78180-02	I-19	8499 0001	B-34	90372	D-30	9354 4012	B-40
672.1100	I-8	70.310.1040.0	I-13	78181-00	I-19	8499 5022	B-34	90373	D-30	9354 4016	B-40
672.1101	I-8	70.310.1640.0	I-13	78181-05	I-19	8499 5032	B-34	90375	D-30	93547	D-22
672.1200	I-8	70.310.2440.0	I-13	78184-00	I-19	8499 6120	B-34	90376	D-30	93558	D-22
672.1300	I-8	70.310.3253.0	I-13	78220-00	I-19	8499 6130	B-34	90390N	L-49	93621	D-21
672.1301	I-8	70.310.4840.0	I-13	78220-01	I-19	850600001	H-23	90402	D-29	93625	D-21
672.2002	I-8	70.320.0628.0	I-14	78220-02	I-19	850800001	H-23	90403	D-29	9364 4006	B-40
672.2004	I-8	70.320.1028.0	I-14	78224-00	I-19	851200001	H-23	90404	D-29	9364 4008	B-40
672.2008	I-8	70.320.1628.0	I-14	78224-01	I-19	851500001	H-23	90420	L-49	9364 4010	B-40
672.2012.1102	I-8	70.320.2428.0	I-14	78224-02	I-19	852000001	H-23	90440N	L-49	9364 4012	B-40
672.2016.1102	I-8	70.320.3228.0	I-14	78234-00	I-19	852500001	H-23	90470	L-49	9364 4016	B-40
672.2300	I-8	70.320.4828.0	I-14	78235-00	I-19	854000001	H-23	9048SMA	J-6	93A050124	K-14
672.3100	I-8	70.331.0635.1	I-14	78236-00	I-19	860002400000	J-8	90490N	L-49	93A050128	K-14
672.3200	I-8	70.331.1035.1	I-14	78290-00	I-19	863000240000	J-8	9049SMA	J-6	93ACCO230	K-14
672.3300	I-8	70.331.1635.1	I-14	78291-00	I-19	863082400000	J-8	90502	D-29	9402SPA	J-4
672.3302	I-8	70.331.2435.1	I-14	78297-00	I-19	86P1 1017	B-34	90503	D-29	9404SPA	J-4
672.4024.1102	I-8	70.344.4835.1	I-14	78298-00	I-19	86P1 1026	B-34	90504	D-29	94056	E-21
672.4032.1102	I-8	70.350.0635.1	I-14	78299-00	I-19	86P1 1032	B-34	90512	D-30	94058	E-21
672.4116	I-8	70.350.1035.1	I-14	78300-00	I-19	86P1 1041	B-34	90520N	L-49	94060	E-21
672.4216	I-8	70.350.1635.1	I-14	78301-00	I-19	86P1 1064	B-34	90540	L-49	94062	E-21
672.4316	I-8	70.350.2435.1	I-14	78303-00	I-19	86P2 2081	B-34	90551	D-30	941110	B-67
672.5048.1102	I-8	70.350.3235.1	I-14	78304-00	I-19	86P2 2100	B-34	90552	D-30	9412SMA	J-4
672.5116	I-8	70.350.4835.1	I-14	78304-01	I-19	86P2 2125	B-34	90553	D-30	941310	B-67
672.5316	I-8	70.352.0635.1	I-14	78307-00	I-19	86P2 2160	B-34	90554	D-30	9414SMA	J-4
672.5416	I-8	70.352.1035.1	I-14	78308-00	I-19	875.4303	I-10	90557	D-30	9432SMA	J-4
672.5616	I-8	70.352.1635.1	I-14	78309-00	I-19	88900N	L-53	90563	D-29	9434SMA	J-4
672290124300	J-7	70.352.2435.1	I-14	79016	M-2	88901	L-53	90570N	L-49	94732	D-34
672290244300	J-7	70.352.3235.1	I-14	79035	M-2	88902	L-53	90590	L-49	94734	D-34
680040040	B-73	70.352.4835.1	I-14	79050	M-2	88903	L-53	90610	D-30	94735	D-34
680040042	B-73	70.372.0635.1	I-14	79070	M-2	88904	L-53	90612	D-30	94736	D-34
680063040	B-73	70.405.0653.0	I-13	79448	L-45	88913	L-53	90750	D-33	94P4SPA	J-4
680063042	B-73	70.405.1053.0	I-13	79449	L-45	88916	L-53	90751	D-33	95.101.0800.0	I-13
680100040	B-73	70.405.1653.0	I-13	79840-00	I-19	88918	L-53	90752	D-33	9503 4004	B-39
680100042	B-73	70.405.2453.0	I-13	79844-00	I-19	889202400000	J-29	90753	D-33	9503 4006	B-39
680130042	B-73	70.415.0653.0	I-13	79846-00	I-19	88945	L-53	90754	D-33	9503 4008	B-39
680200040	B-73	70.415.1053.0	I-13	79847-00	I-19			90755	D-33	9503 4010	B-39
680200042	B-73	70.415.1653.0	I-13					90821	D-29	9503 4012	B-39
680320040	B-73	70.415.2453.0	I-13					90822	D-29	9505 4006	B-39
680320042	B-73	700 015 36	M-4	80030	E-24			90823	D-29	9505 4008	B-39
680400040	B-73	70000	M-2	80031	E-24			90824	D-29	9505 4010	B-39
680400042	B-73	7038	E-20	80038	E-24			90826	D-29	9505 4012	B-39
680630040	B-73	7039	E-20	80044	E-24			90827	D-30	9505 5012	B-39
680630042	B-73	7041	E-20	80048	E-24			90828	D-30	950530	B-68
680800040	B-73	7045	E-20	80054	E-24			91.030.4953.0	I-12	950531	B-68
680800042	B-73	7047	E-20	80055	E-24			91.030.5853.0	I-12	9505SPA	J-2
681000040	B-73	7050	E-20	80057	E-24			91.030.5953.0	I-12	9506 4004	B-39
681000042	B-73	7053	E-20	80058	E-24			91.030.6053.0	I-12	9506 4006	B-39
681250040	B-73	71.320.1028.0	I-14	80061	E-24			91.921.3053.0	I-12	9506 4008	B-39
681250042	B-73	71.320.1628.0	I-14	80062	E-24			91.922.3053.0	I-12	9506 4010	B-39
682290124300	J-7	71.320.2428.0	I-14	80063	E-24			91.931.3053.0	I-12	9506 4012	B-39
682290244300	J-7	71.331.1035.1	I-14	80064	E-24			91.931.9053.0	I-12	9506 5012	B-39
686.204	H-1	71.331.1635.1	I-14	80065	E-24			91.931.9153.0	I-12	9509 4013	B-39
686.205	H-1	71.331.2435.1	I-14	80067	E-24			91.932.3053.0	I-12	9509 5020	B-42
686.206	H-1	71.350.1035.1	I-14	80068	E-24			91.932.9053.0	I-12	9509 5040	B-42
686.207	H-1	71.350.1635.1	I-14	80080	E-24			91.932.9153.0	I-12	9509 5063	B-42
686.208	H-1	71.350.2435.1	I-14	80098	E-24			91132	D-27	9509 5120	B-42
686.209	H-1	71.352.1035.1	I-14	80100	E-24			91133	D-27	9509 5160	B-42
686.210	H-1	71.352.1635.1	I-14	80100-00	I-20			91134	D-27	951115	B-67
686.211	H-1	71.352.2435.1	I-14	80100-01	I-20			91152	D-27	9513 4004	B-39
686.226	H-1	71.372.1035.1	I-14	80100-02	I-20			91153	D-27	9513 4006	B-39
686.227	H-1	71.372.1635.1	I-14	80100-04	I-20			91154	D-27	9513 4008	B-39
686.228	H-1	71.372.2435.1	I-14	8011-3	K-54			91177	D-27	9513 4010	B-39
686.229	H-1	712.911103210	K-20	80115	E-24			91179	D-27	9513 4012	B-39
686.230	H-1	712.912104210	K-20	80117	E-24			91182	D-27	9513 5012	B-39
686.231	H-1	712.913101210	K-20	80120	E-24			91183	D-27	951315	B-67
686.404	H-1	713.9301013111	K-20	80122	E-24			91202	D-27	95152SMA	J-2
686.408	H-1	713.9301015111	K-20	80147	E-24			91203	D-27	952030	B-67
686.409	H-1	713.9301016111	K-20	80149	E-24			91362	D-27	952035	B-67
686.410	H-1	713.9301017111	K-20	80151	E-24			91363	D-27	952070	B-67
686.411	H-1	713									

9523 3040.....	B-41	99.530.0000.7.....	I-11	A48-M10/31.....	L-24	AD22-22D/KY22.....	D-14	ADXNB038.....	A-13	AHASP01-5A.....	C-12
9523 3063.....	B-41	99.532.0000.7.....	I-11	A48-M12.....	L-23	AD22-22DRG02.....	D-15	ADXNB03824.....	A-13	AHBP04M1-5A.....	C-11
9523 3080.....	B-41	9902002409.....	J-8	A48-M16.....	L-23	AD22-22DRG11.....	D-15	ADXNB045.....	A-13	AHBP06E1-5A.....	C-11
9523 3100.....	B-41	9902002459.....	J-8	A48-M20.....	L-23	AD22-22DRG22.....	D-15	ADXNB04524.....	A-13	AHBP06M1-5A.....	C-11
9523 3120.....	B-41	9902002498.....	J-8	A5-M10.....	L-23	AD22-22DSA01.....	D-14	ADXNP012.....	A-13	AHBP08E1-5A.....	C-11
9523 3160.....	B-41	9902006009.....	J-8	A5-M12.....	L-23	AD22-22DSA02.....	D-14	ADXNP01224.....	A-13	AHBP08M1-5A.....	C-11
9523 3200.....	B-41	9902006059.....	J-8	A5-M6.....	L-23	AD22-22DSA11.....	D-14	ADXNP018.....	A-13	AHBP12M1-5A.....	C-11
9523 3250.....	B-41	9902006098.....	J-8	A5-M8.....	L-23	AD22-22DSA22.....	D-14	ADXNP01824.....	A-13	AHPCU500-RS2.....	C-11
9523 3320.....	B-41	9902023009.....	J-8	A7-M10.....	L-23	AD22-22DSA38.....	D-14	ADXNP025.....	A-13	AHPCU511-EN.....	C-11
9523 4016.....	B-41	9902023059.....	J-8	A7-M12.....	L-23	AD22-22DSB01.....	D-14	ADXNP02524.....	A-13	AHPCU511-RS2.....	C-11
9523 4025.....	B-41	9902023098.....	J-8	A7-M6.....	L-23	AD22-22DSB02.....	D-14	ADXNP030.....	A-13	AHPCU521-EN.....	C-11
9523 4040.....	B-41	9902300000.....	J-8	A7-M8.....	L-23	AD22-22DSB11.....	D-14	ADXNP03024.....	A-13	AHPCU531-EN.....	C-11
9523 4063.....	B-41	9902823007.....	J-8	AAB05W10.....	K-35	AD22-22DSB22.....	D-14	ADXNP038.....	A-13	AHPS05-5A.....	C-11
9523 4080.....	B-41	9902902499.....	J-8	AAB10W10.....	K-35	AD22-22DSB38.....	D-14	ADXNP03824.....	A-13	AHPS15-5A.....	C-11
9523 4100.....	B-41	9902906099.....	J-8	AB1/AP-3A.....	K-1	AD22-22DSG01.....	D-14	ADXNP045.....	A-13	AHRTU-ETHN-5A.....	C-12
9523 4120.....	B-41	9902922099.....	J-8	AB1/CP-3A.....	K-1	AD22-22DSG02.....	D-14	ADXNP04524.....	A-13	AK1/A0-1H.....	K-2
9523 4160.....	B-41	990454.....	L-53	AC-05-F2.....	D-37	AD22-22DSG11.....	D-14	ADXT0034.....	A-14	AK1/A0-2H.....	K-2
9523 4200.....	B-41	990506N.....	L-51	AC05-1/2.....	K-27	AD22-22DSG22.....	D-14	ADXT0060.....	A-14	AK1/A0-3H.....	K-2
9523 4250.....	B-41	990508N.....	L-53	AC05-1/4.....	K-27	AD22-22DSG38.....	D-14	ADXT0084.....	A-14	AK1/A0-4H.....	K-2
9523 4320.....	B-41	990510N.....	L-53	ACB05P10.....	K-35	AD22-22DSR01.....	D-14	ADXT0104.....	A-14	AK1/AN-1A.....	K-2
952310.....	B-67	990513N.....	L-53	ACB10P10.....	K-35	AD22-22DSR02.....	D-14	ADXT0126.....	A-14	AK1/AN-2A.....	K-2
952315.....	B-67	990514N.....	L-53	ACS3-CAADC1.....	C-21	AD22-22DSR11.....	D-14	ADXT0139.....	A-14	AK1/AP-1A.....	K-2
952341.....	B-67	990525N.....	L-53	ACS3-CAADC2.....	C-21	AD22-22DSR22.....	D-14	ADXT0165.....	A-14	AK1/AP-2A.....	K-2
9523SNA.....	J-2	990664.....	L-53	ACS3-CAADC5.....	C-21	AD22-22DSR38.....	D-14	ADXT0187.....	A-14	AK1/CN-1A.....	K-2
952515.....	B-68	990734.....	L-51	ACS3-CABDC2.....	C-21	AD22-22DSW01.....	D-14	ADXT0230.....	A-14	AK1/CN-2A.....	K-2
952520.....	B-68	990735.....	L-53	ACS3-CAEN0105.....	C-21	AD22-22DSW02.....	D-14	ADXT0311.....	A-14	AK1/CP-1A.....	K-2
953200.....	B-67	990762.....	L-52	ACS3-CAEN1105.....	C-21	AD22-22DSW11.....	D-14	ADXT0410.....	A-14	AK1/CP-2A.....	K-2
9553 3016.....	B-41	990764N.....	L-52	ACS3-CAENA000.....	C-21	AD22-22DSW22.....	D-14	ADXT0506.....	A-14	AK6/BN-1A.....	K-2
9553 3025.....	B-41	990766N.....	L-52	ACS3-CAENA105.....	C-21	AD22-22DSW38.....	D-14	ADXT0554.....	A-14	AK6/BN-2A.....	K-2
9553 3040.....	B-41	990768N.....	L-52	ACS3-CAPW1105.....	C-21	AD22-22DSY01.....	D-14	ADXTC01KIT.....	A-14	AK6/BN-3H.....	K-2
9553 3063.....	B-41	990798N.....	L-52	ACS3-CAPW2105.....	C-21	AD22-22DSY02.....	D-14	ADXTTRTU.....	A-14	AK6/BN-4H.....	K-2
9553 3080.....	B-41	990824.....	L-52	ACS3-CAPW5105.....	C-21	AD22-22DSY11.....	D-14	ADXTTTC.....	A-14	AK6/BP-1A.....	K-2
9553 3100.....	B-41	990880.....	L-52	ACS3-CAPW6105.....	C-21	AD22-22DSY22.....	D-14	AE1/AP-1A.....	K-1	AK6/BP-2A.....	K-2
9553 3120.....	B-41	990883.....	L-52	ACS3-CAPWA000.....	C-21	AD22-22DSY38.....	D-14	AE1/AP-2A.....	K-1	AK6/BP-3H.....	K-2
9553 3160.....	B-41	991000.....	L-48	ACS3-CAPWA205.....	C-21	AD22-22HZB.....	D-16	AE1/CP-1A.....	K-1	AK6/BP-4H.....	K-2
9553 4016.....	B-41	991002.....	L-48	ACS3-CAPWC000.....	C-21	AD22-22HZG.....	D-16	AE1/CP-2A.....	K-1	AK6/D2-5H.....	K-3
9553 4025.....	B-41	991004.....	L-48	ACS3-CAPWC405.....	C-21	AD22-22HZR.....	D-16	AE6/AP-3A.....	K-1	AM1/A0-1H.....	K-1
9553 4040.....	B-41	991008.....	L-48	ACS3-CAPWE000.....	C-21	AD22-22HZW.....	D-16	AE6/AP-3F.....	K-1	AM1/A0-2H.....	K-1
9553 4063.....	B-41	991010.....	L-48	ACS3-CAPWE605.....	C-21	AD22-22HZY.....	D-16	AE6/AP-4A.....	K-1	AM1/A0-3H.....	K-1
9553 4080.....	B-41	991011.....	L-48	ACS3-CNADC150.....	C-21	AD22-22MK02.....	D-15	AE6/AP-4F.....	K-1	AM1/A0-4H.....	K-1
9553 4100.....	B-41	991104.....	L-55	ACS3-CNEN2A00.....	C-21	AD22-22MK22.....	D-15	AE6/CP-3A.....	K-1	AM1/AN-1A.....	K-1
9553 4120.....	B-41	991105.....	L-55	ACS3-CNEN2C00.....	C-21	AD22-22MR02.....	D-15	AE6/CP-3F.....	K-1	AM1/AN-2A.....	K-1
9553 4160.....	B-41	991106.....	L-55	ACS3-CNEN2C00.....	C-21	AD22-22MR22.....	D-15	AE6/CP-4A.....	K-1	AM1/AP-1A.....	K-1
9594 4012.....	B-39	991107.....	L-55	ACS3-CNPW1A00.....	C-21	AD22-22SR02.....	D-15	AE6/CP-4F.....	K-1	AM1/AP-2A.....	K-1
9594 9012.....	B-39	991109.....	L-55	ACS3-CNTB0500.....	C-21	AD22-22SR22.....	D-15	AEA05P00.....	K-35	AM1/BP-1H.....	K-1
9599 4001.....	B-39	991110.....	L-55	ACS3-CRPWA000.....	C-21	AD22-22VAMB.....	D-16	AEA10P00.....	K-35	AM1/BP-2H.....	K-1
95A151340.....	K-7	991600.....	L-48	ACS3-CRPWA305.....	C-21	AD22-22VAMG.....	D-16	AFA05S00.....	K-35	AM1/CN-1A.....	K-1
95A151360.....	K-7	991601.....	L-48	ACS3-CRPWC405.....	C-21	AD22-22VAMR.....	D-16	AFA10S00.....	K-35	AM1/CN-2A.....	K-1
95A900052.....	K-14	991602.....	L-48	ACS3-IFSC2626.....	C-21	AD22-22VAMW.....	D-16	AGD05S00.....	K-35	AM1/CP-1A.....	K-1
95A900053.....	K-14	991606.....	L-48	ACS3-IFSC5020.....	C-21	AD22-22VAMY.....	D-16	AGD10S00.....	K-35	AM1/CP-2A.....	K-1
95ACC0024.....	K-7	991670.....	L-48	ACS3-MDTB5000.....	C-21	AD22-22VBB.....	D-16	AGQ22F-11/E/JS/02/B.....	D-17	AM1/D2-5H.....	K-3
95ACC0025.....	K-7	991671.....	L-48	ACS3-MDTD2600.....	C-21	AD22-22VBG.....	D-16	AGQ22F-11/E/JS/02/G.....	D-17	AM6/AP-3A.....	K-1
95ACC0026.....	K-7	992150.....	L-48	AD1/AP-3A.....	K-1	AD22-22VBR.....	D-16	AGQ22F-11/E/JS/02/R.....	D-17	AM6/AP-3H.....	K-1
95ACC0033.....	K-7			AD1/CP-3A.....	K-1	AD22-22VBW.....	D-16	AGQ22F-11/E/JS/02/W.....	D-17	AM6/AP-4A.....	K-1
95P5SPA.....	J-2			AD101-22AMB.....	D-16	AD22-22VBV.....	D-16	AGQ22F-11/E/JS/02/Y.....	D-17	AM6/AP-4H.....	K-1
96.031.4053.1.....	I-11	A03-M4.....	L-23	AD101-22AMG.....	D-16	AD22-22VMB.....	D-16	AGQ22F-11/E/JS/22/B.....	D-17	AM6/CP-3A.....	K-1
96.031.4153.1.....	I-11	A03-M5.....	L-23	AD101-22AMR.....	D-16	AD22-22VMB.....	D-16	AGQ22F-11/E/JS/22/G.....	D-17	AM6/CP-3H.....	K-1
96.031.4253.1.....	I-11	A03-M6.....	L-23	AD101-22AMW.....	D-16	AD22-22VMG.....	D-16	AGQ22F-11/E/JS/22/R.....	D-17	AM6/CP-4A.....	K-1
96.031.4353.1.....	I-11	A06-M4.....	L-23	AD101-22AMW.....	D-16	AD22-22VMR.....	D-16	AGQ22F-11/E/JS/22/W.....	D-17	AM6/CP-4H.....	K-1
96.031.4554.3.....	I-11	A06-M5.....	L-23	AD101-22AMY.....	D-16	AD22-22VMR.....	D-16	AGQ22F-11/E/JS/22/Y.....	D-17	AM10-M10.....	L-22
96.031.5053.1.....	I-11	A06-M6.....	L-23	AD101-22HZB.....	D-16	AD22-22VMY.....	D-16	AGQ22F-11/JS.....	D-17	ANE10-M12.....	L-22
96.031.5054.3.....	I-11	A06-M8.....	L-23	AD101-22HZG.....	D-16	AD25.0.....	L-27	AGQ22F-11/Z/JS.....	D-17	ANE10-M6.....	L-22
96.032.4053.1.....	I-11	A1-M10.....	L-23	AD101-22HZR.....	D-16	AD30-30DSB02.....	D-15	AH-0217.....	K-54	ANE10-M8.....	L-22
96.032.4153.1.....	I-11	A1-M10.....	L-23	AD101-22HZW.....	D-16	AD30-30DSB22.....	D-15	AH-03127-B5.....	K-54	ANE2-M4.....	L-22
96.032.4554.3.....	I-11	A1-M4.....	L-23	AD101-22HZY.....	D-16	AD30-30DSB38.....	D-15	AH-03127-S.....	K-54	ANE2-M5.....	L-22
96.032.5053.1.....	I-11	A1-M5.....	L-23	AD101-22TMB.....	D-16	AD30-30DSG02.....	D-15	AH02HC-5A.....	C-12	ANE2-M6.....	L-22
96.032.5054.3.....	I-11	A1-M6.....	L-23	AD101-22TMB.....	D-16	AD30-30DSG22.....	D-15	AH04AD-5A.....	C-12	ANE2-M8.....	L-22
96.051.4153.1.....	I-11	A1-M8.....	L-23	AD101-22TMG.....	D-16	AD30-30DSG38.....	D-15	AH04DA-5A.....	C-12	ANE2-P12.....	L-22
96.051.4353.1.....	I-11	A10-M10.....	L-23	AD101-22TMR.....	D-16	AD30-30DSR02.....	D-15	AH04HC-5A.....	C-12	ANE2-U4.....	L-22
96.051.5053.1.....	I-11	A10-M12.....	L-23	AD101-22TMW.....	D-16	AD30-30DSR22.....	D-15	AH04PT-5A.....	C-12	ANE2-U5.....	L-22
96.052.4153.1.....	I-11	A10-M16.....	L-23	AD101-22VMB.....	D-16	AD30-30DSR38.....	D-15	AH06XA-5A.....	C-12	ANE3-M4.....	L-22
96.052.5053.1.....	I-11	A10-M6.....	L-23	AD101-22VMG.....	D-16	AD30-30DSW02.....	D-15	AH08AD-5B.....	C-12	ANE3-M5.....	L-22
9602SPA.....	J-5	A10-M8.....	L-23	AD101-22VMR.....	D-16	AD30-30DSW22.....	D-15	AH08AD-5C.....	C-12	ANE3-M6.....	L-22
9604SMA.....	J-5	A14-M10.....	L-23	AD101-22VMW.....	D-16	AD30-30DSW38.....	D-15	AH08AD-5D.....	C-12	ANE3-M8.....	L-22
961145.....	B-67	A14-M12.....	L-23	AD101-22VMY.....	D-16	AD30-30DSY02.....	D-15	AH08AD-5E.....	C-12	ANE3-P14.....	L-22
961146.....	B-67	A14-M16.....	L-23	AD13.0.....	L-27	AD30-30DSY22.....	D-15	AH08AD-5F.....	C-12	ANE3-U4.....	L-22
961176.....	B-67	A14-M8.....	L-23	AD15.8.....	L-27	AD30-30DSY38.....	D-15	AH10EN-5A.....	C-12	ANE3-U5.....	L-22
961180.....	B-67	A19-M10.....	L-23	AD16-16DSB02.....	D-14	AD30-30MR02.....	D-15	AH10PM-5A.....	C-12	ANE5-M10.....	L-22
961185.....	B-67	A19-M12.....	L-23	AD16-16DSB11.....	D-14	AD30-30MR22.....	D-15	AH10SCM-5A.....	C-12	ANE5-M5.....	L-22
961200.....	B-67	A19-M16.....	L-23	AD16-16DSB22.....	D-14	AD34.5.....	L-27	AH16AM10N-5A.....	C-11	ANE5-M6.....	L-22
961205.....	B-67	A19B-M8/15.5.....	C-23	AD16-16DSG02.....	D-14	AD42.5.....	L-27	AH16AM30N-5A.....	C-11	ANE5-M8.....	L-22
9612SMA.....	J-5	A2-G-256-C.....	C-24	AD16-16DSG11.....	D-14	ADR1200/F5A.....	L-13	AH16AN01P-5A.....	C-11	ANE5-P16.....	L-22
9614SMA.....	J-5	A2-M10.....	L-23	AD16-16DSG22.....	D-14	ADXL0018600.....	A-14	AH16AN01R-5A.....	C-11	ANE7-M10.....	L-22
97.051.4053.1.....	I-11	A2-M4.....	L-23	AD16-16DSG22.....	D-14	ADXL0030600.....	A-14	AH16AN01S-5A.....	C-11	ANE7-M12.....	L-22
97.051.5553.1.....	I-11	A2-M5.....	L-23	AD16-16DSR02.....	D-14	ADXL0045600.....	A-14	AH16AN01T-5A.....	C-11	ANE7-M8.....	L-22
97.052.4053.1.....	I-11	A2-M6.....	L-23	AD16-16DSR11.....	D-14	ADXL0060600.....	A-14	AH16AP11P-5A.....	C-11	ANE7-P20.....	L-22
97.052.5553.1.....	I-11	A2-M8.....	L-23	AD16-16DSR22.....	D-14	ADXL0075600.....	A-14	AH16AP11T-5A.....	C-11	ANT 2.....	J-31
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9702SPA.....	J-3	A24-M12.....	L-23	AD16-16DSW22.....	D-14	ADXL0115600.....	A-14	AH32AM10N-5C.....	C-11	AS-F232.....	C-9
9704A/*B.....	L-2	A24-M16.....	L-23	AD16-16DSY02.....	D-14	ADXL0135600.....	A-14	AH32AN02P-5C.....	C-11	AS-F2AD.....	C-9
9704A/*GB.....	L-2	A24B-M8/19.....	L-24	AD16-16DSY11.....	D-14	ADXL0162600.....	A-14	AH32AN02T-5C.....	C-11	AS-F2DA.....	C-9
97054.....	E-21	A3-M10.....	L-23	AD16-16DSY22.....	D-14	ADXL0195600.....	A-14	AH64AM10N-5C.....	C-11	AS-F485.....	C-9
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AS04AD-A.....	C-8	AT1/A0-2H.....	K-3	BF0910D.....	A-3	BFX10K3.....	A-4	BG09T4D.....	A-1	CFX 1180.....	L-39
AS04DA-A.....	C-8	AT1/A0-3H.....	K-3	BF0910L.....	A-3	BFX10K4.....	A-4	BG1201A.....	A-1	CFX 1185.....	L-39
AS04RTD-A.....	C-8	AT1/A0-4H.....	K-3	BF09T2A.....	A-4	BFX1202.....	A-5	BG1210A.....	A-1	CFX 1200.....	L-39
AS04SIL-A.....	C-9	AT1/AN-1A.....	K-3	BF09T4A.....	A-2	BFX1211.....	A-5	BGP09T4A.....	A-1	CFX 1210.....	L-39
AS04TC-A.....	C-8	AT1/AN-2A.....	K-3	BF09T4D.....	A-3	BFX1220.....	A-5	BGX1002.....	A-1	CFX 1215.....	L-39
AS06RTD-A.....	C-8	AT1/AP-1A.....	K-3	BF11500A.....	A-2	BFX12C02.....	A-5	BGX1004.....	A-1	CFX 1230.....	L-39
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AS08AD-B.....	C-8	AT1/CN-1A.....	K-3	BF1201A.....	A-2	BFX12C20.....	A-5	BGX1020.....	A-1	CFX 1245.....	L-39
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AS08AN01P-A.....	C-8	AT1/CP-2A.....	K-3	BF1210L.....	A-3	BFX3102.....	A-6	BGX5000.....	A-1	CFX 1275.....	L-39
AS08AN01R-A.....	C-8	AT6/BN-3H.....	K-3	BF12T4A.....	A-2	BFX3131.....	A-6	BGX8000.....	A-1	CFX 1285.....	L-39
AS08AN01T-A.....	C-8	AT6/BN-4H.....	K-3	BF15000A.....	A-2	BFX3201.....	A-6	BOC 1000.....	L-35	CFX 1300.....	L-39
AS08TC-A.....	C-8	AT6/BP-3H.....	K-3	BF15000E.....	A-3	BFX3231.....	A-6	BOC 1005.....	L-35	CM1300.....	K-30
AS132P-A.....	C-7	AT6/BP-4H.....	K-3	BF16000E.....	A-2	BFX3232.....	A-6	BOC 1010.....	L-35	CM1305.....	K-30
AS132R-A.....	C-7	ATL100.....	F-3	BF160T4E.....	A-2	BFX3301.....	A-6	BRF1000.....	L-36	CM1306.....	K-30
AS148P-A.....	C-7	ATL500.....	F-3	BF1801A.....	A-2	BFX3331.....	A-6	BRF1005.....	L-36	CM1307.....	K-30
AS148R-A.....	C-7	ATL600.....	F-3	BF1810A.....	A-2	BFX3361.....	A-6	BRF1010.....	L-36	CM1308.....	K-30
AS164P-A.....	C-7	ATL601.....	F-3	BF1810D.....	A-3	BFX3371.....	A-6	BRF1015.....	L-36	CM1309.....	K-30
AS164R-A.....	C-7	ATL610.....	F-3	BF1810L.....	A-3	BFX3401.....	A-6	BRF1020.....	L-36	CM1701.....	K-30
AS16AM10N-A.....	C-8	ATL800.....	F-3	BF18T0A.....	A-4	BFX3431.....	A-6	BRF1045.....	L-36	CM1703.....	K-30
AS16AN01P-A.....	C-8	ATL900.....	F-3	BF18T0D.....	A-4	BFX3432.....	A-6	BS232VE.....	B-45	CM1704.....	K-30
AS16AN01R-A.....	C-8	AX-300NA0PA1.....	C-7	BF18T2A.....	A-4	BFX3461.....	A-6	BS6/00-0C.....	K-11	CM1705.....	K-30
AS16AN01T-A.....	C-8	AX-304ELA0MA1P.....	C-7	BF18T2D.....	A-4	BFX3471.....	A-6	BS8/00-0C.....	K-11	CM1743.....	K-30
AS16AP11P-A.....	C-8	AX-308EA0MA1T.....	C-7	BF18T4A.....	A-2	BFX3501.....	A-6	BSC/00-0C.....	K-11	CMC-EC01.....	A-30
AS16AP11R-A.....	C-8	AX-324NA0PA1P.....	C-7	BF18T4D.....	A-3	BFX3531.....	A-6	BT1-10V.....	L-20	CMC-EIP02.....	A-30
AS16AP11T-A.....	C-8			BF19500E.....	A-2	BFX3561.....	A-6	BT1-14V.....	L-20	CMC-PD01.....	A-30
AS218PX-A.....	C-7			BF195T4E.....	A-2	BFX3571.....	A-6	BT1-18V.....	L-20	CMC-PN01.....	A-30
AS218RX-A.....	C-7			BF23000E.....	A-2	BFX3583.....	A-7	BT2-10V.....	L-20	CMM-COP02.....	A-26
AS218TX-A.....	C-7			BF230T4E.....	A-2	BFX3584.....	A-7	BT2-13V.....	L-20	CMM-EC02.....	A-26
AS228P-A.....	C-7			BF2501A.....	A-2	BFX3592.....	A-6	BT2-18V.....	L-20	CMM-EIP02.....	A-26
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AS320T-B.....	C-7			BF2600D.....	A-3	BFX3661.....	A-6	BTC380E.....	B-8	CMV103D.....	K-30
AS324MT-A.....	C-7			BF264.....	B-8	BFX3671.....	A-6	BTC480E.....	B-8	CMV104D.....	K-30
AS32AM10N-A.....	C-8			BF264.....	B-8	BFX3683.....	A-7	BV4/00-0C.....	K-11	CMV105D.....	K-30
AS32AN02T-A.....	C-8			BF26500E.....	A-2	BFX3684.....	A-7	BV6/00-0C.....	K-11	CMV16001C.....	K-30
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AS332T-A.....	C-7			BF26T0D.....	A-4	BFX3693.....	A-6	BX04SR/0A-HB.....	K-13	CMV16031C.....	K-30
AS64AM10N-A.....	C-8			BF26T2A.....	A-4	BFX42.....	A-2			CMV16041C.....	K-30
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ASD-A3-0421-M.....	C-19			BF3800L.....	A-3	BFX5400.....	A-6			CM06-S02-LD6.....	I-17
ASD-A3-0721-E.....	C-19			BF38T2A.....	A-4	BFX5401.....	A-6			CM06-S02-LM6.....	I-17
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ASD-A3-1521-M.....	C-19			BF4000A.....	A-2	BFX641.....	A-6			CM06-W02-16.....	I-17
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ASD-A3-1F43-M.....	C-19			BF5000A.....	A-2	BFX77125.....	A-7			CM08-S01-LM6.....	I-17
ASD-A3-2043-E.....	C-19			BF5000E.....	A-3	BFX77240.....	A-7			CM08-S01-M6.....	I-17
ASD-A3-2043-M.....	C-19			BF6500A.....	A-2	BFX79415.....	A-7			CM08-S02-H50.....	I-17
ASD-A3-3043-E.....	C-19			BF6500E.....	A-3	BFX780.....	A-7			CM08-S02-LD8.....	I-17
ASD-A3-3043-M.....	C-19			BF8000A.....	A-2	BFX805.....	A-6			CM08-S02-LM6.....	I-17
ASD-A3-4543-E.....	C-19			BF8000E.....	A-3	BFX806.....	A-6			CM08-S02-M6.....	I-17
ASD-A3-4543-M.....	C-19			BF8000E.....	A-3	BFX835.....	A-7			CM08-S01-M6.....	I-17
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EXP1013.....	E-3	FAI6/BP-2E.....	K-5	FHS300144.....	F-10	FL996A.....	H-14	FN451E.....	H-7	FU42DN.....	H-5
EXP1014.....	E-3	FAI7/BN-0E.....	K-5	FHS313074.....	F-10	FL998A.....	H-14	FN453E.....	H-7	FU52AN.....	H-5
EXP1016.....	F-6	FAI7/BP-0E.....	K-5	FHS338074.....	F-10	FLL-2MA.....	H-22	FN4540DREM.....	H-8	FU52DN.....	H-5
EXP1040.....	F-2	FAI8/BN-0E.....	K-5	FHS350144.....	F-10	FLL-C3006UITB.....	H-22	FN454E.....	H-7	FU62AN.....	H-5
EXP1041.....	F-2	FAI8/BN-2E.....	K-5	FHS375074.....	F-10	FLL-C3006USTB.....	H-22	FN4560DREM.....	H-8	FU62DN.....	H-5
EXP8005.....	F-2	FAI8/BP-0E.....	K-5	FHS400144.....	F-10	FM109.....	H-6	FN4580DREM.....	H-8	FU72AN.....	H-5
EXS0000.....	E-6	FAI8/BP-2E.....	K-5	FHS438074.....	F-10	FM205.....	H-6	FN459E.....	H-7	FU72DN.....	H-5
EXS1032.....	E-6	FAIC/BN-0A.....	K-5	FHS450144.....	F-10	FM209.....	H-6	FN506E.....	H-8	FU9801B P2.....	H-19
EXS1063.....	E-6	FAIC/BN-2E.....	K-5	FHS475074.....	F-10	FM405.....	H-6	FN510E.....	H-8	FU9802B P2.....	H-19
EXS1080.....	E-6	FAIC/BP-0A.....	K-5	FHS500144.....	F-10	FM409.....	H-6	FN516E.....	H-8	FU9803AM.....	H-20
EXS1125.....	E-6	FAIC/BP-2E.....	K-5	FHS538074.....	F-10	FM450.....	H-6	FN526E.....	H-8	FU9803B P2.....	H-19
EXS3032.....	E-6	FAIH/00-0A.....	K-5	FHS550144.....	F-10	FM484.....	H-6	FN536E.....	H-8	FU9803BM.....	H-20
EXS3063.....	E-6	FAIH/00-2E.....	K-5	FHS575074.....	F-10	FM486.....	H-6	FN546E.....	H-8	FU9804B P2.....	H-19
EXS3080.....	E-6	FAIZ/BN-0A.....	K-5	FHS600144.....	F-10	FM519.....	H-6	FN6020MDW.....	H-10	FU9804B P2/P4-172.....	H-20
EXS3125.....	E-6	FAIZ/BP-0A.....	K-5	FHS638074.....	F-10	FM535.....	H-6	FN6020PDW.....	H-10	FU9805B P2.....	H-19
EXS4000.....	E-6	FAIZ/BP-2E.....	K-5	FHS675074.....	F-10	FM539.....	H-6	FN6030PDW.....	H-10	FU9805B P2/P5-220.....	H-20
EXS4001.....	E-6	FAR2/BN-0A.....	K-5	FHS738074.....	F-10	FM545.....	H-6	FN6040PDW.....	H-10	FU9806B P2.....	H-19
EZD100.....	B-15	FAR2/BP-0A.....	K-5	FHS775074.....	F-10	FM549.....	H-6	FN6060PDW.....	H-10	FU9806B P2/P6-250.....	H-20
EZF100.....	B-15	FARP/BN-0A.....	K-5	FHS838074.....	F-10	FM635.....	H-6	FN60TBPW.....	H-10	FX-551P.....	K-17
EZM100.....	B-15	FARP/BP-0A.....	K-5	FHS875074.....	F-10	FM653.....	H-6	FN7040DREM.....	H-8	FX-CT1.....	K-17
		FARS/BP-0E.....	K-5	FHS975074.....	F-10	FMC-SD001G.....	C-12	FN7060DREM.....	H-8	FX-LE1.....	K-17
		FARW/BP-0E.....	K-5	FIX KLIP M4.....	L-13	FMF 355.....	B-62	FN7080DREM.....	H-8	FX-SV1.....	K-17
F-7-J.....	K-27	FBA315.....	K-36	FIX KLIP M5.....	L-13	FMF 400.....	B-62	FN726E.....	H-11	FX102P-Z.....	K-17
F-7-K.....	K-27	FC5R/DP-0506-1F.....	K-13	FL-2/001-7.....	E-25	FMS12806.....	F-9	FN736E.....	H-11	FX289.....	H-10
F1-2.8V/5.....	L-20	FC5R/DP-0806-1F.....	K-13	FL-2/002-7.....	E-25	FMS13804.....	F-9	FN746E.....	H-11	FX291.....	H-10
F1-2.8VD/5.....	L-20	FC5R/DP-1212-1F.....	K-13	FL-2/003-7.....	E-25	FMS17504.....	F-9	FN8020MDW.....	H-10	FX292.....	H-10
F1-4.8V/5.....	L-20	FC6I/0B-0304-1F.....	K-13	FL-2/004-7.....	E-25	FMS19206.....	F-9	FN8020PDW.....	H-10	FZ402.....	H-8
F1-4.8VD/5.....	L-20	FC6I/0B-0306-1F.....	K-13	FL-2/005-7.....	E-25	FMS21304.....	F-9	FN8030PDW.....	H-10	FZ402AL.....	H-8
F1-6.4V.....	L-20	FC6I/0B-0506-1F.....	K-13	FL-2/006-7.....	E-25	FMS23804.....	F-9	FN8040PDW.....	H-10	FZ403WP.....	H-8
F1-6.4VD.....	L-20	FC6I/0B-0510-1F.....	K-13	FL-2/007-7.....	E-25	FMS25606.....	F-9	FN8060PDW.....	H-10	FZ404.....	H-8
F1-6.4VF.....	L-20	FC6I/0B-0806-1F.....	K-13	FL-2/010-7.....	E-25	FMS27504.....	F-9	FN80TBPW.....	H-10	FZ406M.....	H-8
F1-6.4VQD.....	L-20	FC6I/0B-0810-1F.....	K-13	FL-2/015-7.....	E-25	FMS31304.....	F-9	FN9040DREM.....	H-8	FZ407M.....	H-8
F12230A.....	J-34	FC7I/0B-M304-0F.....	K-13	FL-2/020-7.....	E-25	FMS32006.....	F-9	FN9060DREM.....	H-8	FZ408M.....	H-8
F2-2.8VD/5.....	L-20	FC8U/0B-M307-1F.....	K-13	FL-2/025-7.....	E-25	FMS33804.....	F-9	FN9080DREM.....	H-8	FZ422.....	H-8
F2-4.8V/5.....	L-20	FC120001.....	D-23	FL-2/030-7.....	E-25	FMS37504.....	F-9	FN942E.....	H-11	FZ506.....	H-11
F2-4.8VD/5.....	L-20	FCL40003.....	D-23	FL-2/040-7.....	E-25	FMS38426.....	F-9	FN943E.....	H-11	FZ516.....	H-11
F2-6.4V.....	L-20	FD-31.....	K-17	FL-2/050-7.....	E-25	FMS43804.....	F-9	FN944E.....	H-11	FZ517.....	H-6
F2-6.4VD.....	L-20	FD-41.....	K-17	FL-2/060-7.....	E-25	FMS44826.....	F-9	FN946E.....	H-11	FZ519.....	H-11
F2-6.4VF.....	L-20	FD-61.....	K-17	FL-2/075-7.....	E-25	FMS47504.....	F-9	FN947E.....	H-11	FZ520.....	H-11
F2-6.4VQD.....	L-20	FD-R31G.....	K-17	FL-2/100-7.....	E-25	FMS51226.....	F-9	FN948E.....	H-11	FZ537.....	H-11
F2-8V.....	L-20	FD-R41.....	K-17	FL000A.....	H-14	FMS57524.....	F-9	FN949E.....	H-11	FZ760E.....	H-11
F2-8VD.....	L-20	FD00A1.....	H-6	FL102A.....	H-13	FMS57626.....	F-9	FN950.....	H-11	FZ767.....	H-11
F201110001.....	D-24	FD00C2.....	H-6	FL104A.....	H-13	FMS64026.....	F-9	FN951.....	H-11	FZ794.....	H-6
F201110002.....	D-24	FD00F1.....	H-6	FL110A.....	H-13	FMS67524.....	F-9	FN952.....	H-8	FZ795D.....	H-11
F201120001.....	D-24	FD00F2.....	H-6	FL112A.....	H-13	FMS70426.....	F-9	FN954E.....	H-11	FZ850.....	H-11
F202210001.....	D-24	FD00M2.....	H-6	FL117A.....	H-13	FMS76826.....	F-9	FRT1/230A.....	J-34		
F30024AD.....	J-34	FD00S1.....	H-6	FL120A.....	H-13	FMS77524.....	F-9	FS-100.....	K-38		
F30230A.....	J-34	FD01A1.....	H-5	FL124A.....	H-13	FMS83226.....	F-9	FS-300.....	K-38		
F5-6.4V.....	L-20	FD01A2.....	H-5	FL128AEM.....	H-13	FMS87524.....	F-9	FS-402.....	K-38	G-100C.....	A-41
F5-6.4VD.....	L-20	FD01K1.....	H-5	FL130AEM.....	H-13	FMS89626.....	F-9	FS-500.....	K-38	G-112C.....	A-41
F5-6.4VQD.....	L-20	FD02A1.....	H-6	FL204B.....	H-13	FMS96026.....	F-9	FS-902.....	K-38	G-132C.....	A-41
F5-9.5V.....	L-20	FD02C2.....	H-6	FL209B.....	H-13	FN013EW.....	H-7	FS-IR1902D-N			

G-280C	A-41	GAX67B	A-18	GLX63CB	A-20	GX32 10U	D-12	HE09645	H-16	HJM5AUX800	B-18
G-315C2P	A-41	GAX68	A-17	GLX63DB	A-19	GX32 10U25	D-12	HE12960GP1	H-16	HJMSDC250/2-125	B-18
G-315C4/6P	A-41	GAX7200	A-17	GLX7200S10	A-19	GX32 51U	D-12	HE200	H-15	HJMSDC250/2-160	B-18
G-355C2P	A-41	GAX7200AN	A-17	GLX7200S12	A-19	GX32 52U	D-12	HE200-G	H-15	HJMSDC250/2-200	B-18
G-355C4/6P	A-41	GAX7300	A-17	GLX7300S10	A-19	GX32 530U	D-12	HE201	H-15	HJMSDC250/2-250	B-18
G-80C	A-41	GAX7300AN	A-17	GLX7300S12	A-19	GX32 54U	D-12	HE201-G	H-15	HJMSDC250/2-320	B-18
G-90C	A-41	GAX81	A-18	GLX7400S10	A-19	GX32 55U	D-12	HE201T	H-15	HJMSDC800/2-325	B-18
G-CHECK 230	B-66	GAX82	A-18	GLX7400S12	A-19	GX32 56U	D-12	HE201T-G	H-15	HJMSDC800/2-400	B-18
G218	A-5	GAX83	A-18	GLX7500S10	A-19	GX32 69U	D-12	HE202	H-15	HJMSDC800/2-500	B-18
G222	A-6	GAX84	A-18	GLX7500S12	A-19	GX32 75U	D-12	HE202-G	H-15	HJMSDC800/2-630	B-18
G228220	A-8	GAZ016	A-21	GLX800	A-19	GX32 90U	D-12	HE202T	H-15	HJMSDC800/2-800	B-18
G231	A-7	GAZ025	A-21	GLX802	A-19	GX32 91U	D-12	HE202T-G	H-15	HJM5HU250/3-125	B-18
G232	A-7	GAZ025ET6	A-20	GLX804	A-19	GX32 92U	D-12	HE203	H-15	HJM5HU250/3-160	B-18
G233	A-8	GAZ032	A-21	GLX900	A-19	GX32 92U25	D-12	HE203-G	H-15	HJM5HU250/3-200	B-18
G270	A-8	GAZ040EM	A-21	GLX902	A-19	GX40 10U	D-12	HE203GP1	H-15	HJM5HU250/3-250	B-18
G272	A-6	GAZ040ET6	A-20	GLX904	A-19	GX40 51U	D-12	HE203T	H-15	HJM5HU250/3-320	B-18
G280	A-5	GAZ063EM	A-21	GLZM0200EM	A-21	GX40 52U	D-12	HE203T-G	H-15	HJMSHU630/3-630	B-18
G324	A-1	GAZ080EM	A-21	GLZM0250EM	A-21	GX40 53U	D-12	HE204	H-15	HJMSHU800/3-630	B-18
G326	A-1	GAZ080ET6	A-20	GLZM0315EM	A-21	GX40 55U	D-12	HE204-G	H-15	HJMSHU800/3-800	B-18
G350	A-5	GAZ1	A-21	GLZM0400EM	A-21	GX40 90U	D-12	HE204T	H-15	HJM5SHT300	B-18
G354	A-5	GAZ125EM	A-21	GLZM0630EM	A-21	GX40 91U	D-12	HE204T-G	H-15	HJM5SHT630	B-18
G355	A-6	GAZ125ET6	A-20	GLZM0800EM	A-21	GX40 92U	D-12	HE205	H-15	HKP015015R1A	L-14
G3564	A-6	GAZ160EM	A-21	GLZM1000EM	A-21	GXM5	D-12	HE205-G	H-15	HKP015015ZDA	L-14
G3565	A-6	GAZ2	A-21	GP102T	H-3	GXM6	D-12	HE205T	H-15	HKP015015ZEA	L-14
G358	A-5	GAZ3	A-21	GP104T	H-3	GZ04E	H-3	HE205T-G	H-15	HKP015015ZKA	L-14
G370	A-5	GAZM016EM	A-21	GP106T	H-3	GZ04N	H-3	HE206	H-15	HKP020025R3A	L-14
G371	A-7	GAZM025EM	A-21	GP110T	H-3	GZ104S	H-3	HE206-G	H-15	HKP020025ZDA	L-14
G41801	A-5	GAZM032EM	A-21	GQ10T-JN/02/B	D-17	GZ106S	H-3	HE206E	H-15	HKP020025ZEA	L-14
G41801D	A-5	GAZM040EM	A-21	GQ10T-JN/02/G	D-17	GZ110S	H-3	HE206E-G	H-15	HKP020025ZKA	L-14
G41810	A-5	GAZM063EM	A-21	GQ10T-JN/02/R	D-17			HE206EGP1	H-15	HKP040060R5A	L-14
G41810A	A-5	GAZM080EM	A-21	GQ10T-JN/02/W	D-17			HE206ET	H-15	HKP040060Z5A	L-14
G419	A-5	GAZM125EM	A-21	GQ10T-JN/02/Y	D-17			HE206ET-G	H-15	HKP040060ZDA	L-14
G454	A-6	GAZM160EM	A-21	GQ10T-JN/22/B	D-17			HE206T	H-15	HKP040060ZEA	L-14
G455	A-6	GAZM1E	H-16	GQ10T-JN/22/G	D-17			HE206T-G	H-15	HKP040060ZKA	L-14
G460	A-4	GAZS1E	H-16	GQ10T-JN/22/R	D-17			HE207	H-15	HLF180S	B-3
G48102	A-5	GD102B	H-3	GQ10T-JN/22/W	D-17			HE207-G	H-15	HLF190S	B-3
G48111	A-5	GD104B	H-3	GQ10T-JN/22/Y	D-17			HE207E	H-15	HLF199S	B-3
G48120	A-5	GD106B	H-3	GQ12T-JN/02/B	D-17			HE207E-G	H-15	HLF280S	B-3
G483	A-5	GD110B	H-3	GQ12T-JN/02/G	D-17			HE207EGP1	H-15	HLF290S	B-3
G48403	A-5	GI03010.1	L-9	GQ12T-JN/02/R	D-17			HE207ET	H-15	HLF299S	B-3
G48412	A-5	GI06006.1	L-4	GQ12T-JN/02/W	D-17			HE207ET-G	H-15	HLF380S	B-3
G48421	A-5	GL0160C1	A-19	GQ12T-JN/02/Y	D-17			HE207T	H-15	HLF390S	B-3
G48430	A-5	GL0200C1	A-19	GQ12T-JN/22/B	D-17			HE207T-G	H-15	HLF399S	B-3
G485120	A-5	GL0250C1	A-19	GQ12T-JN/22/G	D-17			HE208	H-15	HLF480S	B-3
G4856	A-5	GL0315C1	A-19	GQ12T-JN/22/R	D-17			HE208-G	H-15	HLF490S	B-3
G48560	A-5	GL0400C1	A-19	GQ12T-JN/22/W	D-17			HE208E	H-15	HLF499S	B-3
G486120	A-5	GL0500C1	A-19	GQ12T-JN/22/Y	D-17			HE208E-G	H-15	HMC180	B-5
G4866	A-5	GL0630C1	A-19	GQ16T-LN/02/B	D-17			HE208ET	H-15	HMC190	B-5
G48660	A-5	GL0800C1	A-19	GQ16T-LN/02/G	D-17			HE208ET-G	H-15	HMC199	B-5
G487	A-5	GL1000C1	A-19	GQ16T-LN/02/R	D-17			HE208T	H-15	HMC280	B-5
G525	A-7	GLC0160C1	A-20	GQ16T-LN/02/W	D-17			HE208T-G	H-15	HMC299	B-5
G526	A-7	GLC0160T4C1	A-20	GQ16T-LN/02/Y	D-17			HEE800H	B-22	HMC380	B-5
GA016A	A-17	GLC0200C1	A-20	GQ16T-LN/22/B	D-17			HEE970H	B-22	HMC390	B-5
GA025A	A-17	GLC0200T4C1	A-20	GQ16T-LN/22/G	D-17			HEE971H	B-22	HMC399	B-5
GA025C	A-18	GLC0250C1	A-20	GQ16T-LN/22/R	D-17			HEF980H	B-22	HMC480	B-5
GA025ET6	A-20	GLC0250T4C1	A-20	GQ16T-LN/22/W	D-17			HEF981H	B-22	HMC490	B-5
GA032A	A-17	GLC0315C1	A-20	GQ16T-LN/22/Y	D-17			HEF990H	B-22	HMC499	B-5
GA040A	A-17	GLC0315T4C1	A-20	GQ22T-LN/02/B	D-17			HEF991H	B-22	HMD180	B-4
GA040C	A-18	GLC0400C1	A-20	GQ22T-LN/02/G	D-17			HEJ320DR	B-21	HMD190	B-4
GA040ET6	A-20	GLC0400T4C1	A-20	GQ22T-LN/02/R	D-17			HEJ321DR	B-21	HMD199	B-4
GA063A	A-17	GLC0500C1	A-20	GQ22T-LN/02/Y	D-17			HEJ400DR	B-21	HMD280	B-4
GA063SA	A-17	GLC0500T4C1	A-20	GQ22T-LN/02/W	D-17			HEJ401DR	B-21	HMD290	B-4
GA063SAET6	A-20	GLC0630C1	A-20	GQ22T-LN/22/B	D-17			HEJ630DE	B-21	HMD299	B-4
GA080A	A-17	GLC0630T4C1	A-20	GQ22T-LN/22/G	D-17			HEJ631DE	B-21	HMD380	B-4
GA080C	A-18	GLC0800C1	A-20	GQ22T-LN/22/R	D-17			HEW400JR	B-22	HMD390	B-4
GA080ET6	A-20	GLC0800T4C1	A-20	GQ22T-LN/22/W	D-17			HEW401JR	B-22	HMD399	B-4
GA125A	A-17	GLC1000C1	A-20	GQ22T-LN/22/Y	D-17			HEW630JR	B-22	HMD480	B-4
GA125C	A-18	GLC1000T4C1	A-20	GX16 10U	D-12			HEW631JR	B-22	HMD490	B-4
GA125ET6	A-20	GLX00	A-17	GX16 10U25	D-12			HFR-008BK	L-32	HMD499	B-4
GA160A	A-17	GLX1001	A-19	GX16 51U	D-12			HFR-010BK	L-32	HMJ320DR	B-21
GA160ET6	A-20	GLX1010EA	A-19	GX16 52U	D-12			HFR-012BK	L-32	HMJ321DR	B-21
GAM3012D	J-34	GLX201	A-20	GX16 53U	D-12			HFR-015BK	L-32	HMJ400DR	B-21
GAM3024D	J-34	GLX202	A-20	GX16 54U	D-12			HFR-020BK	L-32	HMJ401DR	B-21
GAX1011A	A-18	GLX206	A-20	GX16 55U	D-12			HFR-030BK	L-32	HMJ630DE	B-21
GAX1011C	A-18	GLX207	A-20	GX16 56U	D-12			HFR-040BK	L-32	HMJ631DE	B-21
GAX1110EA	A-18	GLX208	A-20	GX16 66U	D-12			HFR-050BK	L-32	HMW400JR	B-22
GAX1210EA	A-18	GLX209	A-20	GX16 67U	D-12			HFR1207	F-11	HMW401JR	B-22
GAX391	A-18	GLX420315	A-19	GX16 69U	D-12			HFR1314	F-11	HMW630JR	B-22
GAX41040A	A-17	GLX420400	A-19	GX16 75U	D-12			HFR2507	F-11	HMW631JR	B-22
GAX41125A	A-17	GLX420630	A-19	GX16 90U	D-12			HFR2714	F-11	HN-A25	M-3
GAX42040A	A-17	GLX420800	A-19	GX16 91U	D-12			HFR5007	F-11	HNA025U	B-21
GAX42040C	A-18	GLX421000	A-19	GX16 92U	D-12			HFR5414	F-11	HNA026U	B-21
GAX42063SA	A-17	GLX550	A-19	GX16 92U25	D-12			HG-C1030-P	K-18	HNA040U	B-21
GAX42080A	A-17	GLX551	A-19	GX16 97U	D-12			HG-C1050-P	K-18	HNA041U	B-21
GAX42125A	A-17	GLX552	A-19	GX16 98U	D-12			HG-C1100-P	K-18	HNA063U	B-21
GAX42125C	A-18	GLX553	A-19	GX20 10U	D-12			HG-C1200-P	K-18	HNA064U	B-21
GAX42160A	A-17	GLX61	A-19	GX20 51U	D-12			HG-C1400-P	K-18	HNA100U	B-21
GAX5000	A-18	GLX61B	A-19	GX20 52U	D-12			HHA016Z	B-21	HNA101U	B-21
GAX5001	A-18	GLX61CB	A-20	GX20 53U	D-12			HHA020Z	B-21	HNA125U	B-21
GAX6000	A-18	GLX61D	A-19	GX20 54U	D-12			HHA025Z	B-21	HNA126U	B-21
GAX6001	A-18	GLX61DB	A-19	GX20 55U	D-12			HHA032Z	B-21	HNA160U	B-21
GAX60B	A-17	GLX62	A-19	GX20 56U	D-12			HHA040Z	B-21	HNA161U	B-21
GAX61	A-17	GLX62B	A-20	GX20 69U	D-12			HHA050Z	B-21	HNB250U	B-21
GAX63	A-17	GLX62CB	A-20	GX20 75U	D-12			HHA063Z	B-21	HNB251U	B-21
GAX63B	A-17	GLX62DB	A-19	GX20 90U	D-12			HHA080Z	B-21	HND320P	B-21
GAX64	A-17	GLX63	A-19	GX20 91U	D-12			HHA100Z	B-21	HND400P	B-21
GAX66N	A-17	GLX63B	A-19	GX20 92U	D-12			HHA125Z	B-21	HNE500P	B-21
GAX66NB	A-17							HHA160Z	B-21	HNE630P	B-21
								HHB200Z	B-21	HNE800H	B-22
								HHB250Z	B-21	HNE800P	B-21
								HJ-6X6	C-23	HNE801H	B-22
								HJM5AUX320	B-18	HNE970H	B-22
								HJM5AUX630	B-18	HNE971H	B-22

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HNF981H.....	B-22	HWX020HSA.....	B-29	HYA027H.....	B-24	ISO2270.....	L-37	KB P2 L11.....	K-31	LA52130A.....	J-35
HNF990H.....	B-22	HWX022HSA.....	B-29	HYA028H.....	B-24	ISO2280.....	L-37	KB Q1 L11.....	K-48	LA55230A.....	J-35
HNF991H.....	B-22	HWX023HSA.....	B-29	HYA033H.....	B-24	ISO2295.....	L-37	KB163N.....	B-7	LA55400A.....	J-35
HNKE16.....	M-3	HWX024HSA.....	B-29	HYA036H.....	B-24	ISO3005.....	L-37	KB163P.....	B-7	LB1-3V.....	L-20
HNKE4.....	M-3	HWX025HSA.....	B-29	HYB001H.....	B-24	ISO3015.....	L-37	KB190C.....	B-7	LB1-4.6V.....	L-20
HNKE50.....	M-3	HWX027HSA.....	B-29	HYB011H.....	B-24	ISO3020.....	L-37	KB263C.....	B-7	LB2-3V.....	L-20
HNN3.....	M-3	HWX028HSA.....	B-29	HYB012H.....	B-24	ITB1000.....	L-35	KB363C.....	B-7	LB2-4.6V.....	L-20
HNN4.....	M-3	HWX029HSA.....	B-29	HYB019H.....	B-24	ITB1005.....	L-35	KB380B.....	B-7	LB5-3V.....	L-20
HP-SST-200-02.....	L-21	HWX030HSA.....	B-29	HYB021H.....	B-24	ITB1010.....	L-35	KB463C.....	B-7	LB5-4.6V.....	L-20
HP-SST-200-03.....	L-21	HWX032HSA.....	B-29	HYB022H.....	B-24	ITB1015.....	L-35	KCD1-104.....	D-37	LB6BP03.....	D-35
HP-SST-200-04.....	L-21	HWX033HSA.....	B-29	HYB033H.....	B-24	ITB1020.....	L-35	KD-8-3.....	L-32	LB6BP05.....	D-35
HP3.....	M-3	HWX034HSA.....	B-29	HYD001H.....	B-24	ITB1025.....	L-35	KF83B.....	B-7	LB6BP07.....	D-35
HPN-6A-2500-3-PP.....	C-23	HWX040HSA.....	B-29	HYE021H.....	B-24	ITB1030.....	L-35	KF83C.....	B-7	LB6EL1.....	D-35
HR500.....	B-9	HWX042HSA.....	B-29	HYE022H.....	B-24	ITB1035.....	L-35	KF84A.....	B-7	LB6EL3.....	D-35
HR502.....	B-9	HWX050HSA.....	B-30	HYW001H.....	B-24	ITB1040.....	L-35	KG100S11.....	K-31	LB6EL4.....	D-35
HR510.....	B-9	HWX090HSA.....	B-29	HYW014H.....	B-24	ITB2000.....	L-35	KG200S11.....	K-31	LB6EL5.....	D-35
HR520.....	B-9	HWX701HSA.....	B-29	HYW015H.....	B-24			KGX01.....	K-31	LB6EL6.....	D-35
HR700.....	B-9	HWX711HSA.....	B-29	HYW019H.....	B-24			KGX02.....	K-31	LB6EL8.....	D-35
HR742.....	B-9	HWY001H.....	B-30	HYW023H.....	B-24			KIT-B-FL750-1.....	M-6	LB6GLB1.....	D-35
HR743.....	B-9	HWY002H.....	B-30	HYW024H.....	B-24			KIT-BX500ND-1.....	M-6	LB6GLB3.....	D-35
HR745.....	B-9	HWY005H.....	B-30					KITB1300-C-1.....	M-6	LB6GLB4.....	D-35
HR830.....	B-9	HWY006H.....	B-30					KITH7131-C-1.....	M-5	LB6GLB8.....	D-35
HRD025144.....	F-8	HWY040HSA.....	B-30	IBNP/05.....	E-25			KITHT51-1.....	M-5	LB6GLB5.....	D-35
HRD025274.....	F-8	HWY041HSA.....	B-30	IBNP/10.....	E-25			KJ01A.....	H-18	LB6GLB6.....	D-35
HRD038144.....	F-8	HWY044HSA.....	B-30	IBNP/15.....	E-25			KJ01B.....	H-18	LB6GLM1.....	D-35
HRD038374.....	F-8	HWY045HSA.....	B-30	IBNP/20.....	E-25			KJ01C.....	H-18	LB6GLM3.....	D-35
HRD050144.....	F-8	HWY089HSA.....	B-30	IBNP/25.....	E-25			KJ01D.....	H-18	LB6GLM4.....	D-35
HRD050274.....	F-8	HWY090HSA.....	B-30	IBNP/30.....	E-25			KJ02A.....	H-18	LB6GLM5.....	D-35
HRD050724.....	F-8	HWY090HSA.....	B-30	IBNP/40.....	E-25			KJ02B.....	H-18	LB6GLM6.....	D-35
HRD075374.....	F-8	HWY218H.....	B-29	IBNP/40.....	E-25			KJ02C.....	H-18	LC 100.....	M-4
HRD100274.....	F-8	HWY224H.....	B-29	IBR1/06.....	E-25			KJ02D.....	H-18	LCP-1250A4FDRJ.....	G-1
HRS013074.....	F-8	HWY225H.....	B-29	IBR1/08.....	E-25			KJ02E.....	H-18	LE40SZSN20DPR-E2.....	K-15
HRS025074.....	F-8	HWY226H.....	B-29	IBR1/10.....	E-25			KK1518.....	L-11	LE40XZSF15DPR-D.....	K-15
HRS050074.....	F-8	HWY227H.....	B-29	IBR1/12.....	E-25			KM A1 S11.....	K-31	LE40XZSN20ATO-D.....	K-15
HRS054144.....	F-8	HWY228H.....	B-29	IBR3/12.....	E-25			KM B2 S11.....	K-31	LE40XZSN20DNR-D.....	K-15
HS-600.....	L-16	HWY238H.....	B-30	IBR3/16.....	E-25			KM C2 S11.....	K-31	LE40XZSN20DPR-D.....	K-15
HT-TC026.....	M-5	HWY239H.....	B-30	IBR3/20.....	E-25			KM E2 S11.....	K-31	LE80XZSN50ATO-D.....	K-15
HT-TC041N.....	M-5	HWY240HSA.....	B-30	IBR3/25.....	E-25			KM F2 S11.....	K-31	LE80XZSN50DPR-D.....	K-15
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HTM100.....	H-21	HWY247HSA.....	B-30	ID03.....	H-16			KM M1 S11.....	K-31	LF01-250.....	K-39
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HTR-3A-100A-P.....	C-23	HWY249HSA.....	B-30	ID05.....	H-16			KM13N.....	H-18	LF01-400.....	K-39
HTR-3A-1024A-P.....	C-23	HWY260HSA.....	B-30	ID06.....	H-16			KN-1/2PT-8-200-J.....	K-27	LF01-500.....	K-39
HTR-3A-360A-P.....	C-23	HWY261HSA.....	B-30	ID06E.....	H-16			KN-1/2PT-8-200-K.....	K-27	LF01-600.....	K-39
HTR-3A-500A-P.....	C-23	HWY265HSA.....	B-30	ID07.....	H-16			KN-1/2PT-8-200-PT.....	K-27	LF01-700.....	K-39
HTR-5B-1024A-H.....	C-23	HWY269HSA.....	B-30	ID07E.....	H-16			KN-1/2PT-8-300-J.....	K-27	LF10-1H11123-115.....	K-29
HTR-5B-1024A-P.....	C-23	HWY280H.....	B-29	ID08.....	H-16			KN-1/2PT-8-300-K.....	K-27	LF10-1H11123-150.....	K-29
HTR-5B-2000A-H.....	C-23	HWY281H.....	B-29	ID08E.....	H-16			KN-1/2PT-8-300-PT.....	K-27	LF10-1H11123-80.....	K-29
HTR-5B-2000A-P.....	C-23	HWY284H.....	B-29	ID3CR-10.....	H-17			KN00A.....	H-18	LF16-111-40PSI.....	K-29
HTR-5B-360A-H.....	C-23	HWY285H.....	B-29	ID3CR-12.....	H-17			KN04N.....	H-18	LF16-111-60PSI.....	K-29
HTR-5B-360A-P.....	C-23	HWY288H.....	B-29	ID3CR-4.....	H-17			KN04P.....	H-18	LF18-111121-10BAR.....	K-29
HTR-HD30-1024-3-PP.....	C-23	HWY289H.....	B-29	ID3CR-5.....	H-17			KN07N.....	H-18	LF18-111121-5BAR.....	K-29
HTR-HD30-600-3-PP.....	C-23	HWY701.....	B-30	ID3CR-6.....	H-17			KN07P.....	H-18	LF18-111121-7BAR.....	K-29
HTR-HM15-1024-3-PP.....	C-23	HWY702.....	B-30	ID3CR-7.....	H-17			KN10E.....	H-18	LF19-111121-3BAR.....	K-29
HTR-HM15-600-3-PP.....	C-23	HWY703.....	B-30	ID3CR-8.....	H-17			KN10N.....	H-18	LF19-111121-4BAR.....	K-29
HTR-HN-8-1024A-P.....	C-23	HWY704.....	B-30	ID3CR-9.....	H-17			KN10P.....	H-18	LF5503.....	K-29
HTR-HN-8-360A-P.....	C-23	HWY705.....	B-30	IF9.....	D-13			KN18E.....	H-18	LF5506.....	K-29
HTR-HN-8-500A-P.....	C-23	HWY950HSA.....	B-29	IFD6500.....	G-2			KN18N.....	H-18	LF5520.....	K-29
HW1E312DB.....	B-28	HWY952HSA.....	B-29	IFD6503.....	G-2			KN18P.....	H-18	LF5522.....	K-29
HW1E312FB.....	B-27	HWY958H.....	B-30	IFD6530.....	A-30			KN26E.....	H-18	LF5510.....	K-29
HW1E316DB.....	B-28	HWY959H.....	B-30	IFD8500-A.....	C-17			KN26N.....	H-18	LF5516.....	K-29
HW1E316FB.....	B-27	HXA00*H.....	B-23	IFD8510.....	G-2			KN26P.....	H-18	LF5520.....	K-29
HW1E412DB.....	B-28	HXA014H.....	B-23	IFD9506.....	G-2			KN3C-R1021.....	D-37	LF551000.....	K-39
HW1E412FB.....	B-27	HXA015H.....	B-23	IGR35F.....	H-21			KN3C-R1121.....	D-37	LF55-1000/4-20.....	K-39
HW1E416DB.....	B-28	HXA021H.....	B-23	IL1/AN-3A.....	K-3			KN3C-R1122.....	D-37	LF55-1200.....	K-39
HW1E416FB.....	B-27	HXA024H.....	B-23	IL1/AP-3A.....	K-3			KN3C-R1221.....	D-37	LF55-1200/4-20.....	K-39
HW1W312DS.....	B-28	HXA030H.....	B-23	IL1/CN-3A.....	K-3			KN3C-R1321.....	D-37	LF55-1400.....	K-39
HW1W312FS.....	B-27	HXA031H.....	B-23	IL8/AN-3A.....	K-3			KN3C-R1322.....	D-37	LF55-1400/4-20.....	K-39
HW1W316DS.....	B-28	HXB030H.....	B-23	IL8/AP-3A.....	K-3			KN99E.....	H-18	LF55-150.....	K-39
HW1W316FS.....	B-27	HXB031H.....	B-23	IL8/CN-3A.....	K-3			KN99N.....	H-18	LF55-150/4-20.....	K-39
HW1W412DS.....	B-28	HXB042H.....	B-24	IL8/CP-3A.....	K-3			KN99P.....	H-18	LF55-1600.....	K-39
HW1W412FS.....	B-27	HXC00*H.....	B-23	IMN1/05.....	E-25			KPC-CC01.....	A-26	LF55-1600/4-20.....	K-39
HW1W416DS.....	B-28	HXC021H.....	B-23	IMN1/06.....	E-25			KPMS-LE01.....	A-26	LF55-200.....	K-39
HW1W416FS.....	B-27	HXC024H.....	B-23	IMN1/07.....	E-25			KR100S11.....	K-31	LF55-200/4-20.....	K-39
HW2E325DB.....	B-28	HXD00*P.....	B-23	IMN1/10.....	E-25			KR200S11.....	K-31	LF55-2000.....	K-39
HW2E325FB.....	B-27	HXD014P.....	B-23	IMN1/12.....	E-25			KX B A11.....	K-31	LF55-2000/4-20.....	K-39
HW2E425DB.....	B-28	HXD015P.....	B-23	IMN1/15.....	E-25			KX B L11.....	K-31	LF55-250.....	K-39
HW2E425FB.....	B-27	HXD022P.....	B-23	IMN1/16.....	E-25			KX B L21.....	K-31	LF55-300.....	K-39
HW2W325DS.....	B-28	HXD024P.....	B-23	IMN1/16.....	E-25			KX B S02.....	K-31	LF55-300/4-20.....	K-39
HW2W325FS.....	B-27	HXD031P.....	B-23	IMN1/20.....	E-25			KX B S11.....	K-31	LF55-350.....	K-39
HW2W425DS.....	B-28	HXD042P.....	B-24	IMN1/25.....	E-25			KX N1.....	K-48	LF55-400.....	K-39
HW2W425FS.....	B-27	HXE00*P.....	B-23	IMN2/16.....	E-25			KX N2.....	K-48	LF55-400/4-20.....	K-39
HW4S332DB.....	B-28	HXE014H.....	B-23	IMN2/20.....	E-25			KX N3.....	K-48	LF55-500.....	K-39
HW4S332FB.....	B-27	HXE014P.....	B-23	IMN2/25.....	E-25			KX N4.....	K-48	LF55-500/4-20.....	K-39
HW4S340DB.....	B-28	HXE015H.....	B-23	IMN2/30.....	E-25			KZ022.....	B-7	LF55-500/4-20.....	K-39
HW4S340FB.....	B-27	HXE015P.....	B-23	IMN2/40.....	E-25			KZ023A.....	B-7	LF55-600.....	K-39
HW4S432DB.....	B-28	HXE022P.....	B-23	IMN2/50.....	E-25			KZ024.....	B-7	LF55-600/4-20.....	K-39
HW4S432FB.....	B-27	HXE024P.....	B-23	IMN2/60.....	E-25					LF55-800.....	K-39
HW4S440DB.....	B-28	HXE030H.....	B-23	INC1/DO-3A.....	K-4					LF55-800/4-20.....	K-39
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LH-MP-20/3MB.....	L-15	LPC QL203.....	D-2	LPM LM4.....	D-9	LPX B10.....	D-8	LS-148.....	K-38	M1P00912A6.....	A-11
LH-MP-20/3MN.....	L-15	LPC QL204.....	D-2	LPM LM5.....	D-9	LPX B20.....	D-8	LS-154-1.....	K-38	M1P00912A7.....	A-11
LH-MP-30/3MB.....	L-15	LPC QL205.....	D-2	LPM LM6.....	D-9	LPX BL10.....	D-8	LS-264.....	K-37	M1P00912A8.....	A-11
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ME24-C.....	M-7	MS-EX201.....	K-18	NF302A.....	B-3	NRN432.....	B-6	PFC9067L0062004.....	D-23	PMV10A440.....	J-18
ME24L-50.....	M-7	MS-HG-01.....	K-18	NF306A.....	B-3	NRN440.....	B-6	PFC9067L0107014.....	D-23	PMV20A575.....	J-18
ME3.....	M-7	MSLX1.....	K-18	NF310A.....	B-3	NRN450.....	B-6	PFC9067L0156004.....	D-23	PMV50A575.....	J-18
ME3-50.....	M-7	MTB.....	L-34	NF316A.....	B-3	NRN463.....	B-6	PFC9067L0214004.....	D-23	PMV50NA440.....	J-18
ME30.....	M-7	MTHP46-F.....	I-16	NF325A.....	B-3			PFC9067L0254004.....	D-23	PMV50NA600.....	J-18
ME30-50.....	M-7	MTHP46-M.....	I-16	NF332A.....	B-3			PFC9067L0313023.....	D-23	PMV55A240.....	J-18
ME30-C.....	M-7	MTS-102.....	D-37	NF340A.....	B-3			PFK1/BP-3H.....	K-2	PMV95NA575NFC.....	J-18
ME30L-50.....	M-7	MTS-102T.....	D-37	NF400A.....	B-3			PFK1/BP-4H.....	K-2	PMVF81.....	B-11
ME37-50.....	M-7	MTS-103.....	D-37	NF420A.....	B-3			PFM1/BP-3H.....	K-2	PO7000.....	M-5
ME37-C.....	M-7	MTS-103D.....	D-37	NF425A.....	B-3			PFM1/BP-4H.....	K-2	PPGA16-E-08B.....	L-26
ME48-50.....	M-7	MTS-103T.....	D-37	NF432A.....	B-3			PHPM12B.....	L-26	PPGA20-E-14B.....	L-26
ME48-C.....	M-7	MTS-202.....	D-37	NF440A.....	B-3			PHPM16B.....	L-26	PPGA25-E-18B.....	L-26
ME5.....	M-7	MTS-203.....	D-37	NFN150.....	B-3			PHPM20B.....	L-26	PPGA32-E-25B.....	L-26
ME5-50.....	M-7	MTT2AB.....	I-16	NFN163.....	B-3			PHPM22B.....	L-26	PPGB11-10B.....	L-25
ME60-C.....	M-7	MV1062.....	B-1	NFN250.....	B-3			PHPM25B.....	L-26	PPGB13.5-12B.....	L-25
ME7.....	M-7	MV1102.....	B-1	NFN263.....	B-3			PHPM32B.....	L-26	PPGB16-11B.....	L-25
ME7-50.....	M-7	MV116Z.....	B-1	NFN350.....	B-3			PHPM40B.....	L-26	PPGB19-14B.....	L-25
ME7-C.....	M-7	MV120Z.....	B-1	NFN363.....	B-3			PHPM50B.....	L-26	PPGB21-18B.....	L-25
ME80-C.....	M-7	MV125Z.....	B-1	NFN450.....	B-3			PHPM63B.....	L-26	PPGB7-5B.....	L-25
MEC-SG1026S.....	A-31	MV132Z.....	B-1	NGN102.....	B-4			PJ-SWB-06.....	L-27	PPGB9-8B.....	L-25
MEC-SG3026S.....	A-31	MV140Z.....	B-1	NGN104.....	B-4			PJ-SWB-12.....	L-27	PPKS11BX10.....	K-34
MG-120.....	H-20	MV2/A0-0A.....	K-5	NGN106.....	B-4			PJ-SWB-19.....	L-27	PR18S-BC10DPC-E2.....	K-16
MG-172.....	H-20	MV2/CO-0A.....	K-5	NGN110.....	B-4			PJ-VH-13.0.....	L-27	PR18S-BC10DPO-E2.....	K-16
MG-220.....	H-20	MV4/A0-0A.....	K-5	NGN116.....	B-4			PJ-VH-15.8.....	L-27	PR18S-BC40DPC-E2.....	K-16
MG-250.....	H-20	MV4/CO-0A.....	K-5	NGN120.....	B-4			PJ-VH-21.2.....	L-27	PR18S-BC40DPO-E2.....	K-16
MG-80.....	H-20	MV6/A0-0A.....	K-5	NGN125.....	B-4			PJ-VH-25.0.....	L-27	PR18S-DM3DPC-E2.....	K-16
MG-92.....	H-20	MV6/CO-0A.....	K-5	NGN132.....	B-4			PJ-VH-34.5.....	L-27	PR18S-DM3DPO-E2.....	K-16
MG4.....	M-6	MVC/A0-0A.....	K-5	NGN137.....	B-4			PJ-VH-42.5.....	L-27	PR18S-TM20D.....	K-16
MGM12-6.5.....	L-25	MVC/CO-0A.....	K-5	NGN140.....	B-4			PJ-VH-54.5.....	L-27	PR18S-TM20DPC.....	K-16
MGM16-8.....	L-25	MVE/00-0A.....	K-5	NGN150.....	B-4			PK3/00-1H.....	K-2	PR18S-TM20DPO.....	K-16
MGM18-10.....	L-25	MVM12.....	L-31	NGN163.....	B-4			PK3/00-2H.....	K-2	PRET0215PE.....	D-20
MGM20-12.....	L-25	MVM16.....	L-31	NGN202.....	B-4			PL-5-150-WH-O.....	K-14	PRGA0012PE.....	D-20
MGM20-12L.....	L-25	MVM8.....	L-31	NGN206.....	B-4			PL-Y-AA-1.....	G-4	PRGU6050PE.....	D-21
MGM22-14.....	L-25	MVR/A0-0A.....	K-5	NGN210.....	B-4			PL-Y-AS-1.....	G-4	PRSL0145PE.....	D-20
MGM25-16.....	L-25	MVR/CO-0A.....	K-5	NGN216.....	B-4			PL-Y-AT-1.....	G-4	PRSL0173PI.....	D-22
MGM25-16L.....	L-25	MX11P.....	A-11	NGN220.....	B-4			PL-Y-T100.....	G-4	PRSL0191PI.....	D-21
MGM32-22.....	L-25	MX202.....	A-11	NGN225.....	B-4			PL-Y-T1000.....	G-4	PRSL0356PI.....	D-23
MGM40-30.....	L-25	MX21P.....	A-11	NGN232.....	B-4			PL-Y-T15.....	G-4	PRSL0919PI.....	D-23
MGM50-38.....	L-25	MX30.....	A-11	NGN240.....	B-4			PL-Y-T150.....	G-4	PRSL0920PI.....	D-23
MGM63-44.....	L-25	MX31.....	A-11	NGN250.....	B-4			PL-Y-T250.....	G-4	PRSL0981PI.....	D-23
MGM8-4.5.....	L-25	MZ201.....	B-7	NGN263.....	B-4			PL-Y-T32.....	G-4	PRSL1000PI.....	D-20
MJT702.....	B-1	MZ202.....	B-7	NGN306.....	B-4			PL-Y-T50.....	G-4	PRSL1001PI.....	D-20
MJT706.....	B-1	MZ203.....	B-7	NGN310.....	B-4			PL-Y-T500.....	G-4	PRSL1002PI.....	D-20
MJT710.....	B-1	MZ204.....	B-7	NGN316.....	B-4			PLN131311.....	K-48	PRSL1003PI.....	D-20
MJT716.....	B-1	MZ206.....	B-7	NGN320.....	B-4			PLNM12B.....	L-26	PRSL1009PI.....	D-20
MJT720.....	B-1	MZ212.....	B-7	NGN325.....	B-4			PLNM16B.....	L-26	PRSL1800PI.....	D-19
MJT725.....	B-1	MZN130.....	B-7	NGN332.....	B-4			PLNM20B.....	L-26	PRSL1801PI.....	D-19
MJT732.....	B-1	MZN131.....	B-7	NGN340.....	B-4			PLNM22B.....	L-26	PRSL1810PI.....	D-20
MJT740.....	B-1	MZN175.....	B-7	NGN350.....	B-4			PLNM25B.....	L-26	PRSL1811PI.....	D-20
MKC-AFM.....	A-30			NGN363.....	B-4			PLNM32B.....	L-26	PRSL1820PI.....	D-19
MKC-BFM.....	A-30			NGN406.....	B-4			PLNM40B.....	L-26	PRSL1821PI.....	D-19
MKC-CFM.....	A-30			NGN410.....	B-4			PLNM50B.....	L-26	PRSL1830PI.....	D-20
MKC-DN1CB.....	A-30			NGN416.....	B-4			PLNM63B.....	L-26	PRSL1831PI.....	D-20
MKC-EN1CB.....	A-30			NGN425.....	B-4			PLNU1AT25W.....	K-48	PRSL1840PI.....	D-20
MKC-FN1CB.....	A-30							PM-A-2.....	G-3	PRSL1841PI.....	D-20
MKC-KPPK.....	A-30							PM-A-24.....	G-3	PRSL1842PI.....	D-20
MKM-DRB.....	A-26							PM-A-28.....	G-3	PRSL1845PI.....	D-20
MKM-DRC.....	A-26							PM-A-32.....	G-3	PRSL1846PI.....	D-20
MKM-HUB01.....	A-26							PM-CAB-D-10.....	G-3	PRSL1850PI.....	D-20
ML100L1-4.....	A-38							PM-CAB-D-2.....	G-3	PRSL1856BIC.....	D-20
ML100L1-4 B5	A-40							PM-CAB-D-5.....	G-3	PRSL1858BIC.....	D-20
ML711-2.....	A-38							PM-CAB-RS-10.....	G-3	PRSL1862BIC.....	D-20
								PM-CAB-RS-2.....	G-3	PRSL1868PI.....	D-20

PRSL1870PI.....	D-20	PVM12B.....	L-31	RCS01204.....	F-8	RPQ1015.....	L-36	S3N-PR-5-T51-PL.....	K-7	SF4-250DV.....	E-18
PRSL1880PI.....	D-20	PVM16.....	L-31	RCS02504.....	F-8	RPQ1018.....	L-36	S3N-PR-5-T53-OZ.....	K-8	SF4-2HA25.....	E-18
PRSL1885ROC.....	D-20	PVM16B.....	L-31	RCS05004.....	F-8	RPT3000.....	L-36	S3N-PR-5-W03-OZ.....	K-8	SF4-2HA45.....	E-18
PRSL1890PI.....	D-20	PVM8.....	L-31	RD-ST1.....	J-26	RPT3005.....	L-36	S45/604/B6/02A.....	J-29	SF463.....	B-13
PRSL4540PI.....	D-21	PVM8B.....	L-31	RD-TPA1.....	J-24	RPU2995.....	L-36	S45/604/B6/11A.....	J-29	SF7-3CM5A.....	E-17
PRSL4541PI.....	D-21	PXL.....	J-19	RD-TPA2.....	J-24	RPU3000.....	L-36	S45/604/B6/22A.....	J-29	SF7-3HA25.....	E-18
PRSL8512PI.....	D-20			RD-TPD1.....	J-24	RPU3005.....	L-36	S48/704/B6/02A.....	J-29	SF7-3HA45.....	E-18
PRSL8750PI.....	D-20			RD-TPD2.....	J-24	RPU3010.....	L-36	S48/704/B6/11A.....	J-29	SF7-3MD5A.....	E-17
PRSL9825PI.....	D-22	Q01-4.....	K-54	RE1-4VF.....	L-21	RPU3015.....	L-36	S48/704/B6/22A.....	J-29	SF7-8/5A.....	E-17
PRSL9828PI.....	D-22	Q048.....	D-13	RE1-4VFD.....	L-21	RPU3020.....	L-36	S5-4SV.....	L-19	SF7-8/7DA.....	E-18
PRSL9838PI.....	D-22	Q05-4.....	K-54	RE2-5VF.....	L-21	RRP1012D.....	J-34	S5-5V.....	L-19	SF7-8000DA.....	E-18
PRSL9839PI.....	D-22	Q50I8/OT-0A.....	K-10	RE5-5VFD.....	L-21	RRP1024AD.....	J-34	S5-6SV.....	L-19	SF7-8001A.....	E-17
PRSL9841PI.....	D-22	Q50I8/B0-0E.....	K-10	RE5-5VFD.....	L-21	RRP1110A.....	J-34	S940700075.....	K-7	SF7-8001DA.....	E-18
PRSL9844PI.....	D-22	Q50ID/OT-0A.....	K-10	RF110095.....	A-8	RRP1230A.....	J-34	SBN132.....	B-13	SF7-8005A.....	E-17
PRSL9845PI.....	D-22	Q50ID/B0-0E.....	K-10	RF110110.....	A-8	RS-LC3.....	J-26	SBN163.....	B-13	SF7-8005DA.....	E-18
PRSL9849PI.....	D-22	Q50IH/00-0E.....	K-10	RF120016.....	A-1	RS-MI10A.....	J-25	SBN190.....	B-13	SF7-8007DV.....	E-18
PRSL9873PI.....	D-22	Q50IH/OT-0A.....	K-10	RF120025.....	A-1	RS-MI5A.....	J-25	SBN199.....	B-13	SF7-8010A.....	E-17
PRSL9890PI.....	D-21	Q50IS/B0-0E.....	K-10	RF120040.....	A-1	RS-MV13.....	J-25	SBN232.....	B-13	SF7-8010DA.....	E-18
PRTA001MPI.....	D-20	Q50RN/OT-0A.....	K-10	RF120063.....	A-1	RS-MV31M.....	J-25	SBN263.....	B-13	SF7-8015A.....	E-17
PRTA002MPI.....	D-20	Q50RN/B0-0E.....	K-10	RF120080.....	A-1	RS-MV32M.....	J-25	SBN290.....	B-13	SF7-8015DA.....	E-18
PRTA003MPI.....	D-20	QA31-4.....	K-54	RF120100.....	A-1	RS-MV34M.....	J-25	SBN299.....	B-13	SF7-8015V.....	E-17
PRTA004MPI.....	D-20	QCM12-AD13.....	L-27	RF120160.....	A-1	RS-MV36M.....	J-25	SBN332.....	B-13	SF7-8022Z.....	E-18
PRTA005MPI.....	D-20	QCM16-AD15.8.....	L-27	RF120250.....	A-1	RS-TA14.....	J-23	SBN363.....	B-13	SF7-8030A.....	E-17
PRTA006MPI.....	D-20	QCM20-AD15.8.....	L-27	RF120400.....	A-1	RS-TB14.....	J-23	SBN390.....	B-13	SF7-8030DA.....	E-18
PRTA007MPI.....	D-20	QCM20-AD21.2.....	L-27	RF120630.....	A-1	RS-TC23.....	J-23	SBN399.....	B-13	SF7-8030V.....	E-17
PRTA008MPI.....	D-20	QCM25-AD25.....	L-27	RF121000.....	A-1	RS-TM14.....	J-23	SBN432.....	B-13	SF7-8038Z.....	E-18
PRTA011MPI.....	D-20	QCM32-AD34.5.....	L-27	RF121250.....	A-1	RS-TSL.....	J-24	SBN463.....	B-13	SF7-8038DV.....	E-18
PRTA012MPI.....	D-20	QCM40-AD42.5.....	L-27	RF200150.....	A-8	RS-TT13.....	J-23	SBN490.....	B-13	SF7-8050V.....	E-17
PRTA0150PE.....	D-21	QCM50-AD54.5.....	L-27	RF200200.....	A-8	RS-WIFI 12.....	J-23	SBN499.....	B-13	SF7-8060V.....	E-17
PRTA0151PE.....	D-21	QCM63-AD54.5.....	L-27	RF380016.....	A-8	RS-WIFI 2.....	J-23	SBQ1000.....	L-38	SF7-815DV.....	E-18
PRTA0152PE.....	D-21	QF14/BP-1F.....	K-9	RF380025.....	A-8	R511310.....	K-48	SBQ1005.....	L-38	SF7-8420DA.....	E-18
PRTA018MPI.....	D-20	QFR8/BP-1F.....	K-9	RF380040.....	A-8	RT110.....	B-11	SBQ1015.....	L-38	SF7-850DV.....	E-18
PRTA019MPI.....	D-20	QFRN/BP-1F.....	K-9	RF380063.....	A-8	RT120.....	B-11	SBQ1020.....	L-38	SF808A.....	H-20
PRTA022MPI.....	D-20	QFRS/BP-1F.....	K-9	RF380100.....	A-8	RT60.....	B-11	SBQ1025.....	L-38	SF808B.....	H-20
PRTA023MPI.....	D-20	QM19/OP-0F.....	K-9	RF380160.....	A-8	RT80.....	B-11	SBR1000.....	L-38	SF809A.....	H-20
PRTA026MPI.....	D-20	QM1C/OP-0F.....	K-9	RF380250.....	A-8	RTA110.....	B-11	SBR1005.....	L-38	SF809B.....	H-20
PRTA027MPI.....	D-20	QMR7/ON-0F.....	K-9	RF380400.....	A-8	RTA210.....	B-11	SBR1010.....	L-38	SF812A.....	H-20
PRTA095MPI.....	D-20	QMR7/OP-0F.....	K-9	RF380650.....	A-8	RTU-485.....	C-4	SBR1020.....	L-38	SF812B.....	H-20
PRTR0160PE.....	D-22	QMR8/ON-0F.....	K-9	RF382300.....	A-8	RTU-ECAT.....	C-4	SBR1025.....	L-38	SF817A.....	H-20
PRTR1035PE.....	D-20	QMR8/OP-0F.....	K-9	RF382500.....	A-8	RTU-EN01.....	C-4	SC120A111230A.....	J-35	SF817B.....	H-20
PRVV9020PE.....	D-21	QMRN/ON-0F.....	K-9	RF383200.....	A-8	RTU-PD01.....	C-4	SC120A211230A.....	J-35	SF822B.....	H-20
PRVV9025PE.....	D-21	QMRN/OP-0F.....	K-9	RF383800.....	A-8	RXLG-1.5KW/43RJ.....	A-36	SC5X.....	M-4	SF825B.....	H-20
PRVV9035PE.....	D-21	QMRHD/ON-0F.....	K-9	RF420250.....	A-8	RXLG-1KW/75RJ.....	A-36	SC10100600.....	J-15	SF9-3CM5A.....	E-17
PS3S.....	J-19	QMRHD/OP-0F.....	K-9	RF420300.....	A-8	RXLG-200W/360RJ.....	A-36	SC10251700.....	J-15	SF9-3HA25.....	E-18
PSC-100N.....	B-63	QMLR/ON-0F.....	K-9	RF420420.....	A-8	RXLG-200W/91RJ.....	A-36	SC10501200.....	J-15	SF9-3HA45.....	E-18
PSC-25/230.....	B-63	QMLR/OP-0F.....	K-9	RF824200.....	A-8	RXLG-2KW/32RJ.....	A-36	SCT-16-6X6.....	C-23	SF9-3MD5A.....	E-17
PSC-5/1000 PV.....	B-65	QMRN/OP-0F.....	K-9	RF825000.....	A-8	RXLG-3KW/26RJ.....	A-36	SCT-20-8X8.....	C-23	SF9-8/5A.....	E-17
PSC-5/1500 PV.....	B-65	QMRSD/OP-0F.....	K-9	RF826500.....	A-8	RXLG-300W/250RJ.....	A-36	SCT-25-10X10.....	C-23	SF9-8/7DA.....	E-18
PSC2-25/230 TT.....	B-63	QXC/A0-1A.....	K-11	RF828200.....	A-8	RXLG-300W/70RJ.....	A-36	SCT-25-8X10.....	C-23	SF9-8000DA.....	E-18
PSC2-25/230 TT IR.....	B-63	QXC/C0-1A.....	K-11	RF829500.....	A-8	RXLG-4KW/20RJ.....	A-36	SDI0501700.....	J-15	SF9-8001A.....	E-17
PSC3-5/1000 PV.....	B-65	QXR/A0-1A.....	K-11	RFE450200.....	A-8	RXLG-6KW/14RJ.....	A-36	SDI0501710.....	J-15	SF9-8001DA.....	E-18
PSC3-5/1000 PV IR.....	B-65	QXR/C0-1A.....	K-11	RFE450800.....	A-8	RXLG-80W/200RJ.....	A-36	SE1035.....	H-17	SF9-8005A.....	E-17
PSC3-5/1500 PV.....	B-65	QXX/00-1A.....	K-11	RFE453200.....	A-8	RXLG-80W/750RJ.....	A-36	SE1040.....	H-17	SF9-8005DA.....	E-18
PSC4-25/400 TT.....	B-63			RFE454500.....	A-8	RZ3A1A60S3.....	D-15	SE1040T.....	H-17	SF9-8007DV.....	E-18
PSC4-25/400 TT IR.....	B-63			RFX20035.....	A-8			SE1050.....	H-17	SF9-8010A.....	E-17
PSE-BC30DPBR-E3.....	K-16	R1-10V.....	L-19	RFX3801.....	A-8			SE1050T.....	H-17	SF9-8010DA.....	E-18
PSE-GM2DPBB-E3.....	K-16	R1-12V.....	L-19	RFX3802.....	A-8	S1-3.5MV.....	L-19	SE1065.....	H-17	SF9-8015A.....	E-17
PSE-PM3DPBR-E3.....	K-16	R1-3.5MV.....	L-19	RFX3803.....	A-8	S1-3.5V.....	L-19	SE1065T.....	H-17	SF9-8015DA.....	E-18
PSE-TM10DPBR-E3.....	K-16	R1-3V.....	L-19	RFX3804.....	A-8	S1-4MV.....	L-19	SE1070.....	H-17	SF9-8015V.....	E-17
PSE-TM10DR-E3.....	K-16	R1-4LV.....	L-19	RFX42035.....	A-8	S1-4SV.....	L-19	SE1070T.....	H-17	SF9-8022Z.....	E-18
PSE-TM20D-E3.....	K-16	R1-4SV.....	L-19	RFX42036.....	A-8	S1-5SV.....	L-19	SE1080.....	H-17	SF9-8030A.....	E-17
PSE-TM20DPB-E3.....	K-16	R1-5V.....	L-19	RGK400SA.....	F-2	S1-6SV.....	L-19	SE1080T.....	H-17	SF9-8030DA.....	E-18
PSM-20/230.....	B-64	R1-6V.....	L-19	RGK420SA.....	F-2	S2-3.5MV.....	L-19	SE1090.....	H-17	SF9-8030V.....	E-17
PSM-20N.....	B-64	R1-8V.....	L-19	RGK600.....	F-1	S2-3.5V.....	L-19	SE1090T.....	H-17	SF9-8038Z.....	E-18
PSM-30/750.....	B-64	R1D 415.....	B-11	RGK601.....	F-1	S2-4LV.....	L-19	SE1100.....	H-17	SF9-803DV.....	E-18
PSM-40/1000 PV.....	B-65	R2-10V.....	L-19	RGK601SA.....	F-2	S2-4SV.....	L-19	SE1100T.....	H-17	SF9-8050V.....	E-17
PSM-40/1500 PV.....	B-65	R2-12V.....	L-19	RGK610.....	F-1	S2-5SV.....	L-19	SE1201.....	H-17	SF9-8060V.....	E-17
PSM-40/600 PV.....	B-65	R2-25MV.....	L-19	RGK700.....	F-1	S2-6SV.....	L-19	SE1201T.....	H-17	SF9-815DV.....	E-18
PSM1-20/230.....	B-64	R2-3V.....	L-19	RGK800.....	F-1	S3N-PH-5-B01-N.....	K-7	SF1110A.....	J-35	SF9-8420DA.....	E-18
PSM1-20N.....	B-64	R2-4LV.....	L-19	RGK900.....	F-1	S3N-PH-5-B01-P.....	K-7	SF1400A.....	J-35	SF9-850DV.....	E-18
PSM1-30/750 IR.....	B-64	R2-4SV.....	L-19	RGK900MC.....	F-1	S3N-PH-5-B03-OZ.....	K-8	SF1525A.....	J-35	SFH125.....	B-13
PSM2-20/230 TT.....	B-64	R2-5SV.....	L-19	RGK900SA.....	F-1	S3N-PH-5-FG01-N.....	K-7	SF1K400A.....	J-35	SFH225.....	B-13
PSM2-40/230 SG.....	B-66	R2-6V.....	L-19	RGK900SA.....	F-1	S3N-PH-5-FG01-P.....	K-7	SF1K525A.....	J-35	SFN-4K1-DCU.....	E-19
PSM3-30/750 TNC.....	B-64	R2-8V.....	L-19	RGK900SA.....	F-1	S3N-PH-5-FG03-OZ.....	K-8	SF263.....	B-13	SFN-4K1-F.....	E-19
PSM3-30/750 TNC IR.....	B-64	R2D 415.....	B-11	RGK900SA.....	F-1	S3N-PH-5-M01-N.....	K-7	SF4-2/5A.....	E-17	SFN-4K1-I.....	E-19
PSM3-40/1000 PV.....	B-65	R2U012AD.....	J-33	RGK900SA.....	F-1	S3N-PH-5-M01-P.....	K-7	SF4-2/7DA.....	E-18	SFN-4K1-U.....	E-19
PSM3-40/1000 PV IR.....	B-65	R2U024AD.....	J-33	RGK900SA.....	F-1	S3N-PH-5-M03-OZ.....	K-8	SF4-2000DA.....	E-18	SFN-4K3-3I.....	E-19
PSM3-40/1500 PV.....	B-65	R2U230A.....	J-33	RGK900SA.....	F-1	S3N-PR-5-B01-N.....	K-7	SF4-2001A.....	E-17	SFN-4K3-3U.....	E-19
PSM3-40/1500 PV IR.....	B-65	R2U400A.....	J-33	RGK900SA.....	F-1	S3N-PR-5-B01-PD.....	K-7	SF4-2001DA.....	E-18	SFN-4K3-UIF.....	E-19
PSM3-40/600 PV.....	B-65	R4D 415.....	B-11	RGK900SA.....	F-1	S3N-PR-5-B01-PL.....	K-7	SF4-2005A.....	E-17	SFN-5K1-DCU.....	E-19
PSM3-40/600 PV IR.....	B-65	R5-10V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-B03-OZ.....	K-8	SF4-2005DA.....	E-18	SFN-5K1-F.....	E-19
PSM4-20/400 TT.....	B-64	R5-12V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C01-N.....	K-7	SF4-2007DV.....	E-18	SFN-5K1-I.....	E-19
PSM4-40/400 SG.....	B-66	R5-3.5SV.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C01-PD.....	K-7	SF4-2010A.....	E-17	SFN-5K1-U.....	E-19
PSP1002.....	L-36	R5-3V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C03-OZ.....	K-8	SF4-2010DA.....	E-18	SFN-5K1-U.....	E-19
PSP1005.....	L-36	R5-4LV.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C11-PL.....	K-7	SF4-2015A.....	E-17	SFN-7K1-DCU.....	E-19
PSR1230A.....	J-36	R5-4SV.....	L-19	RGK900SA.....	F-1	S3N-PR-5-C13-OZ.....	K-8	SF4-2015V.....	E-17	SFN-7K1-F.....	E-19
PSRM12-P-7B.....	L-26	R5-5V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-FG01-N.....	K-7	SF4-2022Z.....	E-18	SFN-7K1-I.....	E-19
PSRM16-P-10B.....	L-26	R5-6V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-FG01-PD.....	K-7	SF4-2030A.....	E-17	SFN-7K1-U.....	E-19
PSRM20S-P-12B.....	L-26	R5-8V.....	L-19	RGK900SA.....	F-1	S3N-PR-5-FG01-PL.....	K-7	SF4-2030DA.....	E-18	SFN-7K1DC-I.....	E-19
PT1-10V.....	L-19	RAM16/M12H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M01-N.....	K-7	SF4-2030V.....	E-17	SFN-7K3-3I.....	E-19
PT2-10V.....	L-19	RAM20/M16H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M01-PD.....	K-7	SF4-2038Z.....	E-18	SFN-7K3-3U.....	E-19
PT2-12V.....	L-19	RAM25/M20H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M01-PL.....	K-7	SF4-203DV.....	E-18	SFN-7K3-UIF.....	E-19
PT5-13V.....	L-19	RAM32/M25H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M03-OZ.....	K-8	SF4-2050V.....	E-17	SFN-9K1-DCU.....	E-19
PTF/30.....	B-45	RAM40/M32H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-M03-OZ.....	K-8	SF4-2060V.....	E-17	SFN-9K1-F.....	E-19
PTF/35.....	B-45	RAM50/M40H.....	L-26	RGK900SA.....	F-1	S3N-PR-5-T51-N.....	K-7	SF4-215DV.....	E-18	SFN-9K1-I.....	E-19
PTF/78A.....	B-45	RC110 415.....	B-11	RGK900SA.....	F-1	S3N-PR-5-T51-PD.....	K-7	SF4-2420DA.....			

SFN-9K1DC-I	E-19	SM1R2500	A-9	SOB965660	J-13	SVF113H	H-19	T3CR 160L-4 B5	A-39	TMS1055	L-41
SFN-9K3-3I	E-19	SM1R3200	A-9	SOM020100	J-15	SVF114H	H-19	T3CR 160L-6	A-38	TMS1060	L-41
SFN-9K3-3U	E-19	SM1R4000	A-9	SOM040200	J-15	SVF115H	H-19	T3CR 160L-6 B5	A-40	TMS1065	L-41
SFN-9K3-UIF	E-19	SM1X1111	A-10	SP1	L-21	SVF116H	H-19	T3CR 160M-4	A-37	TMS1070	L-41
SFR-APF4-100/0.4B	F-13	SM1X1120	A-10	SP2	L-21	SVN121	B-17	T3CR 160M-4 B5	A-39	TMS1075	L-41
SFR-APF4-150/0.4B	F-13	SM1X1211	A-10	SP5	L-21	SVN122	B-17	T3CR 160M-6	A-38	TMS1080	L-41
SFR-APF4-30/0.4B	F-13	SM1X1220	A-10	SPA801	B-16	SVN123	B-17	T3CR 160M-6 B5	A-40	TMS1085	L-41
SFR-APF4-50/0.4B	F-13	SM1X1311	A-10	SPB040D	B-16	SVN126	B-17	T3CR 160M1-2	A-37	TMS1090	L-41
SFR-APF4-75/0.4B	F-13	SM1X14230	A-10	SPB040N	B-16	SVN131	B-17	T3CR 160M1-2 B5	A-39	TMS1100	L-41
SFR-SVG4-100/0.4B	F-14	SM1X14400	A-10	SPB140D	B-16	SVN132	B-17	T3CR 160M2-2	A-37	TMS1105	L-41
SFR-SVG4-30/0.4B	F-14	SM1X16024	A-10	SPB240D	B-16	SVN223	B-17	T3CR 160M2-2 B5	A-39	TMS1110	L-41
SFR-SVG4-50/0.4B	F-14	SM1X16110	A-10	SPB240R	B-16	SVN351	B-17	T3CR 180L-4	A-37	TMS1115	L-41
SFR-SVG4-75/0.4B	F-14	SM1X16230	A-10	SPB440D	B-16	SVN391	B-17	T3CR 180L-4 B5	A-39	TMS1120	L-41
SFT125	B-13	SM1X16400	A-10	SPB440R	B-16	SVN411	B-17	T3CR 180L-6	A-38	TMS1125	L-41
SFT140	B-13	SM1X1740P	A-10	SPN802R	B-16	SY-CP4A-F	I-16	T3CR 180L-6 B5	A-40	TMS1130	L-41
SFT240	B-13	SM1X1745P	A-10	SPR-024-B	L-31	SY-CP4A-M	I-16	T3CR 180M-2	A-37	TMS1135	L-41
SFT440	B-13	SM1X18200R	A-10	SPR-034-B	L-31			T3CR 180M-2 B5	A-39	TMS1140	L-41
SGB8850200	J-16	SM1X18S	A-10	SPR-060-B	L-31			T3CR 180M-4	A-37	TMS1145	L-41
SGB8890200	J-16	SM1X3040P	A-10	SPR-071-B	L-31			T3CR 180M-4 B5	A-39	TMST	J-17
SGT8658500	J-16	SM1X3040R	A-10	SPR-100-B	L-31			T3CR 200L1-2	A-37	TMSTA440	J-17
SGT8670500	J-16	SM1X3141P	A-10	SPR-120-B	L-31			T3CR 200L1-2 B5	A-39	TN120SE	M-5
SGT8678500	J-16	SM1X3141R	A-10	SPR-140-B	L-31			T3CR 200L1-4	A-37	TN70SE	M-5
SGT8690500	J-16	SM1X3150R	A-13	SPR-158-B	L-31			T3CR 200L1-4 B5	A-39	TNE180S230A	J-33
SGT8698500	J-16	SM1X3241P	A-10	SPR-178-B	L-31			T3CR 200L1-6	A-38	TNE30S024AD	J-33
SGT8850200	J-16	SM1X3241R	A-10	SPR-215-B	L-31			T3CR 200L1-6 B5	A-40	TNE30S110A	J-33
SGT9834300	J-16	SM1Z1701P	A-10	SPR-245-B	L-31			T3CR 200L2-2	A-37	TNE30S230A	J-33
SGT9854300	J-16	SM1Z1705P	A-10	SPR-306-B	L-31			T3CR 200L2-2 B5	A-39	TNE30S400A	J-33
SGT9874300	J-16	SM1Z1715R	A-10	SSM1089-04	L-16			T3CR 200L2-6	A-38	TNE60S024AD	J-33
SGTA4650	J-16	SM20	L-37	SSM1089-04/PS	L-16			T3CR 200L2-6 B5	A-40	TNE60S230A	J-33
SGTA4654	J-16	SM25	L-37	SSM1089-16	L-16			T3CR 225M-2	A-37	TNE60S400A	J-33
SJ-100/J505B	K-27	SM2R5000	A-9	SSM1089-16/PS	L-16			T3CR 225M-2 B5	A-39	TOP1000	L-38
SJ-100/J505B3	K-27	SM2R6300	A-9	SSM12-6.5	L-25			T3CR 225M-6	A-38	TOP1005	L-38
SJ-100/J510B	K-27	SM2X1111	A-10	SSM16-08	L-25			T3CR 225M-6 B5	A-40	TOP1010	L-38
SJ-100/J510B3	K-27	SM2X1120	A-10	SSM1989-04	L-16			T3CR 225M1-4	A-37	TOP1025	L-38
SJ-100/J520B	K-27	SM2X1211	A-10	SSM1989-04/PS	L-16			T3CR 225M1-4 B5	A-39	TOP1030	L-38
SJ-100/J520B3	K-27	SM2X1220	A-10	SSM1989-16	L-16			T3CR 225S-4	A-37	TOP1035	L-38
SJ-100/K505B	K-27	SM2X1311	A-10	SSM1989-16/PS	L-16			T3CR 225S-4 B5	A-39	TOP1040	L-38
SJ-100/K505B3	K-27	SM2X14230	A-10	SSM20-12	L-25			T3CR 250M1-2	A-37	TOP1045	L-38
SJ-100/K510B	K-27	SM2X14400	A-10	SSM25-16	L-25			T3CR 250M1-2 B5	A-39	TOP1050	L-38
SJ-100/K510B3	K-27	SM2X16024	A-10	SSM32-22	L-25			T3CR 250M1-4	A-37	TOP1055	L-38
SJ-100/K520B	K-27	SM2X16110	A-10	SST4/15-04	L-16			T3CR 250M1-4 B5	A-39	TOP1100	L-38
SJ-100/K520B3	K-27	SM2X16230	A-10	SST4/25-04	L-16			T3CR 250M1-6	A-38	TOP1105	L-38
SJ-105/J510B	K-27	SM2X16400	A-10	SST4/35-04	L-16			T3CR 250M1-6 B5	A-40	TOP2000	L-38
SJ-105/J510B3	K-27	SM2X18200R	A-10	SST4/45-04	L-16			T3CR 250M2-2	A-37	TP04G-AL-C	C-14
SJ-105/J520B	K-27	SM30	L-37	SST4/55-04	L-16			T3CR 250M2-2 B5	A-39	TP04G-AL-2	C-14
SJ-105/J520B3	K-27	SM35	L-37	SST7/25-04	L-16			T3CR 250M2-4	A-37	TP04G-AS2	C-14
SJ-105/K510B	K-27	SM3R7500	A-9	SST7/45-04	L-16			T3CR 250M2-4 B5	A-39	TP04P-16TPIR	C-14
SJ-105/K510B3	K-27	SM3R9000	A-9	SST7/60-04	L-16			T3CR 250M2-6	A-38	TP04P-22XA1R	C-14
SJ-105/K520B	K-27	SM3R9900	A-9	SST7/80-04	L-16			T3CR 250M2-6 B5	A-40	TP04P-32TPIR	C-14
SJ-105/K520B3	K-27	SM40	L-37	SSTP4/20-16	L-16			T3CR 280M1-2	A-37	TP08G-BT2	C-14
SJ-106/JM8B	K-27	SM45	L-37	SSTP4/30-16	L-16			T3CR 280M1-2 B5	A-39	TP1	J-32
SJ-106/JM8B3	K-27	SM51	L-37	SSTP4/40-16	L-16			T3CR 280M1-4	A-37	TP19U230B	H-22
SJ-106/KM8B	K-27	SM60	L-37	SSTP4/50-16	L-16			T3CR 280M1-4 B5	A-39	TP19U230B54	H-22
SJ-106/KM8B3	K-27	SM76	L-37	SSTP7/30-16	L-16			T3CR 280M1-6	A-38	TP70P-16TPIR	C-14
SJ-107/J5BB	K-27	SMB8650510	J-16	SSTP7/40-16	L-16			T3CR 280M1-6 B5	A-40	TP70P-21EX1R	C-14
SJ-107/J5BB3	K-27	SMB8670910	J-16	SSTP7/60-16	L-16			T3CR 280M2-2	A-37	TP70P-22XA1R	C-14
SJ-107/K5BB	K-27	SMT8620520	J-16	SSTP7/80-16	L-16			T3CR 280M2-2 B5	A-39	TP70P-32TPIR	C-14
SJ-107/K5BB3	K-27	SMT8628520	J-16	ST 01	K-11			T3CR 280M2-4	A-37	TP70P-32TPIR	C-14
SJ-301/P505P	K-27	SMX9030	A-10	ST 02	K-11			T3CR 280M2-4 B5	A-39	TPC150-W1010	C-16
SJ-301/P505P3	K-27	SMX9032	A-10	ST 03	K-11			T3CR 280M2-6	A-38	TPC190-W1010	C-16
SJ-301/P510T	K-27	SMX9033	A-10	ST 03U	K-11			T3CR 280M2-6 B5	A-40	TPC238-W1010	C-16
SJ-301/P510T3	K-27	SMX9034	A-10	ST 101	K-11			T3CR 801-2	A-37	TRT-10A230V-NC	H-21
SJ-301/P520T	K-27	SMX9035	A-10	ST 102	K-11			T3CR 801-2 B5	A-39	TRT-10A230V-NO	H-21
SJ-301/P520T3	K-27	SMX9042	A-10	ST 103	K-11			T3CR 802-2	A-37	TS-01	J-26
SJ-302/P510T	K-27	SMX9043	A-10	ST 104	K-11			T3CR 802-2 B5	A-39	TS-S M5	L-13
SJ-302/P510T3	K-27	SMX9044	A-10	ST 18-A	K-11			T3CR 802-4	A-37	TS35	L-13
SJ-302/P520T	K-27	SMX9045	A-10	ST 30-C	K-11			T3CR 802-4 B5	A-39	TS35/C	L-13
SJ-302/P520T3	K-27	SN1	J-19	ST 30-A	K-11			T3CR 802-4 B5	A-39	TS35/CF5A	L-13
SJ-305/P520T	K-27	SNL1	J-26	ST 30-C	K-11			T3CR 90L-2	A-37	TS35/CF5A	L-13
SJ-305/P520T3	K-27	SO465020	J-15	ST 80	K-11			T3CR 90L-2 B5	A-40	TS35/F6 INOX	L-13
SM1P0016	A-9	SO465320	J-15	ST 81	K-11			T3CR 90L-4	A-37	TS35/SF6	L-13
SM1P0025	A-9	SO465420	J-15	ST18-S	K-4			T3CR 90L-4 B5	A-39	TSLO25025N	L-11
SM1P0040	A-9	SO467420	J-15	ST18-V	K-4			T3CR 90L-6	A-38	TSLO25040N	L-11
SM1P0063	A-9	SO468020	J-15	ST300D	K-11			T3CR 90L-6 B5	A-40	TSLO25060N	L-11
SM1P0100	A-9	SO468420	J-15	ST303	B-17			T3CR 90S-2	A-37	TSLO25080N	L-11
SM1P0160	A-9	SO469020	J-15	ST305	B-17			T3CR 90S-4	A-37	TSLO25080N	L-11
SM1P0250	A-9	SO469420	J-15	ST312	B-17			T3CR 90S-4 B5	A-39	TSLO400040N	L-11
SM1P0400	A-9	SO765090	J-13	ST314	B-17			T3CR 90S-6	A-38	TSLO40060N	L-11
SM1P0650	A-9	SO767090	J-13	ST315	B-17			T3CR 90S-6 B5	A-40	TSLO40060W	L-11
SM1P1000	A-9	SO768090	J-13	STQMO	K-11			T3M024AD	J-33	TSLO40100N	L-11
SM1P1400	A-9	SO842074	J-13	SU213	B-17			T3M110A	J-33	TSLO40100W	L-11
SM1P1800	A-9	SO842974	J-13	SU214	B-17			T3M230A	J-33	TSLO60040N	L-11
SM1P2500	A-9	SO845070	J-13	SU215	B-17			TAP-CN03	C-17	TSLO60060N	L-11
SM1P3200	A-9	SO865070	J-13	SU842070	J-14			TAP-TR01	C-17	TSLO60060W	L-11
SM1P4000	A-9	SO865970	J-13	SU842970	J-14			TB006	I-16	TSLO60080N	L-11
SM1R0016	A-9	SO867070	J-13	SU865070	J-14			TC-CA-H/S	K-27	TSLO60080W	L-11
SM1R0025	A-9	SO867970	J-13	SU865970	J-14			TC-IC-H/S	K-27	TSLO60100N	L-11
SM1R0040	A-9	SO868070	J-13	SU867070	J-14			TCO50	M-5	TSLO60100W	L-11
SM1R0063	A-9	SO868970	J-13	SU942460	J-14			TD-02	K-16	TSLO80040N	L-11
SM1R0100	A-9	SO869070	J-13	SU963460	J-14			TD-09	K-16	TSLO80060N	L-11
SM1R0160	A-9	SO869970	J-13	SU965460	J-14			TG 3102-24V	H-23	TSLO80060W	L-11
SM1R0250	A-9	SO941460	J-13	SU967460	J-14			TG 3200-24V	H-23	TSLO80080N	L-11
SM1R0400	A-9	SO942460	J-13	SUL842070	J-14			THB510	I-16	TSLO80080W	L-11
SM1R0650	A-9	SO943460	J-13	SUL842970	J-14			THC1230A	J-34	TSLO80100N	L-11
SM1R1000	A-9	SO945460	J-13	SUL865970	J-14			TMD	J-17	TSLO80100W	L-11
SM1R1400	A-9	SO965460	J-13	SUL942460	J-14			TMM1	J-17	TSLO80060N	L-11
SM1R1800	A-9	SO967460	J-13	SVF112H	H-19			TMM1NFC	J-17	TSLO80060W	L-11
								TMPL	J-17	TSLO80080N	L-11
								TMS1010	L-41	TSLO80080W	L-11
								TMS1015	L-41	TSLO80100N	L-11
								TMS1020	L-41	TSLO80100W	L-11
								TMS1025	L-41	TSM025	L-11
								TMS1035	L-41	TSM040	L-11
								TMS1040	L-41	TSM060	L-11
								TMS1045	L-41	TSM080	L-11
								TMS1050	L-41	TSM100	L-11
										TST20	L-13

TST30	L-13
TST40	L-13
TST50	L-13
TST70	L-13

UB-10-ID16A	C-18
UB-10-ID32A	C-18
UB-10-IO16C	C-18
UB-10-IO24C	C-18
UB-10-IO32D	C-18
UB-10-OR16A	C-18
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