Automation and Control Essentials Catalog 2022

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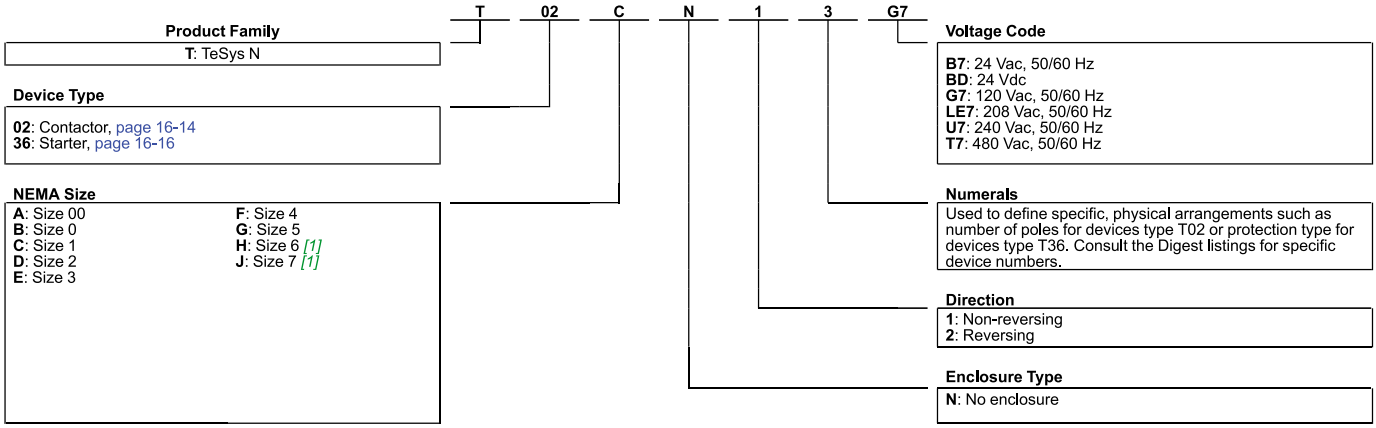
The Essentials for your control panels

You will find all the essentials you need for high-quality control panels in this catalog. Choose the right products to set up your equipment with ease, complete your work faster, and give your business a boost.

Interpreting the Catalog Number

Table 16.36: TeSys N Catalog Numbering System



[1] Not available for reversing Type T36 devices.

TeSys N non-reversing contactor, Size 1

TeSys N non-reversing contactor, Size 3

New!

TeSys N Non-Reversing Contactors

TeSys N contactors are used to switch heating loads, capacitors, transformers and electric motors where overload protection is provided separately. TeSys N contactors are available in NEMA Sizes 00–7. Target market segments include hospitals; retail; food and beverage; marine; oil and gas; and mining, metals, and minerals.

Table 16.37: TeSys N Non-Reversing Contactors, 3-Pole Polyphase, 600 Vac Max. (replace •• with the coil voltage code)

NEMA Size	Continuous Current Rating (A)	Motor Voltage	Max HP	Open Catalog No. *[2]*
00	9	200	1.5	T02AN13••
		230	1.5	
		460	2	
		575	2	
0	18	200	3	T02BN13••
		230	3	
		460	5	
		575	5	
1	27	200	7.5	T02CN13••
		230	7.5	
		460	10	
		575	10	
2	45	200	10	T02DN13••
		230	15	
		460	25	
		575	25	
3	90	200	25	T02EN13••*[3]*
		230	30	
		460	50	
		575	50	
4	135	200	40	T02FN13••*[3]*
		230	50	
		460	100	
		575	100	
5	270	200	75	T02GN13••*[3]*
		230	100	
		460	200	
		575	200	
6	540	200	150	T02HN13••*[3]*
		230	200	
		460	400	
		575	400	
7	810	200	—	T02JN13••*[3]*
		230	300	
		460	600	
		575	600	

Table 16.38: TeSys N Non-Reversing Contactors, 3-Pole Single Phase, 600 Vac Max. (replace •• with the coil voltage code)

NEMA Size	Continuous Current Rating (A)	Motor Voltage	Max HP	Open Catalog Number
00	9	115	1/3	T02AN13••
		230	1	
0	18	115	1	T02BN13••
		230	2	
1	27	115	2	T02CN13••
		230	3	
2	45	115	3	T02DN13••
		230	7.5	

Table 16.39: TeSys N Coil Voltage Codes

Voltage	Voltage Code by NEMA Size								
	Size 00	Size 0	Size 1	Size 2	Size 3	Size 4	Size 5	Size 6	Size 7
24 Vac	B7	B7	B7	B7	B6	B6	n/a		
24 Vdc	BD	BD	BD	BD	BD	BD	n/a		
120 Vac	G7	G7	G7	G7	G7	G7	G7	F7	F7
208 Vac	LE7	LE7	LE7	LE7	L7	L7	L7	L7	L7
240 Vac	U7	U7	U7	U7	U7	U7	U7	U7	U7
480 Vac	T7	T7	T7	T7	S7	S7	S7	N7	N7

Dimensions: page 16-23 to page 16-27
Accessories: page 16-18 to page 16-21
Replacement Parts: page 16-22
Lugs: page 16-21

[2] Replace the bullets (••) in the catalog number with the coil voltage code. Refer to voltage codes shown in Table 16.39.
[3] Order lugs separately. See . The mounting hardware (screws, washers, and nuts) comes with the contactors, not the lugs. Starters Sizes 3–7 come with lugs.

TeSys N reversing contactor, Size 00

TeSys N reversing contactor, Size 4

New!

TeSys N Reversing Contactors

TeSys N reversing contactors are used for starting, stopping and reversing AC motors where overload protection is provided separately. TeSys N reversing contactors are mechanically and electrically interlocked and are available in NEMA Sizes 00–7. Target market segments include hospitals; retail; food and beverage; marine; oil and gas; and mining, metals, and minerals.

Table 16.40: TeSys N Reversing Contactors, 3-Pole Polyphase, 600 Vac Max. (replace •• with the coil voltage code)

NEMA Size	Continuous Current Rating (A)	Motor Voltage	Max HP	Open Catalog No. [4]
00	9	200	1.5	T02AN23••
		230	1.5	
		460	2	
		575	2	
0	18	200	3	T02BN23••
		230	3	
		460	5	
		575	5	
1	27	200	7.5	T02CN23••
		230	7.5	
		460	10	
		575	10	
2	45	200	10	T02DN23••
		230	15	
		460	25	
		575	25	
3	90	200	25	T02EN23••[5]
		230	30	
		460	50	
		575	50	
4	135	200	40	T02FN23••[5]
		230	50	
		460	100	
		575	100	
5	270	200	75	T02GN23••[5]
		230	100	
		460	200	
		575	200	
6	540	200	150	T02HN23••[5]
		230	200	
		460	400	
		575	400	
7	810	200	—	T02JN23••[5]
		230	300	
		460	600	
		575	600	

Table 16.41: TeSys N Reversing Contactors, 3-Pole Single Phase, 600 Vac Max. (replace •• with the coil voltage code)

NEMA Size	Continuous Current Rating (A)	Motor Voltage	Max HP	Open Catalog No. [4]
00	9	115	1/3	T02AN23••
		230	1	
0	18	115	1	T02BN23••
		230	2	
1	27	115	2	T02CN23••
		230	3	
2	45	115	3	T02DN23••
		230	7.5	

Table 16.42: TeSys N Coil Voltage Codes

Voltage	Voltage Code by NEMA Size								
	Size 00	Size 0	Size 1	Size 2	Size 3	Size 4	Size 5	Size 6	Size 7
24 Vac	B7	B7	B7	B7	B6	B6	n/a		
24 Vdc	BD	BD	BD	BD	BD	BD	n/a		
120 Vac	G7	G7	G7	G7	G7	G7	G7	F7	F7
208 Vac	LE7	LE7	LE7	LE7	L7	L7	L7	L7	L7
240 Vac	U7	U7	U7	U7	U7	U7	U7	U7	U7
480 Vac	T7	T7	T7	T7	S7	S7	S7	N7	N7

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Replacement Parts: page 16-22
Lugs: page 16-21

[4] Replace the bullets (••) in the catalog number with the coil voltage code. Refer to the voltage codes shown in Table 16.42.
[5] Order lugs separately. See . The mounting hardware (screws, washers, and nuts) comes with the contactors, not the lugs. Starters Sizes 3–7 come with lugs.

New!

TeSys N Non-Reversing Starters

TeSys N starters are used for full-voltage starting and stopping of AC squirrel-cage motors. Starters are available in NEMA Sizes 00–7 and come standard with Motor Logic Class 10/20 selectable solid-state overload relays. Starters with bimetal overload protection can be assembled from TeSys N contactors and TeSys D overload relays.

TeSys N non-reversing starter, Size 1

TeSys N Size 1 Contactor + TeSys LRD Bimetallic Overload Relay

TeSys N non-reversing starter, Size 3

TeSys N Size 1 Contactor + TeSys LR9D Electronic Overload Relay

For more information on TeSys D relays, see Section 18.

Dimensions: page 16-23
TeSys N Accessories: pages page 16-18

Table 16.43: 3-Pole Polyphase, 600 Vac Max. (replace ●● with the coil voltage code)

NEMA Size	Continuous Current Rating (A)	Motor Voltage	Max HP	Open Catalog No. *[6]*
00	9	200	1.5	T36AN13●●
		230	1.5	
		460	2	
		575	2	
0	18	200	3	T36BN13●●
		230	3	
		460	5	
		575	5	
1 *[7]*	27	200	7.5	T36CN13●●
		230	7.5	
		460	10	
		575	10	
2	45	200	10	T36DN13●●
		230	15	
		460	25	
		575	25	
3	90	200	25	T36EN13●●
		230	30	
		460	50	
		575	50	
4	135	200	40	T36FN13●●
		230	50	
		460	100	
		575	100	
5	270	200	75	T36GN13●●
		230	100	
		460	200	
		575	200	
6	540	200	150	T36HN13●●
		230	200	
		460	400	
		575	400	
7	810	200	—	T36JN13●●
		230	300	
		460	600	
		575	600	

Table 16.44: TeSys N Coil Voltage Codes

Voltage	Voltage Code by NEMA Size								
	Size 00	Size 0	Size 1	Size 2	Size 3	Size 4	Size 5	Size 6	Size 7
24 Vac *[8]*	B7	B7	B7	B7	B6	B6	—	—	—
24 Vdc *[9]*	BD	BD	BD	BD	BD	BD	—	—	—
120 Vac *[8]*	G7	G7	G7	G7	G7	G7	G7	F7	F7
208 Vac	LE7	LE7	LE7	LE7	L7	L7	L7	L7	L7
240 Vac	U7	U7	U7	U7	U7	U7	U7	U7	U7
480 Vac	T7	T7	T7	T7	S7	S7	S7	N7	N7

Table 16.45: TeSys LR9D Electronic Overload Relays

Current Setting Range (A)	For Direct Mounting to TeSys N Contactors	Class 5/10/20/30 Selectable
0.1–0.5	Size 00–1	LR9D01
0.4–2.0		LR9D02
1.6–8.0		LR9D08
6.4–32		LR9D32

Table 16.46: TeSys D Overload Relays—Ambient Compensated, Bimetallic, Direct Mounting

Current Setting Range (A)	For Direct Mounting to TeSys N Contactors	Class 10 with Single-Phase Sensitivity	Class 10 without Single-Phase Sensitivity	Class 20 with Single-Phase Sensitivity	Class 20 without Single-Phase Sensitivity
0.10–0.16	Size 00–1	LRD01	LR3D01	—	—
0.16–0.25	Size 00–1	LRD02	LR3D02	—	—
0.25–0.40	Size 00–1	LRD03	LR3D03	—	—
0.40–0.63	Size 00–1	LRD04	LR3D04	LRD04L	LR3D04L
0.63–1	Size 00–1	LRD05	LR3D05	LRD05L	LR3D05L
1–1.6	Size 00–1	LRD06	LR3D06	LRD06L	LR3D06L
1.6–2.5	Size 00–1	LRD07	LR3D07	LRD07L	LR3D07L
2.5–4	Size 00–1	LRD08	LR3D08	LRD08L	LR3D08L
4–6	Size 00–1	LRD10	LR3D10	LRD10L	LR3D10L
5.5–8	Size 00–1	LRD12	LR3D12	LRD12L	LR3D12L
7–10	Size 00–1	LRD14	LR3D14	LRD14L	LR3D14L
9–13	Size 0–1	LRD16	LR3D16	LRD16L	LR3D16L
12–18	Size 0–1	LRD21	LR3D21	LRD21L	LR3D21L
16–24	Size 0–1	LRD22	LR3D22	—	—
17–24	Size 0–1	—	—	LRD22L	LR3D22L
23–32	Size 1	LRD32	LR3D32	LRD32L	LR3D32L
9–13	Size 2	LRD313	LR3D313	LRD313L	—
12–18	Size 2	LRD318	LR3D318	LRD318L	—
16–25	Size 2	LRD325	LR3D325	LRD325L	—
23–32	Size 2	LRD332	LR3D332	LRD332L	—
30–40	Size 2	LRD340	LR3D340	LRD340L	—
37–50	Size 2	LRD350	LR3D350	LRD350L	—

[6] Replace the bullets (●●) in the catalog number with the coil voltage code. Refer to the coil voltage codes shown in Table 16.44.
[7] Special size combinations of the contactor and Motor Logic overload relay are available. Add **0** to the catalog number before the coil voltage for a Size 0 overload relay (6–18 A); **9** for a Size 00C (3–9 A); and **8** for a Size 00B (1.5–4.5 A)—for example, T36CN13**0**G7.
[8] The 24 and 120 Vac coils are available with optional separate control; add **Form S** to the catalog number (for example, T36AN13B7**S**).
[9] The 24 Vdc coil requires separate control; add Form S to the catalog number (for example, T36AN13BD**S**).

TeSys N reversing starter, Size 00

TeSys N reversing starter, Size 4

New!

TeSys N Reversing Starters

TeSys N reversing starters are used for full-voltage starting, stopping, and reversing of AC squirrel cage motors. Reversing starters are mechanically and electrically interlocked and are available in NEMA Sizes 00 through 5. Starters come with Motor Logic Class 10/20 selectable solid-state overload relays as standard. Reversing starters with bimetal overload protection can be assembled from TeSys N reversing contactors and TeSys D overload relays. For more information on TeSys D overload relays, see Section 18.

Table 16.47: TeSys N Reversing Starters, 3-Pole Polyphase, 600 Vac Max. (replace ●● with the coil voltage code)

NEMA Size	Continuous Current Rating (A)	Motor Voltage	Max HP	Open Catalog No. *[10]*
00	9	200	1.5	T36AN23●●
		230	1.5	
		460	2	
		575	2	
0	18	200	3	T36BN23●●
		230	3	
		460	5	
		575	5	
1*[11]*	27	200	7.5	T36CN23●●
		230	7.5	
		460	10	
		575	10	
2	45	200	10	T36DN23●●
		230	15	
		460	25	
		575	25	
3	90	200	25	T36EN23●●
		230	30	
		460	50	
		575	50	
4	135	200	40	T36FN23●●
		230	50	
		460	100	
		575	100	
5	270	200	75	T36GN23●●
		230	100	
		460	200	
		575	200	

Table 16.48: TeSys N Coil Voltage Codes

Voltage	Voltage Code by NEMA Size						
	Size 00	Size 0	Size 1	Size 2	Size 3	Size 4	Size 5
24 Vac*[12]*	B7	B7	B7	B7	B6	B6	n/a
24 Vdc *[13]*	BD	BD	BD	BD	BD	BD	n/a
120 Vac*[12]*	G7	G7	G7	G7	G7	G7	G7
208 Vac	LE7	LE7	LE7	LE7	L7	L7	L7
240 Vac	U7	U7	U7	U7	U7	U7	U7
480 Vac	T7	T7	T7	T7	S7	S7	S7

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E164862
CCN NLDX

LR43364
Class 3211 04

[10] Replace the bullets (●●) in the catalog number with the coil voltage code. Refer to the coil voltage codes shown in Table 16.48.
[11] Special size combinations of the contactor and Motor Logic overload relay are available. Add **0** to the catalog number before the coil voltage for Size 0 overload relays (6–18 A); **9** for Size 00C (3–9 A); and **8** for Size 00B (1.5–4.5 A)—for example, T36CN23**0**G7.
[12] The 24 and 120 Vac coils are available with optional separate control; add **Form S** to the catalog number (for example, T36AN13B7**S**).
[13] The 24 Vdc coil requires separate control; add Form S to the catalog number (for example, T36AN23BD**S**).

Front Mounted Auxiliary Blocks

Auxiliary Contacts, Time Delay, Mechanical Latch

Table 16.49: Standard, Instantaneous Auxiliary Contact Blocks

Snap-On Mounting	Number of Contacts	Composition		Catalog Number
		N.O.	N.C.	
To front of Size 00–2 or **To right side of** Size 3–7	4	2	2	LADN22 *[14]*
		1	3	LADN13 *[14]*
		4	0	LADN40 *[14]*
		0	4	LADN04 *[14]*
		3	1	LADN31 *[14]*
		2 *[15]*	2 *[15]*	LADC22 *[15]*
	2	1	1	LADN11 *[14]*
		2	0	LADN20 *[14]*
		0	2	LADN02 *[14]*
To left side of Size 3–7	1	1	0	LADN10
		0	1	LADN01
To side of Size 00–2	2	1	1	LAD8N11 *[16]*
		2	0	LAD8N20 *[16]*

Table 16.50: Instantaneous Blocks with Dust-Tight Auxiliary Contacts (IP54) NEMA 12

Snap-On Mounting	Standard Contacts		Dust-Tight Contacts		Catalog Number
	N.O.	N.C.	N.O.	N.C.	
To front of Size 00–2 or **To right side of** Size 3–7	—	—	2	—	LA1DX20
	2	—	2	—	LA1DZ40
	1	1	2	—	LA1DZ31
	—	—	2	—	LA1DY20 *[17]*

Table 16.51: Pneumatic Time Delay Contact Blocks

Snap-On Mounting	Time Delay Contacts		Type	Range of Time Delay	Catalog Number *[18]*
	N.O.	N.C.			
To front of Size 00–2 or **To right side of** Size 3–7	1	1	On energization (on delay)	0.1 to 3 s *[19]*	LADT0
				0.1 to 30 s	LADT2
				10 to 180 s	LADT4
				1 to 30 s *[20]*	LADS2
	1	1	On de-energization (off-delay)	0.1 to 3 s *[19]*	LADR0
				0.1 to 30 s	LADR2
				10 to 180 s	LADR4

Table 16.52: Mechanical Latch Blocks with Manual or Electrical Unlatch

Front snap-on mounting onto	Application	Catalog Number
Size 00–2	For silent operation and energy conservation	LAD6K10 *[21][22]*

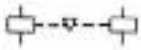
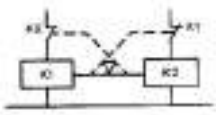
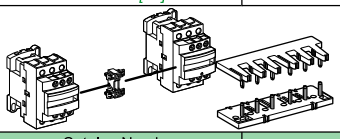
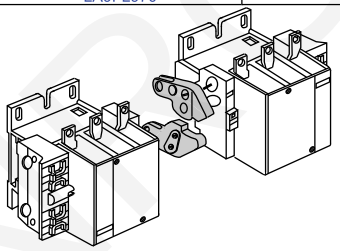
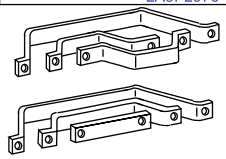
Table 16.53: Coil Voltage Codes for LA6DK Mechanical Latch Blocks

Volts	24	120	208	240	480
AC or DC *[23]*	B	F	L	M	R

[14] For spring terminal versions of these blocks, add a **3** to the end of the catalog number (for example, LADN223). For slip-on versions, add **9** to the end of the catalog number (for example, LADN229).
[15] Including 1 N.O. + 1 N.C. make-before-break overlapping contacts.
[16] 1 block may be added to the left side of Size 00–1, AC coils only; only 1 block may be added to either side of the Size 2 contactor, AC coil only. Cannot be installed on Size 00–2 contactors with DC coils.
[17] Device comes with 4 ground terminal points.
[18] For spring terminal versions of these blocks, add a **3** to the end of the catalog number (for example, LADT23). There is no charge for this modification.
[19] Scale range is expanded between 0.1 and 0.6 seconds on the dial for more accurate settings at the lower end of the range.
[20] Switching time between the opening of the N.C. contact and the closing of the N.O. contact: 40 ms ± 15 ms .
[21] Complete the catalog number by adding the coil voltage code (for example, LAD6K10F).
[22] Does not include internal coil clearing contact.
[23] DC available at 24 V only.

TeSys™ N Reversing Contactors: Field Assembly

Table 16.54: Contactors

For assembly of reversing contactors comprising two identical, horizontally mounted contactors without common baseplate:	Mechanical interlock		Set of power connections
	Without electrical interlock	With incorporated electrical interlock (2 N. C. contacts)	Reversing contactors for motor control
			
	Catalog Number	Catalog Number	Catalog Number
Size 00-1	LAD9R1 *[24]*	LAD9R1V *[24]*	Included with kit
			
	Catalog Number	Catalog Number	Catalog Number
LC1D40A, D50A, D65A	LAD4CM	—	LA9D65A69
	LAD9R3 *[25]*	—	—
			
Reversing contactors comprising two identical, horizontally mounted contactors			
	Catalog Number	Catalog Number	Catalog Number
Size 3	LA9FF970	—	LA9FF976
Size 4		—	LA9F15076
Size 5	LA9FJ970	—	LA9FJ976
Size 6		—	LA9FK976
Size 7	LA9FL970	—	LA9FL976
	 LA9F•970		 LA9F•976

[24] Kit including mechanical interlock and wiring.
[25] Kit combines both LAD4CM and LA9D65A69

Coil Suppressors and Cabling Accessories

RC Coil Suppressor

LA4DA1U

- Transient voltage limited to 300% of nominal voltage, maximum.
- Oscillating frequency is limited to 400 Hz maximum. Slight increase in drop-out time (1.2 to 2 times normal).

Table 16.55: Resistor/Capacitor Circuit (RC) for Reduction of Electrical Noise in AC Contactor Coils

Installed by	Mounting on	Operating Voltage 50/60 Hz	Catalog Number
Snapping into the cavity on the right side without tools *[26]*	Size 00–1	24 V	LAD4RCE
		120 V	LAD4RCG
		120–240 V	LAD4RCU
Snap-on mounting, and connection without tools to the contactor coil terminals	Size 2	24 V	LAD4RC3E
		120 V	LAD4RC3G
		120-240 V	LAD4RC3U

Varistor Coil Suppressor

- Transient voltage value limited to 200% of nominal voltage, maximum.
- Maximum reduction of transient voltage peaks. Slight increase in drop-out time (1.1 to 1.5 times normal).

Table 16.56: Varistor (Peak Limiting) for Reduction of Electrical Noise in AC Contactor Coils

Installed by	Mounting on	Operating Voltage 50/60 Hz	Catalog Number
Snapping into the cavity on the right side without tools*[26]*	Size 00–1	24 V	LAD4VE
		120 V	LAD4VG
		120–240 V	LAD4VU
Snap-on mounting, and connection without tools to the contactor coil terminals	Size 2	24 V	LAD4V3E
		120 V	LAD4V3G
		120-240 V	LAD4V3U

Diode Coil Suppressor

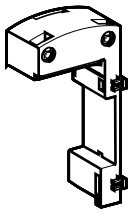
LAD4T3B

- No overvoltage or oscillating frequency.
- Polarized component. Increased drop-out time (6–10 times normal).

Table 16.57: Diode for Reduction of Electrical Noise in DC Contactor Coils

Installed on the upper part by	Mounting on	Operating Voltage, DC	Catalog Number
Snap-on mounting and connection w/o tools to the contactor coil terminals	Size 00–1	24 Vdc	LAD4DDL
Clip-on front mounting	Size 2	24 Vdc	LAD4D3U

Bidirectional Diode Coil Suppressor



LAD4BB• •

- Protection provided by limiting the transient voltage to 2 Uc max.
- Maximum reduction of transient voltage peaks.

Table 16.58: Bidirectional Peak Limiting Diode

Installed by	Mounting on	Operating Voltage 50/60 Hz and DC	Catalog Number
Snapping into the cavity on the right side of the contactor *[26]*	Size 00–1*[27]*	24 (AC only)	LAD4TB
Clip-on front mounting and connection without tools to the contactor coil terminals *[27]*	Size 2	24 V	LAD4T3B
		120 V	LAD4T3G
		208–240 V	LAD4T3U

TeSys N Cabling Accessories

Table 16.59: Cabling Accessories

Usage	Mounting on	Operating Voltage 50/60 Hz		Catalog Number
For adapting existing wiring to a new product or for use with top-mounting accessory.	Size 00–1, AC only	Without coil suppression		LAD4BB
		With coil suppression (varistor)	24 V	LAD4BBVE
			120 V	LAD4BBVG
			120-240 V	LAD4BBVU
For adapting existing wiring to a new product or for use with top-mounting accessory	Size 2, AC only	—		LAD4BB3

[26] Installing the suppressor into the cavity makes the electrical connection. The overall width of the contactor remains the same.
[27] For Size 00–2 with DC coils, 3-pole contactors are fitted with built-in bidirectional diode suppression as standard.

Electronic Timers and Interface Modules

The following accessories require use of cabling accessories (LAD4BB●●) for proper mounting. See page 16-20 for illustration.

The solid-state **Electronic Serial Timer Modules** in Table 16.60 delay the energizing of the contactor coil, and feature built-in varistor surge suppression.

Table 16.60: Electronic Serial Timer Modules

Type	Operational Voltage 24–250 Vac	Time Delay	Catalog Number
On-delay	Size 00–2	0.1–2 s	LA4DT0U
		1.5–30 s	LA4DT2U
		25–500 s	LA4DT4U

The **Interface Modules** in Table 16.61 allow the contactor coils to be energized from low voltage and low current level signals. They come in mechanical relay and solid-state versions. The relay plus manual operation versions include a lever for manually turning the contactor on and off. When a module receives a low-level signal, it allows the separate-sourced control voltage to flow to the contactor coil. It saves space and wiring time compared to conventional interposing relays.

Table 16.61: Interface Modules *[28]*

Interface Type	Operational Voltage 24–250 Vac	Input Voltage	Catalog Number
Relay	Size 00–2	24 Vdc	LA4DFB
Relay Plus Manual Operation	Size 00–2	24 Vdc	LA4DLB
Solid State	Size 00–2	24 Vdc	LA4DWB

Table 16.62: Lugs and Lug Kits *[29]*

TeSys N Contactor	Lugs		Lug Kits*[30]*	Cable size AWG range
	Line Size	Load Side		
Size 3	3 each DZ2FF1	3 each DZ2FF1	DZ2FF6	14 to 2/0
Size 4	3 each DZ2FG1	3 each DZ2FG1	DZ2FG6	6 to 3/0
Size 5	3 each DZ2FJ1	3 each DZ2FJ1	DZ2FJ6	4 to 500 MCM
Size 6	3 each DZ2FK1	3 each DZ2FK1	DZ2FK6	2 x 2 to 600 MCM
Size 7	1 each DZ2FL1 DZ2FL2 DZ2FL3	1 each DZ2FL1 DZ2FL2 DZ2FL3	DZ2FL6	3 x 2 to 600 MCM

Table 16.63: TeSys Safety-Chain Identification System

Description	Compatibility	Package Qty	Catalog Number
Red retrofit contactor safety cover	Size 00–2	10	LAD9ET1S
Red auxiliary contact block, 2 N.O. + 2 N.C.	Size 00–2	1	LADN22S


LA4DFB


LAD9ET1S


LADN22S

[28] Adapter required. See Table 16.59.
[29] The mounting hardware (screws, washers, and nuts) comes with the contactors, not the lugs. Starters Sizes 3–7 come with lugs.
[30] Lug kits incude 6 lugs.

Replacement Contacts and Coils

Table 16.64: Replacement Contact Sets *[31]*

For use on contactors	Number of Poles	Catalog Number
Size 3–4	3 poles	LA5FF431
Size 5	3 poles	LA5F400803
Size 6	3 poles	LA5F500803
Size 7	3 poles	LA5F630803

TeSys N Magnet Coils

Table 16.65: Size 00–1 AC Coils

Rated Nominal Voltage	Catalog Number 50/60 Hz
24	LXD1B7
32	LXD1C7
36	LXD1CC7
42	LXD1D7
48	LXD1E7
60	LXD1EE7
100	LXD1K7
110	LXD1F7
115	LXD1FE7
120	LXD1G7
127	LXD1FC7
200	LXD1L7
208	LXD1LE7
220/230	LXD1M7
230	LXD1P7
230/240	LXD1U7
277	LXD1W7
380/400	LXD1Q7
400	LXD1V7
415	LXD1N7
440	LXD1R7
480	LXD1T7
575	LXD1SC7
600	LXD1X7
Specifications	50/60 Hz
Average consumption - Inrush (inductance 0.75) - Sealed (inductance 0.3)	 70 VA 7 VA
Operating range@ 60 °C	50 Hz: 80–110% of nominal 60 Hz: 85–110% of nominal

Table 16.66: Size 2 AC Coils

Rated Nominal Voltage V	Catalog Number 50/60 Hz
24	LXD3B7
32	LXD3C7
42	LXD3D7
48	LXD3E7
100	LXD3K7
110	LXD3F7
115	LXD3FE7
120	LXD3G7
127	LXD3FC7
200	LXD3L7
208	LXD3LE7
220	LXD3M7
230	LXD3P7
240	LXD3U7
277	LXD3W7
380	LXD3Q7
400	LXD3V7
415	LXD3N7
440	LXD3R7
480	LXD3T7
500	LXD3S7
575	LXD3SC7
600	LXD3X7
Specification	**50/60 Hz**
Average consumption: - Inrush (inductance 0.3) - Sealed (inductance 0.3)	 140 VA (inductance: 0.9) 7.5 VA (inductance: 0.9)
Operating range at θ < 55 °C / 131 °F	80–115% of nominal voltage

Table 16.67: Size 3–7 AC Coils

Contactor Size	Hz	Catalog Number	Catalog Number Suffix *[32]*												
			24 V	48 V	110 V	120 V	208 V	220 V	240 V	277 V	380 V	415 V	440 V	480 V	600 V
Size 3–4	40–400	LX9FF●	— *[33]*	048	110	127	200	220	240	280	380	415	415	500	— *[33]*
Size 5	40–400	LX1FH●	0242	0482	1102	1272	2002	2202	2402	2772	3802	3802	4402	5002	6002
Size 6*[34]*	40–400	LX1FK●	—	048	110	110	200	220	240	280	380	415	415	415	600
Size 7*[34]*	40–400	LX1FL●	—	048	110	110	200	220	240	260	380	415	415	415	600

Table 16.68: Size 3–4 DC Coils

Device Type	Catalog Number	Catalog Number Suffix *[35]*								
		24 V	36 V	48 V	60 V	72 V	110 V	125 V	220 V	250 V	440 V
Size 3–4	LX4FF●	024	035	048	060	070	110	125	220	250	440

[31] Provided per pole: 2 fixed contacts, 1 movable contact, 2 deflectors, 1 backplate, and the mounting screws and washers.
[32] Complete the catalog number by adding the suffix (for example, LX9FF020).
[33] LX1FF020 and LC1FF475 coils will be available for replacement **only**.
[34] The 600 V coils for Sizes 6 and 7 do not include an auxiliary contact for holding circuits. If required, select the appropriate contacts from page 16-18.
[35] Complete the catalog number by adding the suffix (for example, LX4FF024).

TeSys™ N Non-Reversing Contactors

Table 16.69: TeSys N Contactors, Size 00–1, Non-Reversing *[36]*

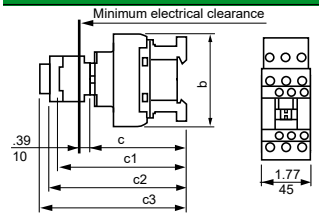
Dimensional Diagram	Dimension	Description	Dimensions			
			AC Coil		DC Coil	
			in.	mm	in.	mm
	b	Without add-on accessories	3.35	85	3.35	85
	b1	With LAD4BB	3.86	98	n/a	n/a
		With LA4D•2	4.49	114	n/a	n/a
		With LA4DF, DT	4.84	123	n/a	n/a
		With LA4DR, DW, DL	5.12	130	n/a	n/a
	c	Without cover or add-on blocks	3.54	90	3.90	99
		With cover, without add-on blocks	3.62	92	3.98	101
	c1	With LADN or LADC	4.84	123	5.20	132
	c2	With LAD6K10	5.31	135	5.67	144
	c3	With LADT, R, S	5.63	143	5.98	152
		With LADT, R, S and sealing cover	5.79	147	6.14	156

Table 16.70: TeSys N Contactors, Size 2, Non-Reversing *[36]*

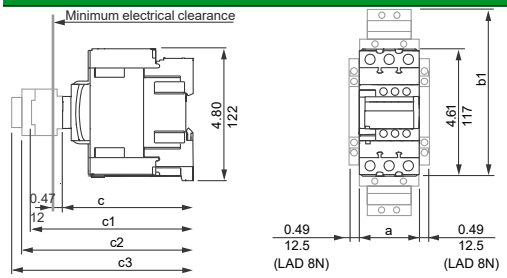
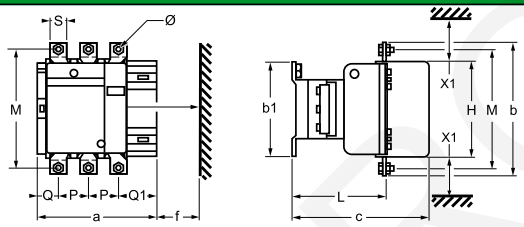
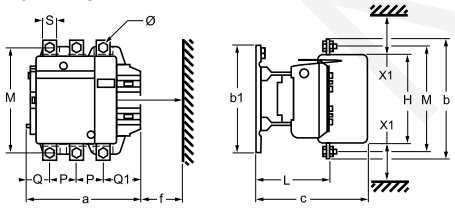
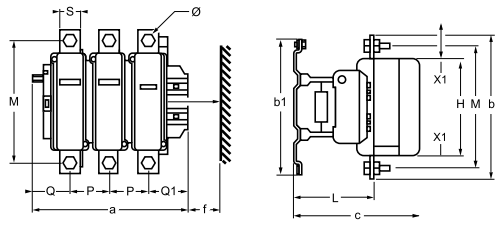
Dimensional Diagram	Dimension	Description	Dimensions	
			AC or DC Coils	
			in.	mm
	a	Contactor	2.17	55
	b1	With LA4 DB3 or LAD 4BB3	5.35	136
		With LA4 DF, DT	6.18	157
		With LA4 DM, DW, DL	6.54	166
	c	Without cover or add-on blocks	4.65	118
		With cover, without add-on blocks	4.72	120
	c1	With LAD N or C (2 or 4 contacts)	5.91	150
	c2	With LAD 6K10 or LA6 DK	6.42	163
	c3	With LAD T, R, S	6.73	171
		With LAD T, R, S and sealing cover	6.89	175

Table 16.71: TeSys N Contactors, Size 3–7, Non-Reversing

Dimensional Diagram, Size 3–5	Dimension	Dimensions					
		T02EN13		T02FN13		T02GN13	
		in.	mm	in.	mm	in.	mm
T02EN13 **T02FN13** **T02GN13** 	a	6.4	163.5	6.4	163.5	8.4	213
	P	1.5	37	1.6	40	1.9	48
	Q	1.2	29.5	1	26	1.7	43
	Q1	2.4	60	2.3	57.5	2.9	74
	S	0.8	20	0.8	20	1	25
	ø	M6		M8		M10	
	f	5.2	131	5.2	131	5.8	147
	b	6.4	162	6.7	170	8.1	206
	b1	5.4	137	5.4	137	5.7	145
	M	5.8	147	5.9	150	7.1	181
	H	4.9	124	4.9	124	6.2	158
	c	6.7	171	6.7	171	8.6	219
	L	4.2	107	4.2	107	5.7	145
	X1 220–500 V	0.4	10	0.4	10	0.4	10

Dimensional Diagram, Size 6	Dimension	T02HN13	
		in.	mm
T02HN13 	a	9.2	233
	P	2.2	55
	Q	1.8	46
	Q1	3	77
	S	1.2	30
	ø	M10	
	f	5.9	150
	b	9.4	238
	b1	8.2	209
	M	8.2	208
	H	6.8	172
	c	9.1	232
	L	5.7	146
	X1 220–500 V	0.6	15

Dimensional Diagram, Size 7	Dimension	T02JN13	
		in.	mm
T02JN13 	a	12.2	309
	P	3.2	80
	Q	2.4	60
	Q1	3.5	89
	S	1.6	40
	ø	M12	
	f	7.1	181
	b	12	304
	b1	11	280
	M	10.4	264
	H	8	202
	c	10	255
	L	6.1	155
	X1 220–500 V	0.8	20

[36] DIN rail and panel mountable.

TeSys™ N Reversing Contactors

Table 16.72: TeSys N Size 00–1, Reversing Contactors *[37]*

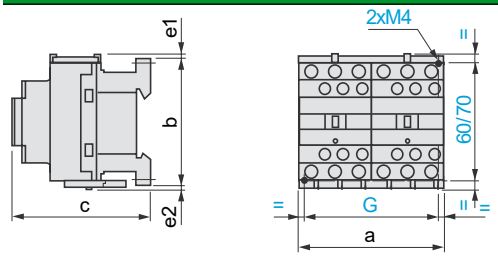
Dimensional Diagram	Dimension	Dimensions			
		AC Coil		DC Coil	
		in.	mm	in.	mm
	**a**: Without side-mount accessories	3.54	90	3.54	90
	b: Contactor base	3.35	85	3.35	85
	c: With cover, without add-on blocks	3.62	92	3.98	101
	e1	0.35	9	0.35	9
	e2	0.20	5	0.20	5
	G: Mounting holes	3.15	80	3.15	80

Table 16.73: TeSys N Size 2, Reversing Contactors *[37]*

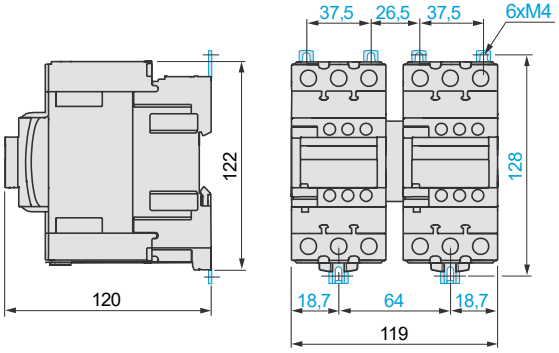
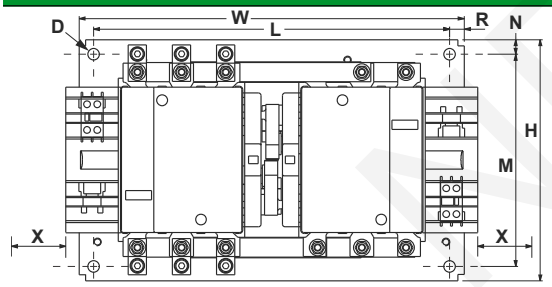
Dimensional Diagram	Description	Dimensions	
		AC and DC Coils	
		in.	mm
	Width	4.69	119
	Height	4.80	122
	Depth with cover, without add-on blocks	4.72	120
	Load side mounting hole width	2.52	64
	Line side mounting hole width	3.40	101.5
	Mounting hole height	5.04	128

Table 16.74: TeSys N Size 3–7, Reversing Contactors

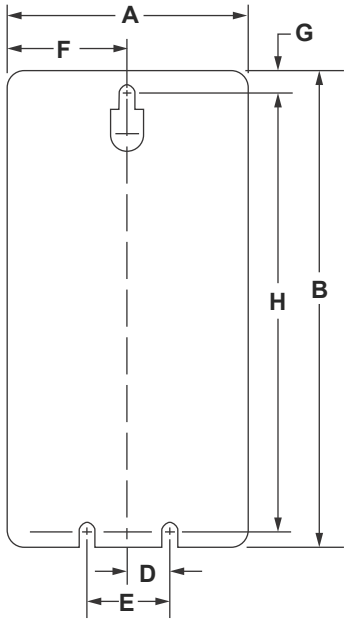
Dimensional Diagram	Dimension	Dimensions									
		T02EN23		T02FN23		T02GN23		T02HN23		T02JN23	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
	D	0.38	9.7	0.38	9.7	0.56	14.2	0.56	14.2	0.56	14.2
	H	7.96	202.2	7.96	202.2	15.27	387.9	15.27	387.9	22.25	565.2
	L	11.75	298.5	11.75	298.5	18	457.2	18	457.2	30	762.0
	M	7	177.8	7	177.8	14	355.6	14	355.6	19.75	501.7
	N	0.49	12.5	0.49	12.5	0.62	15.8	0.62	15.8	1.25	31.8
	R	0.49	12.5	0.49	12.5	0.62	15.8	0.62	15.8	0.69	17.5
	W	12.71	322.8	12.71	322.8	19.27	489.5	19.27	489.5	31.38	797.0
	X	5.16	131.0	5.16	131.0	5.79	147.0	5.91	150.0	7.13	181.0

[37] DIN rail and panel mountable.

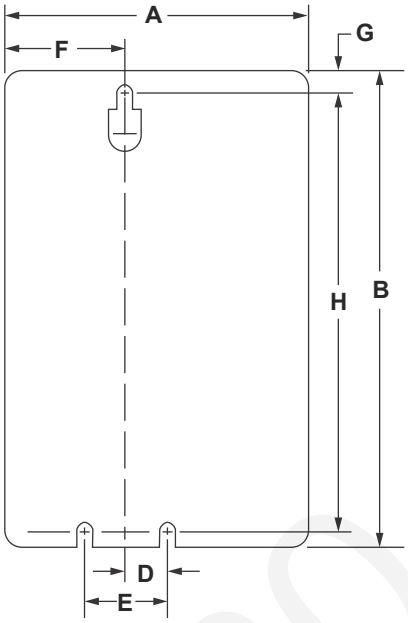
TeSys N Starters, Size 00–2

Table 16.75: TeSys N Size 00–2 Dimensions

Non-reversing
T36AN13 / T36BN13 / T36CN13 / T36DN13



Reversing
T36AN23 / T36BN23 / T36CN23 / T36DN23



Depth

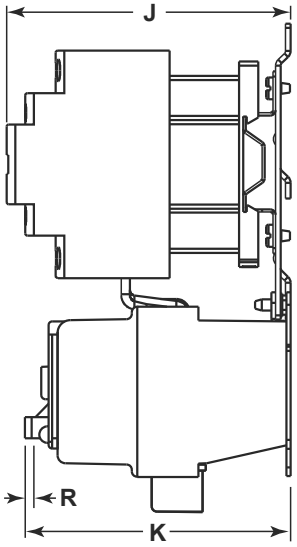


Table 16.76: TeSys N Size 00–2, Non-Reversing and Reversing Starters

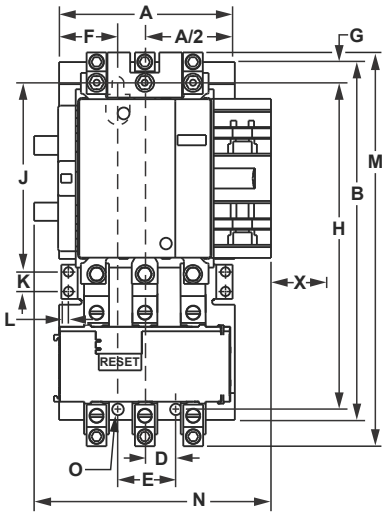
Dimension	Non-Reversing								Reversing							
	Size 00 T36AN13		Size 0 T36BN13		Size 1 T36CN13		Size 2 T36DN13		Size 00 T36AN23		Size 0 T36BN23		Size 1 T36CN23		Size 2 T36DN23	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
A	3.19	81.0	3.19	81.0	3.19	81.0	3.19	81.0	43.9	111.5	43.9	111.5	43.9	111.5	5.19	131.8
B	6.64	168.7	6.64	168.7	6.64	168.7	8.61	218.7	6.64	168.7	6.64	168.7	6.64	168.7	8.61	218.7
D	0.5	12.7	0.5	12.7	0.5	12.7	0.5	12.7	0.5	12.7	0.5	12.7	0.5	12.7	0.5	12.7
E	1.0	25.4	1.0	25.4	1.0	25.4	1.0	25.4	1.0	25.4	1.0	25.4	1.0	25.4	1.0	25.4
F	1.59	40.5	1.59	40.5	1.59	40.5	1.59	40.5	1.59	40.5	1.59	40.5	1.59	40.5	1.59	40.5
G	0.20	5.2	0.20	5.2	0.20	5.2	0.20	5.2	0.20	5.2	0.20	5.2	0.20	5.2	0.20	5.2
H	6.16	156.5	6.16	156.5	6.16	156.5	8.22	208.8	6.16	156.5	6.16	156.5	6.16	156.5	8.22	208.8
J (AC Coil)	4.17	105.9	4.17	105.9	4.17	105.9	4.94	125.4	4.17	105.9	4.17	105.9	4.17	104.9	4.94	125.4
J (DC Coil)	4.52	114.9	4.52	114.9	4.52	114.9			4.52	114.9	4.52	114.9	4.52	114.9		
K	3.90	99.0	3.90	99.0	3.90	99.0	3.90	99.0	3.90	99.0	3.90	99.0	3.90	99.0	3.90	99.0
R*[38]*	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1

[38] Reset travel.

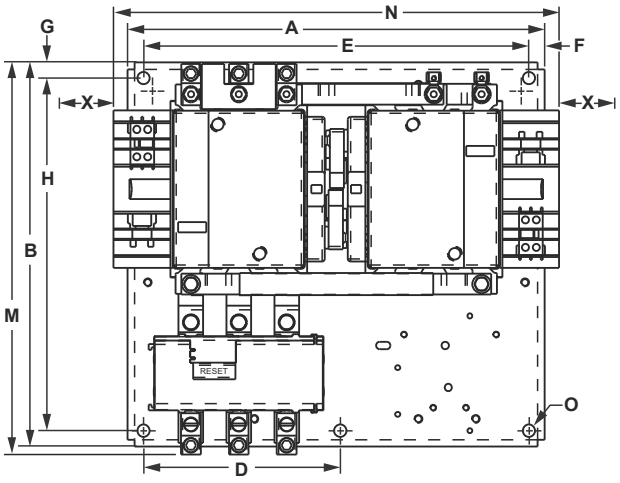
TeSys N Starters, Size 3–4

Table 16.77: TeSys N Size 3–4 Dimensions

Non-Reversing
T36EN13 / T36FN13



Reversing
T36EN23 / T36FN23



Depth

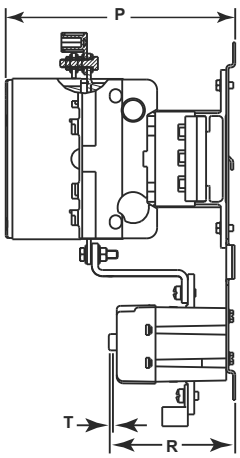


Table 16.78: TeSys N Size 3–4, Non-Reversing and Reversing Starters

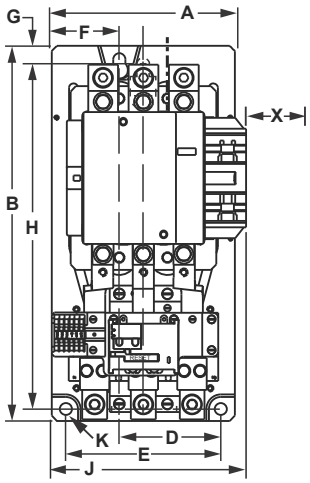
Dimension	Non-Reversing				Reversing			
	Size 3 T36EN13		Size 4 T36FN13		Size 3 T36EN23		Size 4 T36FN23	
	in.	mm	in.	mm	in.	mm	in.	mm
A	5.31	134.9	5.31	134.9	12.71	322.8	12.71	322.8
B	10.82	274.8	10.82	274.8	11.71	297.4	11.71	297.4
D	0.88	22.4	0.88	22.4	6.0	152.4	6.0	152.4
E	1.75	44.5	1.75	44.5	11.75	298.5	11.75	298.5
F	1.78	45.0	1.78	45.0	0.48	12.2	0.48	12.2
G	0.32	8.1	0.32	8.1	0.48	12.2	0.48	12.2
H	10.19	258.8	10.19	258.8	10.75	273.1	10.75	273.1
J	6.03	153.2	6.03	153.2	—	—	—	—
K	0.59	15.0	0.59	15.0	—	—	—	—
L	0.22	5.6	0.22	5.6	—	—	—	—
M	11.91	302.4	11.91	302.4	11.96	303.8	11.96	303.8
N	6.57	166.8	6.57	166.8	13.58	344.9	13.58	344.9
O	0.375	9.5	0.375	9.5	0.375	9.5	0.375	9.5
P	6.96	176.7	6.96	176.7	7.18	182.4	7.18	182.4
R	3.8	97	3.8	97	3.8	97	3.8	97
T*[39]*	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1
X*[40]*	5.16	131.0	5.16	131.0	5.16	131.0	5.16	131.0

[39] Reset travel.
[40] Minimum distance for coil removal.

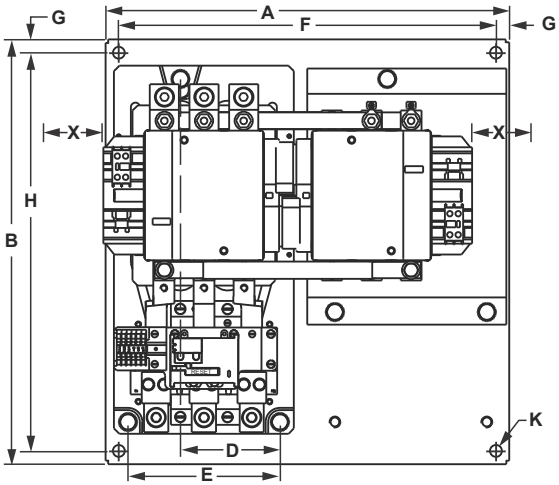
TeSys N Starters, Size 5–7

Table 16.79: TeSys N Size 5–7 Dimensions

Non-reversing
T36GN13 / T36HN13 / T36JN13



Reversing
T36GN23



Depth

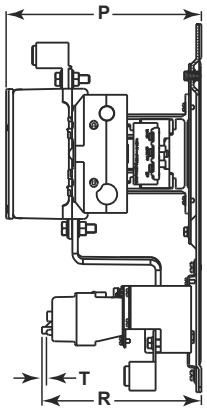


Table 16.80: TeSys N Size 5–7, Non-Reversing and Reversing Starters

Dimension	Non-Reversing						Reversing	
	Size 5 T36GN13		Size 6 T36HN13		Size 7 T36JN13		Size 5 T36GN23	
	in.	mm	in.	mm	in.	mm	in.	mm
A	8.58	217.9	8.58	217.9	8.58	217.9	19.3	489.4
B	17.56	446.0	19.75	501.7	23.58	598.9	20.3	514.8
D	4.75	120.7	4.75	120.7	4.75	120.7	4.75	120.7
E	7.25	184.2	7.25	184.2	7.25	184.2	7.25	184.2
F	3.17	80.4	3.17	80.4	3.17	80.4	18.0	457.2
G	0.63	16.0	0.63	16.0	0.63	16.0	0.63	16.1
H	16.37	415.8	18.56	463.6	22.38	565.9	19.0	482.6
J	9.91	251.6	9.91	251.6	9.91	251.6	—	—
K	0.56	14.2	0.56	14.2	0.56	14.2	0.56	14.2
P	9.32	236.8	9.32	236.8	9.32	236.8	9.95	252.7
R	7.38	187.0	9.16	232.7	8.07	205.0	7.38	187.0
T[41]	0.24	6.1	0.24	6.1	0.24	6.1	0.24	6.1
X[41]	5.79	147 1	5.91	150.1	7.13	181.1	5.79	147.1

[41] Minimum distance for coil removal.

Catalog Numbering

Class 8536 **Type S C G 3 V02** **Form S**

General Classification

8502	Contactor
8536	Starter
8538	Combination Starter with Disconnect Switch
8539	Combination Starter with Circuit Breaker
8702	Reversing Contactor
8736	Reversing Starter
8738	Reversing Combination Starter with Disconnect Switch
8739	Reversing Combination Starter with Circuit Breaker
8810	Two Speed Starter ▲
8903	Type S Lighting Contactors ▲
8940	Pumping Plant Panel ▲
8941	Duplex Controller ▲

▲Consult the Table of Contents for page numbers.

Design

Type S NEMA Contactors and Starters

NEMA Size		Rating (8903 only)	
A	Size 00		
B	Size 0	M	30 A
C	Size 1	P	60 A
D	Size 2	Q	100 A
E	Size 3	V	200 A
F	Size 4	X	300 A
G	Size 5	Y	400 A
H	Size 6	Z	600 A
J	Size 7	J	800 A

Enclosure

A	NEMA 12 Industrial Use
F	NEMA 1 Flush Mounting General Purpose
G	NEMA 1 General Purpose Surface Mounting
H	NEMA 3R Rainproof
O	Open Style Device (no enclosure)
R	NEMA 7 & 9 Hazardous Environments, Spin Top™
T	NEMA 7 & 9 Hazardous Environments, Bolted
W	NEMA 4 Watertight, 4X Corrosion Resistant

Numerals

Used to designate specific physical arrangements, such as the number of poles, fuse clip size, etc.; but the numbering varies with the Class of the equipment. Consult the Digest listings for the specific device numbers.

Voltage Code

AC operated devices without control transformer

Code	Voltage/Frequency
V01	24/60
V02	120/60 or 110/50
V06	480/60 or 440/50
V07	600/60 or 550/50
V08	208/60

V81: 480 V Primary, 120 V Secondary for units using a fused transformer control circuit (Form F4T)

This is only a partial listing. Consult the Digest page for each product for more options.

Common Forms (factory modifications)

A	Start-Stop pushbuttons in the enclosure cover
C	Hand-Off-Auto selector switch in the enclosure cover
E	Bimetallic overload relays
F4T	Fused transformer control circuit (primary fuses only)
FF4T	Fused transformer control circuit (primary & secondary fuses)
H	Solid-state overload relay (SSOLR)
P1	Red ON pilot light in the enclosure cover
P2	Green OFF pilot light in the enclosure cover
S	Separate control circuit
X01	One normally closed auxiliary contact N.C.
X10	One normally open auxiliary contact N.O.

Consult "Factory Modifications (Forms)" for additional Form designations. When more than one Form is applied to a single device, arrange the Forms in alphanumerical order.

Table 16.81: How to Order

To Order Specify:	Catalog Number			
• Class Number • Type Number • Voltage Code • Form(s): see page 16-117	Class	Type	Voltage Code	Form(s)
	8539	SCG44	V06	AH30P1X11

Description: NEMA Size 1 (10 hp) electronic motor circuit protector (MCP) combo starter in a NEMA 1 enclosure with a 480 V coil, start/stop push button (A), trip-class selectable SSOLR (H30), red pilot light (P1), and 1 N.O. and 1 N.C. auxiliary contact (X11).

IMPORTANT: This information is intended for general interpretation of the catalog numbers. Do not use it to create catalog numbers for this product line.

For more ordering information, refer to the Product Selector at www.schneider-electric.com/us/.

NOTE: The terms *Class, Type,* and *Form* do not appear in the catalog number.

Devices are wired from the factory according to customer preference as follows:

- Common control
- Separate control (Form S)
- Control power transformer (CPT)

NOTE: TeSys T devices are unwired.

TeSys LRx, RM1, LT

Technical Data for Designers

Contents

Introduction

Exceeding the operating limits of an electric motor will lead, eventually, not only to destruction of the motor itself but also of the mechanisms it drives.

This type of load can be the cause of electrical or mechanical faults.
■ Electrical faults:
□ overvoltage, voltage drop, imbalance and phase failure which cause variations in the current drawn,
□ short-circuits which can cause the current to reach levels capable of destroying the load.

■ Mechanical faults:
□ locked rotor,
□ brief or prolonged overload which leads to an increase in the current drawn by the motor, and therefore overheating.

The cost of these faults must take into account loss of production, loss of raw materials, repair of the production tool, poor quality of production and delays in delivery.

These faults can also have dramatic consequences on the safety of persons in direct or indirect contact with the motor.

To prevent these faults, protection measures are necessary. They make it possible to isolate the equipment to be protected from the mains supply by measuring variations in electrical values (voltage, current, etc.).

Each motor starter must therefore have:

■ **short-circuit protection**, to detect and break, as quickly as possible, abnormal currents generally greater than 10 times the rated current (**I**n).

■ **overload protection**, to detect increases in current up to about 10 **I**n and switch off the starter before overheating of the motor and conductors damages the insulation.

This protection is provided by specific devices such as fuses, circuit breakers and thermal overload relays, or by more integrated devices offering several types of protection.

Causes, effects and consequences of various faults

There are two types of fault:
- Internal faults within the motor
- External faults: these are located outside the electric motor but their consequences can lead to damage inside the motor.

Faults	Causes	Effects	Consequences on the motor and on the machine
Short-circuit	Contact between several phases, or between one phase and neutral or between several turns of the same phase.	■ Current peak ■ Electrodynamic forces on the conductors	Destruction of windings
Overvoltage	■ Lightning ■ Electrostatic discharge ■ Operation	Dielectric breakdown in the windings	Destruction of the windings due to loss of insulation
Phase imbalance and phase failure	■ Opening of a phase ■ Single-phase load upstream of the motor ■ Short-circuit between the turns of the same winding	■ Reduction of usable torque, efficiency and speed ■ Increase in losses ■ Starting impossible if phase failure	Overheating (1)
High starting frequency	■ Failure of the automation system ■ Too many manual control operations ■ Numerous fault trips	High stator and rotor temperature rise due to the frequent start current	Overheating (1) Consequences on the process
Voltage variations	■ Instability of the mains voltage ■ Connection of heavy loads	■ Reduction of usable torque ■ Increase in losses	Overheating (1)
Harmonics	■ Pollution of the mains supply by variable speed drives, inverters, etc...	■ Reduction of usable torque ■ Increase in losses	Overheating (1)
Long starting time	■ Resistive torque too high (load too heavy) ■ Voltage drop	Increase in starting time	Overheating (1)
Jamming	■ Mechanical problem (crusher) ■ Seizures	Overcurrent	Overheating (1) Consequences on the process
No-load running	■ Pump running empty ■ Mechanical break in drive to the load	Drop in current drawn	Consequences on the process
Frequency fluctuations	■ Overload of a supply powered by limited independent sources ■ Faulty alternator speed regulator	■ Increase in losses ■ Interferes with synchronous devices (clock, recorder, ...)	–
Overload	■ Increase in resistive torque ■ Voltage drop ■ Drop in power factor	Increase in current consumption	Overheating (1)
Loss of machine excitation	■ Significant drop in excitation current ■ Break in rotor winding	■ Increase in active power ■ Drop in power factor	Significant overheating of rotor and cage
Phase-Earth fault	■ Accidental Phase-Earth contacts ■ Accidental Phase-machine casing contacts (casing connected to earth)	■ Overvoltage developed in the mains supply ■ Rise in earth potential (safety of persons)	Consequences on safety of persons

(1) Then, in the longer or shorter term, depending on the seriousness of the fault and/or its frequency, short-circuit and destruction of the windings.

Protection functions

Short-circuit protection

General

A short-circuit results in a very rapid rise in current which can reach several hundred times the value of the operational current. The consequences of a short-circuit are dangerous to both equipment and persons. It is therefore imperative to use protection devices to detect the fault and very quickly break the circuit.

Two types of protection are commonly used:
- fuses (cutout) which break the circuit by melting, which then requires their replacement,
- magnetic trip circuit breakers, often more simply called "magnetic circuit breakers", which only require re-setting to put them back into service.

Short-circuit protection can also be built-into multifunction devices such as motor circuit breakers and contactor-breakers.

The main characteristics of short-circuit protection devices are:
- their breaking capacity: this is the highest prospective short-circuit current value that a protection device can break at a given voltage.
- their making capacity: this is the highest current value that the protection device can make at its rated voltage in specified conditions.

The making capacity is equal to k times the breaking capacity.

PB111830.eps

LS1D32
fuse carrier

PB114116.eps

GS2N3
switch disconnectors

Fuses (cutouts)

Fuses provide individual phase protection (single-pole), with a high breaking capacity in a compact size:
- mounted either in fuse carriers,
- or in isolators, replacing the original links or shunt bars.

For motor protection, aM type fuses are used. Their design characteristics allow them to conduct the high magnetising currents that occur when motors are switched on. They are therefore unsuitable for overload protection (unlike gG type fuses). This is why an overload relay must be included in the motor power supply circuit.

PB121501.eps

GV2L
magnetic circuit breaker

PB114909.eps

GV4LE
magnetic circuit breaker

Magnetic circuit breakers

These circuit breakers protect installations against short-circuits, within the limit of their breaking capacity.
Magnetic circuit breakers provide omnipole breaking as standard.
For relatively low short-circuit currents, the operation of a circuit breaker is faster than that of fuses.
This protection conforms to standard IEC 60947-2.
The thermal and electrodynamic effects are also limited, therefore ensuring better protection of cables and equipment.

PB121502.eps

LRD10
thermal overload relay

PB108223.eps

LRD365
thermal overload relay

PB121503.eps

RM4JA current measurement relay

Protection functions

Overload protection

General

An overload condition is the most frequently encountered fault. The symptoms are a rise in the current drawn by the motor and thermal effects. A rapid return to normal operating conditions is important.
The actual operating conditions (ambient temperature, operating altitude and type of standard duty) are essential to determine the operating values of the motor (power, current) and to be able to select effective overload protection. These operational values are given by the motor manufacturer.

According to the level required, protection can be provided by:
- overload relays and thermal overload relays (bi-metallic or electronic type) which protect motors in the event of:
  - overload, by monitoring the current drawn by each phase,
  - phase imbalance or failure, by their differential mechanism.
- relays with PTC thermistor probes (Positive Temperature Coefficient).
- overtorque relays,
- multifunction relays.

Overload relays

These relays protect motors against overload. They must allow the temporary overload that occurs on starting and must only trip if the starting time is abnormally long.
The overload relay will be selected according to the length of the starting time (tripping class) and the motor rating.
These relays have a thermal memory (except for certain electronic overload relays, indicated by their manufacturers) and can be connected:
- either in series with the load,
- or to current transformers placed in series with the load.

Bi-metallic thermal overload relays
Combined with a contactor, these relays protect the line and the equipment against small and prolonged overloads. They must be protected against strong overcurrent by a circuit breaker or fuses.
These relays may be used on an a.c. or d.c. system and are generally:
- 3-pole,
- compensated, i.e. insensitive to ambient temperature variations,
- with manual or automatic reset,
- graduated with a "motor FLC" scale: allowing direct setting to the full load current as shown on the motor rating plate.

They can also be sensitive to phase failure: this is known as 'differential'. This function conforms to standards IEC 60947-4-1 and 60947-6-2.
This type of relay is extremely reliable and is a relatively low cost device.

Electronic thermal overload relays
Electronic thermal overload relays have the advantage of electronics which allow a more complex thermal image of the motor to be created.
They can be combined with products having complementary functions, such as:
- temperature sensing via PTC probes,
- protection against jamming and overtorque,
- protection against phase reversal,
- earth fault protection,
- protection against no-load running,
- alarm function.

PB121507.eps

LT3S relays for use with thermistor probes

PB111974.eps

LR97D07 instantaneous electronic overcurrent relays

PB107380.eps

TeSys U *LUB320 starter with multifunction control unit LUCM*

PF526188.eps

TeSys U *controller LUTM20BL*

PB121504.eps

TeSys T *controller LTMR08MBD*

Protection functions *(continued)*

Overload protection (continued)

Relays for use with PTC thermistor probes

With direct sensing of the stator windings, these relays can be used to protect motors against:
- overload,
- a rise in ambient temperature,
- a ventilation circuit fault,
- a high starting frequency,
- mechanical shocks, etc.

Overload (or overtorque) relays

These relays protect the drive line in the event of a locked rotor, seizure or mechanical shocks. This is an additional protection.
Unlike thermal overload relays, these relays do not have a thermal memory. They have definite time characteristics (adjustable current threshold and time delay).
The overtorque relay can be used as overload protection for motors with long starting times or very frequent starting (for example, lifting hoists).

Multifunction relays

- Overcurrent relays are limited when it is necessary to take into account problems associated with voltage, temperature or special applications. New production or maintenance management needs have prompted manufacturers to offer products which provide not only adaptable protection, but also complete management of the motor and its load.

They incorporate:
- current and voltage sensors (TeSys T controllers),
- hybrid analog and digital electronic technology,
- the use of communication buses for data exchange and control,
- powerful motor modelling algorithms,
- integrated application programs whose parameters can be set.

These products make it possible to reduce installation and operating costs by reducing maintenance and downtime.

TeSys U starters:
The multifunction relay is incorporated in the motor starter.
This solution is very compact with reduced wiring. It is limited to 32 A.

TeSys U controllers:
The multifunction relay is separate from the power line and reuses the function blocks from the TeSys U solution. It can be used in conjunction with a contactor up to 810 A.

TeSys T controllers:
The multifunction relay is separate from the power line and incorporates inputs and outputs. It can be used in conjunction with a contactor up to 810 A.

Protection relay selection table

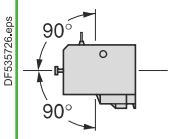
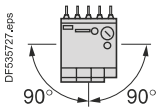
	Motor protection		Machine protection	Motor and machine protection	
Relay type	**Thermal overload relay** **LR2K, LRD, LRD3, LR9 F, LR9 D** (1)	**Relays for use with PTC probes** **LT3S**	**Overtorque relays** **LR97D, LT47**	TeSys U **controller** **LUTM**	TeSys T **controller** **LTMR**
Causes of overheating	(2)		(2)	(2)	(3)
Slight overload	■	■	▒	■	■
Locked rotor	■	▒	■	■	■
No-load running				■	■
Supply phase failure	■	▒	LR97D	■	
Ventilation fault		■			With probes
Abnormal temperature rise	▒	■			With probes
Shaft bearing seizure	▒	■	▒	▒	With probes
Insulation fault	▒			■	■
Protracted starting time	■	▒	■	■	■
Severe duty	▒	■	■	▒	With probes
Voltage variation	▒	▒	▒	▒	■
Frequency fluctuations	▒				■
Loss of machine excitation					■

■ Ideally suited
▒ Possible solution
□ Not suitable (no protection)

*(1) For motor circuit breaker type **GV2ME**.*
(2) Protection based on current.
(3) Protection based on current and voltage.

Characteristics

Environment

Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T14048.
Product certifications			UL , CSA, CCC, EAC, CB certification
Degree of protection	Conforming to IEC 60529		Protection against direct finger contact
Ambient air temperature around the device	Storage	°C	-40...+70
	For normal operation (IEC 60947)	°C	-20...+55 (without derating)
	Operating limit	°C	-30...+60 (with derating) (1)
Maximum operating altitude	Without derating	m	2000
Operating positions			**Vertical axis**  Without derating **Horizontal axis**  With derating (1)
Flame resistance	Conforming to 60695-2-11	°C	850
Shock resistance, hot state (1/2 sine wave, 11 ms)	Conforming to IEC 60068-2-27, N/C contact		10 gn
	Conforming to IEC 60068-2-27, N/O contact		10 gn
Vibration resistance, hot state 5 to 300 Hz	Conforming to IEC 60068-2-6, N/C contact		2 gn
	Conforming to IEC 60068-2-6, N/O contact		2 gn

Cabling Screw clamp terminals			Minimum	Maximum	Maximum to IEC 60947
	Solid cable	mm²	1 x 1.5	2 x 4	1 x 4 + 1 x 2.5
	Flexible cable without cable end	mm²	1 x 0.75	2 x 4	2 x 2.5
	Flexible cable with cable end	mm²	1 x 0.34	1 x 1.5 + 1 x 2.5	1 x 1.5 + 1 x 2.5

Tightening torque	Philips head n° 2 - Ø6	N.m	0.8
Mounting			Directly under the contactor or reversing contactor
Connections			Made automatically when mounted under the contactor, as follows: ■ contactor terminal A2 connected to overload relay terminal 96 on all products, ■ contactor terminal 14 connected to overload relay terminal 95 on products with 3 P + N/O. When using 3 P + N/C, or 4 P contactors, or the N/O auxiliary contact marked 13-14, at a voltage other than the coil voltage, break off the link marked 14.

Auxiliary contact characteristics

Number of contacts			1 N/C + 1 N/O						
Conventional thermal current		A	6						
Short-circuit protection	Conforming to IEC 60947 gG fuse or circuit breaker GB2CB●●	A	6 max.						
Maximum power of the controlled contactor coils (sealed) (Occasional operating cycles of contact 95-96)	a.c.	V	24	48	110	220/230	400	415/440	600/690
		VA	100	200	400	600	600	600	600
	d.c.	V	24	48	110	220	250	–	–
		W	100	100	50	45	35	–	–
Maximum operational voltage	a.c., category AC-15	V	690						
	d.c., category DC-13	V	250						

(1) Please consult your Regional Sales Office.
(2) Very low safety voltage.

References: pages B11/2 and B11/3
Dimensions: page B11/30
Schemes: page B11/30

Characteristics

Electrical characteristics of the power circuit

Rated operational voltage (Ue)	Up to	**V**	690
Rated insulation voltage (Ui)	Conforming to IEC 60947	**V**	690
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1	**V**	600
Rated impulse withstand voltage (Uimp)		**kV**	6
Frequency limits of the operational current		**Hz**	Up to 400
Power dissipated per pole		**W**	2

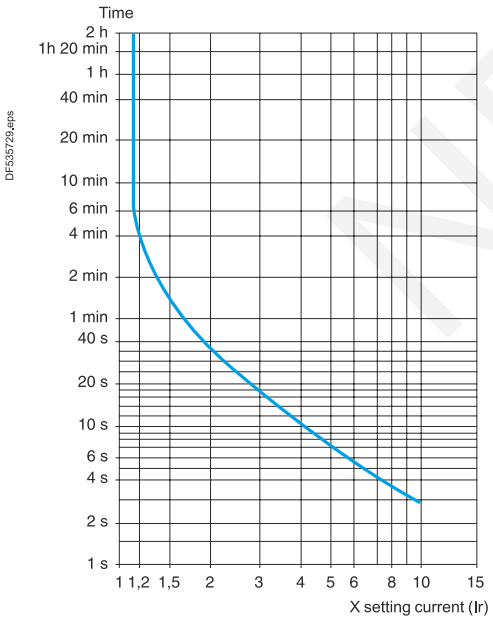
Operating characteristics

Tripping threshold	Conforming to IEC 60947-4-1	**A**	1.14 ±0.06 Ir
Sensitivity to phase failure	Conforming to IEC 60947		Yes
Reset	Manual or automatic		Selected by means of a lockable and sealable switch on the front of the relay
Signalling	On front of relay		Trip indicator
Reset-Stop function			Pressing the Reset-Stop button: - actuates the N/C contact - has no effect on the N/O contact
Test function	By pushbutton		Pressing the Test button enables: - checking of the control circuit wiring - simulation of overload tripping (actuation of both N/C and N/O contacts, and of the trip indicator)
Short-circuit protection and coordination			See pages A6/11 and A6/20

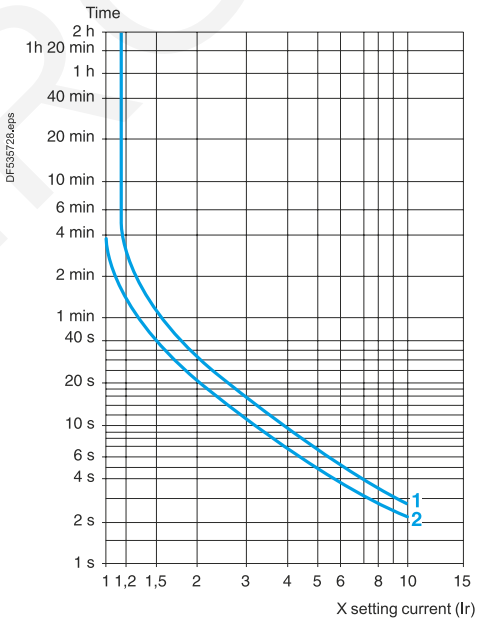
Tripping curves

Average operating time related to multiples of the current setting (Class 10 A)

Balanced 3-phase operation, from cold state



Balanced operation with 2 phases only, from cold state



Setting: at lower end of scale

Setting: at upper end of scale

Ref.
Overload relays

References:
pages B11/2 and B11/3

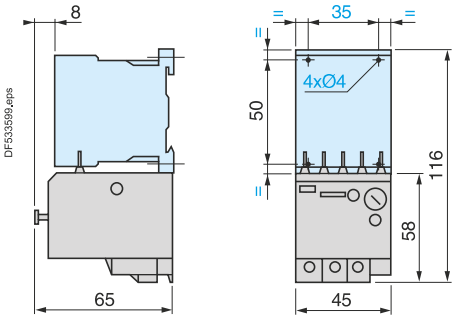
Dimensions:
page B11/30

Schemes:
page B11/30

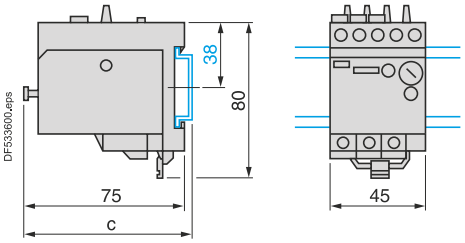
Dimensions, mounting

LR2K

Direct mounting beneath the contactor



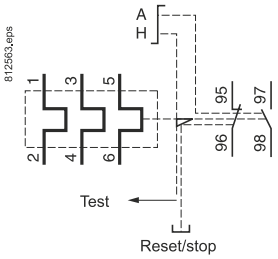
Separate mounting with terminal block LA7 K0064 on 35 mm ⎓ rail
(AM1DP200 or AM1DE200)



AM1	c
DP200	78.5
DE200	86

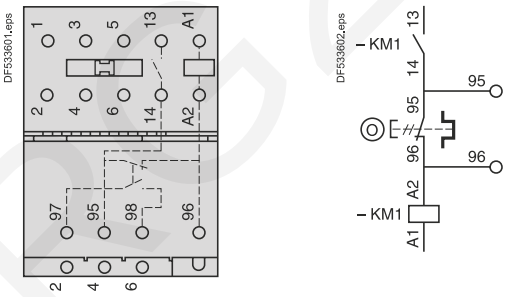
Schemes

LR2K

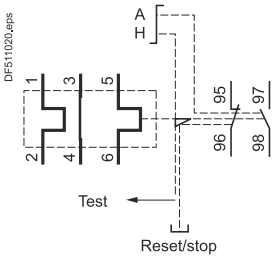


LR2K + LC●K

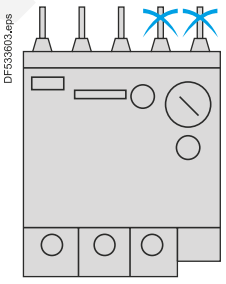
Pre-wiring scheme



LR7K



Note: *If pre-wiring is not required, break off the 2 links located on the thermal overload relay.*



Ref.
Overload relays

PB121502.eps

LRD10

PB113073.eps

LRD04L...32L

PB121505.eps

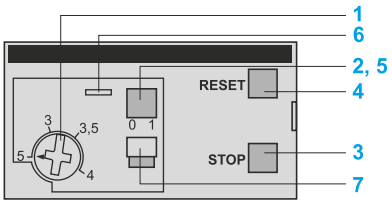
LRD365

EverLink®

PB121506.eps

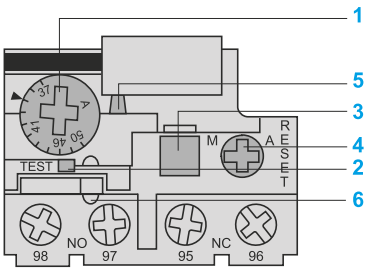
LRD33●●

DF567968.eps



LRD01…35, LRD04L...32L
LRD313…LRD365

DF567969.eps



LRD3361…4369, LR2 D3561…3563

Introduction

3-pole TeSys D thermal overload relays are designed to protect a.c. circuits and motors against:
- overloads
- phase failure
- excessively long starting times
- prolonged stalled rotor condition.

Power connection

LRD01 to LRD35
LRD01 to 35 relays are designed for connection by screw clamp terminals.
They can be supplied for connection by spring terminals or by lugs (1).

LRD04 to LRD32L
These relays are designed for connection by screw clamp terminals. They can be supplied for connection by lugs (1).

LRD313 to LRD380
These relays are for connection by BTR screw connectors (hexagon socket head).
The screws are tightened by means of a size 4, insulated Allen key.
This type of connection uses the **Ever**Link® system with creep compensation (2) (Schneider Electric patent).
This technique makes it possible to achieve accurate and durable tightening torque.

These relays are also available for connection by lugs (1).

LRD3361 to 4369, LR2D3561 to D3563
LRD3361 to 4369 and LR2D3561 to D3563 relays are designed for connection by screw clamp terminals. They can be supplied for connection by lugs (1).

Description

TeSys D 3-pole thermal overload relays are designed to protect a.c. circuits and motors against overloads, phase failure, long starting times and prolonged stalling of the motor.

1 Adjustment dial **Ir**.
2 Test button.
Operation of the Test button allows:
- checking of control circuit wiring,
- simulation of relay tripping (actuates both the N/O and N/C contacts).
3 Stop button. Actuates the N/C contact; does not affect the N/O contact.
4 Reset button.
5 Trip indicator.
6 Setting locked by sealing the cover.
7 Selector for manual or automatic reset.

LRD01 to 35, LRD04L to 32L and LRD313 to LRD380 relays are supplied with the selector in the manual position, protected by a cover. Deliberate action is required to move it to the automatic position.

(1) Connection by lugs meets the requirements of certain Asian markets and is suitable for applications subject to strong vibration, such as railway transport.
(2) Creep: normal crushing phenomenon of copper conductors, that is accentuated over time.

References:
pages B11/4 to B11/7
Dimensions, mounting:
pages B11/35 to B11/37
Schemes:
page B11/37

Characteristics

Environment

Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1 UL 60947-5-1, CSA C22.2 n° 60947-5-1, EN 50495 (1), GB/T 14048.4, GB/T 14048.5
Product certifications			UL (2), CSA (2) IEC, CCC (3), EAC, ATEX (1) ABS, BV (4), DNV-GL (5), LRoS (6), RINA (7), RMRS (8), EU RO Mutual recognition (9)
Degree of protection (front face)	Conforming to IEC 60529		Protection against direct finger contact IP20
Climatic withstand			Conforming to IACS E10
Ambient air temperature around the device	Storage	°C	-60…+70
	Normal operation, without derating (IEC 60947-4-1)	°C	-20…+60
	Minimum /maximum operating temperatures (with derating)	°C	-20…+70
Operating positions without derating	In relation to normal vertical mounting plane		Any position. When mounting on a vertical rail, use a stop.
Flame resistance	Conforming to 60695-2-11	°C	850
Shock resistance	Permissible acceleration conforming to IEC 60068-2-7		15 gn - 11 ms
Vibration resistance (10)	Permissible acceleration conforming to IEC 60068-2-6		6 gn except LRD04L...LRD32L: 3 gn
Dielectric strength at 50 Hz	Conforming to IEC 60947-1	kV	1.89 (product Ui 690 V), 2.2 (product Ui 1000 V)
Impulse withstand voltage	Conforming to IEC 60947-1	kV	6

Electrical characteristics of power circuit

Relay type			LRD01 …16, LR3D01 …16	LRD04L ...32L	LRD21 …35, LR3D21 …35	LRD313 …365 LR3D 313 …38	LRD313L …365L	LRD3322 …33696 LR3D3322 … 33696	LR2D 3522 … 3563	LRD 4365 … 4369
Tripping class	Conforming to UL 60947-4-1, IEC 60947-4-1		10 A	20	10 A	10 A	20	10 A	20	10 A
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1	V	690					1000 (11)		
	Conforming to UL, CSA	V	600							600 except LRD 4369
Rated impulse withstand voltage (Uimp)		kV	6							
Rated operational voltage (Ue)		V	690							
Frequency limits	Of the operating current	Hz	0…400							
Setting range	Depending on model	A	0.1…13	0.63…32	12…38	9…80	9…65	17…140	17…80	80…140

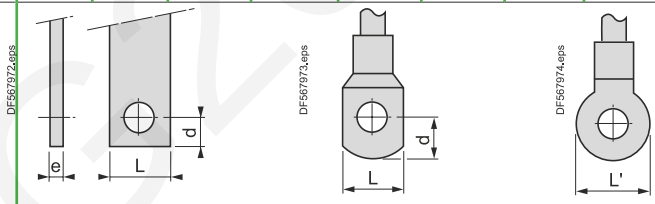
Auxiliary contact characteristics

Conventional thermal current		A	5					
Max. sealed consumption of the operating coils of controlled contactors (Occasional operating cycles of contact 95-96)	a.c. supply, AC-15	V	120	240	380	480	500	600
		A	3	1.5	0.95	0.75	0.72	0.12
	d.c. supply, DC-13	V	125	250	440			
		A	0.22	0.1	0.06			
Protection against short-circuits	By gG, BS fuses. Maximum rating or by GB2	A	4					

*(1) For relays **LRD01** to **LRD380**, **LRD3322** to **LRD3365**, **LRD04L** to **LRD32L**, **LRD4365** to **LRD4369**, **LRD33656** to **LRD33696.***
*(2) Except for relays **LRD4369**.*
*(3) CCC: Except for **LRD/LR3D04L** to **LRD/LR3D32L**, **LR2D3522** to **LR2D3563**.*
*(4) BV: except for **LRD/LR3D04L** to **LRD/LR3D32L**, **LRD/LR3D313** to **LRD/LR3D380**.*
*(5) DNV-GL: except for **LRD04L** to **LRD32L**.*
*(6) LRoS: except for **LRD/LR3D04L** to **LRD/LR3D32L**, **LRD/LR3D380**.*
*(7) RINA: for **LRD/LR3D01** to **LRD/LR3D35**.*
*(8) RMRS: for **LRD/LR3D313** to **LRD/LR3D380**.*
*(9) EU RO Mutual Recognition: for **LRD/LR3D313** to **LRD/LR3D380**, **LRD313L** to **LRD365L**.*
(10) In case of vibration above 3gn on TeSys D Green *contactor directly mounted with LRD, it is recommended do mount the devices separately by screws on metal plate.*
*(11) 750 V for **LRD33656**, **LRD33676**, **LRD33696**.*

References: pages B11/4 to B11/7
Dimensions, mounting: pages B11/35 to B11/37
Schemes: page B11/37

Power circuit connection characteristics

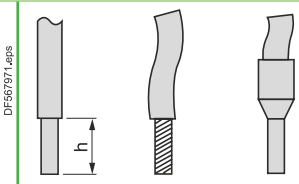
Relay type			LRD01 …16, LR3D01 …16	LRD04L ...21L	LRD22L ...32L	LRD21 …35, LR3D21 …35	LRD 313 …365 LR3D 313 …380	LRD 313L …365L	LRD 3322 …33696 LR3D 3322 … 33696	LR2D 3522 …3563	LRD 4365 …4369
Connection to screw clamp terminals											
Flexible cable without cable end	1 conductor	mm²	1.5…10			1.5…10	1…35	1…35	4…35		4…50
Flexible cable with cable end	1 conductor	mm²	1…4		1...6	1…6 except **LRD21:** 1…4	1…35	1…35	4…35		4…35
Solid cable without cable end	1 conductor	mm²	1…6		1.5…10	1.5/10 except **LRD21:** 1/6	1…35	1…35	4…35		4…50
Tightening torque		N.m	1.7		2.5	2.5	1…25: 5 35: 8	1…25: 5 35: 8	9	9	9
Connection to spring terminals (Min/max c.s.a.) (except LRD04L...LRD32L)											
Flexible cable without cable end	1 conductor	mm²	1.5…4	–	–	1.5…4	–	–	–	–	–
Flexible cable with cable end	1 conductor	mm²	1.5…4	–	–	1.5…4	–	–	–	–	–
Connection by bars or lugs											

Relay type			LRD016…166 LRD04L6 … 16L6	LRD216…356 LRD21L6 … 32L6	LRD3136 … 3806	LRD313L6 … 365L6	LRD3322A66 … 3365A66
Pitch	Without spreaders	mm	14.5	17.5	17.5	17.5	21.5
Bars or cables with lugs	e	mm	≤ 6	≤ 6	≤ 6	≤ 6	≤ 6
	L	mm	≤ 8	≤ 8	≤ 13.5	≤ 13.5	≤ 16
	L'	mm	≤ 9.5	≤ 9.5	≤ 16.5	≤ 16.5	≤ 16
	d		≤ 7	≤ 7	≤ 10	≤ 10	≤ 12
Screws			M4	M4	M6	M6	M10
	Tightening torque	N.m	1.7	2.5	6	6	11.3

Control circuit connection characteristics

Connection to screw clamp terminals or spring terminals

Bare cables



Relay type			LRD01 …16, LR3D01 …16	LRD04L ...21L	LRD22L ...32L	LRD21 …35, LR3D21 …35	LRD 313 …365 LR3D 313 …380	LRD 313L …365L	LRD3322 …33696 LR3D 3322 … 33696	LR2D 3522 … 3563	LRD 4365 …4369
Connection to screw clamp terminals (1)	Solid cable without cable end	mm²	2 x 1…2.5								
	Flexible cable without cable end	mm²	2 x 1…2.5								
	Flexible cable with cable end	mm²	2 x 1…2.5								
Tightening torque		N.m	1.7								
Connection to spring terminals (Min/max c.s.a.) (except LRD04L...LRD32L)	Solid cable	mm²	1…2.5	–		1…2.5			–		
	Flexible cable without cable end	mm²	1…2.5	–		1…2.5			–		

*(1) For relays **LRD313** to **380**: BTR hexagon socket head screws, **Ever**Link® system. In accordance with local electrical wiring regulations, a size 4 insulated Allen key must be used (reference **LADALLEN4**, see page B8/28).*

References: pages B11/4 to B11/7
Dimensions, mounting: pages B11/35 to B11/37
Schemes: page B11/37

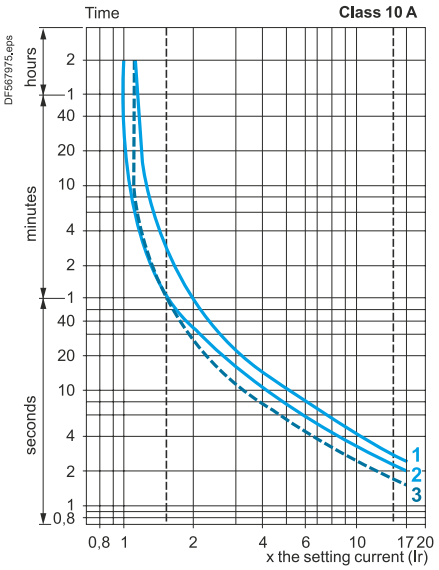
Operating characteristics

Relay type			LRD01 …16, LR3D01 …16	LRD04L... LRD32L	LRD21 …35, LR3D21 …35	LRD313 …365 LR3D 313 …380	LRD313L …365L	LRD3322 …33696 LR3D3322 … 33696	LR2D 3522 … 3563	LRD 4365 …4369
Temperature compensation		°C	-20…+60							
Tripping threshold	Conforming to IEC 60947-4-1	A	1.14 ±0.06 Ir							
Sensitivity to phase failure			Tripping current 130 % of Ir on two phases, the third phase at 0.							

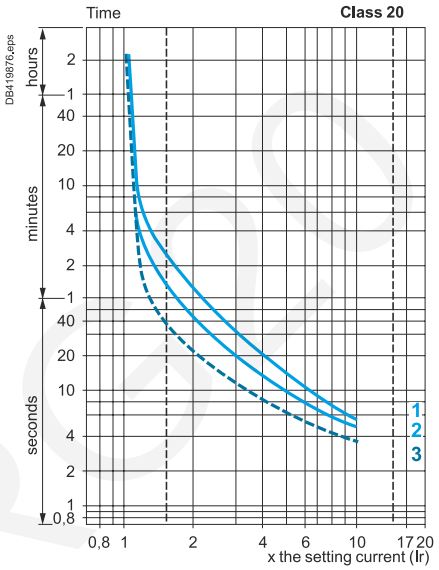
Tripping curves

Average operating time related to multiples of the setting current

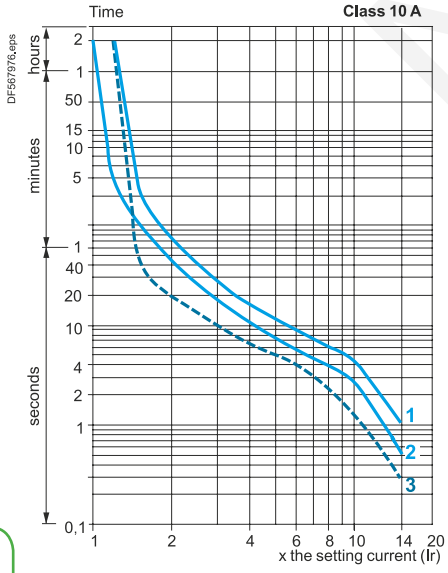
LRD01 to LRD35, LR2D and LRD3322 to LRD4369



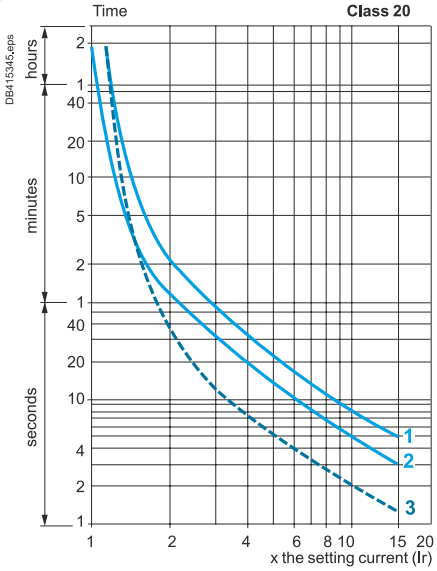
LRD04L to LRD32L and LR2D3522 to LR2D3563



LRD313 to LRD380



LRD313L to LRD365L



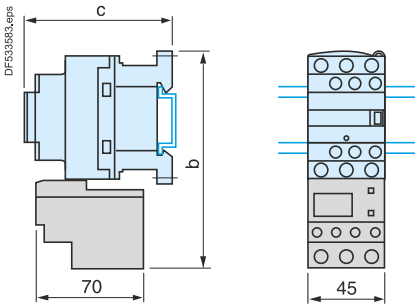
1 Balanced operation, 3-phase, without prior current flow (cold state).
2 2-phase operation, without prior current flow (cold state).
3 Balanced operation, 3-phase, after a long period at the set current (hot state).

References: pages B11/4 to B11/7
Dimensions, mounting: pages B11/35 to B11/37
Schemes: page B11/37

Dimensions, mounting

LRD01…35 (1)

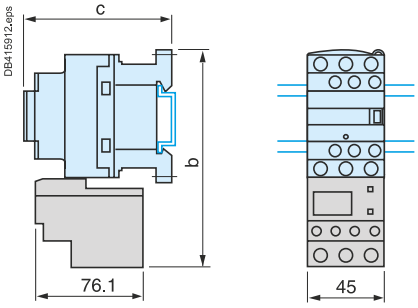
Direct mounting beneath contactors with screw clamp connections



LC1	D09…D18	D25…D38
b	123	137
c	See pages B11/32 and B8/73	

LRD04...32L (1)

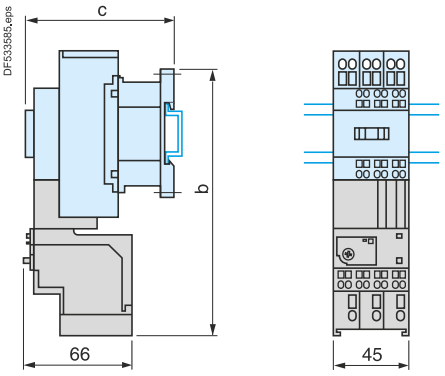
Direct mounting beneath contactors with screw clamp connections



LC1	D09…D18	D25…D38
b	123	137
c	See pages B11/32 and B8/73	

LRD013…223

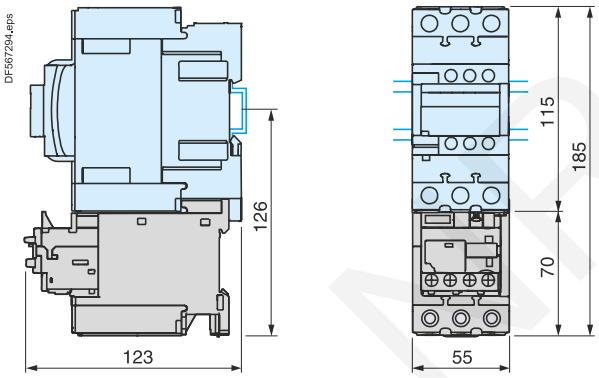
Direct mounting beneath contactors with spring terminal connections



LC1	D093…D253
b	168
c	See pages B11/32 and B8/73

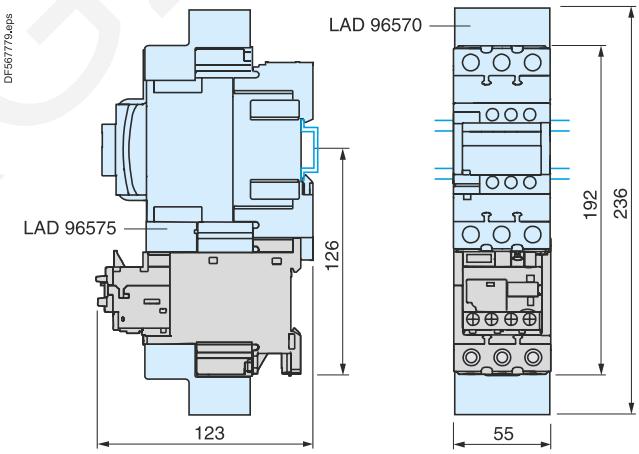
LRD313 …380 (1)

Direct mounting beneath contactors LC1D40A…D80A with screw clamp connections or EverLink® connectors



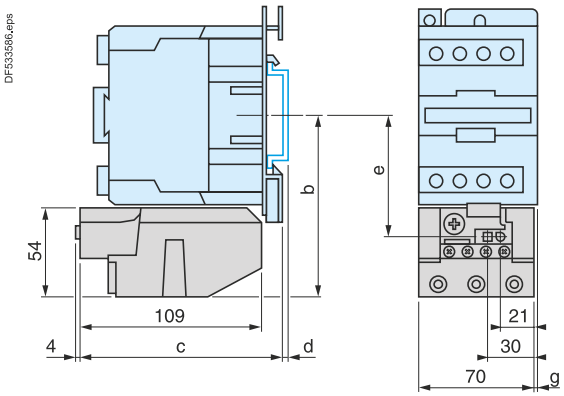
LRD3136 …3806 (1)

Direct mounting beneath contactors LC1D40A6…D80A6 with lugs



LRD33●●●

Direct mounting beneath contactors LC1D80…D95



AM1	DL201	DL200
d	7	17

Control circuit AC	b	c	e	g (tri)	g (tetra)
LC1D80	115.5	124	76.9	9.5	22
LC1D95	115.5	124	76.9	9.5	-
Control circuit DC					
LC1D80, D95	115.5	179.4	76.9	9.5	22

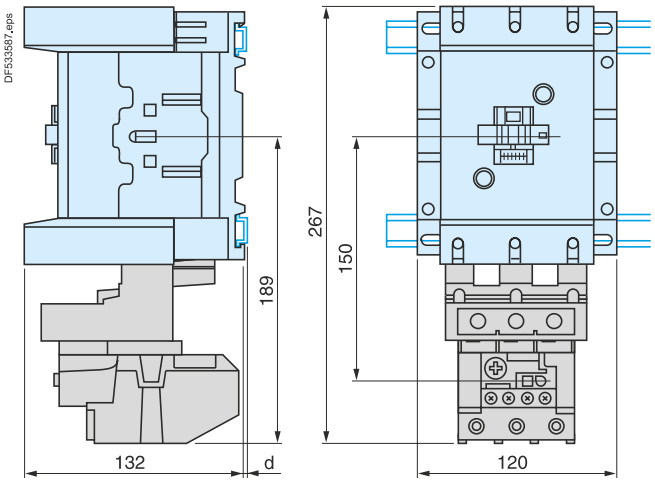
(1) In case of vibration above 3 gn on TeSys D Green *contactor directly mounted with LRD, it is recommended do mount the devices separately by screws on metal plate.*

Characteristics: pages B11/31 to B11/34
References: pages B11/4 to B11/7
Schemes: page B11/37

Dimensions, mounting

LRD4●●●

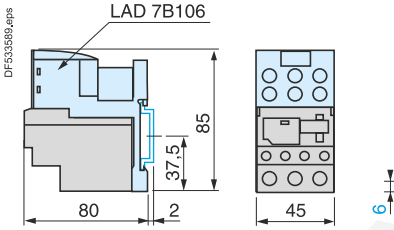
Direct mounting beneath contactors LC1D115 and D150



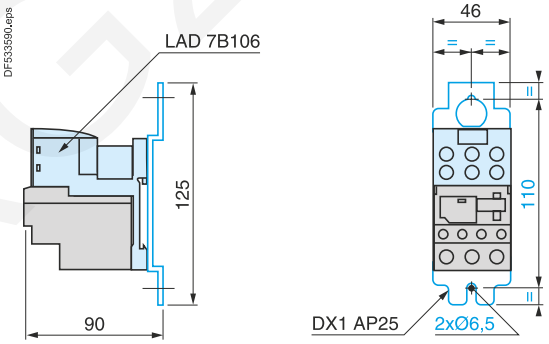
AM1	DL200 and DR200	DE200 and ED●●●
d	2.5	10.5

LRD01…35

Independent mounting on 50 mm centres or on rail AM1DP200 or DE200



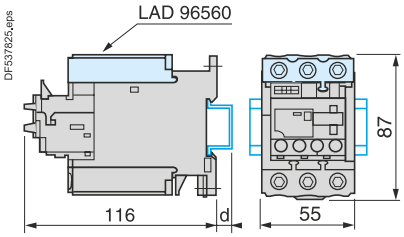
Independent mounting on 110 mm centres



LRD313…380

Mounting on rail AM1D●200 or ED200

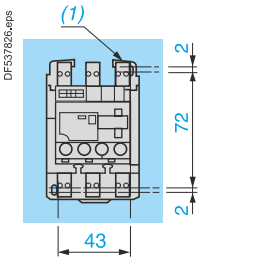
With terminal block LAD96560



AM1	DP200	DE200	ED200
d	2	9.5	9.5

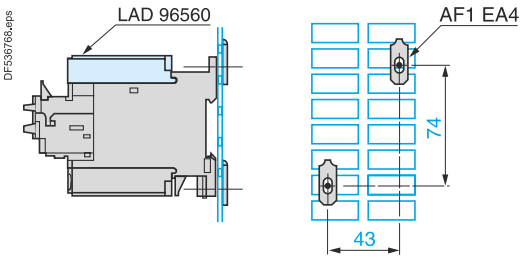
Panel mounting

Outgoing terminal block not shown



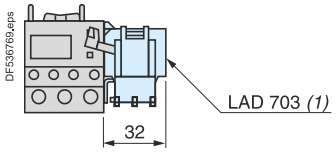
(1) 2 elongated holes Ø 4.2 x 6.

Mounted on plate AM1P



LRD01…35 and LRD313…380

Remote tripping or electrical reset



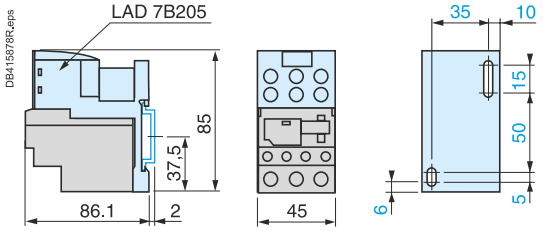
*(1) Can only be mounted on RH side of relay **LRD01**…**35** and **LRD313**…**380** .*

Characteristics: pages B11/31 to B11/34
References: pages B11/4 to B11/7
Schemes: page B11/37

Dimensions, mounting and schemes

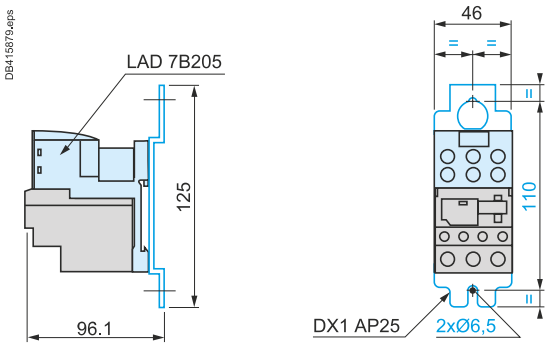
LRD04L...32L

Independent mounting on 50 mm centres or on rail AM1DP200 or DE200

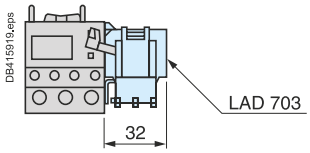


AM1	DP200	DE200
d	2	9.5

Independent mounting on 110 mm centres



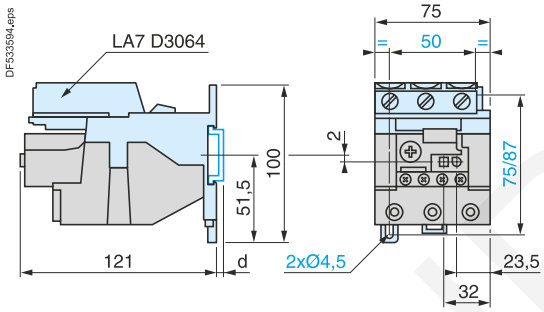
Remote tripping or electrical reset



(1) Can be mounted on RH or LH side of relay LR2D15.

LRD3●●● and LR2D35●●

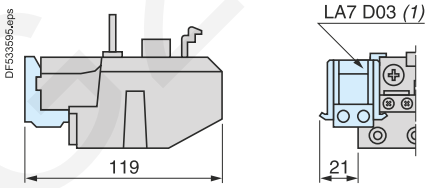
Independent mounting on 50 mm centres or on rail AM1DP200 or DE200



AM1	DP200	DE200
d	2	9.5

LRD3●●●, LR2D35●● and LR9D

Remote tripping or electrical reset



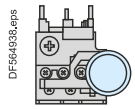
*(1) Can be mounted on RH or LH side of relay **LRD3●●●**, **LR2D35●●** or **LR9D**.*

LRD3●●●

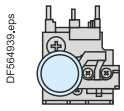
Adapter for door mounted operator

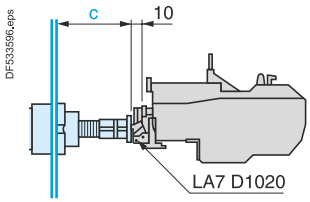
LA7D1020

Stop



Reset





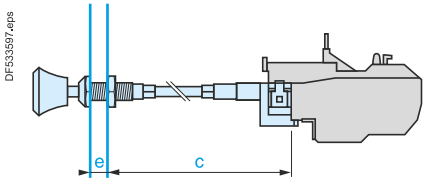
c: adjustable from 17 to 120 mm

LRD, LRD313...380, LRD04...32L

"Reset" by flexible cable

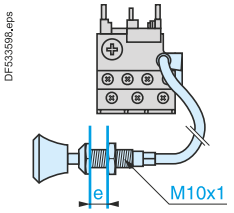
LA7D305 and LAD7305

Mounting with cable straight

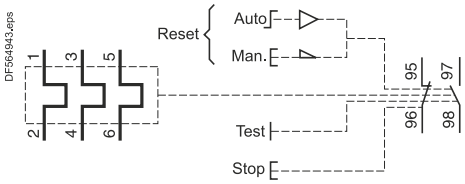


e: up to 20 mm / c: up to 550 mm

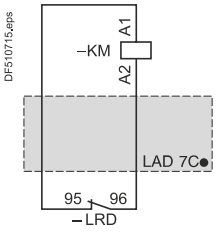
Mounting with cable bent



LRD●●, LRD3●● and LR2D●●



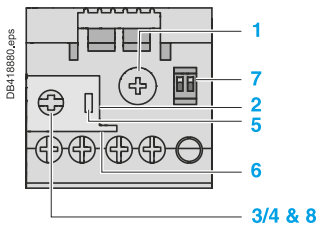
Pre-wiring kit LAD7C1, LAD7C2



Characteristics:
pages B11/31 to B11/34

References:
pages B11/4 to B11/7

Characteristics



LR9D01...110S

Description: LR9D01, 02, 08 and 32

These self-powered electronic thermal overload relays are designed for direct mounting to contactors LC1D09 through LC1D38.
LR9D110S self-powered electronic thermal overload relay is designed for separate mounting only.

In addition to the protection provided by the TeSys D thermal overload relays (see page B11/31), they offer the following additional features:
- protection against phase imbalance
- choice of starting class
- protection of unbalanced circuits
- protection of single-phase circuits

1 Adjustment dial Ir.
2 Test button.
3 Stop button.
4 Reset button.
5 Trip indicator.
6 Setting locked by sealing the cover.
7 Class 5/10/20/30 dipswitches.
8 Reset mode selector.

Environment

Relay type			LR9D01, 02, 08, 32 and LR9D110S
Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T 14048.4
Product certifications			CCC, CSA, UL, CB certification
Degree of protection	Conforming to IEC 60529 and VDE 0106		IP 20 on front panel
Ambient air temperature around the device (Conforming to IEC 60255-8)	Storage	°C	-55 to +80
	Normal operation	°C	-25 to +70
Maximum operating altitude	Without derating	m	2000
Operating positions without derating	In relation to normal vertical mounting plane		Any position
Shock resistance	Permissible acceleration conforming to IEC 60068-2-27		15 g (11ms)
Vibration resistance	Permissible acceleration conforming to IEC 60068-2-6		6 g (10-150 Hz)
Dielectric strength at 50 Hz	Conforming to IEC 60947-4-1	kV	6
Surge withstand, common mode	Conforming to IEC 61000-4-5	kV	2
Resistance to electrostatic discharge	Conforming to IEC 61000-4-2	kV	8
Immunity to radiated radio-frequency disturbances	Conforming to IEC 61000-4-3 and NF C 46-022	V/m	10
Immunity to fast transient currents	Conforming to IEC 61000-4-4	kV	2
Electromagnetic compatibility	Draft EN 50081-1 and 2, EN 50082-2		Meets requirements

Electrical characteristics of auxiliary contacts

Conventional thermal current		A	5					
Max. sealed consumption of the operating coils of controlled contactors (Occasional operating cycles of contact 95-96)	a.c. supply, AC-15	V	24	48	110	220	380	600
		VA	100	200	400	600	600	600
	d.c. supply, DC-13	V	24	48	110	220	–	–
		W	100	100	50	45	–	–
Protection against short-circuits	By gG or BS fuses or by circuit breaker **GB2**	A	5					
Cabling Flexible cable without cable end	1 or 2 conductors	mm² (AWG)	1 to 2.5 (18 to 14)					
	Tightening torque	Nm (lb-in)	0.8 (7)					

Ref.
Overload relays

References: page B11/10
Dimensions, mounting: page B11/42
Schemes: page B11/43

Characteristics

Electrical characteristics of power circuit

Relay type			LR9D01	LR9D02	LR9D08	LR9D32	LR9D110S
Tripping class	Conforming to IEC/EN 60947-4-1		5, 10, 20, 30				
	Conforming to UL 60947-4-1, CSA C22.2 n° 60947-4-1		10, 20, 30				
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1	V AC	1000				
Rated operational voltage (Ue)	Conforming to IEC 60947-4-1	V AC	690				
	Conforming to UL/CSA	V AC	600				
Rated impulse withstand voltage		kV	6				
Frequency limits	Of the operating current	Hz	50…60				
Setting range		A	0.1...0.5	0.4...2	1.6...8	6.4...32	22...110
Power circuit connections	Wire size - 1 or 2 conductors	mm² (AWG)	1 to 16 (14 to 6)				4 to 50 (10 to 1/0)
	Tightening torque	Nm (lb-in)	3.1 (28)				9 (80)

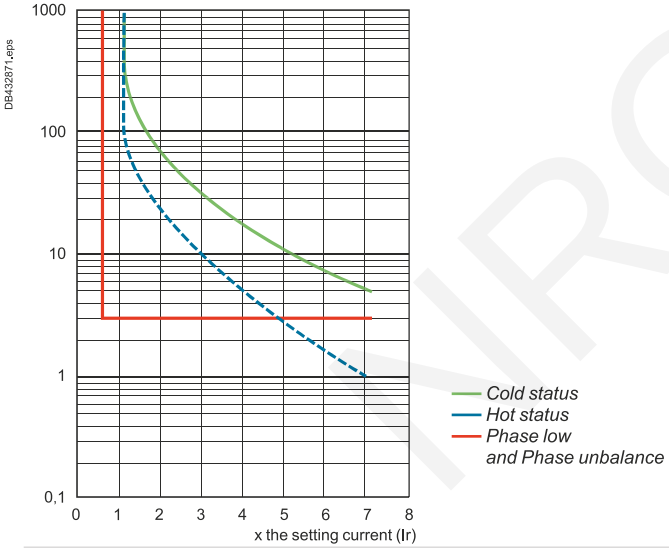
Operating characteristics

Consumption		mW	< 300
Tripping thresholds	Conforming to IEC 60947-4-1	A	1.25 In
Sensitivity to phase unbalance	Conforming to IEC 60947-4-1		Phase difference > 40%, tripping in 3 s
Current setting ratio			5:1
Automatic reset time		min.	1.5…4

LR9D01, 02, 08, 32, LR9110S tripping curves

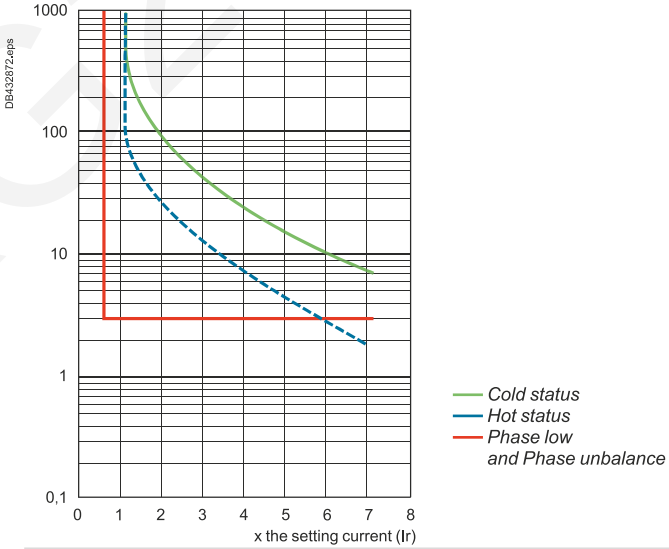
Class 5 Trip curve

Tripping time in seconds



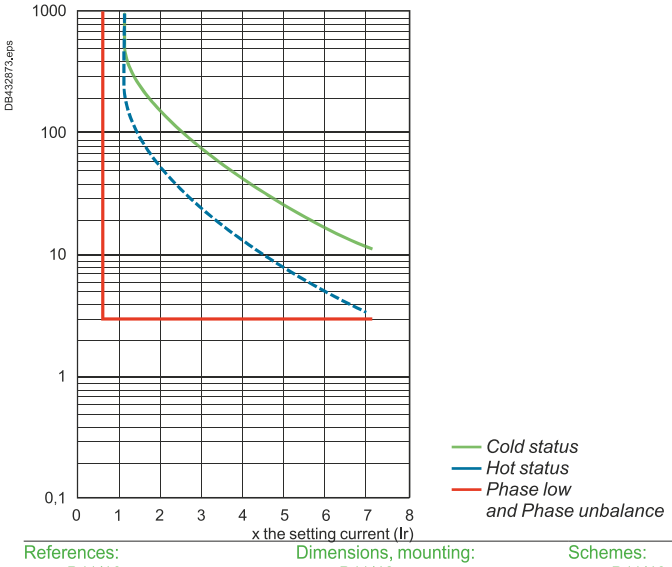
Class 10 Trip curve

Tripping time in seconds



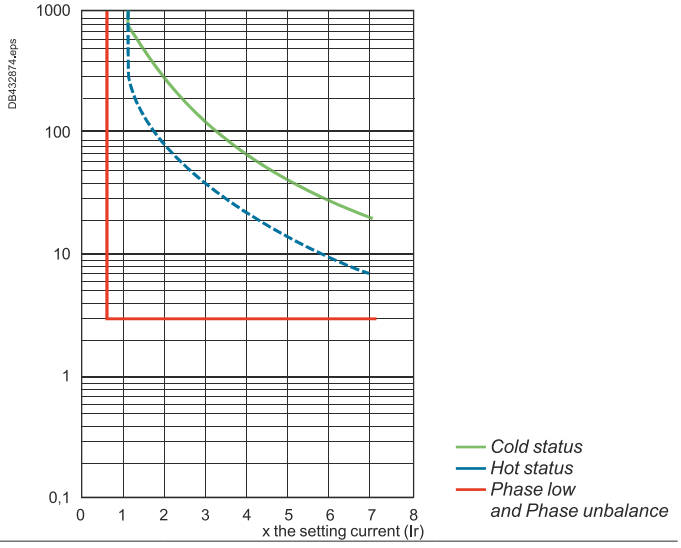
Class 20 Trip curve

Tripping time in seconds



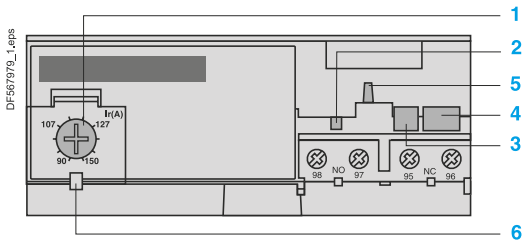
Class 30 Trip curve

Tripping time in seconds

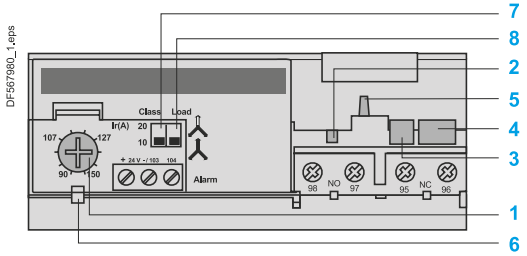


References: page B11/10
Dimensions, mounting: page B11/42
Schemes: page B11/43

Characteristics



LR9D5367…D5569



LR9D67 and D69

Description: LR9D5367...LR9D5569, LR9D67, LR9D69

These electronic thermal overload relays are designed for use with contactors LC1D115 and D150.

In addition to the protection provided by TeSys D thermal overload relays (see page B11/31), they offer the following special features:
- protection against phase imbalance
- choice of starting class
- protection of unbalanced circuits
- protection of single-phase circuits
- alarm function to avoid tripping by load shedding.

1 Adjustment dial Ir.
2 Test button.
3 Stop button.
4 Reset button.
5 Trip indicator.
6 Setting locked by sealing the cover.
7 Class 10/class 20 selector switch.
8 Selector for balanced load /unbalanced load

Environment

Relay type			LR9D5367...LR9D5569, LR9D67, LR9D69
Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T 14048.4
Product certifications			UL, CSA, CCC, ABS, BV, DNV-GL
Degree of protection	Conforming to IEC 60529		IP 20 on front panel with protective covers **LA9D11570●** or **D11560●**
Climatic withstand			according to IACS E10
Ambient air temperature around the device (Conforming to IEC 60255-8)	Storage	°C	- 40…+ 85
	Normal operation	°C	- 20…+ 55 (1)
Maximum operating altitude	Without derating	m	2000
Operating positions without derating	In relation to normal vertical mounting plane		Any position
Shock resistance	Permissible acceleration conforming to IEC60028-2-27		13 gn - 11 ms
Vibration resistance	Permissible acceleration conforming to IEC 60068-2-6		2 gn - 5…300 Hz
Dielectric strength at 50 Hz	Conforming to IEC 60947-4-1	kV	6
Surge withstand	Conforming to IEC 61000-4-5	kV	6
Resistance to electrostatic discharge	Conforming to IEC 61000-4-2	kV	8
Immunity to radiated radio-frequency disturbances	Conforming to IEC 61000-4-3	V/m	10
Immunity to fast transient currents	Conforming to IEC 61000-4-4	kV	2
Electromagnetic compatibility	EN 50081-1 and 2, EN 50082-2		Meets requirements

Electrical characteristics of auxiliary contacts

Conventional thermal current		A	5					
Max. sealed consumption of the operating coils of controlled contactors (Occasional operating cycles of contact 95-96)	a.c. supply	V	24	48	110	220	380	600
		VA	100	200	400	600	600	600
	d.c. supply	V	24	48	110	220	440	–
		W	100	100	50	45	25	–
Protection against short-circuits	By gG or BS fuses or by circuit breaker **GB2**	A	5					
Cabling Flexible cable without cable end	1 or 2 conductors	mm²	Minimum c.s.a.: 1 Maximum c.s.a.: 2.5					
	Tightening torque	Nm	1.2					

(1) For operating temperatures up to 70 °C, please consult your Regional Sales Office.

References: page B11/10
Dimensions, mounting: page B11/42
Schemes: page B11/43

Characteristics

Electrical characteristics of power circuit

Relay type			LR9D5367...LR9D5569, LR9D67, LR9D69
Tripping class	Conforming to IEC/EN 60947-4-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1		10 or 20
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1	V	1000
	Conforming to UL, CSA	V	600
Rated impulse withstand voltage (Uimp)		kV	8
Frequency limits	Of the operating current	Hz	50…60 (1)
Setting range	Depending on model	A	60…150
Power circuit connections	Width of terminal lug	mm	20
	Clamping screw		M8
	Tightening torque	N.m	18

Operating characteristics

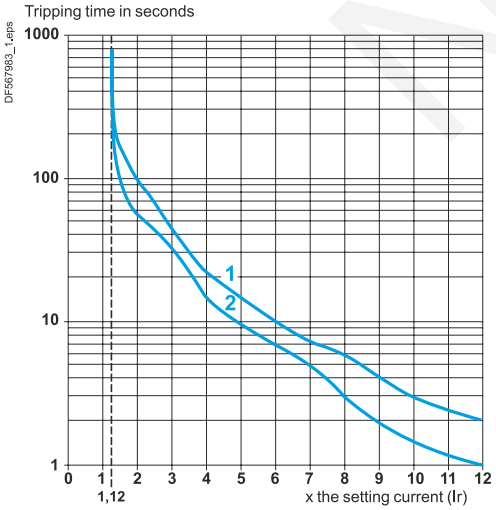
Temperature compensation		°C	- 20…+70
Tripping thresholds	Conforming to IEC 60947-4-1		
	Alarm	A	1.05 ±0.06 In
	Trip	A	1.12 ±0.06 In
Sensitivity to phase failure	Conforming to IEC 60947-4-1		Tripping in 4 s ±20 % in the event of phase failure

Alarm circuit characteristics

Rated supply voltage	d.c. supply	V	24
Supply voltage limits		V	17…32
Current consumption	No-load	mA	≤ 5
Switching capacity		mA	0…150
Protection	Short-circuit and overload		Self protected
Voltage drop	Closed state	V	≤ 2.5
Cabling	Flexible cable without cable end	mm²	0.5…1.5
Tightening torque		N.m	0.45

(1) For other frequencies and for applications involving the use of these overload relays with soft starters or variable speed drives, please consult your Regional Sales Office.

LR9D5367...LR9D5569, LR9D67, LR9D69 tripping curves



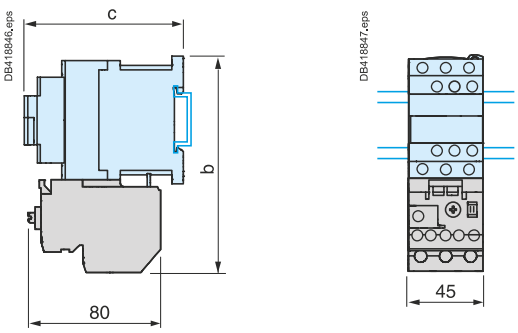
Average operating time related to multiples of the setting current

1 Cold state curve
2 Hot state curve

References: page B11/10
Dimensions, mounting: page B11/42
Schemes: page B11/43

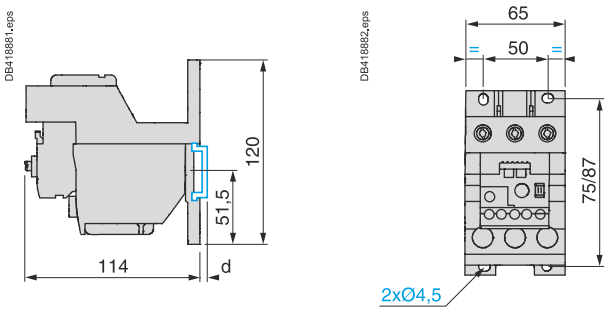
Dimensions, mounting

LR9D01, 02, 08, 32

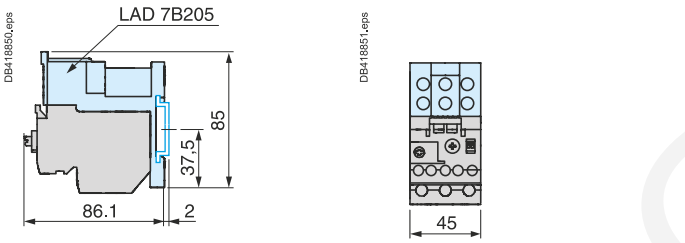


LC1	D09...D18	D25...D38
b	130	140
c	See pages B8/65 and B8/66	

LR9D110S

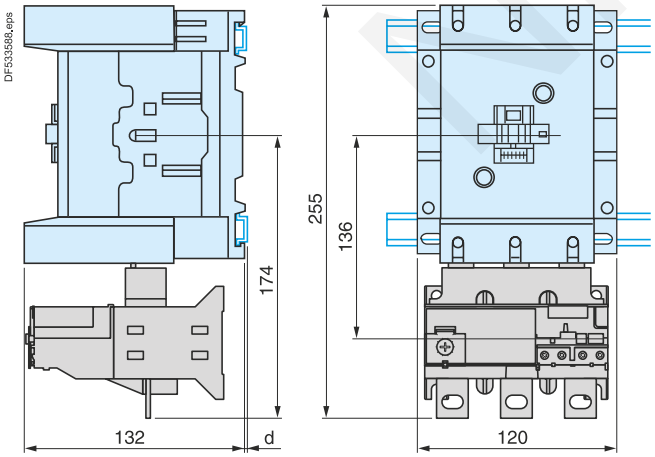


LR9D01...32



LR9D53●●, LR9D55●●, LR9D67, LR9D69

Direct mounting beneath contactors LC 1D115 and D150



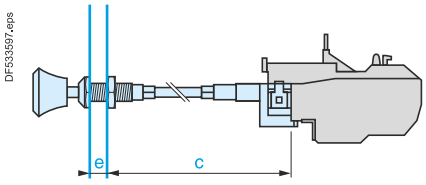
AM1	DP200 and DR200	DE200 and ED●●●
d	2.5	10.5

LR9D

"Reset" by flexible cable

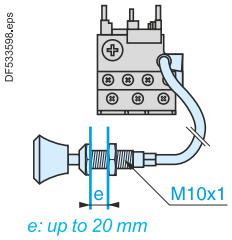
LA7D305 and LAD7305

Mounting with cable straight



e: up to 20 mm / c: up to 550 mm

Mounting with cable bent

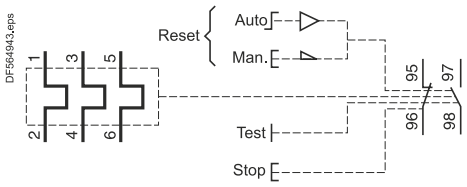


e: up to 20 mm

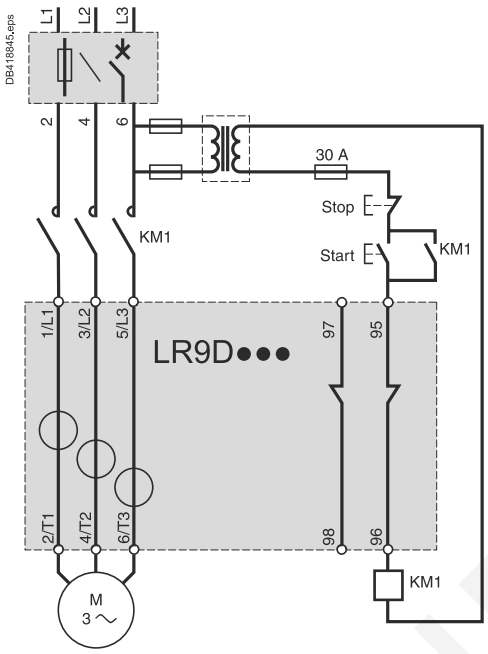
Ref.
Overload relays

Schemes

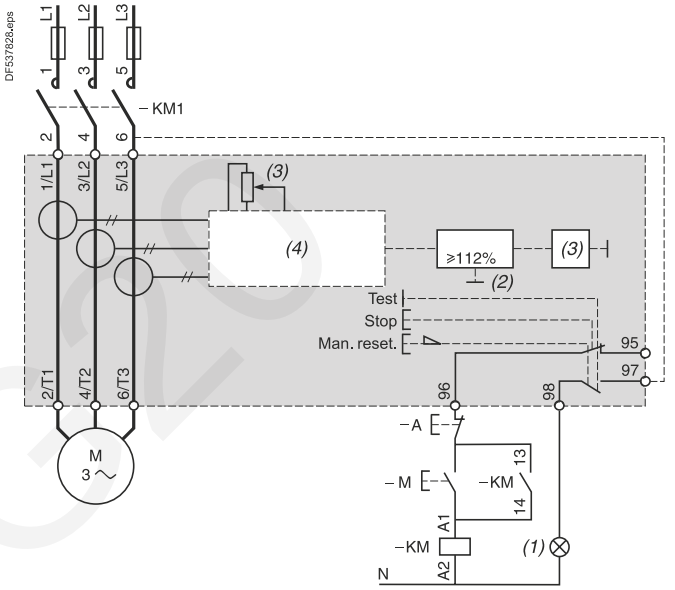
LR9D01, 02, 08, 32, LR9D110S



LR9D01, 02, 08, 32, LR9 D110S

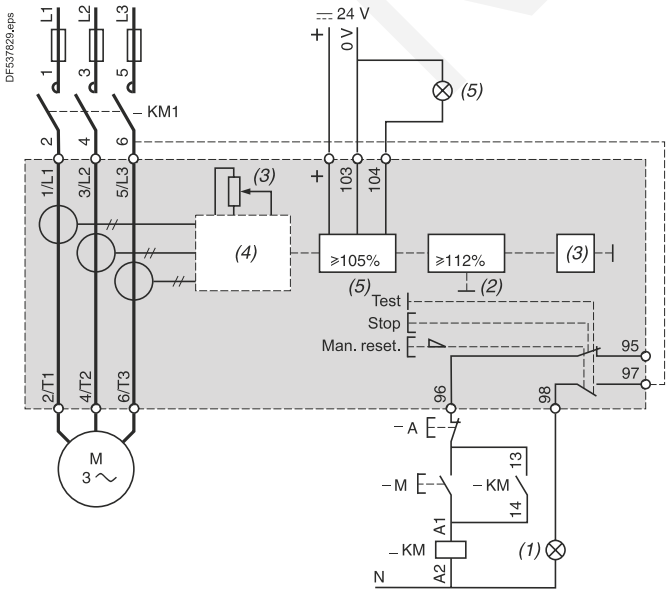


LR9D5●●●



(1) Tripped.
(2) Overload.
(3) Setting current.
(4) Specialised circuit.

LR9D67 and LR9D69



(1) Tripped.
(2) Overload.
(3) Setting current.
(4) Specialised circuit.
(5) Alarm.

References:
page B11/10
Characteristics:
pages B11/38 to B11/41
Dimensions:
page B11/42

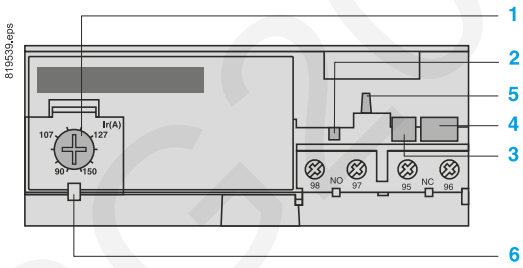
Introduction

TeSys LR9F electronic protection relays are especially suited to the operating conditions of motors.
They provide protection against:
- thermal overload of 3-phase or single-phase balanced or unbalanced circuits;
- phase failure and large phase unbalance,
- protracted starting times,
- prolonged stalled rotor condition.

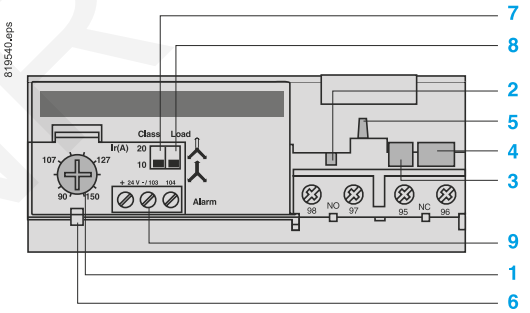
LR9F electronic protection relays are mounted directly below an LC1 F type contactor. They cover a range from 30 to 630 A, in eight ratings.
The settings can be locked by sealing the transparent protective cover.
A reset button is mounted on the front of the relay.
Two versions are available:
- simplified version: class 10: LR9F●3●●, class 20: LR9F●5●●,
- complete version: class 10, 10 A or class 20, selectable, conforming to EN 60947-4-1: LR9F●●.

This latter version includes an alarm function which makes it possible to forestall tripping by load shedding.

Simplified version: class 10 or 20



Complete version: class 10, 10 A or class 20, selectable, and alarm circuit



1 Ir adjustment dial
2 Test button
3 Stop button
4 Reset button
5 Trip indicator
6 Setting locked by sealing the cover
7 Class 10/class 20 selector switch
8 Selector switch for balanced load /unbalanced load
9 Alarm circuit

Ref.
Overload relays

Characteristics

Environment

Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T 14048.4
Product certifications			UL, CSA, CCC, ABS, BV, DNV-GL
Degree of protection	Conforming to VDE 0106		IP 20
	Conforming to IEC 60529		IP 20 on front of relay with accessories **LA9F103** or **LA7F70●**, see page B11/14
Climatic withstand			according to IACS E10
Ambient air temperature around the device (conforming to IEC 60255-8)	Storage	**°C**	-40…+85
	Normal operation	**°C**	-20…+55 (1)
Maximum operating altitude	Without derating	**m**	2000
Operating positions without derating	In relation to normal vertical mounting plane		Any position
Shock resistance	Permissible acceleration conforming to IEC 60068-2-7		13 gn - 11 ms
Vibration resistance	Permissible acceleration conforming to IEC 60068-2-6		2 gn - 5 to 300 Hz
Dielectric strength at 50 Hz	Conforming to IEC 60947-4-1	**kV**	6
Surge withstand	Conforming to IEC 61000-4-5	**kV**	4
Resistance to electrostatic discharge	Conforming to IEC 61000-4-2	**kV**	8 (in air) 6 (in indirect mode)
Resistance to radiated radio-frequency disturbance	Conforming to IEC 61000-4-3	**V/m**	10
Resistance to fast transient currents	Conforming to IEC 61000-4-4	**kV**	2
Electromagnetic compatibility	EN 50081-1 and 2, EN 50082-2		Conforming

(1) For operating temperatures up to 70 °C, please consult your Regional Sales Office.

Ref.
Overload relays

References:
pages B11/11 to B11/14

Dimensions, schemes:
pages B11/48 and B11/49

Characteristics

Electrical characteristics of power circuit

Relay type			LR9	F5●57, F57	F5●63, F63 F5●67, F67F5●69, F69	F5●71, F71	F7●75, F75 F7●79, F79	F7●81, F81
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1		V	1000				
Rated impulse withstand voltage (Uimp)	Conforming to IEC 60947-1		kV	8				
Rated operational current (Ie)			A	30 to 630				
Short-circuit protection and coordination				See pages: A6/11, A6/12, A6/15 and A6/16				
Frequency limits	Of the operating current		Hz	50…60. For other frequencies, please consult your Regional Sales Office (1)				
Power circuit connections	Width of terminal lug		mm	20	25	25	30 **LR9F7●75** and **LR9F75** 40 **LR9F7●79** and **LR9F79**	40
	Clamping screw			M6	M8	M10	M10	M12
	Tightening torque		N.m	10	18	35	35	58

Auxiliary contact electrical characteristics

Conventional thermal current			A	5	
Short-circuit protection	By gG or BS fuses or by circuit-breaker **GB2CD10**		A	5	
Control circuit connections	Flexible cable with cable end			**Min.**	**Max.**
		1 conductor	mm²	1 x 0.75	1 x 2.5
		2 conductors	mm²	2 x 1	2 x 1.5
	Flexible cable without cable end	1 conductor	mm²	1 x 0.75	1 x 4
		2 conductors	mm²	2 x 1	2 x 2.5
	Solid cable	1 conductor	mm²	1 x 0.75	1 x 2.5
		2 conductors	mm²	2 x 1	–
	Tightening torque		N.m	1.2	

Maximum sealed current consumption of the coils of associated contactors (occasional operating cycles of contact 95-96)									
	a.c. supply		V	24	48	110	220	380	600
			VA	100	200	400	600	600	600
	d.c. supply		V	24	48	110	220	440	–
			W	100	100	50	45	25	–

(1) For applications involving the use of these overload relays with soft starters or variable speed drives, please consult your Regional Sales Office.

Ref.
Overload relays

References: pages B11/11 to B11/14
Dimensions, schemes: pages B11/48 and B11/49

Characteristics

Operating characteristics

Tripping class	Conforming to IEC 60947-4-1			10 and 20
Temperature compensation			°C	-20…+70
Reset				Manual on front of relay
Fault indication				On front of relay
Test function				On front of relay
Stop function				Actuation of N/C contact, without affecting N/O contact
Tripping thresholds	Conforming to IEC 60947-4-1	Alarm	A	1.05 ± 0.06 In
		Tripping	A	1.12 ± 0.06 In
Sensitivity to phase failure	Conforming to IEC 60947-4-1			Tripping in 4 s ± 20 % in the event of phase failure
Adjustment (nominal motor current)				Setting dial on front of relay
Security sealing				Yes

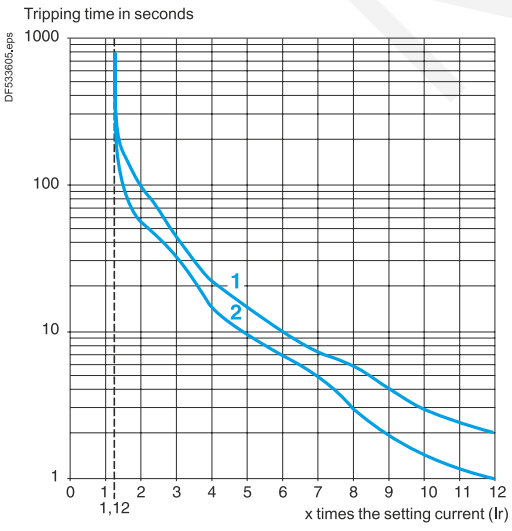
Alarm circuit characteristics

Rated supply voltage	d.c. supply	V	24
Supply voltage limits		V	17…32
Current consumption	No-load	mA	≤ 5
Switching current		mA	0…150
Protection	Short-circuit and overload		Auto-protected
Voltage drop	Closed state	V	≤ 2.5
Connection	Flexible cable without cable end	mm^2	0.5…1.5
Tightening torque		N.m	0.45

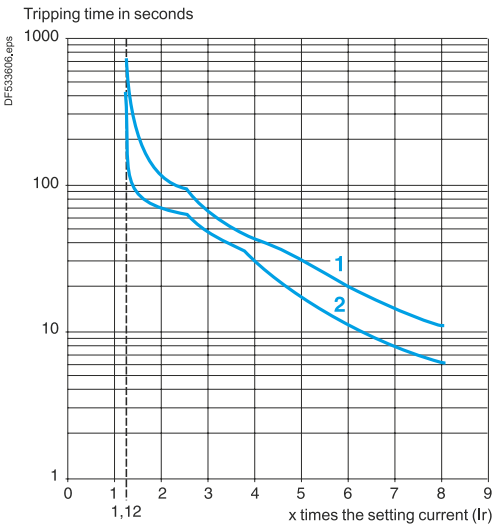
LR9F tripping curve

Average operating times depending on multiples of the setting current

Class 10



Class 20



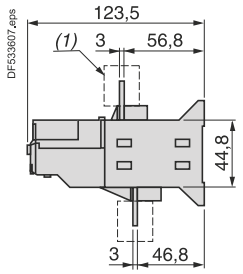
1 Cold state curve
2 Hot state curve

References:
pages B11/11 to B11/14

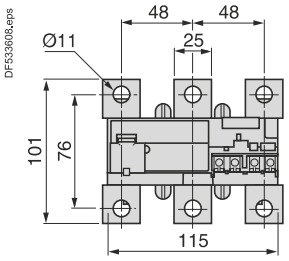
Dimensions, schemes:
pages B11/48 and B11/49

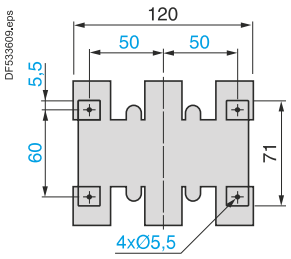
Dimensions

Common side view

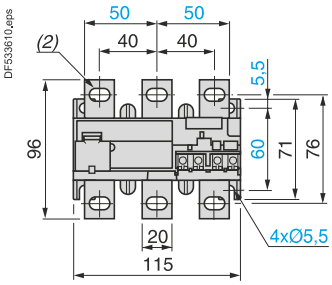


LR9F5●71, F71





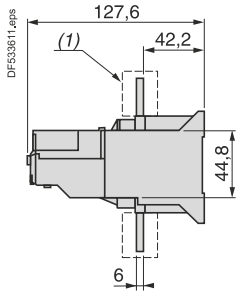
LR9F5●57, F5●63, F5●67, LR9F5●69, F57, F63, F67, F69



*(1) Terminal shroud **LA9F70●***

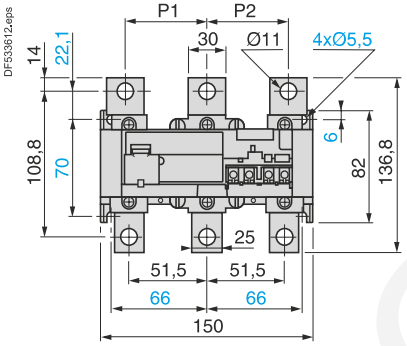
*(2) 6.5 x 13.5 for **LR9F5●57** and **F57**. 8.5 x 13.5 for **LR9F5●63**, **F5●67**, **F5●69**, **F63**, **F67**, **F69***

Common side view



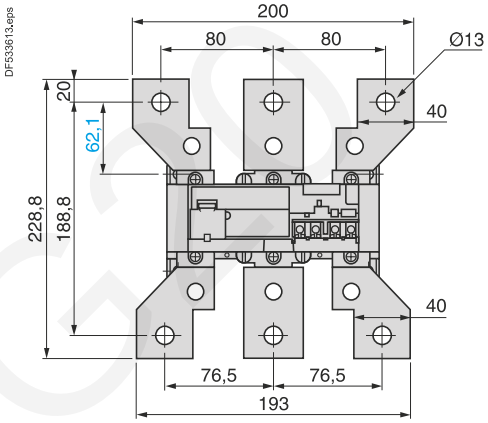
*(1) Terminal shroud **LA9F70●***

LR9F7●75, F7●79, F7●81, LR9F75, F79, F81

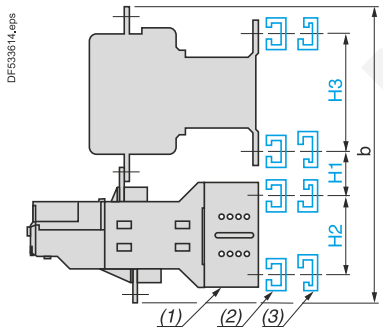


	P1	P2
LR9F7●75, F75	48	48
LR9F7●79, F7●81, F79, F81	55	55

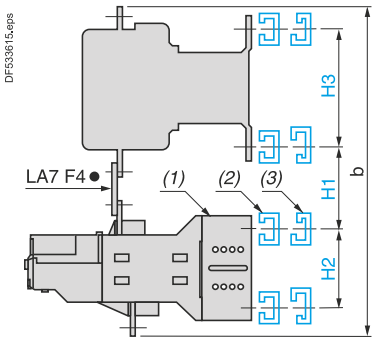
LR9F7●81 (for mounting beneath LC1F630 and F800), LR9F81



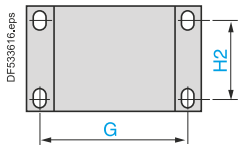
Direct mounting beneath contactor LC1F



Mounting beneath contactors: reversing LC2F or star-delta LC3F



Mounting plate for LR9F



LA7	G
F901	145
F902	190

Contactors LC1	With LR9 relays	b	H1	H2	H3
F115	F5●57, F5●63, F5●67, F5●69, F57, F63, F67, F69	240	30	50	120
F150	F5●57, F5●63, F5●67, F5●69 F57, F63, F67, F69	246	30	50	120
F185	F5●57, F5●63, F5●67, F5●69 F57, F63, F67, F69	250	30	50	120
F225	F5●71, F71	273	40	50	120
	F7●75, F7●79, F75, F79	308	50	58	120
F265	F5●71, F71	279	40	50	120
	F7●75, F7●79, F75, F79	314	60	58	120
F330	F7●75, F7●79, F75, F79	317	60	58	120
F400	F7●75, F7●79, F7●81, F75, F79, F81	317	60	58	180
F500	F7●75, F7●79, F7●81, F75, F79, F81	346	70	58	180
F630, F800	F7●81, F81	510	110	58	180

*(1) Relay mounting plate **LA7F90●**, see page B11/14.*

*(2) **AM1EC** or **AM1DF** for **LC1F115** to **F630** and **LC1F800**.*

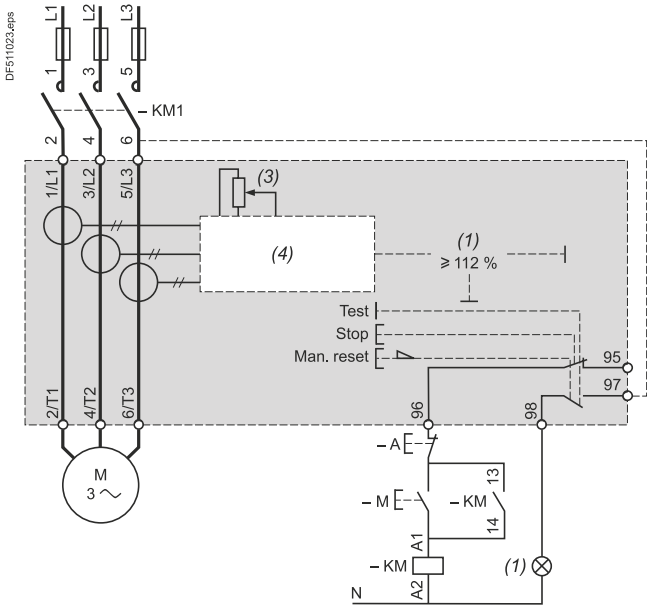
Contactors LC1	With LR9 relays	b	H1	H2	H3
F115	F5●57, F5●63, F5●67, F5●69, F57, F63, F67, F69	279	60	50	120
F150	F5●57, F5●63, F5●67, F5●69 F57, F63, F67, F69	283	60	50	120
F185	F5●57, F5●63, F5●67, F5●69 F57, F63, F67, F69	285	60	50	120
F225	F5●71, F71				
	F7●75, F7●79, F75, F79	360	100	58	120
F265	F5●71, F71	332	90	50	120
	F7●75, F7●79, F75, F79	363	100	58	120
F330	F7●75, F7●79, F75, F79	364	100	58	120
F400	F7●75, F7●79, F7●81, F75, F79, F81	364	100	58	180
F500	F7●75, F7●79, F7●81, F75, F79, F81	390	110	58	180
F630, F800	F7●81, F81	509	120	58	180

*(3) **DZ5MB** for **LC1F115** to **F400**.*

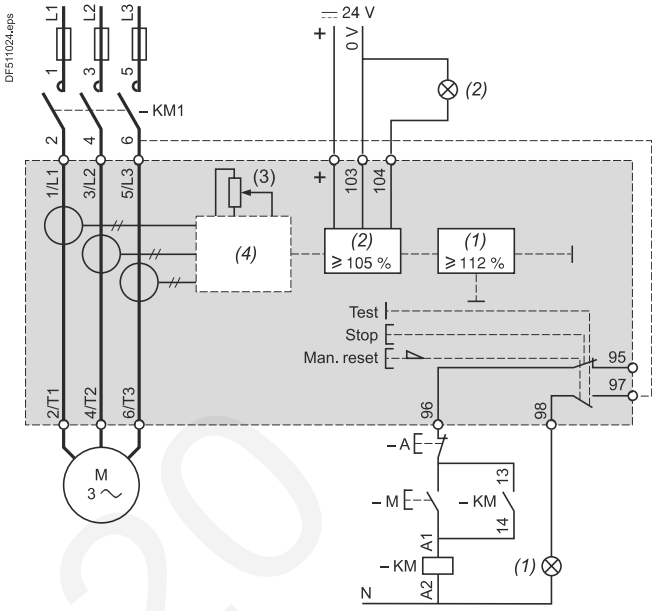
References: pages B11/11 to B11/14
Characteristics: pages B11/44 to B11/47
Schemes: page B11/49

Schemes

LR9F5●57…F7●81



LR9F57…F81 (with alarm)

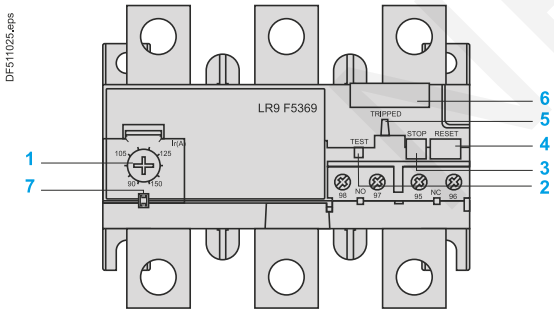


(1) Tripped on thermal overload.
(2) Overheating alarm.
(3) Setting current.
(4) Specialised circuit.

Setting-up the special functions of TeSys LR9F thermal overload relays

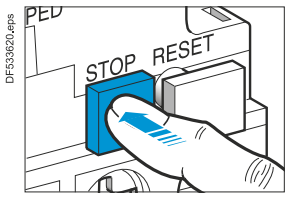
Setting the relay

- Lift the transparent cover **7** to gain access to the various settings.
- Adjustment is achieved by turning dial **1** which is graduated directly in Amperes.
- The setting can be locked by sealing the cover **7**.



"Stop" function 3

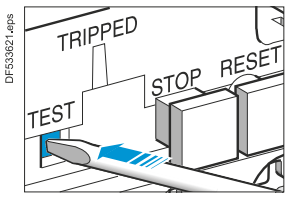
Stop



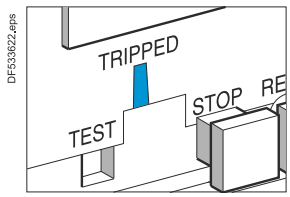
- The "Stop" function is obtained by pressing the red "STOP" button **3**.
- Pressing the Test button:
  - actuates the N/C contact,
  - has no effect on the N/O contact.
- The "STOP" button can be locked by fitting a "U" clip (reference: **LA7D901**).

"Test" function 2

Test



Trip indicator



- The "Test" function is obtained by pressing the red "TEST" button **2** with a screwdriver.
- Operation of the "TEST" button simulates tripping of the relay and:
  - actuates both the N/O and N/C contacts,
  - actuates the trip indicator **5**.

References:
pages B11/11 to B11/14
Characteristics:
pages B11/44 to B11/47
Dimensions:
page B11/48

Introduction

The RM1XA electromagnetic relay detects over current peaks in excess of the maximum permissible current value. It is designed for the protection of circuits which are not subject to current peaks (starters, resistors) or for controlling starting peaks on slip ring motors.

It trips instantaneously and is not suitable for frequent operation (12 operating cycles per hour). It can withstand a continuous current equivalent to 1.25 times the minimum setting current.

Environment characteristics

Conforming to standards		IEC/EN 60947-4-1
Ambient air temperature around the device	°C	Storage: - 60…+ 70 Operation: - 40…+ 60
Maximum operating altitude	m	2000
Operating position		± 15° in relation to normal vertical mounting position

Electrical characteristics of power circuit

Maximum rated operational voltage	V	∼ or ⎓ 600
Frequency limits of the rated operational current	Hz	0…60

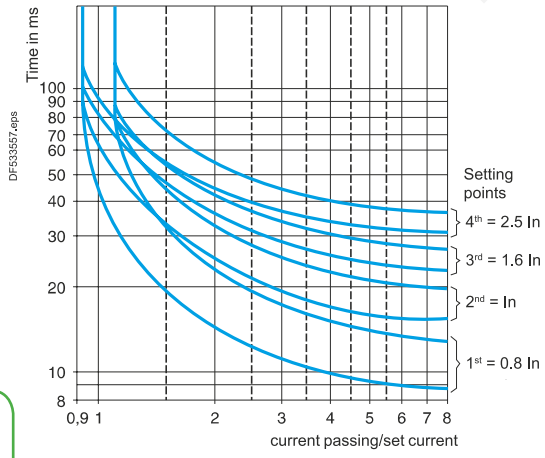
Electrical characteristics of auxiliary contacts

Conventional thermal current			A	10				
Occasional making and breaking capacities	a.c. supply	Voltage	V	48	110	220	380	600
		Power (1)	VA	4000	12 000	17 000	22 000	–
	d.c. supply	Voltage	V	48	110	220	440	600
		Power (2)	W	240	200	190	180	180

(1) Circuit such as the electromagnet of a contactor - cos φ inrush: 0.7 and cos φ sealed: 0.4.
(2) Circuit such as an electromagnet without economy resistor ; time constant varying from 20 ms for 5 W to 200 ms for 100 W or more.

Operating times

Operating times: because of the numerous applications for RM1 XA over current relays, it is not possible to give precise operating times. The curves shown are therefore purely indicative.



Ref.
Overload relays

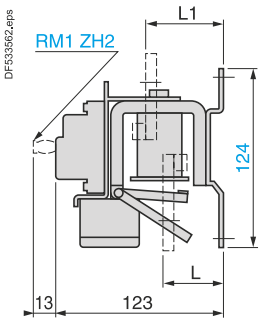
References: pages B11/15 and B11/16
Dimensions: page B11/51
Schemes: page B11/51

Dimensions, schemes

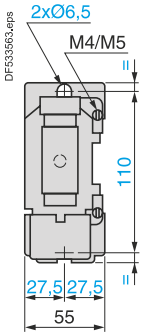
Dimensions

RM1XA●●●, RM1XA●●●1

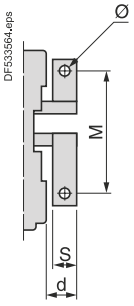
Common side view



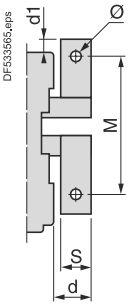
RM1XA001…XA040 RM1XA0011…XA0401



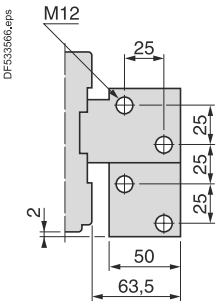
RM1XA063, XA100 and XA315 RM1XA0631, XA1001 and XA3151



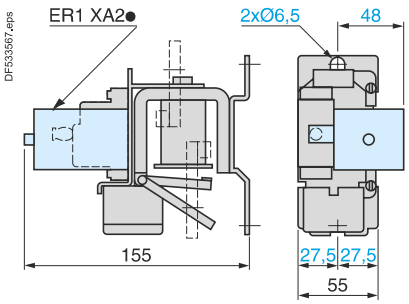
RM1XA160, XA200, and XA500 RM1XA1601, XA2001, and XA5001



RM1XA101, RM1XA1011



RM1XA●●●1 with electrical reset ER1XA2●

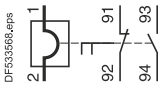


RM1	d	d1	M	L	L1	S	Ø
XA 063	20.5	–	83	25	40	15	M6
XA 100	20.5	–	87	25	40	20	M8
XA 160	27.5	5.5	94	25	40	25	M8
XA 200	27.5	5.5	94	25	40	25	M8
XA 315	35.5	–	74	44	55	30	M10
XA 500	40.5	7	84	44	55	40	M10
XA 101	–	–	–	37	64	–	–

Schemes

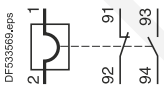
RM1XA●●●1

Latching



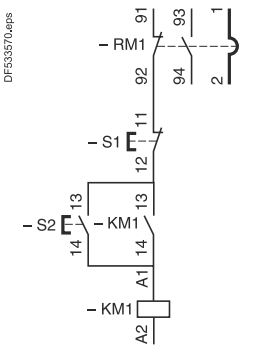
RM1XA●●●

Non-latching

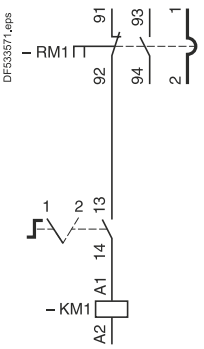


RM1XA

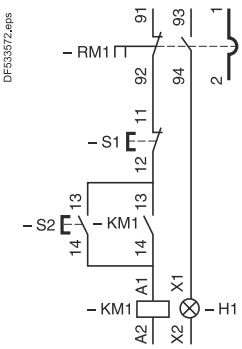
3-wire control (without mechanical latching)



2-wire control (with mechanical latching)



3-wire control (with "trip" signal)



References:
pages B11/15 and B11/16

Characteristics:
page B11/50

Application

LT3S● thermistor protection units continuously monitor the temperature of the machines to be protected (motors, generators, etc.) by means of PTC thermistor probes embedded in the machine windings.

If the nominal operating temperature of the probes is reached, they convert the rapid increase in resistance into a switching function which can be used to switch off the machine or signal a fault (see paragraph relating to thermistor probes below).

Accidental breaks in the supply circuits of the thermistors are also detected.

Electromagnetic compatibility

Conforming to "Electromagnetic compatibility" directive.
Conforming to standard IEC/EN 61000-6-2.

Resistance to electrostatic discharge (conforming to IEC 61000-4-2)	**Level 3**
Resistance to fast transients (conforming to IEC 61000-4-4)	**Level 3**
Susceptibility to electromagnetic fields (conforming to IEC 61000-4-3)	**Level 3**
Surge resistance 1.2/50 - 8/20 (conforming to IEC 61000-4.5)	**Level 4**
Immunity to microbreaks and voltage drops (IEC 61000-4-11)	
Suitable for use with variable speed controllers	

Thermistor probes

Range of most commonly used PTC thermistor probes:
from 90 to 160 °C, in steps of 10 °C.
Curve R = f (θ), characteristic of a PTC thermistor probe, is defined by standard IEC 60947-8.

The choice of PTC thermistor probe to be incorporated in the motor winding depends on the insulation class, the type of motor and the most suitable location for the probe. This choice is usually made by the motor manufacturer or the motor rewinder, who have all the necessary information.

Application example

Insulation class of rotating machines conforming to IEC 60034-11 (S1 duty)	NOT Nominal operating temperature	Temperature at which rapid increase in resistance occurs Probes used for Alarm	Fault
	°C	°C	°C
A	100	100	100
B	110	110	120
E	120	120	130
F	140	140	150
H	160	160	170

(1) PTC: Positive Temperature Coefficient.

Ref.
Overload relays

References:
pages B11/17 and B11/18
Dimensions, schemes:
pages B11/56 and B11/57

Characteristics

Protection unit type				LT3SE	LT3SA	LT3SM
Reset method				Automatic	Automatic	Manual/Automatic
Fault indication				–	On front panel of unit and remote	On front panel of unit and remote
Fault test				–	–	By pushbutton on front panel of unit
Probe interchangeability				Label "Mark A" to IEC 60034-11	Label "Mark A" to IEC 60034-11	Label "Mark A" to IEC 60034-11
Environment						
Conforming to standards				IEC 60947-8	IEC 60947-8	IEC 60947-8
Product certifications				UL, CSA		
Degree of protection				IP 20 conforming to IEC 60529		
CE marking				LT3S● protection units have been designed to comply with the basic recommendations of European directives relating to low voltage and EMC. Therefore LT3S● products bear the European Community CE mark.		
Ambient air temperature around the device	Storage Conforming to IEC 60068-2-1 and 2-2		°C	- 40…+ 85		
	Operation		°C	- 25…+ 60		
Maximum operating altitude	Without derating			2000 m		
	With derating			Up to 3000 m, the maximum permissible ambient air temperature for operation (60 °C) must be reduced by 5 °C per additional 500 m above 1500 m		
Vibration resistance	Conforming to IEC 60068-2-6			2.5 gn (2…25 Hz) 1 gn (25…150 Hz)		
Shock resistance	Conforming to IEC 60068-2-27			5 gn (11 ms)		
Operating positions without derating	In relation to normal vertical mounting plane			Any position		
Power supply circuit characteristics						
Rated control circuit voltage (Uc)	∼ 50/60 Hz	Single voltage	V	115 or 230	–	400
	0.85…1.1 Uc	Dual voltage	V	–	115/230	115/230. 24/48
	∼ 50/60 Hz 0.85…1.1 Uc	Multivoltage	V	–	24…230	24…230
	⎓	Single voltage	V	24	–	–
	0.8…1.25 Uc	Dual voltage	V	–	24/48	24/48
	0.85…1.1 Uc	Multivoltage	V	–	24…230	24…230
Average consumption	Sealed	∼	VA	< 2.5	< 2.5	< 2.5 except (400 V: 2.7)
		⎓	W	< 1	< 1	< 1

(1) PTC: Positive Temperature Coefficient.

Ref.
Overload relays

References: pages B11/17 and B11/18
Dimensions: page B11/56
Schemes: pages B11/56 and B11/57

Characteristics

Control circuit characteristics

Protection unit type				LT3SE	LT3SA	LT3SM
Resistance	Tripping	Ω		2700…3100	2700…3100	2700…3100
	Reset	Ω		1500…1650	1500…1650	1500…1650
Maximum number of probes fitted in series (2)	Probes ⩽ 250 Ω at 25°			6	6	6
Voltage at terminals in the thermistor circuit	Normal operation (R = 1500 Ω)	V		< 2.5	< 2.5	< 2.5
	Conforming to IEC 60034-11 (R = 4000 Ω)	V		< 7.5	< 7.5	< 7.5
Thermistor probe short-circuit detection	Operating threshold	Ω		–	< 20	< 20
Connection of probes to the LT3	Distance	m		300	400	500	1000 (3)
	Minimum c.s.a. of conductors	mm²		0.75	1	1.5	2.5

Electrical characteristics of the output relay contacts

Contact type	Single voltage or dual voltage			1 N/C	1 N/C + 1 N/O	1 N/C + 1 N/O
	Multivoltage			–	2 C/O	2 C/O
Rated insulation voltage			V	∼ 500		
Maximum operational voltage			V	∼ 250 (∼ 400 V for **LT3SM00V**)		
Rated impulse withstand voltage	Uimp		kV	2.5		
Conventional thermal current			A	5		
Operational power	At 220 V		VA	100 for 0.5 million operating cycles		
Breaking capacity	In cat. AC-15	120 V	A	6		
		250 V	A	3		
	In DC-13	24 V	A	2		
Cabling (cage type connector) for flexible or solid cable	Without cable end		mm²	2 x 1…1 x 2.5		
	With cable end		mm²	1 x 0.75…2 x 2.5		
Tightening torque			N.m	0.8		

Thermistor probe characteristics

Probe type				DA1TT●●●	DA1TS●●●
Conforming to standards				IEC 60034-11. Mark A	
Resistance	At 25 °C		Ω	3 x 250 in series	250
Rated operational voltage (Ue)	Per probe		V	⎓ 2.5 V max	⎓ 2.5 V max
Rated insulation voltage (Ui)			kV	2.5	1
Insulation				Reinforced	Reinforced
Length of connecting cables	Between probes		mm	250	–
	Between probe and motor terminal plate		m	1	1

(1) PTC: Positive Temperature Coefficient.
(2) Provided that the total resistance of the probe circuit is less than 1500 Ω at 20 °C.
(3) For distances greater than 500 m take cabling precautions (twisted shielded pairs).

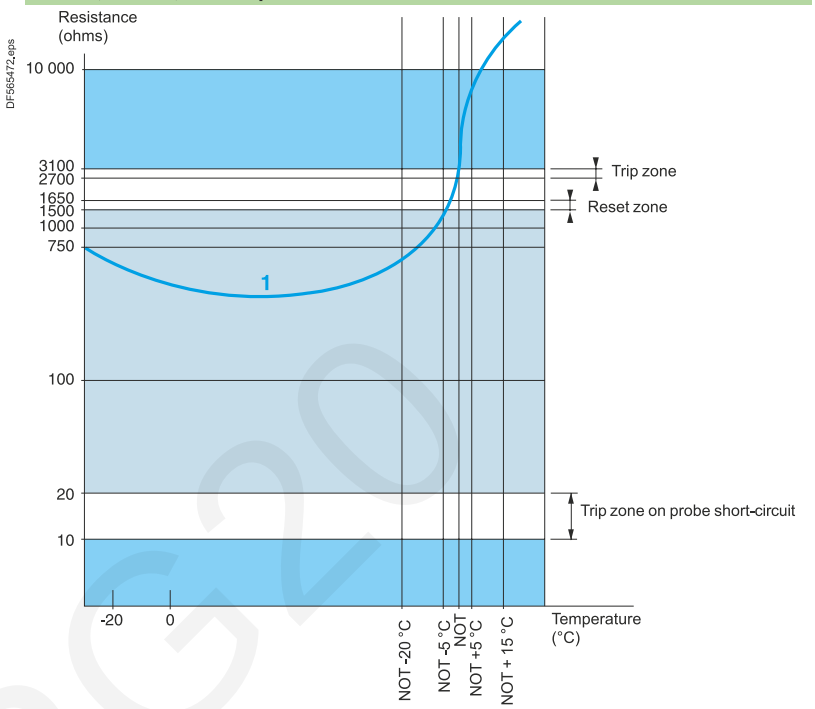
Ref.
Overload relays

References: pages B11/17 and B11/18
Dimensions: page B11/56
Schemes: pages B11/56 and B11/57

LT3S protection unit/thermistor probe combination

Guaranteed operating zones: examples with 3 probes type DA1TT●●● (250 Ω at 25 °C) in series, conforming to standard IEC 60034-11, Mark A.

LT3SE, LT3SA, LT3SM protection units



1 3 probes type DA1TT●●● (250 Ω at 25 °C) in series.

NOT: Nominal Operating Temperature

Protection unit tripped.

Protection unit reset.

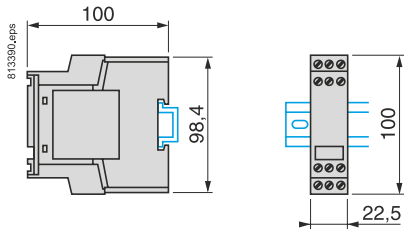
(1) PTC: Positive Temperature Coefficient.

Ref.
Overload relays

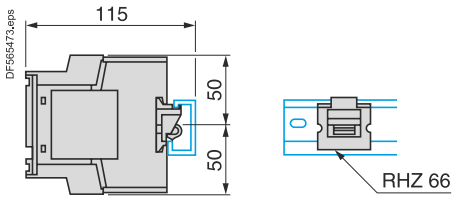
Dimensions

LT3SE, SA, SM

Mounting on ⊔ rail AM1 DP200

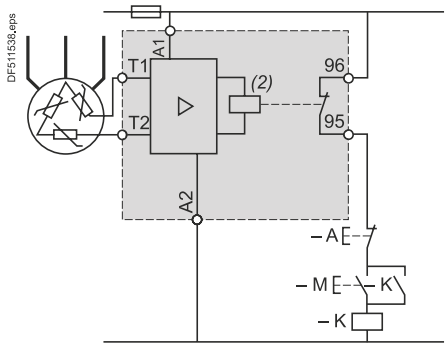


Mounting on 1 ⊏ rail
(with adapter RHZ 66)

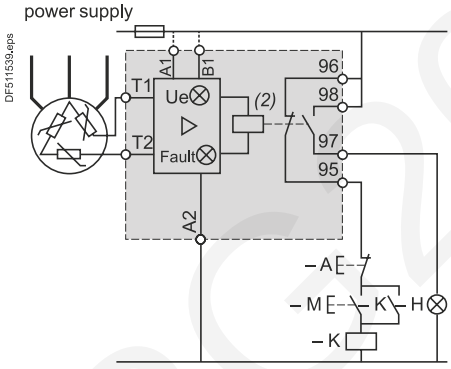


Schemes for "no fault" operation

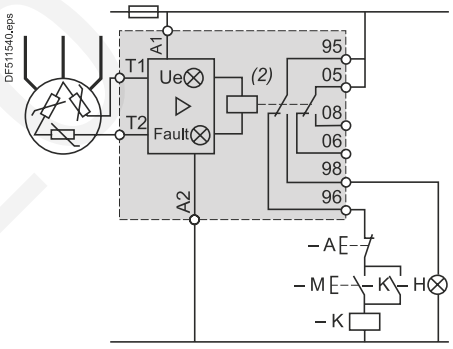
LT3SE00BD (24 V DC), LT3SE00F (115 V AC), LT3SE00M (230 V AC)
Without fault memory



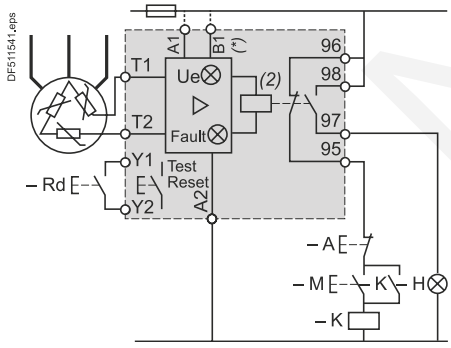
LT3SA00ED (24/48 V DC), LT3SA00M (115/230 V AC)
Refer to chart for use of A1/B1 terminal according power supply



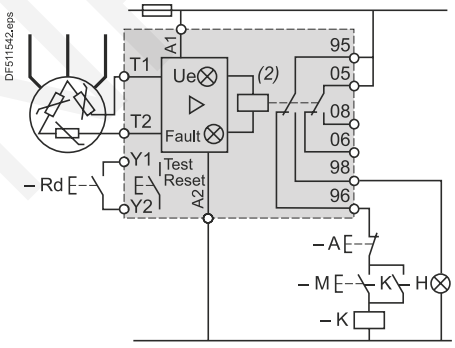
LT3SA00MW (24 to 230V AC/DC)



LT3SM00E (24/48V AC), LT3SM00ED (24/48V DC), LT3SM00M (115/230 V AC), LT3SM00V (400V AC)
Refer to chart for A1 - A2 - B1 supply terminals to be used



LT3SM00MW (24 to 230 V AC/DC)



*(*) no B1 terminal on **LT3SM00V** (400V AC).*

LT3SA, LT3SM - dual voltage and 400 V - power terminal assigment

LT3SA00ED, LT3SM00ED	24 V DC	48 V DC
Terminals	B1(+) A2 (0V)	A1(+) A2 (0V)
LT3SA00M, LT3SM00M	**115 V AC**	**230 V AC**
Terminals	A1-B1	A1-A2
LT3SA00M, LT3SM00M	**-**	**400 V AC**
Terminals	-	A1-A2

Setting-up

Cabling

It is inadvisable to use the same multi-core cable for the thermistor probe circuit and the power circuit. This is especially important for long cable runs.
If it is impossible to comply with the above recommendation, a pair of twisted conductors must be used for the thermistor probe circuit.

Testing the insulation of the line connecting the thermistors to the LT3S unit

Before carrying out this test, short-circuit all the terminals of the LT3S protection unit.
Measure the insulation value between these terminals and earth using a megger or a flash tester, progressively increasing the voltage to the value defined by the standards.

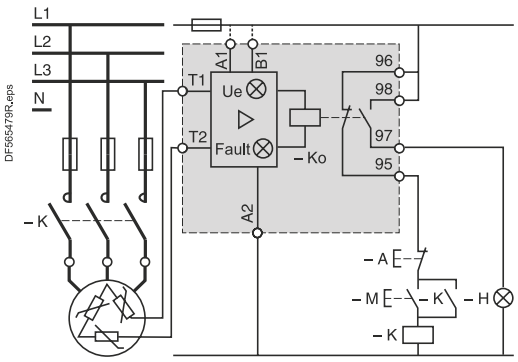
Checking the PTC thermistor probes for correct operation

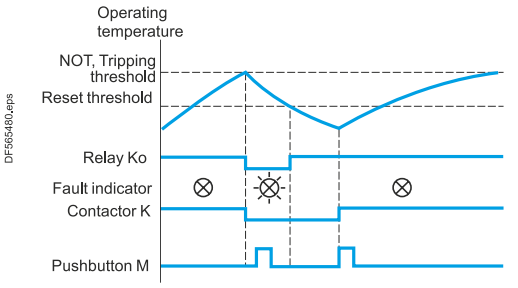
With the machine stopped, in the cold state and after having taken all the necessary safety precautions:
- disconnect the line linking the thermistors to the LT3S protection unit, at the terminals of the machine being protected: motor, etc.,
- using an ohmmeter with a voltage rating less than or equal to 2.5 V, measure the resistance of the probe circuit at the machine terminals,
- depending on the number and type of thermistors connected in series, check that their resistance value at 25 °C is correct.

Example: motor fitted with 3 PTC thermistor probes with a resistance ≤ 250 Ω at 25 °C.
Any value higher than 250 x 3 = 750 Ω indicates a problem.

(1) PTC: Positive Temperature Coefficient.
(2) Relay energised: the contacts are shown in the "operating" position.

References:
pages B11/17 and B11/18
Characteristics:
pages B11/52 to B11/55





LT3SA protection units

Starting

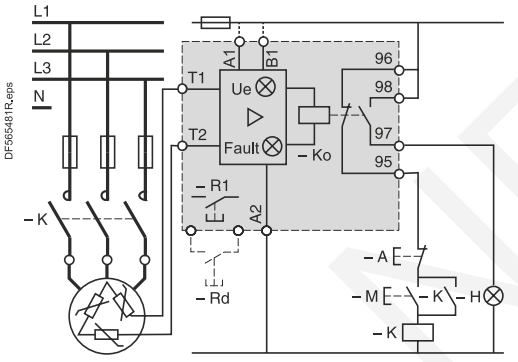
The LT3SA is normally energised and its internal relay is in the pre-energised position.
The motor is started by operating pushbutton M automatically held in by K (3-wire control circuit).

Thermal fault

The strong increase in resistance of the PTC probes at the moment their temperature reaches the nominal operating temperature (NOT) is detected by the LT3SA unit and causes the relay to drop out; indicator H comes on, as does the built-in indicator on unit LT3SA.
Contactor K drops out and pressing button M has no effect.

Reset

As the motor cools, it reaches the reset threshold, 2 to 3 °C below the nominal operating temperature.
The relay resets and the motor can be started by pressing button M.



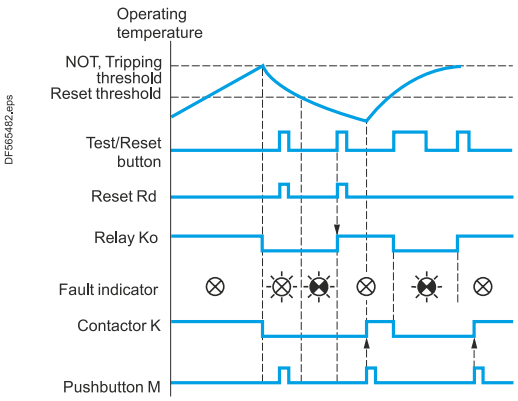
LT3SM protection units

Operation is very similar to that described above, except for the following:

Reset

After tripping on thermal fault and cooling to the reset threshold, the Test/RESET button on the unit (R1) or a remote reset button (Rd) must be pressed to energise the relay.

The fault is therefore memorised, even though the temperature of the probes has dropped to well below the reset threshold.



Signalling circuit

As the relay is fitted with 2 separate contacts, the signalling voltage may be different from the contactor control voltage.

Test

Pressing the Test/RESET button simulates a fault and causes the relay to drop out: the FAULT indicator comes on, as does the remote signalling indicator. The unit is reset by pressing the Test/RESET button again.

(1) PTC: Positive Temperature Coefficient.

References:
pages B11/17 and B11/18

Characteristics:
pages B11/52 to B11/55

Introduction

PB111974.eps

LR97D

PB111927.eps

LT47

LR97D and LT47 electronic over current relays have been developed to satisfy machine protection requirements.
These relays have definite time characteristics: current threshold and time based function.
They are particularly recommended for providing mechanical protection on machines with high resistive torque, high inertia and with strong probability of jamming under steady state conditions.
They can be used for motor protection in the case of long starting times or frequent starting.
The LR97D relay also incorporates two fixed time protection functions, one of 0.5 seconds against locked rotor and one of 3 seconds against phase failure.
LR97D and LT47 can be used to provide mechanical shock protection. In this case, setting the O-Time knob to minimum will ensure tripping in 0.3 seconds.
TeSys LR97D is designed to be directly connected downstream of the TeSys D contactor.
TeSys LT47 provides two current transformers, to be crossed by the motor power cables.

Applications

LR97D and LT47 relays are particularly suitable for the following machines:
■ Monitoring function for excessively long starting time on machines with a risk of difficult starting:
□ Machines with high resistive torque, high inertia machines.
■ Monitoring of machines during steady state operation: overtorque detection function
□ Machines with strong risk of jamming, machines with torque build-up over time,
□ Mechanical failure monitoring,
□ Faster detection of malfunctioning on machines where the motor is oversized in relation to its thermal protection I^2t.
■ Motor protection for specific applications:
□ Machines with long starting times,
□ Machines with high on-load factor: more than 30 to 50 starts/hour,
□ Machine with fluctuating load from a steady state, where the thermal image of a thermal overload relay (thermal memory) is unsuitable in relation to actual overheating of the motor.

Examples of machines:
□ Conveyors, crushers and mixers,
□ Fans, pumps and compressors,
□ Centrifuges and spin-dryers,
□ Presses, shearing machines, saws, broaching machines, sanders and lifting hoists.

Operation

Because of their two separate time settings, LR97D and LT47 relays can be combined with the motor-starter function:
D-Time: starting time, O-Time: trip time during steady state.
The D-Time function is only available during the motor starting phase. During this phase the overload detection function is inhibited in order to allow starting. Under steady state conditions, when the motor current is greater than the setting current due to an overload or single-phasing, the red LED lights up and the internal relay switches its contact after a time preset by the O-Time knob.
The red LED stays on, indicating that the relay has tripped.

The relays are simple to set, in 5 easy steps:
- Adjust the 3 knobs to maximum (Load, D-Time and O-Time),
- Adjust the D-Time knob to the value corresponding to the motor starting time.
- When the motor reaches steady state, adjust the Load knob (turn the knob counter-clockwise until the red LED starts to flicker).
- Slowly turn the Load knob clockwise until the LED goes out.
- Set the required tripping time, using the O-Time knob.

Description

Description

LR97D●●●●●

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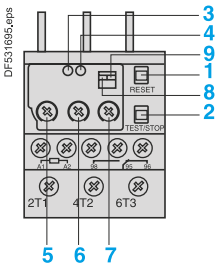
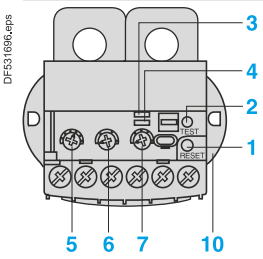


LT47●●●●●

DF531696.eps



1 RESET knob
2 TEST/STOP knob
3 Ready/Run Indicator
4 Relay tripped indicator
5 Current setting
6 Adjustment of starting time
7 Adjustment of tripping time
8 Manual/Auto adjustment
9 Single-phase/3-phase adjustment
10 Retractable fixing lugs

Status signalling

LR97D●●●●●

To assist fast diagnostics, two LEDs (one green and one red) allow signalling of the operating status:

DF563948.eps

Status			LED signal	
			Green LED	Red LED
Voltage			On	Off
Starting				
Steady state			On	Off
Overload			On	
Trip	Over-current		Off	On
	Rotor locked		Off	
	Phase fail-ure	L1	Off	
		L2	Off	
		L3	Off	

LT47●●●●●

DF563947.eps

Condition	LED signal	
	Green LED	Red LED
Voltage	On	Off
Starting		
Steady state	On	Off
Overload	On	
Trip	Off	On

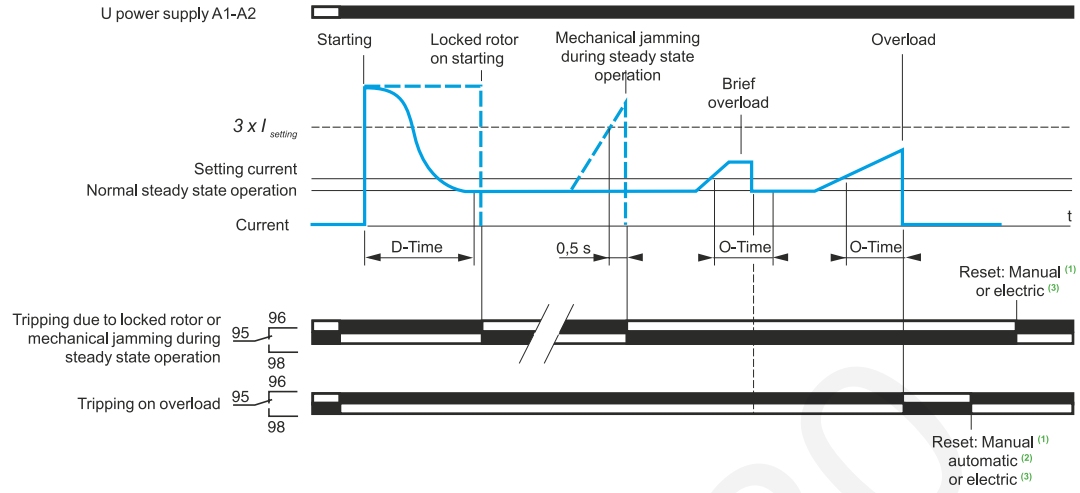
References: page B11/19
Dimensions, mounting: page B11/62
Schemes: page B11/62

Curves

LR97D

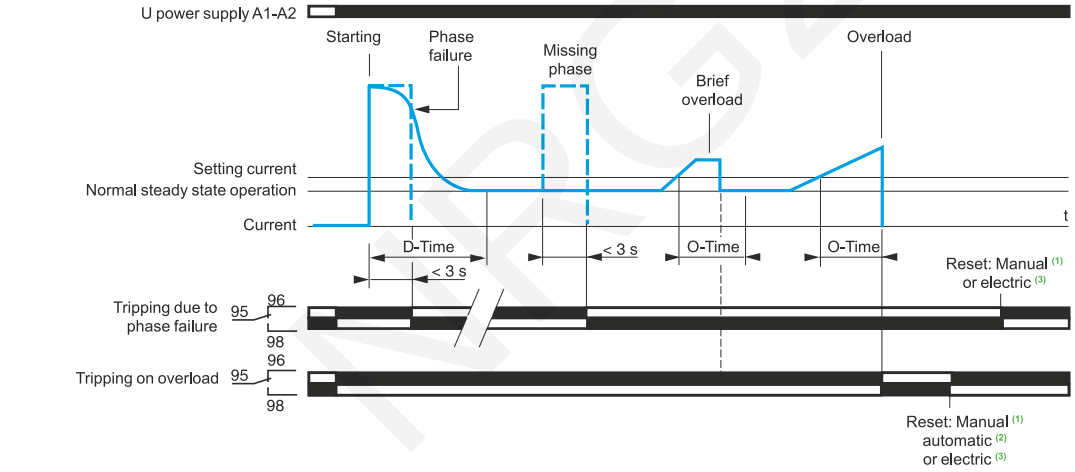
Overload protection
Protection against locked rotor and mechanical jamming under steady state conditions

DF532218.eps



Overload protection
Protection against phase failure during starting and during steady state operation

DF532219.eps



Mechanical shock protection

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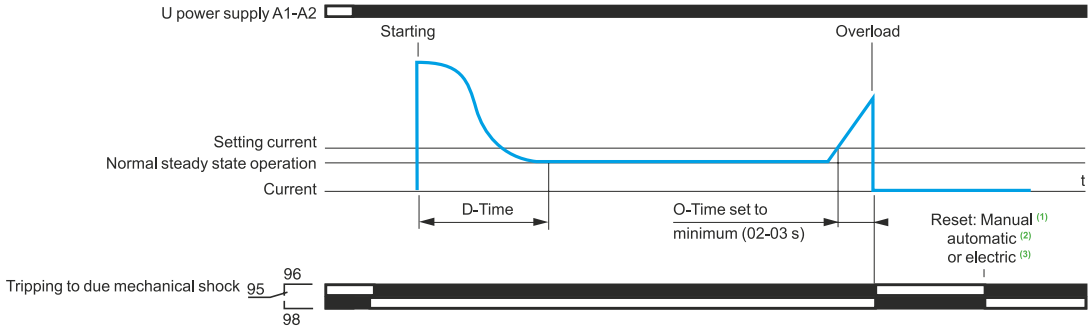


(1) By Reset button.
(2) Fixed time of 120 s. Selectable by dip switch. Function not available in the event of tripping due to locked rotor/mechanical jamming (I> 3 x $I_{setting}$) or phase failure.
(3) By brief interruption of power supply, minimum 0.1 s.

References: page B11/19
Dimensions, mounting: page B11/62
Schemes: page B11/62

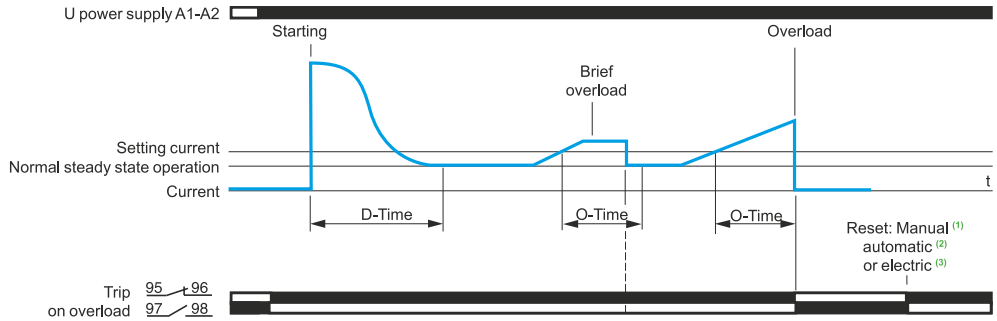
Characteristics

Curves

LT47

Overload protection

DF532221.eps



Mechanical shock protection

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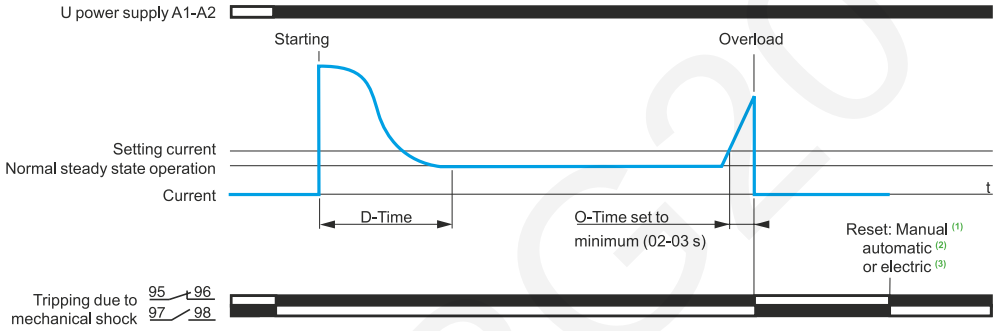


(1) By Reset button.
*(2) Only available on version with automatic reset (**LT47●●●●A**). Time adjustable from 1 to 120 s with the R-Time knob.*
(3) By brief interruption of power supply, minimum 0.1 s.

Characteristics

Environment

Relay type			LR97D●●●●●	LT47●●●●●
Conforming to standards			IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T 14048.5	IEC/EN 60947-4-1, IEC/EN 60947-5-1, UL 60947-4-1, CSA C22.2 n° 60947-4-1, UL 60947-5-1, CSA C22.2 n° 60947-5-1, GB/T 14048.5
Product certifications			UL, CSA, CCC, EAC	UL, CSA, CCC, EAC
Degree of protection	Conforming to IEC 60529		IP 20 (front face)	IP 20 (front face)
Ambient air temperature around the device	Storage	**°C**	- 30…+ 80	- 30…+ 80
	Normal operation without derating (IEC 60947-4-1)	**°C**	- 25…+ 60	- 25…+ 60
Maximum operating altitude		**m**	2000	2000
Operating positions without derating	In relation to normal vertical mounting plane		Any position	Any position
Shock resistance	Permissible acceleration conforming to IEC 60068-2-27		15 gn - 11 ms	15 gn - 11 ms
Vibration resistance	Permissible acceleration conforming to IEC 60068-2-6		4 gn	4 gn
Dielectric strength at 50 Hz	Conforming to IEC 60947-4-1	**kV**	2	2
Surge withstand	Conforming to IEC 61000-4-5	**kV**	6	6
Resistance to electrostatic discharge	In open air	**kV**	8 (level 3)	8 (level 3)
	In direct mode	**kV**	6 (level 3)	6 (level 3)
Immunity to radiated radio-frequency disturbance		**V/m**	10 (level 3)	10 (level 3)
Immunity to fast transient currents		**kV**	2	2
Conducted emissions	Conforming to EN 55011		Class A	Class A
Conducted HF disturbance	Conforming to EN 61000-4-6	**V**	10	10

Ref.
Overload relays

References: page B11/19
Dimensions, mounting: page B11/62
Schemes: page B11/62

Characteristics

Auxiliary contact characteristics

Relay type				LR97D●●●●●				LT47●●●●●			
Contact type				1 NO/NC				1 N/O + 1N/C			
Conventional thermal current			A	3				3			
Maximum hold consumption of controlled contactor coils (occasional operating cycles of contact 95-96)	Conforming to IEC 60947		V	∼ 24	∼ 48	∼ 110	∼ 220	∼ 24	∼ 48	∼ 110	∼ 220
			VA	70	140	360	360	70	140	360	360
			V	⎓ 24	⎓ 48	⎓ 110	⎓ 220	⎓ 24	⎓ 48	⎓ 110	⎓ 220
			W	55	55	28	28	55	55	28	28
Short-circuit protection	By gG, BS fuses. Maximum rating or GB2 circuit breaker		A	3				3			
Connection by cable or lug-clamps											
Flexible cable without cable end	1 or 2 conductors	Min.	mm²	1 x 0.75				1 x 1			
		Max.	mm²	2 x 2.5				2 x 2.5			
Flexible cable with cable end	1 or 2 conductors	Min.	mm²	1 x 0.34				1 x 1			
		Max.	mm²	1 x 1.5 + 1 x 2.5				2 x 2.5			
External Ø of lugs			mm	7				7			
Ø of screw			mm	M3				M3.5			
Tightening torque			N.m	0.6…1.2				0.8...1.7			

Electrical characteristics of power circuit

Relay type				LR97D015●● to LR97D25●●	LR97D38●●	LT47●●●●●
Setting range	Depending on model		A	0.3…38		0.5…60
Tripping class				Adjustable		Adjustable
Rated insulation voltage (Ui)	Conforming to IEC 60947-4-1		V	690		690
	Conforming to UL, CSA		V	600		600
Rated impulse withstand voltage (Uimp)			kV	6		6
Frequency limits	Of the operating current		Hz	50…60		50…60
Connection by cable or lug-clamps						
Flexible cable without cable end	1 conductor	Min.	mm²	1.5	2.5	–
		Max.		10	10	–
Flexible cable with cable end	1 conductor	Min.	mm²	1	1	–
		Max.		4	6	–
External Ø of lugs			mm	10	12	–
Ø of screw			mm	M4	M4	–
Tightening torque			N.m	2	2	–

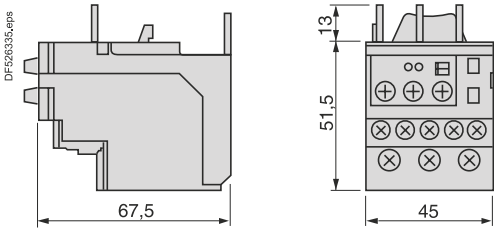
Operating characteristics

Relay type				LR97D●●●●●		LT47●●●●S		LT47●●●●A
Adjustment	Current		A	"Load" knob		"Load" knob		"Load" knob
	Time	D-time knob	s	0.5…30		0.5…30		–
		O-time knob	s	0.2/0.3…10		0.2/0.3…10		0.2/0.3…30
		R-time knob	s	–		–		1…120
Reset	Manual			Reset button		Reset button		Reset button
	Automatic			120 s fixed		–		R-time knob: 1-120 s
	Electrical			By interruption of power supply (minimum 0.1 s)		By interruption of power supply (minimum 0.1 s)		By interruption of power supply (minimum 0.1 s)
Protection functions				On starting	Steady state	On starting	Steady state	–
Overload $I_{max} > I_{setting}$	Tripping			Inhibited during D-time	After O-time	Inhibited during D-time	After O-time	After O-time
Locked rotor, mechanical jamming $I > 3 \times I_{setting}$	Tripping			After D-time	< 0.5 s	Inhibited during D-time	After O-time	After O-time
Sensitivity to phase failure	Tripping			< 3 s	< 3 s	Inhibited during D-time	After O-time	After O-time
Status and fault signalling (see table page 24517/2)				2 LEDs		2 LEDs		2 LEDs
TEST/STOP function	Test			No load		No load		No load
	Stop			Under load		Under load		Under load
Sealing				Yes		Yes		Yes

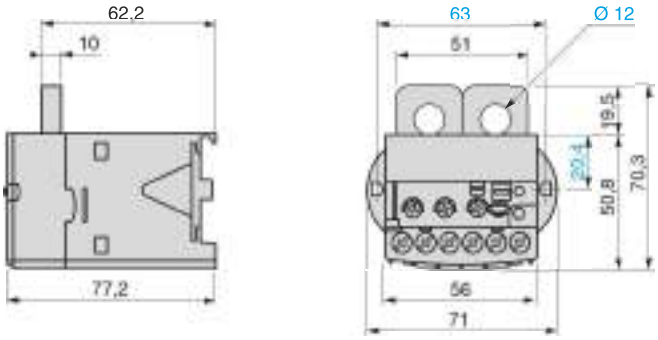
References: page B11/19
Dimensions, mounting: page B11/62
Schemes: page B11/62

Dimensions

LR97D●●●●



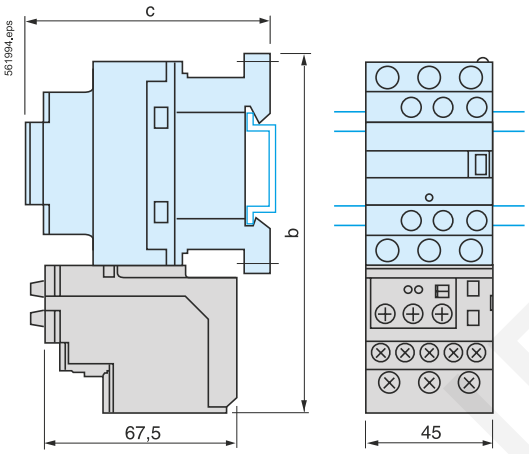
LT47●●●●



Mounting

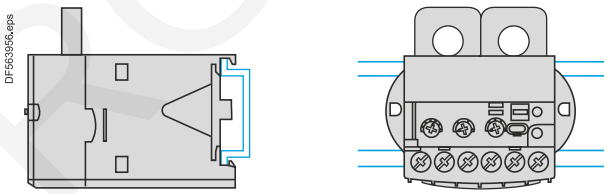
LR97D●●●●

Direct mounting beneath the contactor



LC1	D09…D18	D25…D38
b	123	137
c	See pages B8/76 and B8/77	

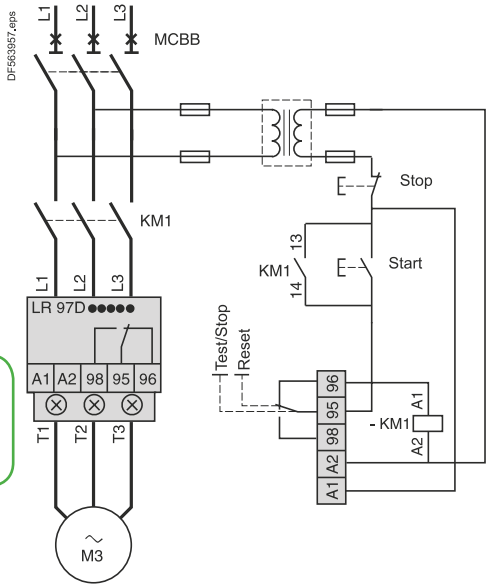
LT47●●●●



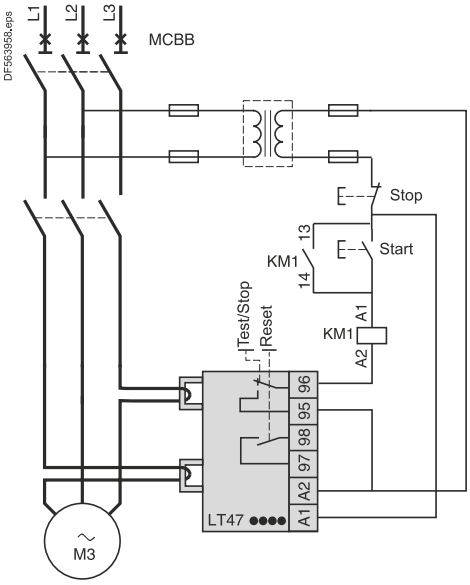
Note: Can be mounted on ⊔ rail.

Schemes

LR97D●●●●



LT47●●●●



References:
page B11/19
Characteristics:
pages B11/58 to B11/61

Low voltage
Extract from Tesys Catalogue | 2020

TeSys

Circuit breakers

Life Is On | Schneider Electric

TeSys GV, GB
Circuit breakers

TeSys GV2, GV3, GV4, GV5 and GV6 Motor circuit breakers

TeSys GB Circuit breakers for auxiliary circuits

GV2LE

GV2P

GV2ME

GV3L

GV3P80

GV4●E●●●

GV4●●●●

GV5P150F

GV6P500F

Circuit breakers for motor protection and control

TeSys GV motor circuit breakers provide compact, reliable and efficient solutions for:

- isolation,
- protection against short circuits and overloads,
- On-Off manual control of motors from 0.06 to 250 kW.

They are conforming to, depending of the versions, IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1 and UL 60497-4-1, CSA 22.2 n° 60497-4-1.

TeSys GV protection technologies

TeSys GV are carried with 3 variants:

- Magnetic detection: GV2LE, GV2L, GV3L, GV4L, GV4LE for protection against short-circuit.
- Thermal-magnetic: GV2ME (1), GV2P, GV3P, GV4P, GV4PE, GV5, GV6 for protection against short-circuits, overload, phase loss and phase unbalance.
- Advanced: GV4PEM combines GV4P protections and motor jam, long start, ground-fault protections.

With a magnetic circuit breaker, a thermal relay is frequently associated in order to have a short circuit protection and an overload protection.

GV2: 45 mm width, for motors up to 15 kW

The most commonly used circuit breaker. with a choice of about 100 auxiliaries and accessories. GV2 and TeSys D or K contactors can be easily assembled as a single block with one accessory.
The high GV2 electrical endurance (up to 100 000 operating cycles) makes it very suitable for direct manual motor control, especially GV2ME (1) (thermal-magnetic c.b., Ith up to 32 A).

Enclosure mounting is well adapted to GV2L and GV2P, with their possible extended rotary handle and visible trip indication.

GV3: 55 mm width, for motors up to 45 kW

High performance breakers, high breaking capacity (Ics 100 kA /400 V for ratings up to 32 A, 50 kA up to 80 A).
Wide choice of auxiliaries / accessories, possible extended rotary handle. Visible tri indication.
Patended Everlink connectors provide everlasting connection (no re-tightening required).

Direct monoblock starter assembly with TeSys D contactors. No accessory required.

GV4: 81 mm width, for motors up to 55 kW

State-of-the-art technology, GV4 is compact and robust. Electronic core of GV4P gives a great detection accuracy, with alarming and advanced protections for GV4PEM, GV4PB.
Magnetic, electronic thermal-magnetic, or electronic thermal magnetic with advanced protections versions.
Ratings up to 115 A with breaking capacity Ics of 25 kA/400 V (B series), 50 kA/400 V (N series) or 100 kA/400 V (S series).

GV5: 105 mm width, for motors up to 110 kW / GV6: 140 mm width, for motors up to 250 kW

GV5 and GV6 with advanced thermal-magnetic trip unit provide more effective protection to high power motors in the most demanding appliances.
They provide protection to motors against overloads with selection of a trip class (5, 10 or 20), short-circuits, phase unbalance or phase loss.
Adjustable over-load and short circuit current settings provide flexibility.
Wide choice of auxiliaries/accessories are available for indication, control and operation.

*(1) **GV2ME●●AP** are specific **GV2ME** references for CEE zone.*

GV2L

GV2LE

GV2P

GV2ME

GV2RT

GV3L

GV3P

GV4L

GV4P

GV4PEM

GV5P150F

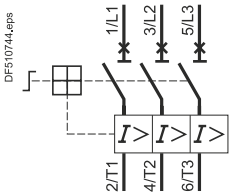
GV6P500F

GV range overview

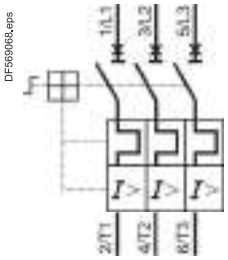
Molded case circuit breakers for motor protection and control

	Protection against			Range (kW / 415 V AC)	Control	Terminals	Dimensions (W x H x D)
	Short-circuits	Overload	Jam, ground-fault, long start... (Multifunction - see page B6/6)				
GV2							
GV2L	●			0.09 to 15	Rotary handle	Screw clamp	44.5 x 89 x 97 (with rotary handle)
GV2LE	●			0.06 to 15	Toggle	Screw clamp	44.5 x 89 x 78.5 (with toggle)
GV2P	●	●		0.06 to 15	Rotary handle	Screw clamp	44.5 x 89 x 97 (with rotary handle)
GV2ME (1)	●	●		0.06 to 11	Push button	Screw clamp, lug or spring	44.5 x 89 x 78.2 (with push button) (2)
GV2RT	●	●		0.09 to 11	Toggle	Screw clamp	44.5 x 89 x 78.5 (with toggle)
GV3							
GV3L	●			11 to 45	Rotary handle	Lug, EverLink (BTR screw)	55 x 132 x 136 (with rotary handle)
GV3P	●	●		5.5 to 45			
GV4							
GV4L	●			0.25 to 55 kW	Rotary handle	Lug, EverLink (BTR screw)	81 x 156 x 116 (with toggle) 81 X 156 x 165 (with rotary handle)
GV4LE	●				Toggle		
GV4P	●	●			Rotary handle		
GV4PE	●	●			Toggle		
GV4PEM	●	●	●		Toggle		
GV4PB	●	●	●	½ to 60 HP	Toggle		
GV5							
GV5P150●	●	●		55 to 110	Direct rotary handle	Lug, screw clamp	105 x 161 x 155 (3) (with direct rotary handle)
GV5P220●	●	●					
GV6							
GV6P320●	●	●		132 to 250	Direct rotary handle	Lug, screw clamp	140 x 255x 179 (3) (with direct rotary handle)
GV6P500●	●	●					

*(1) **GV2ME●●AP** are specific **GV2ME** references for CEE zone.*
*(2) 44.5 x 101 x 78.2 mm for **GV2ME●●3**.*
(3) Depth without keylock.

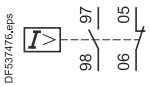


Thermal protection circuit breaker (with rotary control)



Thermal magnetic protection circuit breaker (with rotary control)

Voltage trip



Fault signalling

Basic functions

Short circuit protection (magnetic/thermal magnetic circuit breakers)
It provides a protection of the installation against short-circuit by an instantaneous trip of the circuit breaker. The tripping is obtained by means of a magnetic element incorporated in the motor circuit breaker or by an electronic detection (GV4P, GV5 and GV6.
The magnetic tripping threshold is not adjustable, except on GV4L, and is a fixed ratio of the maximum setting current In.

Overload protection (thermal magnetic circuit breakers)
It provides a protection of the motor against overload. When current drawn by the motor is above its rated current, this continuous overcurrent lead to increase of motor internal temperature and reduce motor life time. Use of suitable protective device shall avoid this damage to the motor. This is obtained by means of a thermal element incorporated in the motor circuit breaker, or by sensors for electronic products (GV4P, GV5 and GV6).
An automatic compensation for ambient temperature variations is also provided.
The rated operational current of the motor is displayed by turning a graduated knob.

Motor ON/OFF control
The circuit breaker provides a local manual control of the motor when used on its own (without contactor). The operation is possible by push buttons, toggle, or a single rotary handle.

Contacts position indication
Because they are suitable for isolation, the circuit breakers, in the open position, provide an adequate isolation distance and indicate the accurate position of the moving contacts by the position of the operators.

Additional functions

They are provided by additional modules.

Under voltage protection
Trips the circuit breaker in case of under voltage. The user is therefore protected against sudden starting of the machine when normal voltage is restored. Circuit breaker reset and/or start button “I” has to be pressed to restart the motor.

Remote off-power
Circuit breaker can be remotely tripped with the addition of a shunt trip.

Off-power locking
The operators on both open-mounted and enclosed motor circuit breakers can be locked in the off position “O” by up to 3 padlocks.

Motor circuit breakers versus fuse protection ?

Circuit breakers are a common solution for Powering motor against short circuits and overloads.
As a comparison, a fuse based solution can only provide a partial protection depending on the choice of the fuse type and rating. The thermal magnetic circuit breaker is adjustable and can be fine-tuned to the practical motor load.
The fuse based solution offers a very fast protection.

PB114917.eps

Advanced protections embedded on GV4PEM, GV4PB (multifunction)

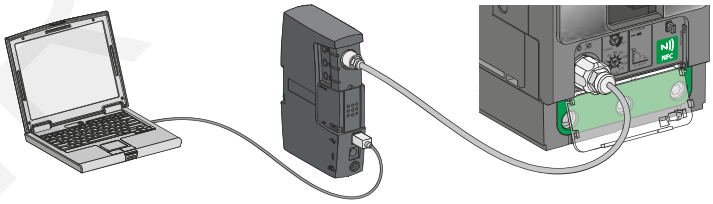
In addition to basic protections, GV4PEM, GV4PB embed protections against:
- Long start (high inertia, resistive torque machines)
- Jam (overtorque, machine failure)
- Ground-fault (reduced isolation)
- Unbalanced (phase currents are not equal)
- Phase loss (1 or 2 phases missing).

Fully configurable-advanced protections:
- wireless with 'EcoStruxure Power Device App' application for Android smartphone through NFC (near field communication).

DB424773.eps

- with EcoStruxure Power Commission software on a computer connected to the test socket through a configuration and maintenance module.

DB424766.eps



Remote indications:
GV4PEM, GV4PB circuit breaker may be equipped with an SDx alarming / fault differentiation module to prevent to trip or to identify the type of fault after a trip (see page B6/44).

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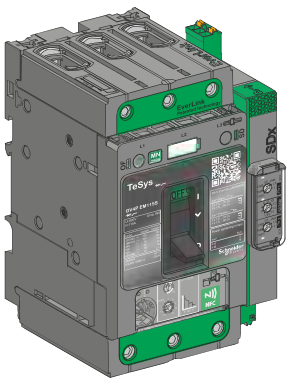

EverLink technology for TeSys GV3 and GV4

TeSys GV3 and GV4 features a cable connection method with patented creep-compensating technology built directly into the terminal — EverLink:
- With EverLink connectors, save space and time during panel assembly.
- Bare cable connections are as safe as compression lug ones.

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PB114914_24.eps

DF526139.eps

EverLink terminals, with BTR screws

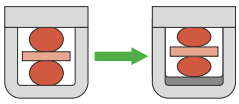
No overheating connections - EverLink creep-compensated terminals for GV3 and GV4

The EverLink patented technology for terminals dramatically reduces the risk of loose bare cables due to copper creeping. Vibration withstand is improved and periodic re-tightening is no longer needed.

EverLink® Long lasting connection quality

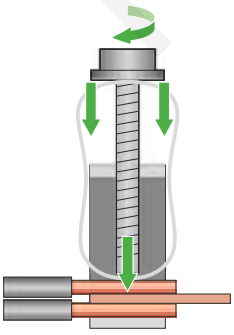
The clamp connectors which don't need re-tightening.

Creeping phenomena

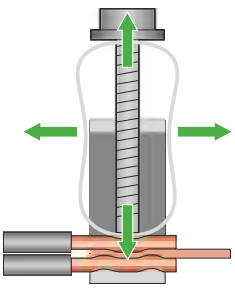


Copper conductors are subject to creep with the time, reducing the contact pressure in conventional clamps

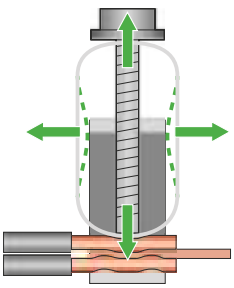
During the tightening a force is applied on the conductors and on a spring.



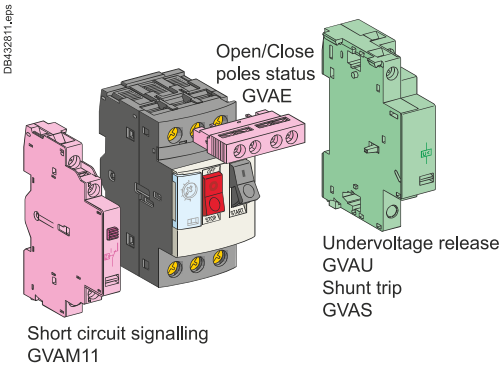
Maintaining of cables assured by pressure of spring and crimping of conductor on the contact plate.



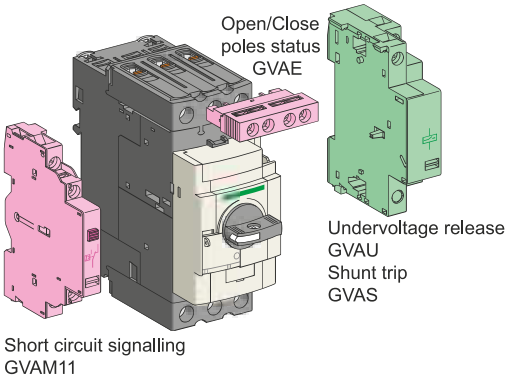
The spring compensates for cable conductor creep. Tightening force is assured.



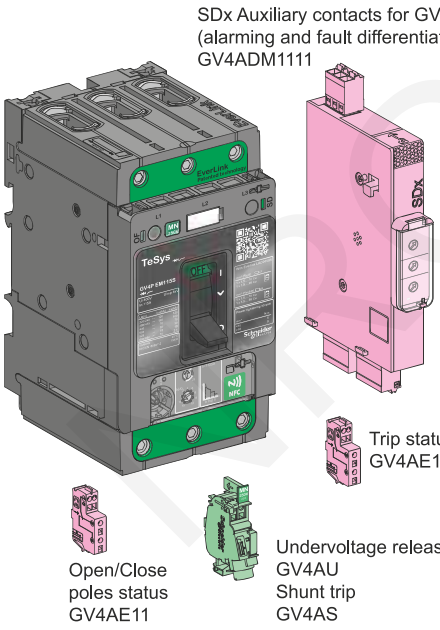
Auxiliary functions provided by add-on blocks



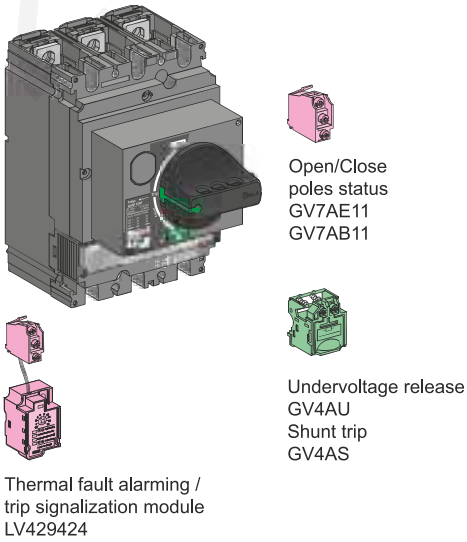
GV2



GV3



GV4



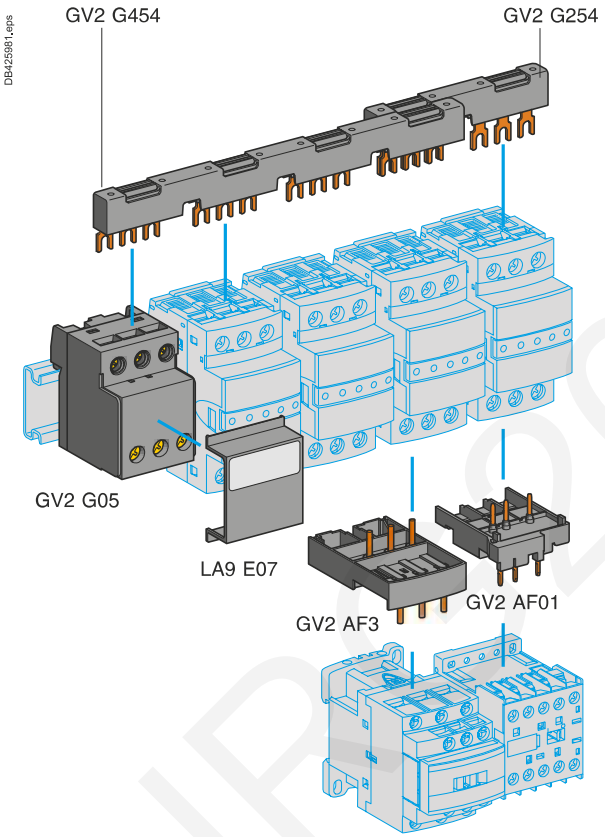
GV5/GV6

Auxiliary contacts add-on blocks
For control, alarms, automatic actions:
- **Instantaneous** indication of the position of the circuit breaker contacts
- **Trip indication**,
- **Alarming.**

Trip units
For remote tripping of circuit breaker:
- **Shunt trip / MX**, trips the circuit breaker when powered
- **Undervoltage release / MN**, trips the circuit breaker when voltage is loss.

Compact power circuits wiring with of GV2 + TeSys D contactors (1)

Busbars and combination blocks
Power busbars and combinations blocks provide a compact solution for assembling a group of motor starters.
Theysave wiring time and provide a clear finish aspect.
These solutions are available for GV2 circuit breakers + TeSys D contactors.



(1) Details on these solution in chapter B2 of TeSys catalogue.

TeSys GV2

0.06 to 15 kW

Product references

PB121308.eps

GV2L16

Motor circuit breakers from 0.09 to 15 kW

GV2L: Control by rotary knob, connection by screw clamp terminals

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Magnetic protection rating	Tripping current Id ± 20 %	Use in association with thermal overload relay (class 10 A)	Reference
400/415 V			500 V			690 V						
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)				
kW	kA		kW	kA		kW	kA		A	A		
0.09	★	★	–	–	–	–	–	–	0.4	5	LRD03	**GV2L03**
0.12	★	★	–	–	–	**0.37**	★	★	0.63	8	LRD04	**GV2L04**
0.18	★	★	–	–	–	–	–	–	0.63	8	LRD04	**GV2L04**
–	–	–	–	–	–	**0.55**	★	★	1	13	LRD05	**GV2L05**
0.25	★	★	–	–	–	–	–	–	1	13	LRD05	**GV2L05**
–	–	–	–	–	–	**0.75**	★	★	1	13	LRD06	**GV2L05**
0.37	★	★	**0.37**	★	★	–	–	–	1	13	LRD05	**GV2L05**
0.55	★	★	**0.55**	★	★	**1.1**	★	★	1.6	22.5	LRD06	**GV2L06**
–	–	–	**0.75**	★	★	–	–	–	1.6	22.5	LRD06	**GV2L06**
0.75	★	★	**1.1**	★	★	**1.5**	4	100	2.5	33.5	LRD07	**GV2L07**
1.1	–	–	–	–	–	–	–	–			LRD08	**GV2L08**
1.5	★	★	**1.5**	★	★	**3**	4	100	4	51	LRD08	**GV2L08**
–	–	–	–	–	–	–	–	–			LRD08	**GV2L08**
2.2	★	★	**3**	★	★	**4**	4	100	6.3	78	LRD10	**GV2L10**
3	★	★	**4**	10	100	**5.5**	4	100	10	138	LRD12	**GV2L14**
4	–	–	–	–	–	–	–	–			LRD14	**GV2L14**
–	–	–	–	–	–	**7.5**	4	100	10	138	LRD14	**GV2L14**
–	–	–	–	–	–	**9**	4	100	14	170	LRD16	**GV2L16**
5.5	50	50	**7.5**	10	75	**11**	4	100	14	170	LRD16	**GV2L16**
7.5	50	50	**9**	10	75	**15**	4	100	18	223	LRD21	**GV2L20**
9	50	50	**11**	10	75	**18.5**	4	100	25	327	LRD22	**GV2L22**
11	50	50	**15**	10	75	–	–	–	25	327	LRD22	**GV2L22**
15	50	50	**18.5**	10	75	**22**	4	100	32	416	LRD32	**GV2L32**

(1) As % of Icu. Associated current limiter or fuses, where required.
★ > 100 kA.

Characteristics: pages B6/64 to B6/66
Curves: pages B6/69 to B6/74
Dimensions, schemes: pages B6/82 to B6/84, B6/91

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GV2L

Magnetic motor circuit breakers from 0.06 to 15 kW

GV2LE: control by rocker lever, connection by screw clamp terminals

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Magnetic protection rating	Tripping current Id ± 20 %	Use in association with thermal overload relay	Reference
400/415 V			500 V			690 V						
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)				
kW	kA		kW	kA		kW	kA		A	A		
0.06	★	★	–	–	–	–	–	–	0.4	5	LR2K0302	**GV2LE03**
0.09	★	★	–	–	–	–	–	–	0.4	5	LR2K0304	**GV2LE03**
0.12	★	★	–	–	–	**0.37**	★	★	0.63	8	LR2K0304	**GV2LE04**
0.18	★	★	–	–	–	–	–	–	0.63	8	LR2K0305	**GV2LE04**
–	–	–	–	–	–	**0.55**	★	★	1	13	LR2K0305	**GV2LE05**
0.25	★	★	–	–	–	–	–	–	1	13	LR2K0306	**GV2LE05**
–	–	–	–	–	–	**0.75**	★	★	1	13	LR2K0306	**GV2LE05**
0.37	★	★	**0.37**	★	★	–	–	–	1	13	LR2K0306	**GV2LE05**
0.55	★	★	**0.55**	★	★	**1.1**	★	★	1.6	22.5	LR2K0307	**GV2LE06**
–	–	–	**0.75**	★	★	–	–	–	1.6	22.5	LR2K0307	**GV2LE06**
0.75	★	★	**1.1**	★	★	**1.5**	3	75	2.5	33.5	LR2K0308	**GV2LE07**
1.1	★	★	–	–	–	–	–	–	2.5	33.5	LR2K0308	**GV2LE07**
1.5	★	★	**1.5**	★	★	**3**	3	75	4	51	LR2K0310	**GV2LE08**
–	–	–	**2.2**	★	★	–	–	–	4	51	LR2K0312	**GV2LE08**
2.2	★	★	**3**	50	100	**4**	3	75	6.3	78	LR2K0312	**GV2LE10**
3	★	★	**4**	10	100	**5.5**	3	75	10	138	LR2K0314	**GV2LE14**
4	★	★	**5.5**	10	100	–	–	–	10	138	LR2K0316	**GV2LE14**
–	–	–	–	–	–	**7.5**	3	75	10	138	LRD14	**GV2LE14**
–	–	–	–	–	–	**9**	3	75	14	170	LRD16	**GV2LE16**
5.5	15	50	**7.5**	6	75	**11**	3	75	14	170	LR2K0321	**GV2LE16**
7.5	15	50	**9**	6	75	**15**	3	75	18	223	LRD21	**GV2LE20**
9	15	40	**11**	4	75	**18.5**	3	75	25	327	LRD22	**GV2LE22**
11	15	40	**15**	4	75	–	–	–	25	327	LRD22	**GV2LE22**
15	10	50	**18.5**	4	75	**22**	3	75	32	416	LRD32	**GV2LE32**

(1) As % of Icu.
★ > 100 kA.

Characteristics: pages B6/64 to B6/66
Curves: pages B6/69 to B6/74
Dimensions, schemes: pages B6/82 to B6/84, B6/91

PB121311.eps

GV2ME

Motor circuit breakers from 0.06 to 15 kW / 400 V, with screw clamp terminals

GV2ME with pushbutton control

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips (2)	Magnetic tripping current Id ± 20 %	Reference
400/415 V			500 V			690 V					
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
–	–	–	–	–	–	–	–	–	0.1…0.16	1.5	**GV2ME01**
0.06	★	★	–	–	–	–	–	–	0.16…0.25	2.4	**GV2ME02**
0.09	★	★	–	–	–	–	–	–	0.25…0.40	5	**GV2ME03**
0.12	★	★	–	–	–	**0.37**	★	★	0.40…0.63	8	**GV2ME04**
0.18	★	★	–	–	–	–	–	–			
0.25	★	★	–	–	–	**0.55**	★	★	0.63…1	13	**GV2ME05**
0.37	★	★	**0.37**	★	★	–	–	–	1…1.6	22.5	**GV2ME06**
0.55	★	★	**0.55**	★	★	**0.75**	★	★			
–	–	–	**0.75**	★	★	**1.1**	★	★			
0.75	★	★	**1.1**	★	★	**1.5**	3	75	1.6…2.5	33.5	**GV2ME07**
1.1	★	★	**1.5**	★	★	**2.2**	3	75	2.5…4	51	**GV2ME08**
1.5	★	★	**2.2**	★	★	**3**	3	75			
2.2	★	★	**3**	50	100	**4**	3	75	4…6.3	78	**GV2ME10**
3	★	★	**4**	10	100	**5.5**	3	75	6…10	138	**GV2ME14**
4	★	★	**5.5**	10	100	**7.5**	3	75			
5.5	15	50	**7.5**	6	75	**9**	3	75	9…14	170	**GV2ME16**
–	–	–	–	–	–	**11**	3	75			
7.5	15	50	**9**	6	75	**15**	3	75	13…18	223	**GV2ME20**
9	15	40	**11**	4	75	**18.5**	3	75	17…23	327	**GV2ME21**
11	15	40	**15**	4	75	–	–	–	20…25	327	**GV2ME22** (3)
15	10	50	**18.5**	4	75	**22**	3	75	24…32	416	**GV2ME32**

Motor circuit breakers from 0.06 to 15 kW / 400 V, with lugs

To order thermal magnetic circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above.
Example: **GV2ME08** becomes **GV2ME086**.

Thermal magnetic circuit breakers GV2ME with built-in auxiliary contact block

With instantaneous auxiliary contact block (composition, see page B6/21):

■ GVAE1, add suffix **AE1TQ** to the motor circuit breaker reference selected above.
Example: **GV2ME01AE1TQ**.
■ GVAE11, add suffix **AE11TQ** to the motor circuit breaker reference selected above.
Example: **GV2ME01AE11TQ**.
■ GVAN11, add suffix **AN11TQ** to the motor circuit breaker reference selected above.
Example: **GV2ME01AN11TQ**.

These circuit breakers with built-in contact block are sold in lots of 20 units in a single pack.

(1) As % of Icu.
(2) The thermal trip setting must be within the range marked on the graduated knob.
*(3) Maximum rating which can be mounted in enclosures **GV2MC** or **MP**, please consult your Regional Sales Office.*
★ > 100 kA.

Characteristics: pages B6/64 to B6/68
Curves: pages B6/75 to B6/77
Dimensions, schemes: pages B6/85 to B6/89, B6/91

Product references - UL applications

PB121311.eps

GV2ME

Motor circuit breakers from 3/4 to 20 HP / 460 V, with screw clamp terminals

GV2ME with pushbutton control

Thermal setting (A)	Maximum Horsepower ratings								Group Motor applications	Reference
	Single-Phase			Three-Phase						
	115 V	200 V	230 V	115 V	200 V	230 V	460 V	575 V	Max. Fuse or Circuit breaker (A)	
0.1…0.16	–	–	–	–	–	–	–	–	450	**GV2ME01**
0.16…0.25	–	–	–	–	–	–	–	–	450	**GV2ME02**
0.25…0.40	–	–	–	–	–	–	–	–	450	**GV2ME03**
0.40…0.63	–	–	–	–	–	–	–	–	450	**GV2ME04**
0.63…1	–	–	–	–	–	–	–	1/2	450	**GV2ME05**
1…1.6	–	–	1/10	–	–	–	3/4	3/4	450	**GV2ME06**
1.6…2.5	–	1/6	1/6	–	1/2	1/2	1	1.5	450	**GV2ME07**
2.5…4	1/8	1/4	1/3	–	3/4	3/4	2	3	450	**GV2ME08**
4…6.3	1/4	1/2	1/2	3/4	1	1.5	3	5	450	**GV2ME10**
6…10	1/2	1	1.5	1	2	3	5	7.5	450	**GV2ME14**
9…14	3/4	2	2	2	3	3	10	10	450	**GV2ME16**
13…18	1	2	3	2	5	5	10	15	450	**GV2ME20**
17…23	1.5	3	3	3	5	7.5	15	20	450	**GV2ME21**
20…25	2	–	–	–	7.5	7.5	15	20	450	**GV2ME22**
24…32	2	5	5	5	7.5	10	20	25	450	**GV2ME32**

Characteristics:
pages B6/64 to B6/68

Curves:
pages B6/75 to B6/77

Dimensions, schemes:
pages B6/85 to B6/89, B6/91

Product references

PB121313.eps

GV2ME●●3

Motor circuit breakers from 0.06 to 11 kW, with spring terminal connections

GV2ME (1) with pushbutton control

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3						Setting range of thermal trips (3)	Magnetic tripping current Id ± 20 %	Reference
400/415 V			500 V					
P	Icu	Ics (2)	P	Icu	Ics (2)			
kW	kA	%	kW	kA	%	A	A	
–	–	–	–	–	–	0.1…0.16	1.5	**GV2ME013**
0.06	★	★	–	–	–	0.16…0.25	2.4	**GV2ME023**
0.09	★	★	–	–	–	0.25…0.40	5	**GV2ME033**
0.12 **0.18**	★ ★	★ ★	–	–	–	0.40…0.63	8	**GV2ME043**
0.25 **0.37**	★ ★	★ ★	**0.37**	★	★	0.63…1	13	**GV2ME053**
0.37 **0.55**	★ ★	★ ★	**0.37** **0.55** **0.75**	★ ★ ★	★ ★ ★	1…1.6	22.5	**GV2ME063**
0.75	★	★	**1.1**	★	★	1.6…2.5	33.5	**GV2ME073**
1.1 **1.5**	★ ★	★ ★	**1.5** **2.2**	★ ★	★ ★	2.5…4	51	**GV2ME083**
2.2	★	★	**3**	50	100	4…6.3	78	**GV2ME103**
3 **4**	★ ★	★ ★	**4** **5.5**	10 10	100 100	6…10	138	**GV2ME143**
5.5	15	50	**7.5**	6	75	9…14	170	**GV2ME163**
7.5	15	50	**9**	6	75	13…18	223	**GV2ME203**
9 **11**	15 15	40 40	**11**	4	75	17…23	327	**GV2ME213**
11	15	40	**15**	4	75	20…25	327	**GV2ME223**

Contact blocks

Description	Mounting	Maximum number	Type of contacts	Sold in lots of	Unit reference
Instantaneous auxiliary contacts	Front	1	N/O + N/C	10	**GVAE113**
			N/O + N/O	10	**GVAE203**
	LH side	2	N/O + N/C	1	**GVAN113**
			N/O + N/O	1	**GVAN203**

Accessory

Description	Application	Sold in lots of	Unit reference
Cable end reducer	For connection of conductors from 1 to 1.5 mm²	20	**LA9D99**

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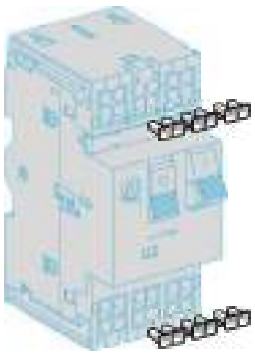


LA9D99

*(1) For connection of conductors from 1 to 1.5 mm², the use of an **LA9D99** cable end reducer is recommended.*
*(2) Maximum rating which can be mounted in enclosures **GV2MC** or **MP**, please consult your Regional Sales Office*
(3) The thermal trip setting must be within the range marked on the graduated knob.
★ > 100 kA.

Circuit breakers

Product references

PB121314.eps

GV2P

Motor circuit breakers from 0.06 to 30 kW / 400 V

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips (2)	Magnetic tripping current Id ± 20 %	Reference
400/415 V			500 V			690 V					
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
GV2P: control by rotary knob											
Screw clamp terminals											
–	–	–	–	–	–	–	–	–	0.1…0.16	1.5	**GV2P01**
0.06	★	★	–	–	–	–	–	–	0.16…0.25	2.4	**GV2P02**
0.09	★	★	–	–	–	–	–	–	0.25…0.40	5	**GV2P03**
0.12	★	★	–	–	–	**0.37**	★	★	0.40…0.63	8	**GV2P04**
0.18	★	★	–	–	–	–	–	–			
0.25	★	★	–	–	–	**0.55**	★	★	0.63…1	13	**GV2P05**
0.37	★	★	**0.37**	★	★	–	–	–	1…1.6	22.5	**GV2P06**
0.55	★	★	**0.55**	★	★	**0.75**	★	★			
0.75	★	★	**1.1**	★	★	**1.5**	8	100	1.6…2.5	33.5	**GV2P07**
1.1	★	★	**1.5**	★	★	**2.2**	8	100	2.5…4	51	**GV2P08**
2.2	★	★	**3**	★	★	**4**	6	100	4…6.3	78	**GV2P10**
3	★	★	**5**	50	100	**5.5**	6	100	6…10	138	**GV2P14**
5.5	★	★	**7.5**	42	75	**9**	6	100	9…14	170	**GV2P16**
–	–	–	–	–	–	**11**	6	100			
7.5	50	50	**9**	10	75	**15**	4	100	13…18	223	**GV2P20**
9	50	50	**11**	10	75	**18.5**	4	100	17…23	327	**GV2P21**
11	50	50	**15**	10	75	–	–	–	20…25	327	**GV2P22**
15	50	50	**18.5**	10	75	**22**	4	100	24…32	416	**GV2P32**

How to use the table : select your load operating voltage, then select its standard power value (below, in the same column). The appropriate circuit breaker is in the extreme right column, in the corresponding row.
Exemple: GV2P04 can protect 0.12 and 0.18 kW under 400/415 V, and 0.18 kW under 440 V, and 0,37 kW under 690 V. No 500 V standard power value can fit GV2P04.

Motor circuit breakers up to 50 HP / 600 V, UL 60947-4-1 type E

GV2 (3)

To obtain a GV2P motor circuit breaker, UL 60947-4-1 type E, use the following with the circuit breaker:
■ a “Large Spacing” adapter **GV2GH7.**

Motor circuit breakers from 3/4 to 20 HP / 460 V, with screw clamp terminals

GV2P with rotary handle

Thermal setting (A)	Maximum Horsepower ratings (4)								Group Motor applications	Reference
	Single-Phase			Three-Phase						
	115 V	200 V	230 V	115 V	200 V	230 V	460 V	575 V	Max. Fuse or Circuit breaker (A)	
0.1…0.16	–	–	–	–	–	–	–	–	450	**GV2P01**
0.16…0.25	–	–	–	–	–	–	–	–	450	**GV2P02**
0.25…0.40	–	–	–	–	–	–	–	–	450	**GV2P03**
0.40…0.63	–	–	–	–	–	–	–	–	450	**GV2P04**
0.63…1	–	–	–	–	–	–	–	1/2	450	**GV2P05**
1…1.6	–	–	1/10	–	–	–	3/4	3/4	450	**GV2P06**
1.6…2.5	–	1/6	1/6	–	1/2	1/2	1	1.5	450	**GV2P07**
2.5…4	1/8	1/4	1/3	–	3/4	3/4	2	3	450	**GV2P08**
4…6.3	1/4	1/2	1/2	3/4	1	1.5	3	5	450	**GV2P10**
6…10	1/2	1	1.5	1	2	3	5	7.5	450	**GV2P14**
9…14	3/4	2	2	2	3	3	10	10	450	**GV2P16**
13…18	1	2	3	2	5	5	10	15	450	**GV2P20**
17…23	1.5	3	3	3	5	7.5	15	20	450	**GV2P21**
20…25	2	–	–	–	7.5	7.5	15	20	450	**GV2P22**
24…32	2	5	5	5	7.5	10	20	25	450	**GV2P32**

(1) As % of Icu.
(2) The thermal trip setting must be within the range marked on the graduated knob.
(3) Accessory: see page B6/23.
(4) 3P FLA corresponding values: see page A6/58.
★ *> 100 kA.*

Characteristics: pages B6/64 to B6/68
Curves: pages B6/75 to B6/78
Dimensions, schemes: pages B6/85 to B6/89, B6/91

Product references

PB121514.eps

GV2RT

For motors with high current peak on starting

Control by rocker lever

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3					Setting range of thermal trips [1]	Magnetic tripping current Id ± 20 %	Reference
220/ 230 V	400/ 415 V	440 V	500 V	690 V			
kW	kW	kW	kW	kW	A	A	
0.06	0.09	0.09 0.12	–	–	0.25…0.40	8	**GV2RT03**
–	0.12 0.18	0.18	–	0.37	0.40…0.63	13	**GV2RT04**
0.09 0.12	0.25 0.37	0.25 0.37	0.37	0.55	0.63…1	22	**GV2RT05**
0.18 0.25	0.37 0.55	0.37 0.55	0.37 0.55 0.75	0.75 1.1	1…1.6	33	**GV2RT06**
0.37	0.75	0.75 1.1	1.1	1.5	1.6…2.5	51	**GV2RT07**
0.55 0.75	1.1 1.5	1.5	1.5 2.2	2.2 3	2.5…4	78	**GV2RT08**
1.1	2.2	2.2 3	3	4	4…6.3	138	**GV2RT10**
1.5 2.2	3 4	4	4 5.5	5.5 7.5	6…10	200	**GV2RT14**
2.2 3	5.5	5.5 7.5	7.5	9 11	9…14	280	**GV2RT16**
4	7.5	7.5 9	9	15	13…18	400	**GV2RT20**
5.5	9 11	11	11	18.5	17…23	400	**GV2RT21**

(1) The thermal trip setting must be within the range marked on the graduated knob.

For primaries of 3-phase transformers

Control by rocker lever

Standard power ratings					Setting range of thermal trips [2]	Magnetic tripping current Id ± 20 %	Reference
230/240 V	400/415 V	440 V	500 V	690 V			
kVA	kVA	kVA	kVA	kVA	A	A	
–	–	–	–	–	0.25…0.40	8	**GV2RT03**
–	–	–	–	–	0.40…0.63	13	**GV2RT04**
–	–	0.63	0.63	1	0.63…1	22	**GV2RT05**
0.4	0.63	1	1	–	1…1.6	33	**GV2RT06**
0.63	1	–	1.6	1.6 2	1.6…2.5	51	**GV2RT07**
1	1.6 2	1.6 2	2 2.5	2.5	2.5…4	78	**GV2RT08**
1.6 2	2.5	2.5 4	4	4 5 6.3	4…6.3	138	**GV2RT10**
2.5	4 5	5	5 6.3	–	6…10	200	**GV2RT14**
4	6.3	6.3	–	10 12.5	9…14	280	**GV2RT16**
5 6.3	10	10	10 12.5	10	13…18	400	**GV2RT20**

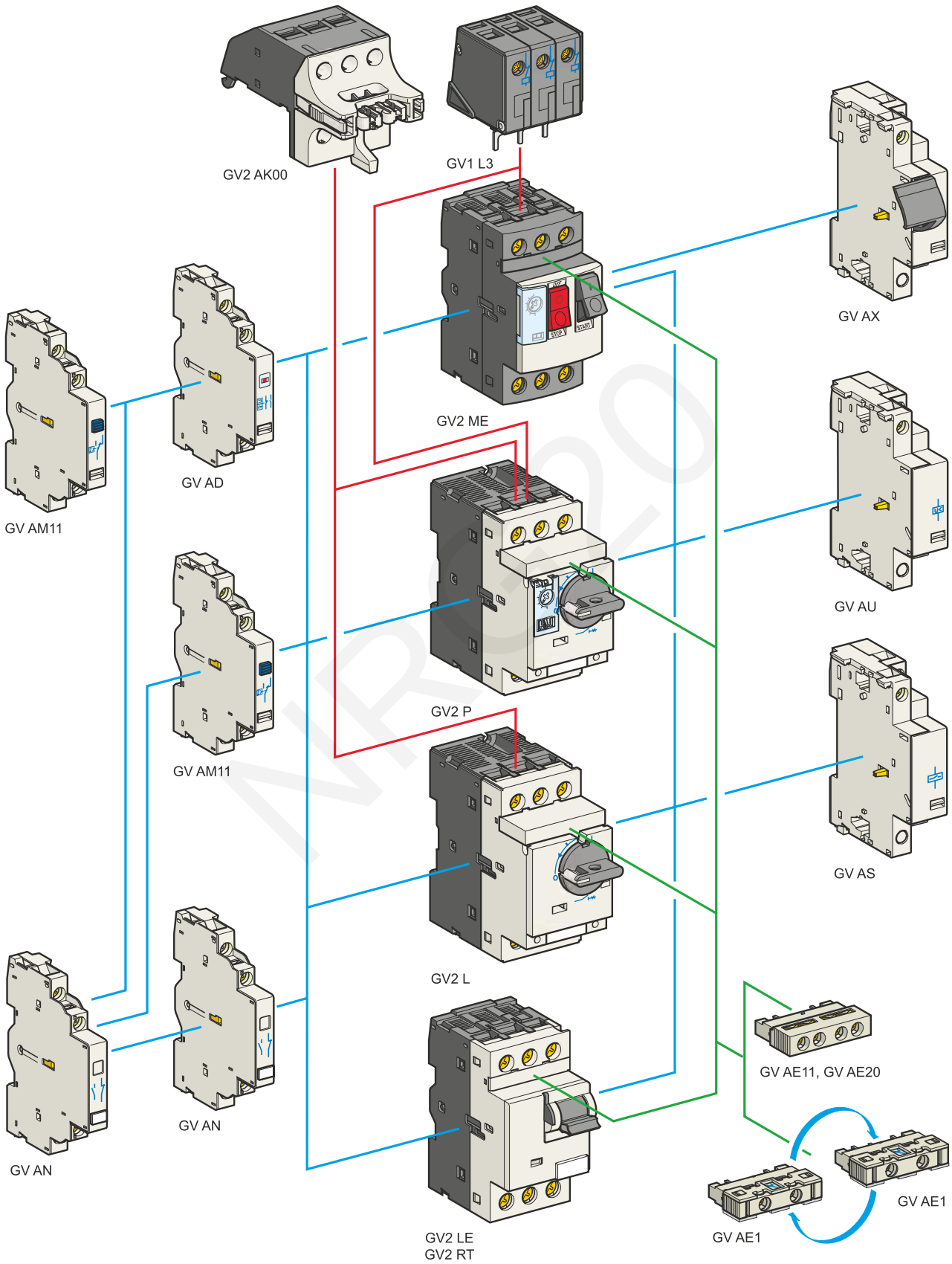
Accessory [3]

Description	Reference
Padlockable external operator (IP 54) black handle, blue legend plate	**GV2AP03**

(2) The thermal trip setting must be within the range marked on the graduated knob.

*(3) Other accessories such as mounting, cabling and marking accessories are identical to those used for **GV2ME** motor circuit breakers, see page B6/23.*

Characteristics: pages B6/64 to B6/68
Curves: pages B6/75 to B6/77
Dimensions, schemes: pages B6/90 to B6/91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GV2 AK00
GV1 L3
GV AX
GV2 ME
GV AD
GV AM11
GV AU
GV2 P
GV AM11
GV AS
GV2 L
GV AE11, GV AE20
GV AN
GV AN
GV AE1
GV AE1
GV2 LE
GV2 RT

Contact blocks

Description	Mounting	Maximum number	Type of contacts		Sold in lots of	Unit reference
Instantaneous auxiliary contacts	Front (1)	1	N/O or N/C (2)		10	**GVAE1**
			N/O + N/C		10	**GVAE11**
			N/O + N/O		10	**GVAE20**
	Side (LH)	2	N/O + N/C		1	**GVAN11**
			N/O + N/O		1	**GVAN20**
Fault signalling contact + instantaneous auxiliary contact	Side (3) (LH)	1	N/O (fault)	+ N/O	1	**GVAD1010**
				+ N/C	1	**GVAD1001**
			N/C (fault)	+ N/O	1	**GVAD0110**
				+ N/C	1	**GVAD0101**
Short-circuit signalling contact	Side (LH)	1	C/O common point		1	**GVAM11**

Electric trips

Mounting	Voltage		Reference
Undervoltage or shunt trips (4)			
Side (1 block on RH side of circuit breaker)	24 V	50 Hz	**GVA●025**
		60 Hz	**GVA●026**
	48 V	50 Hz	**GVA●055**
		60 Hz	**GVA●056**
	100 V	50 Hz	**GVA●107**
	100…110 V	60 Hz	**GVA●107**
	110…115 V	50 Hz	**GVA●115**
		60 Hz	**GVA●116**
	120…127 V	50 Hz	**GVA●125**
	127 V	60 Hz	**GVA●115**
	200 V	50 Hz	**GVA●207**
	200…220 V	60 Hz	**GVA●207**
	220…240 V	50 Hz	**GVA●225**
		60 Hz	**GVA●226**
	380…400 V	50 Hz	**GVA●385**
		60 Hz	**GVA●386**
	415…440 V	50 Hz	**GVA●415**
	415 V	60 Hz	**GVA●416**
	440 V	60 Hz	**GVA●385**
	480 V	60 Hz	**GVA●415**
	500 V	50 Hz	**GVA●505**
	600 V	60 Hz	**GVA●505**
Undervoltage trip, INRS (can only be mounted on GV2ME) Safety device for dangerous machines conforming to INRS and VDE 0113			
Side (1 block on RH side of circuit breaker GV2ME)	110…115 V	50 Hz	**GVAX115**
		60 Hz	**GVAX116**
	127 V	60 Hz	**GVAX115**
	220…240 V	50 Hz	**GVAX225**
		60 Hz	**GVAX226**
	380…400 V	50 Hz	**GVAX385**
		60 Hz	**GVAX386**
	415…440 V	50 Hz	**GVAX415**
	440 V	60 Hz	**GVAX385**

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GV1L3

Limiter blocks

Description	Mounting	Maximum number	Reference
Visible isolation block (5)	Front (1)	1	**GV2AK00 (6)**
Limiters	At top (GV2ME and GV2P) for circuit breakers with screw clamp connections	1	**GV1L3**
	Independent	1	**LA9LB920**

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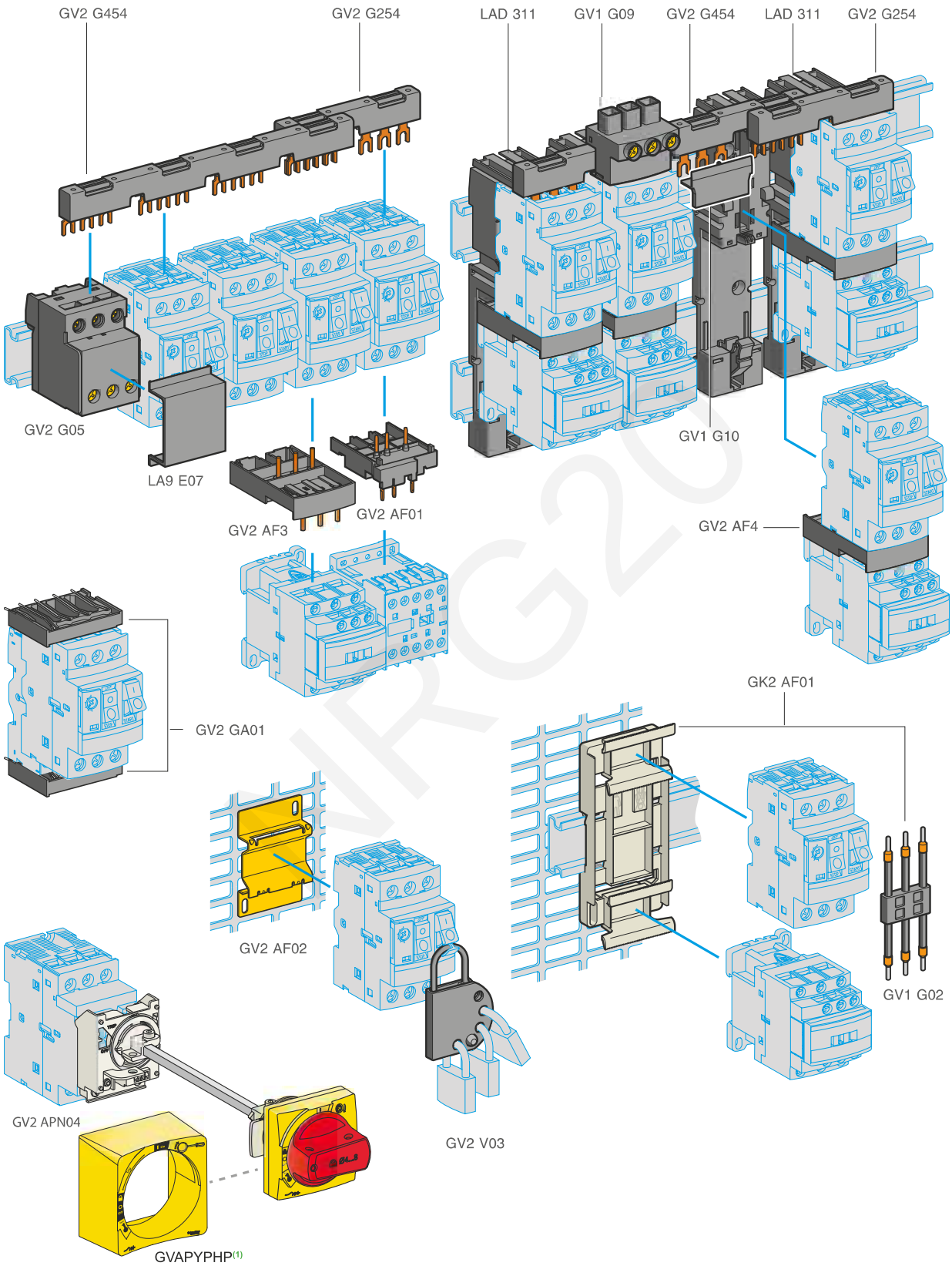
LA9LB920

*(1) Mounting of a **GVAE** contact block or a **GV2AK00** visible isolation block on **GV2P** and **GV2L**.*
(2) Choice of N/C or N/O contact operation, depending on which way round the reversible block is mounted.
*(3) The **GVAD** is always mounted next to the circuit breaker.*
*(4) To order an undervoltage trip: replace the dot (●) in the reference with a **U**, example: **GVAU025**.*
*To order a shunt trip: replace the dot (●) in the reference with an **S**, example: **GVAS025**.*
*(5) Visible isolation of the 3 poles upstream of circuit breaker **GV2P** and **GV2L**.*
(6) Ie Max = 32 A.

Characteristics: pages B6/79 to B6/81
Dimensions, schemes: pages B6/82 to B6/91



(1) Standard front plate must be removed from the assembly and replaced by Protective front plate (GVAPYPHP).

Product references

Accessories for circuit breakers with screw clamp connections

Description	Application	Sold in lots of	Unit reference
Adapter plates	For mounting a GV2 by screw fixing	10	**GV2AF02**
	For mounting a GV2ME and contactor LC1D09…D38 with front faces aligned	1	**LAD311**
Height compensation plate	7.5 mm to align GV2ME-GV2LE and GV2P-GV2L and allow the use of a common GV2G●●● busbar	10	**GV1F03**
Combination blocks	Between GV2 and contactor LC1K or LP1K	10	**GV2AF01**
	Between GV2 and contactor LC1D09…D38	10	**GV2AF3**
	Between GV2 mounted on LAD311 and contactor LC1D09…D38	10	**GV2AF4**
Motor starter adapter plate	With 3-pole connection for mounting a GV2 and a contactor LC1D09…D25	1	**GK2AF01**

Description	Application	Pitch	Reference
		mm	
Sets of 3-pole Ie = 63 A busbars	2 tap-offs	45	**GV2G245**
		54	**GV2G254**
		72	**GV2G272**
	3 tap-offs	45	**GV2G345**
		54	**GV2G354**
	4 tap-offs	45	**GV2G445**
		54	**GV2G454**
		72	**GV2G472**
	5 tap-offs	54	**GV2G554**

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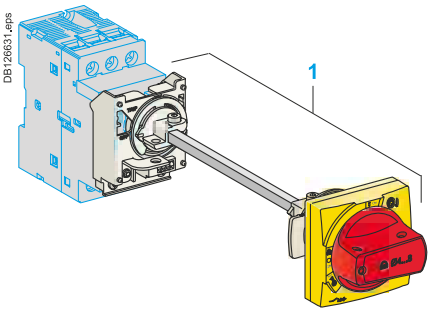
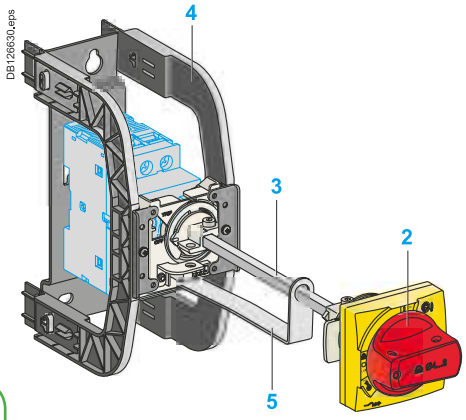
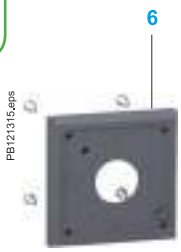
GV1G09

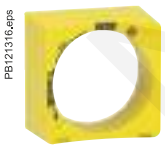
Description	Ie	Application	Sold in lots of	Unit reference
	A			
Protective end cover	-	For unused busbar outlets	5	**GV1G10**
Terminal block for supply to one or more GV2G busbar sets	63	Connection from the top	1	**GV1G09**
	63	Can be fitted with current limiter GV1L3 (GV2ME and GV2P)	1	**GV2G05**
Cover for terminal block	-	For mounting in modular panels	10	**LA9E07**
Flexible 3-pole connection for connecting a GV2 to a contactor LC1D09…D25	25	Centre distance between mounting rails: 100…120 mm	10	**GV1G02**
Set of connections upstream/downstream	16	For connecting GV2ME to a printed circuit board	10	**GV2GA01**
"Large Spacing" adapter UL 60947-4-1 type E	-	For GV2P●● (except 32 A)	1	**GV2GH7**
Clip-in marker holders (supplied with each circuit breaker)	-	For GV2P, GV2L, GV2LE and GV2RT (8 x 22 mm)	100	**LA9D92**

Product references









GVAPYPHP

Extended Rotary Handle

Allows a circuit breaker or a starter-controller installed in back of an enclosure to be operated from the front of the enclosure.
A rotary handle can be black or red/yellow, IP54 or IP65. It includes a function for locking the circuit breaker or the starter in the O (Off) for red/yellow handle, in the O (Off) or I (On) for black handle, by means of up to 3 padlocks with a shank diameter of 4 to 8 mm. The extended shaft must be adjusted to use in different size enclosures. The IP54 rotary handle is fixed with a nut (Ø22) to make easier the assembling. The new Laser Square tool brings the accuracy to align the circuit breaker and the rotary handle.

Padlockable external operators for GV2P and GV2L

Description

1 Kit handle + mounting system
2 Universal handle
3 Shaft
4 Bracket
5 Shaft support plate for deep enclosure
6 Retrofit accessory
7 Laser Square accessory

Kit handle + mounting system

Description		Item	Reference
For GV2P/L	Black handle, front plate, with trip status, IP 54	1	**GV2APN01**
	Red handle, front plate, with trip status, IP 54	1	**GV2APN02**
	Black handle, front plate, without trip status, IP 65	1	**GV2APN03**
	Red handle, front plate, without trip status, IP 65	1	**GV2APN04**
For GV2LE	Padlocking in “On” and “Off” position Black handle, blue front plate, IP 54	-	**GV2AP03**

Universal handle

For GV2P/L	Black handle, with trip status, IP54	2	**GVAPB54**
	Red handle, with trip status, IP54	2	**GVAPR54**
	Red handle, without trip status, IP65	2	**GVAPR65**
	Black handle, without trip status, IP 65	2	**GVAPB65**

External handle protection frame

For GV2P/L	Yellow frame	1	**GVAPYPHP**
	Black frame	1	**GVAPBPHP**

Shaft

For GV2P/L	L = 315 mm	3	**GVAPA1**

Bracket

For GV2P/L		4	**GVAPH02**

Shaft support plate for deep enclosure

For GV2P/L	Depth ≥ 250 mm	5	**GVAPK11**

Retrofit accessory

For GV2P/L		6	**GVAPP1**

Laser Square accessory

For GV2P/L		7	**GVAPL01**

Sticker		Sold in lots of		
Warning label	For French	10	-	**GVAPSFR**
	For English	10	-	**GVAPSEN**
	For German	10	-	**GVAPSDE**
	For Spanish	10	-	**GVAPSES**
	For Chinese	10	-	**GVAPSCN**
	For Portuguese	10	-	**GVAPSPT**
	For Russian	10	-	**GVAPSRU**
	For Italian	10	-	**GVAPSIT**

Padlocking device

Description		Reference
For all GV2 device	For use with up to 4 padlocks, Ø6 mm shank max. (padlocks not included)	**GV2V03**

Dimensions, schemes:
page B6/83

TeSys GV3

11 to 45 kW

PB121319.eps

GV3L25

PB121320.eps

GV3L401

PB121321.eps

GV3L326

Motor circuit breakers from 11 to 45 kW

GV3L: control by rotary knob, connection by EverLink® BTR screw connectors

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Magnetic protection rating	Tripping current Id ± 20 %	Use in association with thermal overload relay (class 10 A)	Reference
400/415 V			500 V			690 V						
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)				
kW	kA		kW	kA		kW	kA		A	A		
11	100	100	**15**	12	50	**18.5**	6	50	25	350	LRD325	**GV3L25**
15	100	100	**18.5**	12	50	**22**	6	50	32	448	LRD332	**GV3L32**
18.5	50	100	**22**	12	50	**37**	6	50	40	560	LRD340	**GV3L40**
22	50	100	**30**	12	50	**45**	6	50	50	700	LRD350	**GV3L50**
30	50	100	**37**	12	50	**55**	6	50	65	910	LRD365	**GV3L65**
37	50	60	**45**	12	50	**55**	6	50	73	1120	LRD380	**GV3L73**
45	50	60	**45**	12	50	**55**	6	50	80	1120	LRD380	**GV3L80**(2)

Connection by EverLink® BTR screw connectors, for assembly with a contactor

To assemble a **GV3L25** to **L73** circuit breaker with an **LC1D40A** to **D80A** contactor, it is possible to use the circuit breaker supplied without downstream EverLink® power terminal block. To order this product, add the digit **1** to the end of the references selected above. Example: **GV3L73** becomes **GV3L731**. Do not use direct mounting between **GV3L80** and **LC1D80A** because of potential overheating, use cable link.

Connection by lugs

To order these circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV3L32** becomes **GV3L326**.

(1) As % of Icu. Associated current limiter or fuses, where required.
(2) 750 A Lock Rotor Current max.
★ > 100 kA.

PB116862.eps

GV3P80

PB121322.eps

GV3P731

PB121323.eps

GV3P736

Motor circuit breakers up to 45 kW / 400 V

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Setting range of thermal trips (2)	Magnetic tripping current Id ± 20 %	Reference
400/415 V			500 V			690 V					
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)			
kW	kA	%	kW	kA	%	kW	kA	%	A	A	
GV3P: control by rotary knob											
Connection by EverLink® BTR screw connectors (3)											
5.5	100	100	**7.5**	12	50	**11**	6	50	9…13	182	**GV3P13**
7.5	100	100	**9**	12	50	**15**	6	50	12…18	252	**GV3P18**
11	100	100	**15**	12	50	**18.5**	6	50	17…25	350	**GV3P25**
15	100	100	**18.5**	12	50	**22**	6	50	23…32	448	**GV3P32**
18.5	50	100	**22**	12	50	**37**	6	50	30…40	560	**GV3P40**
22	50	100	**30**	12	50	**45**	6	50	37…50	700	**GV3P50**
30	50	100	**45**	12	50	**55**	6	50	48…65	910	**GV3P65**
37	50	60	**45**	12	50	**55**	6	50	62...73	1120	**GV3P73**
45	50	60	**45**	12	50	**55**	6	50	70...80	1120	**GV3P80 (4)**

Connection by EverLink® BTR screw connectors, for assembly with a contactor

To assemble a **GV3P13** to **P73** circuit breaker with an **LC1D40A** to **D73A** contactor, it is possible to use the circuit breaker supplied without downstream EverLink® power terminal block. To order this product, add the digit **1** to the end of the references selected above. Example: **GV3P73** becomes **GV3P731.** Do not use direct mounting between **GV3P80** and **LC1D80A** because of potential overheating, use cable link.

Connection by lugs

To order thermal magnetic circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV3P18** becomes **GV3P186.**

Motor circuit breakers up to 40 HP / 460 V, UL 60947-4-1 type E

GV3P13 (5) to GV3P65 (5)

To obtain a motor-circuit breaker **GV3P**, UL 60947-4-1 type E, use the following with the circuit breaker:
- a "Large Spacing" cover **GV3G66**,
- a short-circuit signalling contact **GVAM11.**

Motor circuit breakers from 7.5 to 50 HP / 460 V, with screw clamp terminals

GV3P with rotary handle

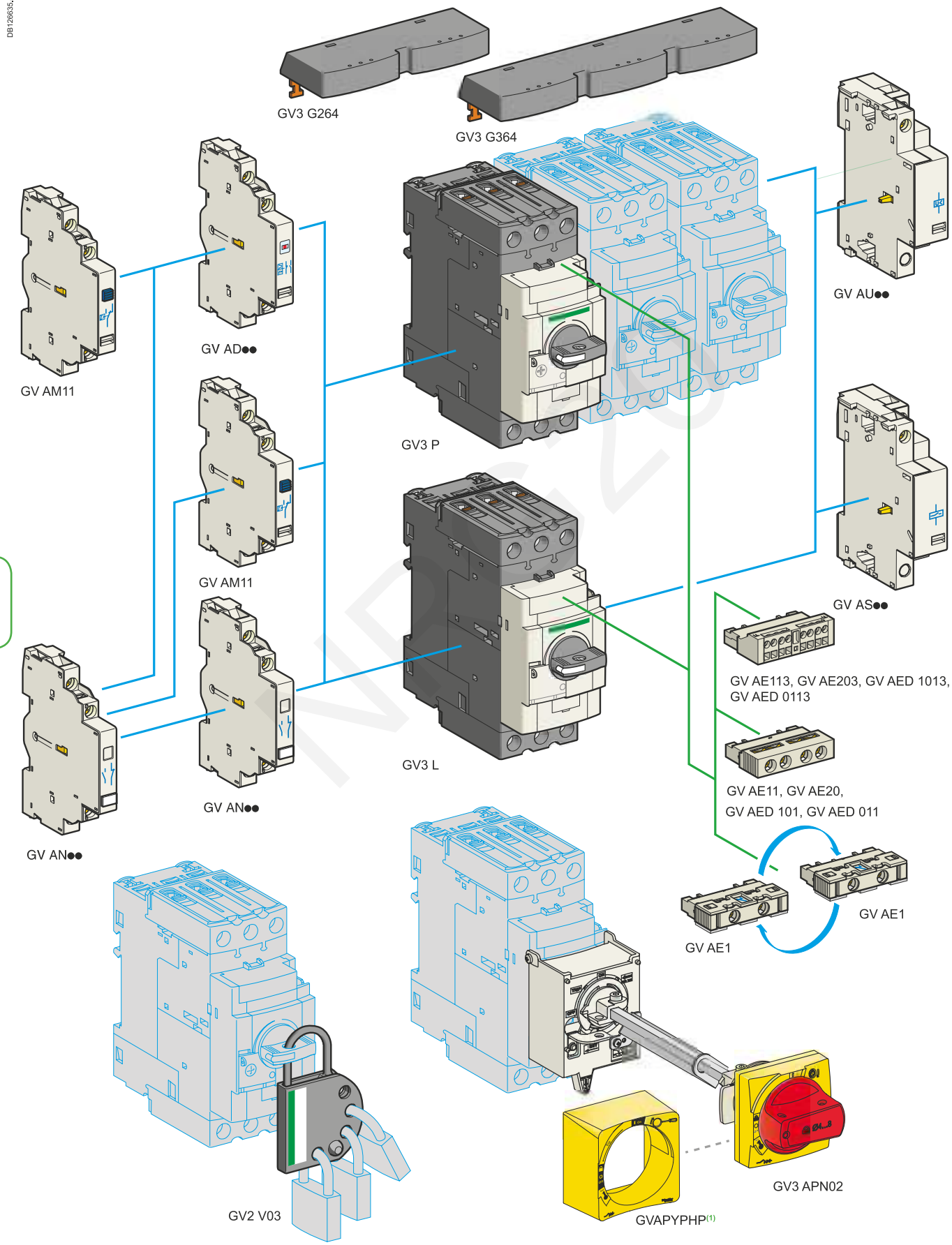
Thermal setting (A)	Maximum Horsepower ratings (6)						Reference
	Single-Phase		Three-Phase				
	115 V	230 V	200 V	230 V	460 V	575 V	
9…13	1/2	1.5	3	3	7.5	10	**GV3P13**
12…18	3/4	2	3	5	7.5	10	**GV3P18**
17…25	1.5	3	5	7.5	15	20	**GV3P25**
23…32	2	3	7.5	7.5	20	25	**GV3P32**
30…40	3	5	10	10	25	30	**GV3P40**
37…50	3	7.5	10	10	30	40	**GV3P50**
48…65	3	10	15	15	40	50	**GV3P65**
62…73	5	15	20	25	50	60	**GV3P73**

GV3P13 to GV3P65 - with connection by lugs (5)

To obtain a motor-circuit breaker **GV3P**, UL 60947-4-1 type E, with connection by lugs, add the digit **6** to the end of reference selected above and use the following with the circuit breaker:
- two IP 20 covers **LAD96570**,
- a short-circuit signalling contact **GVAM11.**

(1) As % of Icu.
(2) The thermal trip setting must be within the range marked on the graduated knob.
(3) BTR screws: hexagon socket head. Require use of an insulated Allen key, in compliance with local wiring regulations.
(4) 750 A Lock Rotor Current max.
(5) Accessories: see page B6/30.
(6) 3P FLA corresponding values : see page A6/58.

Circuit breakers



(1) Standard front plate must be removed from the assembly and replaced by Protective front plate (GVAPYPHP).

Product references

Contact blocks

Description	Mounting	Maximum number	Type of contacts		Sold in lots of	Unit reference
Instantaneous auxiliary contacts	Front	1	N/O or N/C (1)		10	**GVAE1**
			N/O + N/C		10	**GVAE11** (2)
			N/O + N/O		10	**GVAE20** (2)
	Side (LH)	2	N/O + N/C		1	**GVAN11** (2)
			N/O + N/O		1	**GVAN20** (2)
Fault signalling contact + instantaneous auxiliary contact	Front	1	N/O (fault)	+ N/O	1	**GVAED101** (2)
			N/O (fault)	+ N/C	1	**GVAED011** (2)
	Side (3) (LH)	1	N/O (fault)	+ N/O	1	**GVAD1010**
				+ N/C	1	**GVAD1001**
			N/C (fault)	+ N/O	1	**GVAD0110**
				+ N/C	1	**GVAD0101**
Short-circuit signalling contact	Side (LH)	1	C/O common point		1	**GVAM11**

Electric trips - undervoltage or shunt (4)

Mounting	Voltage		Reference
Side (1 block on RH side of circuit breaker)	24 V	50 Hz	**GVA●025**
		60 Hz	**GVA●026**
	48 V	50 Hz	**GVA●055**
		60 Hz	**GVA●056**
	100	50 Hz	**GVA●107**
	100…110 V	60 Hz	**GVA●107**
	110…115 V	50 Hz	**GVA●115**
		60 Hz	**GVA●116**
	120…127 V	50 Hz	**GVA●125**
	127 V	60 Hz	**GVA●115**
	200 V	50 Hz	**GVA●207**
	200…220 V	60 Hz	**GVA●207**
	220…240 V	50 Hz	**GVA●225**
		60 Hz	**GVA●226**
	380…400 V	50 Hz	**GVA●385**
		60 Hz	**GVA●386**
	415…440 V	50 Hz	**GVA●415**
	415 V	60 Hz	**GVA●416**
	440 V	60 Hz	**GVA●385**
	480 V	60 Hz	**GVA●415**
	500 V	50 Hz	**GVA●505**
	600 V	60 Hz	**GVA●505**

Accessories

Description			Reference
Set of 3-pole busbars **Ie = 115 A** Pitch: 64 mm	2 tap-off	GV3P●● and GV3L●●	**GV3G264**
	3 tap-off	GV3P●● and GV3L●●	**GV3G364**
Cover "Large Spacing" UL 60947-4-1 type E (Only one cover required on supply side)		GV3P●●	**GV3G66**

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GV3G66

(1) Choice of N/C or N/O contact operation, depending on which way round the reversible block is mounted.
*(2) Contact blocks available in version with spring terminal connections. Add a figure **3** at the end of the references selected above. Example: **GVAED101** becomes **GVAED1013**.*
*(3) The **GVAD●●** is always mounted next to the circuit breaker.*
*(4) To order an undervoltage trip: replace the dot (●) in the reference with a **U**, example: **GVAU025**. To order a shunt trip: replace the dot (●) in the reference with an **S**, example: **GVAS025**.*

PB121324.eps

LV426992

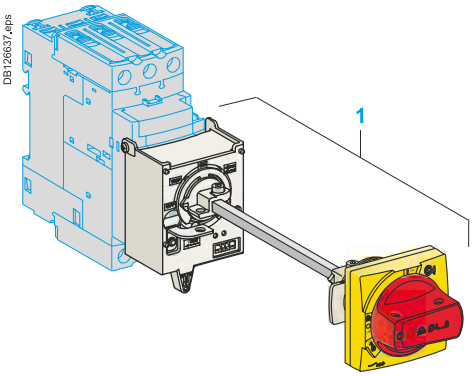
LV426990

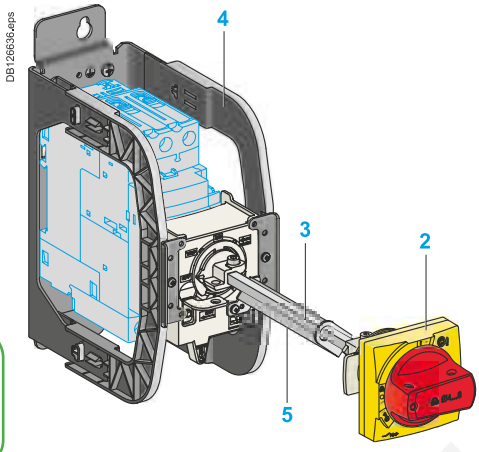
Limited torque throwaway bits

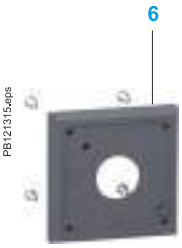
Torque limiting breakaway bits

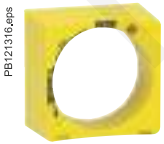
Description	Sold in lots of	Reference
5 N.m Yellow	6	**LV426992**
9 N.m Green	6	**LV426990**

Characteristics: pages B6/104 to B6/106
Schemes: page B6/109









GVAPYPHP

Extended Rotary Handle

Allows a circuit breaker or a starter-controller installed in back of an enclosure to be operated from the front of the enclosure.
A rotary handle can be black or red/yellow, IP54 or IP65. It includes a function for locking the circuit breaker or the starter in the O (Off) or I (On) position (depending of the type of rotary handle) by means of up to 3 padlocks with a shank diameter of 4 to 8 mm. The extended shaft must be adjusted to use in different size enclosures. The IP54 rotary handle is fixed with a nut (Ø22) to make easier the assembling. The new Laser Square tool brings the accurency to align the circuit breaker and the rotary handle.

Padlockable external operators for GV3 and GV3L

Description

1 Kit handle + mounting system
2 Universal handle
3 Shaft
4 Bracket
5 Shaft support plate for deep enclosure
6 Retrofit accessory
7 Laser Square accessory

Kit handle + mounting system

Description		Item	Reference
For GV3P/L	Black handle, front plate, with trip status, IP 54	1	GV3APN01
	Red handle, front plate, with trip status, IP 54	1	GV3APN02
	Black handle, front plate, without trip status, IP65	1	GV3APN03
	Red handle, front plate, without trip status, IP 65	1	GV3APN04
Universal handle			
For GV3P/L	Black handle, with trip status, IP54	2	GVAPB54
	Red handle, with trip status, IP54	2	GVAPR54
	Black handle, without trip status, IP65	2	GVAPB65
	Red handle, without trip status IP65	2	GVAPR65
External handle protection frame			
For GV2P/L	Yellow frame	1	GVAPYPHP
	Black frame	1	GVAPBPHP
Shaft			
For GV3P/L	L = 315 mm	3	GVAPA1
Bracket			
For GV3P/L		4	GVAPH03
Shaft support plate for deep enclosure			
For GV3P/L	Depth ≥ 300 mm	5	GVAPK12
Retrofit accessory			
For GV3P/L		6	GVAPP1
Laser Square accessory			
For GV3P/L		7	GVAPL01

Sticker		Sold in lots of		
Warning label	For French	10	-	GVAPSFR
	For English	10	-	GVAPSEN
	For German	10	-	GVAPSDE
	For Spanish	10	-	GVAPSES
	For Chinese	10	-	GVAPSCN
	For Portuguese	10	-	GVAPSPT
	For Russian	10	-	GVAPSRU
	For Italian	10	-	GVAPSIT

Dimensions, schemes:
pages B6/108

TeSys GV4

0.25 to 55 kW - 1/2 to 60 HP

Protection

TeSys GV4 motor circuit breaker covers motor protection from 0.25 to 55 kW at 415 V AC (from 0.8 to 115 A) in one frame and is available in 3 breaking capacities: 25, 50 and 100 kA at 415 V AC IEC (15, 35, 65 kA at 480 V UL).

Tesys GV4 is available with 3 types of protection:
- Magnetic GV4L: to be used with an overload relay or a drive
- Thermal magnetic GV4P: electronic protection with wide range setting, dual class (10 & 20)
- Multifunction motor protection GV4PEM: GV4P with adjustable advanced protections and possibility to have a side module SDx for alarming and motor functional fault differentiation.

Power connection

TeSys GV4 comes in standard with 2-holes EverLink™ power connectors with creep (1) compensation for bare copper cables. This Schneider Electric patended technique makes it possible to achieve accurate and durable tightening torque in order to avoid cable creep.
Products may be delivered with connectors for bars or cables with compression lugs (except GV4PB).
Whatever, the connectors are field interchangeables and can be removed for the installation of one of both.
And to tight at the right torque power connections particularly in the field, torque limiting breakaway bits may be used.

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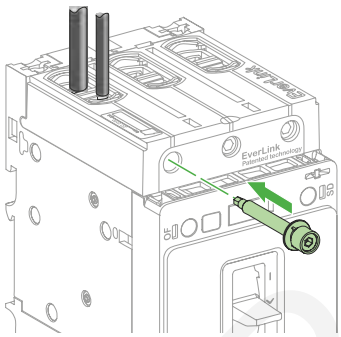

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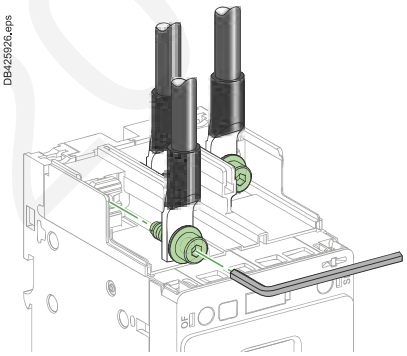

Mounting

TeSys GV4 can be mounted on a backplate or on a DIN rail (35 or 75 mm).

Handle

TeSys GV4 can be ordered with a toggle or a direct rotary handle (except for GV4P Multifunction).
It is also possible to equip a toggle one with a direct rotaty handle, or a front extended one, or a side one.

Auxiliaries

TeSys GV4 circuit breakers can be equiped with an open/close (OF) contact and a trip indication (SD) contact.
These contacts are common point changeover type, with a normaly open (NO) and a normaly closed (NC) contact.
TeSys GV4 may be equiped too with an MN (undervoltage release) or MX (shunt trip) coil.

GV4P Multifunction circuit breakers can be equiped with 1 or 2 SDx module(s) in order to have alarming and motor functional fault differentiation (SDx - See page B6/44)

Auxiliaries have spring connections for cables up to 1.5 mm².

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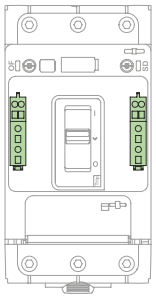
OF **SD**



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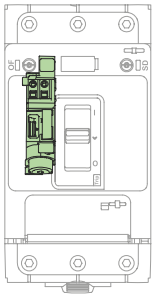
MN/MX



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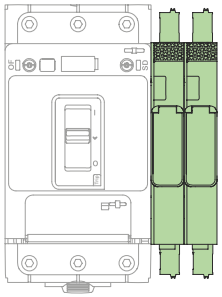
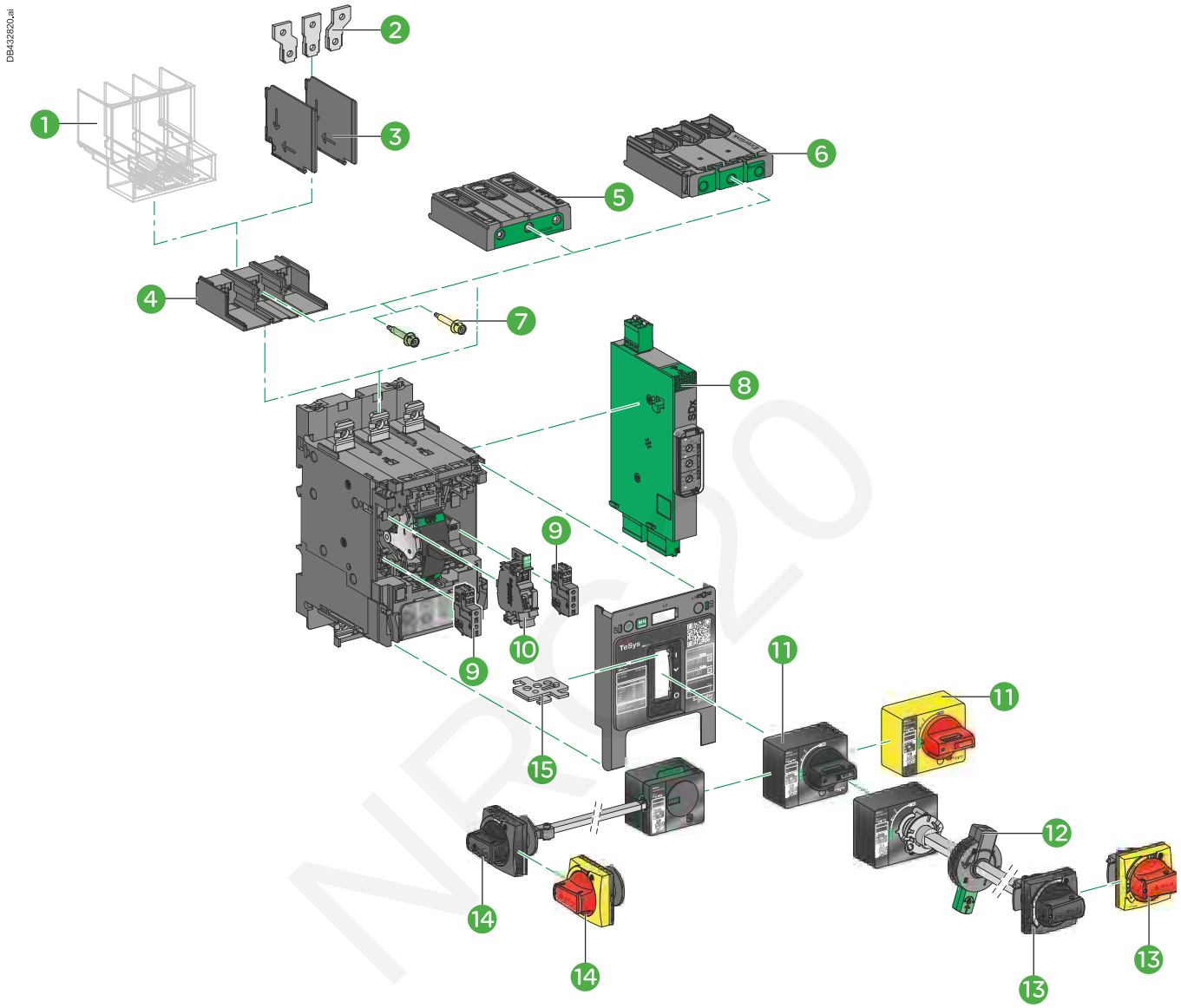
SDx



(1) Creep: normal crushing phenomenon of condustors, that is accentuated over time.

Introduction



1 Long terminal shield **LAD96590**
2 Terminal spreaders **LV426940**
3 Interphases barriers **LV426920**
4 Crimp lug connector **GV4LUG**
5 EverLink® connector **LAD96595**
6 Everlink® terminals and large spacing cover **GV4G66 + LAD96595**
7 Torque limiting breakaway bits **LV42699●**
8 SDx alarming/fault differentiation module **GV4ADM1111** (only with GV4PEM)
9 Auxiliary contact block for OF or SD function **GV4AE11**
10 - MN undervoltage release **GV4AU●●**
- MX shunt trip **GV4AS●●**
11 Direct mounting black or red on yellow bezel rotary handle **GV4ADN01/ GV4ADN02**
12 Open door shaft operator (for front extended rotary handle) **LV426937**
13 Front extended rotary handle kit with red handle on yellow bezel or black handle **GV4APN01/ GV4APN02 /GV4APN04**
14 Side rotary handle kit with red handle on yellow bezel or black handle **LV426935/LV426936.**
15 Toggle locking device **29370**

Introduction

PB114910.eps

GV4L

PB114909.eps

GV4LE

Protection

Setting is made using dial.

Trip class (class)
GV4L can be used with class 5, 10 or 20 relay.

Short circuit protection (Ii)
Protection with an adjustable pick-up **Ii = 6 to 14 In**. Settings are made in amperes.

Standards and certifications
IEC/EN 60947-1, IEC/EN 60947-2, CCC, EAC.

Ref.
Circuit breakers

Product references

Magnetic motor circuit breakers from 0.25 to 55 kW

Standard power ratings of 3-phase motors - 50 / 60 Hz									In	Magnetic setting range (Ii)	Use in association with overload relay Class 10 or 20	Reference with EverLink terminals	
400/415 V			500 V			690 V							
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)				with toggle	with rotary handle
kW	kA	%	kW	kA	%	kW	kA	%	A	A			
0.25... 0.75	25	100	**0.37... 1.1**	10	100	**0.55... 1.5**	-	-	2	12... 28	LRD05 (0.63... 1A) LRD06 (1... 1.6A) LRD07 (1.6... 2.5A)	-	-
	50	100		25	100		8	25				**GV4LE02N**	**GV4L02N**
	100	100		30	100		10	25				**GV4LE02S**	-
0.55... 1.5	25	100	**0.75... 1.5**	10	100	**1.1... 2.2**	-	-	3,5	21... 49	LRD07 (1.6... 2.5A) LRD08 (2.5... 4A)	-	-
	50	100		25	100		8	25				**GV4LE03N**	**GV4L03N**
	100	100		30	100		10	25				**GV4LE03S**	-
1.5... 3	25	100	**2.2... 4**	10	100	**3... 7.5**	-	-	7	42... 98	LRD08 (2.5... 4A) LRD10 (4...6A)	-	-
	50	100		25	100		8	25				**GV4LE07N**	**GV4L07N**
	100	100		30	100		10	25				**GV4LE07S**	-
3... 5.5	25	100	**3... 7.5**	10	100	**5.5... 11**	-	-	12,5	75... 175	LRD12 (5.5... 8A) LRD14 (7... 10A) LRD313 (9...13A)	-	-
	50	100		25	100		8	25				**GV4LE12N**	**GV4L12N**
	100	100		30	100		10	25				**GV4LE12S**	-
5.5... 11	25	100	**7.5... 15**	10	100	**7.5... 18.5**	-	-	25	150... 350	LRD318 (12... 18A) LRD325 (17... 25A)	**GV4LE25B**	**GV4L25B**
	50	100		25	100		8	25				**GV4LE25N**	**GV4L25N**
	100	100		30	100		10	25				**GV4LE25S**	-
11... 22	25	100	**15... 30**	10	100	**18.5... 45**	-	-	50	300... 700	LRD332 (23... 32A) LRD340 (30... 40A) LRD350 (37... 50A)	**GV4LE50B**	**GV4L50B**
	50	100		25	100		8	25				**GV4LE50N**	**GV4L50N**
	100	100		30	100		10	25				**GV4LE50S**	-
18.5... 37	25	100	**22... 55**	10	100	**30... 55**	-	-	80	480... 1120	LRD365 (48... 65A) LRD3363 (63... 80A)	**GV4LE80B**	**GV4L80B**
	50	100		25	100		8	25				**GV4LE80N**	**GV4L80N**
	100	100		30	100		10	25				**GV4LE80S**	**GV4L80S**
30... 55	25	100	**30... 75**	10	100	**45... 90**	-	-	115	690... 1610	LR9D5567 (60... 100A) LR9F5367 (60... 100A) LR9D5369 (90... 150A) LR9F5369 (90...150A)	**GV4LE115B**	**GV4L115B**
	50	100		25	100		8	25				**GV4LE115N**	**GV4L115N**
	100	100		30	100		10	25				**GV4LE115S**	**GV4L115S**

Connection by lugs

To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV4LE02N** becomes **GV4LE02N6**.

(1) As % of Icu.

Circuit breakers

GV4P

GV4PE

Protection

Settings are made using dials.

Overload or thermal protection (Ir)
Inverse-time thermal protection against overloads with adjustable pick-up **Ir**.
Wide range setting made in amperes.
The tripping curve for the thermal protection, which indicates the time delay tr before tripping, is defined by the selected trip class.

Trip class (class)
The class is selected as a function of the normal motor starting time.
- Class 10: starting time less than 10 s.
- Class 20: starting time less than 20 s.

For a given class, it is necessary to check that all motor-feeder components are sized to carry the 7.2 **Ir** starting current without excessive temperature rise during the time corresponding to the class.

Short time delay protection (Isd)
Short time delay protection (around 100 ms) to let through motor starting currents, but to protect cables and motor starter devices and allow not to oversize them (particularly usefull for wide range settings circuit breakers).
Fixed pick-up **Isd = 13 Ir**.

Short-circuit protection (Ii)
Instantaneous protection with non-adjustable pick-up **Ii=17 In**.

Phase unbalance or phase loss (Iunbal, tunbal)
This function opens the circuit breaker if a phase unbalance occurs:
- that is greater than the 30 % of Irms (fixed pick-up): **Iunbal**
- following the non-adjustable time delay (**tunbal**) equal to:
  - 0.7 s during starting
  - 4 s during normal operation.

Phase loss is an extreme case of phase unbalance and leads to tripping under the same conditions.

Ground-fault protection (Ig, tg)
Residual type ground-fault protection:
- fixed pick-up **Ig = In**
- fixed time delay **tg = 0.1 s**.

Indications

Front indications
- Green “Ready” LED: flashes slowly when the circuit breaker is ready to trip in the event of an abnormal deviation in engine operating conditions.
- Red alarm LED: goes ON when the thermal image of the motor is greater than 95 % of the permissible temperature rise.

Standards and certifications

IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL 60497-4-1, CSA 22.2 n° 60497-4-1, CCC, EAC, CSA (cCSAus).

Product references

Thermal magnetic motor circuit breakers from 0.25 to 55 kW

Standard power ratings of 3-phase motors - 50 / 60 Hz in category AC-3									Thermal setting range (Ir)	Reference with EverLink terminals	
400/415 V			500 V			690 V				with toggle	with rotary handle
P kW	Icu kA	Ics (1) %	P kW	Icu kA	Ics (1) %	P kW	Icu kA	Ics (1) %	A		
0.25... 0.75	25	100	0.37... 1.1	10	100	0.55... 1.5	-	-	0.8... 2	-	-
	50	100		25	100		8	25		GV4PE02N	GV4P02N
	100	100		30	100		10	25		GV4PE02S	-
0.55... 1.5	25	100	0.75... 1.5	10	100	1.1... 2.2	-	-	1.4... 3.5	-	-
	50	100		25	100		8	25		GV4PE03N	GV4P03N
	100	100		30	100		10	25		GV4PE03S	-
1.5... 3	25	100	2.2... 4	10	100	3... 7.5	-	-	2.9... 7	-	-
	50	100		25	100		8	25		GV4PE07N	GV4P07N
	100	100		30	100		10	25		GV4PE07S	-
3... 5.5	25	100	3... 7.5	10	100	5.5... 11	-	-	5... 12.5	-	-
	50	100		25	100		8	25		GV4PE12N	GV4P12N
	100	100		30	100		10	25		GV4PE12S	-
5.5... 11	25	100	7.5... 15	10	100	7.5... 18.5	-	-	10... 25	GV4PE25B	GV4P25B
	50	100		25	100		8	25		GV4PE25N	GV4P25N
	100	100		30	100		10	25		GV4PE25S	-
11... 22	25	100	15... 30	10	100	18.5... 45	-	-	20... 50	GV4PE50B	GV4P50B
	50	100		25	100		8	25		GV4PE50N	GV4P50N
	100	100		30	100		10	25		GV4PE50S	-
22... 37	25	100	30... 55	10	100	37... 55	-	-	40... 80	GV4PE80B	GV4P80B
	50	100		25	100		8	25		GV4PE80N	GV4P80N
	100	100		30	100		10	25		GV4PE80S	GV4P80S
37... 55	25	100	45... 75	10	100	75... 90	-	-	65... 115	GV4PE115B	GV4P115B
	50	100		25	100		8	25		GV4PE115N	GV4P115N
	100	100		30	100		10	25		GV4PE115S	GV4P115S

Thermal magnetic motor circuit breakers from 3/4 to 75 HP / 480 V

Single-Phase				3-Phase								Rating	Reference with EverLink terminals	
120 V		240 V		208 V		240 V		480 V		600 V			with toggle	with rotary handle
Power HP	FLA A	Power Hp	FLA A	Power Hp	FLA A	Power Hp	FLA A	Power Hp	FLA A	Power Hp	FLA A	A		
-	-	1/10	1.5	-	-	-	-	3/4	1.6	1	1.7	2	-	-
													GV4PE02N	GV4P02N
													GV4PE02S	-
1/10	3	1/4	2.9	1/2	2.4	3/4	3.2	2	3.4	2	2.7	3.5	-	-
													GV4PE03N	GV4P03N
													GV4PE03S	-
1/4	5.8	3/4	6.9	1-1/2	6.6	2	6.8	3	4.8	5	6.1	7	-	-
													GV4PE07N	GV4P07N
													GV4PE07S	-
1/2	9.8	1-1/2	10	3	10.6	3	9.6	7-1/2	11	10	11	12.5	-	-
													GV4PE12N	GV4P12N
													GV4PE12S	-
1-1/2	20	3	17	5	16.7	7-1/2	22	15	21	20	22	25	GV4PE25B	GV4P25B
													GV4PE25N	GV4P25N
													GV4PE25S	-
3	34	7-1/2	40	10	30.8	15	42	30	40	40	41	50	GV4PE50B	GV4P50B
													GV4PE50N	GV4P50N
													GV4PE50S	-
7-1/2	80	15	68	25	74.8	30	80	60	77	75	77	80	GV4PE80B	GV4P80B
													GV4PE80N	GV4P80N
													GV4PE80S	GV4P80S
10	100	20	88	30	88	40	104	75	96	100	99	115	GV4PE115B	GV4P115B
													GV4PE115N	GV4P115N
													GV4PE115S	GV4P115S

Connection by lugs

To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV4PE02N** becomes **GV4PE02N6**.

(1) As % of Icu.

Characteristics: pages B6/112 to B6/115
Curves: pages B6/121 to B6/123
Dimensions, schemes: pages B6/126, B6/127, B6/129

GV4PEM

Basic protection

Settings are made using dials.

Overloads or thermal protection (Ir)
Inverse-time thermal protection against overloads with adjustable pick-up **Ir**.
Wide range setting made in amperes.
The tripping curve for the thermal protection, which indicates the time delay tr before tripping, is defined by the selected trip class.

Trip class (class)
The class is selected as a function of the normal motor starting time.
- Class 10: starting time less than 10 s.
- Class 20: starting time less than 20 s.

For a given class, it is necessary to check that all motor-feeder components are sized to carry the 7.2 **Ir** starting current without excessive temperature rise during the time corresponding to the class.

Short-circuit protection (Ii)
Instantaneous protection with non-adjustable pick-up **Ii = 17 In**.

Advanced protection

Settings are made with an Android smartphone with dedicated application and using wireless NFC (Near Field Communication), or a computer with EcoStruxure Power Commission software and the configuration/maintenance tool kit (“Maintenance case” TRV00910).
The LV434206 pocket battery allows the GV4PEM controller to be powered for adjustments and tests when no internal source is available.

Short time delay protection (Isd)
Short time delay protection (around 100 ms) to let through motor starting currents, but to protect cables and motor starter devices and allow not to oversize them (particularly usefull for wide range settings circuit breakers).
Adjustable pick-up **Isd = 5...13 Ir** (13 by default).

Phase unbalance or phase loss (Iunbal, tunbal)
This function opens the circuit breaker if a phase unbalance occurs:
- that is greater than the 10…40 % of Irms (30% by default): **Iunbal**
- following a time delay (**tunbal**) equal to:
  - 0.7 s during starting (non adjustable)
  - 1…10 s during normal operation (4 s by default).

Phase loss is an extreme case of phase unbalance and leads to tripping under the same conditions.

Ground-fault protection (Ig, tg)
Residual type ground-fault protection, with OFF position:
- adjustable pick-up **Ig**:
  - 0.7…1 In for products with nominal current from 2 to 50 A
  - 0.4…1 In for products with nominal current from 80 to 115 A
- adjustable time delay **tg** 0.1...0.4 s.

Jam (Ijam, tjam)
This function detects locking of the motor shaft caused by the load, with OFF position (OFF by default). During motor starting the function is disabled.
During normal operation, it causes tripping:
- above the **Ijam** pick-up that can be fine-adjusted from 1.5 to 8 Ir
- in conjunction with the **tjam** time delay that can be adjusted from 1 to 30 s.

Long start (Ilong, tlong)
This protection supplements thermal protection (class). It is used to optimize the protection according to the starting parameters, with OFF position (OFF by default).
It detects abnormal motor starting i.e. when the starting current remains too high or too low with respect to a pick-up value and a time delay.
It causes tripping:
- in relation with a **Ilong** pick-up that can be fine-adjusted from 1.5 to 8 Ir
- in conjunction with the **tlong** time delay that can be adjusted from 1 to 200 s.

Indications

Front indications
- Green "Ready" LED: flashes slowly when the circuit breaker is ready to trip in the event of an abnormal deviation in engine operating conditions.
- Red alarm LED: goes ON when the thermal image of the motor is greater than 95 % of the permissible temperature rise.

Remote indications via SDx module
See description on page B6/44.

Standards and certifications
IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-4-1, UL 60497-4-1, CSA 22.2 n° 60497-4-1, CCC, EAC, CSA (cCSAus).

Product references

Thermal magnetic motor circuit breakers from 0.25 to 55 kW

Standard power ratings of 3-phase motors - 50 / 60 Hz in category AC-3									Thermal setting range (Ir)	"Reference with EverLink terminals"
400/415 V			500 V			690 V				
P	Icu	Ics (1)	P	Icu	Ics (1)	P	Icu	Ics (1)		with toggle
kW	kA	%	kW	kA	%	kW	kA	%	A	
0.25... 0.75	25	100	0.37... 1.1	10	100	0.55... 1.5	-	-	0.8... 2	-
	50	100		25	100		8	25		GV4PEM02N
	100	100		30	100		10	25		GV4PEM02S
0.55... 1.5	25	100	0.75... 1.5	10	100	1.1... 2.2	-	-	1.4... 3.5	-
	50	100		25	100		8	25		GV4PEM03N
	100	100		30	100		10	25		GV4PEM03S
1.5... 3	25	100	2.2... 4	10	100	3... 7.5	-	-	2.9... 7	-
	50	100		25	100		8	25		GV4PEM07N
	100	100		30	100		10	25		GV4PEM07S
3... 5.5	25	100	3... 7.5	10	100	5.5... 11	-	-	5... 12.5	-
	50	100		25	100		8	25		GV4PEM12N
	100	100		30	100		10	25		GV4PEM12S
5.5... 11	25	100	7.5... 15	10	100	7.5... 18.5	-	-	10... 25	GV4PEM25B
	50	100		25	100		8	25		GV4PEM25N
	100	100		30	100		10	25		GV4PEM25S
11... 22	25	100	15... 30	10	100	18.5... 45	-	-	20... 50	GV4PEM50B
	50	100		25	100		8	25		GV4PEM50N
	100	100		30	100		10	25		GV4PEM50S
22... 37	25	100	30... 55	10	100	37... 55	-	-	40... 80	GV4PEM80B
	50	100		25	100		8	25		GV4PEM80N
	100	100		30	100		10	25		GV4PEM80S
37... 55	25	100	45... 75	10	100	75... 90	-	-	65... 115	GV4PEM115B
	50	100		25	100		8	25		GV4PEM115N
	100	100		30	100		10	25		GV4PEM115S

Connection by lugs

To order circuit breakers with connection by lugs, add the digit **6** to the end of reference selected above. Example: **GV4PE02N** becomes **GV4PE02N6**.

(1) As % of Icu.

Characteristics: pages B6/112 to B6/115
Curves: pages B6/121 to B6/123
Dimensions, schemes: pages B6/126, B6/127, B6/129

Introduction

PB120622.eps

GV4PB

GV4PB is based on GV4PEM with specific tripping curve to follow UL489 SH supplement. It is designed with a large space connector in order to increase creepage and clearance distance.

Basic protection

Settings are made using dials.

Overloads or thermal protection (Ir)
Inverse-time thermal protection against overloads with adjustable pick-up Ir. Wide range setting made in amperes.
The tripping curve for the thermal protection, which indicates the time delay tr before tripping, is defined by the selected trip class.

Trip class (class)
The class is selected as a function of the normal motor starting time. It corresponds to the value of the tripping time delay for a current of 600 % of the rated tripping current according to UL489, SH supplement.
The rated tripping current is selected as 125 % of the dial value.
- Class 10: starting time less than 10 s.
- Class 20: starting time less than 20 s.

For a given class, it is necessary to check that all motor-feeder components are sized to withstand the 7.5 Ir starting current without excessive temperature rise during the time corresponding to the class.

Short-circuit protection (Ii)
Instantaneous protection with non-adjustable pick-up **Ii=17 In**.

Advanced protection (same as GV4PEM)

Settings are made with:
- Android smartphone using wireless NFC (Near Field Communication), or EcoStruxure Power Device App. computer + EcoStruxure Power Commission software and configuration/maintenance tool kit TRV00910
- LV434206 pocket battery, allows the GV4PB controller to be powered for adjustment and test. LV434206 pocket battery needs to be connected to the GV4PB controller to set the advanced protection.

Short time delay protection (Isd)
Short time delay protection (around 100 ms) to let through motor starting currents, but to protect cables and motor starter devices and allow not to oversize them (particularly usefull for wide range settings circuit breakers).
Adjustable pick-up **Isd = 5...13 Ir** (13 by default).

Phase unbalance or phase loss (Iunbal, tunbal)
This function opens the circuit breaker if a phase unbalance occurs:
- that is greater than the 10…40 % of Irms (30 % by default): **Iunbal**
- following a time delay **(tunbal)** equal to:
  - 0.7 s during starting (non adjustable)
  - 1…10 s during normal operation (4 s by default).

Phase loss is an extreme case of phase unbalance and leads to tripping under the same conditions.

Ground-fault protection (Ig, tg)
Residual type ground-fault protection, with OFF position:
- adjustable pick-up **Ig**:
  - 0.7…1 In for products with nominal current from 2 to 50 A
  - 0.4…1 In for products with nominal current from 80 to 115 A
- adjustable time delay **tg** 0.1...0.4 s.

Jam (Ijam, tjam)
This function detects locking of the motor shaft caused by the load, with OFF position (OFF by default). During motor starting the function is disabled.
During normal operation, it causes tripping:
- above the **Ijam** pick-up that can be fine-adjusted from 1.5 to 8 Ir
- in conjunction with the **tjam** time delay that can be adjusted from 1 to 30 s.

Long start (Ilong, tlong)
This protection supplements thermal protection (class). It is used to optimize the protection according to the starting parameters, with OFF position (OFF by default).
It detects abnormal motor starting i.e. when the starting current remains too high or too low with respect to a pick-up value and a time delay.
It causes tripping:
- in relation with a **Ilong** pick-up that can be fine-adjusted from 1.5 to 8 Ir
- in conjunction with the **tlong** time delay that can be adjusted from 1 to 200 s.

Indications

Front indications
- Green "Ready" LED: flashes slowly when the circuit breaker is ready to trip in the event of an abnormal deviation in engine operating conditions.
- Red alarm LED: goes ON when the thermal image of the motor is greater than 95 % of the permissible temperature rise

Remote indications via SDx module
See description on page B6/44.

Conforming to standards:
IEC/EN 60947-2, IEC/EN 60947-4-1

Product certifications:
UL 489, CSA C22.2 n°5.

Product references - UL applications

GV4PB - selection according to Short Circuit Current Rating (SCCR)

240 V AC SCCR kA	480Y/277 V AC SCCR kA	600Y/347 V AC SCCR kA	Reference
35	18	14	**GV4PB●●●B** (1)
65	35	18	**GV4PB●●●N**
100	65	25	**GV4PB●●●S**

*(1) Example: **GV4PB07S**, **GV4PB115S**.*

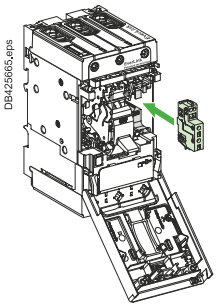
GV4PB thermal magnetic motor circuit breakers - selection according to FLA

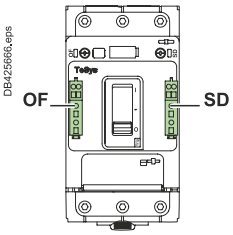
3P 200 V FLA A	3P 230 V FLA A	3P 460 V FLA A	Rated %	Dial range A	Reference		
-	-	1.6	100	0.8 to 2		**GV4PB02N**	**GV4PB02S**
2.5	2.2	3	100	1.4 to 3.5		**GV4PB03N**	**GV4PB03S**
4.8	4.2	4.8	100	2.9 to 7		**GV4PB07N**	**GV4PB07S**
7.8	9.6	7.6	100	5 to 12.5		**GV4PB12N**	**GV4PB12S**
17.5	22	21	100	10 to 25	**GV4PB25B**	**GV4PB25N**	**GV4PB25S**
48	42	40	100	20 to 50	**GV4PB50B**	**GV4PB50N**	**GV4PB50S**
62	54	52	80	40 to 80	**GV4PB80B**	**GV4PB80N**	**GV4PB80S**
92	80	77	80	65 to 115	**GV4PB115B**	**GV4PB115N**	**GV4PB115S**

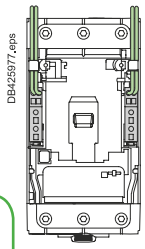
Connection by lugs

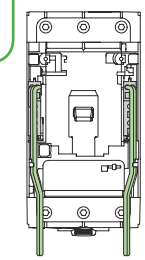
Please order GV4LUG accessory and LV426920 interphase barriers or L1D96590 terminal shield.

GV4AE11 auxiliary contact block

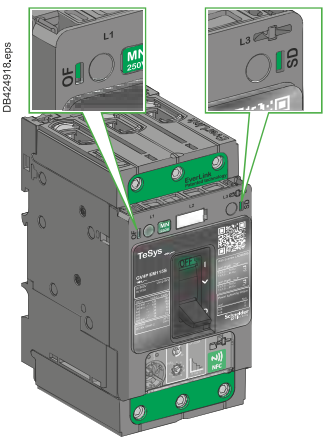








Pluggable auxiliary contact - OF or SD is dependent on cavity. Multiple internal wiring possibilities, even with long terminal shields



Visible presence of auxiliary contact block in OF or SD cavity

Auxiliary contact blocks

Auxiliary contacts give an indication of the circuit breaker status.
They can be used for remote visual signaling, alarming, electrical locking, relay activation, etc...
An auxiliary contact block provides one changeover contact with common point for OF or SD function, depending on the breaker cavity where it is inserted.

Auxiliary contact - Open/Close OF function

Indicates Open/Closed position of the circuit breaker contacts.

Auxiliary contact - Trip alarm SD function

- ■ Indicates that the circuit breaker has tripped due to:
- □ Electrical fault (overload, short circuit, ...)
- □ shunt trip
- □ undervoltage release
- □ "push-to-trip" button.
- ■ Resets when circuit breaker is reset.

Electrical characteristic

Characteristics						
Rated thermal current (A)		5				
Minimum load		2 mA at 17 V DC				
Utilization cat. (IEC 60947-5-1)		**AC12**	**AC15**	**DC12**	**DC13**	**DC14**
Operational current (A)	24 V AC/DC	5	5	5	2.5	1
	48 V AC/DC	5	5	2.5	1.2	0.2
	110...127 V AC / 110 V DC	5	4	0.6	0.35	0.05
	220/240 V AC	5	3	-	-	-
	250 V DC	-	-	0.3	0.05	0.03
	380/440 V AC	5	2.5	-	-	-
	660/690 V AC	5	0.11	-	-	-

Pilot duty B600 according UL508 and CSA 22.2 n°14.

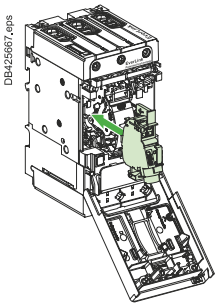
Installation and connection

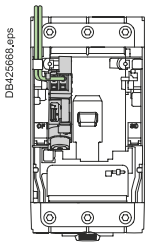
- ■ Auxiliary contact blocks snap into left (for OF function) and right (for SD function) cavities behind the front accessory cover of the circuit breaker and their presence is visible on the front face through green flags.
- ■ One model serves for all indication functions depending on where it is fitted in the circuit breaker.
- ■ Each NO and NC spring terminal may be connected by one 0.5...1.5 mm² flexible copper wire and by two for the common point.
- ■ Wires can be exited out of any of the four corners of the breaker under the accessory cover.

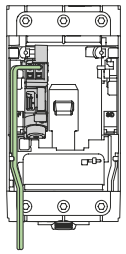
Description	Maximum number	Mounting	Type of contacts	Sold in lots of	Reference
Auxiliary contact block for OF or SD indication	2 (1 OF + 1 SD)	Internal plug-in	NO + NC	1	**GV4AE11**

Characteristics: page B6/125
Schemes: page B6/129

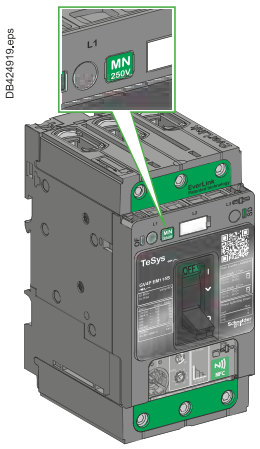
GV4AS137 shunt trip







MN or MX plugged into cavity. Multiple internal wiring possibilities, even with long terminal shields



Visible presence of MN undervoltage release in circuit breaker cavity, visible rated voltage through the window.

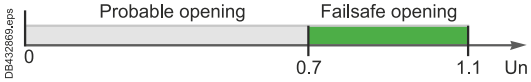
MX shunt trip, MN undervoltage release

MX and MN trip the circuit breaker on a control signal. They are mainly used for remote and emergency-off commands.

It is advised to test the system every six months.

MX shunt trip

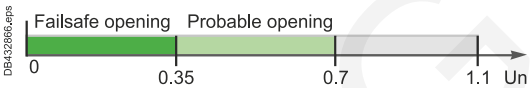
- Trips the circuit breaker when the control voltage rises above 70 % of its rated voltage (Un).
- Impulse type ≥ 20 ms or maintained control signals.
- Shunt trip 110...130 V AC is suitable for ground-fault protection when combined with a Class I ground-fault sensing element.
- Continuous duty rated coil (1).



Opening conditions of the MX release.

MN undervoltage release

- Trips the circuit breaker when the control voltage drops below 35 % of its rated voltage.
- Between 35 % and 70 % of the rated voltage opening is only probable.
- Above 70 % of the rated voltage, opening does not take place.
- Continuous duty rated coil.
- Circuit breaker closing is possible only if the voltage exceeds 85 % of the rated voltage. If an undervoltage condition exists, operation of the closing mechanism of the circuit breaker will not permit the main contacts to touch, even momentarily. This is commonly called "Kiss Free".



Opening conditions of the MN release.

Closing conditions of the MN release.

Installation, connection

Accessories snap into cavities under the circuit breaker front accessory cover. Spring-type terminals in order to insure a fast and reliable connection to 0.5...1.5 mm² flexible copper wire (one per terminal).

Operation

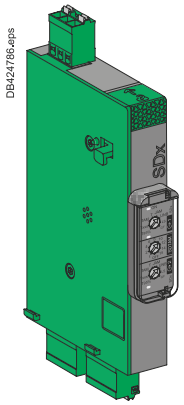
Circuit breaker must be locally reset after trip by shunt trip (MX) or undervoltage release (MN).Tripping by MX or MN has priority over manual closing; in the presence of a standing trip order such an action does not result in main contacts closing, even temporarily.

Description	Maximum number	Mounting	Voltage	Reference
MX Shunt trip	1	Internal, plug-in	24 V∿ 50/60 Hz, 24 V⎓	**GV4AS027**
			48 V∿ 50/60 Hz, 48 V⎓	**GV4AS057**
			110-130 V∿ 50/60 Hz 125 V⎓	**GV4AS137**
			220-240 V∿ 50 Hz, 208-240 V∿ 60 Hz, 277 V 60 Hz	**GV4AS287**
			380-415 V∿ 50 Hz, 440-480 V∿ 60 Hz	**GV4AS487**
MN undervoltage release	1	Internal, plug-in	24 V∿ 50/60 Hz, 24 V⎓	**GV4AU027**
			48 V∿ 50/60 Hz, 48 V⎓	**GV4AU057**
			110-130 V∿ 50/60 Hz 125 V⎓	**GV4AU137**
			220-240 V∿ 50 Hz, 208-240 V∿ 60 Hz	**GV4AU247**
			277 V∿ 60 hZ	**GV4AU286**
			380-415 V∿ 50 Hz	**GV4AU415**
			440-480 V∿ 60 Hz	**GV4AU486**

(1) Except for MX 24 V AC/DC (in case of continuous activation, may generate some minor perturbation in sensitive environment).

Characteristics:
page B6/124

Schemes:
page B6/129



GV4ADM1111 SDx contact module

SDx contact module for GV4PEM, GV4PB (Multifunction)

The SDx provides alarming and functional fault differentiation for GV4PEM, GV4PB (Multifunction) circuit breaker. This module has 2 NO/NC outputs dry contacts which can be assigned with one of the 8 following SD status:

- SD**T95%** overload alarm: thermal image of the motor is greater than 95 % of the permissible temperature rise.
- SD**Txxs** overload alarm: circuit breaker will trip in xx seconds with the same load. xx is adjustable between 10 to 40 seconds (default 20 seconds) on the circuit breaker itself through NFC or a computer with EcoStruxure Power Commission software and an interface module (TRV00911).
- SD**TAM** overload alarm just before tripping: in the event of a phase unbalance, overload, or on a jam fault, this output is activated to open the contactor and avoid circuit breaker tripping. In that case, contact can be manually or automatically reseted after an adjustable cooling time from 1 to 15 minutes. If after a 400 ms delay the motor is not stopped, the circuit breaker will trip.
- SD**T** overload trip indication: circuit breaker has tripped due to an overload fault
- SD**JAM** jam trip indication: circuit breaker has tripped due to a jam fault
- SD**UNB** phase unbalance trip indication: circuit breaker has tripped due to an unbalance fault
- SD**LS** long start trip indication: circuit breaker has tripped due to a long start fault
- SD**GF** ground-fault trip indication: circuit breaker has tripped due to a ground-fault.

Outputs are automatically resetted either when alarm disappears or when the circuit breaker is restarted.

Output characteristics

- 2 NO/NC dry contacts
- 24...250 V AC/DC
- Minimum load: 2 mA under 24 V DC
- Max load: 5 A
- AC15 (230 V max - 400 VA)
- DC13 (24 V - 50 W)

Power characteristics

- 24...240 V AC/DC

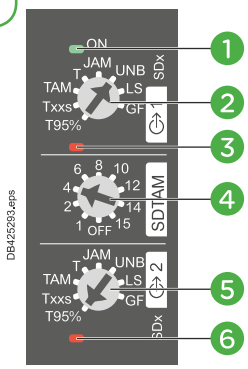
Contact rating (per UL/CSA B300 & R300)

Standard	Rated Voltage Ue	Operational Current Ie	Make	Break	Ithe
		A	VA	VA	A
B300	120 V AC	3	3600	360	5
	240 V AC	1.5			
R300	125 V DC	0.22	28	28	1
	250 V DC	0.1			

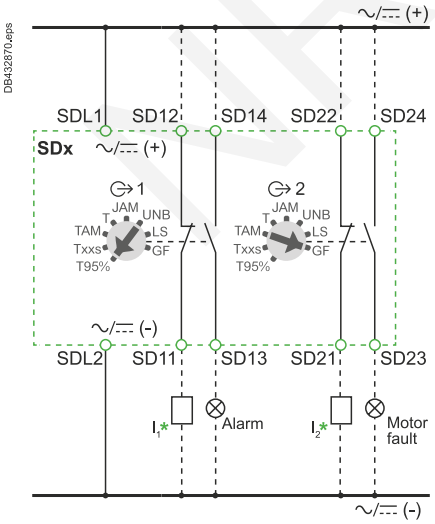
The rated operational current Ie (A), the rated operational voltage Ue (V) and the break apparent power B (V.A) are correlated by the formula B = Ue · Ie; with Ie ≤ Ith.

Installation, connection, settings and indication

The SDx module is clipped on the right side of the circuit breaker. Each removable spring terminal can be connected by one 0.5... 1.5 mm² copper wire. Settings and indications are available on the front face.

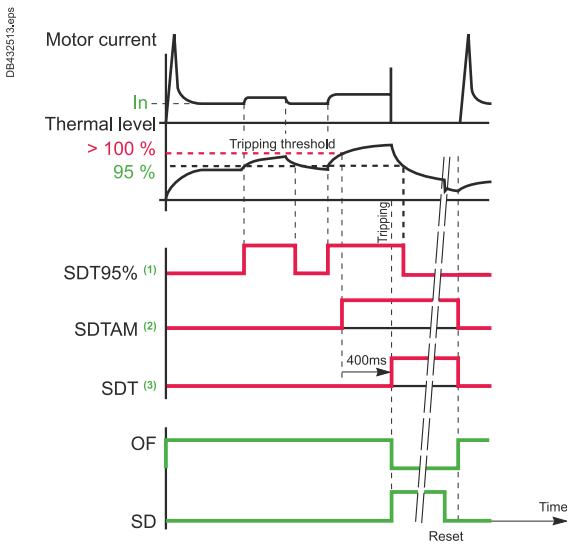


1. Green led lighted when the module is powered.
2. Output 1: SD status assignment.
3. Red led lighted when output 1 is activated.
4. Cooling time setting before automatic restart (OFF – 1…15 min).
5. Output 2: SD status assignment.
6. Red led lighted when output 2 is activated.



* I1, I2: PLC digital inputs - used as alarm inputs, as an example.

SDx wiring diagram



(1) SDT95% (= 95% overload)

(2) SDTAM (overload tripping pre alarm) here not connected to any contactor coil

(3) SDT (= tripping on thermal fault)

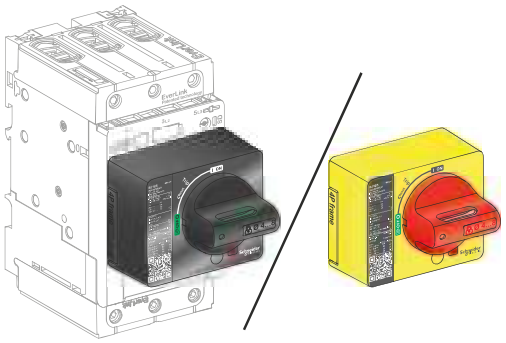
Description	Mounting	Maximum number	Type of contacts	Unit reference
SDx: alarming / fault differentiation module	Side	2	N/O / N/C	**GV4ADM1111**

Dimensions:
pages B6/128 and B6/129

Schemes:
page B6/129

Product references

DB424920.eps

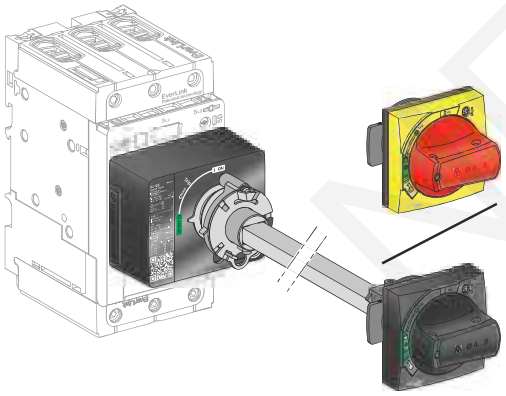


Direct mounting rotary handle

PB121325.eps

GV4ADN02 direct mounting rotary handle

DB424921.eps



Front extended rotary handle (door-mounting)

PB121326.eps

GV4APN01 front extended rotary handle kit

PB106297.eps

GVAPL01 laser tool

Direct mounting rotary handles

Installation

The direct mounting rotary handle has to be mounted by 3 screws on the front accessory cover.

Operation

The direct mounting rotary handle maintains:
- suitability for isolation
- indication of the three positions OFF (**O**), ON (**I**) and tripped (**Trip**)
- access to the "push-to-trip" button
- visibility and access to the trip unit.

Device padlocking

The circuit breaker may be locked in the OFF position by using one to three padlocks (not supplied) or in ON position after customer modification of the rotary handle before installation, padlock shackle Ø4-8 mm. Locking in the ON position does not prevent the circuit breaker from tripping if a circuit or motor malfunction occurs. In this case, the handle remains in the ON position after the circuit breaker trips. Unlocking is required for the handle to go to the tripped then the OFF position.

Variations: door locking

Door locking built-in functionality can be activated by the customer to prevent opening the door when the circuit breaker is ON or in trip position. For exceptional situations, door locking can be temporarily disabled with a tool by qualified personel to open the door when the circuit breaker is closed.

Description	Type	Degree of protection	Reference
Direct mounting rotary handle	Black handle	IP40	**GV4ADN01**
	Red handle on yellow bezel (VDE standard, for machine control)	IP40	**GV4ADN02**

Front extended rotary handles

Installation

The door-mounted (extended) rotary handle is made up of:
- a unit that has to be screwed on the front accessory cover of the circuit breaker
- an assembly (handle mechanism and front plate) on the door that is always secured in the same position, whether the circuit breaker is installed vertically or horizontally
- an adjustable extension shaft.

The handle mechanism is fixed with a nut (Ø22 mm) to make assembly easier. The Laser Square tool (GVAPL01) can be used to accurately align the hole on the door with the circuit breaker.

Operation when door is closed

The door mounted handle makes it possible to operate a circuit breaker installed in an enclosure from the front. The door mounted operating handle maintains:
- suitability for isolation
- indication of the three positions OFF (**O**), ON (**I**) and tripped (**Trip**)
- visibility and access to trip unit when the door is open
- degree of protection of the handle on the door: IP54 or IP65 as per IEC 60529.

Mechanical door locking when device closed

A standard feature of the extended rotary handle is a locking function, built into the shaft, that disables door opening when the circuit breaker is in the ON or tripped positions.

Door locking can be temporarily disabled with a tool by qualified personnel to open the door without opening the circuit breaker. This operation is not possible if the handle is locked by a padlock.

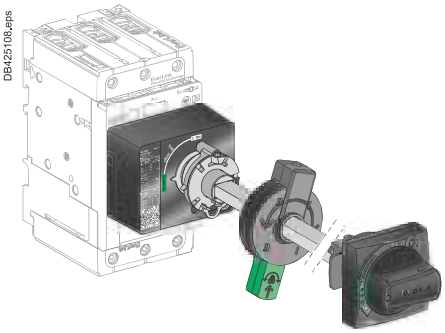
Device and door padlocking

Padlocking locks the circuit breaker handle and disables door opening:
- standard situation, in the OFF position, using 1 to 3 padlocks, shackle Ø4-8 mm, padlocks are not supplied
- for the black handle, with a voluntary modification of the door handle (to be done by the customer during installation), in the ON and OFF positions. Locking in the ON position does not prevent the circuit breaker from tripping if a circuit or motor malfunction occurs. In this case, the handle remains in the ON position after the circuit breaker trips. Unlocking is required for the handle to go to the tripped then the OFF position.

Shaft length

The shaft length is the distance between the back of the circuit breaker and the door:
- minimum shaft length is 214 mm
- maximum shaft length is 627 mm
- shaft length must be adjusted.

Dimensions:
pages B6/126 to B6/128

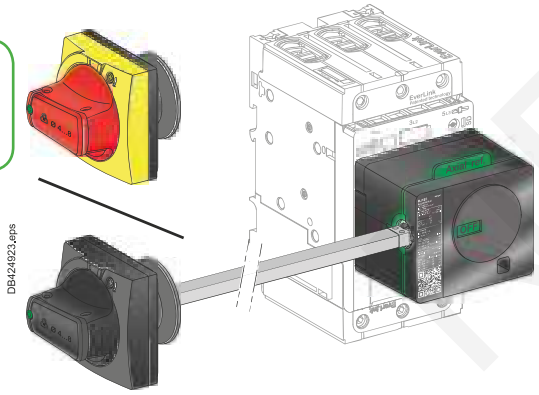


Open door shaft operator mounted on front extended rotary handle assembly

GV4APN01
Front extended rotary handle kit

LV426937
Open door shaft operator

GVAPL01 - Laser tool



Side extended rotary handle (cover mounting)

LV426936 - Side rotary handle kit

LV426998, LV426997 - Universal handles

Front extended rotary handles (cont.)

Operation when door is opened

An open door shaft operator can be used to operate the circuit breaker when door is opened. This accessory complies with UL508 A.
The indication of the three positions OFF (**O**), ON (**I**) and tripped (**Trip**) is visible on the circuit breaker.
The circuit breaker itself may be locked in OFF position when the door is opened by 1 padlock / lockout hasp, shackle Ø4-8 mm.

Description	Type	Degree of protection	Reference
Front extended rotary handle kit	Black handle	IP54	**GV4APN01**
	Red handle on yellow bezel	IP54	**GV4APN02**
		IP65	**GV4APN04**
Open door shaft operator			**LV426937**
Laser tool			**GVAPL01**
Spare part: GV4 universal handle (for replacement of front. ext. or side rotary handle)	Black handle	IP54	**LV426997**
	Red handle on yellow bezel	IP54	**LV426998**
		IP65	**LV426999**

Side rotary handles (left or right)

Installation

The side-mounted rotary handle is made up of:
- a unit that has to be screwed on the front accessory cover of the circuit breaker
- an assembly (handle and front plate) on the side (left or right) of the enclosure
- an adjustable extension shaft

The handle mechanism is fixed with a nut (Ø22 mm) to make assembly easier.

Operation

The side mounted rotary handle makes it possible to operate circuit breakers installed in enclosure from the side. The side mounted rotary handle maintains:
- suitability for isolation
- indication of the three positions OFF (**O**), ON (**I**) and tripped (**Trip**). Moreover, the position is visible on the circuit breaker itself
- visibility and access to trip unit when the door is open
- degree of protection of the handle on the side: IP54 or IP65 as per IEC 529.

Device padlocking

The circuit breaker may be locked in the OFF position, or, for the black rotary handle only, in ON position after voluntary modification of the side handle (to be done by the customer during installation), by using one to three padlocks, padlock shackle Ø4-8 mm ; padlocks are not supplied.
Locking in the ON position does not prevent free circuit breaker from tripping if a circuit or motor malfunction occurs. In this case, the handle remains in the ON position after the circuit breaker tripping. Unlocking is required to go to the tripped then the OFF position.

Shaft length

The shaft length is the distance between the side of the circuit breaker and the side of the enclosure:
- minimum shaft length is 45 mm
- maximum shaft length is 480 mm
- shaft length must be adjusted.

Description	Type	Degree of protection	Reference
Side rotary handle kit	Black handle	IP54	**LV426935**
	Red handle on yellow bezel (VDE standard, for machine control)	IP54 (1)	**LV426936**
Spare part: GV4 universal handle (for replacement of front. ext. or side rotary handle)	Black handle	IP54	**LV426997**
	Red handle on yellow bezel	IP54	**LV426998**
		IP65	**LV426999**

*(1) IP65 possible with **LV426935** kit (Black handle not used) + **LV426999** Red handle on yellow bezel universal handle.*

Dimensions:
page B6/128

Handle padlocking devices

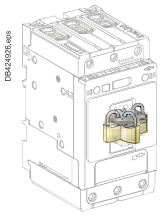
Padlocking systems can receive up to three padlocks with diameters of 5-8 mm (4-8 mm for rotary handles); padlocks not supplied. Locking in the OFF position guarantees isolation as per IEC 60947-2.

Direct rotary handle padlocking
By padlock – No accessory required.
- Lock in OFF position.
- Lock in ON position with simple mechanism modification.

Front Extended /Side rotary handle padlocking
By padlock – No accessory required.
- Lock in OFF position.
- Lock in ON position with simple mechanism modification (black handle only).

Door opening prevented.

Toggle handle padlocking
By padlock – removable toggle locking device required **29370**.
- Lock in OFF position.

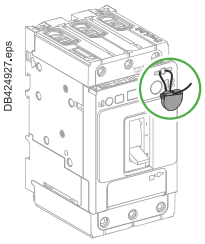
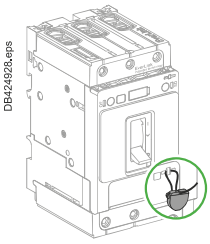
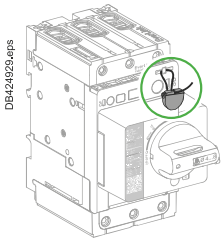
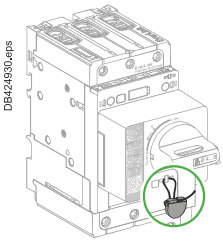


3 padlocks mounted on 29370 toggle locking device

29370 removable toggle locking device

Description	Reference
Removable toggle locking device for 1 to 3 padlocks	**29370**

Sealing devices

Control type	■ Front removal. ■ Access to auxiliaries.	■ Access to settings and test connector.
Toggle		
Rotary handle		

Description	Reference
Bag of 6 leads + 6 sealing accessories	**LV429375**

LV429375 leads + sealing accessories

Product references

LAD96595
EverLink connector

GV4LUG
crimped lug connector

LAD96590
transparent terminal shield

LV426920
interphase barriers

LV426940
spreader 3-pole

LV426990
9 N.m green throwaway bits

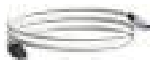
LV426992
5 N.m yellow throwaway bits

LV434206
pocket battery

TRV00910
maintenance case

TRV00911
Spare USB maintenance interface

TRV00915
spare power supply 110-240 V AC



TRV00917
spare GV4PEM cord for USB maintenance interface

EverLink power connection

Description	Reference
EverLink connector	**LAD96595**

Crimp lug/busbar connection

Description		Sold in lots of	Reference
Crimped lug connector + screws		1	**GV4LUG**
Transparent terminal shield for crimped lug connector		1	**LAD96590**
Interphase barriers		6	**LV426920**
Spreader 3-pole	To increase the pitch to 35 mm	1	**LV426940**

Limited torque throwaway bits

Description	Sold in lots of	Reference
Green - 9 N.m	6	**LV426990**
Yellow - 5 N.m	6	**LV426992**

Note: *torque limiting breakaway bits may be used, particularly in the field, to tighten at the right torque EverLink™ or compression lug power connections.*

Test tool, software, demo for GV4PEM

Test tool

Pocket battery Allows the GV4PEM or GV4PB controller to be powered for adjustments and tests when no internal source is available.	**LV434206**
Maintenance case Comprising: ■ USB maintenance interface ■ Power supply ■ GV4PEM cord ■ USB cord ■ RJ45/RJ45 male cord	**TRV00910**
Spare USB maintenance interface	**TRV00911**
USB interface spare power supply, 110-240 V AC, with 4 different socket adapters	**TRV00915**
Spare cord for connecting GV4PEM to USB maintenance interface	**TRV00917**

Software

Configuration and setting software EcoStruxure Power Commission	**Free download**

TeSys GV5/GV6

55 to 250 kW

PB120638.eps

GV5P220F

Thermal-magnetic circuit breakers GV5P with screw clamp terminals up to 110 kW (1)

Control by direct rotary handle

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Thermal setting range (Ir)	Reference	Weight
400/415 V			500 V			660/690 V					
P	Icu	Ics (2)	P	Icu	Ics (2)	P	Icu	Ics (2)			
kW	kA	%	kW	kA	%	kW	kA	%	A		kg
55...75	36	100	**75...90**	30	100	**90... 110**	8	100	70…150	**GV5P150F**	2.4
	70	100		50	100		10	100		**GV5P150H**	
90...110	36	100	**110**	30	100	**110...132**	8	100	100…220	**GV5P220F**	2.6
	70	100		50	100		10	100		**GV5P220H**	

(1) Breakers have to be used with suitable rating of contactors, as defined in section A6.
(2) As % of Icu.

PB120633.eps

GV6P320F

Thermal-magnetic circuit breakers GV6P with screw clamp terminals up to 250 kW (1)

Control by direct rotary handle

Standard power ratings of 3-phase motors 50/60 Hz in category AC-3									Thermal setting range (Ir)	Reference	Weight
400/415 V			500 V			660/690 V					
P	Icu	Ics (2)	P	Icu	Ics (2)	P	Icu	Ics (2)			
kW	kA	%	kW	kA	%	kW	kA	%	A		kg
132...160	36	100	**160...200**	25	100	**200...250**	10	100	160…320	**GV6P320F**	6.5
	70	100		50	100		10	100		**GV6P320H**	
200...250	36	100	**250...315**	25	100	**315...400**	10	100	250…500	**GV6P500F**	6.7
	70	100		50	100		10	100		**GV6P500H**	

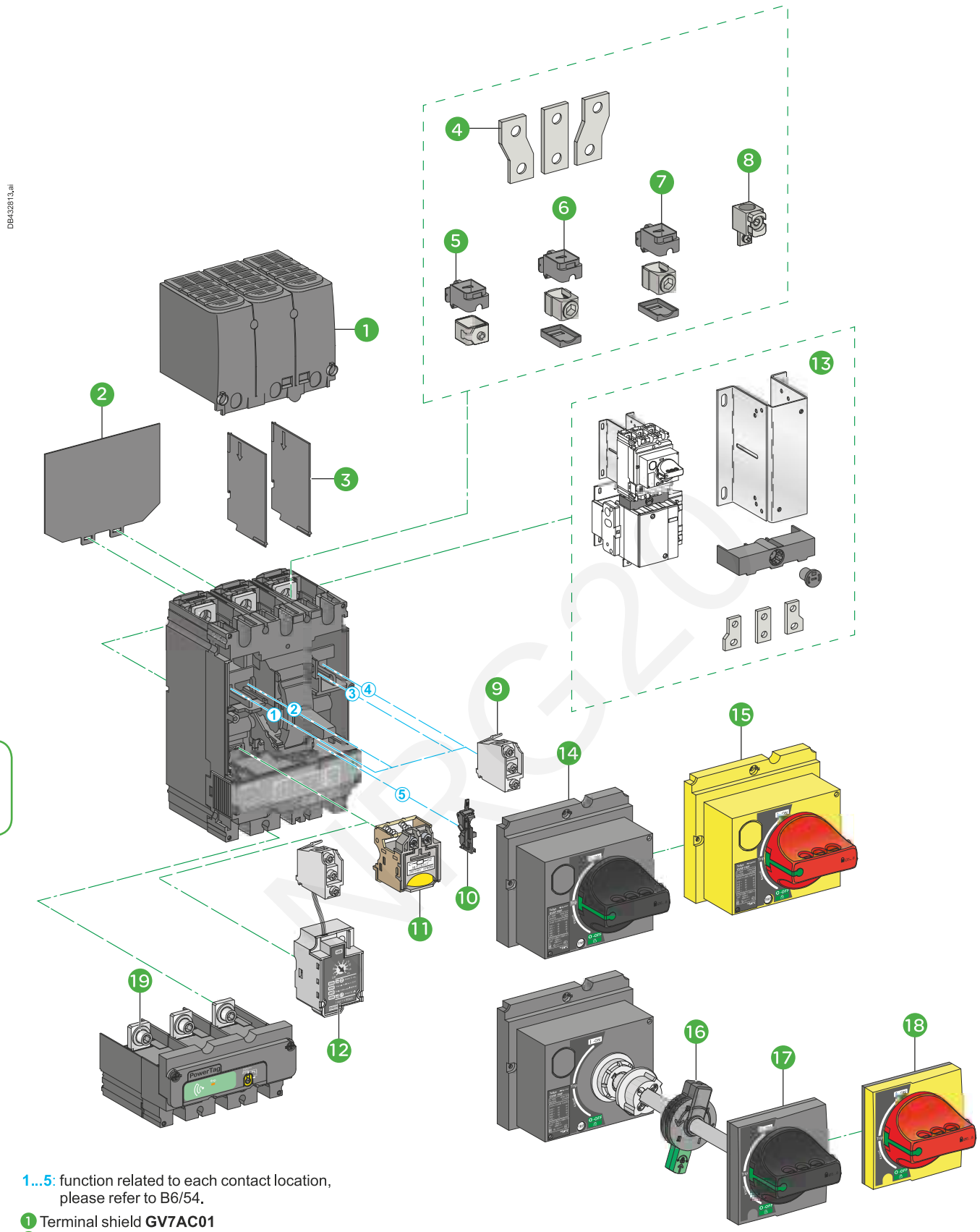
(1) Breakers have to be used with suitable rating of contactors, as defined in section A6.
(2) As % of Icu.

Thermal-magnetic circuit breakers GV5P/GV6P with screw clamp terminals (1)

Control by direct rotary handle

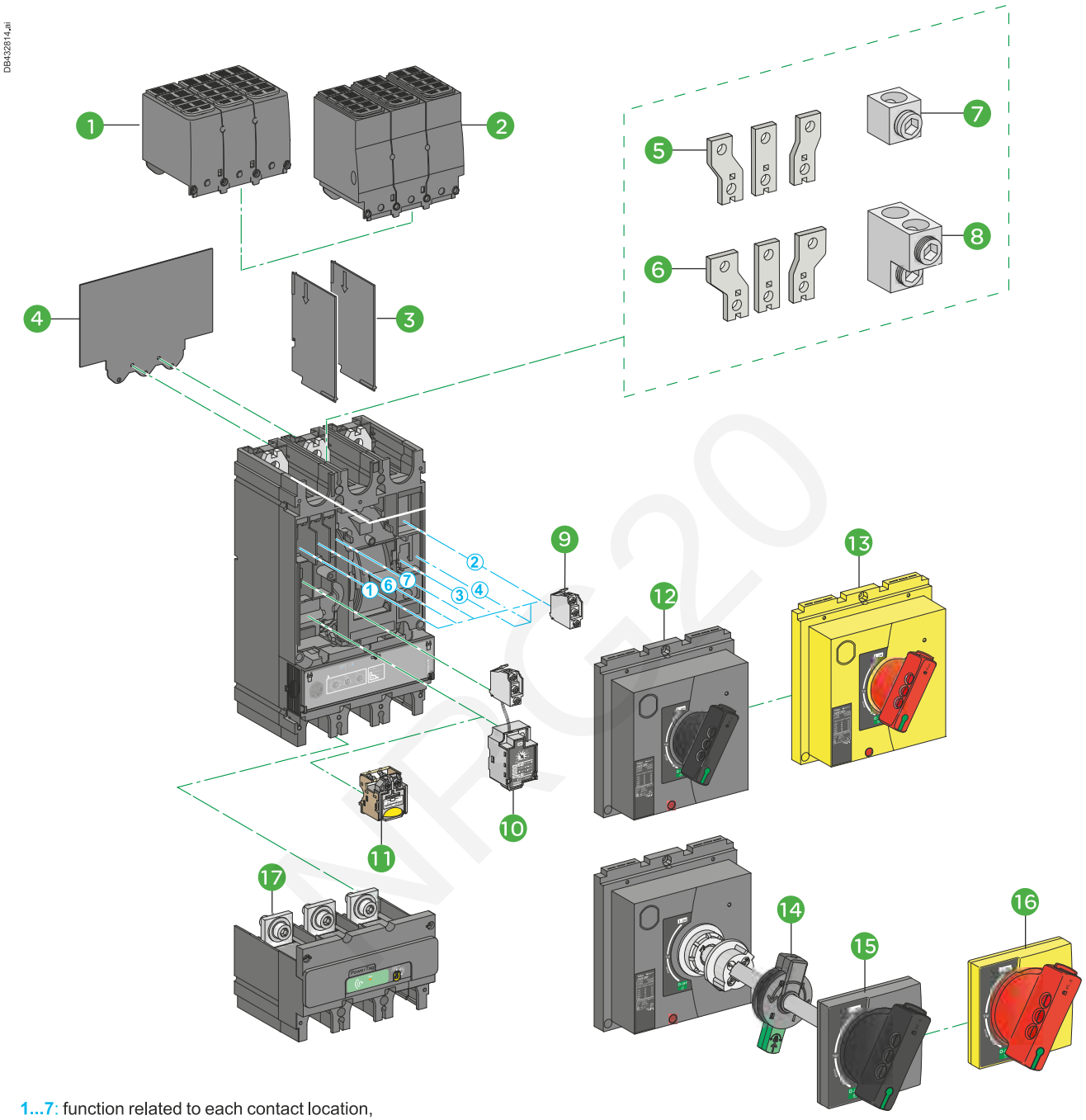
Thermal setting	3-Phase			Standard breaking capacity	High breaking capacity
	230 V	460 V	575 V		
A	HP	HP	HP	Reference	Reference
90…150	50	100	150	**GV5P150F**	**GV5P150H**
133…220	75	150	200	**GV5P220F**	**GV5P220H**
160…320	125	250	300	**GV6P320F**	**GV6P320H**
250…500	150	350	500	**GV6P500F**	**GV6P500H**

(1) Breakers have to be used with suitable rating of contactors, as defined in section A6.



1...5: function related to each contact location, please refer to B6/54.

1. Terminal shield **GV7AC01**
2. Insulating screen **GV7AC05**
3. Interphase barriers **GV7AC04**
4. Spreaders 45 mm **GV7AC03**
5. Steel connector **GV7AC021** (1.5-95 mm²)
6. Aluminum connector **LV429227** (25-95 mm²)
7. Aluminum connector **GV7AC022** (120-185 mm²)
8. Aluminum connector **LV429244** (120-240 mm²)
9. OF, SD, or SDE indication contacts **GV7AE11** (standard) / **GV7AB11** (for low level)
10. SDE adapter **LV429451**
11. AU (UVR) or AS (SHT) voltage release **GV7AU●●●/ GV7AS●●●**
12. SDTAM thermal fault module **LV429424**
13. Combination kit for contactor **GV7AC06/GV7AC07/GV7AC08**
14. Direct rotary handle black **GV5AP03** (shipped with the device)
15. Direct rotary handle red on yellow bezel **GV7AP04**
16. Open door shaft operator **LV426937**
17. Extended rotary handle black **GV7AP01**
18. Extended rotary handle red on yellow bezel **GV7AP02**
19. PowerTag M250 wireless energy sensor **LV434020**



1...7: function related to each contact location, please refer to B6/54.

1. Terminal shield 45 mm **LV432593**
2. Terminal shield 52.5 mm **LV432595**
3. Interphase barriers **LV432570**
4. Insulating screen **LV432578**
5. Spreader 52.5 mm **LV432490**
6. Spreader 70 mm **LV432492**
7. Aluminum connector **LV432479** (1 x 35-300 mm²)
8. Aluminum connector **LV432481** (2 x 35-300 mm²)
9. OF, SD, or SDE indication contacts **GV7AE11** (standard) / **GV7AB11** (for low level)
10. SDTAM thermal fault module **LV429424**
11. AU (UVR) or AS (SHT) voltage releases **GV7AU●●●/ GV7AUS●●●**
12. Direct rotary handle black **GV6AP03** (shipped with the device)
13. Direct rotary handle red on yellow bezel **LV432599**
14. Open door shaft operator **LV426937**
15. Extended rotary handle black **LV432598**
16. Extended rotary handle red on yellow bezel **LV432600**
17. PowerTag M630 wireless energy sensor **LV434022**

Add-on auxiliary contacts - OF contacts

These allow remote indication of the circuit breaker contact states. They can be used for signalling, electrical locking, relaying, etc. They are available in two versions: standard and low level. They include a terminal block and the auxiliary circuits leave the circuit breaker through a hole provided for this purpose.
They perform the following functions, depending on where they are located in the circuit breaker:

Location	Function	Application
1 and/or 4 (GV5) 1 and/or 4, 6, 7 (GV6)	C/O contact	Indicates the position of the circuit breaker poles.
2	Trip indication	Indicates that the circuit breaker has tripped due to an overload, a short-circuit, a differential fault or the operation of a voltage trip (undervoltage or shunt trip), or of the "push to trip" test button. It resets when the circuit breaker is reset.
3	Electrical fault indication	Indicates that the circuit breaker has tripped due to an overload, a short-circuit or a differential fault. It resets when the circuit breaker is reset.
5	Adapter for electrical fault indication	This accessory is mandatory for GV5 to provide electrical fault indication.

Type	Reference
Standard	**GV7AE11**
Low level	**GV7AB11**
Adapter for electrical fault indication	**LV429451**

Thermal fault module - SDTAM

GV5/ GV6 can be equipped with thermal fault module. This module have:
■ a contact to indicate overload fault in the circuit-breaker
■ a contact to open the contactor. In the event of overload or phase unbalance, this output is activated 400 ms before circuit-breaker tripping to open the contactor and avoid circuit breaker tripping.

Voltage	Reference
24...415 V AC/DC	**LV429424** (1)

Electric trips

These allow the circuit breaker to be tripped via an electrical control signal.
■ Undervoltage release (UVR) - GV7AU
■ Trips the circuit breaker when the control voltage drops below 35 % of its rated voltage.
■ Between 35 % and 70 % of the rated voltage opening is possible but not guaranteed.
■ Above 70 % of the rated voltage, opening does not take place.
■ Continuous duty rated coil.
■ Circuit breaker closing is possible only if the voltage exceeds 85 % of the rated voltage.
■ Shunt trip (SHT) - GV7AS
Trips the circuit breaker when the control voltage rises above 0.7 times the rated voltage.
■ Impulse type ⩾ 20 ms or maintained control signals.
■ Operation (GV7AU or GV7AS)
□ When the circuit breaker has been tripped by a GV7 AU or AS, it must be reset either locally.
□ Tripping has priority over manual closing: if a tripping order is present, manual action does not result in closing, even temporarily, of the contacts.
□ Durability: 50 % of the mechanical durability of the circuit breaker.

Type	Voltage	Reference
Undervoltage trip	48 V, 50/60 Hz	**GV7AU055**
	110…130 V, 50/60 Hz	**GV7AU107**
	200…240 V, 50/60 Hz	**GV7AU207**
	380…440 V, 50/60 Hz	**GV7AU387**
Shunt trip	48 V, 50/60 Hz	**GV7AS055**
	110…130 V, 50/60 Hz	**GV7AS107**
	200…240 V, 50/60 Hz	**GV7AS207**
	380…440 V, 50/60 Hz	**GV7AS387**

*(1) **LV429429** takes the place of the AU/AS electric trip coil and an auxiliary contact (C/O contact 1).*

Characteristics:
pages B6/136 and B6/137
Schemes:
page B6/144


PB120641.eps

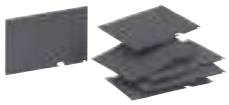
LV432479


PB120642.eps

LV432490


PB120643.eps

LV432593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GV7AC04


PB120640.eps

GV6AP03


PB120645.eps

LV432599


PB120646.eps

GV7AP02

Cabling accessories

Cable connectors: The connectors for GV5 snap directly on to the device terminals or are secured by clips to right-angle and straight terminal extensions as well as spreaders. GV6 connectors are screwed directly to the device terminals.

Spreaders: Spreaders may be used to increase the pitch from 35 mm to 45 mm for GV5. The 45 mm pitch can be increased to 52.5 or 70 mm for GV6.

Long terminal shields: They are used for front connection with cables or insulated bars. They comprise two parts assembled with captive screws, forming an IP40 cover. The top part is equipped with sliding grids with break marks for precise adaptation to cables or insulated bars. The rear part completely blocks off the connection zone. Partially cut squares can be removed to adapt to all types of connection for cables with lugs or copper bars. Long terminal shields may be mounted upstream and downstream of the breaker.

Phase barriers: These interphase barriers are used for maximum insulation at the power-connection points.

Insulating screens: These are fited at the rear of the device which provides insuation. Their use is mandatory for devices with spreaders, installed on backplates, when terminal shields are not used.

GV5 Combination kits: These kits allow link between the circuit breaker and the contactor. The cover provides protection against direct finger contact. The kit comprises links, a protective shield and a depth adjustable metal bracket for the breaker.

Description	Application	Sold in lots of	Unit reference GV5	Unit reference GV6
Steel connectors (set of 3)	1.5…95 mm² ≤ 150 A	1	**GV7AC021**	–
Aluminium connectors (set of 3)	25…95 mm² ≤ 220 A	1	**LV429227**	
	120…185 mm² ≤ 220 A	1	**GV7AC022**	
	120…240 mm² ≤ 220 A	1	**LV429244**	
	35...300 mm²	1		**LV432479**
	2 x 35...300 mm²	1		**LV432481**
Spreader 3-pole (1)	35…45 mm pole pitch	1	**GV7AC03**	
	52.5 mm pole pitch	1		**LV432490**
	70 mm pole pitch	1		**LV432492**
Long terminal shield (IP40) (1)	35 mm pole pitch	1	**GV7AC01**	
	45 mm pole pitch	1		**LV432593**
	52.5 mm pole pitch	1		**LV432595**
Phase barriers (set of 6)		1	**GV7AC04**	**LV432570**
Insulating screens (set of 2)	45 mm	1	**GV7AC05**	
	70 mm			**LV432578**
Combination Kits (2)				
For contactor LC1 F115…F185	Connection kits between breaker and contactor	1	**GV7AC06**	
For contactor LC1 F225 and F265		1	**GV7AC07**	
For contactor LC1 D115 and D150		1	**GV7AC08**	

Direct rotary handle

The circuit breaker is always supplied direct rotary handle (black handle, black plate) as standard and it provides IP40 protection. The other type handles can be used by replacing this direct rotary handle. It includes a device for locking the circuit breaker in the O (Off) position by means of up to 3 padlocks with a shackle diameter of 5 to 8 mm (padlocks not included). A MCC conversion accessory allows the direct rotary handle to be mounted on the enclosure door. In this case, the door cannot be opened if the circuit breaker is in the “ON” position. Circuit breaker closing is inhibited if the enclosure door is open and prevents the device from being closed if the door is open.

Description	Type	Sold in lots of	Unit reference GV5	Unit reference GV6
Direct rotary handle	Black handle, black legend plate	1	**GV5AP03**	**GV6AP03**
	Red handle, yellow legend plate	1	**GV7AP04**	**LV432599**
MCC conversion accessory	Four mounting direct rotary handle on enclosure door	1	**GV7AP05**	**LV432606**

Extended rotary handle

Allows to operate a circuit breaker from the front of the switch board, which's installed in the back of an enclosure, which provides IP55 protection. It comprises:

- a unit which is screwed onto the front accessory cover of the circuit breaker,
- an assembly (handle mechanism and front plate) to be fitted on the enclosure door,
- an extension shaft which must be adjusted.
- The distance minimum and maximum distances between the mounting surface and the door are
  - 185...600 mm for GV5
  - 209...600 mm for GV6

It includes a device for locking the circuit breaker in the O (Off) position by means of up to 3 padlocks with a shackle diameter of 5 to 8 mm (padlocks not included) and disables opening enclosure door.

Description	Type	Sold in lots of	Unit reference GV5	Unit reference GV6
Extended rotary handle	Black handle, black legend plate	1	**GV7AP01**	**LV432598**
	Red handle, yellow legend plate	1	**GV7AP02**	**LV432600**

(1) Terminal shields cannot be used together with spreaders.
(2) The kit comprises links, a protective shield and a depth adjustable metal bracket for the breaker.

Dimensions:
page B6/141

Front extended rotary handles (cont.)

Operation when door is opened
An open door shaft operator can be used to operate the circuit breaker when door is opened. This accessory complies with UL508 A.
The indication of the three positions OFF (**O**), ON (**I**) and tripped (**Trip**) is visible on the circuit breaker.
The circuit breaker itself may be locked in OFF position when the door is opened by 1 padlock / lockout hasp, shackle Ø4-8 mm.

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LV426937
Open door shaft operator

Description	Reference
Open door shaft operator	**LV426937**
Laser tool	**GVAPL01**

PB106297.eps

GVAPL01 Laser tool

Other accessories

Bag of 6 tamper seals + 6 cover caps (1 large, 5 small) for screw heads	**LV429375**

PB120637.eps

LVA429375
Sealing accessories

PowerTag Measurement module

Wireless-communication module
PowerTag is directly mounted on the bottom side of the circuit breaker.
It provides capability to measure energy, monitor voltage loss, and trigger alarms.
It then delivers useful data to a concentrator for monitoring and diagnosis of the associated circuit breaker.
In addition to monitoring and alarming, PowerTag solution provides a complete knowledge of real time electrical values with a rich and accurate data transfer every 5 seconds.
PowerTag energy sensors can be quickly and easily installed in new or existing panels at any time. Compared to traditional metering solutions, installation time and commissioning are much shorter with no wiring, hence an error proof high density solution and a built-in class 1 accuracy.

PB121345.eps

LV434020, LV434022

Functions
PowerTag energy sensor measures the following values in accordance with the IEC 61557-12 standard:
- ■ Energy (4 quadrants):
- □ Active energy (Wh): total and partial, delivered and received
- □ Active energy per phase (Wh): total
- □ Reactive energy (VARh): partial, delivered and received
- ■ Power:
- □ Active power (W): total and per phase
- □ Reactive power (VAR): total
- □ Apparent power (VA): total
- ■ Voltages (V): phase-to-phase (U12, U23, U31) and phase-to-neutral (V1N, V2N, V3N)
- ■ Currents (A): per phase (I1, I2, I3)
- ■ Frequency
- ■ Power factor
- ■ Voltage loss alarm:
- □ PowerTag energy sensor sends a "voltage loss" alarm and the current-per-phase value before being de-energized
- □ At "voltage loss", PowerTag adds an overload alarm if the current is higher than the rated current of the associated protective device.

Note: *functions listed above depend on concentrators/gateways.*

Description	Reference
PowerTag M250 3P: suitable for GV5 up to 220 A	**LV434020**
PowerTag M630 3P: suitable for GV6 up to 500 A	**LV434022**

Dimensions:
page B6/142

TeSys GB2

0.5 to 20 A

(for equipment and control circuits)

PB110899_20.eps

GB2CB

PB110901_20.eps

GB2CD

PB110902_20.eps

GB2DB

PB110900_20.eps

GB2CS

Introduction

GB2 thermal-magnetic circuit breakers protect and isolate the control circuits of industrial equipment with contactor coils, transformers.…
They protect and isolate single-phase auxiliary circuits such as solenoid valves, electro-brakes, battery chargers, supplied from the control circuit voltage.

GB2CB, GB2CD, GB2DB

12 ratings are available, from 0.5 to 20 A, in single-pole (GB2CB), single-pole + neutral (GB2CD) and 2-pole (GB2DB) versions.
They have a magnetic tripping threshold set at between 12 and 16 In to withstand the current peaks generated by many industrial components.

GB2CS

2 ratings are available, 0.5 and 1 A, in single-pole version.
The magnetic tripping threshold is set between 5 and 7 In.

Functions, installation

Clip-on fixing onto all types of 35 mm ⊥ rails, on ⊔ rails and on Telequick mounting plates.
Upstream and downstream marking by means of AB1 clip-in markers.
Clear indication of "I" and "O" positions on the operator.
Tamper-proof device which requires no special maintenance (fixed magnetic and thermal tripping thresholds).

Selection for the protection of circuits supplied by transformers

Single-phase transformers.
Magnetising peak: 20 In.
Operation of magnetic trips: 13 In.

Power	Primary (1)		Secondary			
VA	220/240 V	380/415 V	24 V	48 V	110 V	220 V
40	GB2DB05	GB2DB05	GB2CD07	GB2CD06	GB2CD05	GB2CD05
63	GB2DB05	GB2DB05	GB2CD08	GB2CD07	GB2CD06	GB2CD05
100	GB2DB06	GB2DB05	GB2CD10	GB2CD07	GB2CD06	GB2CD05
160	GB2DB07	GB2DB06	GB2CD14	GB2CD09	GB2CD07	GB2CD06
250	GB2DB07	GB2DB06	GB2CD16	GB2CD12	GB2CD08	GB2CD07
400	GB2DB08	GB2DB07	GB2CD22	GB2CD14	GB2CD09	GB2CD07
630	GB2DB10	GB2DB08	–	GB2CD21	GB2CD12	GB2CD08
1000	GB2DB14	GB2DB09	–	–	GB2CD16	GB2CD10
1600	GB2DB20	GB2DB14	–	–	–	GB2CD14
2000	GB2DB21	GB2DB14	–	–	GB2CD22	GB2CD16
2500	GB2DB22	GB2DB20	–	–	–	GB2CD20
3000	GB2DB22	GB2DB20	–	–	–	GB2CD21
4000	–	GB2DB21	–	–	–	GB2CD22
5000	–	GB2DB22	–	–	–	–

*(1) If the breaking capacity of the **GB2** is insufficient, use a **GV2RT** with 2 poles connected in series.*

Product references

PB110899_20.eps

GB2CB●●

Circuit breakers with magnetic tripping threshold: 12 to 16 In

Single-pole

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	6.6	6	GB2CB05
1	14	6	GB2CB06
2	26	6	GB2CB07
3	40	6	GB2CB08
4	52	6	GB2CB09
5	66	6	GB2CB10
6	83	6	GB2CB12
8	108	6	GB2CB14
10	138	6	GB2CB16
12	165	6	GB2CB20
16	220	6	GB2CB21
20	270	6	GB2CB22

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GB2CD●●

Single-pole + neutral

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	6.6	6	GB2CD05
1	14	6	GB2CD06
2	26	6	GB2CD07
3	40	6	GB2CD08
4	52	6	GB2CD09
5	66	6	GB2CD10
6	83	6	GB2CD12
8	108	6	GB2CD14
10	138	6	GB2CD16
12	165	6	GB2CD20
16	220	6	GB2CD21
20	270	6	GB2CD22

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GB2DB●●

2-pole

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	6.6	3	GB2DB05
1	14	3	GB2DB06
2	26	3	GB2DB07
3	40	3	GB2DB08
4	50	3	GB2DB09
5	66	3	GB2DB10
6	83	3	GB2DB12
8	108	3	GB2DB14
10	138	3	GB2DB16
12	165	3	GB2DB20
16	220	3	GB2DB21
20	270	3	GB2DB22

(1) Conforming to IEC 60947-1.

Characteristics:
pages B6/146 to B6/148

Dimensions, schemes:
page B6/149

Product references

Circuit breakers with magnetic tripping threshold: 5 to 7 In

Single-pole

PB110900_20.eps

GB2CS●●

Conventional rated thermal current Ith (1)	Magnetic tripping current Id ± 20 %	Sold in lots of	Unit reference
A	A		
0.5	3.3	6	**GB2CS05**
1	6	6	**GB2CS06**

(1) Conforming to IEC 60947-1.

Accessories for circuit breakers GB2-CB, DB and CS

PB121347.eps

GB2G210

Description	Sold in lots of	Unit reference
Busbar set for supply to 10 GB2 DB or 20 GB2CB or GB2CS with 2 connectors	1	**GB2G210**
Supply connector	10	**GB2G01**

PB121348.eps

GB2G01

Circuit breakers

Characteristics: pages B6/146 to B6/148
Dimensions, schemes: page B6/149

New 2022 product highlights

- Harmony XB4/XB5 monitoring contact
- Harmony ZBRT wireless batteryless contact block
- Harmony XAP metal control station
- Antimicrobial Harmony version
- Harmony STM6 Box
- Tesys Deca
- Tesys Giga
- New Power Tag
- New Power Gateway
- Motor Control Management Building
- Ecostruxure Device Connector Bluefer
- Altivar ATV320
- Harmony SSD Solid State Relays
- Uninterruptible Power Supply
- Preventa XPSU safety switches
- Universal enclosures configurator: Proclima web / Spacial Configurator
- XUM Photoelectric miniature

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  - Wiring plan
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General contents

01. Harmony pushbuttons, switches, pilot lights, and signaling devices









Harmony XVU components for Ø 60 modular tower lights

1 IP65 light modules (for association)

Voltage		24 V							
LED unit type		High brightness							Pulse signal
Color		Green	Red	Orange	Blue	White	Yellow	Multi-color	Multi-color
Reference	Steady	**XVUC23**	**XVUC24**	**XVUC25**	**XVUC26**	**XVUC27**	**XVUC28**	**XVUC29**	**XVUC29P**
	Blinking	**XVUC43**	**XVUC44**	**XVUC45**	**XVUC46**	**XVUC47**	**XVUC48**	–	–
	High flashing	**XVUC63**	**XVUC64**	**XVUC65**	**XVUC66**	**XVUC67**	**XVUC68**	–	–

2 IP54 audible units (for association)

Voltage	24 V			
Unit type	Buzzer		Sound	Sound with pulse signal
Color	Silver	Dark gray		
Reference	**XVUC9SQ**	**XVUC9S**	**XVUC9V**	**XVUC9VP**

3 IP65 body units with top cover (for association)

Voltage	24 VAC/VDC		100...240 VAC	
Color	Silver	Dark gray		
Type	–	–	NPN	PNP
Reference	**XVUC21BQ**	**XVUC21B**	**XVUC21M**	**XVUC21MP**

Mounting bases for horizontal support (for association)

Base type	Fixing plates					Direct fixing plates 5
	With fixed length aluminum pole				With height ajustment aluminum pole *(1)*	
	100 mm/3.937 in 4		400 mm/ *15.748 in*	800 mm/ *31.496 in*		
Color	Silver	Dark gray				Silver / Dark gray
Reference	**XVUZ02Q**	**XVUZ02**	**XVUZ400**	**XVUZ800**	**XVUZ05** *(2)*	**XVUZ01Q** / **XVUZ01** *(3)*
	–	–	–	–	–	– / **XVUZ03** *(4)*
	–	–	–	–	–	– / **XVUZ04** *(5)*

6 Mounting bases for vertical support (for association)

Base type	Fixing plates for mounting on vertical support (aluminum pole + metal bracket - IP42)			Fixing plates for vertical support 7
	100 mm	250 mm	400 mm	100 mm
Color	Dark gray	Dark gray	Dark gray	Dark gray
Reference	**XVUZ100T**	**XVUZ250T**	**XVUZ400T**	**XVUZ12** *(7)*

Accessories (for association)

Unit type	Body extender		Flexible mounting unit for use on horizontal or vertical support, IP55	1/2" NPT conduit adaptor for customer supplied tubing 8
Color	Dark gray	Silver	Dark gray	Dark gray
Reference	**XVUC020**	**XVUC020Q**	**XVUZ06** *(6)*	**XVUZ00**

(1) Pole height adjustable from 210 to 385 mm (2) For use with DC body unit only
(3) 3-pin mounting (4) 2-pin mounting (5) 4-pin mounting (6) Only compatible with direct fixing plates
(7) Compatible with all mounting bases for horizontal support except XVUZ01, XVUZ01Q, XVUZ02, and XVUZ04.


Harmony XVSV complete units

XVSV sound modules

Size	DIN 72			DIN 96				
Voltage	12 - 24 VDC			12 - 24 VDC			100 - 230 VAC	
Color	Dark gray		White	Dark gray		White	Dark gray	White
Wiring	NPN	PNP	NPN	NPN	PNP	NPN	NPN	NPN
Reference	**XVSV7BBN**	**XVSV7BBP**	**XVSV7BWN**	**XVSV9BBN**	**XVSV9BBP**	**XVSV9BWN**	**XVSV9MBN**	**XVSV9MWN**
Wall mounting plate (option)	**XVSZ016**							

Illuminated units for incandescent bulbs or LEDs

Illuminated units with steady light signaling							
Color		Green	Red	Orange	Blue	White	Yellow
Light source (to be ordered separately)	Incandescent bulb 7 W max. or LED	**XVBC33**	**XVBC34**	**XVBC35**	**XVBC36**	**XVBC37**	**XVBC38**
Illuminated units with integral flashing light signaling							
Color		Green	Red	Orange	Blue	White	Yellow
Light source (to be ordered separately)	Incandescent bulb 7 W max., 24 V ∿, 24…48 V ⎓ or LED	**XVBC4B3**	**XVBC4B4**	**XVBC4B5**	**XVBC4B6**	**XVBC4B7**	**XVBC4B8**
	Incandescent bulb 7 W max., 24 V ∿, 48…230 V ∿ or LED	**XVBC4M3**	**XVBC4M4**	**XVBC4M5**	**XVBC4M6**	**XVBC4M7**	**XVBC4M8**

Illuminated units with integral LED

Light source voltage 24 V ⎓							
Color		Green	Red	Orange	Blue	White	Yellow
Reference	Steady	**XVBC2B3**	**XVBC2B4**	**XVBC2B5**	**XVBC2B6**	**XVBC2B7**	**XVBC2B8**
	Flashing	**XVBC5B3**	**XVBC5B4**	**XVBC5B5**	**XVBC5B6**	**XVBC5B7**	**XVBC5B8**
Light source voltage 120 V ∿							
Color		Green	Red	Orange	Blue	White	Yellow
Reference	Steady	**XVBC2G3**	**XVBC2G4**	**XVBC2G5**	**XVBC2G6**	**XVBC2G7**	**XVBC2G8**
	Flashing	**XVBC5G3**	**XVBC5G4**	**XVBC5G5**	–	–	–
Light source voltage 230 V ∿							
Color		Green	Red	Orange	Blue	White	Yellow
Reference	Steady	**XVBC2M3**	**XVBC2M4**	**XVBC2M5**	**XVBC2M6**	**XVBC2M7**	**XVBC2M8**
	Flashing	**XVBC5M3**	**XVBC5M4**	**XVBC5M5**	**XVBC5M6**	**XVBC5M7**	**XVBC5M8**

Illuminated units with integral “flash” discharge tube

Light source voltage 24 V ⎓							
Color		Green	Red	Orange	Blue	White	Yellow
Reference	5 Joule “flash” discharge tube	**XVBC6B3**	**XVBC6B4**	**XVBC6B5**	**XVBC6B6**	**XVBC6B7**	**XVBC6B8**
	10 Joule “flash” discharge tube	**XVBC8B3**	**XVBC8B4**	**XVBC8B5**	**XVBC8B6**	**XVBC8B7**	**XVBC8B8**
Light source voltage 120 V ∿							
Color		Green	Red	Orange	Blue	Yellow	
Reference	5 Joule “flash” discharge tube	–	**XVBC6G4**	**XVBC6G5**	–	**XVBC6G8**	
	10 Joule “flash” discharge tube	**XVBC8G3**	**XVBC8G4**	**XVBC8G5**	**XVBC8G6**	**XVBC8G8**	
Light source voltage 230 V ∿							
Color		Green	Red	Orange	Blue	White	Yellow
Reference	5 Joule “flash” discharge tube	**XVBC6M3**	**XVBC6M4**	**XVBC6M5**	**XVBC6M6**	**XVBC6M7**	**XVBC6M8**
	10 Joule “flash” discharge tube	–	**XVBC8M4**	**XVBC8M5**	**XVBC8M6**	**XVBC8M7**	**XVBC8M8**

Harmony XVB signaling solutions and Harmony XVR3 beacon lights

1 Audible units

Unit type	Buzzer, 90 dB at 1 m	
Unit description	Adjustable: 70 or 90 dB, continuous or intermittent	
Voltage	12…48 V DC and AC	120…230 V ∿
Reference	**XVBC9B**	**XVBC9M**

2 Base units (for direct or tube fixing)

Unit type	Base unit + cover with bottom or side cable entry	Base unit only with bottom or side cable entry	Base unit + cover with side cable entry	Base unit + cover with bottom entry, pre-cabled (length 1 m), and equipped with M12 end connector
Application	Use with banks without discharge tube unit (order separately)	Use with banks with discharge tube unit (order separately)	All types of banks. Can be used with AS-interface connection	
Reference	**XVBC21**	**XVBC07**	**XVBC21A**	**XVBC21B**

Accessories specific to XVBC indicator banks

Unit type	Cover only 3		Fixing plate for use on horizontal support		Fixing plate for use on vertical support	
Material	Plastic		Plastic		Zamak	
Application	XVBC2, XVBC3, XVBC4, XVBC5, and XVBC9		Ø 25 mm aluminum support tube		Base unit (direct mounting), fixing plate XVBZ01 or fixing bases XVBZ0	
Reference	**XVBC081**		**XVBC01**		**XVBC12** 4	

Unit type	Fixing bases comprising Ø 25 mm aluminum support tube glued into a black plastic fixing plate					
Color	Black aluminum	Aluminum	Black aluminum	Aluminum	Black aluminum	Aluminum
Height under base unit (mm)	80		380		780	
Reference	**XVBZ02**	**XVBZ02A**	**XVBZ03**	**XVBZ03A**	**XVBZ04**	**XVBZ04A**

5

Unit type	Support tube concealment cover		Adapter for side entry through base unit
Material	ABS	ABS	ABS
Application	Support tubes XVBZ02, XVBZ02A	Support tubes XVBZ03, XVBZ03A	13P cable gland
Reference	**XVBC020**	**XVBC030**	**XVBC14**

Unit type	Incandescent bulbs BA 15d base fitting				
Voltage	12 V	24 V	48 V	120 V	230 V
Power	7 W	6.5 W	6 W	7 W	7 W
Reference	**DL1BEJ**	**DL1BEB**	**DL1BEE**	**DL1BEG**	**DL1BEM**

Unit type	LEDs BA 15d base fitting				
Color	Green	Red	Orange	Blue	Yellow
Voltage	24 V ⎓				
Reference	**DL1BDB3**	**DL1BDB4**	**DL1BDB5**	**DL1BDB6**	**DL1BDB8**

Harmony XVR3 pre-cabled motorless rotating/flashing beacons

6 Beacon lights with buzzer, multi-functional beacon lights

LED unit type	Beacon			
Color	Green	Red	Orange	Blue
Voltage	12-24 VDC			
Reference	**XVR3B03S**	**XVR3B04S**	**XVR3B05S**	**XVR3B06S**
Voltage	100-230 VAC			
Reference	**XVR3M03S**	**XVR3M04S**	**XVR3M05S**	**XVR3M06S**

Beacon lights without buzzer

Color		Green	Red	Orange	Blue
LED unit type		Beacon			
Voltage	12-24 VDC	**XVR3B03**	**XVR3B04**	**XVR3B05**	**XVR3B06**
	48 VDC	**XVR3E03**	**XVR3E04**	**XVR3E05**	**XVR3E06**
	100-230 VAC	**XVR3M03**	**XVR3M04**	**XVR3M05**	**XVR3M06**

Harmony XB4 metal pushbuttons

1 Pushbuttons with flush push, unmarked

Color	White	Black	Green	Red	Yellow	Blue
Contact	NO			NC	NO	
Connection	Screw clamp terminals					
Complete product	XB4BA11	XB4BA21	XB4BA31	XB4BA42	XB4BA51	XB4BA61
Head	ZB4BA1	ZB4BA2	ZB4BA3	ZB4BA4	ZB4BA5	ZB4BA6
Complete flush mounting head in 30.5 mm diameter hole	XB4FA11	XB4FA21	XB4FA31	XB4FA42	XB4FA51	XB4FA61
Flush mounting head in 30.5 mm diameter hole	ZB4FA1	ZB4FA2	ZB4FA3	ZB4FA4	ZB4FA5	ZB4FA6
Body	ZB4BZ101			ZB4BZ102	ZB4BZ101	

2 Booted pushbuttons with flush push, unmarked

Complete product	–	XB4BP21	XB4BP31	XB4BP42	XB4BP51	XB4BP61
Head	ZB4BP1	ZB4BP2	ZB4BP3	ZB4BP4	ZB4BP5	ZB4BP6
Body	ZB4BZ101			ZB4BZ102	ZB4BZ101	

3 Pushbuttons with flush push, marked

Color	White	Black	Green	Red	Green	Red
Marking	⇧	⇩	"I" (white)	"O" (white)	"START" (white)	"STOP" (white)
Contact	NO			NO + NC	NO	NO + NC
Connection	Screw clamp terminals					
Complete product	XB4BA3341	XB4BA3351	XB4BA3311	–	–	–
Head	ZB4BA334	ZB4BA335	ZB4BA331	ZB4BL432 *(1)*	ZB4BA333	ZB4BL434
Complete flush mounting head in 30.5 mm diameter hole	XB4FA3341	XB4FA3351	XB4FA3311	XB4FL4325 *(1)*	–	–
Flush mounting head in 30.5 mm diameter hole	ZB4FA334	ZB4FA335	ZB4FA331	ZB4FL432 *(1)*	ZB4FA333	ZB4FL434
Body	ZB4BZ101			ZB4BZ105	ZB4BZ101	ZB4BZ105

4 Ø 40 trigger action Emergency stop mushroom head pushbuttons

Color	Red				
Contact	NO + NC Push-pull	1 NC monitoring Turn to release	2 NC Turn to release	NO + NC Turn to release	NO + NC Key release
Connection	Screw clamp terminals				
Complete product	XB4BT845	XB4BS8446	XB4BS8444	XB4BS8445	XB4BS9445
Head	ZB4BT84		ZB4BS844		ZB4BS944
Body	ZB4BZ105	ZBE302 + ZB4BZ009	ZB4BZ104	ZB4BZ105	

5 Ø 40 mushroom head pushbutton, spring return

Color	Black	Green	Blue	Yellow
Contact	NO Push-pull			
Connection	Screw clamp terminals			
Complete product	XB4BC21	–	–	–
Head	ZB4BC2	ZB4BC3	ZB4BC6	ZB4BC5
Body	ZB4BZ101			

6 Illuminated ring for Emergency stop *(2)*

Color of the illuminated ring		White / Red	Red		
Power supply		24 VAC/VDC		110… 120 VAC	230… 240 VAC
Complete product for standard mounting	Unmarked	ZBY9W3B140	ZBY9W2B140	ZBY9W2G140	ZBY9W2M140
	EMERGENCY STOP	ZBY9W3B330	ZBY9W2B330	ZBY9W2G330	ZBY9W2M330
	ARRET D'URGENGE	ZBY9W3B130	ZBY9W2B130	ZBY9W2G130	ZBY9W2M130
	PARADA DE EMERGENCIA	ZBY9W3B430	ZBY9W2B430	ZBY9W2G430	ZBY9W2M430
	NOT-HALT	ZBY9W3B230	ZBY9W2B230	ZBY9W2G230	ZBY9W2M230

(1) With projecting push
(2) For compliance with standard EN/ISO 13850, paragraph 4.4.6, the Emergency stop function logo has been added.

1 Pilot lights with integral LED

Color		White	Green	Red	Orange	Blue	Yellow
Connection		Screw clamp terminals					
Complete product	24 VAC/VDC	**XB4BVB1**	**XB4BVB3**	**XB4BVB4**	**XB4BVB5**	**XB4BVB6**	**ZBVB8** *(1)*
	110...120 VAC	**XB4BVG1**	**XB4BVG3**	**XB4BVG4**	**XB4BVG5**	**XB4BVG6**	**ZBVG8** *(1)*
	230...240 VAC	**XB4BVM1**	**XB4BVM3**	**XB4BVM4**	**XB4BVM5**	**XB4BVM6**	**ZBVM8** *(1)*
Complete flush mounting head in 30.5 mm diameter hole	24 VAC/VDC	**XB4FVB1**	**XB4FVB3**	**XB4FVB4**	**XB4FVB5**	**XB4FVB6**	**ZBVB8** *(2)*
	110…120 VAC	**XB4FVG1**	**XB4FVG3**	**XB4FVG4**	**XB4FVG5**	**XB4FVG6**	**ZBVG8** *(2)*
	230…240 VAC	**XB4FVM1**	**XB4FVM3**	**XB4FVM4**	**XB4FVM5**	**XB4FVM6**	**ZBVM8** *(2)*

2 Illuminated pushbuttons with flush push and integral LED

Color		White	Green	Red	Orange	Blue	Yellow
Contact		NO + NC					
Connection		Screw clamp terminals					
Complete product	24 VAC/VDC	**XB4BW31B5**	**XB4BW33B5**	**XB4BW34B5**	**XB4BW35B5**	**XB4BW36B5**	**ZBVB8** *(3)*
	110...120 VAC	**XB4BW31G5**	**XB4BW33G5**	**XB4BW34G5**	**XB4BW35G5**	**XB4BW36G5**	**ZBVG8** *(3)*
	230...240 VAC	**XB4BW31M5**	**XB4BW33M5**	**XB4BW34M5**	**XB4BW35M5**	**XB4BW36M5**	**ZBVM8** *(3)*
Complete flush mounting head in 30.5 mm diameter hole	24 VAC/VDC	**XB4FW31B5**	**XB4FW33B5**	**XB4FW34B5**	**XB4FW35B5**	**XB4FW36B5**	**ZBVB8** *(4)*
	110…120 VAC	**XB4FW31G5**	**XB4FW33G5**	**XB4FW34G5**	**XB4FW35G5**	**XB4FW36G5**	**ZBVG8** *(4)*
	230…240 VAC	**XB4FW31M5**	**XB4FW33M5**	**XB4FW34M5**	**XB4FW35M5**	**XB4FW36M5**	**ZBVM8** *(4)*

3 Selector switches and key switches

Positions (number and type)		2 Stay put	2 Spring return	2 Stay put	3 Stay put	3 Spring return
Contact		NO		NO + NC	2 NO	
Connection		Screw clamp terminals				
Complete product	Black handle	**XB4BD21**	**XB4BD41**	**XB4BD25**	**XB4BD33**	**XB4BD53**
	Long black handle	**XB4BJ21**	–	–	**XB4BJ33**	**XB4BJ53**
	Key switch (No. 455)	**XB4BG21**	**XB4BG61**	–	**XB4BG33**	–
Complete flush mounting head in 30.5 mm diameter hole	Black	**XB4FD21**	**XB4FD41**	**XB4FD25**	**XB4FD33**	**XB4FD53**
	Long black handle	**XB4FJ21**	–	–	**XB4FJ33**	**XB4FJ53**
	Key switch (No. 455)	**XB4FG21**	**XB4FG61**	–	**XB4FG33**	–

4 Illuminated selector switches with integral LED and colored handle

Stay put positions		2			3		
Color		Green	Red	Orange	Green	Red	Orange
Contact		NO + NC					
Connection		Screw clamp terminals					
Complete product	24 VAC/VDC	**XB4BK123B5**	**XB4BK124B5**	**XB4BK125B5**	**XB4BK133B5**	**XB4BK134B5**	**XB4BK135B5**
	110...120 VAC	**XB4BK123G5**	**XB4BK124G5**	**XB4BK125G5**	**XB4BK133G5**	–	–
	230...240 VAC	**XB4BK123M5**	**XB4BK124M5**	**XB4BK125M5**	**XB4BK133M5**	**XB4BK134M5**	**XB4BK135M5**
Complete flush mounting head in 30.5 mm diameter hole	24 VAC/VDC	**XB4FK123B5**	**XB4FK124B5**	**XB4FK125B5**	**XB4FK133B5**	**XB4FK134B5**	**XB4FK135B5**
	110…120 VAC	**XB4FK123G5**	**XB4FK124G5**	**XB4FK125G5**	**XB4FK133G5**	**XB4FK134G5**	**XB4FK135G5**
	230…240 VAC	**XB4FK123M5**	**XB4FK124M5**	**XB4FK125M5**	**XB4FK133M5**	**XB4FK134M5**	**XB4FK135M5**

5 Double- and triple-headed pushbuttons

Type	1 flush and 1 projecting	2 flush	1 flush and 1 projecting	2 flush	2 flush + 1 red central projecting	
Contact	NO + NC		NO + NC with 24 V pilot light		2 NO + NC	
Connection	Screw clamp terminals					
Complete product	**XB4BL73415**	–	**XB4BW73731B5**	–	**XB4BA731327**	–
Head	**ZB4BL7341**	**ZB4BA7121**	**ZB4BW7L3741**	**ZB4BW7A1721**	–	**ZB4BA71124**
Body	**ZB4BZ105**		**ZB4BZ105 + ZBVB1**		**ZB4BZ103 + ZBE102**	

(1) To get a complete pilot light, this body must be combined with a ZB4BZ009 socket and a ZB4BV083 head (to be ordered separately).
(2) To get a complete pilot light, this body must be combined with ZB4BZ009 socket and ZB4FV083 head (to be ordered separately).
(3) To get a complete illuminated pushbutton, this body must be combined with a ZB4BZ009 socket and a ZB4BW383 head (to be ordered separately).
(4) To get a complete pilot light, this body must be combined with ZB4BZ009 socket and ZB4FW383 head (to be ordered separately).

Harmony XB5 plastic pushbuttons

1 Pushbuttons with flush push, unmarked

Color	○ White	● Black	● Green	● Red	● Yellow	● Blue
Contact	NO			NC	NO	
Connection	Screw clamp terminals					
Complete product for standard mounting	**XB5AA11**	**XB5AA21**	**XB5AA31**	**XB5AA42**	**XB5AA51**	**XB5AA61**
Standard mounting head	**ZB5AA1**	**ZB5AA2**	**ZB5AA3**	**ZB5AA4**	**ZB5AA5**	**ZB5AA6**
Complete flush mounting head in 30.5 mm diameter hole	**XB5FA11**	**XB5FA21**	**XB5FA31**	**XB5FA42**	**XB5FA51**	**XB5FA61**
Flush mounting head in 30.5 mm diameter hole	**ZB5FA1**	**ZB5FA2**	**ZB5FA3**	**ZB5FA4**	**ZB5FA5**	**ZB5FA6**
Body	**ZB5AZ101**			**ZB5AZ102**	**ZB5AZ101**	

2 Booted pushbuttons with flush push, unmarked

Complete product for standard mounting	–	**XB5AP21**	**XB5AP31**	**XB5AP42**	**XB5AP51**	**XB5AP61**
Standard mounting head	–	**ZB5AP2**	**ZB5AP3**	**ZB5AP4**	**ZB5AP5**	**ZB5AP6**
Body	–	**ZB5AZ101**		**ZB5AZ102**	**ZB5AZ101**	

3 Pushbuttons with flush push, marked

Color	○ White	● Black	● Green	● Red	● Green	● Red
Marking	⇧	⇩	"I" (white)	"O" (white)	"START" (white)	"STOP" (white)
Contact	NO			NC	NO	NC
Connection	Screw clamp terminals					
Complete product for standard mounting	**XB5AA3341**	**XB5AA3351**	**XB5AA3311**	–	–	–
Standard mounting head	**ZB5AA334**	**ZB5AA335**	**ZB5AA331**	**ZB5AL432** *(1)*	**ZB5AA333**	**ZB5AL434**
Complete flush mounting head in 30.5 mm diameter hole	**XB5FA3341**	**XB5FA3351**	**XB5FA3311**	**XB5FL4322** *(1)*	–	–
Flush mounting head in 30.5 mm diameter hole	**ZB5FA334**	**ZB5FA335**	**ZB5FA331**	**ZB5FL432** *(1)*	**ZB5FA333**	**ZB5FL434** *(1)*
Body	**ZB5AZ101**			**ZB5AZ102**	**ZB5AZ101**	**ZB5AZ102**

4 Ø 40 trigger action Emergency stop mushroom head pushbuttons

Color	● Red				
Contact	NO + NC Push-pull	1 NC monitoring Turn to release	2 NC Turn to release	NO + NC Turn to release	NO + NC Key release
Connection	Screw clamp terminals				
Complete product for standard mounting	**XB5AT845**	**XB5AS8446**	**XB5AS8444**	**XB5AS8445**	**XB5AS9445**
Standard mounting head	**ZB5AT84**		**ZB5AS844**		**ZB5AS944**
Body	**ZB5AZ105**	**ZBE302 + ZB5AZ009**	**ZB5AZ104**	**ZB5AZ105**	

5 Ø 40 mushroom head pushbuttons, spring return

Color	● Black	● Green	● Blue	● Yellow
Contact	NO Push-pull			
Connection	Screw clamp terminals			
Complete product for standard mounting	**XB5AC21**	–	–	–
Standard mounting head	**ZB5AC2**	**ZB5AC3**	**ZB5AC6**	**ZB5AC5**
Body	**ZB5AZ101**			

6 Illuminated Emergency stop head

Color of the illuminated ring	○ White / ● Red		● Red			
Power supply	24 VAC/VDC				110-120 VAC	230-240 VAC
Contact	NO + 2NC Turn to release	NO + NC Turn to release	NO + 2NC Turn to release	NO + NC Turn to release	NO + 2NC Turn to release	
Connection	Screw clamp terminals					
Complete product for standard mounting	**XB5AS84W3B41**	**XB5AS84W3B5**	–	–	–	–
Standard mounting head	**ZB5AS84W3B**		**ZB5AS84W2B**		**ZB5AS84W2G**	**ZB5AS84W2M**
Body	**ZB5AZ141**	**ZB5AZ105**	**ZB5AZ141**	**ZB5AZ105**	**ZB5AZ141**	

7 Illuminated ring for Emergency stop *(2)*

Color of the illuminated ring		○ White / ● Red		● Red		
Power supply		24 VAC/VDC			110-120 VAC	230-240 VAC
Complete product for standard mounting	Unmarked	**ZBY9W3B140**		**ZBY9W2B140**	**ZBY9W2G140**	**ZBY9W2M140**
	EMERGENCY STOP	**ZBY9W3B330**		**ZBY9W2B330**	**ZBY9W2G330**	**ZBY9W2M330**
	ARRET D'URGENCE	**ZBY9W3B130**		**ZBY9W2B130**	**ZBY9W2G130**	**ZBY9W2M130**
	PARADA DE EMERGENCIA	**ZBY9W3B430**		**ZBY9W2B430**	**ZBY9W2G430**	**ZBY9W2M430**
	NOT-HALT	**ZBY9W3B230**		**ZBY9W2B230**	**ZBY9W2G230**	**ZBY9W2M230**

(1) With projecting push

(2) For compliance with standard EN/ISO 13850, paragraph 4.4.6, the Emergency stop function logo ⓥ has been added.

Harmony XB5 plastic pushbuttons

1 Pilot lights with integral LED

Color		White	Green	Red	Orange	Blue	Yellow
Connection		Screw clamp terminals					
Complete product for standard mounting	24 VAC/VDC	XB5AVB1	XB5AVB3	XB5AVB4	XB5AVB5	XB5AVB6	ZBVB8 *(1)*
	110...120 VAC	XB5AVG1	XB5AVG3	XB5AVG4	XB5AVG5	XB5AVG6	ZBVG8 *(1)*
	230...240 VAC	XB5AVM1	XB5AVM3	XB5AVM4	XB5AVM5	XB5AVM6	ZBVM8 *(1)*
Monolithic product for standard mounting	24 VAC/VDC	XB5EVB1	XB5EVB3	XB5EVB4	XB5EVB5	XB5EVB6	XB5EVB8
	110...120 VAC	XB5EVG1	XB5EVG3	XB5EVG4	XB5EVG5	–	XB5EVG8
	230...240 VAC	XB5EVM1	XB5EVM3	XB5EVM4	XB5EVM5	XB5EVM6	XB5EVM8
Complete flush mounting head in 30.5 mm diameter hole	24 VAC/VDC	XB5FVB1	XB5FVB3	XB5FVB4	XB5FVB5	XB5FVB6	ZBVB8 *(2)*
	110...120 VAC	XB5FVG1	XB5FVG3	XB5FVG4	XB5FVG5	XB5FVG6	ZBVG8 *(2)*
	230...240 VAC	XB5FVM1	XB5FVM3	XB5FVM4	XB5FVM5	XB5FVM6	ZBVM8 *(2)*

2 Illuminated pushbuttons with flush push with integral LED

Color		White	Green	Red	Orange	Blue	Yellow
Contact		NO + NC					
Connection		Screw clamp terminals					
Complete product for standard mounting	24 VAC/VDC	XB5AW31B5	XB5AW33B5	XB5AW34B5	XB5AW35B5	XB5AW36B5	ZBVB8 *(3)*
	110...120 VAC	XB5AW31G5	XB5AW33G5	XB5AW34G5	XB5AW35G5	XB5AW36G5	ZBVG8 *(3)*
	230...240 VAC	XB5AW31M5	XB5AW33M5	XB5AW34M5	XB5AW35M5	XB5AW36M5	ZBVM8 *(3)*
Complete flush mounting head in 30.5 mm diameter hole	24 VAC/VDC	XB5FW31B5	XB5FW33B5	XB5FW34B5	XB5FW35B5	XB5FW36B5	ZBVB8 *(4)*
	110...120 VAC	XB5FW31G5	XB5FW33G5	XB5FW34G5	XB5FW35G5	XB5FW36G5	ZBVG8 *(4)*
	230...240 VAC	XB5FW31M5	XB5FW33M5	XB5FW34M5	XB5FW35M5	XB5FW36M5	ZBVM8 *(4)*

3 Selector switches and key switches

Positions		2 Stay put	2 Spring return	2 Stay put	3 Stay put	3 Spring return
Contact		NO		NO + NC	2 NO	
Connection		Screw clamp terminals				
Complete product for standard mounting	Black handle	XB5AD21	XB5AD41	XB5AD25	XB5AD33	XB5AD53
	Long black handle	XB5AJ21	–	–	XB5AJ33	XB5AJ53
	Key switch (No. 455)	XB5AG21	XB5AG61	–	XB5AG33	–
Complete flush mounting head in 30.5 mm diameter hole	Black handle	XB5FD21	XB5FD41	XB5FD25	XB5FD33	XB5FD53
	Long black handle	XB5FJ21	–	–	XB5FJ33	XB5FJ53
	Key switch (No. 455)	XB5FG21	XB5FG61	–	XB5FG33	–

4 Illuminated selector switches with integral LED and colored handle

Stay put positions		2			3		
Color		Green	Red	Orange	Green	Red	Orange
Contact		NO + NC					
Connection		Screw clamp terminals					
Complete product for standard mounting	24 VAC/VDC	XB5AK123B5	XB5AK124B5	XB5AK125B5	XB5AK133B5	XB5AK134B5	XB5AK135B5
	110...120 VAC	XB5AK123G5	–	XB5AK125G5	–	–	–
	230...240 VAC	XB5AK123M5	XB5AK124M5	XB5AK125M5	XB5AK133M5	XB5AK134M5	XB5AK135M5
Complete flush mounting head in 30.5 mm diameter hole	24 VAC/VDC	XB5FK123B5	XB5FK124B5	XB5FK125B5	XB5FK133B5	XB5FK134B5	XB5FK135B5
	110...120 VAC	XB5FK123G5	XB5FK124G5	XB5FK125G5	XB5FK133G5	XB5FK134G5	XB5FK135G5
	230...240 VAC	XB5FK123M5	XB5FK124M5	XB5FK125M5	XB5FK133M5	XB5FK134M5	XB5FK135M5

5 Double- and triple-headed pushbuttons

Type	1 flush 1 projecting	2 flush	1 flush 1 projecting		2 flush + 1 red central projecting	
Contact	NO + NC		NO + NC with 24V pilot light		2 NO + NC	
Connection	Screw clamp terminals					
Complete product	XB5AL73415	–	XB5AW73731B5	–	XB5AA731327	–
Head	ZB5AL7341	ZB5AA7121	ZB5AW7L3741	–	–	ZB5AA71124
Body	ZB5AZ105		ZB5AZ105 + ZBVB1		ZB5AZ103 + ZBE102	

(1) To get a complete pilot light, this body must be combined with a ZB5AZ009 socket and a ZB5AV083 head (to be ordered separately - see previous page).
(2) To get a complete pilot light, this body must be combined with ZB5AZ009 socket and ZB5FV083 head (to be ordered separately).
(3) To get a complete illuminated pushbutton, this body must be combined with a ZB5AZ009 socket and a ZB5AW383 head (to be ordered separately - see previous page).
(4) To get a complete illuminated pushbutton, this body must be combined with ZB5AZ009 socket and ZB5FW383 head (to be ordered separately).

Harmony XB4 and XB5 pushbuttons: other functions

1 Buzzer

Color		Black	Red illumination	Yellow illumination
Wiring connector		Screw clamp terminals		
Monolithic product	24 VAC/VDC	**XB5KSB**	**XB5KS2B4**	**XB5KS2B8**
	110...120 VAC/VDC	**XB5KSG**	**XB5KS2G4**	**XB5KS2G8**
	230...240 VAC	**XB5KSM**	**XB5KS2M4**	**XB5KS2M8**

2 USB and RJ45 ports

Description	Panel-mounted USB and RJ45 ports in 22.5 mm hole with notch		Protection covers		
Characteristics	USB interface, type A jack	Ethernet interface, RJ45 jack	Black	Rigid, transparent	Metal
Connection type	USB port 3.0 A-A	RJ45 port Cat. 6	–	–	–
Degree of protection	**IP20**	**IP20**	**IP65/IP67**	**IP65/IP67**	**IP65/IP67/IP69K**
Reference	**XB5PUSB3**	**XB5PRJ45**	**ZBSP1**	**ZBSP2**	**ZBSP3**

3 Timers

Description	Panel-mounted timer function with LED status and 1 static output in 22.5 mm hole				
Output type	1 static output				
Time delay type	Type A (delay on energization)				
Time delay range	0.5...10 s	3...60 s	0.5...10 min	3...60 min	
Reference	24 VDC	**XB5DTB22**	**XB5DTB23**	**XB5DTB24**	**XB5DTB25**
	100...240 VAC 50/60 Hz	**XB5DTGM2**	**XB5DTGM3**	**XB5DTGM4**	**XB5DTGM5**

4 3-phase pilot lights with integral LED

Description	Panel-mounted 3-phase voltage indicator pilot lights with 3 LEDs in 30 mm hole		
Connection	Faston connector, 6.3 mm		
Colors	Red, green, yellow	3 white LEDs	
Complete product	400 VAC	**XB5EV57K4**	**XB5EV57L4**

5 XB4 complete potentiometers

Description	Panel-mounted complete potentiometers in 22.5 mm hole		
Connection	Screw terminals		
Resistance (in kΩ)	1	4.7	10
Reference	**XB4BD912R1K**	**XB4BD912R4K7**	**XB4BD912R10K**
Resistance (in kΩ)	47	100	470
Reference	**XB4BD912R47K**	**XB4BD912R100K**	**XB4BD912R470K**

6 XB5 complete potentiometers

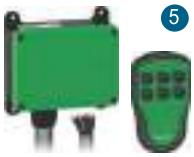
Description	Panel-mounted complete potentiometers in 22.5 mm hole		
Connection	Screw terminals		
Resistance (in kΩ)	1	4.7	10
Reference	**XB5AD912R1K**	**XB5AD912R4K7**	**XB5AD912R10K**
Resistance (in kΩ)	47	100	470
Reference	**XB5AD912R47K**	**XB5AD912R100K**	**XB5AD912R470K**

1 Harmony XB5S biometric switches standalone

Receiver	Monostable	Bistable
Power supply	24 VDC/PNP output	
Cable 2 m	**XB5S2B2L2**	**XB5S1B2L2**
M12 connector	**XB5S2B2M12**	**XB5S1B2M12**

2 Harmony XB5S biometric switches RGPD/USB

Receiver	Monostable		Bistable	
Power supply	24 VDC/PNP output			
Features	Standalone RGPD	USB RGPD	Standalone RGPD	USB RGPD
Cable 2 m	**XB5S6B2L2**	**XB5S9B2L2**	**XB5S7B2L2**	**XB5S8B2L2**
M12 connector	**XB5S6B2M12**	**XB5S9B2M12**	**XB5S7B2M12**	**XB5S8B2M12**



3 Harmony XB5 digital panel meter

Product type	Display module	
LED color	Green	Red
Input range	4...20 mA DC	
Reference	**XBH1AA0R4**	**XBH1AA0G4**

4 RFID operator interface

Description	RFID Reader with key holder	User tag with 2 master key and 2 reset key
Supply Voltage	24 VDC	
Set of	1	10
Reference	**ZB5SKR01**	**ZB5SKT01**

5 Harmony Pocket Remote

Receiver	Connection	Pre-wired 1.5 m				
	Power supply	12-24 VDC				
	Standard output	5		11		
	Reference	**ZARB05WSP**		**ZARB11WSP**		
Transmitter	No. of pushbuttons	3	4	6	8	10
	Reference	**ZART03**	**ZART04**	**ZART06**	**ZART08**	**ZART10**

6 Harmony XB4R/XB5R wireless and batteryless pushbuttons

Receiver	Non-programmable + 1 black cap		
Power supply	24 VDC		
Pushbutton	1 plastic	1 metal	1 plastic in handy box
Reference	**XB5RFB01**	**XB4RFA02**	**XB5RMB03**

7 Harmony Hub wireless gateway

Receiver	Modbus/TCP Ethernet		Modbus serial line	
Power supply	24 VDC			
Reference	**ZBRN1**		**ZBRN2**	
Accessories	**ZBRCETH**		–	
Relay antenna	**ZBRA1**		**ZBRA1**	
Passive antenna	**ZBRA2**	**ZBRA3**	**ZBRA2**	**ZBRA3**

Accessories for Harmony pushbuttons

Harmony Hub Ecosystem

Type	Temperature & Humidity Sensor	Self-powered current monitoring wireless clamp	Self-powered current monitoring wireless clamp	Self-powered current monitoring wireless clamp
Measurement Range	-25...90 °C at 35 °C 10%...98%	0.5 A to 35 A	2.5 A to 180 A	7 A to 500 A
Reference	**ZBRTT1**	**ZBRTC1**	**ZBRTC2**	**ZBRTC3**

1 Contact blocks (for XB4 and XB5 pushbuttons)

Type			Electrical blocks				Body fixing collars for XB4 or XB5	
Contact			NO	NC	NO	NC	–	–
Connection			Screw clamp terminals		Spring clamp terminals		–	–
Sold in lots of			5	5	4	4	10	
Reference	Contact block		**ZBE101**	**ZBE102**	**ZBE1015**	**ZBE1025**	**ZB4BZ009**	**ZB5AZ009**

2 Light blocks with integral LED (for XB4 and XB5 pushbuttons)

Color			White	Green	Red	Orange	Blue	Yellow
Connection			Screw clamp terminals					
Reference	Contact block	24 VAC/VDC	**ZBVB1**	**ZBVB3**	**ZBVB4**	**ZBVB5**	**ZBVB6**	**ZBVB8**
		110...120 VAC	**ZBVG1**	**ZBVG3**	**ZBVG4**	**ZBVG5**	**ZBVG6**	**ZBVG8**
		230...240 VAC	**ZBVM1**	**ZBVM3**	**ZBVM4**	**ZBVM5**	**ZBVM6**	**ZBVM8**

3 Wireless and battery-less interface to be used with ZBRR and ZBRN (for XB4 and XB5 pushbuttons)

Function	Push only (1 state)	Push and release (2 states)
Reference	**ZBRT1**	**ZBRT2**

4 Legend holders 30 x 40 mm for 8 X 27 mm legends

Ø 60 legends for Emergency stop

White marking/Red or black background						Black marking/Yellow background		
O	–	I	**ZBY2147**	AUTO	–	ARRET D'URGENCE	**ZBY9120**	**ZBY9130T** *(1)*
OFF	**ZBY2312**	ON	**ZBY2311**	START	**ZBY2303**	EMERGENCY STOP	**ZBY9320**	**ZBY9330T** *(1)*
Without marking/Red or black background						Without marking/Yellow background		
Red	**ZBY2101**	Black	**ZBY2101**				**ZBY9121**	

5 Illuminated ring without legend for customization(Use with ZBY9W101)

Description	Ø60 mm, can be used with all Ø22 mm heads	Ø60 mm, can be used with all Ø22 mm heads
Marking	No Marking	No Marking
Signaling	Fixed, Red	Fixed, Red + white
Supply Voltage	24 V	24 V
Reference	**ZBY9W2B501**	**ZBY9W3B501**

6 Customizable Circular legend for illuminated ring without legend *(1)*

Description	Ø60 mm
Reference	**ZBY9W101**

7 Legend holders for flush mounting head

Without legend				With blank legend without marking, black or red background			
8 x 27 mm legend for XB4F & XB5F	**ZBZF32**	18 x 27 mm legend	**ZBZF33**	8 x 27 mm legend	**ZBYF2101**	18 x 27 mm legend	**ZBYF6101**

8 Transparent boots for pushbuttons (sold in lots of 10)

For pushbuttons	Circular projecting	Circular flush	Circular flush or projecting	Flush, double headed	Triple headed	Flush/projecting double headed
Reference	**ZBP0**	**ZBPA**	**ZBP0A**	**ZBA708**	**ZBA709**	**ZBA710**

9 Flush mounting kits

For use with	Pushbuttons and pilot lights				Selector switches and illuminated pushbuttons		
Range and appearance	XB4 chromium plated, depth 9.8 mm	XB5 plastic, black depth 9.8 mm	XB5 plastic, black, depth 12.3 mm with 1- or 2-line legend		XB5 plastic, black, depth 12.3 mm	XB5 plastic, black, depth 12.3 mm with 1- or 2-line legend	
			1-line legend	2-line legend		1-line legend	2-line legend
Reference	**ZB4BZ021**	**ZB5AZ021**	**ZB5AZ023**	**ZB5AZ025**	**ZB5AZ022**	**ZB5AZ024**	**ZB5AZ026**

(1) Create customized marking on this reference using the web customization tool.

Harmony XAP die-cast metal enclosures

1 Harmony XAPK (yellow RAL 1004) *(1)*

Usable depth		49 mm		74.5 mm		
Number of cut-outs (22 mm)		0	1	0	1	
Dimension (W x H)/ Cable gland hole	80 x 80 / M20	**XAPK11**	**XAPK1201**	**XAPK14**	**XAPK1501**	

2 Harmony XAPD with 49 mm usable depth (gray RAL 7035) *(1)*

Number of cut-outs (22 mm)		0	1	2	3	4	6
Dimension (W x H)/ Cable gland hole	80 x 80 / M20	**XAPD11**	**XAPD1201**	**XAPD1202**	–	–	–
	80 x 130 / M20	**XAPD21**	–	**XAPD2202**	**XAPD2203**	**XAPD2204**	–
	80 x 175 / M25	**XAPD31**	–	–	**XAPD3203**	**XAPD3204**	**XAPD3206**

3 Harmony XAPD with 74.5 mm usable depth (gray RAL 7035) *(1)*

Number of cut-outs (22 mm)		0	1	2	3	4	5	6	8	10
Dimension (W x H)/ Cable gland hole	80 x 80 / M20	**XAPD14**	**XAPD1501**	**XAPD1502**	–	–	–	–	–	–
	80 x 130 / M20	**XAPD24**	–	**XAPD2502**	**XAPD2503**	**XAPD2504**	–	–	–	–
	80 x 175 / M25	**XAPD34**	–	–	**XAPD3503**	**XAPD3504**	–	**XAPD3506**	–	–
	80 x 220 / M25	**XAPD44**	–	–	–	**XAPD4504**	**XAPD4505**	**XAPD4506**	**XAPD4508**	–
	80 x 310 / M32	**XAPD54**	–	–	–	–	**XAPD5505**	–	**XAPD5508**	**XAPD5510**
Number of cut-outs (30 mm)		0	1	2	3	4	5	6	8	10
Dimension (W x H)/ Cable gland hole	80 x 80 / M20	–	**XAPD1601** *(2)*	–	–	–	–	–	–	–
	80 x 130 / M20	–	–	**XAPD2602** *(2)*	–	–	–	–	–	–
	80 x 175 / M25	–	–	–	**XAPD3603** *(2)*	–	–	–	–	–
	80 x 220 / M25	–	–	–	–	**XAPD4604** *(2)*	–	–	–	–
	80 x 310 / M32	–	–	–	–	–	–	**XAPD5606** *(2)*	–	–

4 Harmony XAPO with 74.5 mm usable depth (orange RAL 2008)

Cut-outs diameter		22 mm					30 mm with notch			
Number of cut-outs		1	2	3	4	6	1	2	3	4
Dimension (W x H)/ Cable gland hole	80 x 80 / M20	**XAPO1501**	–	–	–	–	**XAPO1601**	–	–	–
	80 x 130 / M20	–	**XAPO2502**	–	–	–	–	**XAPO2602**	–	–
	80 x 175 / M25	–	–	**XAPO3503**	**XAPO3504**	–	–	–	**XAPO3603**	–
	80 x 220 / M25	–	–	–	–	**XAPO4506**	–	–	–	**XAPO4604**

5 Harmony XAPG with 49 mm usable depth (gray RAL 7032)

Number of cut-outs (22 mm)		0	1	2	3	4
Dimension (W x H)/ Cable gland hole	80 x 80 / 3/4 NPT	**XAPG19100**	**XAPG19201**	**XAPG19702**	–	–
	80 x 130 / 3/4 NPT	**XAPG29100**	–	**XAPG29202**	**XAPG29703**	
	80 x 175 / 3/4 NPT	**XAPG39100**	–	–	**XAPG39203**	**XAPG39704**

6 Harmony XAPG with 74.5 mm usable depth (gray RAL 7032)

Number of cut-outs (22 mm)		0	1	2	3	4	5
Dimension (W x H)/ Cable gland hole	80 x 80 / 3/4 NPT	**XAPG19400**	**XAPG19501**	**XAPG19802**	–	–	–
	80 x 130 / 3/4 NPT	**XAPG29400**	–	**XAPG29502**	**XAPG29803**	–	–
	80 x 175 / 3/4 NPT	**XAPG39400**	–	–	**XAPG39503**	**XAPG39804**	–
	80 x 220 / 3/4 NPT	**XAPG49400**	–	–	–	**XAPG49504**	–
	80 x 310 / 3/4 NPT	**XAPG59400**	–	–	–	–	**XAPG59505**
Number of cut-outs (30 mm)		0	1	2	3	4	5
Dimension (W x H)/ Cable gland hole	80 x 80 / 3/4 NPT	–	**XAPG19601**	–	–	–	–
	80 x 130 / 3/4 NPT	–	–	**XAPG29602**	–	–	–

(1) Full customization of front cover with legend panel is possible through online product configurator.
(2) Flush mounting head can be mounted with ZB4FBZ014 accessory.

Harmony XAL plastic control stations

1 Control stations with 1 pushbutton, type XALD

Number and type of pushbuttons		1 start or stop				1 start and stop	
Color or type		Green	Green	Red		Handle	Key
Marking		"I" (white)	"START" (white)	"O" (white)		"O-I" (white)	"O-I" (white)
Contact		NO		NC		NO	
Connection		Screw clamp terminals					
Complete product	Flush pushbutton	**XALD102** *(2)*	**XALD103** *(2)*	**XALD112**		–	–
	Selector switch	–	–	–		**XALD134** *(2)*	**XALD144** *(2)*

2 Control stations with 1 Emergency stop pushbutton, type XALK

Number and type of pushbuttons	1 x Ø 40 trigger action Emergency stop mushroom head pushbutton						
Color	Red						
Type	Turn to release				Key release		
Contact	1 NC monitoring	NC	2 NC	2 NC + NO	NC	2 NC	2 NC + NO
Connection	Screw clamp terminals						
Complete product	**XALK1786**	**XALK178** *(2)*	**XALK178F** *(2)*	**XALK178G** *(2)*	**XALK188** *(2)*	**XALK188F**	**XALK188G** *(2)*

3 Control stations with pushbuttons, type XALD

Number and type of pushbuttons	2 start and stop flush mounting			2 up/down flush mounting		
Color/Marking	1 "I" green	1 "Start" green	1 pilot light 24 VDC	1 "Up" white		
	1 "O" red	1 "Stop" red	1 "I" green	1 "Down" black	1 "O" red	1 E-stop red
	–	–	1 "O" red	–	1 "Down" black	
Contact	NO + NC			2 NO	NO + NC + NO	
Connection	Screw clamp terminals					
Complete product	**XALD213** *(2)*	**XALD215** *(2)*	**XALD363B** *(2)*	**XALD222** *(2)*	**XALD324** *(2)*	**XALD328** *(2)*

(1) For padlocking device ZBZ3606
(2) Add H7 for UL/CSA conforming version, e.g. XALD102H7.

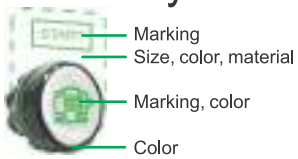
Harmony XAC pendant control stations

Harmony XACA pendant control stations for Ø 22 plastic signaling units

Number of pushbuttons	2	3	4	6	8
Type	Pistol grip		Standard		
Color	Yellow		Yellow		
Pushbutton 1: Raise *(1)*	Yes	Yes	Yes	Yes	Yes
Pushbutton 2: Lower *(1)*	Yes	Yes	Yes	Yes	Yes
Emergency stop *(2)*	–	Yes	–	–	–
Pushbutton 3: Left *(1)*	–	–	Yes	Yes	Yes
Pushbutton 4: Right *(1)*	–	–	Yes	Yes	Yes
Pushbutton 5: Forward *(1)*	–	–	–	Yes	Yes
Pushbutton 6: Reverse *(1)*	–	–	–	Yes	Yes
Pushbutton 7: O *(1)*	–	–	–	–	Yes
Pushbutton 8: I *(1)*	–	–	–	–	Yes
Reference	**XACA201**	**XACA2014**	**XACA471**	**XACA671**	**XACA871**

(1) With NO contact
(2) With NC contact

Choose your style with Harmony customization tool



Pushbutton Ø 22 mm: base product customizable *(1)*

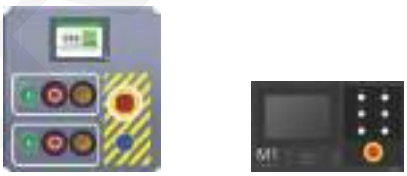
Type	Harmony XB4B, metal	Harmony XB5A, plastic
Pushbutton, black, 1 NO contact block	**XB4BA21**	**XB5AA21**
Selector switch, 2 positions, 1 NO contact block	–	**XB5AD21**
Pilot light, red, 24 VAC/VDC	**XB4BVB4**	**XB5AVB4**
Legend plate, 30 x 50 mm, dark gray color	**ZBYM6101**	**ZBYP6101**
Legend holder, 30 x 50 mm	–	**ZBY6101**

Flush mounted pushbutton: base product customizable *(1)*

Type	Harmony XB4F, metal	Harmony XB5F, plastic
Pushbutton, black, 1 NO contact block	**XB4FA21**	**XB5FA21**
Selector switch, 2 positions, 1 NO contact block	**XB4FD21**	**XB5FD21**
Pilot light, red, 24 VAC/VDC	**XB4FVB4**	**XB5FVB4**
Legend plate, 30 x 50 mm, dark gray color	–	**ZBYFP6101**
Legend holder, 40 x 50mm	–	**ZBYF2101**

Plastic control station: base product customizable *(1)*

Type	Gray color	Yellow color
1 hole	**XALD01**	**XALK01**
2 holes	**XALD02**	–
5 holes	**XALD05**	–



Legend panel: base product customizable *(1)*

Template size (mm/*in.*)	Reference
100 x 100/*3.93 x 3.93*	**ZBYLEG101000**
300 x 400/*11.81 x 15.74*	**ZBYLEG304000**
500 x 400/*19.68 x 15.74*	**ZBYLEG504000**

(1) Fast, easy, and intuitive: for other color or type

1. Go to product selector
2. Select your device
3. Define your customization

Pushbutton with flush push, unmarked

Color	White	Black	Green	Red	Yellow	Blue
Contact	NO			NO + NC		
Connection	Screw clamp terminals					
Complete product	XB7NA11	XB7NA21	XB7NA31	XB7NA45	XB7NA85	XB7NA65

Pushbutton with flush push, marked

Color	White	Black	Green	Green	Red
Marking	⬆	⇩	"I" (white)	"START" (white)	"STOP" (white)
Contact	NO			NO	NC
Connection	Screw clamp terminals				
Complete product	XB7NA11341	XB7NA21343	XB7NA3131	XB7NA3133	XB7NA4234

Ø 40 trigger action Emergency stop mushroom head pushbuttons

Color	Red		
Contact	NO + NC Push-pull	NO + NC Turn to release	2 NC Key release
Connection	Screw clamp terminals		
Complete product	XB7NT845	XB7NS8445	XB7NS9444

Pilot lights with integral LED

Color		Green	Red	Yellow	Blue	Clear	Orange
Connection		Screw clamp terminals					
Complete product	24 VAC/VDC	XB7EV03BP	XB7EV04BP	XB7EV05BP	XB7EV06BP	XB7EV07BP	XB7EV08BP
	120 VAC	XB7EV03GP	XB7EV04GP	XB7EV05GP	XB7EV06GP	XB7EV07GP	XB7EV08GP
	230 VAC	XB7EV03MP	XB7EV04MP	XB7EV05MP	XB7EV06MP	XB7EV07MP	XB7EV08MP

Illuminated pushbutton with flush push with integral LED

Color		Green	Red	Orange	Blue	Clear	Yellow
Contact		NO + NC					
Connection		Screw clamp terminals					
Complete product	24 VAC/VDC	XB7NW33B1	XB7NW34B1	XB7NW35B1	XB7NW36B1	XB7NW37B1	XB7NW38B1
	120 VAC	XB7NW33G1	XB7NW34G1	–	XB7NW36G1	XB7NW37G1	XB7NW38G1
	230 VAC	XB7NW33M1	XB7NW34M1	XB7NW35M1	–	XB7NW37M1	XB7NW38M1

Selector switches with black handle

Positions		2 ↙	2 ↙	3 ↓	2 ↙↓	3 ↙◇↓
Type		Stay put			Key withdrawal in LH position	Key withdrawal in center position
Contact		NO	NO + NC	2 NO	NO	2 NO
Connection		Screw clamp terminals				
Complete product	24 VAC/VDC	XB7ND21	XB7ND25	XB7ND33	XB7NG21	XB7NG33

Other control components

Harmony XD4 joystick controllers						
Number of directions	2	4	2	4		
Contact	1 NO per direction					
Position	Stay put		Spring return			
Reference	XD4PA12	XD4PA14	XD4PA22	XD4PA24		
Harmony cam switches						
Function	Ammeter	Voltmeter	Changeover	ON-OFF switches		Stepping
Thermal current	12 Amps					
Number of poles	6	6	4	1	3	3
Multi-screw fixing	K1F003MLH	K1F027MLH	K1D002ULH	K1A001ALH	K1C003ALH	K1C003QLH
Ø 22 fixing	K1F003MCH	K1F027MCH	K1D002UCH	K1A001ACH	–	K1C003QCH
Harmony XPE foot switches						
Material/Color	Plastic black	Plastic yellow	Metal blue	Metal blue	Metal blue	Metal orange
Cover	No	Yes	No		Yes	
Contact		1 NC + 1 NO		2 NC + 2 NO	1 NC + 1 NO	
Without trigger mechanism	XPEA110	XPEY310	XPEM110	XPEM111	XPEM310	XPER310
Trigger mechanism	–	XPEY510	XPEM810	–	XPEM510	XPER510

Harmony remote control system and pendant control stations for hoisting

Harmony wireless remote control system (basic)				
Motion pushbutton		6		
Auxiliary pushbuttons		1		
LED or display		LED		
Emergency stop mushroom head		1 Emergency stop mushroom head SIL 2 cat 3 PLd		
Base	Standard output	10		
	Safety output	2		
Handheld	Reference	ZART8LS		
Base	Power supply	48...240 VAC		24 VDC
	Connection	Cable gland	Pre-wired 1.5 m	
	Reference	ZARB10WS	ZARB10WSP	ZARB10WSPDC

Harmony wireless remote control system (standard)				
Motion pushbutton		6		
Auxiliary pushbuttons		2	2	6
LED or display		LED	Display	Display
Emergency stop mushroom head		1 Emergency stop mushroom head SIL 3 cat 4 Ple		
Base	Standard output	12	12	18
	Safety output	2	2	2
Inputs		–	–	18
Handheld	Reference	ZART8L	ZART8D	ZART12D
Base	Reference	ZARB12W	ZARB18W	ZARB18W
	Connection	Cable gland		

02. Harmony Human Machine Interfaces (HMI) – Basic panels

Harmony ST6, STW6, and STM6 basic panels


Harmony ST6 - New level of aesthetics with visually powerful EcoStruxure Operator Terminal Expert software						
Screen size		4.3”	7”	10.1”	12.1”	15.6”
Screen resolution (pixels)		480 x 272	800 x 480	1,024 x 600	1,280 x 800	1,366 x 768
Touch screen or keypad		Touch screen				
Software		EcoStruxure Operator Terminal Expert				
Memory capacity	Application memory	128 MB				
	Backup memory	NVRAM 512 KB				
	Expansion memory	No				
Communication	Ethernet port	IEEE802.3i/IEEE802.3u, 10BASE-T/ 100BASE-TX x1	IEEE802.3i/IEEE802.3u, 10BASE-T/100BASE-TX x2			
	Serial line	RS-232C/485 (COM1)	RS-232C (COM1) and RS-485 (COM2)			
	USB connection	USB 2.0 (Type A) + USB 2.0 (micro-B)				
Operating temperature		0...50 °C				
Industrial certifications		CE, UL, cUL, RMC, KC, EAC, RoHS, and WEEE				
Cut-out (mm)		118.5 x 92.5	190 x 135	255 x 185	295 x 217	394 x 250
Dimensions (mm)		134.5 x 108.5 x 43	208 x 153 x 45	273 x 203 x 47	313 x 235 x 50	412 x 268 x 50
Reference		**HMIST6200**	**HMIST6400**	**HMIST6500**	**HMIST6600**	**HMIST6700**


Harmony STW6 - New level of aesthetics and ready-to-use with a pre-installed browser						
Screen size		4.3”	7”	10.1”	12.1”	15.6”
Screen resolution (pixels)		480 x 272	800 x 480	1,024 x 600	1,280 x 800	1,366 x 768
Touch screen or keypad		Touch screen				
Software		Linux Browser HTML5				
Memory capacity	System memory	512 MB				
	Backup memory	NVRAM 128 KB				
	Expansion memory	No				
Communication	Ethernet port	IEEE802.3i/IEEE802.3u, 10BASE-T/ 100BASE-TX x1	IEEE802.3i/IEEE802.3u, 10BASE-T/100BASE-TX x2			
	Serial line	No				
	USB connection	USB 2.0 (Type A) + USB 2.0 (micro-B)				
Operating temperature		0...50 °C				
Industrial certifications		CE, UL, cUL, RMC, KC, EAC, RoHS, and WEEE				
Cut-out (mm)		118.5 x 92.5	190 x 135	255 x 185	295 x 217	394 x 250
Dimensions (mm)		134.5 x 108.5 x 43	208 x 153 x 45	273 x 203 x 47	313 x 235 x 50	412 x 268 x 50
Reference		**HMISTW6200**	**HMISTW6400**	**HMISTW6500**	**HMISTW6600**	**HMISTW6700**


Harmony STM6 - New level of aesthetics with unique pushbutton 22 mm mounting system				
Screen size		4.3”	7”	–
Screen resolution (pixels)		480 x 272	800 x 480	–
Touch screen or keypad		Touch screen		–
Software		EcoStruxure Operator Terminal Expert		
Memory capacity	Application memory	128 MB		
	Backup memory	NVRAM 512 KB		
	Expansion memory	No		
Communication	Ethernet port	IEEE802.3i/IEEE802.3u, 10BASE-T/100BASE-TX		
	Serial line	RS-232C/485 (COM1)x2		
	USB connection	USB 2.0 (Type A) + USB 2.0 (micro-B)		
Operating temperature		0...50 °C		
Industrial certifications		CE, UL, cUL, RMC, KC, EAC, UL Class1 Div2, ATEX Zone 2/22, Marine, RoHS, and WEEE		
Cut-out (mm)		hole 22.5	hole 22.5	DIN Rail mounting
Dimensions (mm)		145.6 x 108.2 x 53.9	201.2 x 137.2 x 57.7	150.49 x 109.97 x 63.3
Reference		**HMISTM6200**	**HMISTM6400**	**HMISTM6BOX**

Harmony STO basic panels

Harmony STO7 touch panels - most compact panels				
Screen size		4.3”		
Screen resolution (pixels)		480 x 272		
Touch screen or keypad		Touch screen		
Software		EcoStruxure Operator Terminal Expert		
Memory capacity	Application memory	26 MB		
	Backup memory	128 KB		
	Expansion memory	No		
Communication	Ethernet port	No		1 LAN port
	Serial line	RS-232C (9-way terminal block)	RS-232C/RS-485 (RJ45 8-way)	No
	USB connection	1 type A host connector + 1 mini-B connector		
Operating temperature		0…50 °C		
Industrial certifications		CE, RCM, EAC, KC, CUL, UL, ATEX Zone 2/22		
Cut-out (mm) *(1)*		112.5 x 77.5		
Dimensions (mm)		124.9 x 90.4 x 38.8		
Reference		**HMISTO705**	**HMISTO715**	**HMISTO735**

(1) An accessory adapter is available to fit in monochrome STO cut-out.

Programming software and USB accessories

EcoStruxure Operator Terminal Expert, programming software for Harmony ST6, ST07, and STM6 basic panels				
Compatibility	All Harmony ST6 and STO7 basic panels			
Type of EcoStruxure Operator Terminal Expert license	Professional License *(1)*	Professional License *(1) (3)*	Basic Edition License *(2)*	Basic Edition License *(2) (3)*
Number of stations	1			
License format	Printed	Digital	Printed	Digital
License duration	Unlimited			
Reference	**HMIPELCZLSPMZZ**	**HMIPELCZSPAZZ**	**HMIEELCZLSPMZZ**	**HMIEELCZLSPAZZ**

USB accessories for basic panels				
USB accessories	Monolithic USB tower lights		Illuminated USB switch	USB keyboard
Degree of protection	IP54		IP65	
Description	- 3 multi-color LEDs - clear lens - 2-tone buzzer (up to 85 dB at 1 m) - pre-assembled USB cable for easy connection - USB cable clamp to help ensure firm connection		5 customizable soft/static function keys with multi-color LED backlight or alarm acknowledgment	USB keyboard with 12 keys with integrated LEDs that can be used as user customizable function keys or alpha-numeric input keys
Type of mounting	Base for direct mounting	100 mm aluminum support tube mounted on a plate	–	–
Compatibility	*(4)*			
Reference	**XVGU3SWV**	**XVGU3SHAV**	**HMIZRA1**	**HMIZKB1**

(1) Supports Web Server API in ST6/STO7 and OPC UA in ST6.
(2) Does not support Web Server API or OPC UA.
(3) Please check the availability of the digital format with your local Schneider Electric contact.
(4) Please check the availability of software with your local Schneider Electric contact.

03. TeSys motor management, distribution system protection, power metering and control

Build your motor starter!

	Contactor	Thermal-magnetic circuit breaker	Magnetic circuit breaker	Switch-disconnector fuse	Thermal overload relay	Ultra compact motor starter
Range name	TeSys K, TeSys Deca & Giga	TeSys GV.ME/P	TeSys GV.L	TeSys GS	TeSys K, TeSys Deca & Giga	TeSys H
Product reference prefix	LC	GV	GV.L	GS	LR	LZ
Motor starter structure - 4 functions to be covered:						
Disconnection and breaking		■	■	■		
Short-circuit protection		■	■	■		
Overload protection		■			■	■
Control	■					■

Voltage coil code

	■■	■■	■■
	AC	DC	DC<2,4W
24 V	B7	BD	BL
48 V	E7	ED	EL
110 V	F7	FD	
220 V	M7		
230 V	P7		

Motor power AC3 380/400 V	0.37…0.55 kW	0.75 kW	1.1…1.5 kW	2.2 kW	3 kW	4 kW	5.5 kW
	TeSys K mini contactor *(1)*						
Ie max. AC3 (Ue ≤ 440 V)	6 A	6 A	6 A	6 A	9 A	9 A	12 A
Ie AC1 (T< 60°C)	20 A	20 A	20 A	20 A	20 A	20 A	20 A
Contactor with NO auxiliary contact *(2)*	LC1K0610 ■■	LC1K0610 ■■	LC1K0610 ■■	LC1K0610 ■■	LC1K0910 ■■	LC1K0910 ■■	LC1K1210 ■■
Contactor with NC auxiliary contact *(2)*	LC1K0601 ■■	LC1K0601 ■■	LC1K0601 ■■	LC1K0601 ■■	LC1K0901 ■■	LC1K0901 ■■	LC1K1201 ■■
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Thermal-magnetic circuit breaker	GV2P06	GV2P07	GV2P08	GV2P10	GV2P14	GV2P14	GV2P16
	Rotary handle						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	15 KA
Thermal-magnetic circuit breaker	GV2ME06	GV2ME07	GV2ME08	GV2ME10	GV2ME14	GV2ME14	GV2ME16
	Pushbutton control						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	15 KA
Magnetic circuit breaker	GV2LE06	GV2LE07	GV2LE08	GV2LE10	GV2LE14	GV2LE14	GV2LE16
	Tumbler control						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Magnetic circuit breaker	GV2L06	GV2L07	GV2L08	GV2L10	GV2L14	GV2L14	GV2L16
	Rotary handle						
Switch-disconnector fuse	GS1DD	GS1DD	GS1DD	GS1DD	GS1DD	GS1DD	GS1DD
Fuse type	10 x 38	10 x 38	10 x 38	10 x 38	10 x 38	10 x 38	10 x 38
Operational current Ie/400 V	2 A	4 A	4 A	6 A	8 A	12 A	16 A
Thermal overload relay cl10A	LR2K0306	LR2K0308	LR2K0310	LR2K0312	LR2K0314	LR2K0316	LR2K0321
	TeSys H ultra-compact motor starter						
Breaking capacity Icu/400 V	> 100 KA	> 100 KA	> 100 KA	> 100 KA	> 100 KA		
Magnetic circuit breaker	GV2L06	GV2L07	GV2L08	GV2L10	GV2L14		
	Rotary handle						
Breaking capacity Icu/400 V	> 100 KA	> 100 KA	> 100 KA	> 100 KA	> 100 KA		
Magnetic circuit breaker	GV2LE06	GV2LE07	GV2LE08	GV2LE10	GV2LE14		
	Tumbler control						
Ultra-compact starter							
Standard version	LZ1H2X…	LZ1H2X…	LZ1H6X…	LZ1H6X…	LZ1H6X…		
"Safety" version	LZ7H2X…	LZ7H2X…	LZ7H6X…	LZ7H6X…	LZ7H6X…		

(1) Naming rule for the TeSys K range: LC1K… for AC; LP1K… for DC; LP4K… for DC < 2.4 W. For more details, please refer to the TeSys catalog.
(2) The end of the product references must be replaced with a coil voltage code as indicated above (eg.: "P7" for 230 VAC, "BD" for 24 VDC). For more details, please refer to the TeSys catalog.

Build your motor starter!

	Contactor	Thermal-magnetic circuit breaker	Magnetic circuit breaker	Switch-disconnector fuse	Thermal overload relay	Compact starter controller
Range name	TeSys K, TeSys Deca & Giga	TeSys GV.ME/P	TeSys GV.L	TeSys GS	TeSys K, TeSys Deca & Giga	TeSys Ultra
Product reference prefix	LC	GV	GV.L	GS	LR	LU
Motor starter structure - 4 functions to be covered:						
Disconnection and breaking	▫	■	■	■	▫	▫
Short-circuit protection	▫	■	■	■	▫	▫
Overload protection	▫	■	▫	▫	■	▫
Control	■	▫	▫	▫	▫	▫

Voltage coil code

	■■	■■	■■	■■	★★
	AC	DC	DC<2,4 W	AC/DC	AC/DC
24 V	B7	BD	BL	BNE	B/BL
48 V	E7	ED	EL	BNE	ES
110 V	F7	FD		KUE	FU
220 V	M7			KUE	FU
230 V	P7			KUE	FU

Motor power AC3 380/400 V	0.37…0.55 kW	0.75 kW	1.1…1.5 kW	2.2 kW	3 kW	4 kW
TeSys Deca Contactors						
Ie max. AC3 (Ue ≤ 440 V)	9 A	9 A	9 A	9 A	9 A	9 A
Ie AC1 (T< 60°C)	25 A	25 A	25 A	25 A	25 A	25 A
Contactor *(1)*	LC1D09 ■■	LC1D09 ■■	LC1D09 ■■	LC1D09 ■■	LC1D09 ■■	LC1D09 ■■
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Thermal-magnetic circuit breaker	GV2P06	GV2P07	GV2P08	GV2P10	GV2P14	GV2P14
Rotary handle						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Thermal-magnetic circuit breaker	GV2ME06	GV2ME07	GV2ME08	GV2ME10	GV2ME14	GV2ME14
Pushbutton control						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Magnetic circuit breaker	GV2LE06	GV2LE07	GV2LE08	GV2LE10	GV2LE14	GV2LE14
Tumbler control						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	100 KA
Magnetic circuit breaker	GV2L06	GV2L07	GV2L08	GV2L10	GV2L14	GV2L14
Rotary handle						
Switch-disconnector fuse	GS1DD	GS1DD	GS1DD	GS1DD	GS1DD	GS1DD
Fuse type	10 x 38	10 x 38	10 x 38	10 x 38	10 x 38	10 x 38
Operational current Ie/400 V	2 A	4 A	4 A	6 A	8 A	12 A
Thermal overload relay cl10A	LRD06	LRD07	LRD08	LRD10	LRD12	LRD14
Thermal overload relay cl20	–	–	LRD1508	LRD1510	LRD1512	LRD1514
TeSys Ultra Compact Motor Starter						
Breaking capacity Icu/400 V	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA
Power base	LUB12	LUB12	LUB12	LUB12	LUB12	LUB12
Control unit	LUCA1X ★★	LUCA05 ★★	LUCA05 ★★	LUCA12 ★★	LUCA12 ★★	LUCA12 ★★

LAD5C.. and LAD9AP3.. modules provide pre-wired solutions for GV + LC1D control circuits. Use LUFC00 for TeSys Ultra.

(1) The end of the product references must be replaced with a coil voltage code as indicated above (eg.: "P7" for 230 VAC, "BD" for 24 VDC). For more details, please refer to the TeSys catalog.

Build your motor starter!

	Contactor	Thermal-magnetic circuit breaker	Magnetic circuit breaker	Switch-disconnector fuse	Thermal overload relay	Compact starter controller
Range name	TeSys K, TeSys Deca & Giga	TeSys GV.ME/P	TeSys GV.L	TeSys GS	TeSys K, TeSys Deca & Giga	TeSys Ultra
Product reference prefix	LC	GV	GV.L	GS	LR	LU
Motor starter structure - 4 functions to be covered:						
Disconnection and breaking		■	■	■		
Short-circuit protection		■	■	■		
Overload protection		■			■	
Control	■					

Voltage coil code

	■■	■■	■■	■■	★★
	AC	DC	DC<2.4W	AC/DC	AC/DC
24 V	B7	BD	BL	BNE	B/BL
48 V	E7	ED	EL	BNE	ES
110 V	F7	FD		KUE	FU
220 V	M7			KUE	FU
230 V	P7			KUE	FU

Motor power AC3 380/400 V	5.5 kW	7.5 kW	9 kW	11 kW	15 kW	18.5 kW
TeSys Deca Contactors						
Ie max. AC3 (Ue ≤ 440 V)	12 A	18 A	25 A	25 A	32 A	
Ie AC1 (T< 60°C)	25 A	32 A	40 A	40 A	50 A	
Contactor *(1)*	LC1D12 ■■	LC1D18 ■■	LC1D25 ■■	LC1D25 ■■	LC1D32 ■■	
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	
Thermal-magnetic circuit breaker	GV2P16	GV3P18	GV3P25	GV3P25	GV3P32	
Rotary handle						
Breaking capacity Icu/400 V	15 KA	15 KA	15 KA	15 KA	15 KA	
Thermal-magnetic circuit breaker	GV2ME16	GV2ME20	GV2ME21	GV2ME22	GV2ME32	
Pushbutton control						
Breaking capacity Icu/400 V	15 KA	15 KA	15 KA	15KA	15 KA	
Magnetic circuit breaker	GV2LE16	GV2LE20	GV2LE22	GV2LE22	GV2LE32	
Tumbler control						
Breaking capacity Icu/400 V	100 KA	100 KA	100 KA	100 KA	100 KA	
Magnetic circuit breaker	GV2L16	GV2L20	GV2L22	GV3L25	GV3L32	
Rotary handle						
Switch-disconnector fuse	GS1DD	GS1DD	GS1DD	GS1DD	GS1DD	
Fuse type	10 x 38	10 x 38	10 x 38	10 x 38	10 x 38	
Operational current Ie/400 V	16 A	16 A	25 A	25 A	32 A	
Thermal overload relay cl10A	LRD16	LRD21	LRD22	LRD22	LRD32	
	–	–	–	LRD325 *(2)*	LRD332 *(2)*	
Thermal overload relay cl20	LRD1516	LRD1521	LRD1522	LRD1522	LRD1532	
	–	–	–	LRD325L *(2)*	LRD332L *(2)*	
TeSys Ultra Compact Motor Starter						
Breaking capacity Icu/400 V	50 kA	50 kA	50 kA	50 kA	50 kA	25 kA
Power base	LUB12	LUB32	LUB32	LUB32	LUB32	LUB38
Control unit	LUCA12 ★★	LUCA18 ★★	LUCA32 ★★	LUCA32 ★★	LUCA32 ★★	LUCA38 ★★

LAD5C.. and LAD9AP3.. modules provide pre-wired solutions for GV + LC1D control circuits. Use LUFC00 for TeSys Ultra.

(1) The end of the product references must be replaced with a coil voltage code as indicated above (eg.: "P7" for 230 VAC, "BD" for 24 VDC). For more details, please refer to the TeSys catalog.
(2) BTR screws (EverLink).

Build your motor starter!

	Contactor	Thermal-magnetic circuit breaker	Magnetic circuit breaker	Switch-disconnector fuse	Thermal overload relay
Range name	TeSys D, TeSys Deca & Giga	TeSys GV	TeSys GV.L	TeSys GS	TeSys D, TeSys Deca & Giga
Product reference prefix	LC	GV	GV.L	GS	LR
Motor starter structure - 4 functions to be covered:					
Disconnection and breaking		■	■	■	
Short-circuit protection		■	■	■	
Overload protection		■			■
Control	■				

Voltage coil code

	■■	■■	■■	■■	■■	●●	●●
	AC	DC	DC<2.4 W	AC/DC	DC<0.5 W	AC	DC
24 V	B7	BD	BL	BNE	BBE	B7	BD
48 V	E7	ED	EL	BNE		E7	ED
110 V	F7	FD		KUE		F7	FD
220 V	M7			KUE		M7	
230 V	P7			KUE		P7	

Motor power AC3 380/400 V	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW	75 kW
	TeSys Deca Contactors						
Ie max. AC3 (Ue ≤ 440 V)	40 A	50 A	65 A	80 A	95 A	115 A	150 A
Ie AC1 (T< 60°C)	60 A	80 A	80 A	125 A	125 A	200 A	200 A
Contactor *(1)*	LC1D40A ■■	LC1D50A ■■	LC1D65A ■■	LC1D80A ■■	LC1D95 ●●	LC1D115 ●●	LC1D150 ●● / LC1F150 ●●
Breaking capacity Icu/400 V	50 KA	50 KA	50 KA	100 KA	100 KA	100 KA	70 KA
Thermal-magnetic circuit breaker	GV3P40	GV3P50	GV3P65	GV4P80	GV4P115	GV4P115	GV5P150H
	Rotary handle			Rotary or tumbler handle			Rotary handle
Breaking capacity Icu/400 V	50 KA	50 KA	50 KA	50 KA	100 KA	100 KA	36 KA
Thermal-magnetic circuit breaker	GV3P40	GV3P50	GV3P65	GV3P73	GV4P115	GV4P115	GV5P150F
	Rotary handle			Rotary or tumbler handle			Rotary handle
Breaking capacity Icu/400 V	50 KA	50 KA	50 KA	100 KA	100 KA	100 KA	70 KA
Magnetic circuit breaker	GV3L40	GV3L50	GV3L65	GV4L80	GV4L115	GV4L115	NSX160HMA
	Rotary handle			Rotary or tumbler handle			
Breaking capacity Icu/400 V	50 KA	50 KA	50 KA	50 KA	100 KA	100 KA	50 KA
Magnetic circuit breaker	GV3L40	GV3L50	GV3L65	GV3L73	GV4L115	GV4L115	NSX160NMA
	Rotary handle				Rotary or tumbler handle		
Switch-disconnector fuse	GS2F	GS2F	GS2J	GS2J	GS2J	GS2J	GS2J GS2LL / GS2L
Fuse type	14 x 51	14 x 51	22 x 58	22 x 58	22 x 58	22 x 58	T00 / T0
Operational current Ie/400 V	40 A	50 A	80 A	100 A	100 A	125 A	160 A
Thermal overload relay cl10A	–	–	–	LRD3361	LRD3365	LRD4367	LRD4369
	LRD340	LRD350	LRD365	–	–	LR9D5369 *(2)*	LR9D5369 *(2)*
Thermal overload relay cl20	LRD340L	LRD350L	LRD365L	LR2D3563	–	LR9D5569 *(2)*	LR9D5569 *(2)*

(1) The end of the product references must be replaced with a coil voltage code as indicated above (eg.: "P7" for 230 VAC, "BD" for 24 VDC). For more details, please refer to the TeSys catalog.
(2) Electronic products.

Build your motor starter!

	Contactor	Thermal-magnetic circuit breaker	Magnetic circuit breaker	Switch-disconnector fuse	Thermal overload relay
Range name	TeSys K, TeSys Deca & Giga	TeSys GV5/GV6, ComPacT NSX/NS	ComPacT NSX/NS	TeSys GS	TeSys K, TeSys Deca & Giga
Product reference prefix	LC	GV.P/LV4/33	GV.L	GS	LR
Motor starter structure - 4 functions to be covered:					
Disconnection and breaking		■	■	■	
Short-circuit protection		■	■	■	
Overload protection		■			■
Control	■				

TeSys Giga Contactor LC1G115….LC1G800	Advanced Version	Standard Version
Control Voltage code (●●●)	LC1G……..A	LC1G……..N
24…48 V AC/DC	BEE*	-
48…130 V AC/DC	EHE	EHE
100…250 V AC/DC	-	KUE
200…500 V AC/DC	LSE	-
* LC1G115-LC1G500		

TeSys F Contactor LC1F1000	AC	DC
110 V	F7	FD
220 V	M7	MD
230 V	M7	
240 V	U7	

3

Motor power AC3 400 V	55 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW	250 kW	335 kW	450 kW	500 kW
	TeSys Giga contactor										
Ie max. AC3 (Ue ≤ 440 V)	115 A	150 A	185 A	225 A	265 A	330 A	400 A	500 A	630 A	800 A	1000 A
Ie AC1 (T< 60°C)	250 A	275 A	305 A	330 A	385 A	440 A	550 A	700 A	1050 A	1050 A	1250 A *(2)*
Contactor *(1)*	LC1G115●●●●	LC1G150●●●●	LC1G185●●●●	LC1G225●●●●	LC1G265●●●●	LC1G330●●●●	LC1G400●●●●	LC1G500●●●●	LC1G630●●●●	LC1G800●●●●	LC1F1000●●
2 devices: Type-2 protection											
Breaking capacity Icu/400 V	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA
Thermal-magnetic circuit breaker	GV5P150H	GV5P150H	GV5P220H	GV5P220H	GV6P320H	GV6P320H	GV6P500H	GV6P500H	NS800H	NS800H/ NS1000H	NS1000L
Trip unit	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 5.0	Micrologic 5.0	Micrologic 5.0
Breaking capacity Icu/400 V	36 kA	36 kA	36 kA	36 kA	36 kA	36 kA	36 kA	36 kA	50 kA	50 kA	42 KA
Thermal-magnetic circuit breaker	GV5P150F	GV5P150F	GV5P220F	GV5P220F	GV6P320F	GV6P320F	GV6P500F	GV6P500F	NS800N	NS800N	NS1000L
Trip unit	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 2.2M	Micrologic 5.0	Micrologic 5.0	Micrologic 5.0
3 devices: Type-2 protection											
Breaking capacity Icu/ 400 V	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	70 kA	130 kA	130 kA	130 kA
Magnetic circuit breaker	NS160H	NS160H	NSX250H	NSX250H	NSX400H	NSX400H	NSX630H	NSX630H	NS800L	NS800L	NS1000L
Trip unit	MA	MA	MA	MA	Micrologic 1.3-M	Micrologic 1.3-M	Micrologic 1.3-M	Micrologic 1.3-M	*(3)*	*(3)*	*(3)*
Overload relay *(4)*	LR9G225	LR9G225	LR9G225	LR9G225	LR9G500	LR9G500	LR9G500	LR9G500	LR9G500	-	LRD05 + Current transformer 800/1 A
Breaking capacity Icu/ 400 V	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA	50 kA	130 kA	130 kA	130 kA
Magnetic circuit breaker	NS160N	NS160N	NSX250N	NSX250N	NSX400N	NSX400N	NSX630N	NSX630N	NS800L	NS800L	NS1000L
Trip unit	MA	MA	MA	MA	Micrologic 1.3-M	Micrologic 1.3-M	Micrologic 1.3-M	Micrologic 1.3-M	*(3)*	*(3)*	*(3)*
Overload relay *(4)*	LR9G225	LR9G225	LR9G225	LR9G225	LR9G500	LR9G500	LR9G500	LR9G500	LR9G500	-	LRD05 + Current transformer 800/1 A *(5)*
Breaking capacity Icu/ 400 V	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA	80 kA
Switch-disconnector fuse	GS2L	GS2L	GS2N	GS2N	GS2N	GS2QQ	GS2S	GS2S	GS2S	GS2V	GS2V
Fuse size (type DIN - aM fuses)	0	0	1	1	2	2	3	3	4	4	4
Operational current Ie/ 400 V	125 A	160 A	200 A	250 A	315 A	400 A	500 A	500 A	800 A	800 A	1000 A
Overload relay *(4)*	LR9G115	LR9G225	LR9G225	LR9G225	LR9G500	LR9G500	LR9G500	LR9G500	LR9G630	LRD10 + current transformer 5A/5VA *(5)*	LRD10 + current transformer 5A/5VA *(5)*

(1) Contactor references must be completed with coil voltage code as indicated above table (eg.: "LSE" for 200…500V AC/DC control voltage) and ended with A for Advanced version and N for Standard version. For more details, please refer to the TeSys Giga catalog.
(2) 1250 A at 40 °C.
(3) Micrologic 5.0 + Plug LR Off.
(4) LR9G- Electronic thermal over-load relay with trip class selection from 5e…30e with phase imbalance and ground fault protections.
(5) Thermal overload relay class 10 A

Build your motor starter!

	Main/Emergency stop switch-disconnector	Fuse carrier	Control relay
Range name	TeSys Vario	TeSys DF	TeSys CAD, CAK
Product reference prefix	V	DF	CAD, CAK
Motor starter structure - 4 functions to be covered:			
Disconnection and breaking	■	■	■
Short-circuit protection	■	■	■
Overload protection	■	■	■
Control	■	■	■

TeSys Vario		Application	Standard		High performance								
		Ith (A)	12	20	12	20	25	32	40	63	80	125	175
Main switch disconnector	Door mounting	D22 fixing	VBDN12	VBDN20	VBD02	VBD01	VBD0	VBD1	VBD2	–	–	–	–
		Screw fixing	–	–	VBF02	VBF01	VBF0	VBF1	VBF2	VBF3	VBF4	VBF5	VBF6
Emergency stop switch disconnector	Door mounting	D22 fixing	VCDN12	VCDN20	VCD02	VCD01	VCD0	VCD1	VCD2	–	–	–	–
		Screw fixing	–	–	VCF02	VCF01	VCF0	VCF1	VCF2	VCF3	VCF4	VCF5	VCF6
	Back mounting	D22 fixing	VCCDN12	VCCDN20	VCCD02	VCCD01	VCCD0	VCCD1	VCCD2	–	–	–	–
		Screw fixing	–	–	VCCF02	VCCF01	VCCF0	VCCF1	VCCF2	VCCF3	VCCF4	VCCF5	VCCF6

TeSys DF fuse carrier					
Fuse type		8x32	10x38	14x51	22x58
Fuse carrier	1 pole	DF81	DF101	DF141	DF221
	2 poles	DF82	DF102	DF142	DF222
	3 poles	DF83	DF103	DF143	DF223
Thermal current Ith (A)		25	32	50	125

TeSys Control relay				
Auxiliary contact		AC control coil	DC control coil	DC control coil low consumption
NO	NC	4.5 VA	3 W	1.8 W
4	–	CA2KN40●●	CA3KN40●●	CA3KN40BW3
3	1	CA2KN31●●	CA3KN31●●	CA3KN31BW3
2	2	CA2KN22●●	CA3KN22●●	CA3KN22BW3
		8 VA	5.4 W	2.4 W
5	–	CAD50●●		
3	2	CAD32●●		

Voltage coil code

	AC	DC	DC<2,4 W
24 V	B7	BD	BL
48 V	E7	ED	EL
110 V	F7	FD	FL
220 V	M7		
230 V	P7		

Distribution system protection

Compact NSXm molded-case circuit breakers and switch-disconnectors up to 160 A and 70 kA at 415 V

For breaking capacity, replace • with: 1 (16 kA at 380/415 V), 2 (25 kA at 380/415 V), 3 (36 kA at 380/415 V), 4 (50 kA at 380/415 V), or 5 (70 kA at 380/415 V).

Compact NSXm circuit breaker

With thermal-magnectic trip unit TM-D

EverLink™ connectors

Rating	Trip unit	3P	4P 3d	4P 4d
16 A	TM16D	**LV426•00**	**LV426•10**	**LV426•20**
25 A	TM25D	**LV426•01**	**LV426•11**	**LV426•21**
32 A	TM32D	**LV426•02**	**LV426•12**	**LV426•22**
40 A	TM40D	**LV426•03**	**LV426•13**	**LV426•23**
50 A	TM50D	**LV426•04**	**LV426•14**	**LV426•24**
63 A	TM63D	**LV426•05**	**LV426•15**	**LV426•25**
80 A	TM80D	**LV426•06**	**LV426•16**	**LV426•26**
100 A	TM100D	**LV426•07**	**LV426•17**	**LV426•27**
125 A	TM125D	**LV426•08**	**LV426•18**	**LV426•28**
160 A	TM160D	**LV426•09**	**LV426•19**	**LV426•29**

Compact NSXm NA switch-disconnector

EverLink™ connectors

Rating	3P	4P
50 A	**LV426600**	**LV426610**
100 A	**LV426601**	**LV426611**
160 A	**LV426602**	**LV426612**

Note: *For accessories and more details, please refer to the NSXm catalog.*

PowerPact B molded-case circuit breakers up to 125 A and 65 kA at 480 V

PowerPact B-Frame 125 A unit-mount thermal-magnetic circuit breakers (480 VAC) Delta rated

With factory sealed trip unit (suitable for reverse connection)

B-Frame, 125 A, 3P, 480 VAC 50/60 Hz with EverLink™ connectors

Current rating at 40 °C (A)	Fixed AC magnetic trip (A)		Interrupting rating standard (80%) rated		
	Hold	Trip	D - 18 kA	G - 35 kA	J - 65 kA
15	400	600	**BDL36015LU**	**BGL36015LU**	**BJL36015LU**
20	400	600	**BDL36020LU**	**BGL36020LU**	**BJL36020LU**
25	400	600	**BDL36025LU**	**BGL36025LU**	**BJL36025LU**
30	400	600	**BDL36030LU**	**BGL36030LU**	**BJL36030LU**
35	400	600	**BDL36035LU**	**BGL36035LU**	**BJL36035LU**
40	400	600	**BDL36040LU**	**BGL36040LU**	**BJL36040LU**
45	400	600	**BDL36045LU**	**BGL36045LU**	**BJL36045LU**
50	480	720	**BDL36050LU**	**BGL36050LU**	**BJL36050LU**
60	640	960	**BDL36060LU**	**BGL36060LU**	**BJL36060LU**
70	640	960	**BDL36070LU**	**BGL36070LU**	**BJL36070LU**
80	800	1200	**BDL36080LU**	**BGL36080LU**	**BJL36080LU**
90	1000	1500	**BDL36090LU**	**BGL36090LU**	**BJL36090LU**
100	1000	1500	**BDL36100LU**	**BGL36100LU**	**BJL36100LU**
110	1000	1500	**BDL36110LU**	**BGL36110LU**	**BJL36110LU**
125	1000	1500	**BDL36125LU**	**BGL36125LU**	**BJL36125LU**

Note: *For accessories and more details, please refer to the PowerPact B catalog.*

Distribution system protection
Multi 9 miniature circuit breakers
Feeder products - C60BP - UL 489 - Z, C, D curves – Tunnel terminals

Main characteristics

Number of 18 mm/*0.71 in.* poles	Rating (A) 25 °C/77 °F	Breaking capacity (kA rms) AIR UL 489/CSA C22.2 No 5				Icu IEC 60947 - 2			
Poles	**Voltage (Ue)**	**277 V~**	**240 V~**	**120 V~**	**60 V ⎓**	**440 V~**	**415 V~**	**240 V~**	**60 ⎓**
1P	0.5 to 35	10	14	14	10	–	3	10	20
	40 to 63	–	10	10	10	–	3	10	20
Poles	**Voltage (Ue)**	**480Y/277 V~**		**240 V~**	**125 V ⎓**	**440 V~**	**415 V~**	**240 V~**	**125 ⎓**
2P	1 to 25	10		14	10	6	10	20	–
	30 to 35	10		14	–	6	10	20	–
3P	1 to 35	10		14	–	6	10	20	–
2P/3P	40 to 63	–		10	–	6	10	20	–

Tunnel terminal connection

Type	UL489 and CSA voltages	1P			2P		3P	
Auxilliaries		Remote indication and tripping						
Rating (In)		Curve			Curve		Curve	
		Z	C	D (=K)	C	D (=K)	C	D (=K)
$C60_{SP}$								
0.5	480 Y/277 V and 240 V	**M9F44170**	**M9F42170**	**M9F43170**	–	–	–	–
1		**M9F44101**	**M9F42101**	**M9F43101**	**M9F42201**	**M9F43201**	**M9F42301**	**M9F43301**
2		**M9F44102**	**M9F42102**	**M9F43102**	**M9F42202**	**M9F43202**	**M9F42302**	**M9F43302**
3		**M9F44103**	**M9F42103**	**M9F43103**	**M9F42203**	**M9F43203**	**M9F42303**	**M9F43303**
4		**M9F44104**	**M9F42104**	**M9F43104**	**M9F42204**	**M9F43204**	**M9F42304**	**M9F43304**
5		**M9F44105**	**M9F42105**	**M9F43105**	**M9F42205**	**M9F43205**	**M9F42305**	**M9F43305**
6		**M9F44106**	**M9F42106**	**M9F43106**	**M9F42206**	**M9F43206**	**M9F42306**	**M9F43306**
8		**M9F44108**	**M9F42108**	**M9F43108**	**M9F42208**	**M9F43208**	**M9F42308**	**M9F43308**
10		**M9F44110**	**M9F42110**	**M9F43110**	**M9F42210**	**M9F43210**	**M9F42310**	**M9F43310**
15		**M9F44115**	**M9F42115**	**M9F43115**	**M9F42215**	**M9F43215**	**M9F42315**	**M9F43315**
20		**M9F44120**	**M9F42120**	**M9F43120**	**M9F42220**	**M9F43220**	**M9F42320**	**M9F43320**
25		**M9F44125**	**M9F42125**	**M9F43125**	**M9F42225**	**M9F43225**	**M9F42325**	**M9F43325**
30		**M9F44130**	**M9F42130**	**M9F43130**	**M9F42230**	**M9F43230**	**M9F42330**	**M9F43330**
35		**M9F44135**	**M9F42135**	**M9F43135**	**M9F42235**	**M9F43235**	**M9F42335**	**M9F43335**
40	240 V only	**M9F44140**	**M9F42140**	**M9F43140**	**M9F42240**	**M9F43240**	**M9F42340**	**M9F43340**
45		**M9F44145**	**M9F42145**	**M9F43145**	**M9F42245**	**M9F43245**	**M9F42345**	**M9F43345**
50		**M9F44150**	**M9F42150**	**M9F43150**	**M9F42250**	**M9F43250**	**M9F42350**	**M9F43350**
63		**M9F44163**	**M9F42163**	**M9F43163**	**M9F42263**	**M9F43263**	**M9F42363**	**M9F43363**

Note: *For accessories and more details, please refer to the Multi9 catalog.*

In order to check the availability of the Multi9 range in your country, please contact your local Schneider Electric representative.
Except for the US market, use of the Acti9 range is still possible.

Main characteristics

Number of 18 mm/*0.71 in.* poles	Rating (A) 25 °C/77 °F	Breaking capacity (kA rms) AIR UL 1077/CSA C22.2 No 235				Icu IEC 60947 - 2			
Poles	**Voltage (Ue)**	**277 V~**	**240 V~**	**120 V~**	**65 V ⎓**	**440 V~**	**415 V~**	**240 V~**	**60 ⎓**
1P	0.5 to 32	10	14	14	10	–	3	10	20
	40 to 63	5	10	10	10	–	3	10	20
Poles	**Voltage (Ue)**	**480Y/277 V~**		**240 V~**	**125 V ⎓**	**440 V~**	**415 V~**	**240 V~**	**125 ⎓**
2P	1 to 25	10		14	10	6	10	20	–
	32	10		14	–	6	10	20	–
3P/4P	2 to 32	10		14	–	6	10	20	–
2P/3P/4P	40 to 63	5		10	–	6	10	20	–

Tunnel terminal connection

Type	1P			2P			3P			4P		
Auxilliaries	**Remote indication and tripping**											
Rating (In)	Curve			Curve			Curve			Curve		
	B	C	D (=K)	Curve B	C	D(=K)	B	C	D (=K)	B	C	D (=K)
$C60_{SP}$												
0.5	**M9F21170**	**M9F22170**	**M9F23170**	–	–	–	–	–	–	–	–	–
1	**M9F21101**	**M9F22101**	**M9F23101**	**M9F21201**	**M9F22201**	**M9F23201**	–	–	–	–	–	–
2	**M9F21102**	**M9F22102**	**M9F23102**	**M9F21202**	**M9F22202**	**M9F23202**	**M9F21302**	**M9F22302**	**M9F23302**	**M9F21402**	**M9F22402**	**M9F23402**
3	**M9F21103**	**M9F22103**	**M9F23103**	**M9F21203**	**M9F22203**	**M9F23203**	–	–	–			
4	**M9F21104**	**M9F22104**	**M9F23104**	**M9F21204**	**M9F22204**	**M9F23204**	–	–	–			
5	**M9F21105**	**M9F22105**	**M9F23105**	**M9F21205**	**M9F22205**	**M9F23205**	–	–	–			
6	**M9F21106**	**M9F22106**	**M9F23106**	**M9F21206**	**M9F22206**	**M9F23206**	**M9F21306**	**M9F22306**	**M9F23306**	**M9F21406**	**M9F22406**	**M9F23406**
8	**M9F21108**	**M9F22108**	**M9F23108**	**M9F21208**	**M9F22208**	**M9F23208**	**M9F21308**	**M9F22308**	**M9F23308**	**M9F21408**	**M9F22408**	**M9F23408**
10	**M9F21110**	**M9F22110**	**M9F23110**	**M9F21210**	**M9F22210**	**M9F23210**	**M9F21310**	**M9F22310**	**M9F23310**	**M9F21410**	**M9F22410**	**M9F23410**
13	**M9F21113**	**M9F22113**	**M9F23113**	**M9F21213**	**M9F22213**	**M9F23213**	**M9F21313**	**M9F22313**	**M9F23313**	**M9F21413**	**M9F22413**	**M9F23413**
16	**M9F21116**	**M9F22116**	**M9F23116**	**M9F21216**	**M9F22216**	**M9F23216**	**M9F21316**	**M9F22316**	**M9F23316**	**M9F21416**	**M9F22416**	**M9F23416**
20	**M9F21120**	**M9F22120**	**M9F23120**	**M9F21220**	**M9F22220**	**M9F23220**	**M9F21320**	**M9F22320**	**M9F23320**	**M9F21420**	**M9F22420**	**M9F23420**
25	**M9F21125**	**M9F22125**	**M9F23125**	**M9F21225**	**M9F22225**	**M9F23225**	**M9F21325**	**M9F22325**	**M9F23325**	**M9F21425**	**M9F22425**	**M9F23425**
32	**M9F21132**	**M9F22132**	**M9F23132**	**M9F21232**	**M9F22232**	**M9F23232**	**M9F21332**	**M9F22332**	**M9F23332**	**M9F21432**	**M9F22432**	**M9F23432**
40	**M9F21140**	**M9F22140**	**M9F23140**	**M9F21240**	**M9F22240**	**M9F23240**	**M9F21340**	**M9F22340**	**M9F23340**	**M9F21440**	**M9F22440**	**M9F23440**
45	**M9F21145**	**M9F22145**	**M9F23145**	**M9F21245**	**M9F22245**	**M9F23245**	**M9F21345**	**M9F22345**	**M9F23345**	**M9F21445**	**M9F22445**	**M9F23445**
50	**M9F21150**	**M9F22150**	**M9F23150**	**M9F21250**	**M9F22250**	**M9F23250**	**M9F21350**	**M9F22350**	**M9F23350**	**M9F21450**	**M9F22450**	**M9F23450**
63	**M9F21163**	**M9F22163**	**M9F23163**	**M9F21263**	**M9F22263**	**M9F23263**	**M9F21363**	**M9F22363**	**M9F23363**	**M9F21463**	**M9F22463**	**M9F23463**

Note: *For accessories and more details, please refer to the Multi9 catalog.*

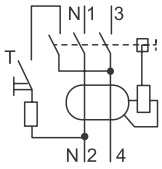
In order to check the availability of the Multi9 range in your country, please contact your local Schneider Electric representative.
Except for the US market, use of the Acti9 range is still possible.

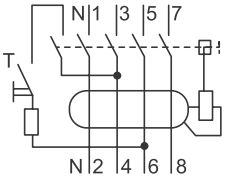
Distribution system protection

Multi 9 miniature circuit breakers

Ground fault protector (GFP) UL1053 & IEC/EN 61008

IEC



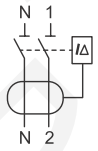


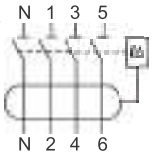
GFP UL 1053 type A-SI

Supported standards	UL, IEC			2P		4P	
A-SI type	Rating (A)	Sensitivity (mA)		Reference		Reference	
		UL 1053	IEC / EN 61008	120 or 240 V 230 or 240 V	240 V 480 V / 277 V 230 / 400 or 240 / 415 V	120 or 240 V 230 or 240 V	240 V 480 V / 277 V 230 / 400 or 240 / 415 V
	A	mA	mA				
	25	26	30	**M9R81225**	**M9R41225**	–	**M9R81425**
		86	100	**M9R12225**	**M9R44225**	–	**M9R12425**
		260	300	**M9R84225**	–	–	**M9R84425**
	40	26	30	**M9R81240**	**M9R41240**	–	**M9R81440**
		260	300	**M9R84240**	–	–	**M9R84440**
	63	26	30	**M9R81263**	–	–	**M9R81463**
		86	**100**	–	–	–	**M9R12463**
	100	86	100	–	–	–	**M9R12491**
		260	100	–	–	–	**M9R84491**

Residual current circuit breakers (RCCB) ID - IEC/EN 61008-1

IEC

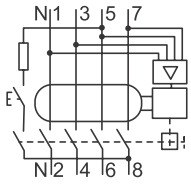




RCCB - ID residual current circuit breakers

Type		AC		A - SI	
Auxiliaries	2P				
	Sensitivity	30 mA	300 mA	30 mA	300 mA
	25 A	**M9R11225**	–	–	–
	40 A	**M9R11240**	**M9R14240**	**M9R31240**	**M9R35240**
Voltage rating (Ue)		230-240 V, 50 Hz			
Auxiliaries	4P				
	40 A	**M9R11440**	**M9R14440**	**M9R31440**	**M9R35440**
	63 A	**M9R11463**	**M9R11463**	**M9R31463**	**M9R35463**
Voltage rating (Ue)		400 - 415 V, 50 Hz			

IEC



Acti9 iID B-SI type residual current circuit breakers

Type			B-SI			
4P	Rating (A)	Sensitivity	30 mA	300 mA	300 mA S	500 mA
	25	B-SI	**A9Z61425**	**A9Z64425**	–	–
	40	B-SI	**A9Z61440**	**A9Z64440**	**A9Z65440**	**A9Z66440**
	63	B-SI	**A9Z61463**	**A9Z64463**	**A9Z65463**	**A9Z66463**
	40	B-SI	**A9Z61480**	**A9Z64480**	**A9Z65480**	**A9Z66480**
	125	B	**16763**	**16764**	**16765**	**16766**
Voltage rating (Ue)			230/400 V			
Operating frequency			50 Hz			

Note: *For accessories and more details, please refer to the Multi9 catalog.*

In order to check the availability of the Multi9 range in your country, please contact your local Schneider Electric representative.
Except for the US market, use of the Acti9 range is still possible.

IEC

PowerTag Energy 63 A

Pole	Design	Type of mounting	Reference
1P + wire	Monoconnect	Top and Bottom	**A9MEM1520**
1P + N	Monoconnect	Top	**A9MEM1521**
	Monoconnect	Bottom	**A9MEM1522**
	Flex	Top and Bottom	**A9MEM1560**
3P	Monoconnect	Top and Bottom	**A9MEM1540**
	Flex	Top and Bottom	**A9MEM1573** *(1)*
3P + N	Monoconnect	Top	**A9MEM1541**
	Monoconnect	Bottom	**A9MEM1542**
	Flex	Top and Bottom	**A9MEM1570**

PowerTag Energy Flex 160 A

Pole	Rating	Reference
3P/3P + N	160 A	**A9MEM1580**

(1) Suitable with TeSys LC1D and GV<63A
(2) Suitable with GV5
(3) Suitable with GV6

PowerTag Energy Monoconnect 250/630 A

Pole	Rating	Reference
3P	250 A	**LV434020** *(2)*
	630 A	**LV434022** *(3)*
3P + N	250 A	**LV434021**
	630 A	**LV434023**

PowerTag Energy Rope up to 2000 A

Pole	Rating	Reference
3P/3P + N	200 A	**A9MEM1590**
	600 A	**A9MEM1591**
	1000 A	**A9MEM1592**
	2000 A	**A9MEM1593**

IEC

Main characteristics of EcoStruxure Panel Server (Ethernet)

Application	Metering and monitoring solutions	
Communication type	Radio frequency and Modbus RS485	
Number of connected sensors	Entry Panel Server	Up to 20 wireless devices
	Universal Panel Server	Up to 100 wireless devices, and Up to 32 Modbus RS485
	Devices Without Repeater	Up to 128 Modbus RS485 without repeater

Ecostruxure Panel server

Type	Set	Reference
Entry Panel Server	1	**PAS400**
Universal Panel Sever	1	**PAS600L** (24VDC Power supply)
		PAS600T (110 - 240 V AC/DC Power Supply)
		PAS600 (110 - 270 V AC/DC Power Supply)

Note: *For accessories and more details, please refer to the PowerTag and Panel Server catalogs.*

Energy meter and power meter

Energy meter

Type of network	1P+N	1P+N	1P+N, 3P, 3P+N
Self-powered	Yes	Yes	Yes
Display	1 line	1 line	3 lines
Width (mm)	17.5	36	90
Current input	45 A	63 A	63 A
Multi tariff	2	-	-
Communication	Modbus RS485	Modbus RS485	Modbus RS485
Active Energy accuracy	Cl 1	Cl 1	Cl 1
I/O	1 Pulse O	-	-
Reference	**A9MEM2050**	**A9MEM2150**	**A9MEM3150**

Power meter

Type of network	1P+N, 3P, 3P+N	1P+N, 3P, 3P+N	1P+N, 3P, 3P+N
Self-powered	No	No	No
Display	6 lines	6 lines	6 lines
Width (mm)	96	96	96
Current input	External CT	External CT	External CT
Multi tariff	-	4	8
Communication	Modbus RS485	Ethernet	Ethernet
Active Energy accuracy	Cl 0.5S with 15th harmonic	Cl 0.5S with 31st harmonic	Cl 0.2S with 63rd harmonic
I/O	1DO	2DI/ 2DO	2DI/ 2DO
Reference	**METSEPM5110**	**METSEPM5320**	**METSEPM5560**

Note: *For more details, please refer to the PowerLogic catalog*

04. Altivar soft starters and Altivar variable speed drives

Altivar Soft Starter ATS01 is for HVAC, pumps, compressors, and other basic motors


1


2

1 Altivar soft starter ATS01 for 0.37 to 11 kW motors and single or 3-phase supply voltage 110...480 V 50/60 Hz *(1)*

Power for single-phase motor *(2)*	Under 230 V (kW)	0.37		0.75		1.1	1.5	2.2				
Power for 3-phase motor *(2)*	Under 110 V (HP)	–	–	0.5	–	1	1.5	2	3			
	Under 230 V (kW)	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5		
	Under 230 V (HP)	0.5	–	1	1.5	2	3	5	7.5			
	Under 400 V (KW)	1.1	–	2.2	3	4	5.5	7.5	9	11		
	Under 460 V (HP)	0.5	1.5	2	*3*	5	7.5	10	15			
Nominal current IcL (A) *(3)*		3		6		9	12	25				
Dimensions: W x D x H (mm)		22.5 x 100.4 x 100				45 x 130.7 x 124						
Reference		**ATS01N103FT**		**ATS01N106FT**		**ATS01N109FT**	**ATS01N112FT**	**ATS01N125FT**				

2 Altivar soft starter ATS01 units for 0.75 to 15 kW motors *(4)* and 3-phase supply voltage 220...240 V 50/60 Hz *(5)*

Power for 3-phase motor 220...240 V 50/60 Hz (kW) *(2)*	0.75/1.1	1.5	2.2/3	4/5.5	7.5
Power in HP *(2)*	1/1.5	2	3/-	5/7.5	10
Nominal current IcL (A) *(3)*	6	9	12	22	32
Dimensions: W x D x H (mm)	45 x 130.7 x 124			45 x 130.7 x 154	
Reference	**ATS01N206LU**	**ATS01N209LU**	**ATS01N212LU**	**ATS01N222LU**	**ATS01N232LU**

Altivar soft starter ATS01 units for 0.75 to 15 kW motors *(4)* and 3-phase supply voltage 380...415 V 50/60 Hz *(5)*

Power for 3-phase motor 380...415 V 50/60 Hz (kW) *(2)*	1.5/2.2/3	4	5.5	7.5/11	15
Power in HP *(2)*	–	–	–	–	–
Nominal current IcL (A) *(3)*	6	9	12	22	32
Dimensions: W x D x H (mm)	45 x 130.7 x 124			45 x 130.7 x 154	
Reference	**ATS01N206QN**	**ATS01N209QN**	**ATS01N212QN**	**ATS01N222QN**	**ATS01N232QN**

Altivar soft starter ATS01 units for 0.75 to 15 kW motors *(4)* and 3-phase supply voltage 440...480 V 50/60 Hz *(5)*

Power for 3-phase motor 440...480 V 50/60 Hz (kW) *(2)*	–	–	–	–	–
Power in HP *(2)*	2/3	5	7.5	10/15	20
Nominal current IcL (A) *(3)*	6	9	12	22	32
Dimensions: W x D x H (mm)	45 x 130.7 x 124			45 x 130.7 x 154	
Reference	**ATS01N206RT**	**ATS01N209RT**	**ATS01N212RT**	**ATS01N222RT**	**ATS01N232RT**

(1) Number of possible start-stops/hour: 100 for starting time of 1 s maximum, 20 for starting time of 5 s maximum.
(2) Standard motor power ratings, HP power ratings indicated according to standard UL508. (3) IcL corresponds to the starter rating. (4) Control power supply built into the starter.
(5) Number of possible start-stops/hour: 100 for starting time of 1 s maximum, 20 for starting time of 5 s maximum, 10 for starting time of 10 s maximum.

Altivar Soft Starter ATS22 is for building and industrial segments


3


4

Altivar soft starter ATS22 units for 3-phase power supply voltage 208...600 V and 110 V control power supply Connection in the motor power supply line

Motor power in HP	208 V	3	7.5	–	15	20	25	30	40
	230 V	5	10	15	20	25	30	40	50
	460 V	10	10	30	40	50	60	75	100
	575 V	15	25	40	50	60	75	100	125
Nominal current IcL (A) *(6)*		17	32	47	62	75	88	110	140
Number of starts/hour	Without fan	6	6	6	6	6	6	4	4
	With fan *(7)*	10	10	10	10	10	10	10	10
Dimensions: W x H x D (mm)		130 x 265 x 169			145 x 295 x 207			150 x 356 x 229.5	
Reference		**ATS22D17S6U**	**ATS22D32S6U**	**ATS22D47S6U**	**ATS22D62S6U**	**ATS22D75S6U**	**ATS22D88S6U**	**ATS22C11S6U**	**ATS22C14S6U**

Motor power in HP	208 V	50	60	75	100	125	150	–
	230 V	60	75	100	125	150	–	200
	460 V	125	150	200	250	300	350	400
	575 V	150	200	250	300	350	400	500
Nominal current IcL (A) *(6)*		170	210	250	320	410	480	590
Number of starts/hour	Without fan	4	–	–	–	–	–	–
	With fan *(7)*	10	4	4	4	4	4	4
Dimensions: W x H x D (mm)		150 x 356 x 229.5	206 X 425 X 299		206 X 425 X 299		304 x 455 x 340	
Reference		**ATS22C17S6U**	**ATS22C21S6U**	**ATS22C25S6U**	**ATS22C32S6U**	**ATS22C41S6U**	**ATS22C48S6U**	**ATS22C59S6U**

***Note**: All values given for Altivar soft starter ATS22 are defined for 3.5 x In and 20 s starting time, with motors with thermal protection class 10. These values are for an ambient temperature of 40 °C.*
(6) IcL corresponds to the starter rating. (7) All soft starters from motor power 75 HP to 200 HP (ATS22C21.. to ATS22C59..) are equipped with a fan as standard.

Altivar Soft Starter ATS22 is for building and industrial segments

1

2

1 Altivar soft starter ATS22 units for 3-phase power supply voltage 230...440 V and 220 V 50-60 Hz control power supply
Connection in the motor power supply line or in the motor delta connection *(1)*

Motor power in kW (motor power supply line)	230 V	4	7.5	11	15	18.5	22	30	37
	400 V	7.5	15	22	30	37	45	55	75
	440 V	7.5	15	22	30	37	45	55	75
Motor power in kW (motor delta connection) *(1)*	230 V	5.5	11	18.5	22	30	37	45	55
	400 V	11	22	45	55	55	75	90	110
	440 V	15	22	45	55	75	75	90	110
Nominal current IcL (A) *(2)*		17	32	47	62	75	88	110	140
Number of starts/hour	Without fan	6	6	6	6	6	6	4	4
	With fan *(3)*	10	10	10	10	10	10	10	10
Dimensions: W x H x D (mm)			130 x 265 x 169			145 x 295 x 207		150 x 356 x 229.5	
Reference		**ATS22D17Q**	**ATS22D32Q**	**ATS22D47Q**	**ATS22D62Q**	**ATS22D75Q**	**ATS22D88Q**	**ATS22C11Q**	**ATS22C14Q**

Motor power in kW (motor power supply line)	230 V	45	55	75	90	110	132	160
	400 V	90	110	132	160	220	250	315
	440 V	90	110	132	160	220	250	355
Motor power in kW (motor delta connection) *(1)*	230 V	75	90	110	132	160	220	250
	400 V	132	160	220	250	315	355	400
	440 V	132	160	220	250	355	400	500
Nominal current IcL (A) *(2)*		170	210	250	320	410	480	590
Number of starts/hour	Without fan	4	–	–	–	–	–	–
	With fan *(3)*	10	4	4	4	4	4	4
Dimensions: W x H x D (mm)		150 x 356 x 229.5	206 X 425 X 299				304 x 455 x 340	
Reference		**ATS22C17Q**	**ATS22C21Q**	**ATS22C25Q**	**ATS22C32Q**	**ATS22C41Q**	**ATS22C48Q**	**ATS22C59Q**

2 Altivar soft starter ATS22 units for 3-phase power supply voltage 230...500 V and 220 V 50-60 Hz control power supply
Connection in the motor power supply line

Motor power in kW	230 V	4	7.5	11	15	18.5	22	30	37
	400 V	7.5	15	22	30	37	45	55	75
	440 V	7.5	15	22	30	37	45	55	75
	500 V	9	18.5	30	37	45	55	75	90
Nominal current IcL (A) *(2)*		17	32	47	62	75	88	110	140
Number of starts/hour	Without fan	–	–	–	–	–	–	–	
	With fan *(3)*	4	4	4	4	4	4	4	
Dimensions: W x H x D (mm)			130 x 265 x 169			145 x 295 x 207		150 x 356 x 229.5	
References		**ATS22D17S6**	**ATS22D32S6**	**ATS22D47S6**	**ATS22D62S6**	**ATS22D75S6**	**ATS22D88S6**	**ATS22C11S6**	**ATS22C14S6**

Motor power in kW	230 V	45	55	75	90	110	132	160
	400 V	90	110	132	160	220	250	315
	440 V	90	110	132	160	220	250	355
	500 V	110	132	160	220	250	315	400
Nominal current IcL (A) *(2)*		170	210	250	320	410	480	590
Number of starts/hour	Without fan	4	–	–	–	–	–	–
	With fan *(3)*	10	4	4	4	4	4	4
Dimensions: W x H x D (mm)		150 x 356 x 229.5	206 X 425 X 299		206 X 425 X 299		304 x 455 x 340	
Reference		**ATS22C17S6**	**ATS22C21S6**	**ATS22C25S6**	**ATS22C32S6**	**ATS22C41S6**	**ATS22C48S6**	**ATS22C59S6**

***Note**: All values given for Altivar soft starter ATS22 are defined for 3.5 x In and 20 s starting time, with motors with thermal protection class 10. These values are for an ambient temperature of 40 °C.*
(1) When connected in the delta configuration, starters allow the use of motors of a larger rating relative to that of the starter. In this configuration, the nominal motor current should not exceed 1.5 IcL.
(2) IcL corresponds to the starter rating.
(3) All soft starters from motor power 55 kW to 160 kW (ATS22C21.. to ATS22C59..) are equipped with a fan as standard.
For soft starters under 55 kW (ATS22D17.. to ATS22C17..), the number of starts per hour can be increased by adding a fan. For more details, please refer to the product datasheets on our website www.schneider-electric.com

Altivar 212 - IP21 drives for building and HVAC projects (fan, pump, compressor)



Three-phase supply voltage: 200…240 V 50/60 Hz, without EMC filter *(1)*							
Motor	Power indicated on rating plate in kW	0.75	1.5	2.2	3	4	5.5
	Power indicated on rating plate in HP	1	2	3	–	5	7.5
Altivar 212	Max. continuous output current (In) 230 V in A *(2)*	4.6	7.5	10.6	13.7	18.7	24.2
Dimensions: W x H x D (mm)	EMC plate mounted (mm)	107 x 192 x 150			142 x 232 x 150		180 x 307 x 170
	EMC plate not mounted (mm)	107 x 143 x 150			142 x 184 x 150		180 x 232 x 170
Reference		**ATV212H075M3X**	**ATV212HU15M3X**	**ATV212HU22M3X**	**ATV212HU30M3X**	**ATV212HU40M3X**	**ATV212HU55M3X**

Motor	Power indicated on rating plate in kW	7.5	11	15	18.5	22	30
	Power indicated on rating plate in HP	10	15	20	25	30	40
Altivar 212	Max. continuous output current (In) 230 V in A *(2)*	32	46.2	61	74.8	88	117
Dimensions: W x H x D (mm)	EMC plate mounted (mm)	180 x 307 x 170	245 x 405 x 190			240 x 542 x 214	320 x 723 x 290
	EMC plate not mounted (mm)	180 x 232 x 170	246 x 330 x 190			240 x 420 x 214	320 x 605 x 290
Reference		**ATV212HU75M3X**	**ATV212HD11M3X**	**ATV212HD15M3X**	**ATV212HD18M3X**	**ATV212HD22M3X**	**ATV212HD30M3X**

Three-phase supply voltage: 380…480 V 50/60 Hz, with integrated category C2 or C3 EMC filter *(1)*							
Motor	Power indicated on rating plate in kW	0.75	1.5	2.2	3	4	5.5
	Power indicated on rating plate in HP	1	2	3	3	5	7.5
Altivar 212	Max. continuous output current (In) in A *(2)*	2.2	3.7	5.1	7.2	9.1	12
Dimensions: W x H x D (mm)	EMC plate mounted (mm)	107 x 192 x 150			142 x 232 x 150		
	EMC plate not mounted (mm)	107 x 143 x 150			142 x 184 x 150		
Reference		**ATV212H075N4**	**ATV212HU15N4**	**ATV212HU22N4**	**ATV212HU30N4**	**ATV212HU40N4**	**ATV212HU55N4**

Motor	Power indicated on rating plate in kW	7.5	11	15	18.5	22	22
	Power indicated on rating plate in HP	10	15	20	25	30	30
Altivar 212	Max. continuous output current (In) in A *(2)*	16	22.5	30.5	37	43.5	43.5
Dimensions: W x H x D (mm)	EMC plate mounted (mm)	180 x 307 x 170			245 x 405 x 190		240 x 542 x 214
	EMC plate not mounted (mm)	180 x 232 x 170			245 x 330 x 190		240 x 420 x 214
Reference		**ATV212HU75N4**	**ATV212HD11N4**	**ATV212HD15N4**	**ATV212HD18N4**	**ATV212HD22N4S**	**ATV212HD22N4**

Motor	Power indicated on rating plate in kW	30	37	45	55	75
	Power indicated on rating plate in HP	40	50	60	75	100
Altivar 212	Max. continuous output current (In) in A *(2)*	58.5	79	94	116	160
Dimensions: W x H x D (mm)	EMC plate mounted (mm)	240 x 542 x 214	240 x 663 x 244		320 x 723 x 290	
	EMC plate not mounted (mm)	240 x 420 x 214	240 x 550 x 244		320 x 605 x 290	
Reference		**ATV212HD30N4**	**ATV212HD37N4**	**ATV212HD45N4**	**ATV212HD55N4**	**ATV212HD75N4**

(1) Drives are supplied with an EMC plate, for customer assembly.

(2) These values are given for a nominal switching frequency of 12 kHz up to ATV212HD15M3X and up to ATV212HD15N4 or 8 kHz for ATV21HD18M3X… HD30M3X and ATV212HD18N4…HD75N4, for use in continuous operation. The switching frequency can be set between 6 and 16 kHz for all ratings. Above 8 kHz or 12 kHz, depending on the rating, the drive will reduce the switching frequency automatically in the event of an excessive temperature rise. For continuous operation above the nominal switching frequency, derate the nominal drive current. The nominal motor current must not exceed this derating value. See the derating curves on our website www.schneider-electric.com.

Setup ATV212 with “Ecostuxure Industrial Device” Mobile Application

Free

“Ecostruxure Industrial Device” moile application for IOS or Android

Download the application via application stores:

Modbus RS232 Serial Cable with RJ45 Connectors on both sides

Ecostruxure Device Connector - Bluefer is necessary to connect mobile application to ATV212

Altivar 12 ultra-compact variable speed drives for commercial equipment

1 Altivar 12 drives with heatsink and single-phase supply voltage: 100...120 V 50/60 Hz *(1) (2)*

Motor	Power indicated on plate in kW *(3)*	0.18	0.37	0.75
	Power indicated on plate in HP *(3)*	0.25	0.5	1
Altivar 12	Max. continuous output current *(3)*	1.4	2.4	4.2
	Embedded communication	Modbus Serial Line		
	Application intelligence	Embedded functions		
	Withstand to harsh environment	Up to 60 °C with derating		
Dimensions: W x H x D (mm) *(4)*		72 x 143 x 102	72 x 143 x 121	105 x 142 x 156
Reference		**ATV12 H018F1** *(4)*	**ATV12 H037F1**	**ATV12 H075F1**

Altivar 12 drives with heatsink and single-phase supply voltage: 200...240 V 50/60 Hz *(1) (2)*

Motor	Power indicated on plate in kW *(3)*	0.18	0.37	0.55	0.75	1.5	2.2
	Power indicated on plate in HP *(3)*	0.25	0.55	0.75	1	2	3
Altivar 12	Max. continuous output current *(3)*	1.4	2.4	3.5	4.2	7.5	10
Dimensions: W x H x D (mm) *(4)*		72 x 143 x 102	72 x 143 x 121	72 x 143 x 131		105 x 142 x 156	
Reference		**ATV12 H018M2** *(4)*	**ATV12 H037M2**	**ATV12 H055M2**	**ATV12 H075M2**	**ATV12 HU15M2**	**ATV12 HU22M2**

Altivar 12 drives with heatsink and three-phase supply voltage: 200...240 V 50/60 Hz *(1) (2)*

Motor	Power indicated on plate in kW *(3)*	0.18	0.37	0.75	1.5	2.2	3	4
	Power indicated on plate in HP *(3)*	0.25	0.55	1	2	3	–	5
Altivar 12	Max. continuous output current *(3)*	1.4	2.4	4.2	7.5	10	12.2	16.7
Dimensions: W x H x D (mm) *(4)*		72 x 143 x 102	72 x 143 x 121	72 x 143 x 131	105 x 143 x 131		140 x 184 x 141	
Reference		**ATV12 H018M3** *(4)*	**ATV12 H037M3**	**ATV12 H075M3**	**ATV12 HU15M3**	**ATV12 HU22M3**	**ATV12 HU30M3**	**ATV12 HU40M3**

2 Accessories for Altivar 12 drives

Accessory	Simple Loader configuration tool *(5)*	Multi-Loader configuration tool *(5)*	USB/RJ45 cable for PC-drive connection
Compatibility	All Altivar 12 variable speed drives		
Reference	**VW3A8120**	**VW3A8121**	**TCSMCNAM3M002P**

***Note**: Altivar 12 variable speed drives are designed for 3-phase asynchronous motors.*
(1) Min. (U1) and max. (U2) nominal supply voltage: 100 (U1)…120 V (U2), 200 (U1)…240 V (U2).
(2) Altivar 12 variable speed drives are supplied with built-in EMC filters and comply with standard IEC/EN 61800-3. For more information, please refer to the product datasheet on our website www.schneider-electric.com.
(3) These values are given for a nominal switching frequency of 4 kHz, for continuous operation. For derated operation, please refer to the product catalog. ATV12 variable speed drives can supply a transient output current of 1.5 x In for 60 s for every 10 min. cycle.
(4) All dimensions provided are without EMC plate installed.
(5) For more information about this tool, please refer to the product datasheet on our website www.schneider-electric.com.

Communication modules and accessories for ATV320 variable speed drives

3 Communication buses and networks for ATV320

Type of communication module *(6)*	CANopen daisy chain *(7) (8) (9)*	CANopen SUB-D9 *(7) (8) (9)*	CANopen open style *(7) (8) (9)*
Reference	**VW3A3608**	**VW3A3618**	**VW3A3628**
Type of communication module *(6)*	Modbus TCP and Ethernet/IP network module *(8)*	PROFIBUS DP V1 communication module *(8)*	DeviceNet communication module *(8)*
Reference	**VW3A3616**	**VW3A3607**	**VW3A3609**
Type of communication module *(6)*	EtherCat communication module *(8)*	ProfiNet communication module *(8)*	Powerlink Communication module
Reference	**VW3A3601**	**VW3A3627**	**VW3A3619**

4 Accessories

Type of accessory	Communication adapter module *(6)*	Advance keypad	
Compatibility	ATV320● compact	All Altivar Machine ATV320 variable speed drives	
Reference *(8)*	**VW3A3600**	**VW3A1111**	
Type of accessory	Simple Loader configuration tool *(10)*	Multi-Loader configuration tool *(10)*	USB/RJ45 cable for PC-drive connection
Compatibility	All Altivar Machine ATV320 variable speed drives		
Reference	**VW3A8120**	**VW3A8121**	**TCSMCNAM3M002P**

(6) Altivar Machine ATV320 products with a compact control block require the VW3A3600 option adapter module in order to use any optional communication module.
(7) The Modbus serial link always uses the RJ45 communication port. If simultaneous use of the Modbus serial link and the CANopen machine bus is required, a CANopen communication module is needed.
(8) The Altivar Machine ATV320 drive can only take one communication module.
(9) When one of the CANopen communication modules is inserted in the Altivar Machine ATV320 drive, CANopen communication via the RJ45 communication port is disabled.
(10) For more information about this tool, please refer to the product datasheet on our website www.schneider-electric.com.

Altivar Machine ATV320 variable speed drives for simple and advanced machines

1 ATV320 drives with compact control block and single-phase supply voltage 200...240 V 50/60 Hz

Motor	Power indicated on plate in kW	0.18	0.37	0.55	0.75	1.1	1.5	2.2
	Power indicated on plate in HP	0.25	0.5	0.75	1	1.5	2	3
Altivar 320	Max. continuous output current *(1)*	1.5	3.3	3.7	4.8	6.9	8	11
Dimensions: W x H x D (mm)		72 x 143 x 109	72 x 143 x 128	72 x 143 x 138		105 x 142 x 158		
Reference		**ATV320 U02M2C**	**ATV320 U04M2C**	**ATV320 U06M2C**	**ATV320 U07M2C**	**ATV320 U11M2C**	**ATV320 U15M2C**	**ATV320 U22M2C**

ATV320 drives with compact control block and three-phase supply voltage 380...500 V 50/60 Hz

Motor	Power indicated on plate in kW	0.37	0.55	0.75	1.1	1.5	2.2	3	4
	Power indicated on plate in HP	0.5	0.75	1	1.5	2	3	4	5
Altivar 320	Max. continuous output current *(1)*	1.5	1.9	2.3	3	4.1	5.5	7.1	9.5
Dimensions: W x H x D (mm)		105 x 143 x 158					140 x 184 x 158		
Reference		**ATV320 U04N4C**	**ATV320 U06N4C**	**ATV320 U07N4C**	**ATV320 U11N4C**	**ATV320 U15N4C**	**ATV320 U22N4C**	**ATV320 U30N4C**	**ATV320 U40N4C**

Motor	Power indicated on plate in kW	5.5	7.5	11	15
	Power indicated on plate in HP	7.5	10	15	20
Altivar 320	Max. continuous output current *(1)*	14.3	17	27.7	33
Dimensions: W x H x D (mm)		150 x 232 x 178		180 x 330 x 198	
Reference		**ATV320 U55N4C**	**ATV320 U75N4C**	**ATV320 D11N4C**	**ATV320 D15N4C**

ATV320 drives with book control block and single-phase supply voltage 200...240 V 50/60 Hz

Motor	Power indicated on plate in kW	0.18	0.37	0.55	0.75	1.1	1.5	2.2
	Power indicated on plate in HP	0.25	0.5	0.75	1	1.5	2	3
Altivar 320	Max. continuous output current *(1)*	1.5	3.3	3.7	4.8	6.9	8	11
Dimensions: W x H x D (mm)		45 x 325 x 245				60 x 325 x 245		
Reference		**ATV320 U02M2B**	**ATV320 U04M2B**	**ATV320 U06M2B**	**ATV320 U07M2B**	**ATV320 U11M2B**	**ATV320 U15M2B**	**ATV320 U22M2B**

ATV320 drives with book control block and three-phase supply voltage 380...500 V 50/60 Hz

Motor	Power indicated on plate in kW	0.37	0.55	0.75	1.1	1.5	2.2	3	4
	Power indicated on plate in HP	0.5	0.75	1	1.5	2	3	4	5
Altivar 320	Max. continuous output current *(1)*	1.5	1.9	2.3	3	4.1	5.5	7.1	9.5
Dimensions: W x H x D (mm)		45 x 325 x 245					60 x 325 x 245		
Reference		**ATV320 U04N4B**	**ATV320 U06N4B**	**ATV320 U07N4B**	**ATV320 U11N4B**	**ATV320 U15N4B**	**ATV320 U22N4B**	**ATV320 U30N4B**	**ATV320 U40N4B**

Motor	Power indicated on plate in kW	5.5	7.5	11	15
	Power indicated on plate in HP	7.5	10	15	20
Altivar 320	Max. continuous output current *(1)*	14.3	17	27.7	33
Dimensions: W x H x D (mm)		150 x 232 x 232		180 x 330 x 232	
Reference		**ATV320 U55N4B**	**ATV320 U75N4B**	**ATV320 D11N4B**	**ATV320 D15N4B**

2 Altivar with high IP enclosure and single-phase supply voltage: 200...240 V 50/60HZ

Motor	Power indicated on plate in kW	0.18	0.37	0.55	0.75	1.1	1.5	2.2
	Power indicated on plate in HP	0.25	0.5	0.75	1	1.5	2	3
Altivar 320	Max. continuous output current *(1)*	1.5	3.3	3.7	4.8	6.9	8	11
Dimensions: W x H x D (mm) *(2)*		250 x 340 x 182				250 x 340 x 235		
Reference		**ATV320 U02M2W(S)**	**ATV320 U04M2W(S)**	**ATV320 U06M2W(S)**	**ATV320 U07M2W(S)**	**ATV320 U11M2W(S)**	**ATV320 U15M2W(S)**	**ATV320 U22M2W(S)**

Altivar with high IP enclosure and three-phase supply voltage 380...500 V 50/60 Hz

Motor	Power indicated on plate in kW	0.37	0.55	0.75	1.1	1.5	2.2	3	4
	Power indicated on plate in HP	0.5	0.75	1	1.5	2	3	4	5
Altivar 320	Max. continuous output current *(1)*	1.5	1.9	2.3	3	4.1	5.5	7.1	9.5
Dimensions: W x H x D (mm) *(2)*		250 x 340 x 200					250 x 340 x 235		
Reference		**ATV320 U04N4W(S)**	**ATV320 U06N4W(S)**	**ATV320 U07N4W(S)**	**ATV320 U11N4W(S)**	**ATV320 U15N4W(S)**	**ATV320 U15M2W(S)**	**ATV320 U30N4W(S)**	**ATV320 U40N4W(S)**

Motor	Power indicated on plate in kW	5.5	7.5
	Power indicated on plate in HP	7.5	10
Altivar 320	Max. continuous output current *(1)*	14.3	17
Dimensions: W x H x D (mm) *(2)*		320 x 521 x 335	
Reference		**ATV320 U55N4W(S)**	**ATV320 U75N4W(S)**

Note: *Altivar Machine ATV320 variable speed drives are designed for 3-phase synchronous and asynchronous motors. ATV320 drives are supplied with braking chopper as standard. For braking resistor selection, please refer to the product catalog on our website www.schneider-electric.com.*
(1) Altivar Machine ATV320 variable speed drives can supply a transient output current of 1.5 x In for 60 s.
(2) To obtain the new references for ATV320 IP66 drives, replace the last character with "W" (without switch) or "WS" (with switch)

05. Harmony interface, measurement and control relays

Zelio Logic smart relays


1


2


3

Compact smart relays and compact “discovery” packs

AC supply voltage		24 VAC		48 VAC	100...240 VAC			
Number of inputs/outputs		12	20	20	10	12	20	20
Number of discrete inputs		8	12	12	6	8	12	12
Number of outputs		4 relay	8 relay	8 relay	4 relay	4 relay	8 relay	8 relay
Clock		Yes	Yes	No	No	Yes	No	Yes
Compact smart relays	With display	**SR2B121B**	**SR2B201B**	**SR2A201E**	**SR2A101FU** *(1)*	**SR2B121FU**	**SR2A201FU** *(1)*	**SR2B201FU**
	Without display 1	**SR2E121B**	**SR2E201B**	–	**SR2D101FU** *(1)*	**SR2E121FU**	**SR2D201FU** *(1)*	**SR2E201FU**
Compact discovery packs *(2)*		–	–	–	–	**SR2PACKFU**	–	**SR2PACK2FU** 3
DC supply voltage		12 VDC			24 VDC			
Number of inputs/outputs		12	20		10	12	20	20
Number of discrete inputs		8	12		6	8	12	12
including 0-10 V analog inputs		4	6		–	4	2	6
Number of outputs		4 relay	8 relay		4 relay	4	8 relay	8
Clock		Yes	Yes		No	Yes	No	Yes
Compact smart relays	With display	**SR2B121JD**	**SR2B201JD**		**SR2A101BD** *(1)*	**SR2B12●BD** *(3)*	**SR2A201BD** *(1)*	**SR2B20●BD** *(3)*
	Without display	–	–		**SR2D101BD** *(1)*	**SR2E121BD**	**SR2D201BD** *(1)*	**SR2E201BD**
Compact discovery packs *(2)*		–	–		–	**SR2PACKBD**	–	**SR2PACK2BD** 3

Modular smart relays *(4)* with display and modular “discovery” packs

Supply voltage	24 VAC		100...240 VAC		12 VDC	24 VDC	
Number of inputs/outputs	10	26	10	26	26	10	26
Number of discrete inputs	6	16	6	16	16	6	16
including 0-10 V analog inputs	–	–	–	–	6	4	6
Number of outputs	4 relay	10 relay	4 relay	10 relay	10 relay	4	10
Clock	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Modular smart relays 2	**SR3B101B**	**SR3B261B**	**SR3B101FU**	**SR3B261FU**	**SR3B261JD**	**SR3B10●BD** *(5)*	**SR3B26●BD** *(5)*
Modular discovery packs *(2)*	–	–	**SR3PACKFU**	**SR3PACK2FU**	–	**SR3PACKBD**	**SR3PACK2BD** 3


4


5


6

Extension modules for Zelio Logic SR3B●●●●● *(6)*

Type of module		Communication modules 4		Discrete I/O modules 5		Analog I/O modules
Network type		Modbus	Ethernet	–		–
Number of inputs/outputs		–	–	6	10	14	4
Number of discrete inputs		–	–	4	6	8	2 (0…10 V, 0...20 mA, PT100)
Number of outputs		–	–	2 relay	4 relay	6 relay	2 (0…10 V)
References	24 VAC	–	–	**SR3XT61B**	**SR3XT101B**	**SR3XT141B**	–
	100...240 VAC	–	–	**SR3XT61FU**	**SR3XT101FU**	**SR3XT141FU**	–
	12 VDC	–	–	**SR3XT61JD**	**SR3XT101JD**	**SR3XT141JD**	–
	24 VDC	**SR3MBU01BD**	**SR3NET01BD**	**SR3XT61BD**	**SR3XT101BD**	**SR3XT141BD**	**SR3XT43BD**

Zelio Soft 2 software and accessories

Type of device	Zelio Soft multilingual programming software 6	Connecting cables		Wireless connection	Back-up memory
Description	PC CD-ROM *(7)*	Serial PC/Smart relay	USB PC/Smart relay	Bluetooth interface	EEPROM
References	**SR2SFT01**	**SR2CBL01**	**SR2USB01**	**SR2BTC01**	**SR2MEM02**

(1) Programming on smart relay in LADDER language only.
(2) The packs are composed of one smart relay with display and relay output, one SR2SFT01 Zelio soft 2 software, and one SR2USB01 connecting cable.
(3) Replace the ● with the number 1 to order a smart relay with relay output or the number 2 for a smart relay with transistor output (e.g. SR2B121BD).
(4) The modular base can be equipped with one I/O extension module. The 24 VDC modular base can be equipped with one communication module and/or one I/O extension module.
(5) Replace the ● with the number 1 to order a smart relay with relay output or the number 2 for a smart relay with transistor output (e.g. SR3B101BD).
(6) The power supply for the extension modules is provided via the Zelio Logic modular relays.
(7) CD-ROM (Windows 7 - 32 and 64 bits, Windows 8.1 - 32 and 64 bits, Windows 10) including Zelio Soft programming software, an application library, a self-training manual, installation instructions, and a user manual.

Harmony Relay RXG and RSB electromechanical relays

RXG interface relays

Type		RXG relays without test button				RXG relays with test button			
Contact		1 CO		2 CO		1 CO		2 CO	
Current		10 A		5 A		10 A		5 A	
Connection		Flat pins (Faston type)				Flat pins (Faston type)			
LED display		Without LED	With LED	Without LED	With LED	Without LED	With LED	Without LED	With LED
Complete product	6 VDC	–	–	–	–	–	RXG12RD	RXG21RD	–
	12 VDC	RXG15JD	RXG13JD	–	–	RXG11JD	RXG12JD	RXG21JD	RXG22JD
	24 VDC	RXG15BD	RXG13BD	RXG25BD	RXG23BD	RXG11BD	RXG12BD	RXG21BD	RXG22BD
	48 VDC	–	–	–	–	–	RXG12ED	–	RXG22ED
	110 VDC	–	–	–	–	–	RXG12FD	–	RXG22FD
	24 VAC	–	RXG13B7	RXG25B7	RXG23B7	RXG11B7	RXG12B7	RXG21B7	RXG22B7
	48 VAC	–	–	–	RXG23E7	–	RXG12E7	RXG21E7	RXG22E7
	120 VAC	RXG15F7	RXG13F7	RXG25F7	RXG23F7	RXG11F7	RXG12F7	RXG21F7	RXG22F7
	220 VAC	–	–	RXG25M7	RXG23M7	–	–	RXG21M7	RXG22M7
	230 VAC	RXG15P7	RXG13P7	RXG25P7	RXG23P7	RXG11P7	RXG12P7	RXG21P7	RXG22P7
Screw connector socket		RGZE1S35M		RGZE1S48M		RGZE1S35M		RGZE1S48M	
Push-in socket		RGZE05P		RGZE08P		RGZE05P		RGZE08P	
Pre-mounted product	24 VDC	–	RXG13BDPV	–	RXG23BDPV	–	RXG12BDPV	RXG21BDPV	RXG22BDPV
	24 VAC	–	–	–	–	–	RXG12B7PV	RXG21B7PV	RXG22B7PV
	230 VAC	–	RXG13P7PV	–	RXG23P7PV	–	RXG12P7PV	RXG21P7PV	RXG22P7PV

Note: *RXG pre-mounted version includes relay + socket + protection module (diode for DC coil/varistor for AC coil) + clamp, sold in lots of 30 units.*

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RSB interface relay

Contact		1 CO	1 CO	2 CO
Current		12 A	16 A	8 A
Connection		PCB Type		
Complete product	6 VDC	–	RSB1A160RD	–
	12 VDC	RSB1A120JD	RSB1A160JD	RSB2A080JD
	24 VDC	RSB1A120BD	RSB1A160BD	RSB2A080BD
	48 VDC	RSB1A120ED	RSB1A160ED	RSB2A080ED
	60 VDC	–	RSB1A160ND	–
	110 VDC	RSB1A120FD	RSB1A160FD	RSB2A080FD
	24 VAC	RSB1A120B7	RSB1A160B7	RSB2A080B7
	48 VAC	RSB1A120E7	RSB1A160E7	RSB2A080E7
	120 VAC	RSB1A120F7	RSB1A160F7	RSB2A080F7
	220 VAC	RSB1A120M7	RSB1A160M7	RSB2A080M7
	230 VAC	RSB1A120P7	RSB1A160P7	RSB2A080P7
	240 VAC	RSB1A120U7	RSB1A160U7	RSB2A080U7
Screw connector socket		RSZE1S35M	RSZE1S48M	RSZE1S48M
Push-in socket		RSZE05P	RSZE08P	RSZE08P
Pre-mounted product	12 VDC	RSB1A120JDPV	–	RSB2A080JDPV
	24 VDC	RSB1A120BDPV	RSB1A160BDPV	RSB2A080BDPV
	24 VAC	RSB1A120B7PV	–	RSB2A080B7PV
	120 VAC	RSB1A120F7PV	–	RSB2A080F7PV
	220 VAC	–	–	RSB2A080M7PV
	230 VAC	RSB1A120P7PV	RSB1A160P7PV	RSB2A080P7PV

Note: *RSB pre-mounted version includes relay + socket + protection module + clamp + label, sold in lots of 30 units.*

Harmony Relay RSL, RXM, and RPM electromechanical relays



RSL interface relays

Type		RSL relays		Sockets for RSL relays		Pre-assembled relays/sockets	
Contact		1 CO		–		1 CO	
Current		6 A - standard	6 A - low level	–		6 A	
Connection		PCB pins		Screw connector	Spring terminal	Screw connector	Spring terminal
LED display		Without LED		–		With LED	
Complete product	12 VAC/VDC	**RSL1AB4JD**	**RSL1GB4JD**	**RSLZVA1**	**RSLZRA1**	**RSL1PVJU**	**RSL1PRJU**
	24 VAC/VDC	**RSL1AB4BD**	**RSL1GB4BD**	**RSLZVA1**	**RSLZRA1**	**RSL1PVBU**	**RSL1PRBU**
	48 VAC/VDC	**RSL1AB4ED**	**RSL1GB4ED**	**RSLZVA2**	**RSLZRA2**	**RSL1PVEU**	**RSL1PREU**
	60 VAC/VDC	**RSL1AB4ND**	**RSL1GB4ND**	**RSLZVA2**	**RSLZRA2**	–	
	110 VAC/VDC	–		**RSLZVA3**	**RSLZRA3**	**RSL1PVFU**	**RSL1PRFU**
	230 VAC/VDC	–		**RSLZVA4**	**RSLZRA4**	**RSL1PVPU**	**RSL1PRPU**

RXM●AB miniature relays

Type		RXM●AB relays with test button					
Contact		2 CO		3 CO		4 CO	
Current		12 A		10 A		6 A	
Connection		Flat pins (Faston type)					
LED display		Without LED	With LED	Without LED	With LED	Without LED	With LED
Complete product	12 VDC	**RXM2AB1JD**	**RXM2AB2JD**	**RXM3AB1JD**	**RXM3AB2JD**	**RXM4AB1JD**	**RXM4AB2JD**
	24 VDC	**RXM2AB1BD**	**RXM2AB2BD**	**RXM3AB1BD**	**RXM3AB2BD**	**RXM4AB1BD**	**RXM4AB2BD**
	48 VDC	**RXM2AB1ED**	**RXM2AB2ED**	**RXM3AB1ED**	–	**RXM4AB1ED**	**RXM4AB2ED**
	110 VDC	**RXM2AB1FD**	**RXM2AB2FD**	**RXM3AB1FD**	**RXM3AB2FD**	**RXM4AB1FD**	**RXM4AB2FD**
	24 VAC	**RXM2AB1B7**	**RXM2AB2B7**	**RXM3AB1B7**	**RXM3AB2B7**	**RXM4AB1B7**	**RXM4AB2B7**
	48 VAC	**RXM2AB1E7**	**RXM2AB2E7**	**RXM3AB1E7**	**RXM3AB2E7**	**RXM4AB1E7**	**RXM4AB2E7**
	120 VAC	**RXM2AB1F7**	**RXM2AB2F7**	**RXM3AB1F7**	**RXM3AB2F7**	**RXM4AB1F7**	**RXM4AB2F7**
	230 VAC	**RXM2AB1P7**	**RXM2AB2P7**	**RXM3AB1P7**	**RXM3AB2P7**	**RXM4AB1P7**	**RXM4AB2P7**
	220 VDC	–		–		**RXM4AB1MD**	–
	240 VDC	–		–		**RXM4AB1U7**	–
Screw clamp socket *(1)*		**RXZE2M114**		–		**RXZE2M114**	
Screw connector socket *(1)*		**RXZE2M114M**		–		**RXZE2M114M**	
Screw connector socket *(2)*		**RXZE2S108M**		**RXZE2S111M**		**RXZE2S114M**	
Push-in socket		**RXZE14P**		–		**RXZE14P**	
Pre-mounted product	24 VDC	–	**RXM2AB2BDPVM** *(3)*	–		**RXM4AB1BDPVM** *(3)*	**RXM4AB2BDPVM** *(3)*
	24 VAC	–	**RXM2AB2B7PVM** *(3)*	–		**RXM4AB1B7PVM** *(3)*	**RXM4AB2B7PVM** *(3)*
	230 VAC	–	**RXM2AB2P7PVM** *(3)*	–		**RXM4AB1P7PVM** *(3)*	**RXM4AB2P7PVM** *(3)*
	24 VDC	–	**RXM2AB2BDPVS** *(4)*	–		**RXM4AB1BDPVS** *(4)*	**RXM4AB2BDPVS** *(4)*
	24 VAC	–	**RXM2AB2B7PVS** *(4)*	–		**RXM4AB1B7PVS** *(4)*	**RXM4AB2B7PVS** *(4)*
	230 VAC	–	**RXM2AB2P7PVS** *(4)*	–		**RXM4AB1P7PVS** *(4)*	**RXM4AB2P7PVS** *(4)*

RPM power relays (15 A)

Type		RPM relays with test button							
Contact		1 CO		2 CO		3 CO		4 CO	
Current		15 A							
Connection		Flat pins (Faston type)							
LED display		Without LED	With LED	Without LED	With LED	Without LED	With LED	Without LED	With LED
Complete product	12 VDC	**RPM11JD**	**RPM12JD**	**RPM21JD**	**RPM22JD**	**RPM31JD**	**RPM32JD**	**RPM41JD**	**RPM42JD**
	24 VDC	**RPM11BD**	**RPM12BD**	**RPM21BD**	**RPM22BD**	**RPM31BD**	**RPM32BD**	**RPM41BD**	**RPM42BD**
	48 VDC	**RPM11ED**	**RPM12ED**	**RPM21ED**	**RPM22ED**	**RPM31ED**	**RPM32ED**	**RPM41ED**	**RPM42ED**
	110 VDC	**RPM11FD**	–	**RPM21FD**	**RPM22FD**	**RPM31FD**	–	**RPM41FD**	**RPM42FD**
	24 VAC	**RPM11B7**	**RPM12B7**	**RPM21B7**	**RPM22B7**	**RPM31B7**	**RPM32B7**	**RPM41B7**	**RPM42B7**
	48 VAC	**RPM11E7**	**RPM12E7**	**RPM21E7**	**RPM22E7**	**RPM31E7**	**RPM32E7**	**RPM41E7**	**RPM42E7**
	120 VAC	**RPM11F7**	**RPM12F7**	**RPM21F7**	**RPM22F7**	**RPM31F7**	**RPM32F7**	**RPM41F7**	**RPM42F7**
	230 VAC	**RPM11P7**	**RPM12P7**	**RPM21P7**	**RPM22P7**	**RPM31P7**	**RPM32P7**	**RPM41P7**	**RPM42P7**
Screw connector socket		**RPZF1**		**RPZF2**		**RPZF3**		**RPZF4**	

(1) With mixed contacts
(2) With separate contacts
(3) RXM pre-mounted version includes relay + socket (mixed) + clamp + label, sold in lots of 30 units.
(4) RXM pre-mounted version includes relay + socket (seperate) + clamp + label, sold in lots of 30 units.

Harmony Control SSL and SSP solid state relays

SSL1 slim interface solid state relays (DC switching)

Type		SSL1 relays (6 mm)		Screw connector socket	Spring terminal socket
Contact		1 NO		–	–
Load current		0.1 A	3.5 A	–	–
Load voltage		1…48 VDC	1…24 VDC	–	–
Complete product	3…12 VDC	**SSL1D101JD**	**SSL1D03JD**	**SSLZVA1**	**SSLZRA1**
	15...30 VDC	**SSL1D101BD**	**SSL1D03BD**	**SSLZVA1**	**SSLZRA1**
Pre-mounted product	4…12 VDC	**SSL1D101JDPV** *(1)*	**SSL1D03JDPV** *(1)*	–	–
	16...30 VDC	**SSL1D101BDPV** *(1)*	**SSL1D03BDPV** *(1)*	–	–
	4…12 VDC	**SSL1D101JDPR** *(2)*	**SSL1D03JDPR** *(2)*	–	–
	16...30 VDC	**SSL1D101BDPR** *(2)*	**SSL1D03BDPR** *(2)*	–	–

SSL1 slim interface solid state relays (random switching)

Type		SSL1 relays (6 mm)	Screw connector socket	Spring terminal socket
Contact		1 NO	–	–
Load current		2 A	–	–
Load voltage		24…280 VAC	–	–
Complete product	3…12 VDC	**SSL1A12JDR**	**SSLZVA1**	**SSLZRA1**
	15...30 VDC	**SSL1A12BDR**	**SSLZVA1**	**SSLZRA1**
Load voltage		24…250 VAC	–	–
Pre-mounted product	4…12 VDC	**SSL1A12JDRPV** *(1)*	–	–
	16...30 VDC	**SSL1A12BDRPV** *(1)*	–	–
	4…12 VDC	**SSL1A12JDRPR** *(2)*	–	–
	16...30 VDC	**SSL1A12BDRPR** *(2)*	–	–

SSL1 slim interface solid state relays (zero voltage switching)

Type		SSL1 relays (6 mm)	Screw connector socket	Spring terminal socket
Contact		1 NO	–	–
Load current		2 A	–	–
Load voltage		24…280 VAC	–	–
Complete product	3…12 VDC	**SSL1A12JD**	**SSLZVA1**	**SSLZRA1**
	15...30 VDC	**SSL1A12BD**	**SSLZVA1**	**SSLZRA1**
Load voltage		24…250 VAC	–	–
Pre-mounted product	4…12 VDC	**SSL1A12JDPV** *(1)*	–	–
	16...30 VDC	**SSL1A12BDPV** *(1)*	–	–
	4…12 VDC	**SSL1A12JDPR** *(2)*	–	–
	16...30 VDC	**SSL1A12BDPR** *(2)*	–	–

1 SSP1 1-phase panel mount solid state relays (DC switching)

Contact		1 NO		
Load current *(3)*		12 A	25 A	40 A
Load voltage		1…150 VDC		
Complete product *(4)*	3.5…32 VDC	**SSP1D412BD●**	**SSP1D425BD●**	**SSP1D440BD●**

2 SSP1 1-phase panel mount solid state relays (zero voltage switching)

Contact		1 NO							
Load current *(3)*		10 A	25 A	50 A	50 A	75 A	75 A	90 A	125 A
Load voltage		24…300 VAC	24…300 VAC	24…300 VAC	48…660 VAC	24…300 VAC	48…660 VAC	48…660 VAC	48…660 VAC
Complete product *(4)*	4...32 VDC	**SSP1A110BD●**	**SSP1A125BD●** *(5)*	**SSP1A150BD●** *(5)*	**SSP1A450BD●** *(5)*	**SSP1A175BD●**	**SSP1A475BD●** *(5)*	**SSP1A490BD●** *(5)*	**SSP1A4125BD●** *(5)*
	90...280 VAC	**SSP1A110M7T**	**SSP1A125M7●**	**SSP1A150M7●**	**SSP1A450M7●**	**SSP1A175M7T**	**SSP1A475M7●**	**SSP1A490M7●**	**SSP1A4125M7●**

3 SSP3 3-phase panel mount solid state relays (random and zero voltage switching)

Contact		3 NO			
Load current *(3)*		25 A	50 A	25 A	50 A
Load voltage		48…530 VAC			
Switching		Random		Zero voltage	
Complete product *(4)*	4...32 VDC	**SSP3A225BDR●**	**SSP3A250BDR●**	**SSP3A225BD●**	**SSP3A250BD●**
	18...36 VAC	**SSP3A225B7R**	**SSP3A250B7R●**	**SSP3A225B7**	**SSP3A250B7●**
	90...140 VAC	–	**SSP3A250F7R●**	**SSP3A225F7●**	**SSP3A250F7●**
	180...280 VAC	**SSP3A225P7R**	**SSP3A250P7R●**	**SSP3A225P7●**	**SSP3A250P7●**

(1) SSL pre-mounted version includes relay + socket (screw), sold in lots of 30 units.
(2) SSL pre-mounted version includes relay + socket (spring), sold in lots of 30 units.
(3) Please use correct heatsink for desired load current: see performance curves in product datasheets available on our website www.schneider-electric.com for selection.
(4) ● represents T, reference is available with thermal pad (ends with T) or without thermal pad (does not end with T) options.
(5) Available with smart diagnostic feature (built-in visual indicator and alarm output enables quick response to unexpected results and correct monitoring of SSR operation), reference ends with S (e.g. SSP1A125BDS).

Harmony Relay SSM and SSD solid state relays

SSM modular DIN rail solid state relays (DC switching)

Contact		1 NO				
Load current		6 A		12 A		
Load voltage		1…60 VDC	1…100 VDC	1…60 VDC	1…100 VDC	
Frontal width		12 mm		18 mm		
Complete product	4...32 VDC	**SSM1D26BD**	**SSM1D36BD**	**SSM1D212BD**	**SSM1D312BD**	

SSM modular DIN rail solid state relays (random switching)

Contact		1 NO				2 NO	
Load current		6 A		12 A		6 A	
Load voltage		24…280 VAC	48…600 VAC	24…280 VAC	48…600 VAC	24…280 VAC	48…600 VAC
Frontal width		12 mm		18 mm			
Complete product	4...32 VDC	**SSM1A16BDR**	**SSM1A36BDR**	**SSM1A112BDR**	**SSM1A312BDR**	**SSM2A16BDR**	**SSM2A36BDR**
	18...36 VAC	**SSM1A16B7R**	–	**SSM1A112B7R**	**SSM1A312B7R**	–	–
	90...140 VAC	–	–	**SSM1A112F7R**	**SSM1A312F7R**	–	–
	200...265 VAC	–	–	**SSM1A112P7R**	**SSM1A312P7R**	–	–

SSM modular DIN rail solid state relays (zero voltage switching)

Contact		1 NO				2 NO
Load current		6 A		12 A		6 A
Load voltage		24…280 VAC	48…600 VAC	24…280 VAC	48…600 VAC	24…280 VAC
Frontal width		12 mm		18 mm		
Complete product	4...32 VDC	**SSM1A16BD**	**SSM1A36BD**	**SSM1A112BD**	**SSM1A312BD**	**SSM2A16BD**
	90...140 VAC	**SSM1A16F7**	–	**SSM1A112F7**	**SSM1A312F7**	–
	200...265 VAC	**SSM1A16P7**	–	**SSM1A112P7**	–	–

SSD modular DIN rail solid state relays (zero voltage switching)

Contact		1 NO							
Output voltage		48…600 VAC							
Frontal width		22.5 mm				45 mm			
Load current		20 A		35 A		45 A		60 A	
Control voltage		4…32 VDC	90…280 VAC/VDC	4…32 VDC	90…280 VAC/VDC	4…32 VDC	90…280 VAC/VDC	4…32 VDC	90…280 VAC/VDC
Configuration	**Relay**	**SSD1A320BDC1**	**SSD1A320M7C1**	**SSD1A335BDC1**	**SSD1A335M7C1**	–	–	–	–
	Contactor - Screw	**SSD1A320BDC2**	**SSD1A320M7C2**	**SSD1A335BDC2**	**SSD1A335M7C2**	**SSD1A345BDC2**	**SSD1A345M7C2**	**SSD1A360BDC2**	**SSD1A360M7C2**
	Contactor - Spring	**SSD1A320BDC3**	**SSD1A320M7C3**	**SSD1A335BDC3**	**SSD1A335M7C3**	**SSD1A345BDC3**	**SSD1A345M7C3**	**SSD1A360BDC3**	**SSD1A360M7C3**

SSD modular DIN rail solid state relays (random switching)

Contact		1 NO							
Output voltage		48…600 VAC							
Frontal width		22.5 mm				45 mm			
Load current		20 A		35 A		45 A		60 A	
Control voltage		4…32 VDC	90…280 VAC/VDC	4…32 VDC	90…280 VAC/VDC	4…32 VDC	90…280 VAC/VDC	4…32 VDC	90…280 VAC/VDC
Configuration	**Relay**	**SSD1A320BDRC1**	**SSD1A320M7RC1**	**SSD1A335BDRC1**	**SSD1A335M7RC1**	–	–	–	–
	Contactor - Screw	**SSD1A320BDRC2**	**SSD1A320M7RC2**	**SSD1A335BDRC2**	**SSD1A335M7RC2**	**SSD1A345BDRC2**	**SSD1A345M7RC2**	**SSD1A360BDRC2**	**SSD1A360M7RC2**
	Contactor - Spring	**SSD1A320BDRC3**	**SSD1A320M7RC3**	**SSD1A335BDRC3**	**SSD1A335M7RC3**	**SSD1A345BDRC3**	**SSD1A345M7RC3**	**SSD1A360BDRC3**	**SSD1A360M7RC3**

SSD modular DIN rail solid state relays (DC switching)

Contact	1 NO	
Output voltage	1…200 VDC	
Control voltage	4…32 VDC	
Frontal width	22.5 mm	
Load current	20 A	30 A
Relay configuration	**SSD1D520BDC1**	**SSD1D530BDC1**

Harmony Relay RM17, RM22, and RM35 control relays *(1)*

1 3-phase monitoring relays for DIN rail mounting

Phase loss and sequence	Yes						
Asymmetry	–		Yes	–		Yes	–
Undervoltage	–			Yes		–	
> U > window mode	–					Yes	
Measuring range	183...528 VAC	183...484 VAC	183...528 VAC	183...528 VAC	160...288 VAC	183...528 VAC	304...576 VAC
Output contacts/Current	1 CO/5 A	2 CO/5 A	1 CO/5 A		2 CO/8 A	1 CO/5 A	2 CO/8 A
Power supply	Self-powered						
Frontal width	17.5 mm				22.5 mm	17.5 mm	22.5 mm
Complete product	**RM17TG00**	**RM17TG20**	**RM17TA00**	**RM17TU00**	**RM22TU21**	**RM17TE00**	**RM22TR33**

2 3-phase monitoring relays with NFC technology for DIN rail mounting

Phase loss and sequence	Yes
Asymmetry	Yes
Overvoltage and undervoltage	Yes
Overfrequency and underfrequency	Yes
Measuring range	166…576 VAC
Output contact	2 CO/8 A
Power supply	208…480 VAC
Frontal width	22.5 mm
Complete product	**RMNF22TB30**

3 3-phase voltage monitoring relays for DIN rail mounting

Detected loss of one or more phases	Yes		
Absence of neutral	–	Yes	–
Overvoltage and undervoltage	Yes		
Measuring range	183...528 VAC	114...329 VAC	194...528 VAC
Output contacts/Current	1 CO/5 A	1 CO/5A for > U threshold + 1 CO/5A for < U threshold	
Power supply	Self-powered		
Frontal width	17.5 mm	35 mm	
Complete product	**RM17UB310**	**RM35UB3N30**	**RM35UB330**

4 Phase or DC voltage monitoring relays for DIN rail mounting

> U > window mode	Yes						
Overvoltage	Yes						–
Undervoltage	Yes						–
Measuring range	65…260 VAC/VDC	20…80 VAC/VDC	0.05…5 VAC/VDC	1…100 VAC/VDC	15…500 VAC/VDC	15…500 VAC/VDC	80…300 VAC/VDC
Output contacts/Current	1 CO/5 A		2 CO/8 A				
Power supply	Self-powered		24...240 VAC			380...415 VAC	110...240 VAC
Frontal width	17.5 mm		22.5 mm				
Complete product	**RM17UBE15**	**RM17UBE16**	**RM22UA31MR**	**RM22UA32MR**	**RM22UA33MR**	**RM22UA33MT**	**RM22UB34**

5 Current monitoring relays for DIN rail mounting

Monitoring characteristics	Overcurrent	> I > window mode with/without memory				
Integrated current transformer	Yes	–				
Measuring range	2…20 A	4...1,000 mA	2...500 mA	0.15...15 A		
Output contacts/Current	1 CO/5 A	2 CO/8 A	2 CO/5 A		2 CO/8 A	
Power supply	24...240 VAC/VDC					380...415 VAC
Frontal width	17.5 mm	22.5 mm	35 mm			
Complete product	**RM17JC00MW**	**RM22JA31MR**	**RM35JA31MW**	**RM35JA32MW**	**RM35JA32MR**	**RM35JA32MT**

6 Level monitoring relays for DIN rail mounting

Level monitoring by	Resistive probe				Discrete sensor
Measuring range	5…100 kΩ		25 Ω…1 MΩ		–
Output contacts/Current	1 CO/8 A		2 CO/8 A	2 CO/5 A	1 CO/5 A
Power supply	24...240 VAC/VDC	380...415 VAC	24...240 VAC/VDC	24...240 VAC/VDC	24...240 VAC/VDC
Frontal width	22.5 mm			35 mm	
Complete product	**RM22LG11MR**	**RM22LG11MT**	**RM22LA32MR**	**RM35LM33MW**	**RM35LV14MW**

(1) Please consult our general catalog for other application relays available for motor temperature monitoring and pump, frequency, speed, or temperature control.

Harmony Relay RE17, RE22, REXL, and RE48 electronic timing relays

1 Timing relays with screw/spring terminals for DIN rail mounting, 1 contact

Type		1 function	2 functions	2 functions	1 function	Multifunction	Multifunction
Functions *(1)*		A	A, At	L, Li	C	A, At, B, C, H, Ht, D, Di, Ac, Bw	Ad, Ah, N, O, P, Pt, T, Tt, W
Timing range		0.1 s...100 h					
Type of output/current		1 solid state 0.7 A	1 relay output 1 CO/8 A				
Power supply		24...240 VAC/VDC	24 VDC, 24...240 VAC			12...240 VAC/VDC	24 VDC, 24...240 VAC
Frontal width		17.5 mm					
Complete product	Screw terminal	**RE17LAMW**	**RE17RAMU**	**RE17RLMU**	**RE17RCMU**	**RE17RMMW**	**RE17RMXMU**
	Spring terminal	**RE17LAMWS**	**RE17RAMUS**	**RE17RLMUS**	**RE17RCMUS**	**RE17RMMWS**	**RE17RMXMUS**

2 Timing relays with screw terminals for DIN rail mounting, 2 contacts

Type	3 functions	2 functions	Multifunction
Functions *(1)*	A, At, Aw	C, Ct	A, At, Aw, C, Ct, D, Dt, Dw, Di, Dit, Diw, H, Ht, Hw, Qg, Qgt, Qgw, Qt, Qtt, Qtw, W, Wt
Timing range	0.05 s...300 h		
Type of output/current	2 CO/8 A		
Power supply	24 VDC, 24...240 VAC		
Frontal width	22.5 mm		
Complete product	**RE22R1MAMR**	**RE22R2CMR**	**RE22R2MYMR**

3 Timing relays with NFC technology for DIN rail mounting, screw terminals, 2 contacts

Type	Multifunction
Functions *(1)*	A, Ac, Ad, Ah, Ak, At, B, Bw, C, D, Di, Dt, Dit, H, Ht, L, Li, Lt, Lit, N, O, P, Pt, Qt, Qtt, Tl, Tt, W
Timing range	0.1 s…999 h
Type of output/current	2 CO/8 A
Power supply	24…240 VDC/VAC
Frontal width	22.5 mm
Complete product	**RENF22R2MMW**

4 Miniature plug-in timing relays for DIN rail mounting

Function *(1)*	A (power on-delay)					
Timing range	0.1 s…100 h					
Type of output/current	2 CO/5 A			4 CO/5 A		
Power supply	24 VDC	120 VAC	230 VAC	24 VDC	120 VAC	230 VAC
Dimension	21 x 27 mm miniature plug-in					
Complete product	**REXL2TMBD**	**REXL2TMF7**	**REXL2TMP7**	**REXL4TMBD**	**REXL4TMF7**	**REXL4TMP7**
Screw connector socket *(2)*		**RXZE2S108M**			**RXZE2S114M**	

5 48 x 48 mm analog plug-in (8-pin) timing relays for DIN rail or front panel mounting

Type	1 function	4 functions	2 functions	4 functions
Functions *(1)*	A	A1, A2, H1, H2	L, Li	A, B, C, Di
Timing range	0.02 s...300 h			
Type of output/current	1 CO/5 A	1 + 1 (instant.)/5 A	2 CO/5 A	
Power supply	24…240 VAC/VDC			
Dimension	48 x 48 mm analog panel-mounted or plug-in			
Complete product	**RE48ATM12MW**	**RE48AMH13MW**	**RE48ACV12MW**	**RE48AML12MW**
Screw connector socket *(3)*	**RUZC2M**		**RUZC3M**	

A: power on-delay relay
Ac: on-delay & off-delay relay *(4)*
Act: on-delay & off-delay relay *(4)* *(5)*
Ad: pulse delayed relay *(4)*
Ah: pulse delayed relay (single cycle) *(4)*
Ak: asymmetrical on-delay & off-delay relay *(4)*
Akt: asymmetrical on-delay & off-delay relay *(4)* *(5)*
At: power on-delay relay *(5)*
Aw: power on-delay relay with retrigger/restart control signal
A1: power on-delay relay (R1 instantaneous, R2 timed)
A2: power on-delay relay (both R1/R2 timed)
B: interval relay *(4)*
Bw: double interval relay *(4)*
C: off-delay relay *(4)*
Ct: off-delay relay *(5)*
D: symmetrical flashing relay (starting pulse-off)
Di: symmetrical flashing relay (starting pulse-on)
Dit: symmetrical flashing relay (starting pulse-on) *(5)*
Diw: symmetrical flashing relay (starting pulse-on) with retrigger/restart control signal
Dt: symmetrical flashing relay (starting pulse-off) *(5)*
Dw: symmetrical flashing relay (starting pulse-off) with retrigger/restart control signal
H: interval relay
He: pulse on de-energization relay
Ht: interval relay *(5)*
Hw: interval relay with retrigger/restart control signal
H1: interval relay (R1 instantaneous, R2 timed)
H2: interval relay (both R1/R2 timed)
K: delay on de-energization relay (without auxiliary supply)
L: asymmetrical flashing relay (starting pulse-off)
Li: symmetrical flashing relay (starting pulse-on)
Lt: symmetrical flashing relay *(5)*
N: safeguard relay
O: delayed safeguard relay
P: pulse delayed relay with fixed pulse length
Pt: pulse delayed relay with fixed pulse length *(5)*
Qc: star-delta timing relay, 1CO output
Qe: star-delta timing relay, 1 NC + 1 NO output & split common
Qg: star-delta timing relay, 2 CO outputs & same common
Qgt: star-delta timing relay, 2 CO outputs & same common *(5)*
Qt: star-delta timing relay, 2 CO outputs & split common
Qtt: star-delta timing relay, 2 CO outputs & split common *(5)*
Tt: retriggerable bistable relay with control signal on
W: interval relay with control signal off
Wt: interval relay with control signal off *(5)*

(1) For more details about functions, please refer to the technical descriptions and schemes on our website www.schneider-electric.com.
(2) With separate contacts
(3) With mixed contacts
(4) With control signal
(5) With pause-summation control signal

06. Modicon PLC, power supply and transformer, Uninterruptible Power Supply

Modicon PLC: M221



Modicon M221 logic controllers

Applications		Control of simple machines								
Supply voltage		100-240 V ∿	24 V ⎓	24 V ⎓	100-240 V ∿	24 V ⎓	24 V ⎓	100-240 V ∿	24 V ⎓	24 V ⎓
Inputs/ outputs	Logic inputs/ outputs	16 logic I/O			24 logic I/O			40 logic I/O		
	No. and type of inputs	9 sink/source 24 V ⎓ inputs, inc. 4 high-speed inputs			14 sink/source 24 V ⎓ inputs, inc. 4 high-speed inputs			24 sink/source 24 V ⎓ inputs, inc. 4 high-speed inputs		
	No. and type of outputs	7 relay outputs	7 source transistor outputs, inc. 2 high-speed outputs	7 sink transistor outputs, inc. 2 high-speed outputs	10 relay outputs	10 source transistor outputs, inc. 2 high-speed outputs	10 source transistor outputs, inc. 2 high-speed outputs	16 relay outputs	16 source transistor outputs, inc. 2 high-speed outputs	16 sink transistor outputs, inc. 4 high-speed outputs
	Connection of logic I/O	On removable screw terminal block								
	Analog inputs	2 x 0…10 V analog inputs								
	Connection of analog inputs	On dedicated removable connector								
Logic controller	No Ethernet port	**TM221C16R**	**TM221C16T**	**TM221C16U**	**TM221C24R**	**TM221C24T**	**TM221C24U**	**TM221C40R**	**TM221C40T**	**TM221C40U**
	With embedded Ethernet port	**TM221CE16R**	**TM221CE16T**	**TM221CE16U**	**TM221CE24R**	**TM221CE24T**	**TM221CE24U**	**TM221CE40R**	**TM221CE40T**	**TM221CE40U**



Modicon M221 Book logic controllers

Applications		Control of simple machines		
Supply voltage		24 V ⎓		
Inputs/ outputs	Logic inputs/ outputs	16 logic I/O	16 logic I/O	32 logic I/O
	No. and type of inputs	8 sink/source 24 V ⎓ inputs, inc. 4 high-speed inputs	8 sink/source 24 V ⎓ inputs, inc. 4 high-speed inputs	16 sink/source 24 V ⎓ inputs, inc. 4 high-speed inputs
	No. and type of outputs	8 relay outputs	8 source transistor outputs, inc. 2 high-speed outputs	16 source transistor outputs, inc. 2 high-speed outputs
	Connection of logic I/O	On removable screw terminal block or spring terminal block *(1)*		On HE 10 connector (with the Telefast Modicon ABE7 pre-wired system: connection cables and sub-bases)
	Analog inputs	2 x 0…10 V analog inputs		
	Connection of analog inputs	On dedicated removable connector		
Logic controller	No Ethernet port	**TM221M16R**	**TM221M16T**	**TM221M32TK**
		TM221M16RG *(1)*	**TM221M16TG** *(1)*	–
	With embedded Ethernet port	**TM221ME16R**	**TM221ME16T**	**TM221ME32TK**
		TM221ME16RG *(1)*	**TM221ME16TG** *(1)*	–

(1) Spring terminal block on references ending in the letter G

Modicon power supplies and transformers

Regulated switch mode power supplies 10 to 480 W for mounting on rail

Power		10 to 60 W			50 to 480 W		
Input voltage		100…240 V ∿			100…240 V ∿ and 140…340 V ⎓ *(2)*		
Certifications *(1)*		CE marking, CB Scheme, cULus listed, cULus recognized, RCM, EAC, NEC class 2 *(3)*					
Housing		Modular			Book		
Output voltage		5 V ⎓	12 V ⎓	24 V ⎓	12 V ⎓	24 V ⎓	48 V ⎓
Reference (according to output current)	0.4 A	–	–	**ABLM1A24004**	–	–	–
	0.6 A	–	–	**ABLM1A24006**	–	–	–
	1 A	–	**ABLM1A12010**	–	–	–	–
	1.2 A	–	–	**ABLM1A24012**	–	–	–
	2.1 A	–	**ABLM1A12021**	–	–	–	–
	2.1 A	–	–	–	–	**ABLS1A24021**	–
	2.5 A	–	–	**ABLM1A24025**	–	–	**ABLS1A48025**
	3.1 A	–	–	–	–	**ABLS1A24031**	–
	3.6 A	**ABLM1A05036**	–	–	–	–	–
	3.8 A	–	–	–	–	**ABLS1A24038**	–
	4.2 A	–	**ABLM1A12042**	–	–	–	–
	5 A	–	–	–	–	**ABLS1A24050**	–
	6.2 A	–	–	–	**ABLS1A12062**	–	–
	10 A	–	–	–	**ABLS1A12100**	**ABLS1A24100**	–
	20 A	–	–	–	–	**ABLS1A24200**	–

Regulated switch mode power supplies 72 to 960 W for mounting on rail (wide input voltage range)

Input voltage		100…120 V ∿ and 200…500 V ∿ *(4)*	380…500 V ∿
Certifications *(1)*		CE marking, UL (508), CSA (60950-1), CB Scheme, EAC, RCM, KC	
Compatibility	With function modules	Yes with all Modicon power supply function modules *(5)*	
Output voltage		24 V ⎓	
Reference (according to output current)	3 A	**ABL8RPS24030**	–
	5 A	**ABL8RPS24050**	–
	10 A	**ABL8RPS24100**	–
	20 A	**ABL8RPM24200**	**ABL8WPS24200**
	40 A	–	**ABL8WPS24400**

(1) Please consult detail on certifications for each reference in the individual datasheet available on our website www.schneider-electric.com.
(2) Depending on product reference, consult our product datasheet on www.schneider-electric.com.
(3) NEC class 2 for book only for ABLM●●, ABLS1A24021, ABLS1A24031, and ABLS1A24038.
(4) Except ABL8RPM24200: 100…240 V and 200…240 V ∿.
(5) Compatible modules: buffer module, batteries and battery control modules, redundancy module, and discriminating downstream protection module.
For more information, see the Modicon power supply catalog on our website www.schneider-electric.com.

Modicon power supplies and transformers



Function modules for continuity of service (only compatible with ABL8RP/ABL8WP power supplies)

Type of function		Battery modules *(2) (3)*	Solutions to microbreaks and power outages *(3)*	Redundancy module
Input voltage		24 V ⎓		
Certifications *(1)*		CE marking, UL (508), CSA (60950-1), EAC, RCM		
Compatibility	With power supplies	Yes, but only with ABL8RP/ABL8WP Modicon power supply		
Output voltage		24 V ⎓		
Reference (according to output current)	3 Ah	**ABL8BPK24A03**	–	–
	7 Ah	**ABL8BPK24A07**	–	–
	12 Ah	**ABL8BPK24A12**	–	–
	20 A	–	**ABL8BBU24200**	–
	40 A	–	**ABL8BBU24400**	**ABL8RED24400**


Regulated switch mode power supplies 100 to 240 W for mounting on panel *(4)*

Input voltage		100…240 V ∼	
Certifications *(1)*		CE marking, CB Scheme, cULus listed, cULus recognized, RCM, EAC	
Output voltage		12 V ⎓	24 V ⎓
Reference (according to output current)	4.5 A	–	**ABLP1A24045**
	6.2 A	–	**ABLP1A24062**
	8.5 A	**ABLP1A12085**	–
	10 A	–	**ABLP1A24100**

(1) Please consult detail on certifications for each reference in the individual datasheet available on our website www.schneider-electric.com.
(2) Supplied with 20 or 30 A fuse, depending on the model.
(3) Holding time depending on the load. Please refer to the table of compatibility of battery module with holding time in the Modicon power supply catalog on our website www.schneider-electric.com.
*(4) Mounting on DIN rail possible with additional accessories; ABLP1A01 for all references except **ABLP1A24100**, ABLP1A02 for **ABLP1A24100**.*

Modicon power supplies and transformers

Single winding transformers

Operating temperature		40 °C	50 °C	
Input voltage		230 V ∿	230 V ∿ and 400 V ∿	
Applications		SELV transformer *(2)*	SELV transformer *(2)*	Isolation transformer
Certifications *(1)*		CE marking, EAC	cULus, CE marking, UL (506), EAC	
Output voltage		24 V ∿		230 V ∿
Reference (according to nominal power)	25 VA	–	**ABL6TS02B**	–
	40 VA	**ABT7ESM004B**	**ABL6TS04B**	**ABL6TS04U**
	63 VA	**ABT7ESM006B**	**ABL6TS06B**	**ABL6TS06U**
	100 VA	**ABT7ESM010B**	**ABL6TS10B**	**ABL6TS10U**
	160 VA	**ABT7ESM016B**	**ABL6TS16B**	**ABL6TS16U**
	250 VA	**ABT7ESM025B**	**ABL6TS25B**	**ABL6TS25U**
	400 VA	–	**ABL6TS40B**	**ABL6TS40U**
	630 VA	–	**ABL6TS63B**	**ABL6TS63U**
	1,000 VA	–	**ABL6TS100B**	**ABL6TS100U**
	1,600 VA	–	–	**ABL6TS160U**
	2,500 VA	–	–	**ABL6TS250U**

(1) Please consult detail on certifications for each reference in the individual datasheet available on our website www.schneider-electric.com.
(2) SELV = Safety Extra Low Voltage.

Note: *Please consult the Modicon power supply catalog on our website www.schneider-electric.com for a wider choice of power supplies or transformers.*

Uninterruptible Power Supply (UPS)

Schneider Electric Industrial UPS - 24 V ⎓ DIN Rail		
Power Capacity	240 W	480 W
Input/Output	Hardwire/24 V ⎓	
Input voltage range	21.6 to 28.6 V ⎓	
Mounting type	DIN rail mount	
Runtime	10 mins @ 10 A	5 mins @ 20 A
Communication	I/O Relay, LEDs	
Number of batteries in parallel	4	
Safety Certifications	UL,TUV, CE and UKCA listed	

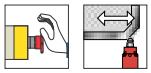
Easy UPS		
Series	1 Ph BVS Series	1 Ph SMV Series
Nominal Input Voltage | Input Frequency	230 V 50/60 Hz (Auto sensing)	
Nominal Output Voltage | Output Frequency	230 V ∿ 50 Hz or 60 Hz +/- 1 Hz	
Power Capacity	300 W/500 VA to 600 W/1,000 VA	525 W/750 VA to 2,100 W/3,000 VA
Topology	Line interactive	
Battery type	Maintenance-free sealed lead-acid battery	

Easy UPS 1 Ph On-line					
Model	SRV 1,000 VA	SRV 2,000 VA	SRV 3,000 VA	SRV 6,000 VA	SRV 10,000 VA
Nominal Input Voltage | Input Frequency	230 V ∿ 50/60 Hz				
Output Voltage | Frequency	220/230/240 V ∿ | 50/60 Hz +/-0.5%			220/230/240 V ∿ | 50/60 Hz +/-0.1%	
Output Power Capacity (Watts/VA)	800 W/1,000 VA	1,600 W/2,000 VA	2,400 W/3,000 VA	6,000 W/6,000 VA	10,000 W/10,000 VA
Topology	Online				
Mounting type	Rack & Tower				
Battery type	Maintenance-free sealed lead-acid battery				

(1) For more information depending on product reference, consult our product datasheet on www.schneider-electric.com.

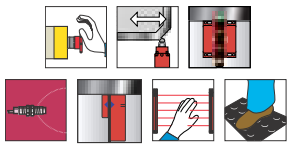
07. Harmony safety modules and Modicon safety controllers

Harmony safety modules



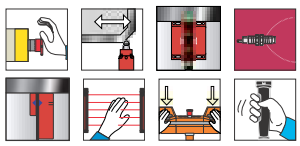
Function: Emergency stop, guard switch

Harmony safety modules conforming to Cat. 3, PL e, SIL3, and STOP category 0			
Terminal type		Captive screw clamp terminal	
Connections		Integrated in module	Removable from module
Number of instantaneous safety output contacts		3 NO	3 NO
Number of additional output contacts		1 solid state	1 solid state
Reference	24 VAC/VDC	**XPSBAC14AP**	**XPSBAC14AC**
	48...240 VAC/DC	**XPSBAC34AP**	**XPSBAC34AC**



Function: Emergency stop, switch monitoring, protective guard applications, coded magnetic switch monitoring, safety mats/edges, safety light curtain or RFID switch monitoring

Harmony safety modules conforming to Cat. 4, PL e, SILCL3, STOP category 0 (for XPSUAK) and STOP category 1 (for XPSUAT)						
Terminal type			Captive screw clamp terminal		Spring clamp terminal	
Connections			Removable from module			
Number of instantaneous safety circuits			3 NO	2 NO + 1 NC	3 NO	2 NO + 1 NC
Number of delayed or immediate contacts			3 NO + 1 NC	–	3 NO + 1 NC	–
Number of additional outputs			1 solid state + 1 pulsed diagnostic output	1 pulsed diagnostic output	1 solid state + 1 pulsed diagnostic output	1 pulsed diagnostic output
Reference	24 VAC/VDC	–	–	**XPSUAK12AP**	–	**XPSUAK12AC**
		0…15 min	**XPSUAT13A3AP**	–	**XPSUAT13A3AC**	–
	48...240 VAC/VDC	–	–	**XPSUAK32AP**	–	**XPSUAK32AC**
		0…15 min	**XPSUAT33A3AP**	–	**XPSUAT33A3AC**	–

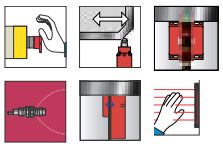


Function: Emergency stop, protective guard, enabling switch or two-hand control monitoring, coded magnetic switch, SIL2 proximity switches, safety light curtain or RFID switch monitoring *(1) (2)*

Harmony safety modules conforming to Cat. 4, PL e, SILCL3, STOP category 0			
Terminal type		Captive screw clamp terminal	Spring clamp terminal
Connections		Removable from module	
Type conforming to standard EN5074		IIIA or IIIC	IIIA or IIIC
Number of instantaneous safety circuits		2 NO	2 NO
Maximum number of two-hand control or enabling switch monitoring (Cat. 4, PL e, SIL3)		1	1
Maximum number of safety light curtain or RFID switch monitoring (Cat. 4, PL e, SIL3)		2	2
Maximum number of safety coded magnetic switches or other safety devices (Cat. 4, PL e, SIL3)		2	2
Number of additional outputs		1 pulsed diagnostic output	1 pulsed diagnostic output
Reference	24 VAC/VDC	**XPSUS12AP**	**XPSUS12AC**
	48...240 VAC/VDC	**XPSUS32AP**	**XPSUS32AC**

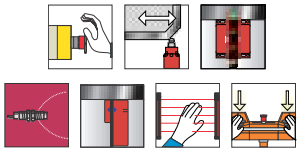
(1) Enabling switch and two-hand control with automatic start only.
(2) Can also be used with XY2SB71 or XY2SB714 two-hand control stations.

Harmony safety modules



Function: Emergency stop, switch monitoring, protective guard applications, coded magnetic switch monitoring, safety light curtain or RFID switch monitoring

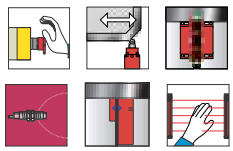
Harmony safety modules conforming to Cat. 4, PL e, SILCL3, STOP category 0			
Terminal type		Captive screw clamp terminal	Spring clamp terminal
Connections		Removable from module	
Number of instantaneous safety circuits		3 NO	3 NO
Number of additional outputs		1 pulsed diagnostic output	1 pulsed diagnostic output
Reference	24 VAC/VDC	**XPSUAF13AP**	**XPSUAF13AC**
	48...240 VAC/VDC	**XPSUAF33AP**	**XPSUAF33AC**



Function: Emergency stop, switch monitoring, or two-hand control monitoring *(1)*

Harmony safety modules conforming to Cat. 1, PL c, SILCL1, STOP category 0			
Terminal type		Captive screw clamp terminal	Spring clamp terminal
Connections		Removable from module	
Type conforming to standard EN5074		IIIA	IIIA
Number of instantaneous safety circuits		1 NO	1 NO
Number of additional outputs		1 NC + 1 pulsed diagnostic output	1 NC + 1 pulsed diagnostic output
Reference	24 VAC/VDC	**XPSUAB11CP**	**XPSUAB11CC**
	48...240 VAC/VDC	**XPSUAB31CP**	**XPSUAB31CC**

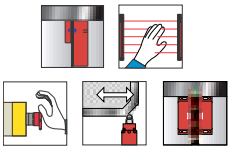
(1) Two-hand control with automatic start only.



Function: Emergency stop, switch monitoring, protective guard applications, coded magnetic switch monitoring, safety light curtain or RFID switch monitoring

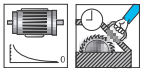
Harmony safety modules conforming to Cat. 4, PL e, SILCL3, STOP category 0			
Terminal type		Captive screw clamp terminal	Spring clamp terminal
Connections		Removable from module	
Number of instantaneous safety circuits		3 NO + 1 NC	3 NO + 1 NC
Maximum number of safety functions for Cat. 4, PL e, SIL3		6	6
Number of additional outputs		1 pulsed diagnostic output	1 pulsed diagnostic output
Reference	24 VAC/VDC	**XPSUDN13AP**	**XPSUDN13AC**
	48...240 VAC/VDC	**XPSUDN33AP**	**XPSUDN33AC**

Harmony safety modules



Function: Emergency stop, switch monitoring and protective guard applications

Harmony safety modules conforming to Cat. 4, PL e, SIL3, and STOP category 1				
Terminal type			Captive screw clamp terminal	Spring clamp terminal
Connections			Removable from module	
Number of instantaneous safety output contacts			2 NO	
Number of delayed or immediate output contacts			1 NO	
Number of additional outputs			50…500 mV	
Reference	24 VAC/DC	0…15 min	**XPSBAT12A1AP**	**XPSBAT12A1AC**



Function: Zero speed monitoring with delayed access to dangerous area

Harmony safety modules conforming to Cat. 3, PL e, SIL3, and STOP category 1			
Terminal type		Captive screw clamp terminal	Spring clamp terminal
Connections		Removable from module	
Number of safety delayed output contact		1 NO *(1)*	
Number of additional outputs		1 Solid-state + 1 pulsed diagnostic output	
Voltage threshold selection		50…500 mV	
Time delay selection		0.5…60 s	
Reference	24 VAC/DC	**XPSUVN11AP**	**XPSUVN11AC**
	48…240 VAC/DC	**XPSUVN31AP**	**XPSUVN31AC**

Function: Increasing the number of safety contacts *(2)*

Harmony safety modules conforming to Cat. 4, PL e, SILCL3, STOP category 0			
Terminal type		Captive screw clamp terminal	Spring clamp terminal
Connections		Removable from module	
Number of instantaneous safety circuits		4 NO	4 NO
Number of additional outputs		2 NC	2 NC
Reference	24 VAC/VDC	**XPSUEP14AP**	**XPSUEP14AC**
	48...240 VAC/VDC	**XPSUEP34AP**	**XPSUEP34AC**

(1) To increase the number of safety delayed output contacts, please refer to XPSUEP range extension outputs.
(2) This module can be used with just XPSU safety modules and is mounted via a side expansion connection included with the product, expect for XPSUAB.

Modicon MCM modular safety controllers

Safety controllers CPU

Safety controllers conforming to Cat. 4, PL e, SIL3

Description		Safety controller CPU	CPU + backplane connector	Safety controller CPU	CPU + backplane connector
Connections		Removable from controller			
Number and type of inputs		8 digital inputs + 2 for Start/Restart interlock		8 digital inputs + 4 for Start/Restart interlock	
Number and type of outputs		2 OSSD pairs + 4 test outputs + 2 status outputs		4 OSSD + 4 test outputs + 4 status outputs	
Terminal type		Screw *(1)*			
Reference	24 VDC	**XPSMCMCP0802**	**XPSMCMCP0802BC**	**XPSMCMC10804**	**XPSMCMC10804BC**

Safe expansion modules

Safe expansion I/O modules

Description		Safe mixed I/O expansion modules		Safe input expansion modules			
Number and type of inputs		8 digital inputs + 2 for Start/Restart interlock	8 digital inputs + 4 for Start/Restart interlock	8 digital inputs	16 digital inputs	12 digital inputs	4-channel analogic inputs 0...20 mA/0…10 V
Number and type of outputs		2 OSSD pairs + 4 test outputs + 2 status outputs	4 single OSSD + 4 test outputs + 4 status outputs	4 test outputs	4 test outputs	8 test outputs for 4-wire safety mats	–
Resolution		–					16 bits
Terminal type		Screw *(1)*					
Reference	24 VDC	**XPSMCMMX0802**	**XPSMCMMX0804** *(2)*	**XPSMCMDI0800**	**XPSMCMDI1600**	**XPSMCMDI1200MT**	**XPSMCMAI0400** *(2)*

Safe output expansion modules

Description		Safe digital expansion modules		Safe relay output modules (without expansion bus connection, wired externally)		Safe relay output modules (with expansion bus connection)	
Number and type of inputs		2 for Start/Restart interlock	4 for Start/Restart interlock	1 for Start/Restart interlock	2 for Start/Restart interlock	4 for Start/Restart interlock	
Number and type of outputs		2 OSSD pairs + 2 status outputs	4 OSSD pairs + 4 status outputs	2 relays for 1 output (2 NO +1 NC)	4 relays for 2 independent outputs (4 NO + 2 NC)	4 relays	4 relays with 8 status outputs
Terminal type		Screw *(1)*					
Reference	24 VDC	**XPSMCMDO0002**	**XPSMCMDO0004**	**XPSMCMER0002**	**XPSMCMER0004**	**XPSMCMRO0004**	**XPSMCMRO0004D**

Safe speed monitoring modules

Description	Safe speed monitoring modules					
Number and type of inputs	- 1 Sin/Cos encoder and 2 proximity sensor inputs	- 2 Sin/Cos encoders and 2 proximity sensor inputs	- 1 TTL encoder and 2 proximity sensor inputs	- 2 TTL encoders and 2 proximity sensor inputs	- 1 HTL encoder and 2 proximity sensor inputs	- 2 HTL encoders and 2 proximity sensor inputs
Connector type	- 1x RJ 45 (ENC1) - Proximity sensor connection via terminal blocks	- 2x RJ 45 (ENC1/ENC2) - Proximity sensor connection via terminal blocks	- 1x RJ 45 (ENC1) - Proximity sensor connection via terminal blocks	- 2x RJ 45 (ENC1/ENC2) - Proximity sensor connection via terminal blocks	- 1x RJ 45 (ENC1) - Proximity sensor connection via terminal blocks	- 2x RJ 45 (ENC1/ENC2) - Proximity sensor connection via terminal blocks
Terminal type	Screw *(1)*					
Reference	**XPSMCMEN0100SC**	**XPSMCMEN0200SC** *(3)*	**XPSMCMEN0100TT**	**XPSMCMEN0200TT**	**XPSMCMEN0100HT**	**XPSMCMEN0200HT**

(1) References are given for products with a screw connector. For equivalent references with a spring clamp connector, add a "G" at the end of the reference. For example, XPSMCMMX0802 becomes XPSMCMMX0802G.
(2) Modules can be used with just the CPU XPSMCMC10804 or XPSMCMC10804BC CPU (screw or spring terminal type).
(3) When monitoring of only 2 proximity sensors is required, order an XPSMCMEN0200.


Safe expansion modules *(continued)*

Safe communication expansion modules		
Description	Safe RS 485 bus expansion module for remote extension	
Characteristics	1 connection interface: single channel transmitter/receiver network connection	2 connections interface: dual channel transmitter/receiver network connection
Terminal type	Screw *(1)*	
Reference	**XPSMCMCO0000S1**	**XPSMCMCO0000S2**






Non-Safe communication modules

Description	Non-Safe communication modules					
Fieldbus/network type	CANopen	Ethernet IP	EtherCAT	Modbus Serial (RTU)	Modbus TCP	Profibus DP
Fieldbus connector type	SUB-D 9-way (female)	1x RJ 45 (in/out)	2x RJ 45 (in/out)	1x RJ 45	1x RJ 45 (in/out)	SUB-D 9-way (male)
Terminal type	Screw *(1)*					
Reference	**XPSMCMCO0000CO**	**XPSMCMCO0000EI**	**XPSMCMCO0000EC**	**XPSMCMCO0000MB**	**XPSMCMCO0000EM**	**XPSMCMCO0000PB**

Software

Description	SoSafe configurable software
Application	To configure a logic connection between the inputs and outputs of the XPSMCMCP0802 and XPSMCMC10804 safety controller CPU *(4)* and the components of the application being developed
PC hardware requirements	RAM: 256 MB, Hard disk ≥ 300 MB of free space USB connector: 1.1 or 2.0, CD-ROM drive
PC software requirements	Windows XP with Service Pack 3 installed or Windows Vista, 32-bit, or Windows 7 or 8.1, 32-bit and 64-bit Microsoft Framework 3.5 installed on the PC
Reference	**Free software available to download from www.se.com**

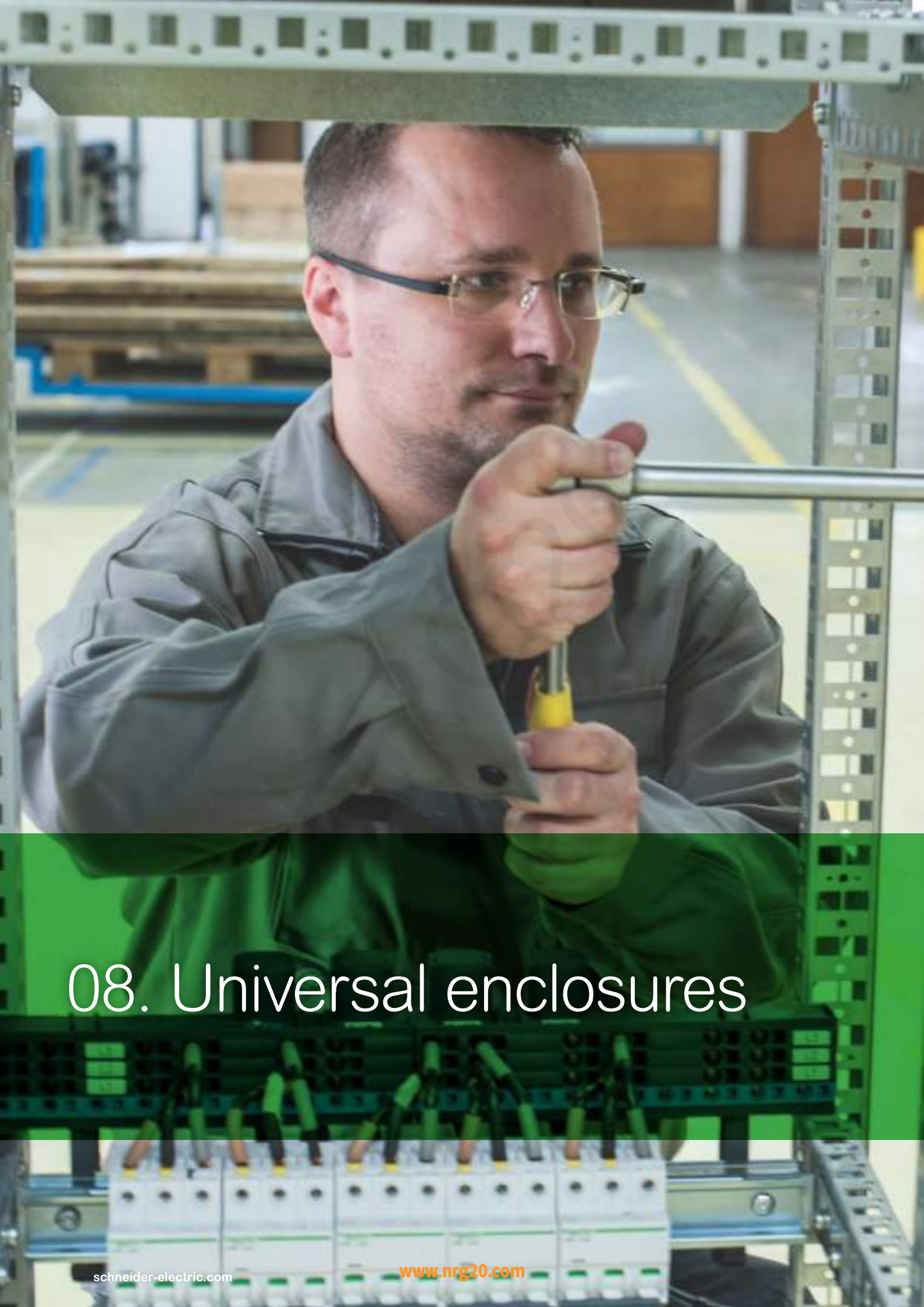

Accessories

Description	Backplane expansion connector *(2)*	Memory card
Application	To connect the various expansion modules to the safety controller CPU	To save configuration data for subsequent transfer to a new device without using a PC
Reference	**XPSMCMCN0000SG**	**XPSMCMME0000**




Description	Configuration cable	RS 485 shielded cables			Encoder splitter cables	
Use	For software configuration, between a PC, the safety controller CPU, and the fieldbus communication modules. Equipped with 2x USB connectors: USB A and USB mini B	Between two Safe communication expansion modules			Between SIN/COS safe speed monitoring module and PacDrive M drives and the associated servo motors	Between SIN/COS safe speed monitoring modules and Lexium 62 (PacDrive 3), Lexium 32 servo drives and the associated servo motors
Reference	**TCSXCNAMUM3P**	**TSXSCMCN010**	**TSXSCMCN025**	**TSXSCMCN050**	**TSXESPPM001** *(3)*	**TSXESPP3001** *(3)*

(1) References are given for products with a screw terminal. For equivalent references with a spring clamp connector, add a "G" at the end of the reference. For example, XPSMCMCO0000S1 becomes XPSMCMCO0000S1G.
(2) This connector only needs to be ordered for the XPSMCMCP0802 or XPSMCMC10804 safety controller when it is connected to expansion modules.
(3) With 1 m cable. For other cable lengths, replace the last number of the reference with 3 for a 3 m cable or 5 for a 5 m cable.
(4) Consider all CPUs with screw and spring clamp terminals.



08. Universal enclosures

Spacial SDB, SBM, and SBX steel industrial boxes

Spacial SDB steel industrial boxes

Degree of protection: IP55. Mechanical protection: IK07. Finish: painted with textured epoxy-polyester resin in RAL7035 light gray

Type of box				Metal junction boxes	
				Without knock-outs	With knock-outs
Type of cover				Low cover	Low cover
Reference according to dimensions (H x W x D) in mm	85	85	49	**NSYDBN88**	**NSYDBN88M**
	105	105	49	**NSYDBN1010**	**NSYDBN1010M**
	155	105	61	**NSYDBN1510**	**NSYDBN1510M**
	206	156	83	**NSYDBN2015**	**NSYDBN2015M**
	256	206	93	**NSYDBN2520**	–
	307	257	116	**NSYDBN3025**	–

Spacial SBM steel industrial boxes

Degree of protection: IP66. Mechanical protection IK10. Finish: painted with textured epoxy-polyester resin in RAL7035 light gray

Type of box				Steel industrial boxes
				Flat boxes
Reference according to dimensions (H x W x D) in mm	150	150	80	**NSYSBM15158**
	150	150	120	**NSYSBM151512**
	150	200	80	**NSYSBM15208**
	150	200	120	**NSYSBM152012**
	150	300	80	**NSYSBM15308**
	150	300	120	**NSYSBM153012**
	150	400	80	**NSYSBM15408**
	150	400	120	**NSYSBM154012**
	200	200	80	**NSYSBM20208**
	200	200	120	**NSYSBM202012**
	200	300	80	**NSYSBM20308**
	200	300	120	**NSYSBM203012**
	200	400	80	**NSYSBM20408**
	200	400	120	**NSYSBM204012**
	200	500	80	**NSYSBM20508**
	200	500	120	**NSYSBM205012**
	200	600	80	**NSYSBM20608**
	200	600	120	**NSYSBM206012**
	200	800	120	**NSYSBM208012**
	300	300	120	**NSYSBM303012**
	300	400	120	**NSYSBM304012**
	300	500	120	**NSYSBM305012**
	300	600	120	**NSYSBM306012**
	300	800	120	**NSYSBM308012**
	400	400	120	**NSYSBM404012**
	400	500	120	**NSYSBM405012**
	400	600	120	**NSYSBM406012**
	400	800	120	**NSYSBM408012**

Spacial SBX stainless steel industrial boxes

Degree of protection: IP66, stainless steel AISI 304L

Type of box				Stainless steel industrial boxes
Reference according to dimensions (H x W x D) in mm	150	150	80	**NSYSBX15158**
	150	300	80	**NSYSBX15308**
	200	200	80	**NSYSBX20208**
	200	300	80	**NSYSBX20308**
	200	400	120	**NSYSBX204012**
	300	300	120	**NSYSBX303012**

Spacial CRN and Spacial S3D steel wall-mounting enclosures

Spacial CRN and Spacial S3D *(1)* multi-purpose steel wall-mounting enclosures *(2)*

Degree of protection: IP66. Mechanical protection: IK10P. Finish: painted with textured epoxy-polyester resin in RAL70P35 light gray

Range				Spacial CRN	Spacial S3D
Composition				Plain door with plain mounting plate	
Reference according to dimensions (H x W x D) in mm	250	200	150	**NSYCRN252150P**	–
	300	200	150	–	**NSYS3D3215P**
	300	250	150	**NSYCRN325150P**	**NSYS3D32515P**
	300	250	200	**NSYCRN325200P**	–
	300	300	150	**NSYCRN33150P**	**NSYS3D3315P**
	300	300	200	**NSYCRN33200P**	**NSYS3D3320P**
	300	400	150	–	**NSYS3D3415P**
	300	400	200	–	**NSYS3D3420P**
	400	300	150	**NSYCRN43150P**	**NSYS3D4315P**
	400	300	200	**NSYCRN43200P**	**NSYS3D4320P**
	400	400	200	**NSYCRN44200P**	**NSYS3D4420P**
	400	600	200	–	**NSYS3D4620P**
	400	600	250	**NSYCRN46250P**	**NSYS3D4625P**
	400	600	300	**NSYCRN46300P**	–
	500	300	200	–	**NSYS3D5320P**
	500	400	150	**NSYCRN54150P**	–
	500	400	200	**NSYCRN54200P**	**NSYS3D5420P**
	500	400	250	**NSYCRN54250P**	**NSYS3D5425P**
	500	500	200	–	**NSYS3D5520P**
	500	500	250	**NSYCRN55250P**	**NSYS3D5525P**
	600	400	150	**NSYCRN64150P**	–
	600	400	200	**NSYCRN64200P**	**NSYS3D6420P**
	600	400	250	**NSYCRN64250P**	**NSYS3D6425P**
	600	500	150	**NSYCRN65150P**	–
	600	500	200	**NSYCRN65200P**	–
	600	500	250	**NSYCRN65250P**	**NSYS3D6525P**
	600	600	200	–	**NSYS3D6620P**
	600	600	250	**NSYCRN66250P**	**NSYS3D6625P**
	600	600	300	**NSYCRN66300P**	**NSYS3D6630P**
	600	600	400	–	**NSYS3D6640P**
	600	800	300	–	**NSYS3D6830P**
	700	500	200	**NSYCRN75200P**	–
	700	500	250	**NSYCRN75250P**	**NSYS3D7525P**
	800	600	200	**NSYCRN86200P**	**NSYS3D8620P**
	800	600	250	**NSYCRN86250P**	**NSYS3D8625P**
	800	600	300	**NSYCRN86300P**	**NSYS3D8630P**
	800	600	400	–	**NSYS3D8640P**
	800	800	200	**NSYCRN88200P**	–
	800	800	250	–	**NSYS3D8825P**
	800	800	300	**NSYCRN88300P**	**NSYS3D8830P**
	800	1000	300	–	**NSYS3D81030P**
	1000	600	250	**NSYCRN106250P**	**NSYS3D10625P**
	1000	600	300	**NSYCRN106300P**	**NSYS3D10630P**
	1000	600	400	–	**NSYS3D10640P**
	1000	800	250	**NSYCRN108250P**	**NSYS3D10825P**
	1000	800	300	**NSYCRN108300P**	**NSYS3D10830P**
	1000	800	400	–	**NSYS3D10840P**
	1000	1000	300	–	**NSYS3D101030P**

(1) Multi-purpose enclosures are empty enclosures meeting the majority of application requirements. The Spacial S3D offer also comprises enclosures for specific applications, including electromagnetic compatibility (EMC), Voice/Data/Image (VDI), human-machine interface (HMI), modular distribution, outdoor installation, and hazardous environments (ATEX, seismic, or nuclear). In order to check the availability of this range in your country, please contact your local Schneider Electric representative.

(2) For other versions without mounting plate, with glazed door (IK08) or double door (IP55), see the Enclosures catalog on our website www.se.com/enclosures. In order to check the availability of this range in your country, please contact your local Schneider Electric representative.

Thalassa insulating industrial boxes and wall-mounting enclosures


Thalassa TBS - TBP insulating industrial boxes

Degree of protection: IP66. Mechanical protection: IK07 (ABS boxes) and IK08 (PC boxes). Color: RAL7035 light gray

Material				ABS		PC	
Type of cover				Opaque cover	Transparent cover	Opaque cover	Transparent cover
Reference according to dimensions (H x W x D) in mm	74	74	54	**NSYTBS775**	–	**NSYTBP775**	–
	89	89	54	**NSYTBS885**	–	**NSYTBP885**	–
	116	74	62	**NSYTBS1176**	–	**NSYTBP1176**	–
	116	116	62	**NSYTBS11116**	–	**NSYTBP11116**	–
	138	93	72	**NSYTBS1397**	**NSYTBS1397T**	**NSYTBP1397**	**NSYTBP1397T**
	164	121	87	**NSYTBS16128**	**NSYTBS16128T**	**NSYTBP16128**	**NSYTBP16128T**
	192	121	87	**NSYTBS19128**	**NSYTBS19128T**	**NSYTBP19128**	**NSYTBP19128T**
	192	164	87	**NSYTBS19168**	**NSYTBS19168T**	**NSYTBP19168**	**NSYTBP19168T**
	241	194	87	**NSYTBS24198**	**NSYTBS24198T**	**NSYTBP24198**	**NSYTBP24198T**
	241	194	107	**NSYTBS241910**	**NSYTBS241910T**	**NSYTBP241910**	**NSYTBP241910T**
	291	241	88	**NSYTBS29248**	**NSYTBS29248T**	**NSYTBP29248**	**NSYTBP29248T**
	291	241	128	**NSYTBS292412**	**NSYTBS292412T**	**NSYTBP292412**	**NSYTBP292412T**
	341	291	128	**NSYTBS342912**	**NSYTBS342912T**	**NSYTBP342912**	**NSYTBP342912T**



Thalassa PLS polyester industrial boxes

Degree of protection: IP66. Mechanical protection: IK09. Color: RAL7035 light gray

Material				Polyester		
Type of cover				Transparent PC cover	Opaque PC cover	Opaque polyester cover
Reference according to dimensions (H x W x D) in mm	180	270	180	**NSYPLS1827G**	**NSYPLSC1827G**	**NSYPLSP1827G**
	270	270	180	**NSYPLS2727G**	**NSYPLSC2727G**	**NSYPLSP2727G**
	270	270	230	**NSYPLS2727AG**	**NSYPLSC2727AG**	–
	270	360	180	**NSYPLS2736G**	**NSYPLSC2736G**	**NSYPLSP2736G**
	270	360	230	**NSYPLS2736AG**	**NSYPLSC2736AG**	–
	270	540	180	**NSYPLS2754G**	**NSYPLSC2754G**	**NSYPLSP2754G**
	270	540	230	**NSYPLS2754AG**	**NSYPLSC2754AG**	–
	360	360	180	**NSYPLS3636G**	**NSYPLSC3636G**	**NSYPLSP3636G**
	360	540	180	**NSYPLS3654G**	**NSYPLSC3654G**	**NSYPLSP3654G**
	360	540	230	**NSYPLS3654AG**	**NSYPLSC3654AG**	–
	360	720	230	**NSYPLS3672AG**	**NSYPLSC3672AG**	–
	540	540	180	**NSYPLS5454G**	**NSYPLSC5454G**	**NSYPLSP5454G**
	540	540	230	**NSYPLS5454AG**	**NSYPLSC5454AG**	–
	540	720	230	**NSYPLS5472AG**	**NSYPLSC5472AG**	–


Thalassa PLM polyester wall-mounting enclosures

Degree of protection: IP66. Mechanical protection: IK10 (IK08 for transparent doors). Color: RAL7035 light gray

Material				ABS/PC		Polyester			
Type of door				Plain door	Transparent (IK08)	Plain door	Transparent (IK08)	Plain door with 3-point closure	Transparent (IK08) with 3-point closure
Reference according to dimensions (H x W x D) in mm	310	215	160	**NSYPLM32G**	**NSYPLM32TG**	–	–	–	–
	308	255	160	–	–	**NSYPLM3025G**	**NSYPLM3025TG**	–	–
	430	330	200	–	–	**NSYPLM43G**	**NSYPLM43TG**	**NSYPLM43VG**	**NSYPLM43TVG**
	530	430	200	–	–	**NSYPLM54G**	**NSYPLM54TG**	**NSYPLM54VG**	**NSYPLM54TVG**
	647	436	250	–	–	**NSYPLM64G**	**NSYPLM64TG**	**NSYPLM64VG**	**NSYPLM64TVG**
	747	536	300	–	–	**NSYPLM75G**	**NSYPLM75TG**	**NSYPLM75VG**	**NSYPLM75TVG**
	847	636	300	–	–	**NSYPLM86G**	**NSYPLM86TG**	**NSYPLM86VG**	**NSYPLM86TVG**
	1056	852	350	–	–	**NSYPLM108G**	**NSYPLM108TG**	–	–

Lighting accessories and ClimaSys ventilation systems

LED lamps

Type of lamp	Cost-effective LED lamps				Portable LED lamps
Voltage (V)	120/230 AC			24/48 DC	120/230 AC
Frequency (Hz)	50 - 60			–	50 - 60
Power (W)	5	10		5	10
Power factor	0.8	0.9		1	0.5
Lumens (lm)	500	1100		470	1100
Reference	**NSYLAMT5LD1**	**NSYLAMT5LD2**		**NSYLAMT5LD1VDC**	**NSYLAMPORTLD**

Type of lamp			Multi-fixing LED lamps and power cables					
Voltage (V)			120/230 AC			120 AC	24/48 DC	230 AC
Frequency (Hz)			50 - 60					
Power (W)			10					
Lumens (lm)			640					
Standards			IEC			UL	IEC/UL	
Type of socket			SCHUKO	UTE	BRITISH	USA	Without socket	
Reference	LED lamps		**NSYLAMLDS**	**NSYLAMLDF**	**NSYLAMLDB**	**NSYLAMLDU**	**NSYLAMLD**	**NSYLAMLDVDC**	**NSYLAMLDD** with presence detector
	Power cables	IEC	**NSYLAM3M** *(1)*			–	**NSYLAM3M** *(1)*	**NSYLAM3MDC**	**NSYLAM3M** *(1)*
		UL	–			**NSYLAM3MUL** *(1)*	**NSYLAM3MUL** *(1)*	**NSYLAM3MDCUL**	**NSYLAM3MUL** *(1)*
	Inter-connexion cables	IEC	**NSYLAM1M** *(1)*			–	**NSYLAM1M** *(1)*	**NSYLAM1MDC**	**NSYLAM1M** *(1)*
		UL	–			**NSYLAM1MUL** *(1)*	**NSYLAM1MUL** *(1)*	**NSYLAM1MDCUL**	**NSYLAM1MUL** *(1)*

(1) For orange cables, add N to the end of the reference (example: NSYLAM3MN)

ClimaSys CV ventilation systems

Degree of protection: IP54

Color: RAL 7035 light gray

Fan flow (m³/h) *(2)*	Voltage (V)	Fan reference	Outlet grid reference
38	115	**NSYCVF38M115PF**	**NSYCAG92LPF**
	230	**NSYCVF38M230PF**	**NSYCAG92LPF**
85	115	**NSYCVF85M115PF**	**NSYCAG125LPF**
	230	**NSYCVF85M230PF**	**NSYCAG125LPF**
165	115	**NSYCVF165M115PF**	**NSYCAG223LPF**
	230	**NSYCVF165M230PF**	**NSYCAG223LPF**
300	115	**NSYCVF300M115PF**	**NSYCAG223LPF**
	230	**NSYCVF300M230PF**	**NSYCAG223LPF**
560	115	**NSYCVF560M115PF**	**NSYCAG291LPF**
	230	**NSYCVF560M230PF**	**NSYCAG291LPF**
850	115	**NSYCVF850M115PF**	**NSYCAG291LPF**
	230	**NSYCVF850M230PF**	**NSYCAG291LPF**
	400	**NSYCVF850M400PF**	**NSYCAG291LPF**

ClimaSys CV smart ventilation systems *(1)*

Degree of protection: IP54

Color: RAL 9005 semi-transparent black

Fan flow (m³/h) *(2)*	Voltage (V)	Smart fan reference *(3)*	Smart grid reference *(4)*
34	115	**NSYCVF38M115DG**	**NSYCAG92DG**
34	230	**NSYCVF38M230DG**	**NSYCAG92DG**
74	115	**NSYCVF85M115DG**	**NSYCAG125DG**
68	230	**NSYCVF85M230DG**	**NSYCAG125DG**
142	115	**NSYCVF165M115DG**	**NSYCAG223DG**
151	230	**NSYCVF165M230DG**	**NSYCAG223DG**
259	115	**NSYCVF300M115DG**	**NSYCAG223DG**
259	230	**NSYCVF300M230DG**	**NSYCAG223DG**
502	115	**NSYCVF560M115DG**	**NSYCAG291DG**
522	230	**NSYCVF560M230DG**	**NSYCAG291DG**
638	115	**NSYCVF850M115DG**	**NSYCAG291DG**
783	230	**NSYCVF850M230DG**	**NSYCAG291DG**
731	400	**NSYCVF850M400DG**	**NSYCAG291DG**

(1) Smart fan has to be connected to a controller to relay information and alarms (see table below).
(2) Free flow rate at 50 Hz
*(3) Supply of **NSYCV●●●DG** fan includes: 1 fan sensor (rpm&Tor measurement), 1 dirt filter sensor*
*(4) Supply of **NSYCAG●●●DG** grid includes: 1 dirt filter sensor*

ClimaSys smart ventilation controllers

Voltage (V)	Filterstat controller reference	Thermal hub reference
30 VAC/VDC	**NSYCCOFST30V**	**NSYCCOFSEM8U1**
90-250 VAC	**NSYCCOFST90250V**	**NSYCCOFSEM8U2**
No. of ports	4	8

Filterstat communication cable

Black unshielded cable with 2 connectors at each end (material: PVC)

Length (mm)	Cable references
500	**NSYCCA50MFST**
1000	**NSYCCA100MFST**
1500	**NSYCCA150MFST**
2000	**NSYCCA200MFST**
3000	**NSYCCA300MFST**
4000	**NSYCCA400MFST**
5000	**NSYCCA500MFST**

ClimaSys thermal management systems


1


2


3


4


5

1 ClimaSys CC mechanical thermostats

Type of control	Control of a resistance hearter or alarm		Control of a fan or alarm	
Setting range	0…+60 °C	+32…+140 °F	0…+60 °C	+32…+140 °F
Reference	**NSYCCOTHC**	**NSYCCOTHCF**	**NSYCCOTHO**	**NSYCCOTHOF**

2 ClimaSys CR insulated resistance heaters, 2 poles

Power (W)	10		20	
Voltage (V)	110-250 AC	12-24 DC	110-250 AC	12-24 DC
Reference	**NSYCR10WU2C**	**NSYCR10WU1C**	**NSYCR20WU2C**	**NSYCR20WU1C**

3 ClimaSys CR aluminum resistance heaters

Power cord				
Power (W)	10		20	
Voltage (V)	12-24 DC	110-250 AC	12-24 DC	110-250 AC
Reference	**NSYCR10WU1**	**NSYCR10WU2**	**NSYCR20WU1**	**NSYCR20WU2**
Terminal block				
Power (W)	20	55	55	55
Voltage (V)	270-420 AC	12-24 DC	110-250 AC	270-420 AC
Reference	**NSYCR20WU3**	**NSYCR55WU1**	**NSYCR55WU2**	**NSYCR55WU3**

4 ClimaSys CRS ultra-thin resistance heaters

Power (W)	10		25		50	
Voltage (V)	120 AC	240 AC	120 AC	240 AC	120 AC	240 AC
Inrush current (A)	0.08	0.04	0.21	0.10	0.42	0.21
Height (mm)	130	130	130	130	200	200
Width (mm)	250	250	250	250	320	320
Depth (mm)	1.6	1.6	1.6	1.6	1.6	1.6
Reference	**NSYCRS10W120V**	**NSYCRS10W240V**	**NSYCRS25W120V**	**NSYCRS25W240V**	**NSYCRS50W120V**	**NSYCRS50W240V**

5 ClimaSys DT data loggers

Characteristics	DTT
Type of recorder	Temperature recorder
Composition	1
Reference	**NSYDTEF32T**

Digital Offer

ProClima

Find the best thermal solution for your enclosure
Select and calculate your thermal management requirements, according to the environment and the electrical/electronic devices installed inside the enclosure.

Digital Rules

Find the accessories that suit your enclosure
The digital rules allow you to select the best components from the current product range. There will be no risk of mistake, since product and accessory selection take place automatically, saving you time and money.

Note: For more detailed information on our products, see the Enclosures catalog on our website www.se.com/enclosures.

09. Telemecanique Sensors - Detection components

Telemecanique Sensors

Simply easy!™

Founded over 90 years ago,
Telemecanique Sensors is specialized in sensors and sensor-related technology.

As a **global leader** in the sensors business, we help our customers select the right technology to get the best performance and reliability from their machines.

Focused on 3 core values – **Simplicity, Proximity and Expertise** – we have become experts in factory automation sensors as well as specialists in demanding applications, making our customers' lives "Simply easy!"

Visit our website and discover our full offer on
www.tesensors.com

Telemecanique Sensors **SPOTLIGHT:** Wireless

Limit switches: XC Wireless

Choose : 1 Body > 2 Head > 3 Contact > 4 Connection > Reference

		One way pulsed wireless transmission	Metal Roller Plunger	Metal End Plunger	Plastic Roller Lever	Metal Roller Lever	Adjustable Length Plastic Roller Lever
XCMW	Snap Action		XCMW102	XCMW110	XCMW115	XCMW116	XCMW145

Receivers

Choose : 1 Body > 2 Connection > 3 Output function > Reference

		4xPNP	2xRelays				
ZBRR	32 Transmitters	ZBRRC	ZBRRD	XZBW	2 Transmitters	2 x PNP (Q1 & Q2)	XZBWR2STT24

Radio transmitter

Connects to any sensor or switch!

		2-way continuous Wireless transmission	
NO			XZBWE112A24

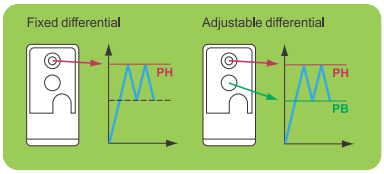
Pressure switches: XM Range

Choose : Family (1) / Fluids & pressure (1) > (2) Output type > (3) Electrical connection > (4) Fluid connection > Reference

XMLA / XMLB Electromechanical

Hydraulic oils, air, fresh water, sea water / Temp. : up to 70° C

Screw terminal	Bar	psi	1 C/O single pole contact fixed differential			1 C/O single pole contact adjustable differential		
			ISO M20	Pg13	DIN connector	ISO M20	Pg13	DIN connector
	-1	-14.5	XMLAM01V2S12	XMLAM01V2S11	XMLAM01V2C11	XMLBM02V2S12	XMLBM02V2S11	XMLBM02V2C11
	2.5	36.3	XMLA002A2S12	XMLA002A2S11	XMLA002A2C11	XMLB002A2S12	XMLB002A2S11	XMLB002A2C11
	4	58	XMLA004A2S12	XMLA004A2S11	XMLA004A2C11	XMLB004A2S12	XMLB004A2S11	XMLB004A2C11
	10	145	XMLA010A2S12	XMLA010A2S11	XMLA010A2C11	XMLB010A2S12	XMLB010A2S11	XMLB010A2C11
	20	290	XMLA020A2S12	XMLA020A2S11	XMLA020A2C11	XMLB020A2S12	XMLB020A2S11	XMLB020A2C11
	35	508	XMLA035A2S12	XMLA035A2S11	XMLA035A2C11	XMLB035A2S12	XMLB035A2S11	XMLB035A2C11
	Hydraulic oils / Temp. : up to 160° C							
	1	14.5	XMLA001R2S12	XMLA001R2S11	XMLA001R2C11	XMLB001R2S12	XMLB001R2S11	XMLB001R2C11
	70	1015	XMLA070D2S12	XMLA070D2S11	XMLA070D2C11	XMLB070D2S12	XMLB070D2S11	XMLB070D2C11
	160	2320	XMLA160D2S12	XMLA160D2S11	XMLA160D2C11	XMLB160D2S12	XMLB160D2S11	XMLB160D2C11
	300	4350	XMLA300D2S12	XMLA300D2S11	XMLA300D2C11	XMLB300D2S12	XMLB300D2S11	XMLB300D2C11
G 1/4 (female	500	7250	XMLA500D2S12	XMLA500D2S11	XMLA500D2C11	XMLB500D2S12	XMLB500D2S11	XMLB500D2C11



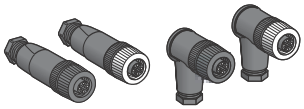
XMLR Electronic + Display

Hydraulic oils, air, fresh water, refrigerant fluids

M12 4 pin or 5 pin	Bar	psi	-20… +80° C Analog output		-20… +80° C Analog + 2 switching outputs PNP - NO/NC programmable
			4…20 mA	0…10 V	4…20 mA
	-1	-14.5	XMLRM01G0T25	XMLRM01G0T75	XMLRM01G2P25
	1	14.5	XMLR001G0T25	XMLR001G0T75	
	2.5	35.2	XMLR2D5G0T25	XMLR2D5G0T75	
	10	145	XMLR010G0T25	XMLR010G0T75	XMLR010G2P25
	16	232	XMLR016G0T25	XMLR016G0T75	XMLR016G2P25
	25	362	XMLR025G0T25	XMLR025G0T75	
	40	580	XMLR040G0T25	XMLR040G0T75	XMLR040G2P25
	100	1450	XMLR100M0T25	XMLR100M0T75	
	160	2320	XMLR160M0T25	XMLR160M0T75	
	250	3625	XMLR250M0T25	XMLR250M0T75	XMLR250M2P25
	400	5800	XMLR400M0T25	XMLR400M0T75	XMLR400M2P25
	600	8700	XMLR600M0T25	XMLR600M0T75	

Hydraulic oils, air, fresh water, refrigerant fluids

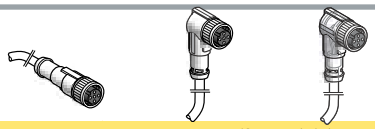
G 1/4A (female)	Bar	psi	-20… +80° C Analog + switching output PNP - NO/NC programmable		2 switching outputs PNP - NO/NC programmable
			4…20 mA	0…10 V	
	-1	-14.5	XMLRM01G1P25	XMLRM01G1P75	XMLRM01G2P05
	1	14.5	XMLR001G1P25	XMLR001G1P75	XMLR001G2P05
	2.5	35.2	XMLR2D5G1P25	XMLR2D5G1P75	XMLR2D5G2P05
	10	145	XMLR010G1P25	XMLR010G1P75	XMLR010G2P05
	16	232	XMLR016G1P25	XMLR016G1P75	XMLR016G2P05
	25	362	XMLR025G1P25	XMLR025G1P75	XMLR025G2P05
	40	580	XMLR040G1P25	XMLR040G1P75	XMLR040G2P05
	100	1450	XMLR100M1P25	XMLR100M1P75	XMLR100M2P05
	160	2320	XMLR160M1P25	XMLR160M1P75	XMLR160M2P05
	250	3625	XMLR250M1P25	XMLR250M1P75	XMLR250M2P05
	400	5800	XMLR400M1P25	XMLR400M1P75	XMLR400M2P05
	600	8700	XMLR600MP25	XMLR600MP75	XMLR600M2P05



Cabling XM

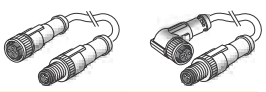
M12		Connectors (female) straight	elbowed
(1)	4 pin	XZCC12FDM40B	XZCC12FCM40B
(2)	4 pin	XZCC12FDP40B	XZCC12FCP40B
(1)	5 pin	XZCC12FDM50B	XZCC12FCM50B

(1) Steel ring (2) Plastic ring



M12		PUR pre wired connectors (female) (3) straight	elbowed	elbowed PNP LED
4 pin	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(3) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx



M12 (female)		PUR Jumper cables straight	elbowed
M12 (male)		straight	straight
4 pin	1 m	XZCR1511041C1	XZCR1512041C1
	2 m	XZCR1511041C2	XZCR1512041C2

Pressure switches: XM Range

Choose : Family (1) (1) Fluids & pressure > (2) Output type > (3) Electrical connection > (4) Fluid connection > Reference

XMLP Electronic transmitter

M12 4 pin (male)

G 1/4A (male)

Hydraulic oils, air, fresh water

--30…+85° C		Analog output		
Bar	psi	4…20 mA	0…10 V	0.5…4.5 V
-1	-14.5	XMLPM00GD21F	XMLPM00GD71F	XMLPM00GD11F
1	14.5	XMLP001GD21F	XMLP001GD71F	XMLP001GD11F
6	87	XMLP006GD21F	XMLP006GD71F	XMLP006GD11F
10	145	XMLP010BD21F	XMLP010BD71F	XMLP010BD11F
16	232	XMLP016BD21F	XMLP016BD71F	XMLP016BD11F
25	362	XMLP025BD21F	XMLP025BD71F	XMLP025BD11F
40	580	XMLP040BD21F	XMLP040BD71F	XMLP040BD11F
60	870	XMLP060BD21F	XMLP060BD71F	XMLP060BD11F
100	1450	XMLP100BD21F	XMLP100BD71F	XMLP100BD11F
160	2320	XMLP160BD21F	XMLP160BD71F	XMLP160BD11F
250	3625	XMLP250BD21F	XMLP250BD71F	XMLP250BD11F
400	5800	XMLP400BD21F	XMLP400BD71F	XMLP400BD11F
600	8700	XMLP600BD21F	XMLP600BD71F	XMLP600BD11F

ZMLP Display and switch

M12 4 pin (male)

PNP

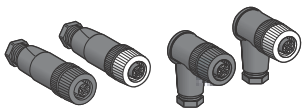
M12 4 pin (female)

4-20 mA analog + switching output		2 switching outputs
NO/NC Programmable		NO/NC Programmable
Window	Hysteresis	Fixed hysteresis
ZMLPA1P2SW	ZMLPA1P2SH	ZMLPA2P0SH

Only usable with 4-20mA analog output XMLP electronic transmitter

Quick mounting bracket

Horizontal plan	Vertical plan or pipe
XMLPZLH01	XMLPZLV01



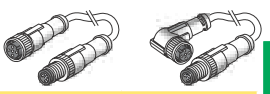
Cabling XM

M12		Connectors (female) straight	Connectors (female) elbowed
(1)	4 pin	XZCC12FDM40B	XZCC12FCM40B
(2)	4 pin	XZCC12FDP40B	XZCC12FCP40B
(1)	5 pin	XZCC12FDM50B	XZCC12FCM50B

(1) Steel ring (2) Plastic ring

M12		PUR pre wired connectors (female) (3) straight	elbowed	elbowed PNP LED
4 pin	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(3) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx



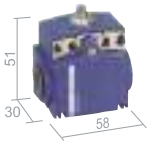
M12 (female)		PUR Jumper cables straight	elbowed
M12 (male)		straight	straight
4 pin	1 m	XZCR1511041C1	XZCR1512041C1
	2 m	XZCR1511041C2	XZCR1512041C2

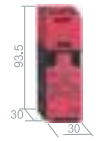
9

Limit switches: XC Range

See Page 60897/1 for **XC Wireless SPOTLIGHT!**

Choose : 1 Body > 2 Head > 3 Contact > 4 Connection > Reference

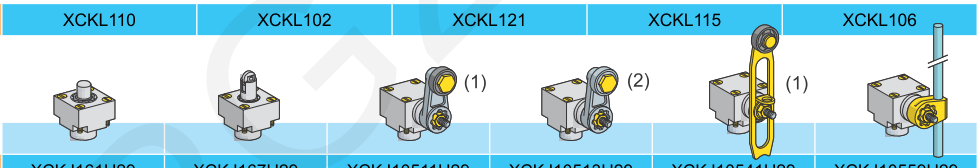




XCKD Metal	NO+NC Snap	M16	XCKD2110P16	XCKD2102P16	XCKD2121P16	XCKD2106P16	XCKD2118P16	XCKD2145P16
		Pg11	XCKD2110G11	XCKD2102G11	XCKD2121G11	XCKD2106G11	XCKD2118G11	XCKD2145G11
		M12 5P	XCKD2110M12	XCKD2102M12	XCKD2121M12	XCKD2106M12	XCKD2118M12	XCKD2145M12
XCKP Plastic	NO+NC Snap	M16	XCKP2110P16	XCKP2102P16	XCKP2121P16	XCKP2106P16	XCKP2118P16	XCKP2145P16
		Pg11	XCKP2110G11	XCKP2102G11	XCKP2121G11	XCKP2106G11	XCKP2118G11	XCKP2145G11
		M12 4P	XCKP2110M12	XCKP2102M12	XCKP2121M12	XCKP2106M12	XCKP2118M12	XCKP2145M12
XCKT Plastic	NO+NC Snap	M16	XCKT2110P16	XCKT2102P16	XCKT2121P16	XCKT2106P16	XCKT2118P16	XCKT2145P16
		Pg11	XCKT2110G11	XCKT2102G11	XCKT2121G11	XCKT2106G11	XCKT2118G11	XCKT2145G11

XCMD Metal	NO+NC Snap	1 m	XCMD2110L1	XCMD2102L1	XCMD2124L1	XCMD21F0L1	XCMD21F2L1	XCMD2115L1	XCMD2116L1
	NO+NC Slow	1 m	XCMD2510L1	XCMD2502L1	XCMD2524L1	XCMD25F0L1	XCMD25F2L1	XCMD2515L1	XCMD2516L1
	NO+NC Snap	M12 5P	XCMD2110C12	XCMD2102C12	XCMD2124C12	XCMD21F0C12	XCMD21F2C12	XCMD2115C12	XCMD2116C12
	1 C/O Snap	M12 4P	XCMD2110M12	XCMD2102M12	XCMD2124M12	XCMD21F0M12	XCMD21F2M12	XCMD2115M12	XCMD2116M12

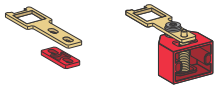
XCKM Metal	NO+NC Snap	M20	XCKM110H29	XCKM102H29	XCKM121H29	XCKM115H29	XCKM106H29
		Pg11	XCKM110	XCKM102	XCKM121	XCKM115	XCKM106
XCKL Metal	NO+NC Snap	CG	XCKL110	XCKL102	XCKL121	XCKL115	XCKL106



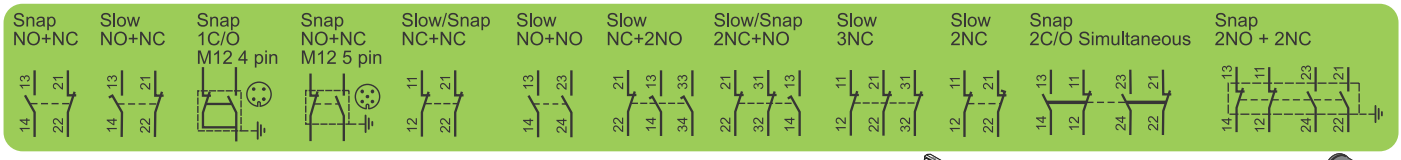
XCKJ Metal	NO+NC Snap	M20	XCKJ161H29	XCKJ167H29	XCKJ10511H29	XCKJ10513H29	XCKJ10541H29	XCKJ10559H29
		Pg13	XCKJ161	XCKJ167	XCKJ10511	XCKJ10513	XCKJ10541	XCKJ10559
		1/2NPT	XCKJ161H7	XCKJ167H7	XCKJ10511H7	XCKJ10513H7	XCKJ10541H7	XCKJ10559H7
		M12 5P	XCKJ161D	XCKJ167D	XCKJ10511D	XCKJ10513D	XCKJ10541D	XCKJ10559D

(1) Plastic roller (2) Steel roller

		NC+2NO Slow	2NC+NO Slow	3NC Slow	Accessories	
XCSA Metal	M20	XCSA502	XCSA702	XCSA802	**XCSZ01**	**XCSZ03**
	Pg13	XCSA501	XCSA701	XCSA801		
	1/2NPT	XCSA503	XCSA703	XCSA803		



		NC+N0 Slow	2NC Slow	2NO+NC Slow	2NC+NO Slow	2NC+N0 Snap	Accessories	
XCSPA Plastic	M16	XCSPA592	XCSPA792	XCSPA892	XCSPA992	XCSPA492	**XCSZ11**	**XCSZ13**
	Pg11	XCSPA591	XCSPA791	XCSPA891	XCSPA991	XCSPA491		
	1/2NPT	XCSPA593	XCSPA793	XCSPA893	XCSPA993	XCSPA493		



M16	Tapped M16x1.5 for ISO cable gland
M20	Tapped M20x1.5 for ISO cable gland
Pg11	Tapped for a N°11 cable gland
Pg13	Tapped for a N°13 cable gland
1/2NPT	Tapped for a 1/2" NPT
PF1/2	Tapped for a PF1/2"
M12 5P	Connector M12, 5 pin
M12 4P	Connector M12, 4 pin
CG	Tapped with cable gland included

Cabling XC

M12		PUR pre wired connectors (female) (1) straight	elbowed	elbowed PNP LED
4 pin	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10
5 pin	5 m	XZCP1164L5	XZCP1264L5	

M12		Connectors (female) straight	elbowed
(2) 4 pin		XZCC12FDM40B	XZCC12FCM40B
(3) 4 pin		XZCC12FDP40B	XZCC12FCP40B
(2) 5 pin		XZCC12FDM50B	XZCC12FCM50B

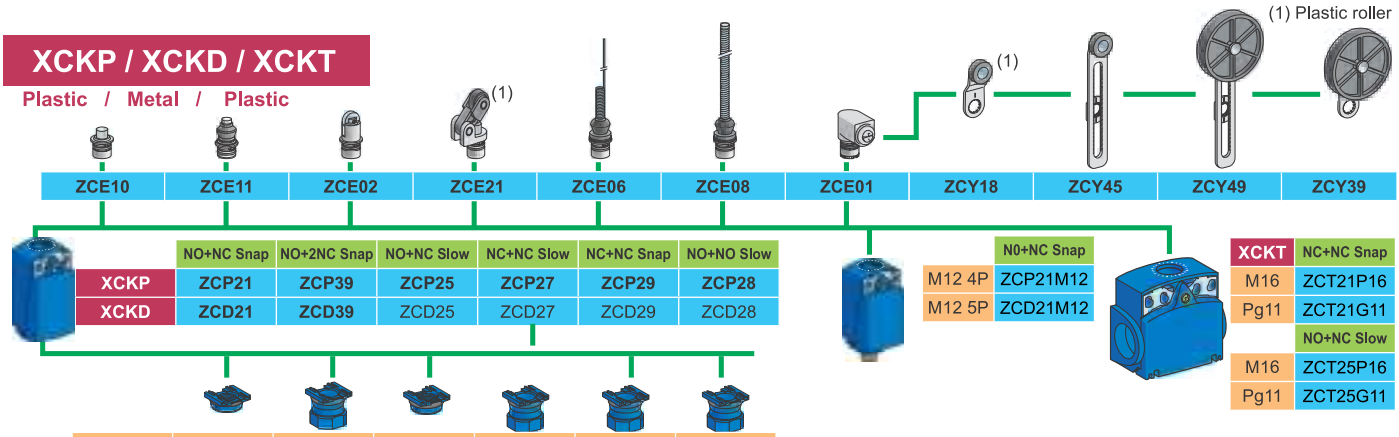
(2) Steel ring (3) Plastic ring

(1) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx

Limit switches: XC Range

XCKP / XCKD / XCKT

Plastic / Metal / Plastic



	NO+NC Snap	NO+2NC Snap	NO+NC Slow	NC+NC Slow	NC+NC Snap	NO+NO Slow
XCKP	ZCP21	ZCP39	ZCP25	ZCP27	ZCP29	ZCP28
XCKD	ZCD21	ZCD39	ZCD25	ZCD27	ZCD29	ZCD28

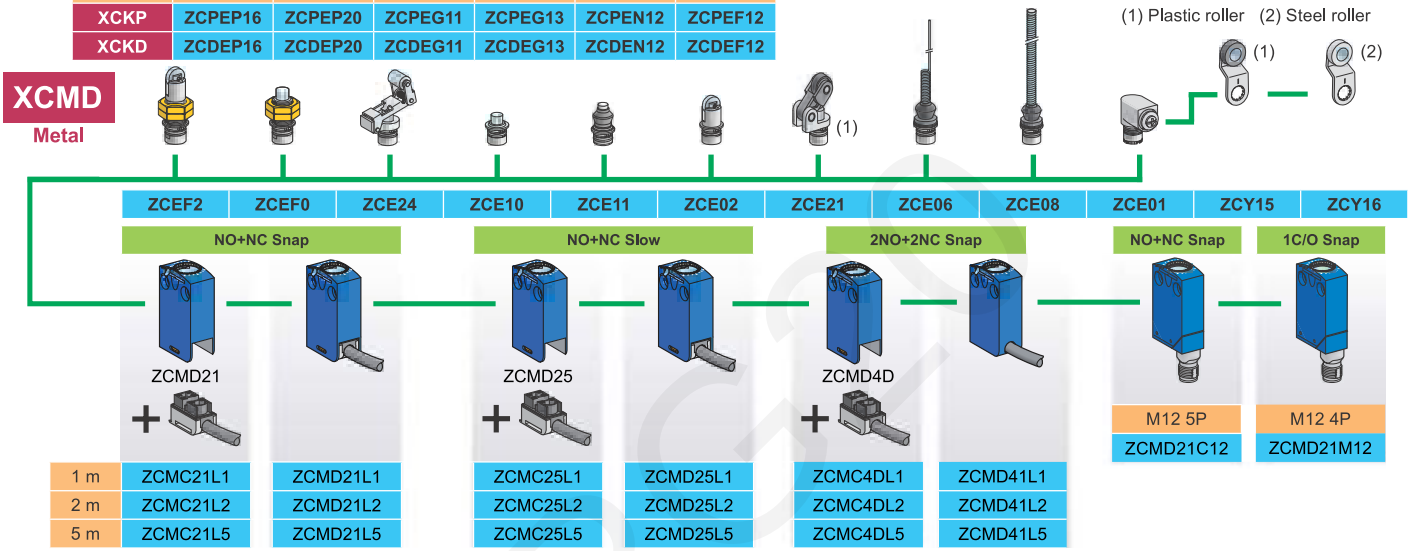
	N0+NC Snap
M12 4P	ZCP21M12
M12 5P	ZCD21M12

XCKT	NC+NC Snap
M16	ZCT21P16
Pg11	ZCT21G11
	NO+NC Slow
M16	ZCT25P16
Pg11	ZCT25G11

Cable entry	M16	M20	Pg11	Pg13.5	1/2 NPT	PF1/2
XCKP	ZCPEP16	ZCPEP20	ZCPEG11	ZCPEG13	ZCPEN12	ZCPEF12
XCKD	ZCDEP16	ZCDEP20	ZCDEG11	ZCDEG13	ZCDEN12	ZCDEF12

XCMD

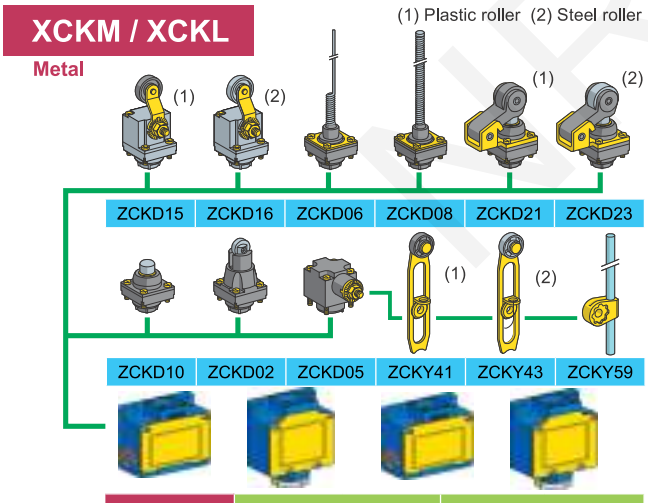
Metal



1 m	ZCMC21L1	ZCMD21L1	ZCMC25L1	ZCMD25L1	ZCMC4DL1	ZCMD41L1
2 m	ZCMC21L2	ZCMD21L2	ZCMC25L2	ZCMD25L2	ZCMC4DL2	ZCMD41L2
5 m	ZCMC21L5	ZCMD21L5	ZCMC25L5	ZCMD25L5	ZCMC4DL5	ZCMD41L5

XCKM / XCKL

Metal



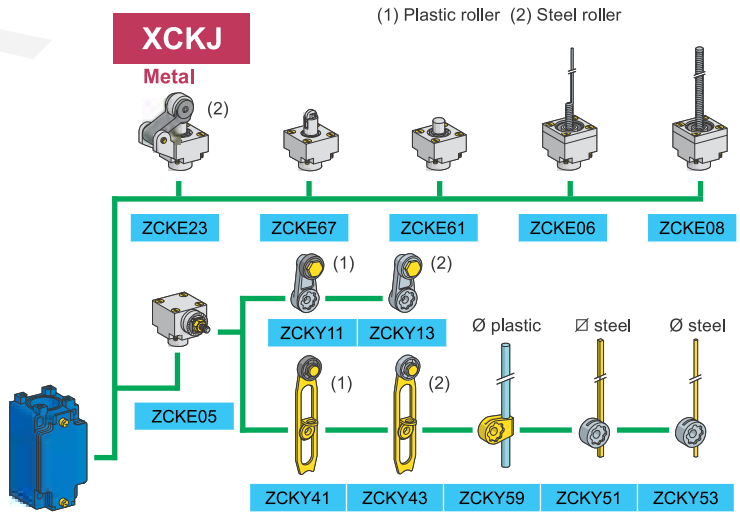
XCKM/XCKL	NO+NC Snap		NO+NC Slow	
3xPg11	ZCKM1		ZCKM5	
3xM20	ZCKM1H29		ZCKM5H29	
PE		ZCKL1		ZCKL5
1/2 NPT		ZCKL1H7		ZCKL5H7

XCKS	NO+NC Snap	NO+NC Slow
Pg13	ZCKS1	ZCKS5
M20	ZCKS1H29	ZCKS5H29

XCKJ	NO+NC Snap	NO+NC Slow	2C/O Simult. Snap
Pg13	ZCKJ1	ZCKJ5	ZCKJ2
M20	ZCKJ1H29	ZCKJ5H29	ZCKJ2H29
1/2 NPT	ZCKJ1H7	ZCKJ5H7	ZCKJ2H7
M12 5P	ZCKJ1D	ZCKJ5D	–

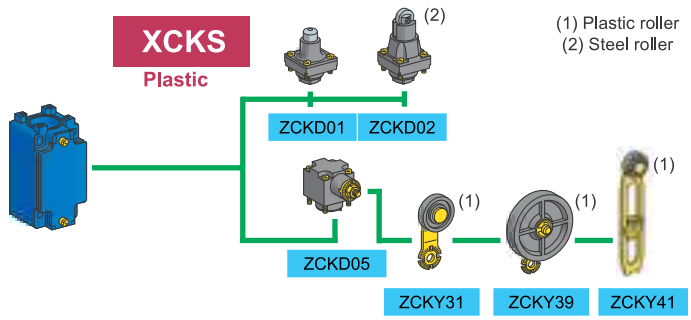
XCKJ

Metal



XCKS

Plastic



Inductives: XS Range

Choose : Body size 1 / Sensing distance 1 > 2 Output type > 3 Connection > 4 Output function > Reference

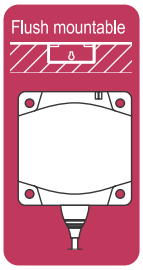

Flush mountable — Short

			M8		M12	
	Sensing distance		1.5 mm	2.5 mm	2 mm	4 mm
DC3	PNP	cable	XS508B1PAL2	XS108B3PAL2	XS512B1PAL2	XS112B3PAL2
		connector	XS508B1PAM8	XS108B3PAM8	XS512B1PAM12	XS112B3PAM12
	NPN	cable	XS508B1NAL2	XS108B3NAL2	XS512B1NAL2	XS112B3NAL2
		connector	XS508B1NAM8	XS108B3NAM8	XS512B1NAM12	XS112B3NAM12
DC2		cable	XS508BSCAL2	XS608B3CAL2	XS512BSDAL2	XS612B3DAL2
		connector	XS508BSCAL01M12	XS608B3CAL01M12	XS512BSDAM12	XS612B3DAM12

Long

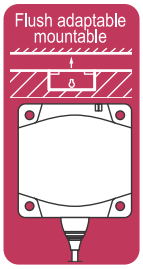
DC3	PNP	cable	XS508BLPAL2	XS608B1PAL2	XS512BLPAL2	XS612B1PAL2
		connector	XS508BLPAM12	XS608B1PAM12	XS512BLPAM12	XS612B1PAM12
	NPN	cable	XS508BLNAL2	XS608B1NAL2	XS512BLNAL2	XS612B1NAL2
		connector	XS508BLNAM12	XS608B1NAM12	XS512BLNAM12	XS612B1NAM12
DC2		cable	XS508B1DAL2	XS608B1DAL2	XS512B1DAL2	XS612B1DAL2
		connector	XS508B1DAM12	XS608B1DAM12	XS512B1DAM12	XS612B1DAM12
AC/DC		cable			XS512B1MAL2	XS612B1MAL2
		connector			XS512B1MAU20	XS612B1MAU20
Output function		NO	A	A	A	A
		NC	B	B	B	B
		NO + NC				(short only) C

Flush mountable



			⌀ 8x22x8 mm	⌀ 15x32x8 mm	⌀ 26x26x13 mm	⌀ 40x40x15 mm
	Sensing distance		2.5 mm	5 mm	10 mm	15 mm
DC3	PNP	cable	XS7J1A1PAL2	XS7F1A1PAL2	XS7E1A1PAL2	XS7C1A1PAL2
		connector	XS7J1A1PAL01M8	XS7F1A1PAL01M8	XS7E1A1PAM8	XS7C1A1PAM8
	NPN	cable	XS7J1A1NAL2	XS7F1A1NAL2	XS7E1A1NAL2	XS7C1A1NAL2
		connector	XS7J1A1NAL01M8	XS7F1A1NAL01M8	XS7E1A1NAM8	XS7C1A1NAM8
DC2		cable	XS7J1A1DAL2	XS7F1A1DAL2	XS7E1A1DAL2	XS7C1A1DAL2
		connector	XS7J1A1DAL01M8	XS7F1A1DAL01M8	XS7E1A1DAM8	XS7C1A1DAM8

Flush adaptable mountable



			⌀ 26x26x13 mm	⌀ 40x40x15 mm
	Sensing distance		15 mm	25 mm
DC3	PNP	cable	XS8E1A1PAL2	XS8C1A1PAL2
		connector	XS8E1A1PAM8	XS8C1A1PAM8
	NPN	cable	XS8E1A1NAL2	XS8C1A1NAL2
		connector	XS8E1A1NAM8	XS8C1A1NAM8
AC/DC		cable	XS8E1A1MAL2	XS8C1A1MAL2
		connector	XS8E1A1MAL01U20	XS8C1A1MAL01U20
Output function		NO	A	A
		NC	B	B

XS●●●●●●●M8: Connector M8 3 pin

XS●●●●●●●M12: Connector M12 4 pin

XS●●●●●●●U20: Connector 1/2" 3 pin

Cabling XS

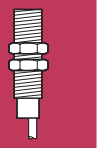
		PUR pre wired connectors (female) (1)	
M8		straight	elbowed
3 pin	2 m	XZCP0566L2	XZCP0666L2
	5 m	XZCP0566L5	XZCP0666L5
	10 m	XZCP0566L10	XZCP0666L10
1/2"			
3 pin	5 m	XZCP1865L5	XZCP1965L5

(1) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx

Inductives: XS Range

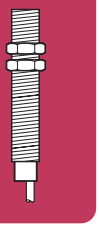

Flush mountable

Short



			M18		M30	
	Sensing distance		5 mm	8 mm	10 mm	15 mm
DC3	PNP	cable	XS518B1PAL2	XS118B3PAL2	XS530B1PAL2	XS130B3PAL2
		connector	XS518B1PAM12	XS118B3PAM12	XS530B1PAM12	XS130B3PAM12
	NPN	cable	XS518B1NAL2	XS118B3NAL2	XS530B1NAL2	XS130B3NAL2
		connector	XS518B1NAM12	XS118B3NAM12	XS530B1NAM12	XS130B3NAM12
DC2		cable	XS518BSDAL2	XS618B3DAL2	XS530BSDAL2	XS630B3DAL2
		connector	XS518BSDAM12	XS618B3DAM12	XS530BSDAM12	XS630B3DAM12

Long



DC3	PNP	cable	XS518BLPAL2	XS618B1PAL2	XS530BLPAL2	XS630B1PAL2
		connector	XS518BLPAM12	XS618B1PAM12	XS530BLPAM12	XS630B1PAM12
	NPN	cable	XS518BLNAL2	XS618B1NAL2	XS530BLNAL2	XS630B1NAL2
		connector	XS518BLNAM12	XS618B1NAM12	XS530BLNAM12	XS630B1NAM12
DC2		cable	XS518B1DAL2	XS618B1DAL2	XS530B1DAL2	XS630B1DAL2
		connector	XS518B1DAM12	XS618B1DAM12	XS530B1DAM12	XS630B1DAM12
AC/DC		cable	XS518B1MAL2	XS618B1MAL2	XS530B1MAL2	XS630B1MAL2
		connector	XS518B1MAU20	XS618B1MAU20	XS530B1MAU20	XS630B1MAU20
Output function		NO	A	A	A	A
		NC	B	B	B	B
		NO + NC		(short only) C		(short only) C

Accessories

M8	XSZB108
M12	XSZB112
M18	XSZB118
M30	XSZB130

Screw terminal M 20

Connector M 12, 4 pin

Flush mountable

80x80x26 mm

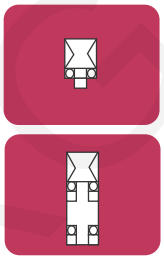
	Sensing distance		40 mm
DC3	PNP	cable	XS7D1A1PAL2
		connector	XS7D1A1PAM12
	NPN	cable	XS7D1A1NAL2
		connector	XS7D1A1NAM12
DC2		cable	XS7D1A1DAL2
		connector	XS7D1A1DAM12

Flush adaptable mountable

80x80x26 mm

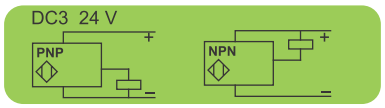
	Sensing distance		60 mm
DC3	PNP	cable	XS8D1A1PAL2
		connector	XS8D1A1PAM12
	NPN	cable	XS8D1A1NAL2
		connector	XS8D1A1NAM12
AC/DC		cable	XS8D1A1MAL2
		connector	XS8D1A1MAU20
Output function		NO	A
		NC	B

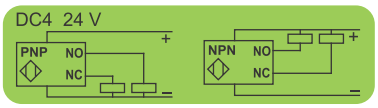
Cubic



40x40x117 mm

			Flush mountable 20 mm	Non flush mountable 40 mm
DC4	PNP	NO+NC	XS8C2A1PCM12	XS8C2A4PCM12
	NPN	NO+NC	XS8C2A1NCM12	XS8C2A4NCM12
DC2		NO	XS8C2A1DAM12	XS8C2A4DAM12
AC/DC		NO	XS8C2A1MAU20	XS8C2A4MAU20
DC4	PNP	NO+NC	XS8C4A1PC**P20**	XS8C4A4PC**P20**
	NPN	NO+NC	XS8C4A1NC**P20**	XS8C4A4NC**P20**
DC2		NO or NC	XS8C4A1DP**P20**	XS8C4A4DP**P20**
AC/DC		NO or NC	XS8C4A1MP**P20**	XS8C4A4MP**P20**
Select the type of connection		M20	P20	P20
		PG13	G13	G13
		1/2" NPT	N12	N12

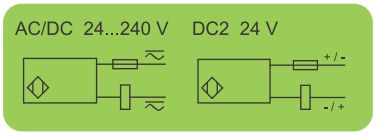




Accessories



For 26x26	XSZBE00	XSZBE90
For 40x40	XSZBC00	XSZBC90



Rotation monitoring: XSAV Range

Choose : 1 Speed > 2 Output Type > Reference

					Low Speed	High Speed
				Sensing distance	10 mm	10 mm
M30	Flush	cable	Output type	DC3-PNP	XSAV11373	XSAV12373
				AC/DC	XSAV11801	XSAV12801

Cabling XS

		PUR pre wired connectors (female) (1)		
M12		straight	elbowed	elbowed PNP LED
4 pin	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(1) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx

		Connectors (female)	
M12		straight	elbowed
4 pin	(2)	XZCC12FDM40B	XZCC12FCM40B
4 pin	(3)	XZCC12FDP40B	XZCC12FCP40B

(2) Steel ring (3) Plastic ring

Ultrasonics: XX Range

Choose : Body size 1 / Sensing distance 1 > 2 Output function > 3 Output type > 4 Connection > Reference

			M12		M18		M18 plastic (2)	M18 brass (2)	M18 stainless (2)	M18 metal
Sensing distance			0.05 m	0.1 m	0.15 m	0.5 m Adjust. (1)	1 m Adjust. (1)	1 m Adjust. (1)	1 m Adjust. (1)	0.05 m
	Connectors/Cables		M8 4 pin	M8 3 pin	M12 4 pin	M12 4 pin	M12 5 pin	M12 5 pin	M12 5 pin	M12 4 pin
NO	DC4	PNP/NPN	XX512A1KAM8		XX518A1KAM12					
	DC3	PNP		XX512A2PAM8		XX518A3PAM12				XXV18B1PAM12
		NPN		XX512A2NAM8		XX518A3NAM12				XXV18B1NAM12
NO or NC	DC3	PNP					XXS18P1PM12	XXS18B1PM12	XXS18S1PM12	
							XXA18P1PM12	XXA18B1PM12	XXA18S1PM12	
Analog		4...20 mA				XX918A3C2M12	XXS18P1AM12	XXS18B1AM12	XXS18S1AM12	
							XXA18P1AM12	XXA18B1AM12	XXA18S1AM12	
		0...10 V				XX918A3F1M12	XXS18P1VM12	XXS18B1VM12	XXS18S1VM12	
							XXA18P1VM12	XXA18B1VM12	XXA18S1VM12	

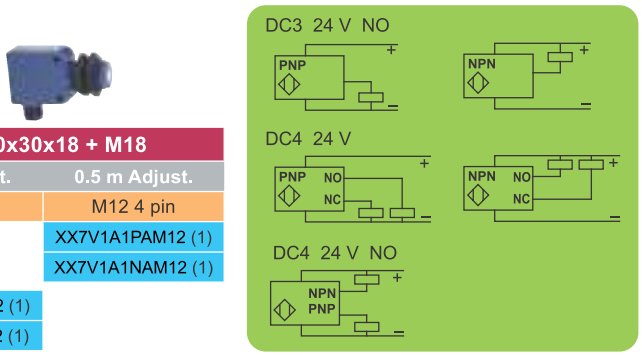
(1) Adjustable with XXZPB100 (2) Configurable with XXZBOX01 by software S = straight A = angled

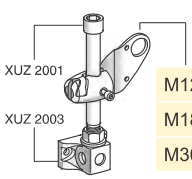
			M30 plastic (2)				M30 Brass (2)			M30 Stainless (2)		
Sensing distance			1 m Adjust. (1)	2 m Adjust. (1)	4 m Adjust. (1)	8 m Adjust. (3)	1 m Adjust. (1)	2 m Adjust. (1)	4 m Adjust. (1)	1 m Adjust. (1)	2 m Adjust. (1)	4 m Adjust. (1)
	Connectors		M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin	M12 5-pin
NO or NC	DC3	PNP	XXS30P1PM12	XXS30P2PM12	XXS30P4PM12		XXS30B1PM12	XXS30B2PM12	XXS30B4PM12	XXS30S1PM12	XXS30S2PM12	XXS30S4PM12
			XXA30P1PM12	XXA30P2PM12			XXA30B1PM12	XXA30B2PM12		XXA30S1PM12	XXA30S2PM12	
	DC4	2 x PNP				XXS30P8PPM12						
		2 x NPN				XXS30P8NNM12						
Analog	DC3	4...20mA	XXS30P1AM12	XXS30P2AM12	XXS30P4AM12		XXS30B1AM12	XXS30B2AM12	XXS30B4AM12	XXS30S1AM12	XXS30S2AM12	XXS30S4AM12
			XXA30P1AM12	XXA30P2AM12			XXA30B1AM12	XXA30B2AM12		XXA30S1AM12	XXA30S2AM12	
		0...10V	XXS30P1VM12	XXS30P2VM12	XXS30P4VM12		XXS30B1VM12	XXS30B2VM12	XXS30B4VM12	XXS30S1VM12	XXS30S2VM12	XXS30S4VM12
			XXA30P1VM12	XXA30P2VM12			XXA30B1VM12	XXA30B2VM12		XXA30S1VM12	XXA30S2VM12	
Analog + NO or NC	DC4	4...20 mA + PNP				XXS30P8APM12						
		0...10V + PNP				XXS30P8VPM12						

(1) Adjustable with XXZPB100 (2) Configurable with XXZBOX01 by software (3) Push-button integrated on the product S = straight A = angled

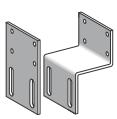
			Flat 7.6x19x33	Flat 16x30x74	Flat 60x30x18 + M18	
Sensing distance			0.1 m	0.25 m	0.5 m Adjust.	0.5 m Adjust.
	Connectors		M12 4 pin	M12 4 pin	M12 4 pin	M12 4 pin
NO	DC3	PNP	XX7F1A2PAL01M12	XX7K1A2PAM12		XX7V1A1PAM12 (1)
		NPN	XX7F1A2NAL01M12	XX7K1A2NAM12		XX7V1A1NAM12 (1)
Analog		4...20 mA			XX9V1A1C2M12 (1)	
		0...10 V			XX9V1A1F1M12 (1)	

(1) Adjustable with XXZPB100





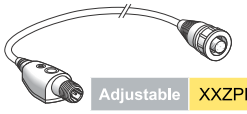
M12	XUZB2012
M18	XUZB2003
M30	XUZB2030



For XX7K

Flat	XXZ3074F
Cranked	XXZ3074S

M12	XXZ12
M18	XUZA118
M30	XXZ30
XX7F	XXZ1933

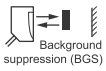
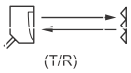
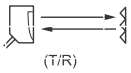
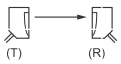


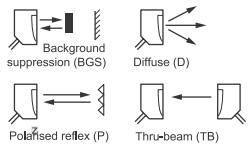
Adjustable	XXZPB100

Photo-electrics: XU Range

Choose : Body size & system (1) / Sensing distance (1) > (2) Output type > (3) Connection > (4) Output function > Reference



	Sensing distance				M18 metal	M18 plastic	Miniature	
Diffuse 	0.6 m	DC3	PNP	cable	XUB5BP**A**NL2	XUB5AP**A**NL2	1.9 m	XUM5AP**X**BL2
				connector 4P	XUB5BP**A**NM12	XUB5AP**A**NM12		XUM5AP**X**BM8
			NPN	cable	XUB5BN**A**NL2	XUB5AN**A**NL2		XUM5AN**X**BL2
				connector 4P	XUB5BN**A**NM12	XUB5AN**A**NM12		XUM5AN**X**BM8
		DC3	PNP	cable			1.1 m	XUM6AP**X**BL2
				connector 4P				XUM6AP**X**BM8
			NPN	cable				XUM6AN**X**BL2
				connector 4P				XUM6AN**X**BM8
	0.1 m	DC3	PNP	cable	XUB4BP**A**NL2	XUB4AP**A**NL2	0.25 m	XUM4AP**X**BL2
				connector 4P	XUB4BP**A**NM12	XUB4AP**A**NM12		XUM4AP**X**BM8
			NPN	cable	XUB4BN**A**NL2	XUB4AN**A**NL2		XUM4AN**X**BL2
				connector 4P	XUB4BN**A**NM12	XUB4AN**A**NM12		XUM4AN**X**BM8
Background Suppression  Background suppression (BGS)							0,3 m	XUM8AP**X**BL2
								XUM8AP**X**BM8
								XUM8AN**X**BL2
								XUM8AN**X**BM8
Polarized Reflex  (T/R)	2 m	DC3	PNP	cable	XUB9BP**A**NL2	XUB9AP**A**NL2	8 m	XUM9AP**X**BL2
				connector 4P	XUB9BP**A**NM12	XUB9AP**A**NM12		XUM9AP**X**BM8
			NPN	cable	XUB9BN**A**NL2	XUB9AN**A**NL2		XUM9AN**X**BL2
				connector 4P	XUB9BN**A**NM12	XUB9AN**A**NM12		XUM9AN**X**BM8
		Accessory: Reflector			XUZC50	XUZC50		XUZC50
Reflex  (T/R)	4 m	DC3	PNP	cable	XUB1BP**A**NL2	XUB1AP**A**NL2		
				connector 4P	XUB1BP**A**NM12	XUB1AP**A**NM12		
			NPN	cable	XUB1BN**A**NL2	XUB1AN**A**NL2		
				connector 4P	XUB1BN**A**NM12	XUB1AN**A**NM12		
		Accessory: Reflector			XUZC50	XUZC50		
Thru-beam  (T) (R)	15 m	DC3	PNP	cable	XUB2BP**A**NL2R	XUB2AP**A**NL2R	30 m	XUM2AP**X**BL2
				connector 4P	XUB2BP**A**NM12R	XUB2AP**A**NM12R		XUM2AP**X**BM8
			NPN	cable	XUB2BN**A**NL2R	XUB2AN**A**NL2R		XUM2AN**X**BL2
				connector 4P	XUB2BN**A**NM12R	XUB2AN**A**NM12R		XUM2AN**X**BM8
		Transmitter		cable	XUB2BKSNL2T	XUB2AKSNL2T		Transmitters are already included
				connector 4P	XUB2BKSNM12T	XUB2AKSNM12T		
		Output function		NO	A	A		
				NC	B	B		

Multimode  Background suppression (BGS) / Diffuse (D) / Polarised reflex (P) / Thru-beam (TB)	DC3	PNP	cable	XUB0BPSNL2	XUB0APSNL2	XUM0APSAL2	
			connector 4P	XUB0BPSNM12	XUB0APSNM12	XUM0APSAM8	
		NPN	cable	XUB0BNSNL2	XUB0ANSNL2	XUM0ANSAL2	
			connector 4P	XUB0BNSNM12	XUB0ANSNM12	XUM0ANSAM8	
		Sensing distance		Background Sup: 0.12 m	Diffuse: 0.3 m	BGS: 0.1 m	D: 0.4 m
	Output function	NO or NC		Polarized reflex: 3 m	Thru-beam: 20 m	P: 3 m	TB: 10 m
Transmitter	DC		cable	XUB0BKSNL2T	XUB0AKSNL2T	XUM0AKSAL2T	
			connector 4P	XUB0BKSNM12T	XUB0AKSNM12T	XUM0AKSAM8T	

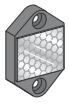
XU●●●●●●M8: Connector M8 4 pin

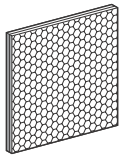
XU●●●●●●M12: Connector M12 4 pin

Cabling XU


		PUR pre wired connectors (female) (1)	
M8		straight	elbowed
4 pin	2 m	XZCP0941L2	XZCP1041L2
	5 m	XZCP0941L5	XZCP1041L5
	10 m	XZCP0941L10	XZCP1041L10

Reflectors



XUZC24 | XUZC80 | XUZC50 | XUZC100

(1) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx

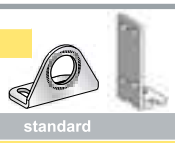
Photo-electrics: XU Range

	Sensing distance				Compact 50x50 mm					Compact 92x71 mm
Diffuse	1 m	DC3	PNP	cable	XUK5APANL2	2.1 m	DC3	PNP	terminals	XUX5APANT16
(T/R)				connector 4P	XUK5APANM12				connector 4P	XUX5APANM12
			NPN	cable	XUK5ANANL2			NPN	terminals	XUX5ANANT16
				connector 4P	XUK5ANANM12				connector 4P	XUX5ANANM12
		AC/DC	Relay	cable	XUK5ARCNL2		AC/DC	Relay	terminals	XUX5ARCNT16
		Output function		NO	A					A
				NC	B					B
Polarized Reflex	5 m	DC3	PNP	cable	XUK9APANL2	11 m	DC3	PNP	terminals	XUX9APANT16
(T/R)				connector 4P	XUK9APANM12				connector 4P	XUX9APANM12
			NPN	cable	XUK9ANANL2			NPN	terminals	XUX9ANANT16
				connector 4P	XUK9ANANM12				connector 4P	XUX9ANANM12
		AC/DC	Relay	cable	XUK9ARCNL2		AC/DC	Relay	terminals	XUX9ARCNT16
		Accessory: Reflector			XUZC50					XUZC50
Reflex	7 m	DC3	PNP	cable	XUK1APANL2	14 m	DC3	PNP	terminals	XUX1APANT16
(T/R)				connector 4P	XUK1APANM12				connector 4P	XUX1APANM12
			NPN	cable	XUK1ANANL2			NPN	terminals	XUX1ANANT16
				connector 4P	XUK1ANANM12				connector 4P	XUX1ANANM12
		AC/DC	Relay	cable	XUK1ARCNL2		AC/DC	Relay	terminals	XUX1ARCNT16
		Accessory: Reflector			XUZC50					XUZC50
Thru-beam	30 m	DC3	PNP	cable	XUK2APANL2R	40 m	DC3	PNP	terminals	XUX2APANT16R
(T) (R)				connector 4P	XUK2APAN M12R				connector 4P	XUX2APANM12R
			NPN	cable	XUK2ANANL2R			NPN	terminals	XUX2ANANT16R
				connector 4P	XUK2ANANM12R				connector 4P	XUX2ANANM12R
		Accessory: Transmitter		cable	XUK2AKSNL2T				terminals	XUX0AKSAT16T
				connector 4P	XUK2AKSNM12T				connector 4P	XUX0AKSAM12T
		AC/DC	Relay	cable	XUK2ARCNL2R		AC/DC	Relay	terminals	XUX2ARCNT16R
				cable	XUK2ARCNL2T				terminals	XUX0ARCTT16T

Multimode									
Background suppression (BGS)	Diffuse (D)	DC3 PNP/NPN		cable	XUK0AKSAL2	DC3 PNP/NPN		terminals	XUX0AKSAT16
				connector 4P	XUK0AKSAM12			connector 4P	XUX0AKSAM12
		AC/DC	Relay	cable	XUK0ARCTL2	AC/DC	Relay	terminals	XUX0ARCTT16
Polarised reflex (P)	Thru-beam (TB)	Background Suppression: 0.28 m		Diffuse: 0.8 m		Background Suppression: 1.3 m		Diffuse: 2 m	
		Polarized reflex: 4 m		Thru-beam: 30 m		Polarized reflex: 11 m		Thru-beam: 40 m	
Accessory: Transmitter		DC		cable	XUK0AKSAL2T	DC		terminals	XUX0AKSAT16T
				connector 4P	XUK0AKSAM12T			connector 4P	XUX0AKSAM12T
		AC/DC		cable	XUK0ARCTL2T	AC/DC		terminals	XUX0ARCTT16T

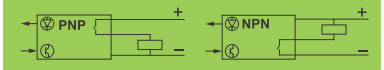
Other fixings

Single bracket



	standard	with ball joint
XUB	XUZA118 (stainlesss steel)	XUZA218 (plastic)
XUM	XUZA50	–
XUK	XUZA51	–
XUX	XUZX2000	–

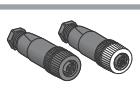
DC3 24 V

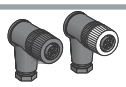


AC/DC Relay 24...240 V

M12		PUR pre wired connectors (female) (1) straight	elbowed	elbowed PNP LED
4 pin	2 m	XZCP1141L2	XZCP1241L2	XZCP1340L2
	5 m	XZCP1141L5	XZCP1241L5	XZCP1340L5
	10 m	XZCP1141L10	XZCP1241L10	XZCP1340L10

(1) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx



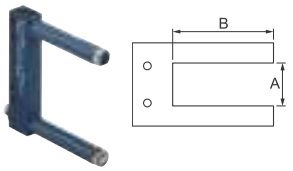


M12	Connectors (female) straight	elbowed
4 pin (2)	XZCC12FDM40B	XZCC12FCM40B
4 pin (3)	XZCC12FDP40B	XZCC12FCP40B

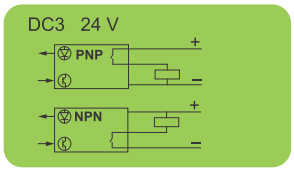
(2) Steel ring (3) Plastic ring

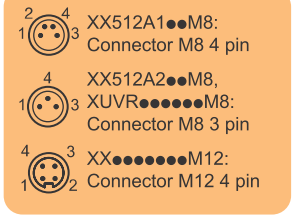
9

Forks: XUV Range

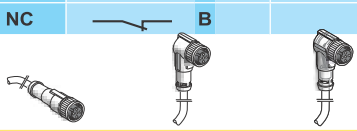


			A: 50 mm / B: 60 mm	A: 80 mm / B: 60 mm	A: 120 mm / B: 120 mm	A: 180 mm / B: 120 mm
DC3	PNP	M8 3 pin	XUVR0605P**A**NM8	XUVR0608P**A**NM8	XUVR1212P**A**NM8	XUVR1218P**A**NM8
	NPN	M8 3 pin	XUVR0605N**A**NM8	XUVR0608N**A**NM8	XUVR1212N**A**NM8	XUVR1218N**A**NM8
Output function		NO	A	A	A	A
		NC	B	B	B	B





Cabling XX & XUV



			PUR pre wired connectors (female) (1)		
M8			straight	elbowed	elbowed PNP LED
3 pin	2 m		XZCP0566L2	XZCP0666L2	
	5 m		XZCP0566L5	XZCP0666L5	
	10 m		XZCP0566L10	XZCP0666L10	
4 pin	2 m		XZCP0941L2	XZCP1041L2	
	5 m		XZCP0941L5	XZCP1041L5	
	10 m		XZCP0941L10	XZCP1041L10	
M12					
4 pin	2 m		XZCP1141L2	XZCP1241L2	XZCP1340L2
	5 m		XZCP1141L5	XZCP1241L5	XZCP1340L5
	10 m		XZCP1141L10	XZCP1241L10	XZCP1340L10

		Connectors (female)	
M12		straight	elbowed
(2)	4 pin	XZCC12FDM40B	XZCC12FCM40B
(3)	4 pin	XZCC12FDP40B	XZCC12FCP40B

(2) Steel ring (3) Plastic ring

		Connectors (male)	
M12		straight	elbowed
	4 pin	XZCC12MDM40B	XZCC12MCM40B
	5 pin	XZCC12MDM50B	XZCC12MCM50B

(1) For a PVC cable, add the letter V after the P. Example: XZCPxxxxxx become XZCPVxxxxxx

RFID Systems: XG Range

Choose : 1 Mounting type > 2 Dimensions > 3 Output or communication protocol > 4 Body type (color, LED, connector) > Reference

Compact 40x40mm			
Sensing distance 18-70mm			
PNP output with 1 pulse	Modbus RTU		
Blue body, connector on back	White body with remote lights, connector on back	Stand alone	
Panel mounting (1)	XGCS491B201	XGCS49LB201	XGCS490B201

(1) compatible with ZB5AZ905 and XGSZCNFAC

Compact 40x40mm	Compact 80x80mm		
Sensing distance 18-70mm	Sensing distance 20-100mm		
Modbus RTU		Modbus TCP & Ethernet/IP	
Blue body, connector and cable by side			
Screw mounting	XGCS4901201	XGCS8901201	XGCS850C201

XGSZCNFAC	Set of configuration badges	XZCC12MDB50R	M12 connector
XGSZCNF01	Configuration badge	XZCPV11V2L2/5/10	M12 pre-wired connector
XGHB90E341	Pack of user's badges	XZCPV12V2L2/5/10	M12 pre-wired connector
Accessories	XGHBPB3345 Key fob tag		

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