

Power Distribution & Control



Part 4/5 Contactors & Circuit Breakers



ONLINE SHOPPING!

In the office or on the road with the Live Phone App

INCL. AVAILABILITY INFORMATION



Ex stock

General Information



TOP WAREHOUSE MANAGEMENT IN OUR DISTRIBUTION CENTRE NEAR VIENNA

The new Schrack distribution centre is located just outside Vienna. The prominent appearance of the building with its unmistakable Schrack design highlights all product characteristics which are handled logistically in its interior. We consider availability the number 1 factor for your economic and business success!

- Over 12,000m² indoor storage space and an outdoor cable storage space of 2,500m²
- More than 15,000 items are stored ready for shipping
- Professional warehouse management by our top-trained staff



Look out for the icon signalling prompt availability for delivery

GENERAL INFORMATION

- All **dimensioned drawings** are displayed within the confines of available space on the page and are only intended as a guide.
- All **circuit diagrams** are schematic wiring diagrams which are intended to allow better understanding of the function, and will need to be edited/added to during the course of project planning.
- All **images** represent samples of the product and are intended for information purposes only.

Unless otherwise stipulated, the current version of the General Terms of Delivery issued by The Association of the Austrian Electrical and Electronics Industries "FEEL" shall apply. You can find a copy of these at the end of this catalogue.

No liability for errors in text, type or images; we reserve the right to make changes to technical specifications of the product range.

The user information contained in this catalogue reflect the opinion of the company at the time of writing. The information contained in it was assembled on the basis of published norms, specialist industry presentations, specialist literature and in-house expertise. The content is for informational purposes only and has no validity in law.

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Plug-in Relays S-Relays



Plug-in Relays



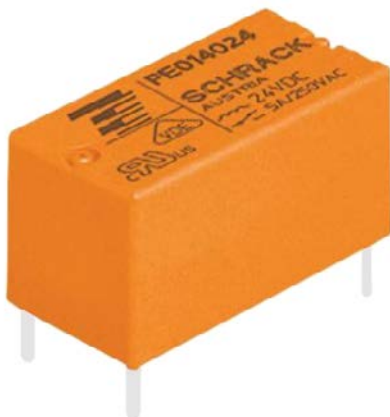
Plug-in Relays



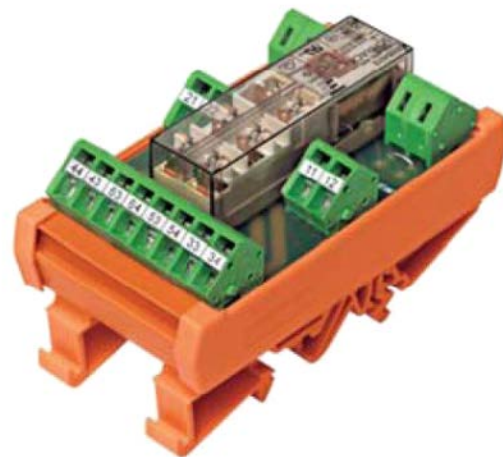
Relay Sockets & Sets



Print Relays



Force Guided Contacts Relays



Relays

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Relay Package Schrack, Series SNR



ST3P3LC4

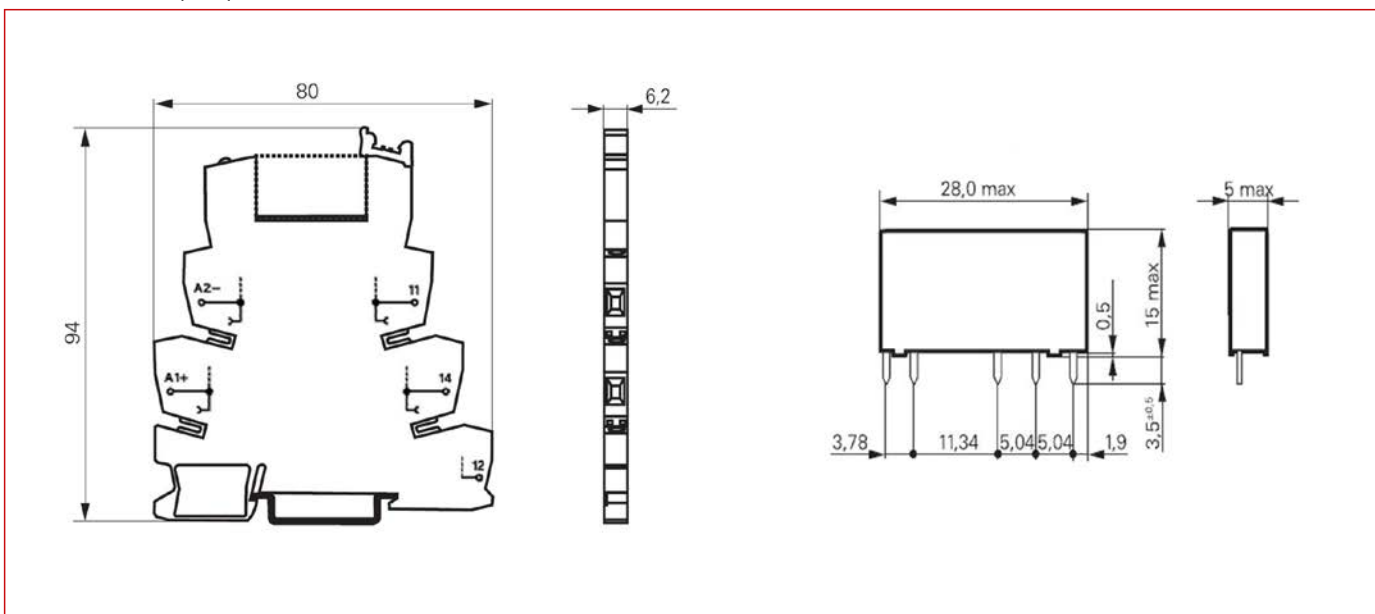
Schrack-Info

- Relay package consisting of a relay and a DIN rail socket
- 1 CO 6A rated current
- Module width only 6.2mm
- Narrow component width allows high component density and tight-packed functionality on the DIN rail
- Protection diode

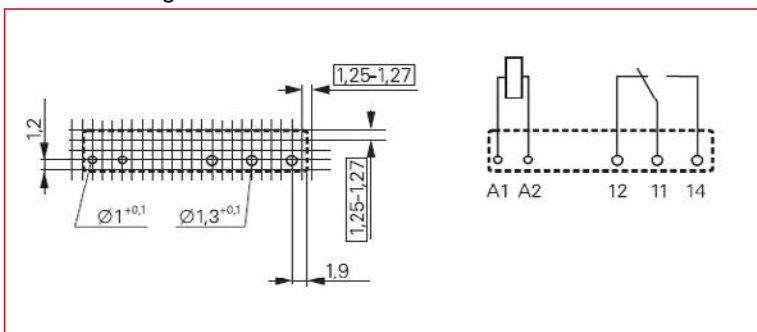


Mobil Code

Dimensions (mm)

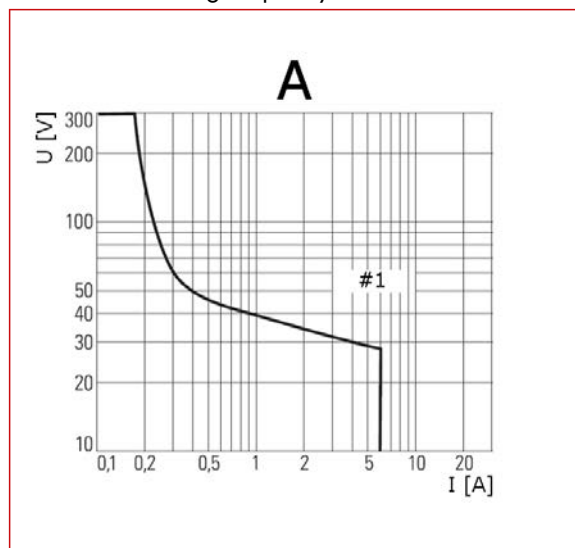


Circuit Diagram



Relay Package Schrack, Series SNR

Rated Breaking Capacity



Rated Breaking Capacity

A	Max. DC rated breaking capacity
#1	Resistive load
U	DC voltage in [V]
I	DC current in [A]

Technical Data

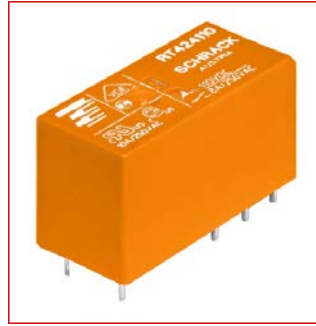
Contact Data		6A
Number of contact and type		1 CO
Contact style		Single contact
Type of disconnection		Micro-switch
Rated current		6A
Rated voltage/ max. switching voltage AC		240 / 400V~
Max. rated breaking capacity AC		1500VA
Limiting making capacity, max 4 s, duty factor 10 %		10A
Contact material		AgSnO ₂ , AgSnO ₂ hard gold plated
Input Data		
Rated voltage		12, 24VDC, 115, 230VAC / VDC (type 115, 230VAC / VDC mit 60VDC relay)
Rated power DC coil		12VDC 184 mW, 24VDC 220mW, 115VAC 402mVA, 230VAC 736mVA
Operation range according to IEC 61810		2
General Data		
Ambient temperature		-40...+55°C
Degree of protection DIN 40050		IP20
Terminals		Screw terminals
Terminal screw torque according to IEC 61984		0.5Nm
Max.		0.6Nm
Wire cross section		0.14... 2.5mm ²
Solid wire		0.14... 2.5mm ²
Stranded wire		0.14... 2.5mm ²
With ferrule (DIN 46228/1)		0.14... 2.5mm ²

DESCRIPTION	AVAILABLE	ORDER NO.
Relay Package - Screw Terminal		
12VDC, 1 C/O, 6A with socket		ST3P3LB2
24VDC, 1 C/O, 6A with socket		ST3P3LC4
24VDC, 1 C/O, 6A with socket		ST3P2LC4
230VAC/DC, 1 C/O, 6A with socket		ST3P3TP0
Accessories		
DIN rail mounted plug-in socket for SNR relays, 24V-DC, 6A, incl. protection diode, with screw terminals		ST3FLC4
SNR jumper bar, red, 500mm		ST37001
SNR jumper bar, blue, 500mm		ST37002
SNR jumper bar, grey, 500mm		ST37003
Marking plate, 1 plate= 100pcs.		ST37040

Power Relays Schrack, Series RT



RT1 Inrush



RT2



RT7872P

Schrack-Info

RT1

- 1 pole 12/16A, AC or DC coil
- 1 CO or 1 NO
- Sensitive coil 400mW / 0.75VA
- 5kV, 10mm coil/contact
- Appliance class II (VDE 0700)
- Safe disconnection compliant with VDE 0160 in combination with socket YRT78626
- Ambient temperature 85°C (DC coil)
- Low component height 15.7mm
- Gold plated contacts available
- Print and screw type sockets
- For boiler controls, timer relays, garage door controls, vending machines, interface modules

RT1 Inrush and High Inrush

- 1 pole 16A, for high peak inrush current
- 1 NO
- RTS3T024 (= High Inrush) with Tungsten early-make contact
- Sensitive coil 400mW
- 5kV, 10mm coil/contact
- Appliance class II (VDE 0700)
- Ambient temperature 85°C
- Low component height 15.7mm
- Print and screw type sockets
- For heating controls, light controls, building automation

RT2

- 2 poles 8A, AC or DC coil
- 2 CO
- Sensitive coil 400mW
- 5kV, 10mm coil/contact
- Appliance class II (VDE 0700)
- Safe disconnection compliant with VDE 0160 in combination with socket YRT78626
- Low component height 15.7mm
- Print and screw type sockets
- For heating controls, emergency lighting, modems



Mobil Code

Power Relays Schrack, Series RT

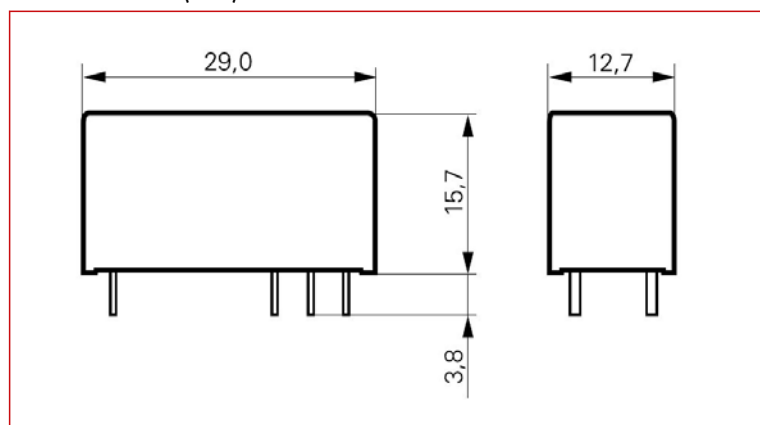
RT Overview

Relays	Number of contacts and type	Rated current [A]	Coil		Pinning [mm]	Contact material	RT1	RT1 Inrush	RT1 High Inrush	RT2
			DC	AC						
RT114012	1 CO	12	DC	12V	3.5	AgNi90/10	X			
RT114024	1 CO	12	DC	24V	3.5	AgNi90/10	X			
RT114524	1 CO	12	AC	24V	3.5	AgNi90/10	X			
RT214012	1 CO	12	DC	12V	5	AgNi90/10	X			
RT214024	1 CO	12	DC	24V	5	AgNi90/10	X			
RT214730	1 CO	12	AC	230V	5	AgNi90/10	X			
RT314005	1 CO	16	DC	5V	5	AgNi90/10	X			
RT314012	1 CO	16	DC	12V	5	AgNi90/10	X			
RT314024	1 CO	16	DC	24V	5	AgNi90/10	X			
RT334024	1 NO	16	DC	24V	5	AgNi90/10	X			
RT314524	1 CO	16	AC	24V	5	AgNi90/10	X			
RT314730	1 CO	16	AC	230V	5	AgNi90/10	X			
RT315730	1 CO	16	AC	230V	5	AgNi90/10 hgp*	X			
RT33K012	1 NO	16	DC	12V	5	AgNi90/10		X		
RT33K024	1 NO	16	DC	24V	5	AgNi90/10		X		
RT31L024	1 CO	16	DC	24V	5	AgSnO ₂		X		
RTS3T024	1 NO	16	DC	24V	5	T** + AgSnO ₂			X	
RT424006	2 CO	8	DC	6V	5	AgNi90/10				X
RT424012	2 CO	8	DC	12V	5	AgNi90/10				X
RT424024	2 CO	8	DC	24V	5	AgNi90/10				X
RT425024	2 CO	8	DC	24V	5	AgNi90/10 hgp*				X
RTE24024	2 CO	8	DC	24V	5	AgNi90/10				X
RT424048	2 CO	8	DC	48V	5	AgNi90/10				X
RT424060	2 CO	8	DC	60V	5	AgNi90/10				X
RT424110	2 CO	8	DC	110V	5	AgNi90/10				X
RT424524	2 CO	8	AC	24V	5	AgNi90/10				X
RT424548	2 CO	8	AC	48V	5	AgNi90/10				X
RT424615	2 CO	8	AC	115V	5	AgNi90/10				X
RT425615	2 CO	8	AC	115V	5	AgNi90/10 hgp*				X
RT424730	2 CO	8	AC	230V	5	AgNi90/10				X
RT425730	2 CO	8	AC	230V	5	AgNi90/10 hgp*				X

*hgp = hard gold-plated

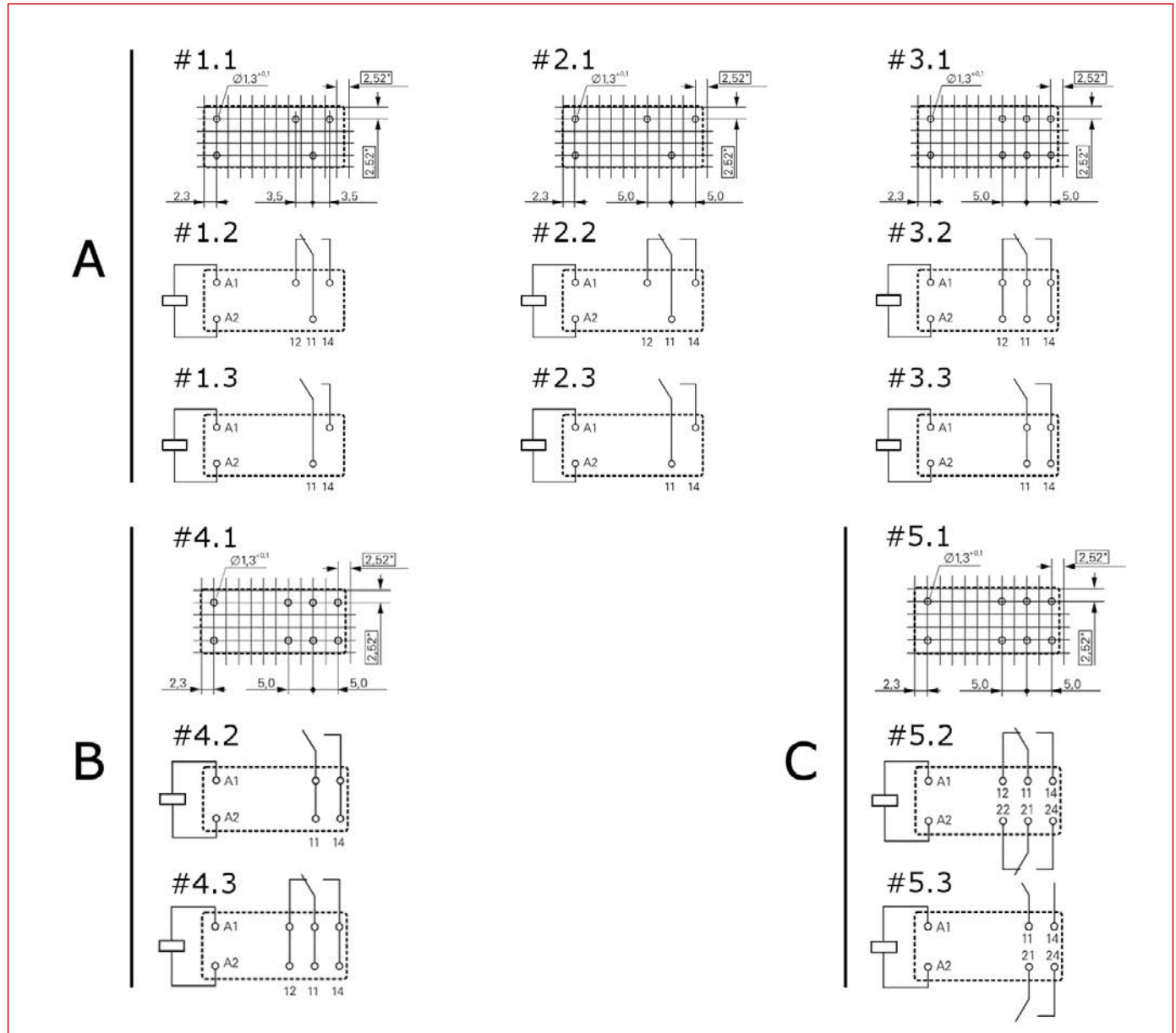
**Tungsten pre-contact

Dimensions (mm)



Power Relays Schrack, Series RT

Circuit Diagrams



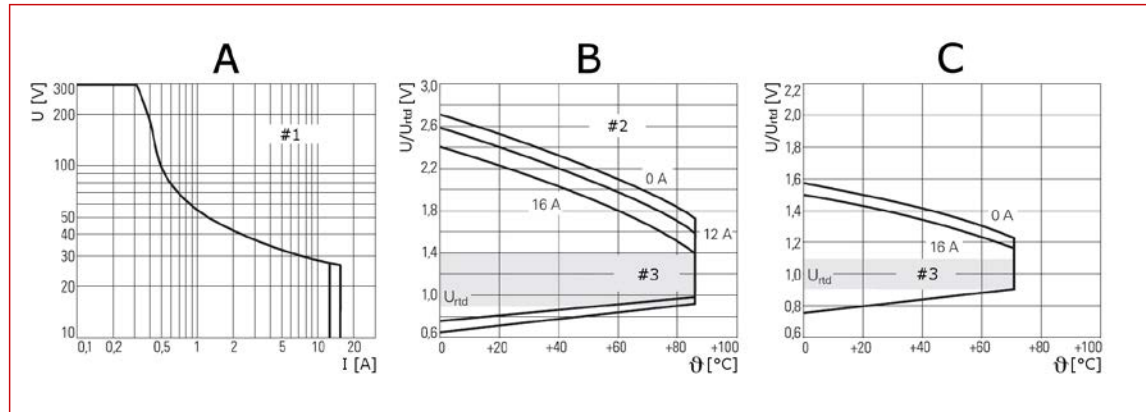
Circuit Diagrams, Contacts and Pinning

A	RT1	#3.1	16A, pinning 5mm
B	RT1 Inrush and High Inrush	#3.2	1 CO
C	RT2	#3.3	1 NO
#1.1	12A, pinning 3.5mm	#4.1	16A, pinning 5mm
#1.2	1 CO	#4.2	1 NO
#1.3	1 NO	#4.3	1 CO
#2.1	12A, pinning 5mm	#5.1	8A, pinning 5mm
#2.2	1 CO	#5.2	2 CO
#2.3	1 NO	#5.3	2 NO

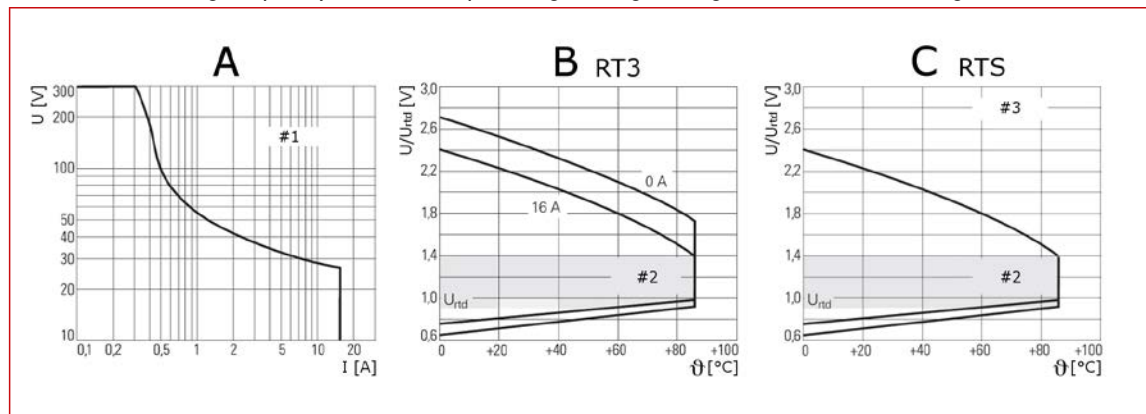
General Info
View of the terminals, dimensions in mm.
Equipping with indicated hole diameter also possible in 2.5mm or 2.54mm contact spacing.

Power Relays Schrack, Series RT

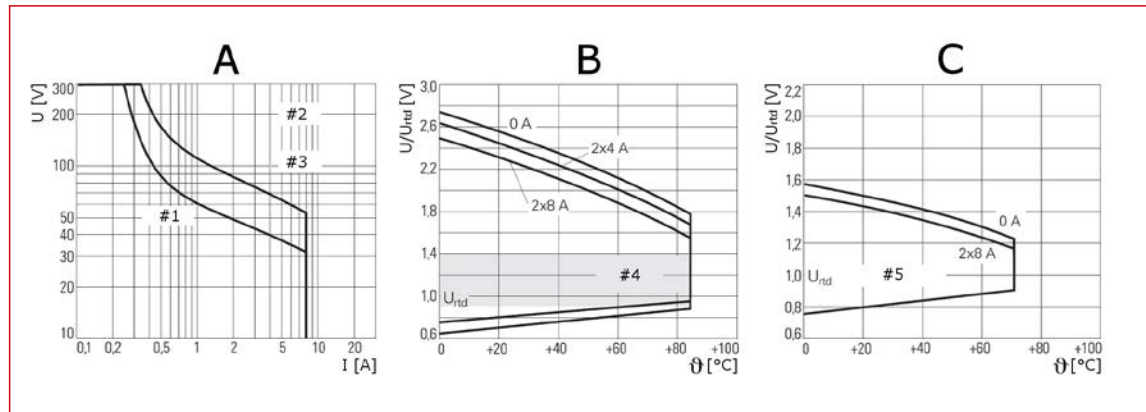
Rated Breaking Capacity and Coil Operating Voltage Range RT1



Rated Breaking Capacity and Coil Operating Voltage Range RT1 Inrush And High Inrush



Rated Breaking Capacity and Coil Operating Voltage Range RT2



Rated Breaking Capacity and Coil Operating Voltage Ranges

RT1	
A	Max. DC rated breaking capacity
B	Coil operating range DC
C	Coil operating range AC
#1	Resistive load
#2	16A version
#3	Recommended voltage range in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
θ	Ambient temperature in [°C]

RT1 Inrush and High Inrush	
A	Max. DC rated breaking capacity
B	Coil operating range DC (RT3)
C	Coil operating range DC (RTS)
#1	Resistive load
#2	Recommended voltage range in [V]
#3	Monostable version
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
θ	Ambient temperature in [°C]

RT2	
A	Max. DC rated breaking capacity
B	Coil operating range DC
C	Coil operating range AC
#1	1 contact
#2	2 pole resistive load
#3	2 contacts in series
#4	Recommended voltage range in [V]
#5	Rated coil voltage in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
θ	Ambient temperature in [°C]

Power Relays Schrack, Series RT

Technical Data

RT1

Contact Data		12A	16A
Number of contacts and type		1 CO or 1 NO contact	
Contact style		Single contact	
Rated current		12A	16A
Rated voltage/ max. switching voltage AC		250 / 400 V~	
Limiting continuous current		12A	16A, UL: 20A
Max. rated breaking capacity AC		3000VA	4000VA
Limiting making current (max. 4s at 10 % DF)		25A	30A
Contact material		AgNi 90/10, AgNi 90/10 hard gold plated	
Coil Data			
Rated voltage	DC coil	5...110V	
	AC coil	24...230V~	
Rated power	DC coil	400mW	
	AC coil	0.74VA	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation-/ release voltage/ coil resistance at ambient temperature 23 °C	24VDC coil	16.8V / 2.4V / 1440 Ω ± 10%	
	230VAC coil	172.5V / 34.5V / 32500 Ω ± 10%	
















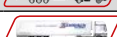













RT1 Inrush and High Inrush

Contact Data		RT3	RT5
Number of contacts and type		1 CO or 1 NO	1 NO
Contact style		Single contact	
Rated current		16A	
Rated voltage / max. switching voltage AC		250 / 400V~	
Limiting continuous current		16A	
Max. rated breaking capacity AC		4000VA	
Limiting making current		30A (max. 4s at 10 % DF)	165A (max. 20ms incandescent lamps) 800A (max. 200µs fluorescent lamps)
Contact material		AgNi 90/10, AgSnO ₂	W (lead contact) + AgSnO ₂
Coil Data			
Rated voltage		5...110VDC	
Rated power		400mW	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation-/ release voltage/ coil resistance at ambient temperature 23 °C	24VDC coil	16.8V / 2.4V / 1440 Ω ± 10%	
	230VAC coil	-	172.5V / 34.5V / 32500 Ω ± 10%







RT2

Contact Data		8A	
Number of contacts and type		2 CO	
Contact style		Single contact	
Rated current		8A	
Rated voltage/ max. switching voltage AC		250V / 400V~	
Limiting continuous current		8A, UL: 10A	
Max. rated breaking capacity AC		2000VA	
Limiting making current (max. 4s at 10 % DF)		15A	
Contact material		AgNi 90/10, AgNi 90/10 hard gold plated	
Coil Data			
Rated voltage	DC coil	5...110V	
	AC coil	24...230V~	
Rated power	DC coil	400mW	
	AC coil	0.74VA	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation-/ release voltage/ coil resistance at ambient temperature 23 °C	24VDC coil	16.8V / 2.4V / 1440 Ω ± 10%	
	230VAC coil	172.5V / 34.5V / 32500 Ω ± 10%	

Power Relays Schrack, Series RT

DESCRIPTION	CONTACT MATERIAL	PINNING	AVAILABLE	ORDER NO.
Power Relays RT1, 16A				
12VDC, 1 C/O, 12A	AgNi 90/10	3.5		RT114012
24VDC, 1 C/O, 12A	AgNi 90/10	3.5		RT114024
24VAC, 1 C/O, 12A	AgNi 90/10	3.5		RT114524
Power Relays RT1, 16A				
5VDC, 1 C/O, 16A	AgNi 90/10	5		RT314005
12VDC, 1 C/O, 16A	AgNi 90/10	5		RT314012
24VDC, 1 C/O, 16A	AgNi 90/10	5		RT314024
24VAC, 1 C/O, 16A	AgNi 90/10	5		RT314524
230VAC, 1 C/O, 16A	AgNi 90/10	5		RT314730
230VAC, 1 C/O, 16A, gold plated	AgNi 90/10, htv	5		RT315730
Power Relays RT1 Inrush and High Inrush				
12VDC, 1 NC, 16A	AgNi 90/10	5		RT33K012
24VDC, 1 NC, 16A	AgNi 90/10	5		RT33K024
Power Relays RT1 High Inrush				
24VDC, 1 NC, 16A	W + AgSnO2	5		RTS3T024
Power Relays RT2				
12VDC, 2 C/O, 8A	AgNi 90/10	5		RT424012
24VDC, 2 C/O, 8A	AgNi 90/10	5		RT424024
24VDC, 2 C/O, 8A, gold plated	AgNi 90/10, htv	5		RT425024
24VDC, 2 C/O, 8A	AgNi 90/10	5		RTE24024
48VDC, 2 C/O, 8A	AgNi 90/10	5		RT424048
60VDC, 2 C/O, 8A	AgNi 90/10	5		RT424060
24VAC, 2 C/O, 8A	AgNi 90/10	5		RT424524
48VAC, 2 C/O, 8A	AgNi 90/10	5		RT424548
115VAC, 2 C/O, 8A	AgNi 90/10	5		RT424615
115VAC, 2 C/O, 8A, gold plated	AgNi 90/10, htv	5		RT425615
230VAC, 2 C/O, 8A	AgNi 90/10	5		RT424730
230VAC, 2 C/O, 8A, gold plated	AgNi 90/10, htv	5		RT425730
Spring Clamp Terminal Plug-in Socket for Power Relays RT				
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x, XT, RP4x relays, pinning 5mm, max. 16A, with spring clamp terminals				RT7872P
Jumper link for connection of RT7872P				RT170P1
Plug-in Socket for Power Relays RT				
DIN rail mounted plug-in socket for RT1x relays, pinning 3.5mm, max. 12A, I/O - logical arrangement, with screw terminals				YRT78624
DIN rail mounted plug-in socket for XT, RT2x, RT3x, RT4x relays, pinning 5mm, max. 12A, I/O - logical arrangement, with screw terminals				YRT78626
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x relays, pinning 5mm, max. 16A, conventional arrangement, with screw terminals				RT78725
Retaining clip for RT relays with ejection function				RT17017
Jumper bar for connection of up to 8 RT-sockets				RT170R8
Marking tag (for YRT sockets YRT78624 and YRT78626)				YRT16040
Modules Matching Plug-in Socket for Power Relays RT				
LED module, red, 6-24VAC/DC, EM07				YMLRA024
LED module, red, 6-24VDC, A1+, EM18				YMLRD024-A
LED module, red, 6-24VDC, A1-, EM08				YMLRD024
LED module, red, 110-230VAC, EM06				YMLRW230
LED module, green, 6-24VAC/DC, EM11				YMLGA024
LED module, green 6-24VDC with protection diode, A1+, EM12				YMLGD024

Power Relays Schrack, Series RT

DESCRIPTION	CONTACT MATERIAL	PINNING	AVAILABLE	ORDER NO.
Modules Matching Plug-in Socket for Power Relays RT				
LED module, green, 110-230VAC, EM10				YMLGW230
Protection diode module 6-230VDC, A1+, EM09				YMFDG230
RC Network module 6-60VAC, EM02				YMRCW024
RC Network module 110-230VAC, EM03				YMRCW230
Varistor module, 24VAC, EM04				YMVAV024
Varistor module 230VAC, EM05				YMVAV230

Pluggable Interface Relay Schrack, Series XT



XT484LC4

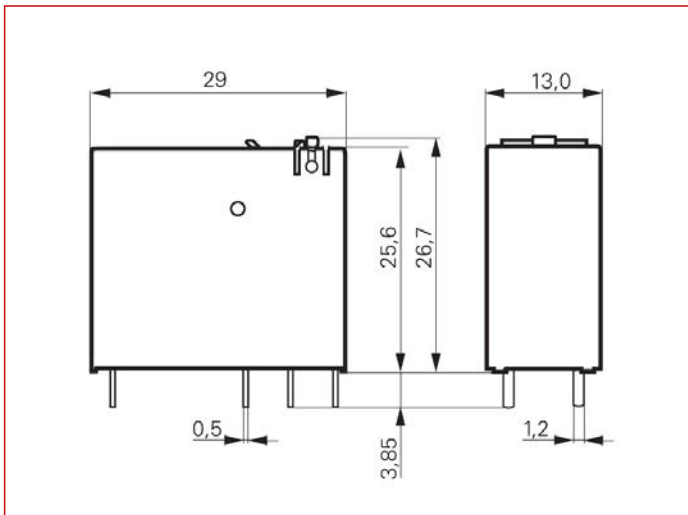
Schrack-Info

- 2 poles 8A, 2 CO
- AC or DC coil, sensitive coil 400mW
- Reinforced insulation, appliance class II (VDE 0700)
- Safe disconnection complaint with VDE 0160 in combination with socket YRT78626
- 4kV, 8mm coil/contact
- Lockable manual testing system (see drawing "How To Use")
- Optional model with mechanical and/or electrical indication
- Suitable for standard RT sockets
- Recyclable packaging
- For control panels, machine building



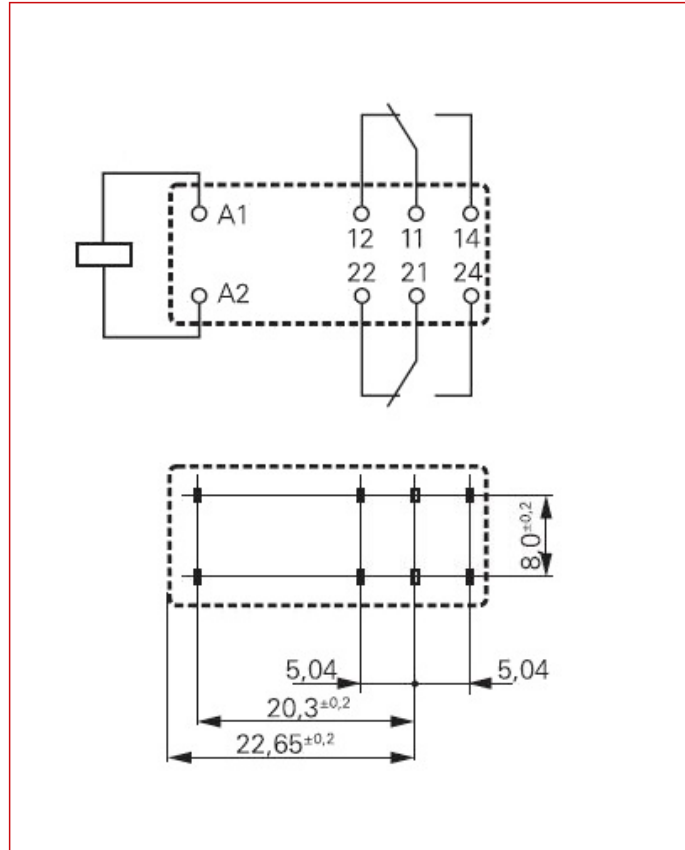
Mobil Code

Dimensions (mm)

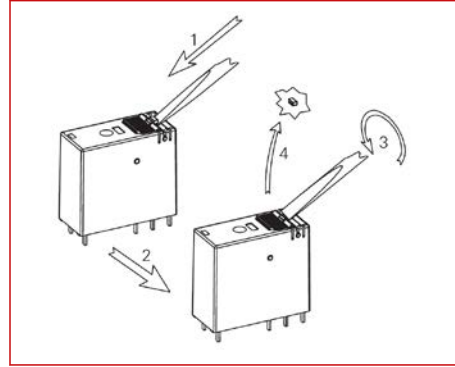


Pluggable Interface Relay Schrack, Series XT

Circuit Diagrams



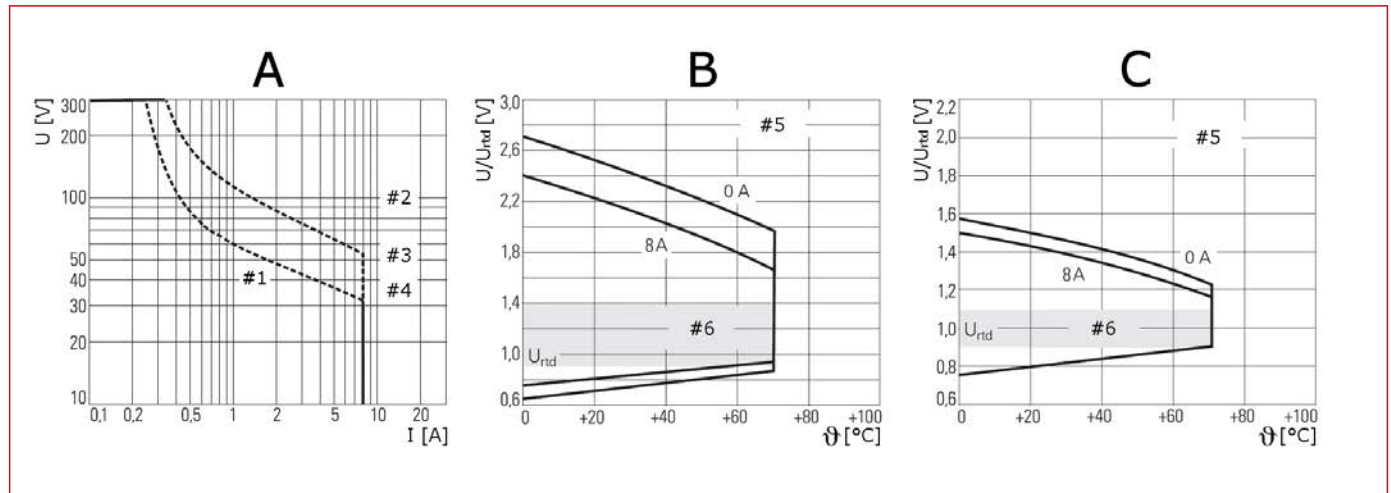
How To Use



How To Use

Description of the locking function: If the test button is pulled out to forcibly, it may skip the test position and move directly to the locking position. To go to the locking position, please remove the plastic locking cam (see drawing).

Rated Breaking Capacity and Coil Operating Voltage Range



Rated Breaking Capacity and Coil Operating Voltage Range




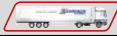











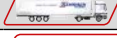








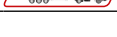
A	Max. DC rated breaking capacity
B	Coil operating range DC
C	Coil operating range AC
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
Θ	Ambient temperature in [°C]

#1	1 pole 12/16A resistive load
#2	2 pole 8A resistive load
#3	2 contacts in series
#4	1 contact
#5	Versions without LED
#6	Recommended voltage range in [V]

Pluggable Interface Relay Schrack, Series XT

Technical Data

Contact Data		2-pole	
Number of contacts and type		2 CO	
Contact style		Single contact	
Rated current		8A	
Rated voltage/ max. switching voltage AC		240V~	
Limiting short-time current, 30ms		300A	
Max. rated breaking capacity AC		2000VA	
Inrush current (max. 4s at 10 % DF)		15A	
Contact material		AgNi 90/10	
Minimal contact load		12V / 10mA	
Coil Data			
Rated voltage	DC coil	6...110V=	
	AC coil	24...230V~	
Rated power	DC coil	typ. 400mW	
	AC coil	typ. 0.75VA	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation-/ release voltage/ coil resistance at ambient temperature 23 °C	24VDC coil	16.8V / 2.4V / 1440 Ω ± 10 %	
	24VAC coil	18V / 3.6V / 350 Ω ± 10 %	
	230VAC coil	172.5V / 34.5V / 32500 Ω ± 10 %	

DESCRIPTION	AVAILABLE	ORDER NO.
Pluggable Interface Relay XT		
24VDC, 2 C/O, 8A, with LED and protection diode		XT484LC4
24VAC, 2 C/O, 8A, with LED		XT484R24
230VAC, 2 C/O, 8A, with LED		XT484T30
Spring Clamp Terminal Plug-in Socket for Relays, Series XT		
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x, XT, RP4x relays, pinning 5mm, max. 16A, with spring clamp terminals		RT7872P
Retaining clip for RT relays with ejection function		RT17017
Retaining clip for XT and RP relays with ejection function		XT17017
Jumper link for connection of RT7872P		RT170P1
Plug-in Socket for Relays, Series XT		
DIN rail mounted plug-in socket for XT, RT2x, RT3x, RT4x relays, pinning 5mm, max. 12A, I/O - logical arrangement, with screw terminals		YRT78626
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x relays, pinning 5mm, max. 16A, conventional arrangement, with screw terminals		RT78725
Retaining clip for RT relays with ejection function		RT17017
Retaining clip for XT and RP relays with ejection function		XT17017
Jumper bar for connection of up to 8 RT-sockets		RT170R8
Marking tag (for YRT sockets YRT78624 and YRT78626)		YRT16040
Accessories for Plug-in Sockets, Series XT		
LED module, red, 6-24VAC/DC, EM07		YMLRA024
LED module, red, 6-24VDC, A1+, EM18		YMLRD024-A
LED module, red, 6-24VDC, A1-, EM08		YMLRD024
LED module, red, 110-230VAC, EM06		YMLRW230
LED module, green, 6-24VAC/DC, EM11		YMLGA024
LED module, green 6-24VDC with protection diode, A1+, EM12		YMLGD024
LED module, green, 110-230VAC, EM10		YMLGW230
Protection diode module 6-230VDC, A1+, EM09		YMF DG230
RC Network module 6-60VAC, EM02		YMRCW024
RC Network module 110-230VAC, EM03		YMRCW230
Varistor module, 24VAC, EM04		YMV AW024
Varistor module 230VAC, EM05		YMV AW230

Plug-in Relays S-Relay, Series 4



RS410024



RS410730



Mobil Code

Schrack-Info

S-Relay

- Miniature industry-grade relay for multi-purpose application
- AC and DC coil
- Suitable for DIN rail mounted plug-in sockets, for use in control panel building or on PCBs (PCB and soldering connectors)
- Mechanical indicator and lockable test button
- Integrated insulated contact chambers for increased flash-over resistance
- Cadmium-free contact material

Socket YRS

- Socket for S-RELAY Series 4/Series RS5
- Suitable for mounting in electrical enclosures or for DIN rail mounting
- High-grade terminals preventing incorrect insertion
- Captive terminal screws

LED and protection modules

- Compatible with all YRS sockets
- LED DC modules with integrated protection diode
- Retrofittable

Plug-in Relays S-Relay, Series 4

Technical Data

Contact Data		
Number and type of contacts		4 CO
Contact material		AgNi
Rated/ max. switching voltage AC		250/ 250V~
		10V (AgNi)
Rated load (capacity)	AC1	6A/ 250V~
	AC15	1,5A/ 120V~; 0,75A/ 240V (C300)
	AC3	125W (single-phase motor)
	DC1	6A/24VDC
	DC13	0,22A/ 120VDC; 0,1A/ 250VDC (R300)
Min. switching current		5mA
Max. inrush current		12A
		6A
Max. rated breaking capacity	AC1	1500VA
		0,3W (AgNi)
		≤ 100mΩ
Max. operating capacity	AC1	1200 cycles/hour
	No load	18000 cycles/hour
Coil Data		
Rated voltage 50 / 60Hz	AC	6...240V~
	DC	5...220V
Must release voltage	AC	≥ 0,2 U _N
	DC	≥ 0,1 U _N
Operating range of supply voltage		See table "Coil types"
Rated power consumption	AC	1,6VA
	DC	0,9W
Insulation		According to PN-EN 60664-1
Insulation class		B250
Insulation rated voltage		250V~
Rated surge voltage		2500V; 1,2/50µs
Overvoltage category		II
Insulation pollution degree		2
Dielectric strength	Between coil and contacts	2500V~ (basic insulation)
	Contact clearance	1500V~ (micro-disconnection clearance)
	Pole-pole	2000V~ (basic insulation)
Contact - coil distance		≥ 1,6mm
	Creepage	≥ 3,2mm
General Data		
Operating/ release time (typical value)	AC	10/8ms
	DC	13/3ms
Electrical service life		> 10 ⁵ , 6A/250V~
	cos φ	See diagram
Mechanical service life (cycles)		> 2x10 ⁷
Dimensions (LxWxH)		27,5 x 21,2 x 35,6mm
		35g
Ambient temperature	Operating	AC
		DC
Cover degree of protection		IP40
Environmental protection		RTI
		10/5g
Vibration resistance		5g; 10...150Hz
Solder bath temperature		max. 270°C
solder duration		max. 5sek.

Plug-in Relays S-Relay, Series 4

Coil Types

Coil Data - DC voltage version

Coil code	Rated voltage VDC	Coil resistance Ω at 20 °C	Acceptable resistance	Coil operating range VDC	
				min. (at 20°C)	max. (at 55°C)
006	6	40	+10%	4,8	6,6
012	12	160	+10%	9,6	13,2
024 / LC4	24	640	+10%	19,2	26,4
048	48	2600	+10%	38,4	52,8
060	60	4000	+10%	48	66
110 / MBO	110	13600	+10%	88	121
N20	220	54000	+10%	165 / 176	242

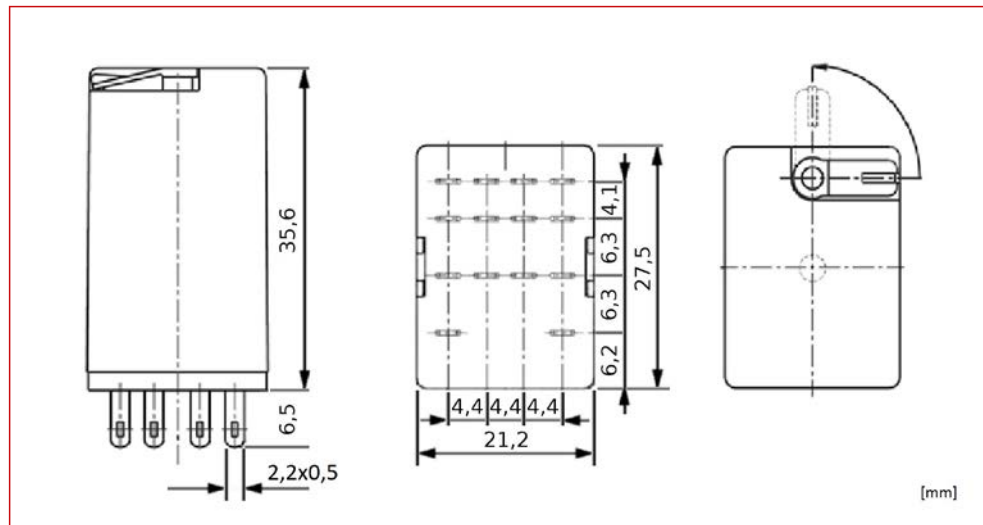
Coil Data - AC 50/60Hz voltage version

Coil code	Rated voltage VAC	Coil resistance Ω at 20 °C	Acceptable resistance	Coil operating range VAC	
				min. (at 20°C)	max. (at 55°C)
506	6	9,8	+10%	4.8	6.6
512	12	39,5	+10%	9.6	13.2
524 / R24	24	158	+10%	19.2	26.4
548	48	640	+10%	38.4	52.8
615 / S15	115	3610	+10%	92	127
730 / T30	230	16100	+10%	184	253

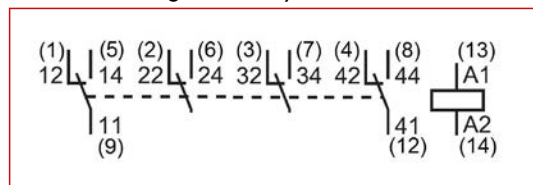
Technical Data, LED and Protection Module

Voltage	6...230VDC
Wiring	A1 + A2 -

Dimensions Relay Series 4

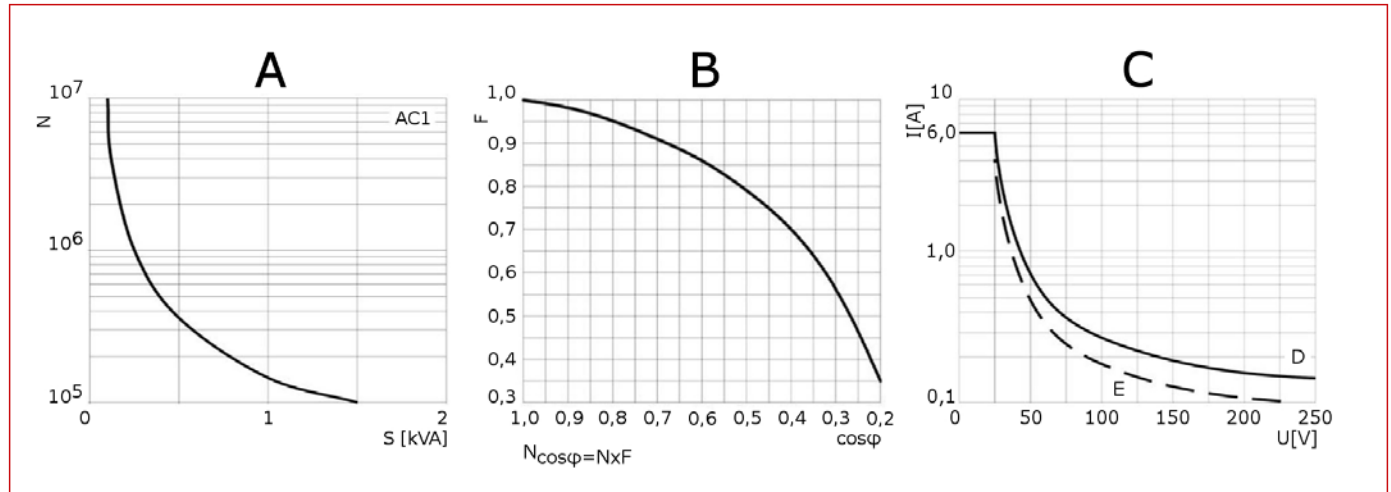


Circuit Diagram Relays Series 4



Plug-in Relays S-Relay, Series 4

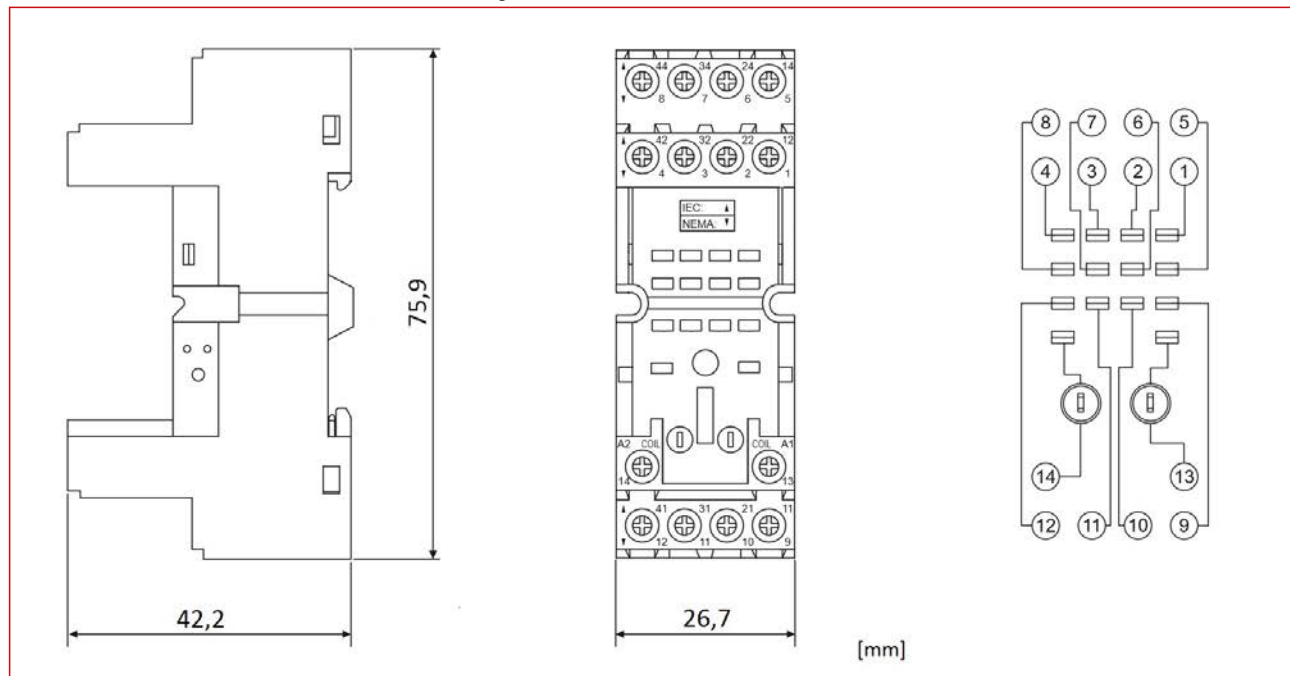
Rated Breaking Capacity, Reduction Factor and Coil Operating Voltage Range



Rated Breaking Capacity, Reduction Factor and Coil Operating Voltage Range

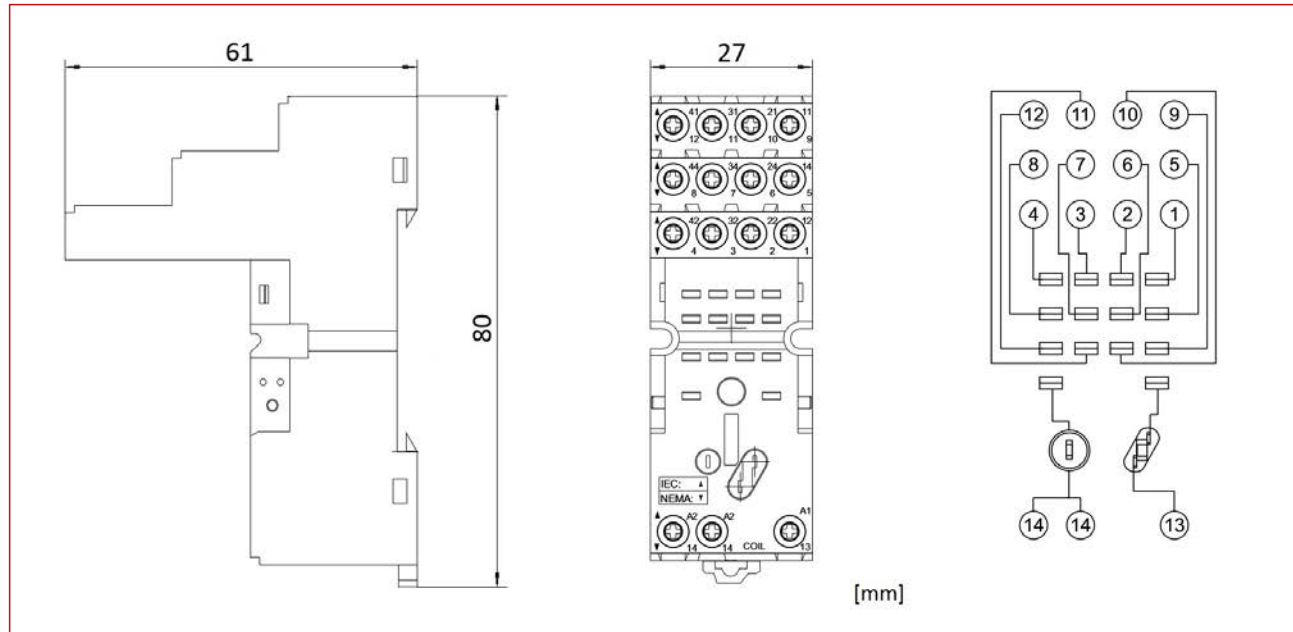
A	Electrical service life at AC resistive load, switching frequency: 1.200 cycles/ hour
B	Electrical service life reduction factor at AC inductive load
C	Max. DC rated breaking capacity
N	Number of cycles/ electrical service life at AC1
S	Rated breaking capacity in [kVA]
F	Reduction factor
cos φ	Power factor
D	Resistive load DC1
E	Inductive load L/R = 40ms
I	DC current in [A]
U	DC current in [A]

YRS50004: Dimensions and Circuit Diagram

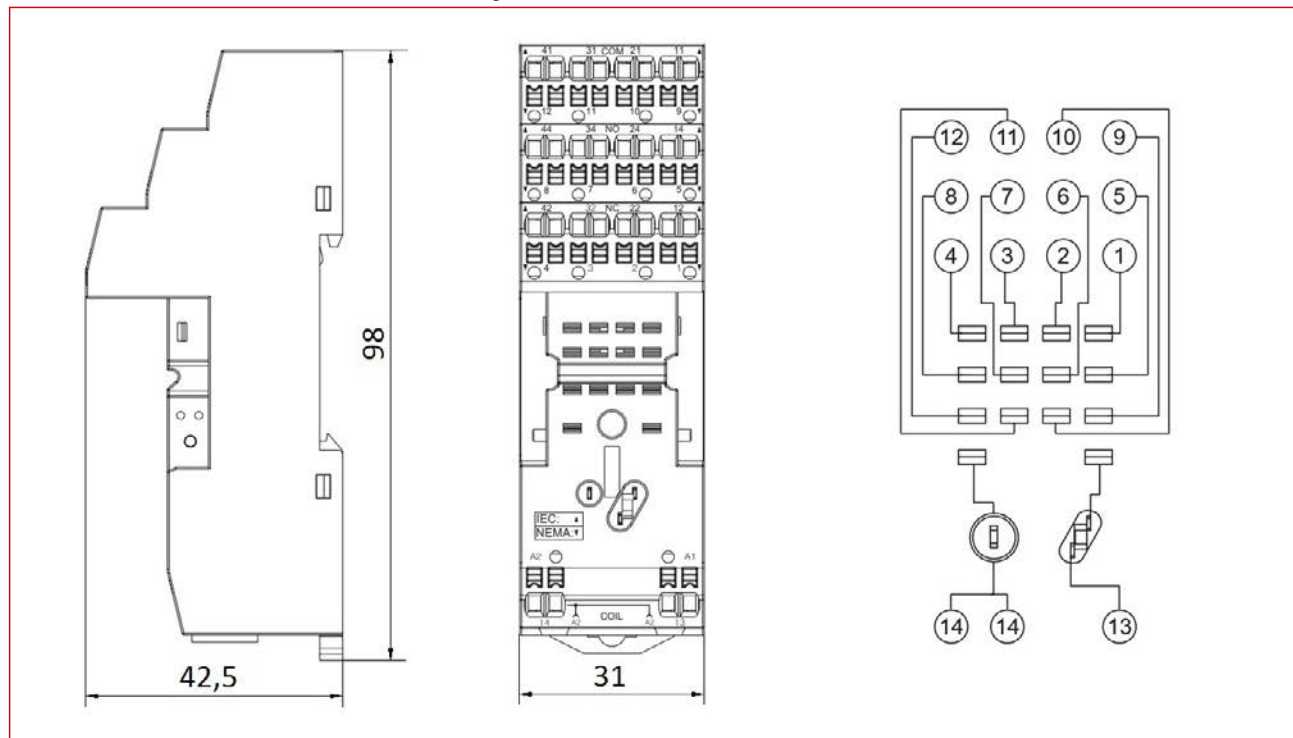


Plug-in Relays S-Relay, Series 4

YRS50104: Dimensions and Circuit Diagram

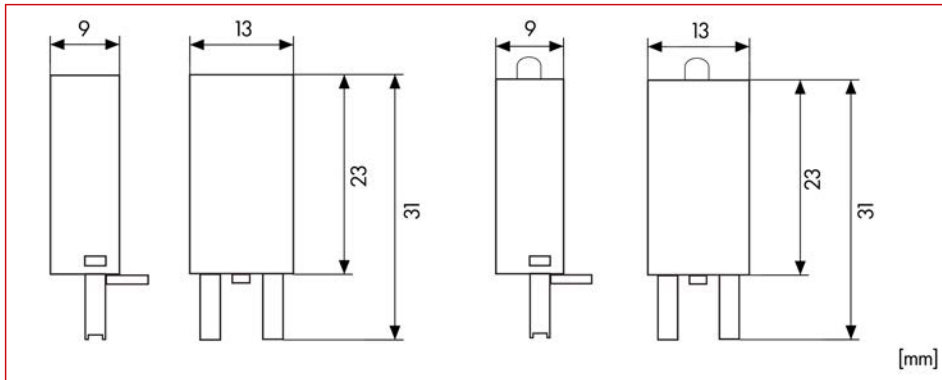


YRS51004: Dimensions and Circuit Diagram

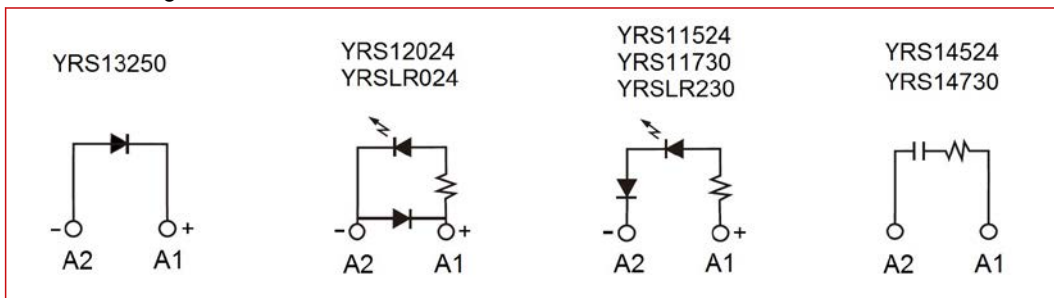


Plug-in Relays S-Relay, Series 4

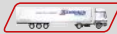










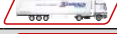
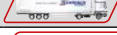







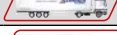


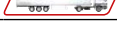
Dimensions Modules



Circuit Diagram Modules



Plug-in Relays S-Relay, Series 4

DESCRIPTION	AVAILABLE	ORDER NO.
S-Relay 4 Poles, Series 4		
6VDC, 4 C/O, 6A		RS410006
12VDC, 4 C/O, 6A		RS410012
24VDC, 4 C/O, 6A		RS410024
24VDC, 4 C/O, 6A, with LED and protection diode		RS410LC4
48VDC, 4 C/O, 6A		RS410048
60VDC, 4 C/O, 6A		RS410060
110VDC, 4 C/O, 6A		RS410110
110VDC, 4 C/O, 6A, with LED and protection diode		RS410MB0
220VDC, 4 C/O, 6A, with LED		RS410N20
6VAC, 4 C/O, 6A		RS410506
12VAC, 4 C/O, 6A		RS410512
24VAC, 4 C/O, 6A		RS410524
24VAC, 4 C/O, 6A, with LED		RS410R24
48VAC, 4 C/O, 6A		RS410548
115VAC, 4 C/O, 6A		RS410615
115VAC, 4 C/O, 6A, with LED		RS410S15
230VAC, 4 C/O, 6A		RS410730
230VAC, 4 C/O, 6A, with LED		RS410T30
Plug-in Socket for S-Relay 4 Poles, Series 4		
Socket for RS/PTS relays, 14-polig, screw type terminals, 10A (4 CO)		YRS50004
Socket for RS/PTS relays, 14-polig, screw type terminals, logical arrangement, 10A (4 CO)		YRS50104
Socket for RS/PTS relays, 14-polig, spring clamp, logical arrangement, 10A (4 CO)		YRS51004
Marking tag for YRS socket		YRS20000
Metal - Retaining clip for RS socket		YRS50000
Metal - Retaining clip for PT relays for YRS socket		YRS500PT
Plastic - Retaining clip for YRS socket		YRS40000
Plastic - Retaining clip for PT relays for YRS socket		YRS400PT
Modules Matching Plug-in Socket for S-Relays, Series 4		
Protection diode module 6-250VDC		YRS13250
LED+PD module green 6-24VDC A1+		YRS12024
LED+PD module, red, 6-24VDC, A1+		YRSLR024
LED module green 24VAC/DC		YRS11524
LED module green 110-240VAC		YRS11730
LED module, red, 110-230VAC		YRSLR230
RC-Network module 6-24VAC		YRS14524
RC-Network module 110-240VAC		YRS14730

Plug-in Relays S-Relay, Series RS5



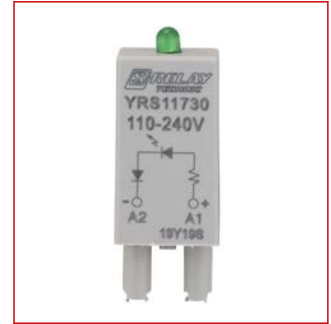
RS500024



YRS50004



YRS51004



YRS11730

Schrack-Info

S-Relay

- Miniature industry grade relay for multi-purpose application
- 4-pole, 5A
- AC and DC coil
- Cadmium-free contact material

S-Relay-sockets

- Sockets compatible with the complete range of S-Relay
- For DIN rail mounting
- Conventional sockets with screw terminals
- Sockets with logical arrangement, with screw or screwless terminals

LED and protection modules

- Many different modules available: LED green, protection diodes and LED +PD, RC-circuit-module
- Compatible with all YRS sockets

Accessories

- Marking tags for YRS51004, YRS50004 and YRS50104
- Retaining clips



Mobil Code

Plug-in Relays S-Relay, Series RS5

Technical Data Relays

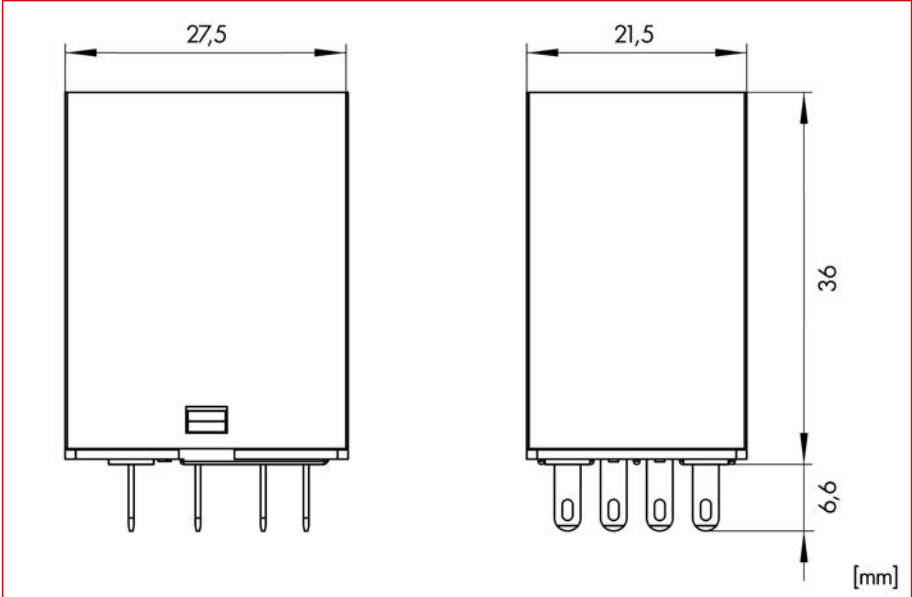
	RS500024	RS500524	RS500730
Configuration	S-Relay series RS5	S-Relay series RS5	S-Relay series RS5
Switching contacts	4 CO	4 CO	4 CO
Contact current	5A	5A	5A
Coil voltage	24VDC	24VAC	230VAC
Rated current [Resistive load]	5A	5A	5A
Rated voltage [Resistive load]	250VAC / 30VDC	250VAC / 30VDC	250VAC / 30VDC
Switching capacity [Resistive]	1500VA / 180W	1500VA / 180W	1500VA / 180W
Contact material	Ag alloy	Ag alloy	Ag alloy
Initial contact resistance	≤ 50mΩ	≤ 50mΩ	≤ 50mΩ
Electrical durability	≥ 10 ⁵ operations (1800 operations/h)	≥ 10 ⁵ operations (1800 operations/h)	≥ 10 ⁵ operations (1800 operations/h)
Mechanical durability	≥ 10 ⁷ operations (18000 operations/h)	≥ 10 ⁷ operations (18000 operations/h)	≥ 10 ⁷ operations (18000 operations/h)
Pick-up voltage DC	≤ 75% (Rated voltage)	≤ 75% (Rated voltage)	≤ 75% (Rated voltage)
Pick-up voltage AC	≤ 80% (Rated voltage)	≤ 80% (Rated voltage)	≤ 80% (Rated voltage)
Drop-out voltage DC	≥ 10% (Rated voltage)	≥ 10% (Rated voltage)	≥ 10% (Rated voltage)
Drop-out voltage AC	≥ 30% (Rated voltage)	≥ 30% (Rated voltage)	≥ 30% (Rated voltage)
Maximum voltage	110% (Rated voltage)	110% (Rated voltage)	110% (Rated voltage)
Insulation resistance	≥ 1000mΩ (500VDC)	≥ 1000mΩ (500VDC)	≥ 1000mΩ (500VDC)
Coil operating power [DC]	~ 0,9W	~ 0,9W	~ 0,9W
Coil operating power [AC]	~ 1,2VA	~ 1,2VA	~ 1,2VA
Operate time [at nominal voltage]	≤ 20ms	≤ 20ms	≤ 20ms
Release time [at nominal voltage]	≤ 20ms	≤ 20ms	≤ 20ms
Initial breakdown voltage			
Between open contacts	1000VAC/1 min	1000VAC/1 min	1000VAC/1 min
Between adjacent contacts	2000VAC/1 min	2000VAC/1 min	2000VAC/1 min
Between contacts and coil	2000VAC/1 min	2000VAC/1 min	2000VAC/1 min
Humidity	35% - 85% RH	35% - 85% RH	35% - 85% RH
Air pressure	86kPa	86kPa	86kPa
Shock resistance	10G	10G	10G
Vibration resistance	10 - 55Hz	10 - 55Hz	10 - 55Hz
Ambient temperature	-55 / +70 °C	-55 / +70 °C	-55 / +70 °C
Weight	35g	35g	35g
Optional Accessories	YRS51004--; YRS50004--; YRS50104--	YRS51004--; YRS50004--; YRS50104--	YRS51004--; YRS50004--; YRS50104--
Coil specifications			
Coil Code	024	524	730
Nominal voltage	24VDC	24VAC	230VAC
Coil resistance	640Ω	180Ω	16,5kΩ

Technical Data Sockets

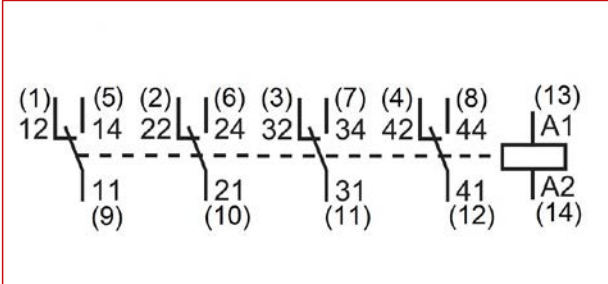
	YRS50004--	YRS50104--	YRS51004--
Nominal current	10A	10A	8A
Nominal voltage	300V	300V	300V
Connection type	Screwterminals	Screwterminals	Spring clamp
Dielectric strength			
Between contact and coil	4000V/S	4000V/S	4000V/S
Between contacts	2500V/S	2500V/S	2500V/S
Max. tightening torque	1Nm	1Nm	-
Cross section	0.5 - 2.5mm	0.5 - 2.5mm	0.5 - 1.5mm
Ambient temperature	-40 / +85 °C	-40 / +85 °C	-40 / +85 °C
Weight	56g	62g	70g
Optional Accessories	YRS40000; YRS50000; YRS20000; YRS13250; YRS12024; YRS11730; YRS14524; YRS14730		

Plug-in Relays S-Relay, Series RS5

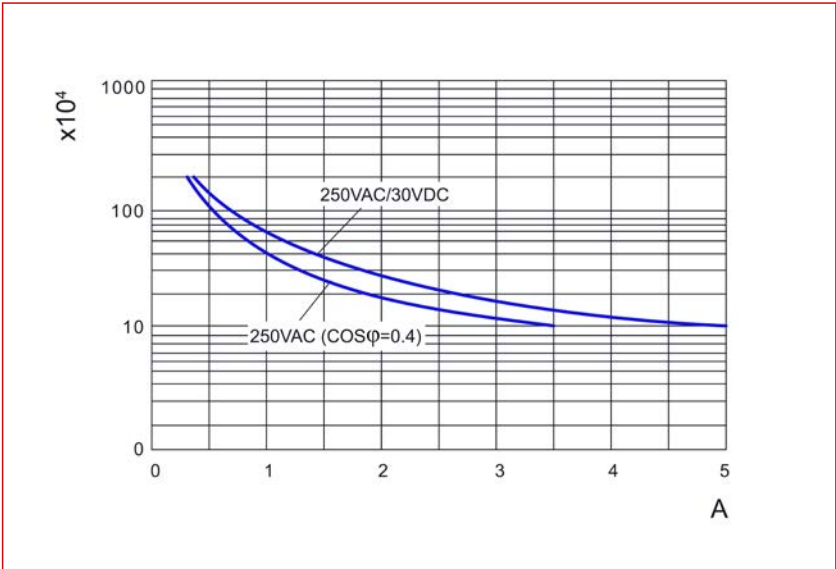
Dimensions Relay



Circuit diagram: S-Relay, Series RS5

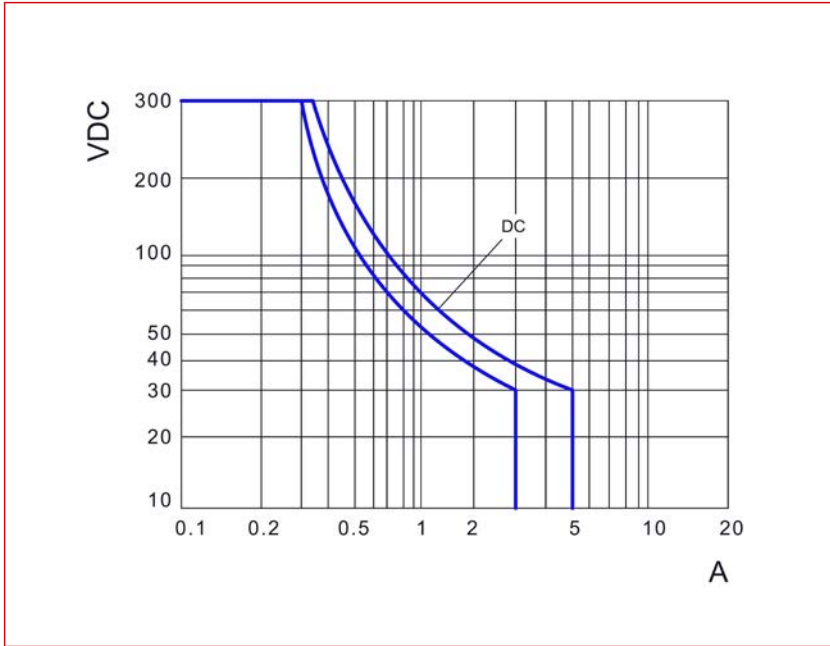


Electrical Durability Contacts (Resistive Load)

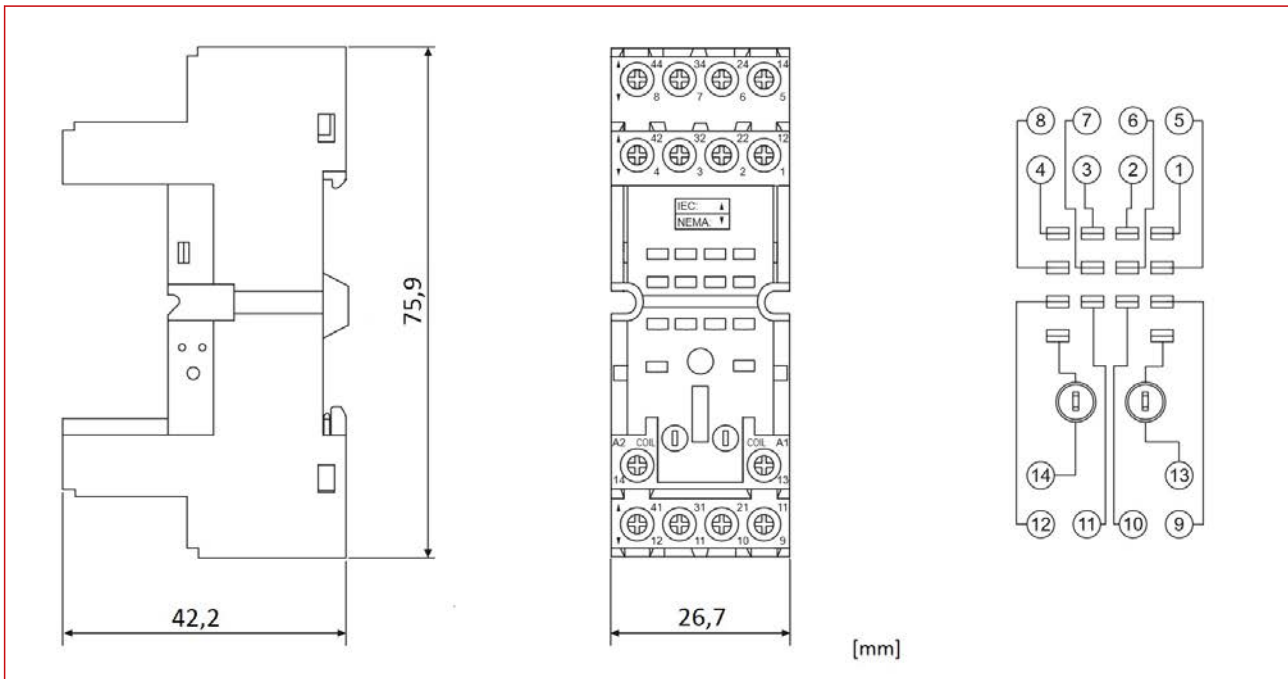


Plug-in Relays S-Relay, Series RS5

Maximum Switching Capacity on Resistive Load

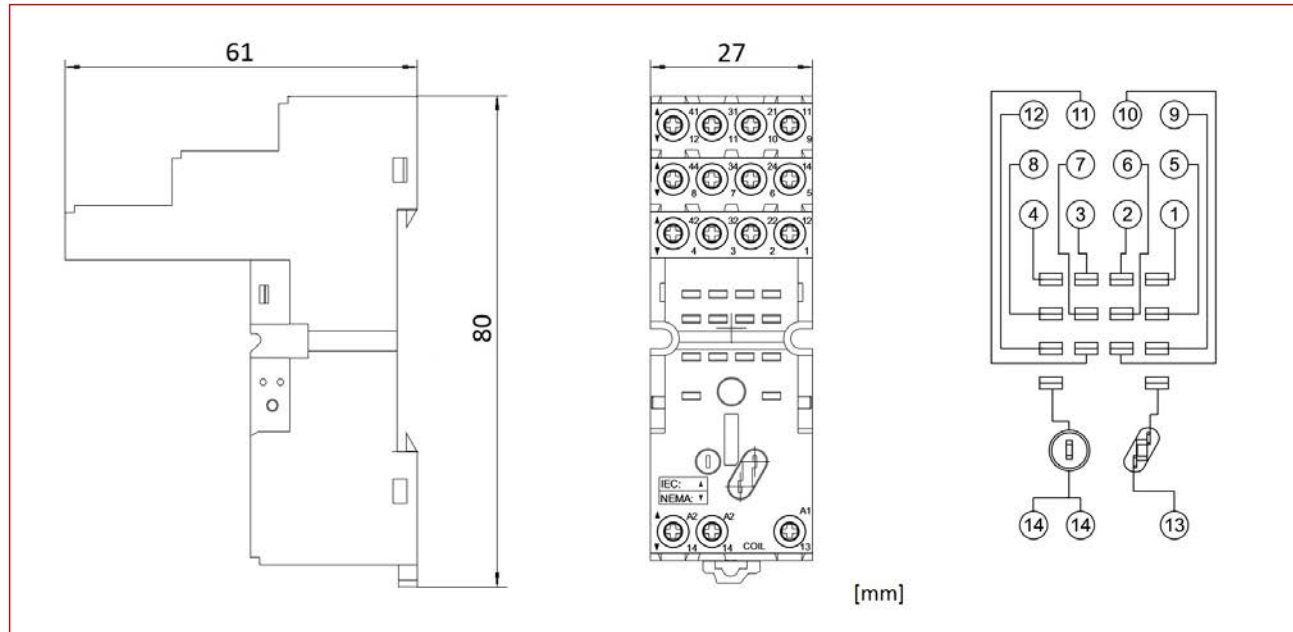


YRS50004: Dimensions and Circuit Diagram

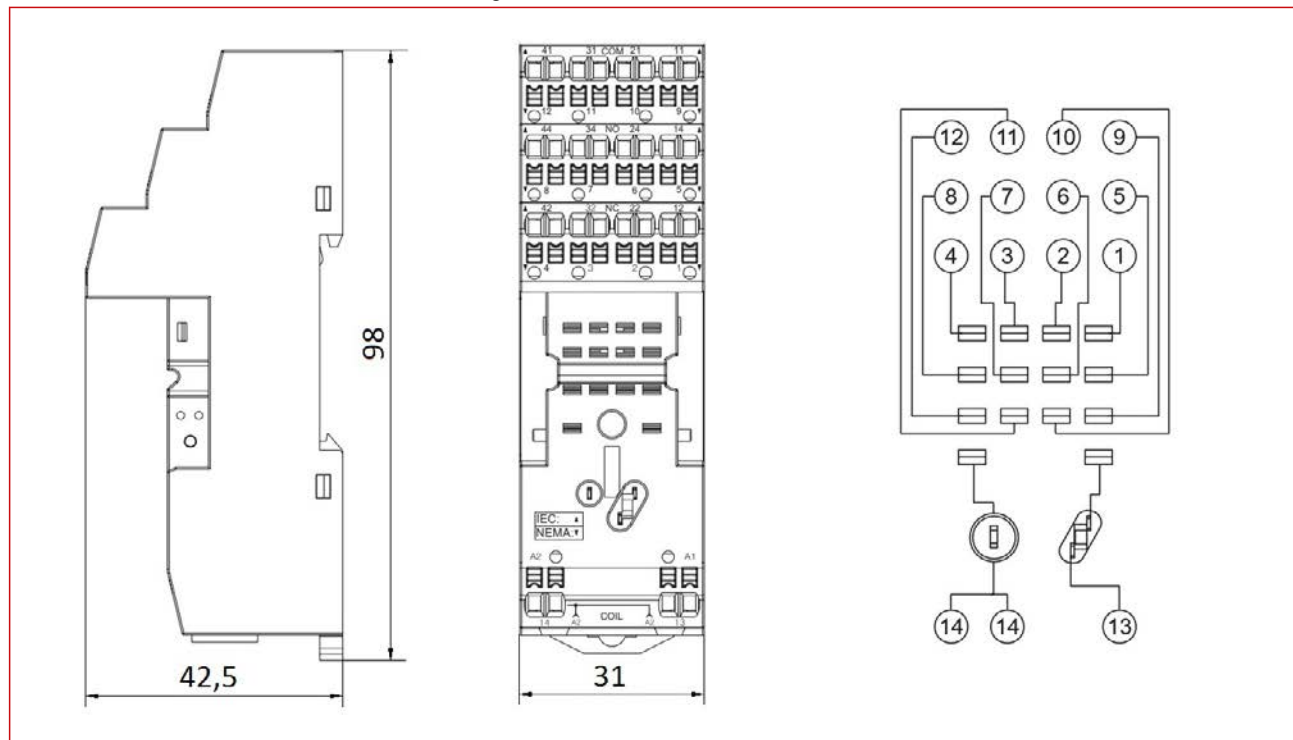


Plug-in Relays S-Relay, Series RS5

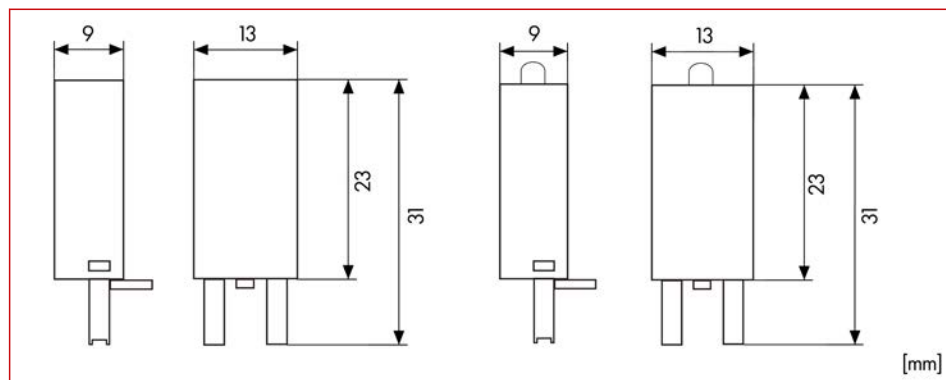
YRS50104: Dimensions and circuit diagram



YRS51004: Dimensions and Circuit Diagram

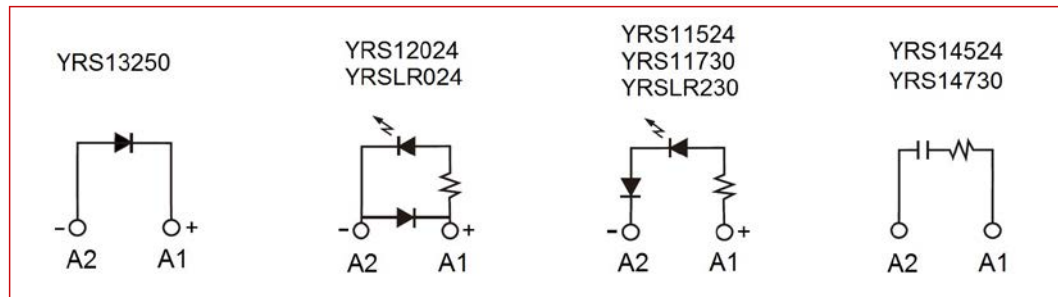


Dimensions Modules



Plug-in Relays S-Relay, Series RS5

Circuit Diagram Modules

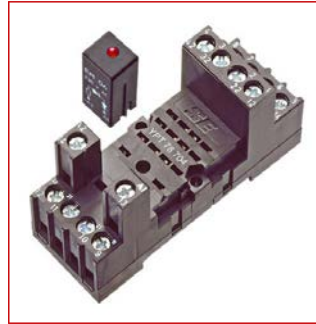


DESCRIPTION	AVAILABLE	ORDER NO.
S-Relay 4 Poles, Series RS5		
24VDC, 4 C/O, 5A		RS50024
24VAC, 4 C/O, 5A		RS500524
230VAC, 4 C/O, 5A		RS500730
Plug-in Socket for S-Relay 4 Poles, Series RS5		
Socket for RS/PTS relays, 14-polig, spring clamp, logical arrangement, 10A (4 CO)		YRS51004
Socket for RS/PTS relays, 14-polig, screw type terminals, 10A (4 CO)		YRS50004
Socket for RS/PTS relays, 14-polig, screw type terminals, logical arrangement, 10A (4 CO)		YRS50104
Marking tag for YRS socket		YRS20000
Plastic - Retaining clip for YRS socket		YRS40000
Plastic - Retaining clip for PT relays for YRS socket		YRS400PT
Metal - Retaining clip for RS socket		YRS50000
Metal - Retaining clip for PT relays for YRS socket		YRS500PT
Modules Matching Plug-in Socket for S-Relays, Series RS5		
Protection diode module 6-250VDC		YRS13250
LED+PD module green 6-24VDC A1+		YRS12024
LED+PD module, red, 6-24VDC, A1+		YRSLR024
LED module green 24VAC/DC		YRS11524
LED module green 110-240VAC		YRS11730
LED module, red, 110-230VAC		YRSLR230
RC-Network module 6-24VAC		YRS14524
RC-Network module 110-240VAC		YRS14730

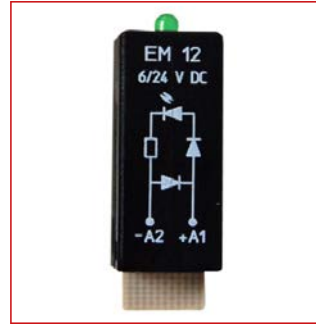
Plug-in Relays Schrack, Series PT



PT570LC4



YPT78704



YMLGD024

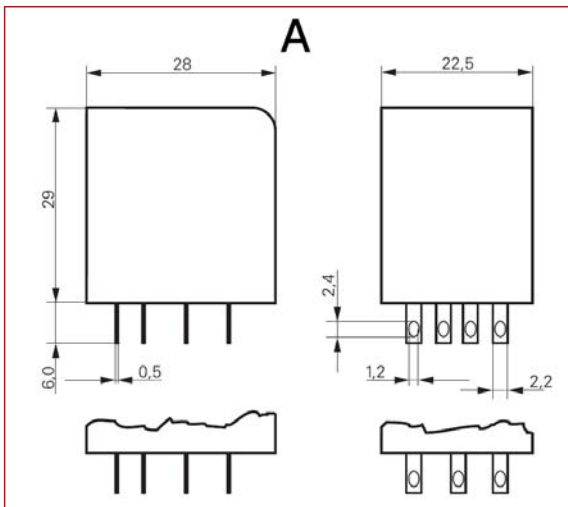
Schrack-Info

- 2 poles 12A, 3 poles 10A or 4 poles 6A
- AC or DC coil
- 2, 3 or 4 CO
- Up to 3000VA switching capacity
- Component height 29mm
- Cadmium-free contact material
- Mechanical and electrical status indicator
- Touch protection test switch, choice of locking method
- White labelling field
- Multi-purpose use for control and machine building

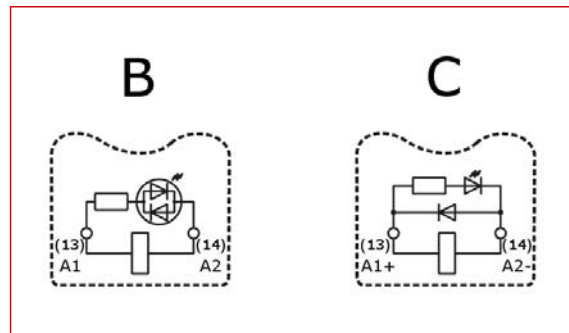


Mobil Code

Dimensions (mm)



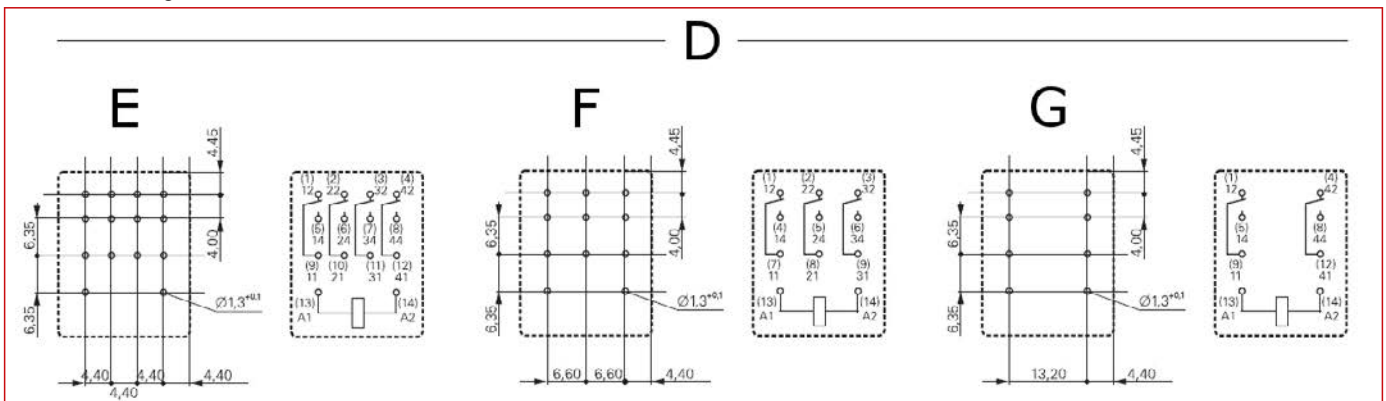
LED/Protection Diode and LED



Dimensions and Circuit Diagrams

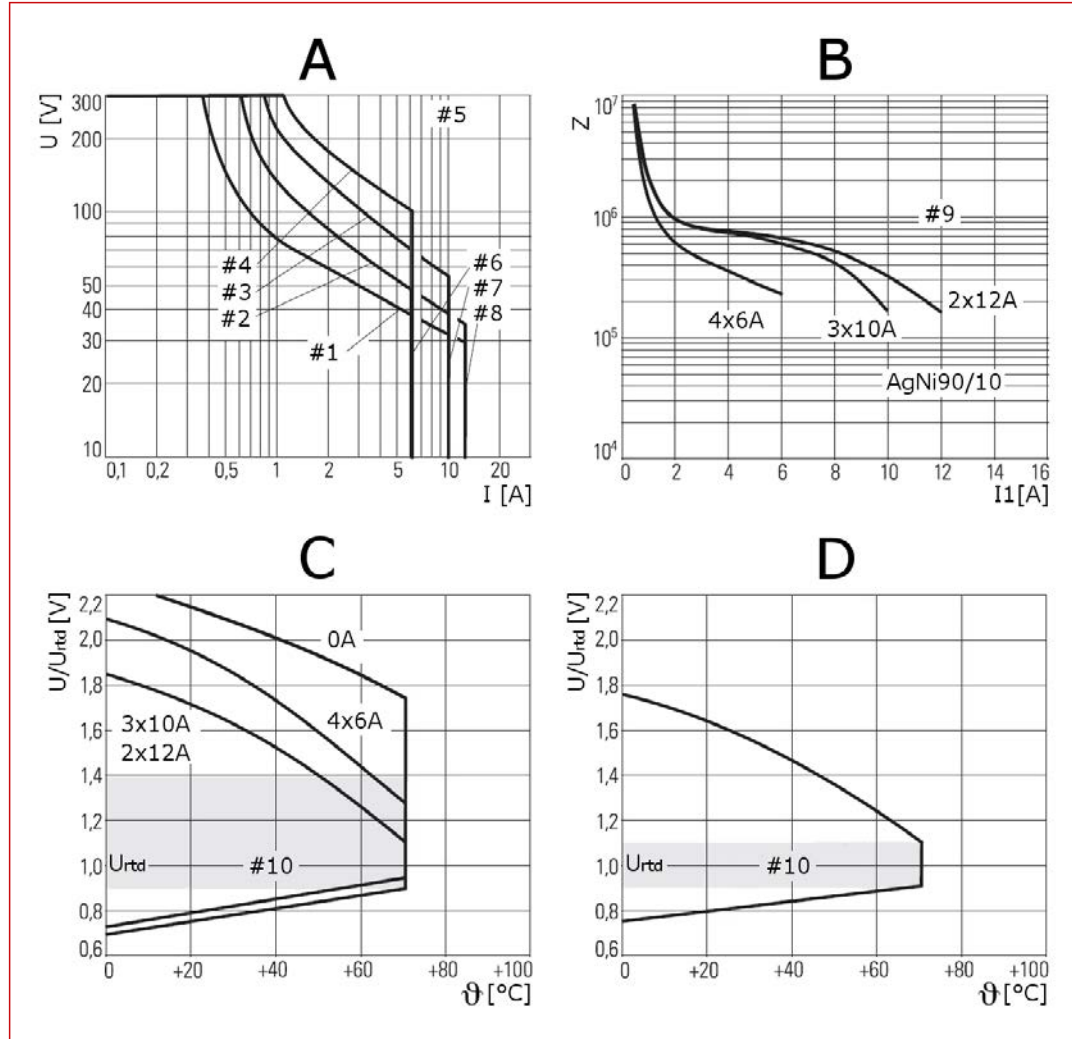
A	Soldering and plug-in terminals (standard version)
B	LED
C	Protection diode and LED
D	Bottom view on pins
E	4 pole
F	3 pole
G	2 pole

Circuit Diagrams



Plug-in Relays Schrack, Series PT

Rated Breaking Capacity and Coil Operating Voltage Range



Rated Breaking Capacity and Coil Operating Voltage Range










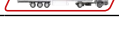








A	Max. DC rated breaking capacity	#7	3 pole
B	Electrical endurance	#8	2 pole
C	Coil operating range DC	#9	250VAC resistive load
D	Coil operating range AC	#10	Recommended voltage range in [V]
#1	1 contact	U	DC voltage in [V]
#2	2 contacts in series	U/U_{rtd}	Coil voltage in [V]
#3	3 contacts	I	DC current in [A]
#4	4 contacts	I1	Switching current in [A]
#5	Resistive load	Z	Cycles
#6	4 pole	Θ	Ambient temperature in [°C]

Plug-in Relays Schrack, Series PT







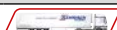




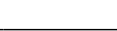

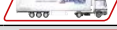












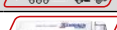

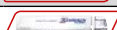












Technical Data

Contact Data		PT2	PT3	PT5
Number of contacts and type		2 CO	3 CO	4 CO
Contact style		Single contact		
Type of disconnection		Micro-switch		
Rated current		12A	10A	6A
Rated voltage / max. switching voltage AC		240 / 400V~		
Limiting continuous current		12A	10A	6A
Limiting short time current 30ms		300A		
Max. rated breaking capacity AC		3000VA	2500VA	1500VA
Limiting making current, max. 20ms		24A	20A	12A
Contact material		AgNi 90/10, AgNi 90/10 hard gold plated		
Minimal contact load		12V / 10mA, 20mV / 1mA hard gold plated		
Coil Data				
Rated voltage	DC coil	6...220V		
	AC coil	6...230V~		
Rated power	DC coil	750mW		
	AC coil	1.0VA		
Operative range, IEC 61810		2		
Coil insulation system according to UL1446		Class F		
Operation- / release voltage / coil resistance at ambient temperature 23°C	6VDC coil	4.5V / 0.6V / 48Ω ± 10 %		
	12VDC coil	9V / 1.2V / 192Ω ± 10 %		
	24VDC coil	18V / 2.4V / 777Ω ± 10 %		
	48VDC coil	36V / 4.8V / 3072Ω ± 10 %		
	60VDC coil	45V / 6V / 4845Ω ± 12 %		
	110VDC coil	82.5V / 11V / 16133Ω ± 15 %		
	220VDC coil	165V / 22V / 64533Ω ± 10 %		
	6VAC coil*	4.8V / 1.8V / 11Ω ± 10 %		
	12VAC coil*	9.6V / 3.6V / 48Ω ± 10 %		
	24VAC coil*	19.2V / 7.2V / 192Ω ± 10 %		
	48VAC coil*	38.4V / 14.4V / 777Ω ± 10 %		
	115VAC coil*	92V / 34.5V / 4845Ω ± 12 %		
	230VAC coil*	184V / 69V / 19465Ω ± 15 %		

* 50 Hz

DESCRIPTION	AVAILABLE	ORDER NO.
PT Relays 2 Poles		
24VDC, 2 C/O, 12A		PT270024
48VDC, 2 C/O, 12A		PT270048
24VAC, 2 C/O, 12A		PT270524
230VAC, 2 C/O, 12A		PT270730
Plug-in Socket for PT Relays 2 Poles		
DIN rail mounted plug-in socket for PT2 relays, 8 pole, 12A (2 C/O)		YPT78702
Retaining clip metal		PT28800
PT Relays 3 Poles		
24VDC, 3 C/O, 10A		PT370024
110VDC, 3 C/O, 10A		PT370110
24VAC, 3 C/O, 10A		PT370524
230VAC, 3 C/O, 10A		PT370730
Plug-in Socket for PT Relays 3 Poles		
DIN rail mounted plug-in socket for PT3 relays, 11-pole, 10A (3 C/O)		YPT78703
PT Relays 4 Poles		
12VDC, 4 C/O, 6A		PT570012
24VDC, 4 C/O, 6A		PT570024
48VDC, 4 C/O, 6A		PT570048
110VDC, 4 C/O, 6A with LED and protection diode		PT570MB0
60VDC, 4 C/O, 6A		PT570060
110VDC, 4 C/O, 6A		PT570110
125VDC, 4 C/O, 6A		PT570125
220VDC, 4 C/O, 6A		PT570220
6VAC, 4 C/O, 6A		PT570506
12VAC, 4 C/O, 6A		PT570512

Plug-in Relays Schrack, Series PT

DESCRIPTION	AVAILABLE	ORDER NO.
PT Relays 4 Poles		
24VAC, 4 C/O, 6A		PT570524
48VAC, 4 C/O, 6A		PT570548
115VAC, 4 C/O, 6A		PT570615
230VAC, 4 C/O, 6A		PT570730
24VDC, 4 C/O, 6A with LED and protection diode		PT570LC4
24VDC, 4 C/O, 6A with LED		PT570L24
20VDC, 4 C/O, 6A with LED		PT570N20
24VAC, 4 C/O, 6A with LED		PT570R24
230VAC, 4 C/O, 6A with LED		PT570T30
24VDC, 4 C/O, 6A, gold plated		PT580024
110VDC, 4 C/O, 6A, gold plated		PT580110
220VDC, 4 C/O, 6A, gold plated		PT580220
24VAC, 4 C/O, 6A, gold plated		PT580524
115VAC, 4 C/O, 6A, gold plated		PT580615
230VAC, 4 C/O, 6A, gold plated		PT580730
24VDC, 4 C/O, 6A, gold plated with LED		PT580L24
230VAC, 4 C/O, 6A, gold plated with LED		PT580T30
Plug-in Socket for PT Relays 4 Poles		
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 CO), with spring clamp terminals		PT7874P
Retaining clip for PT socket PT7874P		PT17021
Jumper link, 12A, for PT socket PT7874P		PT170P1
Marking tag		YPT16040
Plug-in Socket for PT Relays, I/O - Logical Arrangement 4 Poles		
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 CO) with screw terminals		PT78742
Retaining clip for PT socket PT7874P		PT17021
Jumper bar, 12A, for connection of up to 6 PT sockets YPT78...		PT170R6
Marking tag		YPT16040
Plug-in Socket for PT Relays 4 Poles, Conventional Model		
DIN rail mounted plug-in socket for PT2 relays, 8 pole, 12A (2 C/O)		YPT78702
DIN rail mounted plug-in socket for PT3 relays, 11-pole, 10A (3 C/O)		YPT78703
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 C/O)		YPT78704
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 C/O) with protection diode		YPT78110
Retaining clip		YPT16016
Retaining clip for PT socket PT78xx		PT17024
Jumper bar, 12A, for connection of up to 6 PT sockets YPT78...		PT170R6
Marking tag		YPT16040
Modules Matching Plug-in Socket for PT Relays		
LED module, red, 6-24VAC/DC, EM07		YMLRA024
LED module, red, 6-24VDC, A1+, EM18		YMLRD024-A
LED module, red, 6-24VDC, A1-, EM08		YMLRD024
LED module, red, 110-230VAC, EM06		YMLRW230
LED module, green, 6-24VAC/DC, EM11		YMLGA024
LED module, green 6-24VDC with protection diode, A1+, EM12		YMLGD024
LED module, green, 110-230VAC, EM10		YMLGW230
Protection diode module 6-230VDC, A1+, EM09		YMFDG230
RC Network module 6-60VAC, EM02		YMRCW024
RC Network module 110-230VAC, EM03		YMRCW230
Varistor module, 24VAC, EM04		YMVAW024
Varistor module 230VAC, EM05		YMVAW230

Plug-in Relays Schrack, Series MT



MT321012



MT78740



MTML0024

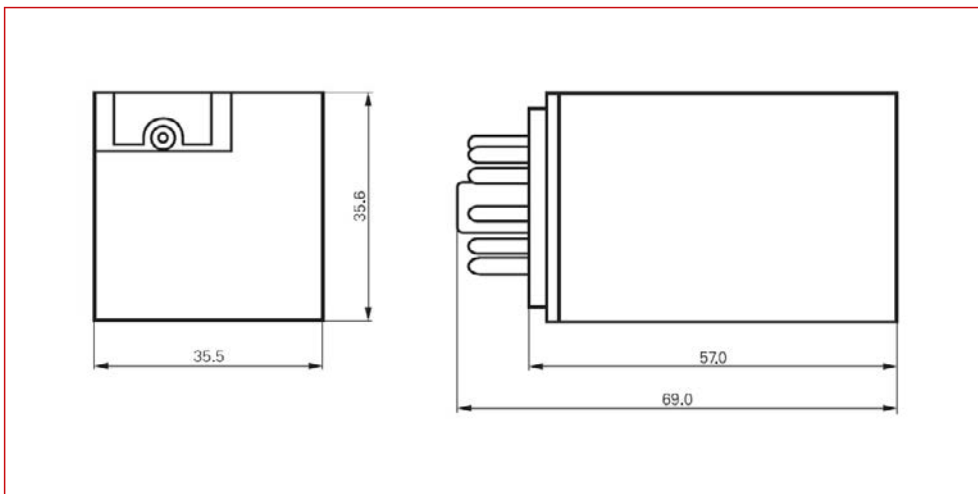
Schrack-Info

- 2/3 poles 10A, AC or DC coil
- 2 or 3 CO
- Cadmium-free contact material
- Standard model with mechanical status indicator
- Optional electrical status indicator
- Test switch system: touch protection, lockable with lever integrated in the cap, front access test switch
- Multi-purpose use for industrial system and machine building



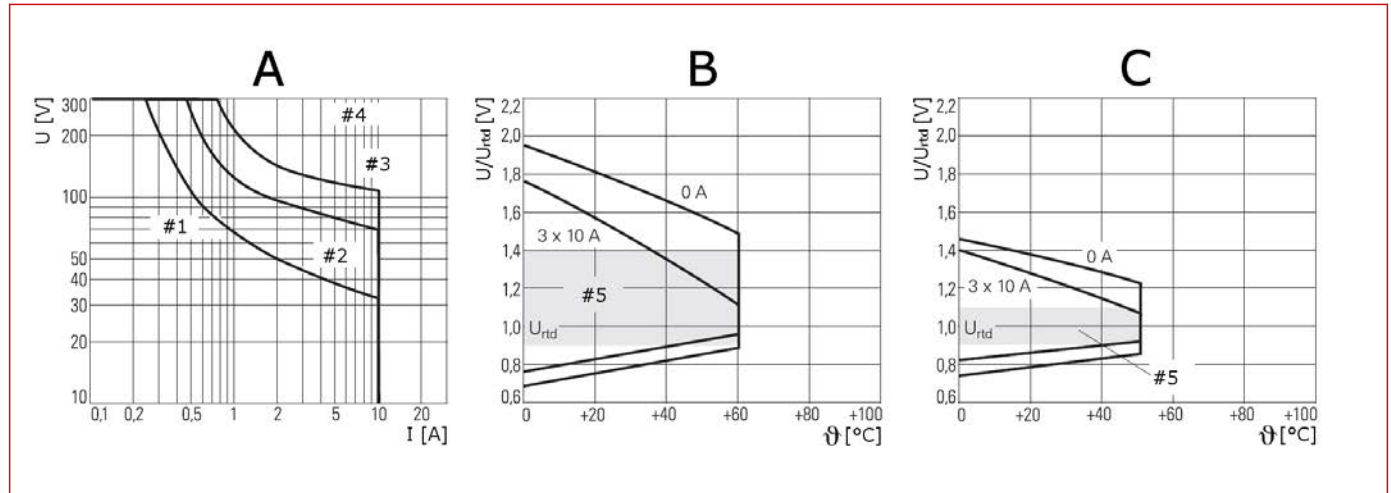
Mobil Code

Dimensions (mm)



Plug-in Relays Schrack, Series MT

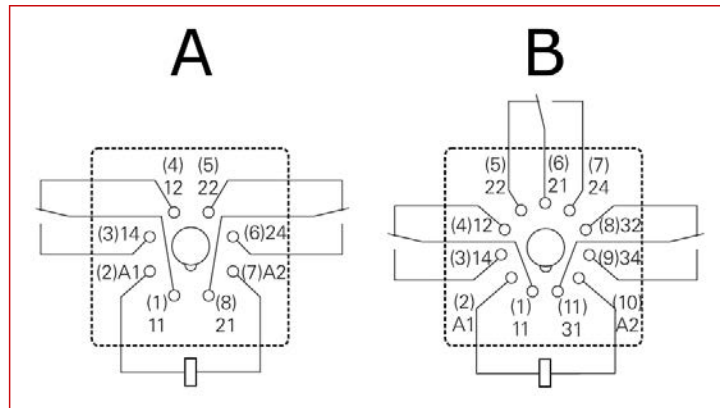
Rated Breaking Capacity and Coil Operating Voltage Range



Rated Breaking Capacity and Coil Operating Voltage Range

A	Max. DC rated breaking capacity
B	Coil operating range DC
C	Coil operating range AC
#1	1 contact
#2	2 contacts in series
#3	3 contacts in series
#4	Resistive load
#5	Recommended voltage range in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
Θ	Ambient temperature in [°C]

Circuit Diagrams




























Circuit diagrams

A	2 CO
B	3 CO












Plug-in Relays Schrack, Series MT

Technical Data

Contact Data		10A
Number of contacts and type		2 CO or 3 CO contacts
Contact style		Single contact
Rated current		10A
Rated voltage / max. switching voltage AC		240 / 400V~
Limiting continuous current		10A
Max. rated breaking capacity AC		2500VA
Limiting making current, max. 20ms		20A
Contact material		AgNi 90/10, AgNi 90/10 hard gold plated
Minimal contact load		12V / 10mA, 20mV / 1mA hard gold plated
Coil Data		
Rated voltage	DC coil	6...220V
	AC coil	6...230V~
Rated power	DC coil	1.2W
	AC coil	2.3VA
Operative range, IEC 61810		2
Coil insulation system according to UL1446		Class 130 (B)
Operation- / release voltage / coil resistance at ambient temperature 23°C	24VDC coil	18V / 2.4V / 475Ω ± 10 %
	24VAC coil	19.2V / 7.2V / 86Ω ± 10 %
	230VAC coil	184V / 69V / 8300Ω ± 10 %

DESCRIPTION	AVAILABLE	ORDER NO.
MT Relays 2 Poles		
12VDC, 2 C/O, 10A		MT221012
24VDC, 2 C/O, 10A		MT221024
12VAC, 2 C/O, 10A		MT226012
24VAC, 2 C/O, 10A		MT226024
115VAC, 2 C/O, 10A		MT226115
230VAC, 2 C/O, 10A		MT226230
Plug-in Socket for MT Relays 2 Poles		
DIN rail mounted plug-in socket for MT2 relays, 8 pole, 10A (2 CO) with screw terminals, not compatible with function modules		YMR78701
MT Relays 3 Poles		
12VDC, 3 C/O, 10A		MT321012
24VDC, 3 C/O, 10A		MT321024
48VDC, 3 C/O, 10A		MT321048
60VDC, 3 C/O, 10A		MT321060
24VDC, 3 C/O, 10A with protection diode		MT3210C4
110VDC, 3 C/O, 10A		MT321110
110VDC, 3 C/O, 10A with protection diode		MT3211B0
220VDC, 3 C/O, 10A		MT321220
24VDC, 3 C/O, 10A with LED		MT323024
48VDC, 3 C/O, 10A with LED		MT323048
60VDC, 3 C/O, 10A		MT323060
24VDC, 3 C/O, 10A with LED and protection diode		MT3230C4
110VDC, 3 C/O, 10A with LED		MT323110
220VDC, 3 C/O, 10A with LED		MT323220
12VAC, 3 C/O, 10A		MT326012
24VAC, 3 C/O, 10A		MT326024
48VAC, 3 C/O, 10A		MT326048
60VAC, 3 C/O, 10A		MT326060
115VAC, 3 C/O, 10A		MT326115
230VAC, 3 C/O, 10A		MT326230
24VAC, 3 C/O, 10A with LED		MT328024
115VAC, 3 C/O, 10A with LED		MT328115
230VAC, 3 C/O, 10A with LED		MT328230
24VDC, 3 C/O, 10A, gold plated		MT331024

Plug-in Relays Schrack, Series MT

DESCRIPTION	AVAILABLE	ORDER NO.
MT Relays 3 Poles		
110VDC, 3 C/O, 10A, gold plated		MT331110
220VDC, 3 C/O, 10A, gold plated		MT331220
24VDC, 3 C/O, 10A, gold plated		MT333024
24VDC, 3 C/O, 10A, gold plated		MT3330C4
230VAC, 3 C/O, 10A, gold plated		MT336230
Plug-in Socket for MT Relays 3 Poles		
DIN rail mounted plug-in socket for MT3 relays and timer relays series ZR4, 11-pole, 10A (3 CO), with screw terminals, not compatible with function modules		YMR78700
Modules and Plug-in Socket for MT Relays, 3 Poles		
DIN rail mounted plug-in socket for MT3 relays, 11-pole, 10A (3 CO), with screw terminals, compatible with function modules		MT78740
LED module red 24VAC/DC for socket MT78740		MTML0024
Protection diode module 1N4007 (A1 +, A2 -) for socket MT78740		MTMT00A0
RC-Network module 110 - 240VAC for socket MT78740		MTMU0730
Single function module Delay ON for socket MT78740		MTMZ0W00
Multifunction module for socket MT78740		MTMF0W00

Plug-in Relays Schrack, Series RM



RM732730



RM732730



Series RM



RM78705

Schrack-Info

RM7

- 3 poles 16A, AC or DC coil
- Switching capacity up to 6000VA
- Mechanical status indicator
- Test switch
- Plug-in or print versions, strap mounting or DIN rail mounting
- For elevator controls, mains adaptors

RM8

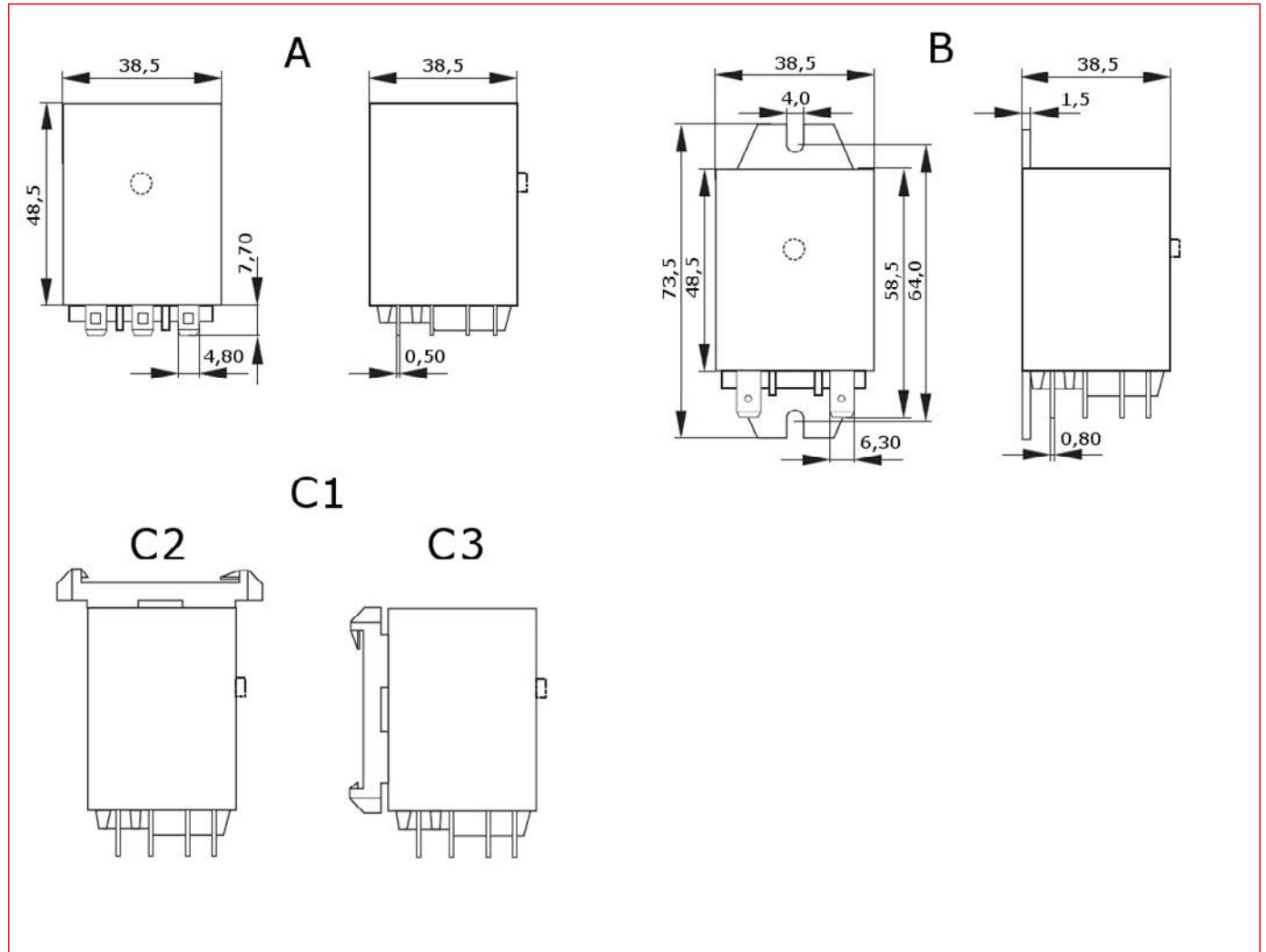
- 2 poles 25A, AC or DC coil
- 2 CO
- Mechanical status indicator
- Test switch
- Strap mounting or DIN rail mounting
- For cleaning machines, heating/cooling equipment



Mobil Code

Plug-in Relays Schrack, Series RM

Dimensions (mm)



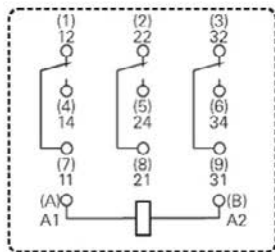
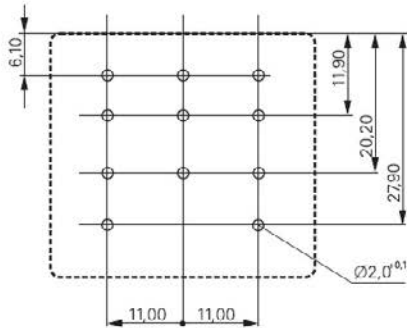
Dimensions

A	Cover without lug, plug-in connectors for plug-in socket
B	Cap with mounting bracket, Faston 250 (187 possible)
C1	Cap with DIN snap mechanism (only Faston 250)
C2	Lying
C3	Standing

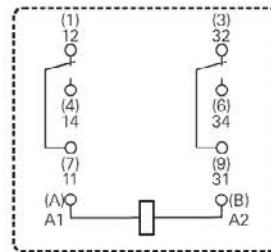
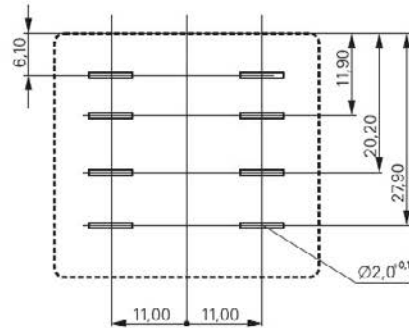
Plug-in Relays Schrack, Series RM

Circuit Diagrams

RM7

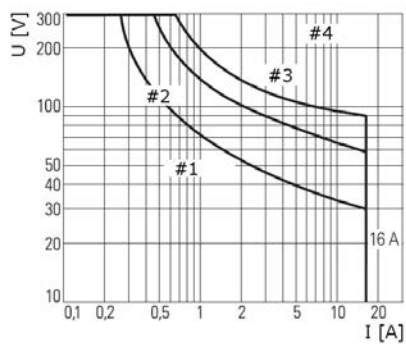


RM8

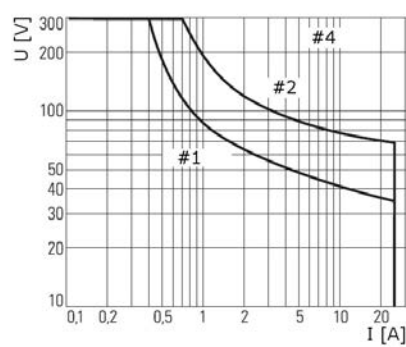


Rated Breaking Capacity

RM 7



RM8



Rated Breaking Capacity

#1	1 contact
#2	2 contacts in series
#3	3 contacts in series
#4	Resistive load
U	DC voltage in [V]
I	DC current in [A]

Plug-in Relays Schrack, Series RM




















Technical data RM7

Contact Data		RM7
Number of contacts and type		3 CO
Contact style		Single contact
Rated current		16A
Rated voltage / max. switching voltage AC		400 / 440V
Max. rated breaking capacity AC		6000VA
Limiting making current, max. 20ms		40A
Contact material		AgNi 90 / 10
Minimal contact load		24VDC / 100mA
Coil Data		
Rated voltage	DC coil	6...220V
	AC coil	6...400V~
Rated power	DC coil	1.6W
	AC coil	2.7VA
Operative range, IEC 61810		2
Coil insulation system according to UL1446		Class 130 (B)
Operation- / release voltage / coil resistance at ambient temperature 23°C	24VDC coil	18V / 2.4V / 345Ω ± 10 %
	230VAC coil	184V / 69V / 7500Ω ± 10 %

Technical data RM8

Contact Data		RM8
Number of contacts and type		2 CO
Contact style		Single contact
Contact gap		-
Rated current		25A
Rated voltage / max. switching voltage AC		400 / 400V~
Max. rated breaking capacity AC		6000VA
Limiting making current, max. 20ms		60A
Contact material		AgNi90 / 10
Minimal contact load		24V DC / 100mA
Coil Data		
Rated voltage	DC coil	6...220V
	AC coil	6...400V~
Rated power	DC coil	1.2W
	AC coil	2.7VA
Operative range, IEC 61810		2
Coil insulation system according to UL1446		Class 130 (B)
Operation- / release voltage / coil resistance at ambient temperature 23°C	24VDC coil	18V / 2.4V / 475Ω ± 10 %
	230VAC coil	184V / 92V / 7500Ω ± 10 %

Plug-in Relays Schrack, Series RM

DESCRIPTION	AVAILABLE	ORDER NO.
RM Relays 2 Poles		
230VAC, 2 C/O, 25A		RM829730
24VDC, 2 C/O, 25A		RM875024
230VAC, 2 C/O, 25A		RM879730
230VAC, 2 C/O, 25A		RM825730
230VAC, 2 C/O, 25A		RM875730
24VDC, 2 C/O, 25A		RM879024
24VDC, 2 C/O, 25A		RM878024
RM Relays 3 Poles		
230VAC, 3 C/O, 16A		RM778730
24VAC, 3 C/O, 16A		RM772524
230VAC, 3 C/O, 16A		RM779730
12VDC, 3 C/O, 16A		RM772012
24VDC, 3 C/O, 16A		RM772024
230VAC, 3 C/O, 16A		RM775730
400VAC, 3 C/O, 16A		RM772900
24VDC, 3 C/O, 16A		RM722024
60VDC, 3 C/O, 16A		RM772060
24VDC, 3 C/O, 16A		RM778024
230VAC, 3 C/O, 16A		RM772730
Plug-in Socket for RM Relays, up to 16 A, for RMxx2xxx		
DIN rail mounted plug-in socket, 11-pole, up to 16A, for Faston 187		RM78705

Relay Sockets and Sets Schrack, Series SNR



ST3FLC4

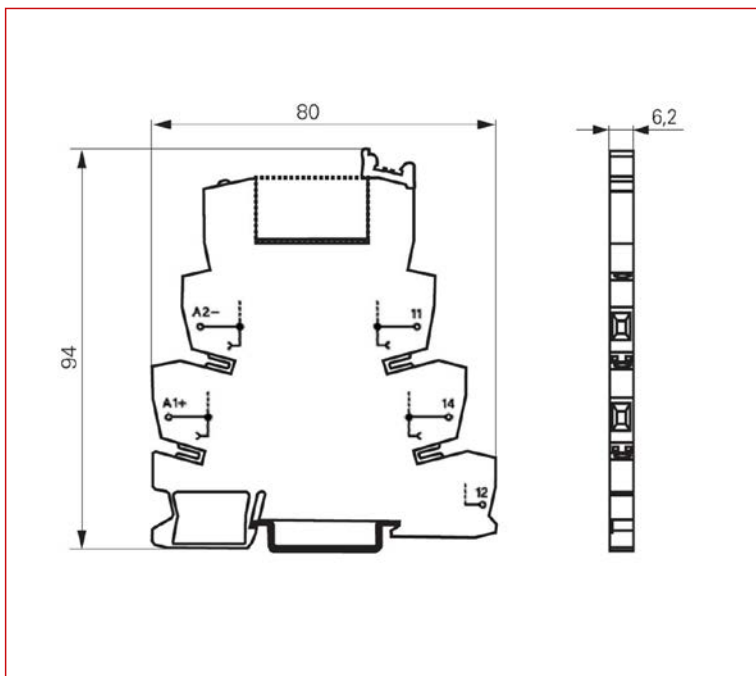
Schrack-Info

- Relay package consisting of a relay and a DIN rail socket
- 1 CO 6A rated current
- Safe disconnection compliant with VDE 0160 in combination with socket YRT78626
- Module width only 6.2mm
- Narrow component width allows high component density and tight-packed functionality on the DIN rail
- Protection diode



Mobil Code

Dimensions (mm)



A	Screw terminals
B	Spring clamp terminals

DESCRIPTION	AVAILABLE	ORDER NO.
12VDC, 1 C/O, 6A with socket		ST3P3LB2
24VDC, 1 C/O, 6A with socket		ST3P3LC4
24VDC, 1 C/O, 6A with socket		ST3P2LC4
230VAC/DC, 1 C/O, 6A with socket		ST3P3TP0
DIN rail mounted plug-in socket for SNR relays, 24V-DC, 6A, incl. protection diode, with screw terminals		ST3FLC4
SNR jumper bar, red, 500mm		ST37001
SNR jumper bar, blue, 500mm		ST37002
SNR jumper bar, grey, 500mm		ST37003
Marking plate, 1 plate= 100pcs.		ST37040
Separator plate		ST36040
Connection bridge 20 pole for YSN90020		YSN90020

Relay Sockets for Schrack, Series RT



RT7872P



YRT78624



RT78725



YRT78626

Schrack-Info

RT7872P

- Screwless terminals
- Solid wire for toolless mounting
- Twin terminals for each connection
- Cross-connector bridges to establish a connection
- Open coil circuit for active modules
- Inputs and outputs separated

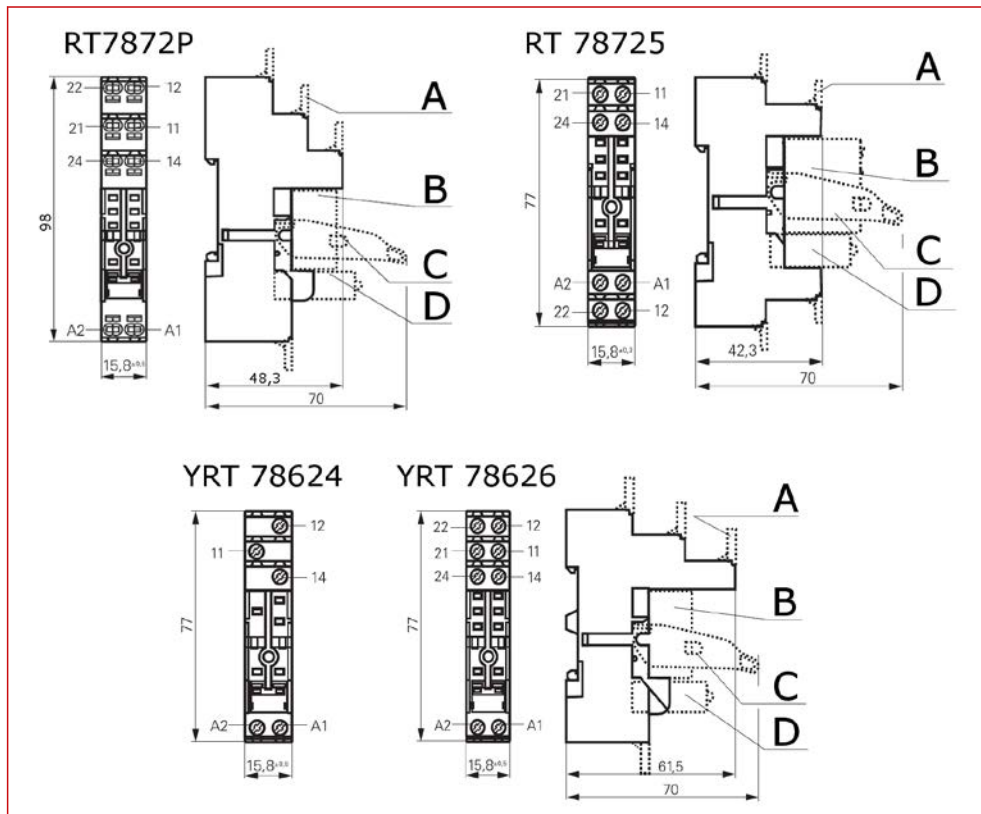
RT78725, YRT78624, YRT78626

- Easy changing of the relay even if tightly packed
- High-grade terminals preventing incorrect insertion
- Captive terminal screws



Mobil Code

Dimensions (mm)



Dimensions

A	Label
B	Relay
C	Bracket
D	Module

Relay Sockets for Schrack, Series RT

Technical Data

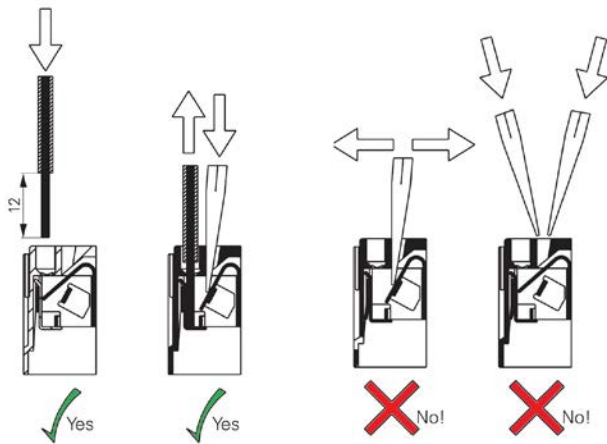
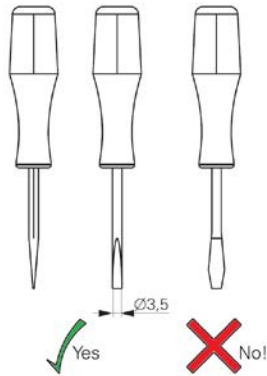
		RT 7872P	YRT 78624	YRT 78626	RT 78725
Rated current		2 x 8A, 16A*)	12A	2 x 8A, 16A*)	2 x 8A, 16A*)
Rated voltage AC		240 / 400V~		250V~	
Terminals		Cage-clamp terminals		Screw terminals	
Terminal torque according to IEC 61984		-		0.5Nm	
	Max.	-		0.7Nm	
Terminal capacity	Copper wire	1 x 0.75 / 1 / 1.5mm ² , 2 x 0.75 / mm ²		2 x 2.5mm ²	
	Stranded wire	1 x 0.75 / 1 / 1.5mm ² , 2 x 0.75 / mm ²		2 x 2.5mm ²	
	With ferrule (DIN 46228/1)	1 x 0.75 / 1mm ² , 2 x 0.75mm ²		2 x 1.5mm ²	
	With ferrule, without insulation or insulation at least 18mm long	1 x 1.5mm ²		-	
	Without ferrule, with standard insulation	2 x 1.5mm ²		-	

For stranded conductors with single wires of 0.05mm or less, the used of ferrules is recommended. When using stranded conductors without ferrules, the terminal must be opened to insert the conductor.







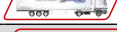








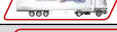


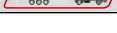

*For 1 pole relays (16A) the relay terminals 11-21, 12-22 and 14-24 have to be bridged!

Mounting Instructions

RT7872P



Relay Sockets for Schrack, Series RT

DESCRIPTION	AVAILABLE	ORDER NO.
Jumper link for connection of RT7872P		RT170P1
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x, XT, RP4x relays, pinning 5mm, max. 16A, with spring clamp terminals		RT7872P
DIN rail mounted plug-in socket for RT1x relays, pinning 3.5mm, max. 12A, I/O - logical arrangement, with screw terminals		YRT78624
DIN rail mounted plug-in socket for XT, RT2x, RT3x, RT4x relays, pinning 5mm, max. 12A, I/O - logical arrangement, with screw terminals		YRT78626
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x relays, pinning 5mm, max. 16A, conventional arrangement, with screw terminals		RT78725
Jumper bar for connection of up to 8 RT-sockets		RT170R8
Retaining clip for RT relays with ejection function		RT17017
Marking tag (for YRT sockets YRT78624 and YRT78626)		YRT16040
LED module, red, 6-24VAC/DC, EM07		YMLRA024
LED module, red, 6-24VDC, A1+, EM18		YMLRD024-A
LED module, red, 6-24VDC, A1-, EM08		YMLRD024
LED module, red, 110-230VAC, EM06		YMLRW230
LED module, green, 6-24VAC/DC, EM11		YMLGA024
LED module, green 6-24VDC with protection diode, A1+, EM12		YMLGD024
LED module, green, 110-230VAC, EM10		YMLGW230
Protection diode module 6-230VDC, A1+, EM09		YMFDG230
RC Network module 6-60VAC, EM02		YMRCW024
RC Network module 110-230VAC, EM03		YMRCW230
Varistor module, 24VAC, EM04		YMVAW024
Varistor module 230VAC, EM05		YMVAW230



Relay Sockets for Schrack, Series XT



RT7872P



RT78725



YRT78626

Schrack-Info

RT7872P

- Screwless terminals
- Solid wire for toolless mounting
- Twin terminals for each connection
- Cross-connector bridges to establish a connection
- Open coil circuit for active modules
- Inputs and outputs separated

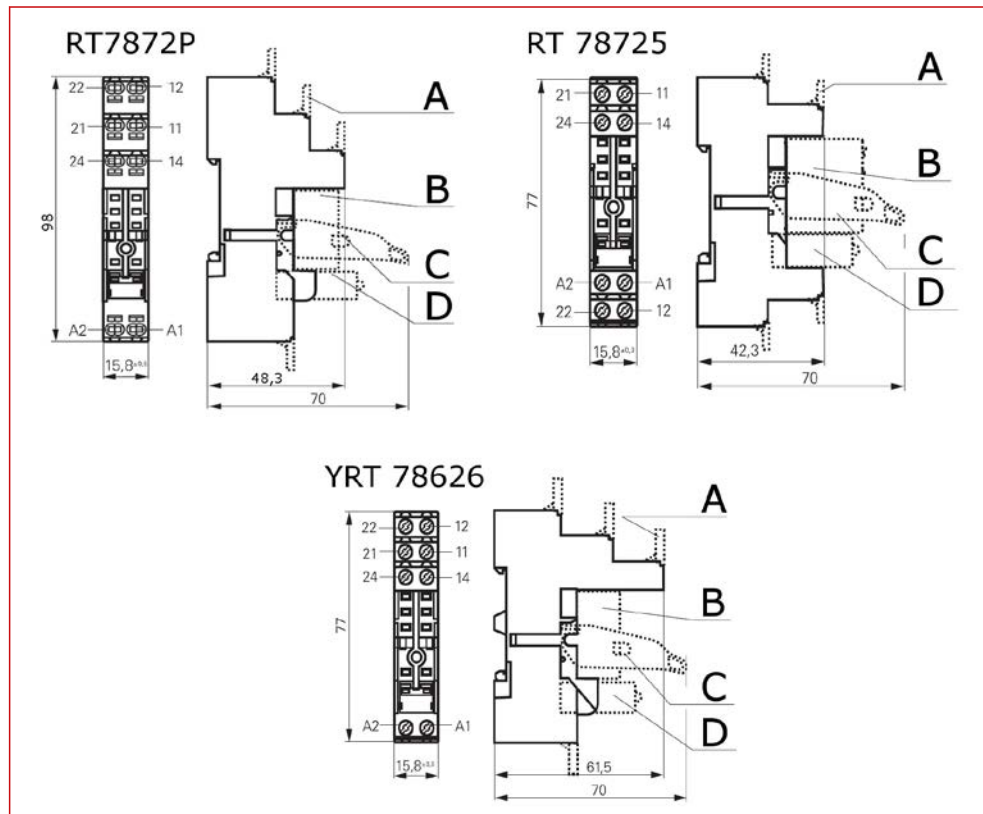
RT78725, YRT78626

- Easy changing of the relay even if tightly packed
- High-grade terminals preventing incorrect insertion
- Captive terminal screws



Mobil Code

Dimensions (mm)



Dimensions

A	Label
B	Relay
C	Bracket
D	Module

Relay Sockets for Schrack, Series XT

Technical Data

		RT 7872P	YRT 78626	RT 78725
Rated current		2 x 8A, 16A*)	2 x 8A, 16A*)	2 x 8A, 16A*)
Rated voltage AC		240 / 400V~	250V~	
Terminals		Cage-clamp terminals		Screw terminals
Terminal torque according to IEC 61984		-		0,5Nm
Max.		-		0,7Nm
Terminal capacity	Copper wire	1 x 0,75 / 1 / 1,5mm ² , 2 x 0,75 / 1mm ²		2 x 2,5mm ²
	Stranded wire	1 x 0,75 / 1 / 1,5mm ² , 2 x 0,75 / 1mm ²		2 x 2,5mm ²
	With ferrule (DIN 46228/1)	1 x 0,75 / 1mm ² , 2 x 0,75mm ²		2 x 1,5mm ²
	With ferrule, without insulation or insulation at least 18mm long	1 x 1,5mm ²		-
	Without ferrule, with standard insultaion	2 x 1,5mm ²		-








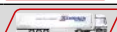


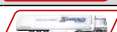
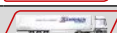

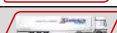


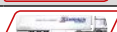

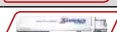
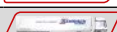
For stranded conductors with single wires of 0.05mm or less, the used of ferrules is recommended. When using stranded conductors without ferrules, the terminal must be opened to insert the conductor.

*For 1 pole relays (16A) the relay terminals 11-21, 12-22 and 14-24 have to be bridged!

Mounting Instructions

RT7872P

Relay Sockets for Schrack, Series XT

DESCRIPTION	AVAILABLE	ORDER NO.
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x, XT, RP4x relays, pinning 5mm, max. 16A, with spring clamp terminals		RT7872P
Jumper link for connection of RT7872P		RT170P1
DIN rail mounted plug-in socket for RT1x relays, pinning 3.5mm, max. 12A, I/O - logical arrangement, with screw terminals		YRT78624
DIN rail mounted plug-in socket for XT, RT2x, RT3x, RT4x relays, pinning 5mm, max. 12A, I/O - logical arrangement, with screw terminals		YRT78626
DIN rail mounted plug-in socket for RT2x, RT3x, RT4x relays, pinning 5mm, max. 16A, conventional arrangement, with screw terminals		RT78725
Jumper bar for connection of up to 8 RT-sockets		RT170R8
Retaining clip for XT and RP relays with ejection function		XT17017
Marking tag (for YRT sockets YRT78624 and YRT78626)		YRT16040
LED module, red, 6-24VAC/DC, EM07		YMLRA024
LED module, red, 6-24VDC, A1+, EM18		YMLRD024-A
LED module, red, 6-24VDC, A1-, EM08		YMLRD024
LED module, red, 110-230VAC, EM06		YMLRW230
LED module, green, 6-24VAC/DC, EM11		YMLGA024
LED module, green 6-24VDC with protection diode, A1+, EM12		YMLGD024
LED module, green, 110-230VAC, EM10		YMLGW230
Protection diode module 6-230VDC, A1+, EM09		YMFDG230
RC Network module 6-60VAC, EM02		YMRCW024
RC Network module 110-230VAC, EM03		YMRCW230
Varistor module, 24VAC, EM04		YMVAW024
Varistor module 230VAC, EM05		YMVAW230

Relay Sockets for S-Relay, Series RS4/RS5



YRS50004



YRS50104



YRS51004



YRS40000

Schrack-Info

- Socket for S-RELAY series RS4/RS5
- Suitable for mounting in electrical enclosures or for DIN rail mounting
- Conventional sockets with screw terminals
- Sockets with logical arrangement, with screw- or screwless-terminals
- Various LED and protection modules



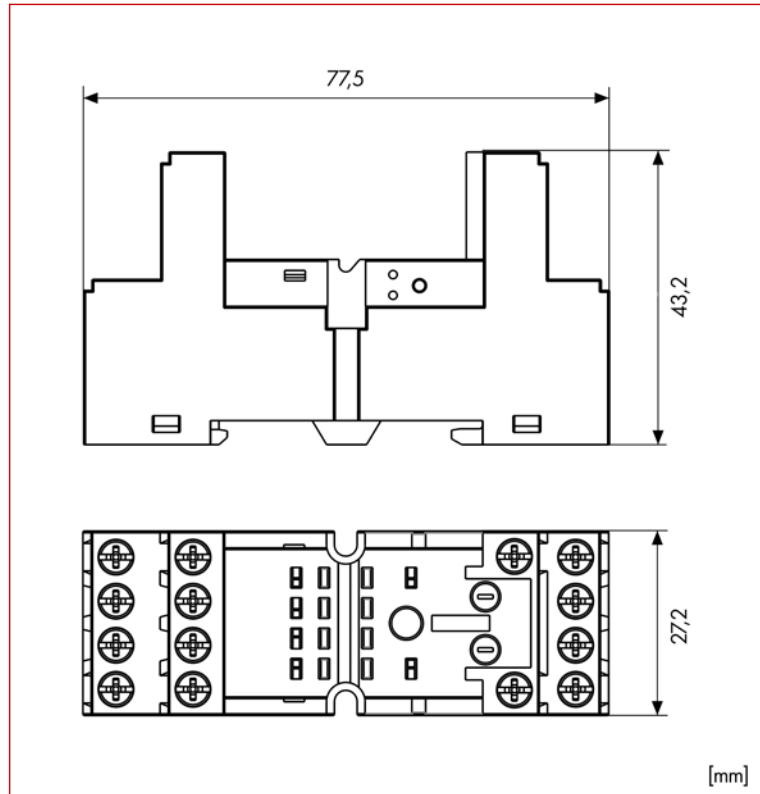
Mobil Code

Technical Data Sockets

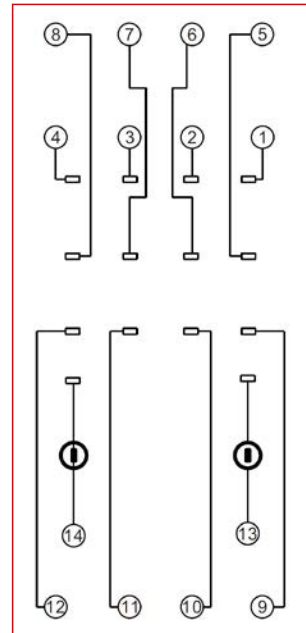
	YRS50004--	YRS50104--	YRS51004--
Nominal current	10A	10A	8A
Nominal voltage	300VAC	300VAC	300VAC
Connection type	Screwterminals	Screwterminals	Spring clamp
Dielectric strength			
Between contact and coil	4000V/s	4000V/s	4000V/s
Between contacts	2500V/s	2500V/s	2500V/s
Max. tightening torque	1Nm	1Nm	-
Cross section	0.5 - 2.5mm	0.5 - 2.5mm	0.5 - 1.5mm
Ambient temperature	-40 / +85°C	-40 / +85°C	-40 / +85°C
Weight	56g	62g	80g
Optional accessories	YRS40000; YRS50000; YRS20000; YRS13250; YRS12024; YRS11730; YRS14524; YRS14730		

Relay Sockets for S-Relay, Series RS4/RS5

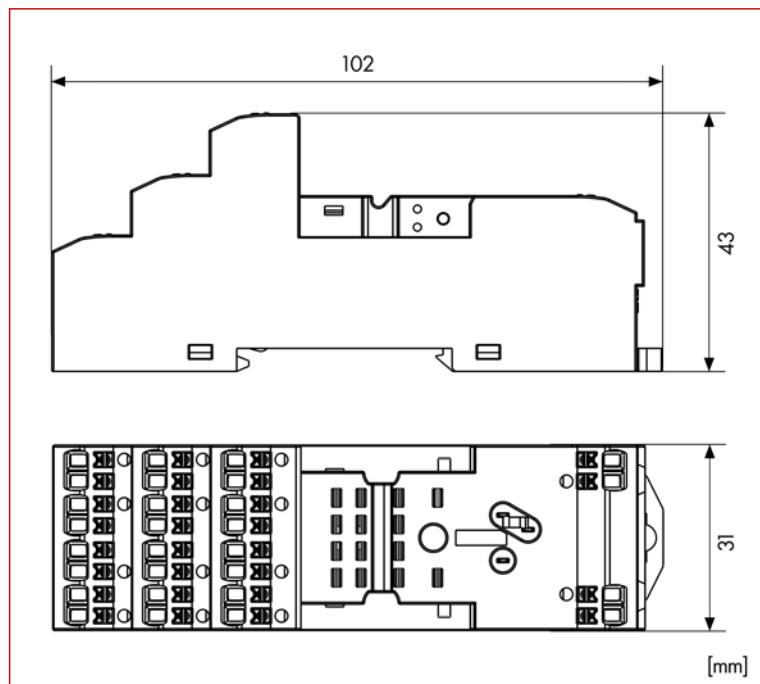
Dimensions YRS50004



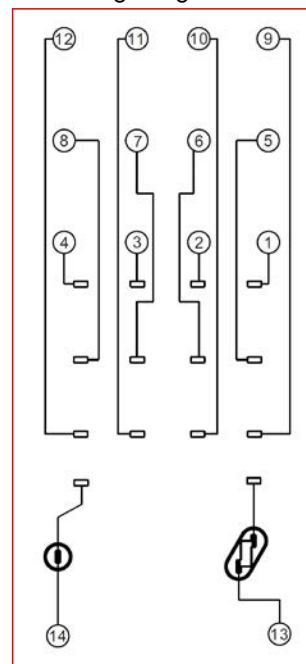
Wiring Diagram YRS50004



Dimensions YRS51004

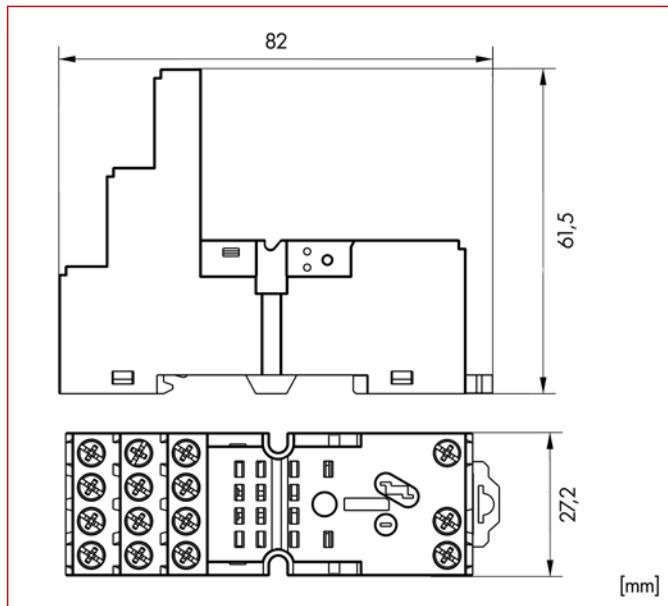


Wiring Diagram YRS51004

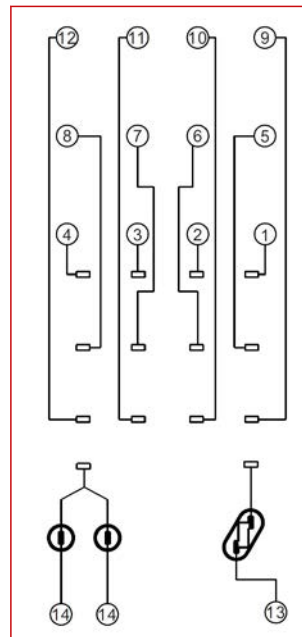


Relay Sockets for S-Relay, Series RS4/RS5

Dimensions YRS50104



Wiring Diagram YRS50104



DESCRIPTION	AVAILABLE	ORDER NO.
Socket for RS/PTS relays, 14-polig, screw type terminals, 10A (4 CO)		YRS50004
Socket for RS/PTS relays, 14-polig, spring clamp, logical arrangement, 10A (4 CO)		YRS51004
Socket for RS/PTS relays, 14-polig, screw type terminals, logical arrangement, 10A (4 CO)		YRS50104
Plastic - Retaining clip for YRS socket		YRS40000
Metal - Retaining clip for RS socket		YRS50000
Marking tag for YRS socket		YRS20000
Protection diode module 6-250VDC		YRS13250
LED+PD module green 6-24VDC A1+		YRS12024
LED module green 110-240VAC		YRS11730
RC-Network module 6-24VAC		YRS14524
RC-Network module 110-240VAC		YRS14730
LED module green 24VAC/DC		YRS11524
Metal - Retaining clip for PT relays for YRS socket		YRS500PT
Plastic - Retaining clip for PT relays for YRS socket		YRS400PT

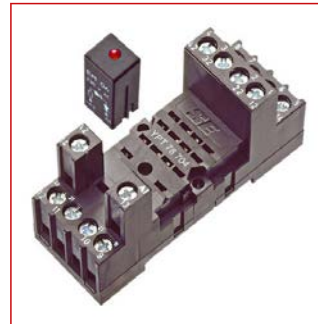
Relay Sockets for Schrack, Series PT



PT78742



YPT78702



YPT78704



YPT78703



YPT78110



PT78604



YMLRW230

Schrack-Info

PT7874P

- PT socket, 4 poles, 6A
- Screwless terminals
- Solid wire for toolless mounting
- Twin terminals for each connection
- Cross-connector bridges to establish a connection
- Open coil circuit for active modules
- Inputs and outputs separated

PT78742

- Socket with separated control and load connectors

- High-grade terminals preventing incorrect insertion
- Captive terminal screws
- Double A2 for easy through-wiring

YPT78702, YPT78703, YPT78704, YPT78110

- High-grade terminals preventing incorrect insertion
- Captive terminal screws

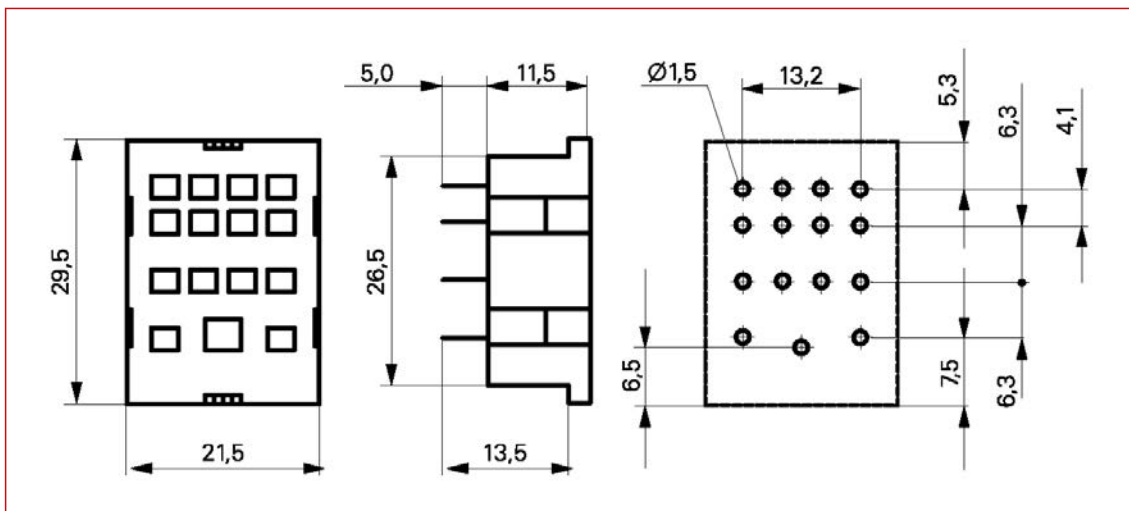
PT78604

- Print socket, 4 poles, 6A



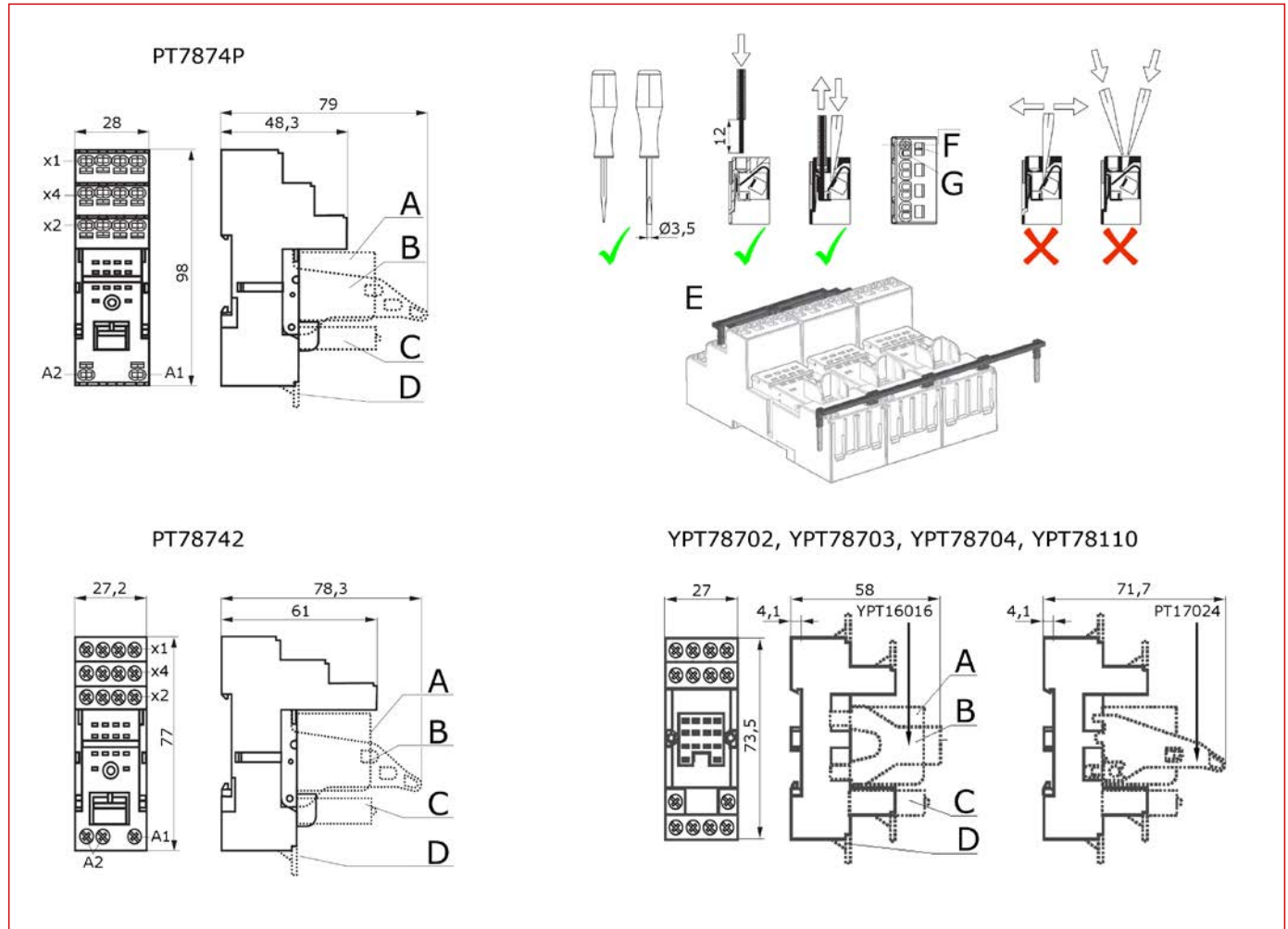
Mobil Code

Dimensions PT78604 (mm)



Relay Sockets for Schrack, Series PT

Dimensions (mm)

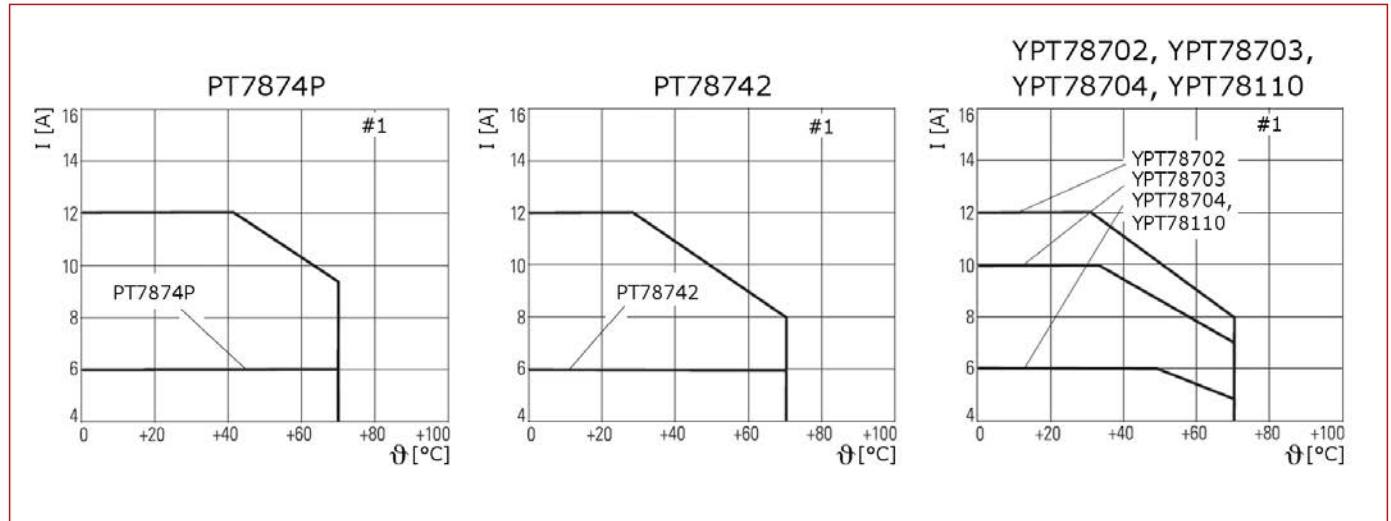


Dimensions

A	Relay
B	Bracket
C	Module
D	Label
E	Jumper bar
F	Opening access
G	Conductor opening


Relay Sockets for Schrack, Series PT

Reduction Curves



Reduction Curves

#1	Tight package
I	Load current in [A]
ϑ	Ambient temperature in [°C]

 Relay Sockets for Schrack, Series PT

 Technical Data (Part 1)
PT 7874P

		4-pole
Rated current		6A
Rated voltage / max. switching voltage		240V~
Limiting continuous current		See reduction curve
Dielectric strength	Coil-contact set	2500V _{eff}
	Open contact	1200V _{eff}
	Adjacent contacts	2000V _{eff}
Clearance/ creepage	Coil-contact circuit	≥ 4/4mm
	Adjacent contacts	≥ 1.8/3.5mm
Insulation to IEC 60664-1		
Type of insulation	Open contact	Basic
	Adjacent contacts	Functional
		Basic
Rated insulation voltage		250V
Pollution degree		2*
Overvoltage category		III
Ambient temperature	For mounting / handling	-25...+70°C
	In operation	-40...+70°C
		Screwless / spring clip
Wire stripping length		12mm
	With standard insulation (no reinforced insulation)	1 x 0,75 / 1 / 1,5mm ² , 2 x 0,75 / 1mm ² 2 x 1,5mm ²
	Stranded wire without ferrule	1 x 0,75 / 1 / 1,5mm ² , 2 x 0,75 / 1 mm ² 2 x 1,5mm ²
	Without ferrule, with standard insulation	2 x 1,5mm ²
	With ferrule	1 x 0,75 / 1mm ² , 2 x 0,75mm ²
	With ferrule, without insulation or insulation length at least 18mm long	1 x 1,5mm ²

*With inserted relay pollution degree 1 in region of contact pins / socket inlets.

PT 78742

		4-pole
Rated current		6A
Rated voltage/ max. switching voltage		240V~
Limiting continuous current		See reduction curve
Dielectric strength	Coil-contact set	2500V _{eff}
	Open contact	1200V _{eff}
	Adjacent contacts	2000V _{eff}
Clearance/ creepage	Coil-contact circuit	≥ 4/4mm
	Adjacent contact circuits	≥ 1.8/3.5mm
Insulation to IEC 60664-1		
Type of insulation	Coil-contact set	Basic
	Open contact	Functional
	Adjacent contacts	Basic
Rated insulation voltage		250V
Pollution degree		2*
Overvoltage category		III
Ambient temperature		-40...+70°C
Terminals		Screw terminal
Terminal torque according to IEC 61984		0,5Nm
	Max.	0,7Nm
Terminal capacity	Copper wire	2 x 2,5mm ²
	Stranded wire	2 x 2,5mm ²
	With ferrule (DIN 46228/1)	2 x 1,5mm ²

*With included relay pollution degree 1 in the area of the contacts / socket-entries.

Relay Sockets for Schrack, Series PT

Technical Data (Part 2)

















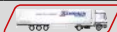










YPT 78702, YPT 78703, YPT 78704, YPT 78110

		2-pole	3-pole	4-pole
Rated current		12A	10A	6A
Limiting continuous current		See reduction curve		
Rated voltage/ max. switching voltage AC		250V~		
Dielectric strength	Coil-contact set	2500V _{eff}		
	Open contact	1200V _{eff}		
	Adjacent contacts	2500V _{eff}		
Terminals		Screw terminals		
Clearance/ creepage	Coil-contact circuit	≥ 4/4mm		
	Adjacent contact circuits	≥ 3.5/9.5mm	≥ 2.6/3.5mm	≥ 1.8/3.5mm
Insulation to IEC 60664-1 Type of insulation		Basic		Functional
Rated insulation voltage		250V		
Pollution degree		2		
Overvoltage category		III		
Ambient temperature		-40...+70°C		
Terminal torque according to IEC 61984 Max.		0,5Nm		
		0,7Nm		
Terminal capacity	Copper wire	2 x 2,5mm ²		
	Stranded wire	2 x 2,5mm ²		
	With ferrule (DIN 46228/1)	2 x 1,5mm ²		

PT 78604

		4-pole
Rated current		6A
Limiting continuous current		See reduction curve
Rated voltage/ max. switching voltage AC		250V~
Clearance/ creepage	Coil-contact set	2500V _{eff}
	Open contact	1200V _{eff}
	Adjacent contacts	2500V _{eff}
Freiraum/ Kriechstrecke	Coil-contact circuit	≥ 4/4mm
	Adjacent contact circuits	≥ 1.8/3.5mm
Insulation to IEC 60664-1 Type of insulation		Basic
		Functional
		Functional
Rated insulation voltage		250V
Pollution degree		2
Overvoltage category		III
Ambient temperature		-40...+80°C
Terminals		Screw terminals
Terminal torque according to IEC 61984 Max.		0,5Nm
		0,7Nm
Terminal capacity	Copper wire	2 x 2,5mm ²
	Stranded wire	2 x 2,5mm ²
	With ferrule (DIN 46228/1)	2 x 1,5mm ²

Relay Sockets for Schrack, Series PT

DESCRIPTION	AVAILABLE	ORDER NO.
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 CO), with spring clamp terminals		PT7874P
Jumper link, 12A, for PT socket PT7874P		PT170P1
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 CO) with screw terminals		PT78742
Retaining clip for PT socket PT7874P		PT17021
Marking tag		YPT16040
DIN rail mounted plug-in socket for PT2 relays, 8 pole, 12A (2 C/O)		YPT78702
DIN rail mounted plug-in socket for PT3 relays, 11-pole, 10A (3 C/O)		YPT78703
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 C/O)		YPT78704
DIN rail mounted plug-in socket for PT5 relays, 14-pole, 6A (4 C/O) with protection diode		YPT78110
Retaining clip		YPT16016
Retaining clip for PT socket PT78xx		PT17024
Jumper bar, 12A, for connection of up to 6 PT sockets YPT78...		PT170R6
PCB socket for PT5 relays, 4-pole, 6A		PT78604
Retaining clip metal		PT28800
Retaining clip metal for PCB socket		PT28802
Marking tag for socket PT787...		PT17040
LED module, red, 6-24VAC/DC, EM07		YMLRA024
LED module, red, 6-24VDC, A1+, EM18		YMLRD024-A
LED module, red, 6-24VDC, A1-, EM08		YMLRD024
LED module, red, 110-230VAC, EM06		YMLRW230
LED module, green, 6-24VAC/DC, EM11		YMLGA024
LED module, green 6-24VDC with protection diode, A1+, EM12		YMLGD024
LED module, green, 110-230VAC, EM10		YMLGW230
Protection diode module 6-230VDC, A1+, EM09		YMF DG230
RC Network module 6-60VAC, EM02		YMRCW024
RC Network module 110-230VAC, EM03		YMRCW230
Varistor module, 24VAC, EM04		YMV AW024
Varistor module 230VAC, EM05		YMV AW230



Relay Sockets for Schrack, Series MT



YMR78700



YMR78701



MT78740



MTMF0W00

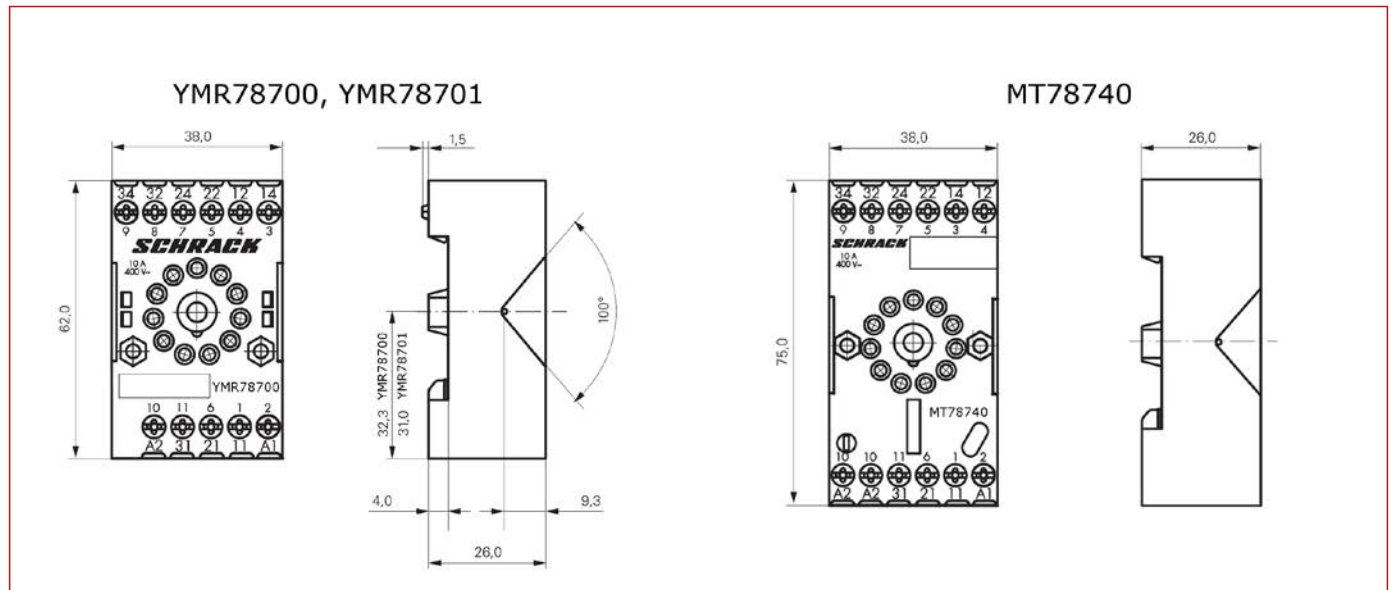
Schrack-Info

- DIN rail snap mounting
- Screw mounting with centering screw
- Pozidrive screws with lift terminals
- Logical arrangement of I/O terminals
- White labelling field

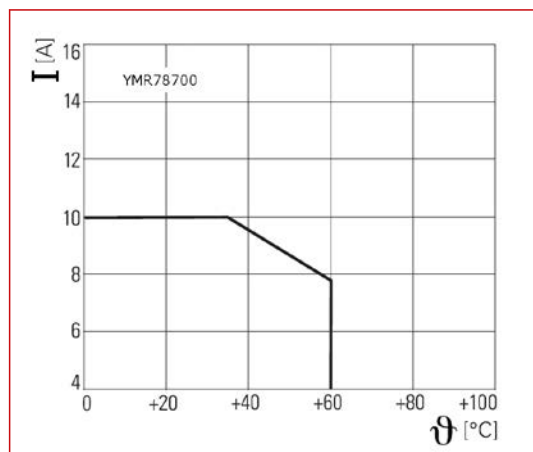


Mobil Code

Dimensions (mm)



Reduction Curve

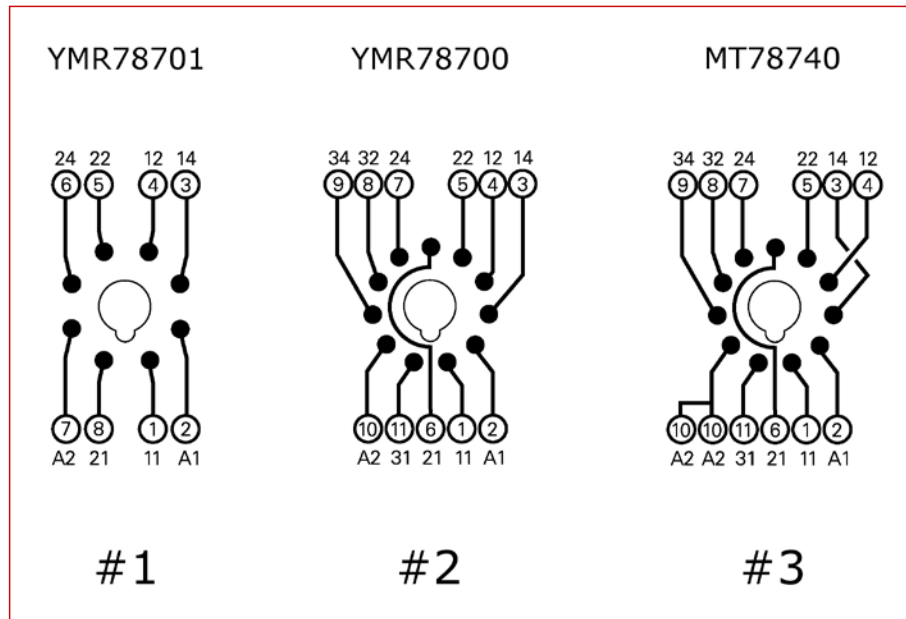


Reduction Curve

I	DC current in [A]
Θ	Ambient temperature in [°C]

Relay Sockets for Schrack, Series MT

Circuit Diagrams



Time Module Functionalities



Circuit Diagrams and Time module Functionalities

#1	2 CO
#2	3 CO
#3	3-pole

A	Response delayed MTMZOW00, MTMFOW00
B	Reset delayed MTMFOW00
C	Single shot leading edge with pulse control MTMFOW00
D	Single shot trailing edge MTMFOW00
E	Response delayed with control contact MTMFOW00
F	Single shot leading edge MTMFOW00
G	Flashing pause starting MTMFOW00
H	Flashing pulse starting MTMFOW00

Relay Sockets for Schrack, Series MT




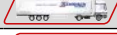

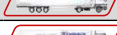

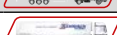

Technical Data

YMR78700, YMR78701, MT78740

Rated current		10A
Rated voltage/ max. switching voltage		240/400V~
Dielectric strength	Coil-contact set	2500V _{eff}
	Open contact	1500V _{eff}
	Adjacent contacts	2500V _{eff}
Clearance/ creepage	Coil contact circuit	≥ 2.8/4mm
Insulation to IEC 60664-1	Coil-contact set	Basic
	Open contact	Functional
	Adjacent contact	Basic
Rated insulation voltage		250V
Pollution degree		2
Overvoltage category		III
		-20... +80°C
		IP20
Mounting distance		> 0 dense packing
Contact protection		VBG 4
Mounting/ rail		DIN50024/ 22
Terminal capacity		2 x 2,5mm ²
Terminal torque in according to IEC 61984		0,5Nm
	Max.	0,7Nm

Function Modules for Socket MT78740

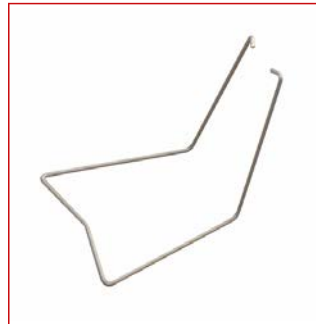
Rated voltage	24...240VDC / AC~
Mains frequency	48...63Hz
Repeat accuracy	± 0.5%
Repeatability	≤ 0.5% or 5ms
Temperature influence	≤ 0.1% pro °C
Time ranges switchable	0.05s...240h in 8 ranges
Ambient temperature	-25...+55°C

DESCRIPTION	AVAILABLE	ORDER NO.
DIN rail mounted plug-in socket for MT2 relays, 8 pole, 10A (2 CO) with screw terminals, not compatible with function modules		YMR78701
DIN rail mounted plug-in socket for MT3 relays and timer relays series ZR4, 11-pole, 10A (3 CO), with screw terminals, not compatible with function modules		YMR78700
DIN rail mounted plug-in socket for MT3 relays, 11-pole, 10A (3 CO), with screw terminals, compatible with function modules		MT78740
LED module red 24VAC/DC for socket MT78740		MTML0024
Protection diode module 1N4007 (A1 +, A2 -) for socket MT78740		MTMT00A0
RC-Network module 110 - 240VAC for socket MT78740		MTMU0730
Single function module Delay ON for socket MT78740		MTMZ0W00
Multifunction module for socket MT78740		MTMFOW00
Metal retaining clip		MT28800

Relay Sockets for Schrack, Serie RM



RM78705



RM28802

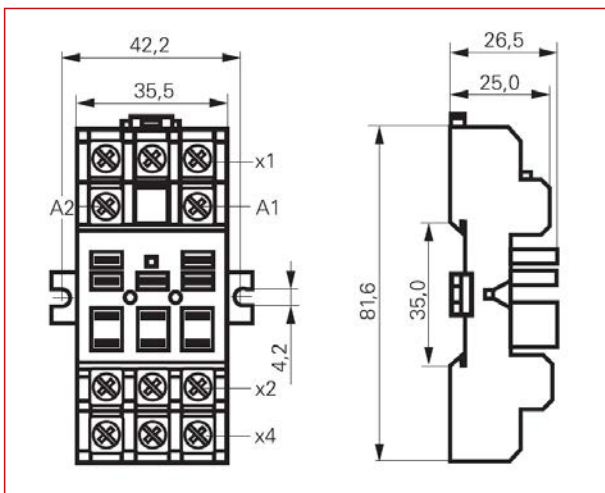
Schrack-Info

- 3 poles 16A
- RM socket for RM772x types (Faston 187):RM772



Mobil Code

Dimensions (mm)



Technical Data

Rated current		16A
Rated voltage		250V~
Dielectric strength	Coil-contact set	2500V _{rms}
	Open contact	1500V _{rms}
	Adjacent contact	2500V _{rms}
Clearance / creepage coil-contact circuit		≥ 4.0 / 14.9mm
Insulation to IEC 60664-1		
Type of insulation	Coil-contact set	Basic
	Open contact	Functional
	Adjacent contact	Basic
Rated insulation voltage		250V
Pollution degree		2
Overvoltage category		III
Ambient temperature		-40...+40°C
Terminals		Screw terminals
Terminal torque according to IEC 61984		0.8Nm
	Max.	1.2Nm
Terminal capacity	Copper wire	2 x 2.5mm ²
	Stranded wire	2 x 2.5mm ²
	With ferrule (DIN 46228/1)	2 x 1.5mm ²

DESCRIPTION	AVAILABLE	ORDER NO.
DIN rail mounted plug-in socket, 11-pole, up to 16A, for Faston 187		RM78705
Retaining Clip		RM28802

Print Relay Sockets for Schrack, Series RP5



RP78600



RP16100

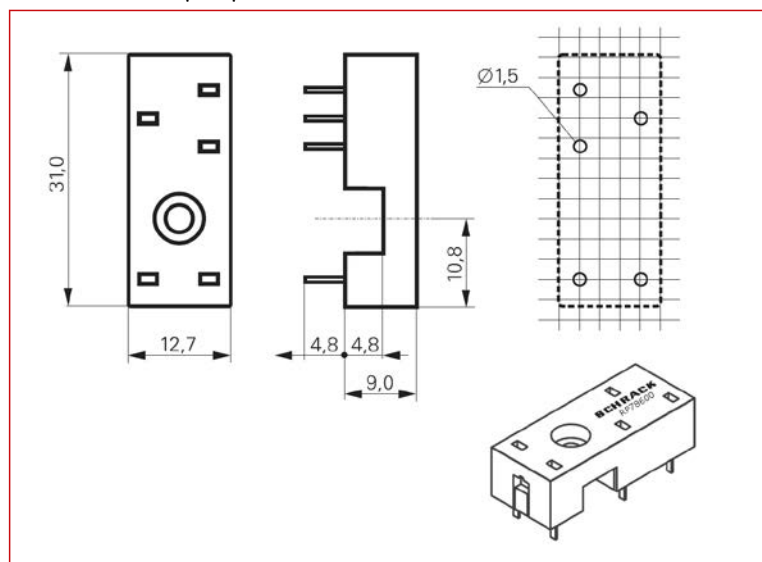
Schrack-Info

- Print socket for 2.5mm Pinning
- Matches Relay Series RP5



Mobil Code

Dimensions (mm)

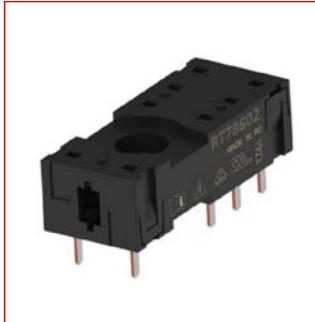


Technical Data

Rated current		12A
Rated voltage / max. switching voltage AC		240 / 400V~
Dielectric strength	Coil-contact set	4000V _{rms}
Clearance / creepage	Coil-contact circuit	≥ 4 / 4mm
Insulation to IEC 60664-1		
Type of insulation	Coil-contact set	Basic
	Open contact	Functional
Rated insulation voltage		250V
Pollution degree		2
Overvoltage category		III
Ambient temperature		-40...+80°C
Degree of protection DIN 40050		IP20
Terminals		PCB
Insertion cycles		A (10)
Max. insertion force total		100N
Mounting distance		Tight package
Resistance to soldering heat		270°C / 10s

DESCRIPTION	AVAILABLE	ORDER NO.
PCB socket for RP5 relays with 2.5mm pinning		RP78600
Bracket for PCB socket series RP5		RP16100

Print Relay Sockets for Schrack, Series RT



RT78602



RP78601



RT28516



RT16041

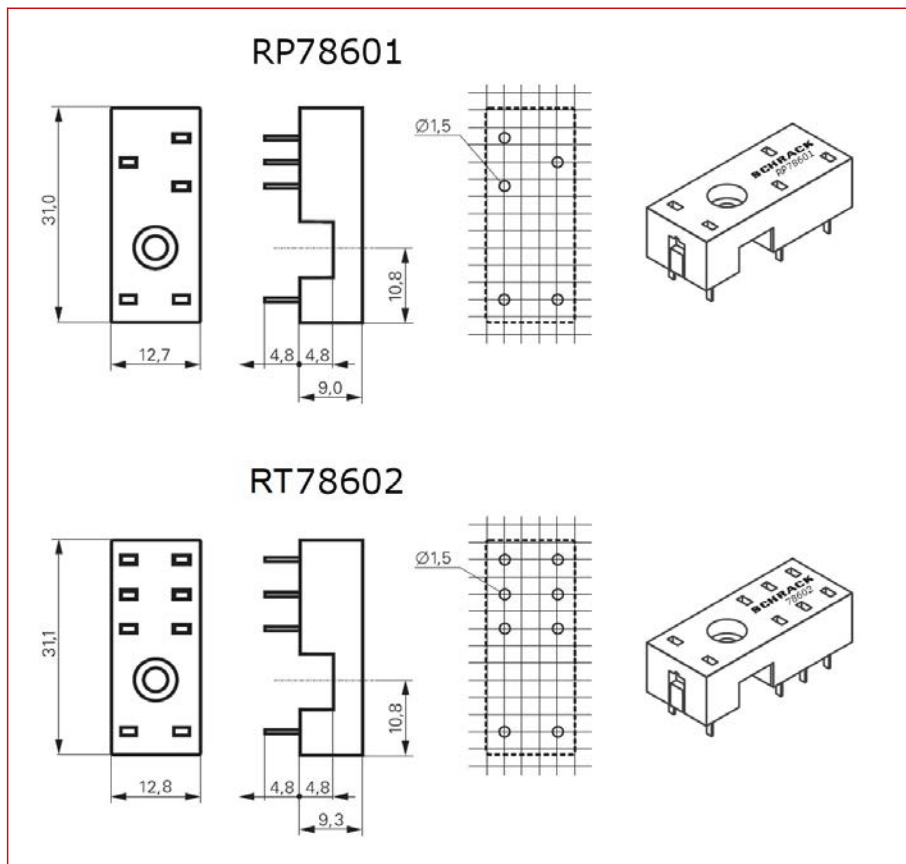
Schrack-Info

- PCB socket for 3.5mm and 5mm Pinning
- Compatible with Relay Series RT



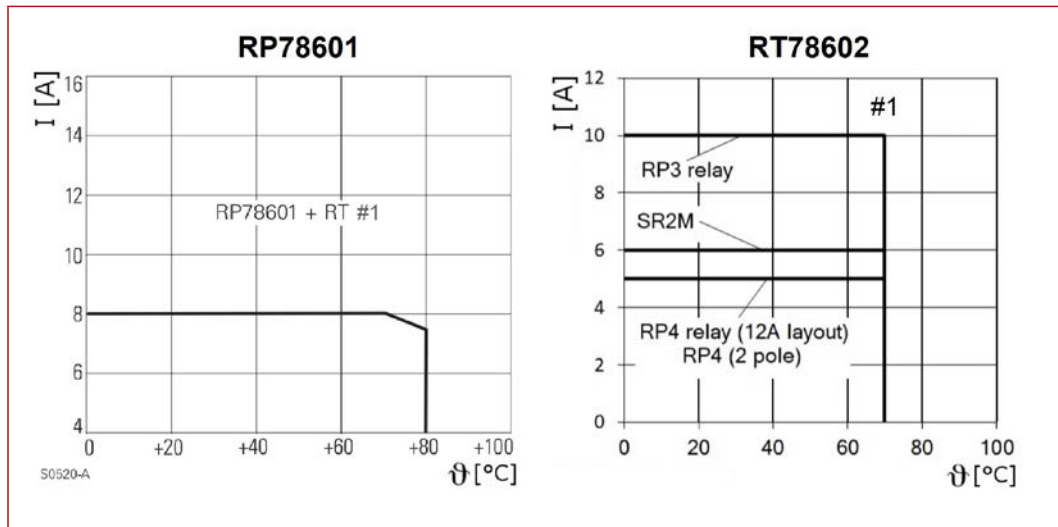
Mobil Code

Dimensions (mm)



Print Relay Sockets for Schrack, Series RT

Reduction Curves



Reduction Curves

#1	Tight package
I	DC current in [A]
ϑ	Ambient temperature in [°C]

Technical Data

RP78601, RT78602

Rated current		12A*
Rated voltage / max. switching voltage AC		240 / 400V~
Limiting continuous current		See reduction curve
Dielectric strength	Coil-contact set	4000V _{rms}
	Open contact	1000V _{rms}
	Adjacent contacts	2500V _{rms}
Clearance / creepage	Coil-contact circuit RT	> 10 / 10mm
	Coil-contact circuit RP	> 8 / 8mm
Insulation to IEC 60664-1		
Type of insulation	Coil-contact set	Reinforced
	Open contact	Functional
	Adjacent contact	Functional
Rated insulation voltage		250V
Pollution degree		2
Overvoltage category		III
Ambient temperature		-40...+80°C
Degree of protection DIN 40050		IP20
Terminals		PCB
Mounting distance		Tight package

*] For 1 pole relays (16A) the relay terminals 11-21, 12-22 and 14-24 have to be bridged on the PCB.

DESCRIPTION	AVAILABLE	ORDER NO.
PCB socket for RT relays, 3.5mm pinning		RP78601
Retaining clip for PCB socket RT, metal		RT28516
Retaining clip for PCB sockets RT, plastic		RT16041
PCB socket for RT relays, 5.0mm pinning		RT78602

Print Relay Sockets for PT Relays



PT78604



PT78604



PT28802

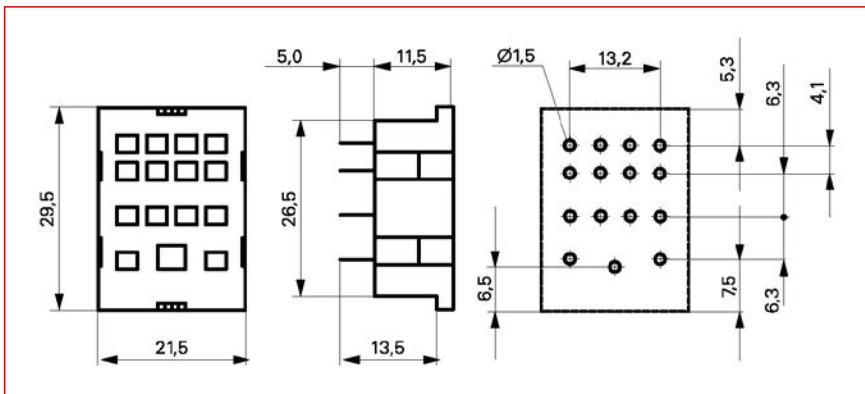
Schrack-Info

Print socket, 4 poles, 6A



Mobil Code

Dimensions (mm)

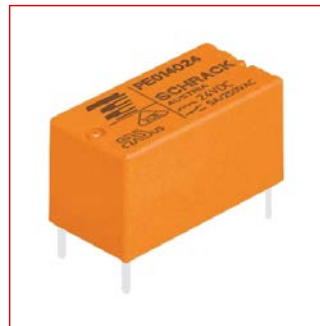


Technical Data

		4-pole
Rated current		6A
Rated voltage / max. switching voltage AC		250V~
Limiting continuous current		See reduction curve
Dielectric strength	Coil / contact set	2500V _{rms}
	Open contact	1200V _{rms}
	Adjacent contacts	2000V _{rms}
Clearance / creepage	Coil contact circuit	≥ 4 / 4mm
	Adjacent contact circuits	≥ 1.8 / 3.5mm
Insulation to IEC 60664-1		
Type of insulation	Coil-contact set	Basic
	Open contact	Functional
	Adjacent contact	Functional
Rated insulation voltage		250V
Pollution degree		2
Overvoltage category		III
Ambient temperature		-40...+80°C
Terminals		Screw terminals
Terminal torque according to IEC 61984		0.5Nm
	Max.	0.7Nm
Terminal capacity	Copper wire	2 x 2.5mm ²
	Stranded wire	2 x 2.5mm ²
	With ferrule (DIN 46228/1)	2 x 1.5mm ²

DESCRIPTION	AVAILABLE	ORDER NO.
PCB socket for PT5 relays, 4-pole, 6A		PT78604
Retaining clip metal for PCB socket		PT28802

Print Relays Schrack, Series PE



PE014024

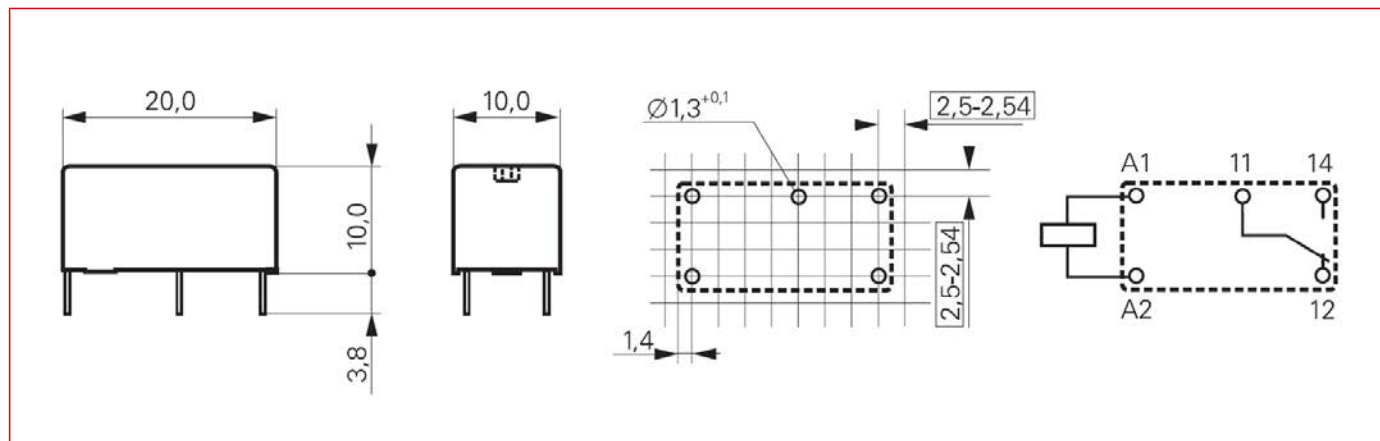
Schrack-Info

- 1 CO, 5A
- Coil 5 up to 24VDC
- 2.5mm Pinning
- Low component height of 10mm
- Coil power rating: 200mW
- Cadmium-free contact material
- Ambient temperature 85°C
- For industrial equipment electronics, battery powered devices



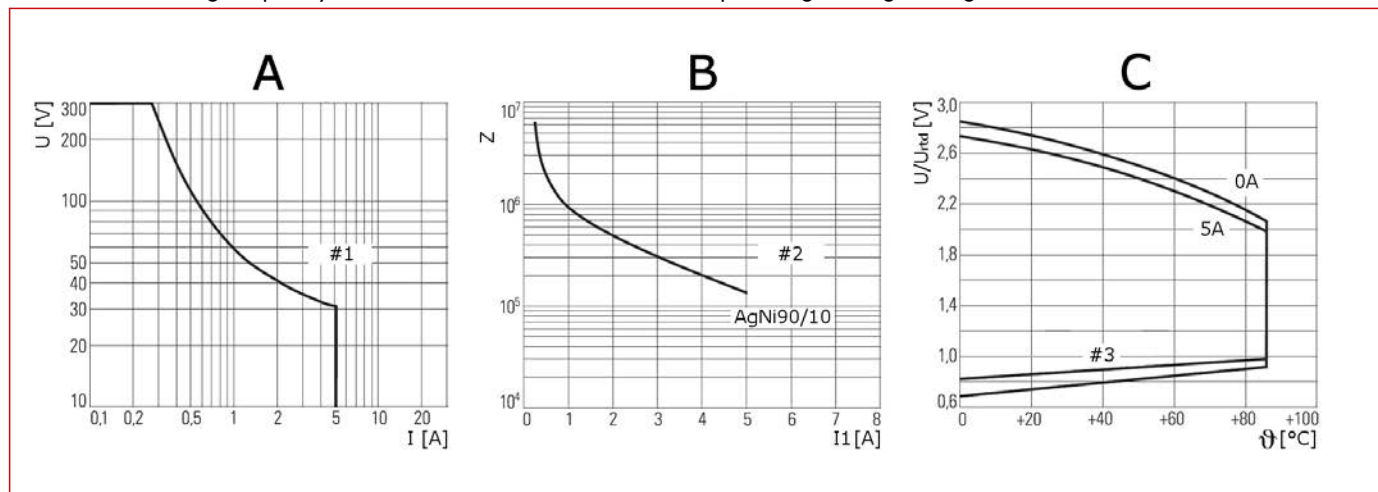
Mobil Code

Dimensions (mm)



Print Relays Schrack, Series PE

Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range



Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range

A	Max. DC rated breaking capacity	I	DC current in [A]
B	Electrical endurance	I1	Switching current [A]
C	Coil operating range DC	U	DC voltage in [V]
#1	Resistive load	U/U_{rtd}	Coil voltage in [V]
#2	250VAC resistive load	Z	Cycles
#3	U _{rtd} Rated coil voltage	Θ	Ambient temperature in [°C]

Technical Data

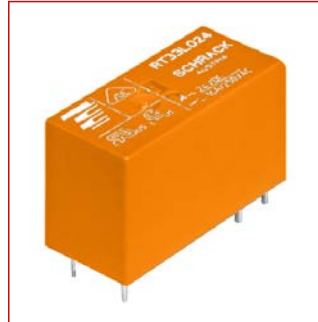
Contact Data		
Number of contacts and type		1 CO contact
Rated current		5A
Rated voltage / max. switching voltage AC		250 / 400V
Max. rated breaking capacity AC		1250V
Contact material		AgNi 90 / 1
Frequency of operation	With Load	360 ops/h
	Without Load	72000 ops/h
Operate release time		typ. 8 / 8m
Bounce time		typ. 4 / 6m
Coil Data		
Operative range, IEC 61810		2
Insulation Data		
Initial dielectric strength	Open contacts	1000V _{rms}
	Contact and coil	4000V _{rms}
Initial insulation resistance	Open contact set	> 10 x 10 ⁹ Ω
	Coil contact set	
Clearance/ creepage	Contact and coil	≥ 3.2 / 4mm
Ambient temperature		-40...+85°C

DESCRIPTION	CONTACT MATERIAL	AVAILABLE	ORDER NO.
5VDC, 1 C/O, 5A	AgNi 90/10		PE014005
12VDC, 1 C/O, 5A	AgNi 90/10		PE014012
24VDC, 1 C/O, 5A	AgNi 90/10		PE014024

Print Relays Schrack, Series RT



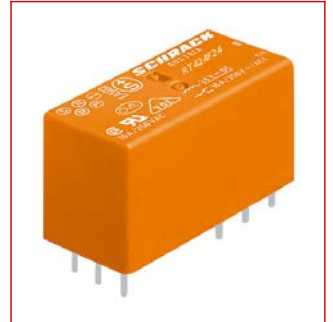
RT1



RT1 Inrush



RT2



RT2 Bistabil

Schrack-Info

RT1

- 1 pole 12/16A, AC or DC coil
- 1 CO or 1 NO
- Sensitive coil 400mW/0.75VA
- 5kV, 10mm coil/contact
- Appliance class II (VDE 0700)
- Safe disconnection compliant with VDE 0160 in combination with socket YRT78626
- Ambient temperature 85°C (DC coil)
- Low component height 15.7mm
- Gold plated contacts available
- Print and screw type sockets
- For boiler controls, timer relays, garage door controls, vending machines, interface modules

RT1 Inrush and High Inrush

- 1 pole 16A, for high peak inrush current
- 1 NO
- RTS3T024 (= High Inrush) with Tungsten early-make contact
- Sensitive coil 400mW
- 5kV, 10mm coil/contact
- Appliance class II (VDE 0700)
- Ambient temperature 85°C

- Low component height 15.7mm
- Print and screw type sockets
- For heating controls, light controls, building automation

RT2

- 2 poles 8A, AC or DC coil
- 2 CO
- Sensitive coil 400mW
- 5kV, 10mm coil/contact
- Appliance class II (VDE 0700)
- Safe disconnection compliant with VDE 0160 in combination with socket YRT78626
- Low component height 15.7mm
- Print and screw type sockets
- For heating controls, emergency lighting, modems

RT2 Bistable

- 2 poles 8A
- 2 CO
- Bistable version with one (= RT424A24) or two coils (RT424F12 or RT424F24)
- Reinforced insulation
- For battery powered devices or memory storage applications



Mobil Code

Print Relays Schrack, Series RT

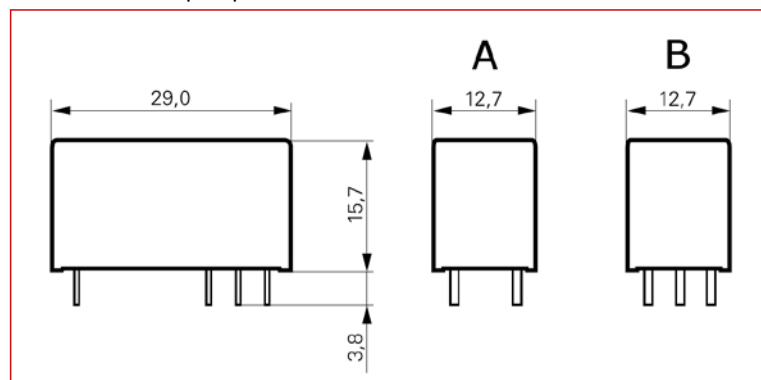
RT Overview

Relais	Number of contacts and type	Rated current [A]	Coil		Pinning [mm]	Contact material	RT1	RT1 Inrush	RT1 High Inrush	RT2	RT2 Bistable
			DC	12V							
RT114012	1 CO	12	DC	12V	3.5	AgNi90/10	X				
RT114024	1 CO	12	DC	24V	3.5	AgNi90/10	X				
RT114524	1 CO	12	AC	24V	3.5	AgNi90/10	X				
RT214012	1 CO	12	DC	12V	5	AgNi90/10	X				
RT214024	1 CO	12	DC	24V	5	AgNi90/10	X				
RT214730	1 CO	12	AC	230V	5	AgNi90/10	X				
RT314005	1 CO	16	DC	5V	5	AgNi90/10	X				
RT314012	1 CO	16	DC	12V	5	AgNi90/10	X				
RT314024	1 CO	16	DC	24V	5	AgNi90/10	X				
RT334024	1 NO	16	DC	24V	5	AgNi90/10	X				
RT314110	1 CO	16	DC	110V	5	AgNi90/10	X				
RT314524	1 CO	16	AC	24V	5	AgNi90/10	X				
RT314730	1 CO	16	AC	230V	5	AgNi90/10	X				
RT315730	1 CO	16	AC	230V	5	AgNi90/10 hgp*	X				
RT33K012	1 NO	16	DC	12V	5	AgNi90/10		X			
RT33K024	1 NO	16	DC	24V	5	AgNi90/10		X			
RT31L024	1 CO	16	DC	24V	5	AgSnO ₂		X			
RTS3T024	1 NO	16	DC	24V	5	T** + AgSnO ₂			X		
RT424006	2 CO	8	DC	6V	5	AgNi90/10				X	
RT424012	2 CO	8	DC	12V	5	AgNi90/10				X	
RT424024	2 CO	8	DC	24V	5	AgNi90/10				X	
RT425024	2 CO	8	DC	24V	5	AgNi90/10 hgp*				X	
RTE24024	2 CO	8	DC	24V	5	AgNi90/10				X	
RT424048	2 CO	8	DC	48V	5	AgNi90/10				X	
RT424060	2 CO	8	DC	60V	5	AgNi90/10				X	
RT424110	2 CO	8	DC	110V	5	AgNi90/10				X	
RT424524	2 CO	8	AC	24V	5	AgNi90/10				X	
RT424548	2 CO	8	AC	48V	5	AgNi90/10				X	
RT424615	2 CO	8	AC	115V	5	AgNi90/10				X	
RT425615	2 CO	8	AC	115V	5	AgNi90/10 hgp*				X	
RT424730	2 CO	8	AC	230V	5	AgNi90/10				X	
RT425730	2 CO	8	AC	230V	5	AgNi90/10 hgp*				X	
RT424A24	2 CO	8	DC	24V	5	AgNi90/10					X
RT424F12	2 CO	8	DC	12V	5	AgNi90/10					X
RT424F24	2 CO	8	DC	24V	5	AgNi90/10					X

*hgp = hard gold-plated

**Tungsten pre-contact

Dimensions (mm)

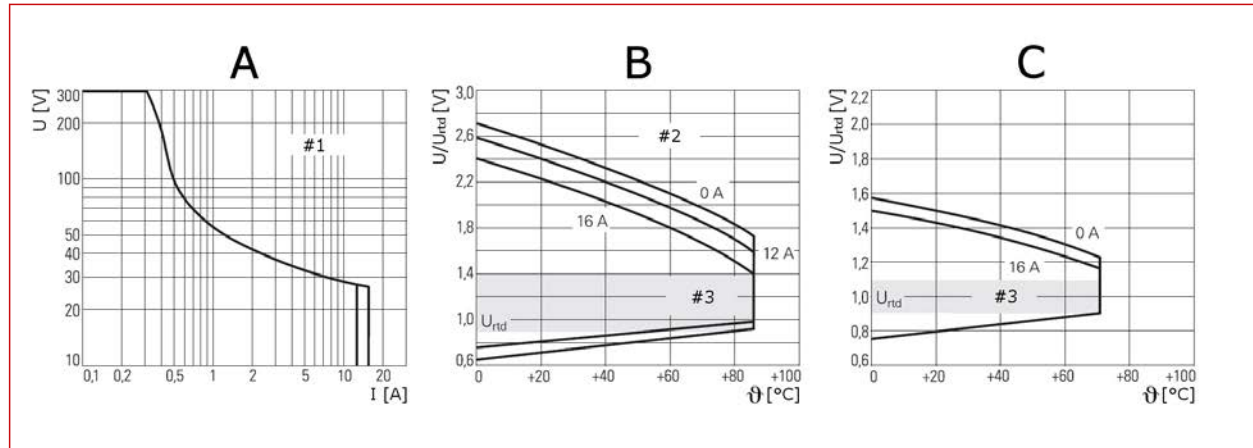


Dimensions

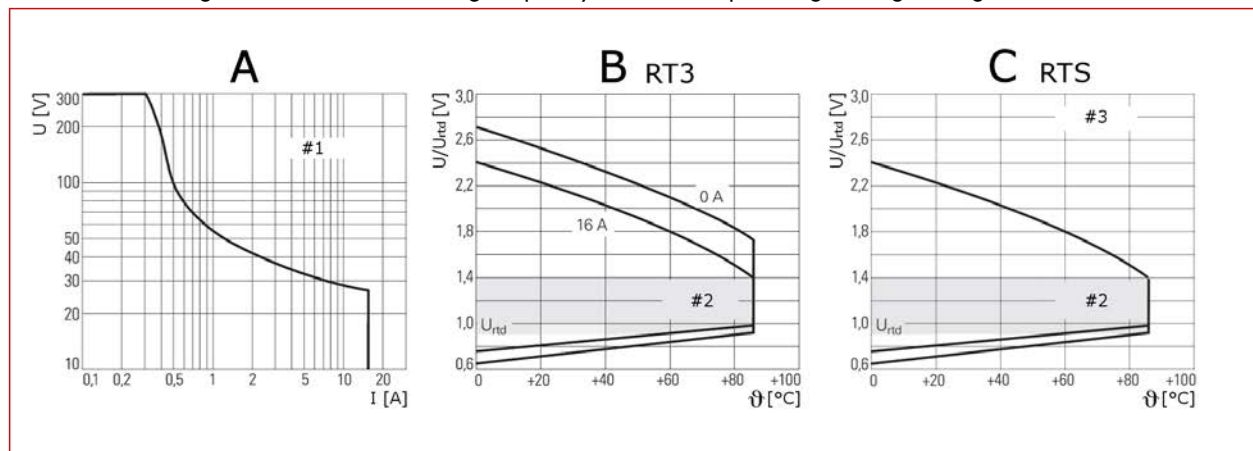
A	RT1, RT1 Inrush, RT1 High Inrush, RT2 und RT2 Bistable 1 coil (RT424A24)
B	RT2 Bistable 2 coils (RT424F12 bzw. RT424F24)

Print Relays Schrack, Series RT

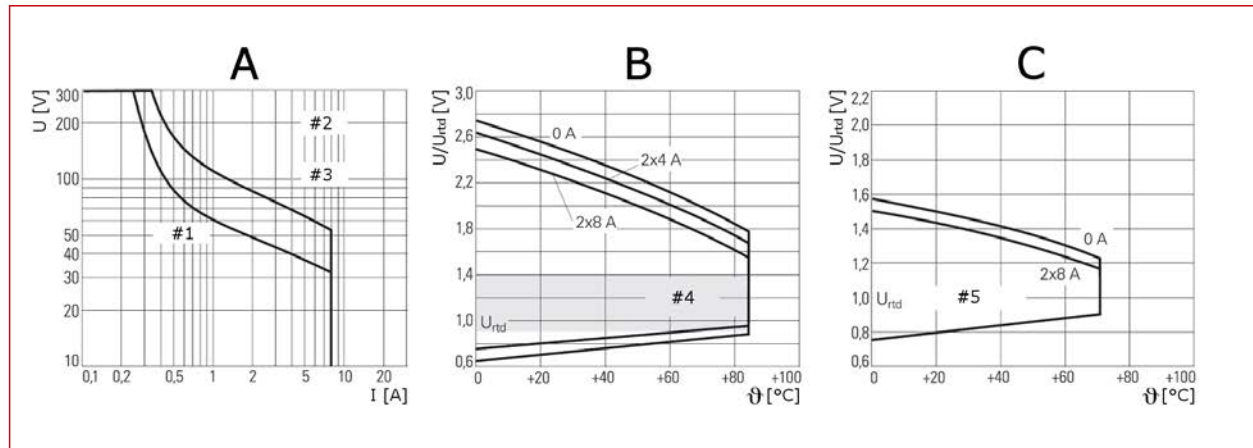
Rated Breaking Capacity and Coil Operating Voltage Range RT1



Inrush and High Inrush Rated Breaking Capacity and Coil Operating Voltage Range RT1

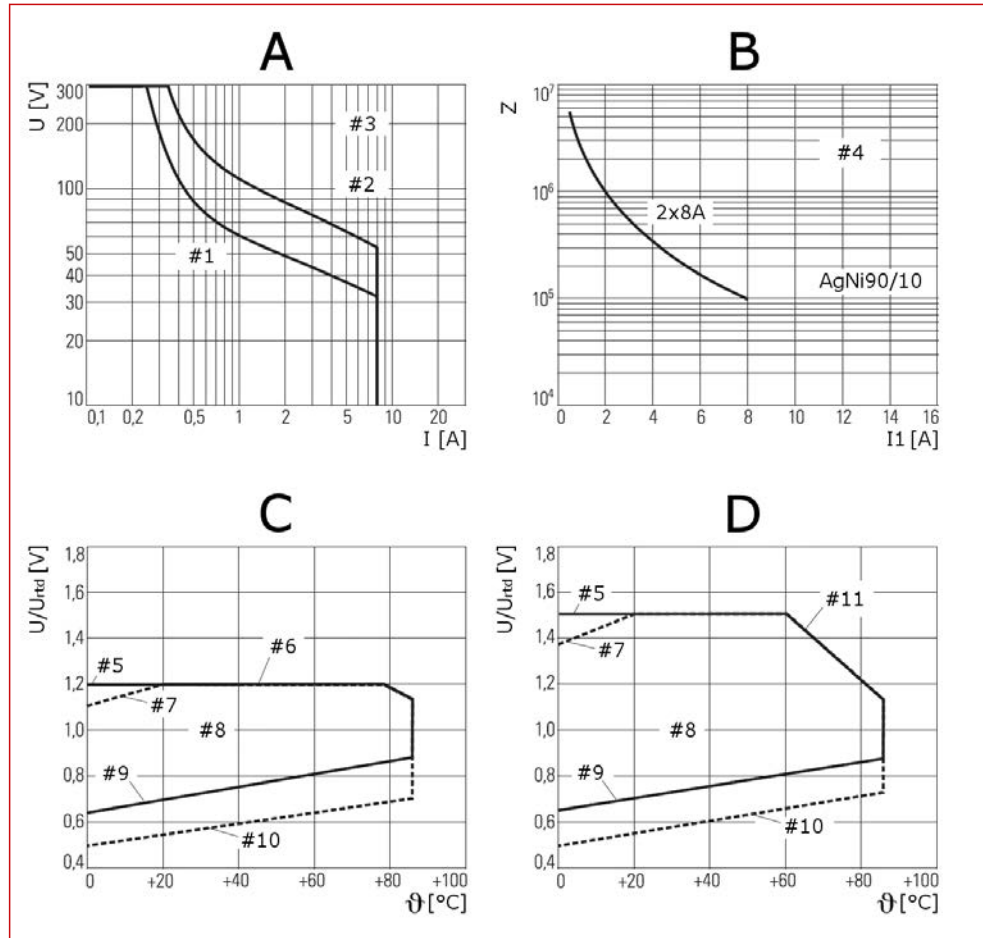


Rated Breaking Capacity and Coil Operating Voltage Range RT2



Print Relays Schrack, Series RT

Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range RT2 Bistable



Print Relays Schrack, Series RT

Rated Breaking Capacity and Coil Operating Voltage Ranges

RT1

A	Max. DC rated breaking capacity
B	Coil operating range DC
C	Coil operating range AC
#1	Resistive load
#2	16A version
#3	Recommended voltage range in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
θ	Ambient temperature in [°C]

RT2

A	Max. DC rated breaking capacity
B	Coil operating range DC
C	Coil operating range AC
#1	1 contact
#2	2-pole resistive load
#3	2 contacts in series
#4	Recommended voltage range in [V]
#5	Rated coil voltage in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
θ	Ambient temperature in [°C]

RT1 Inrush und High Inrush

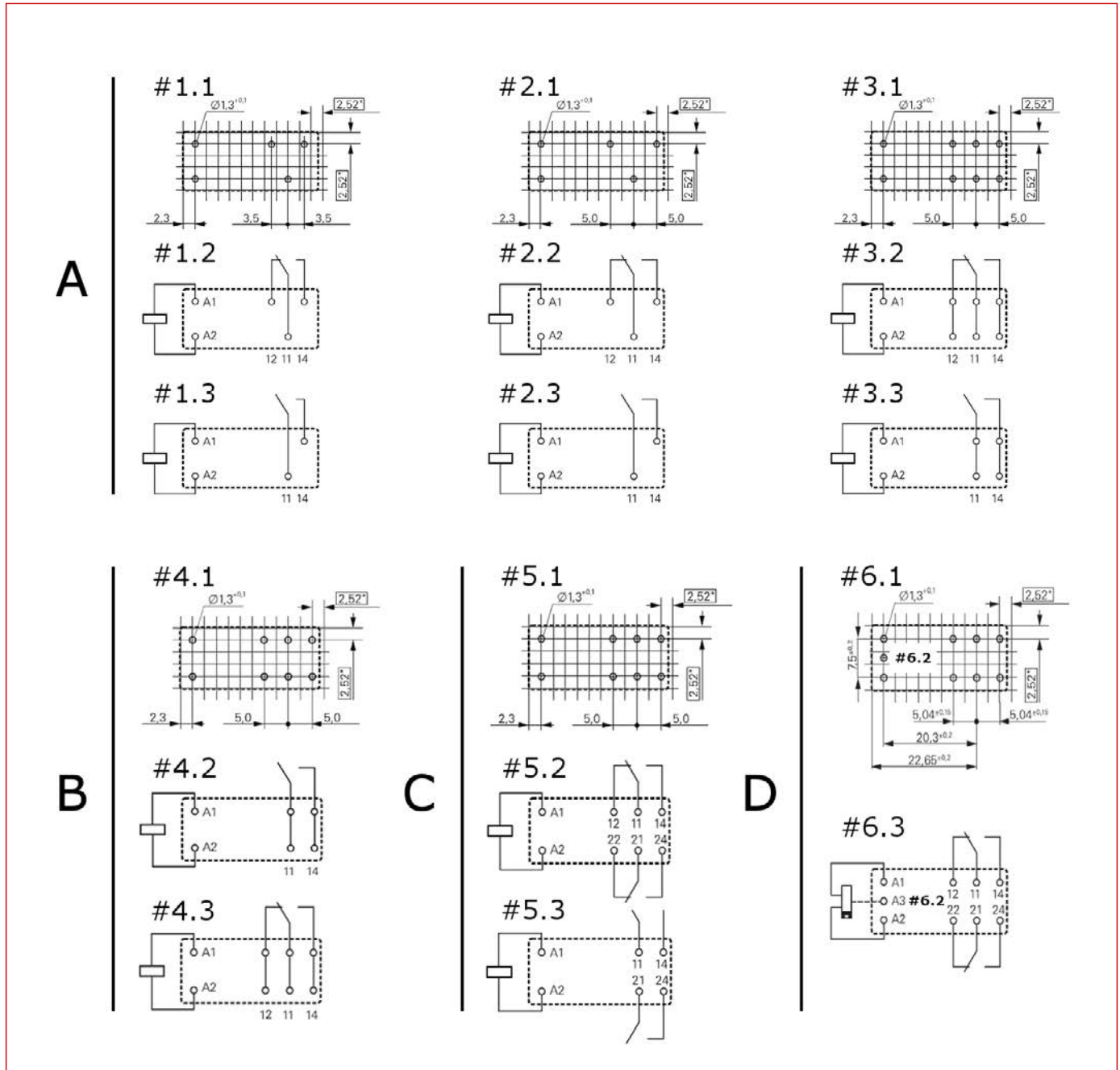
A	Max. DC rated breaking capacity
B	Coil operating range DC (RT3)
C	Coil operating range DC (RTS)
#1	Resistive load
#2	Recommended voltage range in [V]
#3	Monostable version
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
θ	Ambient temperature in [°C]

RT2 Bistable

A	Max. DC rated breaking capacity
B	Electrical endurance
C	Coil operating range, 1 coil
D	Coil operating range, 2 coils
#1	1 contact
#2	2 contacts in series
#3	2-pole resistive load
#4	250VAC resistive load
#5	Max. SET
#6	Max. SET and RESET 16A, 2 x 8A
#7	Max. RESET
#8	U _{rtd} Rated coil voltage
#9	SET
#10	RESET
#11	Max. SET and RESET
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
I1	Switching current in [A]
Z	Cycles
θ	Ambient temperature in [°C]

Print Relays Schrack, Series RT

Wiring diagrams



Circuit Diagrams

A	RT1
B	RT1 Inrush and High Inrush
C	RT2
D	RT2 Bistable
#1.1	12A, pinning 3.5mm
#1.2	1 CO
#1.3	1 NO
#2.1	12A, pinning 5mm
#2.2	1 CO
#2.3	1 NO
#3.1	16A, pinning 5mm

#3.2	1 CO
#3.3	1 NO
#4.1	16A, pinning 5mm
#4.2	1 NO
#4.3	1 CO
#5.1	8A, pinning 5mm
#5.2	2 CO
#5.3	2 NO
#6.1	8A, pinning 5mm
#6.2	For 2 coil version only
#6.3	2 CO

General Info
View of the terminals, dimensions in mm
Equipping with indicated hole diameter also possible in 2.5mm or 2.54mm contact spacing

Print Relays Schrack, Series RT

Technical Data (Part 1)

		RT1	
Contact Data		12A	16A
Number of contacts and type		1 CO or 1 NO contact	
Contact style		Single contact	
Rated current		12A	16A
Rated voltage / max. switching voltage AC		250 / 400 V~	
Limiting continuous current		12A	16A, UL: 20A
Max. rated breaking capacity AC		3000VA	4000VA
Limiting making current (max. 4s at 10% DF)		25A	30A
Contact material		AgNi 90/10, AgNi 90/10 hard gold plated	
Coil Data			
Rated voltage	DC coil	5...110V	
	AC coil	24...230V~	
Rated power	DC coil	400mW	
	AC coil	0.74VA	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation- / release voltage / coil resistance at ambient temperature 23°C	24VDC coil	16.8V / 2.4V / 1440Ω ± 10%	
	230VAC coil	172.5V / 34.5V / 32500Ω ± 10%	

RT1 Inrush and High Inrush			
Contact Data		RT3	RT5
Number of contacts and type		1 CO oder 1 NO	1 NO
Contact style		Single contact	
Rated current		16A	
Rated voltage / max. switching voltage AC		250 / 400V~	
Limiting continuous current		16A	
Max. rated breaking capacity AC		4000VA	
Limiting making current		30A (max. 4s at 10% DF)	165A (max. 20ms incandescent lamps) 800A (max. 200µs fluorescent lamps)
Contact material		AgNi 90/10, AgSnO ₂	W (lead contact) + AgSnO ₂
Coil Data			
Rated voltage		5...110VDC	
Rated power		400mW	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation- / release voltage / coil resistance at ambient temperature 23°C	24VDC coil	16.8V / 2.4V / 1440Ω ± 10%	
	230VAC coil	-	172.5 V / 34.5V / 32500Ω ± 10%

 Print Relays Schrack, Series RT

 Technical Data (Part 2)
RT2

Contact Data		8A	
Number of contacts and type		2 CO	
Contact style		Single contact	
Rated current		8A	
Rated voltage / max. switching voltage AC		250V / 400V~	
Limiting continuous current		8A, UL: 10A	
Max. rated breaking capacity AC		2000VA	
Limiting making current (max. 4s at 10% DF)		15A	
Contact material		AgNi 90/10, AgNi 90/10 hard gold plated	
Coil Data			
Rated voltage	DC coil	5...110V	
	AC coil	24...230V~	
Rated power	DC coil	400mW	
	AC coil	0.74VA	
Operative range, IEC 61810		2	
Coil insulation system according to UL1446		Class F	
Operation- / release voltage / coil resistance at ambient temperature 23°C	24VDC coil	16.8V / 2.4V / 1440Ω ± 10 %	
	230VAC coil	172.5V / 34.5V / 32500Ω ± 10 %	

RT2 Bistable

Contact Data		8A	
Number of contacts and type		2 CO	
Rated current		8A, UL: 10A	
Rated voltage / max. switching voltage AC		250 / 400V~	
Limiting continuous current		8A, UL: 10A	
Max. rated breaking capacity AC		2000VA	
Limiting making current (max. 4s at 10% DF)		15A	
Contact material		AgNi 90/10	
Frequency of operation	With Load	900h ⁻¹	
	Without Load	72000h ⁻¹	
Operate / release time max.		10 / 5ms	
Bounce time		4 / 9ms	



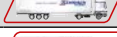

















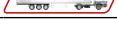
Coil Data		1 coil	
Magnetic system		Bistable	
Operative range, IEC 61810		2	
Coil voltage range DC		24V	
Limiting voltage, % of rating voltage		120%	
Energization duration at < 10% duty factor	Min.	30ms	
	Max.	1min.	
Coil insulation system according to UL1446		Class F	
Bistable Coils - Operation*		1 coil	
Coil terminals		A1	A2
Operate		+	-
Reset		-	+

Coil Data		2 coils	
Magnetic system		Bistable	
Operative range, IEC 61810		2	
Coil voltage range DC		12 / 24V	
Limiting voltage, % of rating voltage		150%	
Energization duration at < 10% duty factor	Min.	30ms	
	Max.	1min.	
Coil insulation system according to UL1446		Class F	
Bistable Coils - Operation*		2 coils	
Coil terminals		A1	A2
Operate		+	-
Reset		-	+

Insulation Data			
Initial dielectric strength	Open contacts	1000V _{rms}	
	Contact and coil	5000V _{rms}	
	Adjacent contacts	2500V _{rms}	
Clearance / creepage	Contact and coil	> 10 / 10mm	
	Adjacent contacts	> 3 / 4mm	
Ambient temperature	Bistable 1 coil	-10...+85°C	
	Bistable 2 coils	-40...+85°C	

*Contact position not defined at delivery

Print Relays Schrack, Series RT

DESCRIPTION	CONTACT MATERIAL	PINNING	AVAILABLE	ORDER NO.
Print Relays RT1, 16A				
12VDC, 1 C/O, 12A	AgNi 90/10	3.5		RT114012
24VDC, 1 C/O, 12A	AgNi 90/10	3.5		RT114024
24VAC, 1 C/O, 12A	AgNi 90/10	3.5		RT114524
12VDC, 1 C/O, 12A	AgNi 90/10	5		RT214012
24VDC, 1 C/O, 12A	AgNi 90/10	5		RT214024
230VAC, 1 C/O, 12A	AgNi 90/10	5		RT214730
Print Relays RT1, 16A				
5VDC, 1 C/O, 16A	AgNi 90/10	5		RT314005
12VDC, 1 C/O, 16A	AgNi 90/10	5		RT314012
24VDC, 1 C/O, 16A	AgNi 90/10	5		RT314024
24VAC, 1 C/O, 16A	AgNi 90/10	5		RT314524
230VAC, 1 C/O, 16A	AgNi 90/10	5		RT314730
230VAC, 1 C/O, 16A, gold plated	AgNi 90/10, htv	5		RT315730
Print Relays RT1 Inrush				
12VDC, 1 NC, 16A	AgNi 90/10	5		RT33K012
24VDC, 1 NC, 16A	AgNi 90/10	5		RT33K024
Print Relays RT1 High Inrush				
24VDC, 1 NC, 16A	W + AgSnO2	5		RTS3T024
Print Relays RT2				
12VDC, 2 C/O, 8A	AgNi 90/10	5		RT424012
24VDC, 2 C/O, 8A	AgNi 90/10	5		RT424024
24VDC, 2 C/O, 8A, gold plated	AgNi 90/10, htv	5		RT425024
24VDC, 2 C/O, 8A	AgNi 90/10	5		RTE24024
48VDC, 2 C/O, 8A	AgNi 90/10	5		RT424048
60VDC, 2 C/O, 8A	AgNi 90/10	5		RT424060
24VAC, 2 C/O, 8A	AgNi 90/10	5		RT424524
48VAC, 2 C/O, 8A	AgNi 90/10	5		RT424548
115VAC, 2 C/O, 8A	AgNi 90/10	5		RT424615
115VAC, 2 C/O, 8A, gold plated	AgNi 90/10, htv	5		RT425615
230VAC, 2 C/O, 8A	AgNi 90/10	5		RT424730
230VAC, 2 C/O, 8A, gold plated	AgNi 90/10, htv	5		RT425730
Print Relays RT2 Bistable				
24VDC, 2 C/O, 8A	AgNi 90/10	5		RT424A24
12VDC, 2 C/O, 8A	AgNi 90/10	5		RT424F12

Print Relays Schrack, Series RY



RY210012

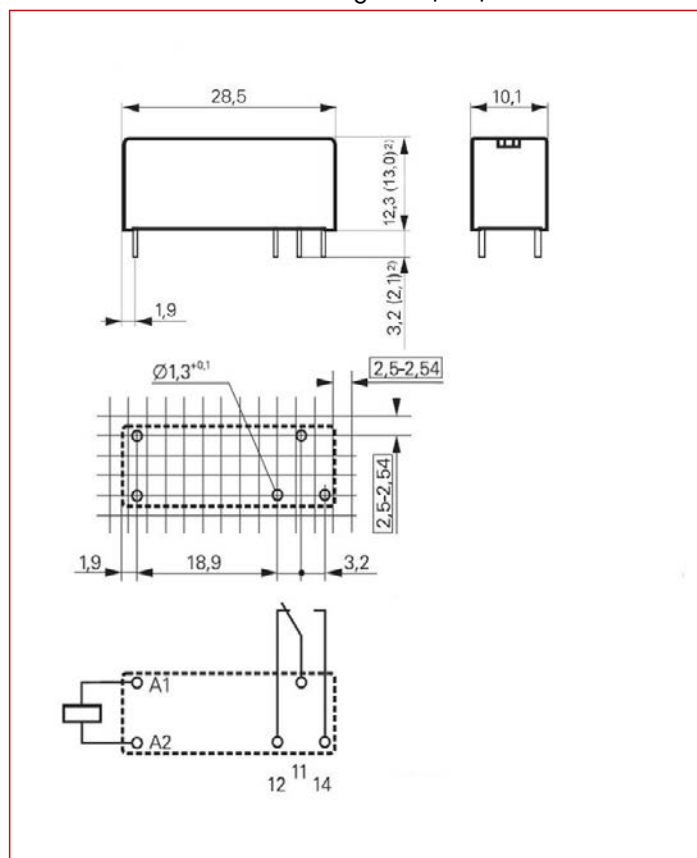
Schrack-Info

- 1 pole 8A
- 1 CO
- Coil 24VDC
- Pinning 3.2 (CO)
- Low component height of 12.3mm
- Reinforced insulation (appliance class II)
- For heating controls, interface technology, timers, thermostats



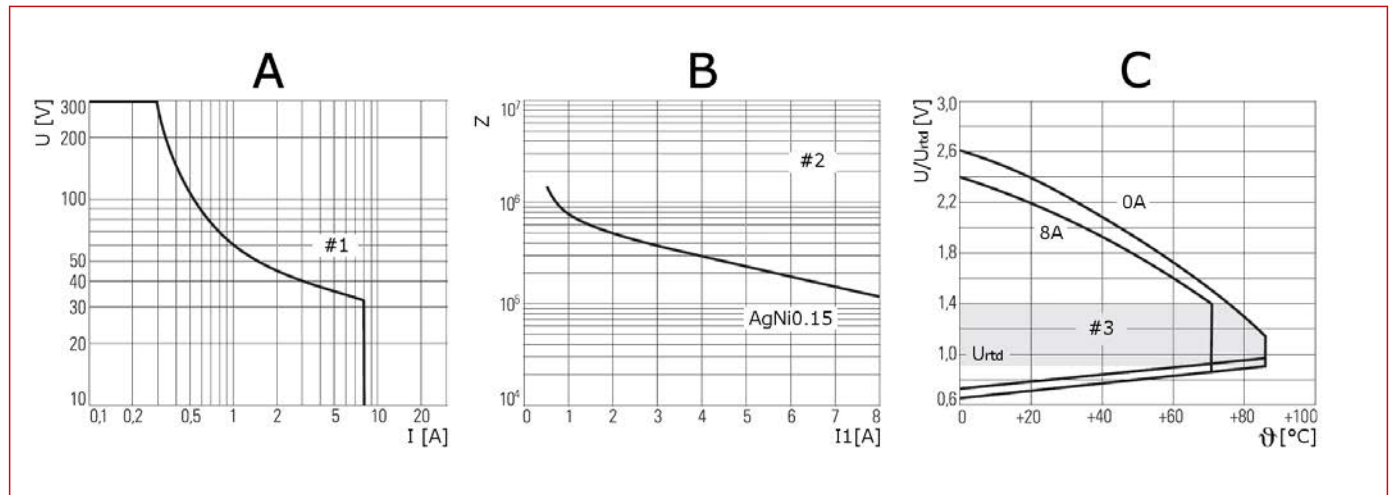
Mobil Code

Dimensions and Circuit Diagrams (mm)



Print Relays Schrack, Series RY

Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range



Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range

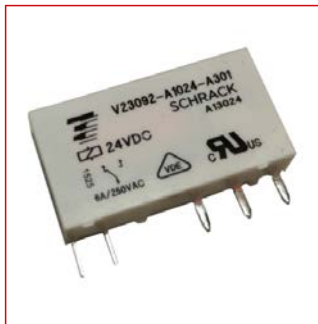
A	Max. DC rated breaking capacity
B	Electrical endurance
C	Coil operating range DC
#1	Resistive load
#2	250 VAC Resistive load
#3	Recommended voltage range
I	DC current in [A]
I1	Switching current in [A]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
Z	Cycles
θ	Ambient temperature in [°C]

Technical Data

Contact Data		
Number of contacts and type		1 CO
Rated current		8A
Rated voltage / max. switching voltage AC		250 / 400V~
Max. rated breaking capacity AC		2000VA
Contact material		AgNi 0.15 or AgNi 0.15 gold plated
Frequency of operation	With Load	6min ⁻¹
	Without Load	1200min ⁻¹
Operate / release time max.		9 / 5ms
Bounce time		6 / 10ms
Coil Data		
Operative range, IEC 61810		2
Insulation Data		
Initial dielectric strength	Open contacts	1000V _{rms}
	Contact and coil	5000V _{rms}
Clearance / creepage	Contact and coil	≥ 8 / 8mm
Ambient temperature		-40...+70°C

DESCRIPTION	CONTACT MATERIAL	PINNING	AVAILABLE	ORDER NO.
12VDC, 1 C/O, 8A	AgNi 0,15	3.2		RY211012
24VDC, 1 C/O, 16A	Ag	3.2		RY211024
24VDC, 1 C/O, 8A, gold plated, wash tight	AgNi 90/10, htv	3.2		RY612024

Print Relays Schrack, Series SNR



SNR03024

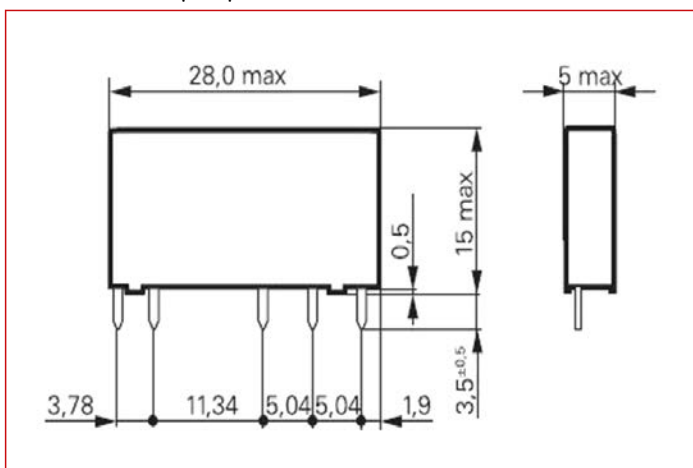
Schrack-Info

- 1 pole 6A
- 1 CO or 1 NO
- Coil 12 or 24VDC
- Sensitive coil 170mW
- Only 5mm component width
- High component density and tight-packed functionality
- Reinforced insulation (appliance class II)
- Cadmium-free contact material AgSnO_2
- For interface technology, SPS, timers, centralised and decentralised heating controls



Mobil Code

Dimensions (mm)



Force Guided Contacts Relays Schrack, Series SR, Print Version



SR2 + SR4



SR6B4024



SR6B4024

Schrack-Info

SR2

- 2 poles with force guided contacts 6A
- 2 CO
- Coil 24VDC
- Contact material AgNi
- Reinforced insulation between the poles
- Complies with EN 50205

SR4

- 4 poles with force guided contacts 8A
- 2 NO, 2 NC (SR4D4024) or 3 NO, 1 NC (SR4M4024)
- Coil 24VDC
- Contact material AgSnO₂
- Compact, slim-line design
- Complies with EN 50205

SR6

- 6 poles with force guided contacts 8A
- 4 NO, 2 NC
- Coil 24VDC
- Contact material AgSnO₂
- Reinforced insulation between all contacts
- Complies with EN 50205

Multi-purpose application of SR2, SR4 and SR6

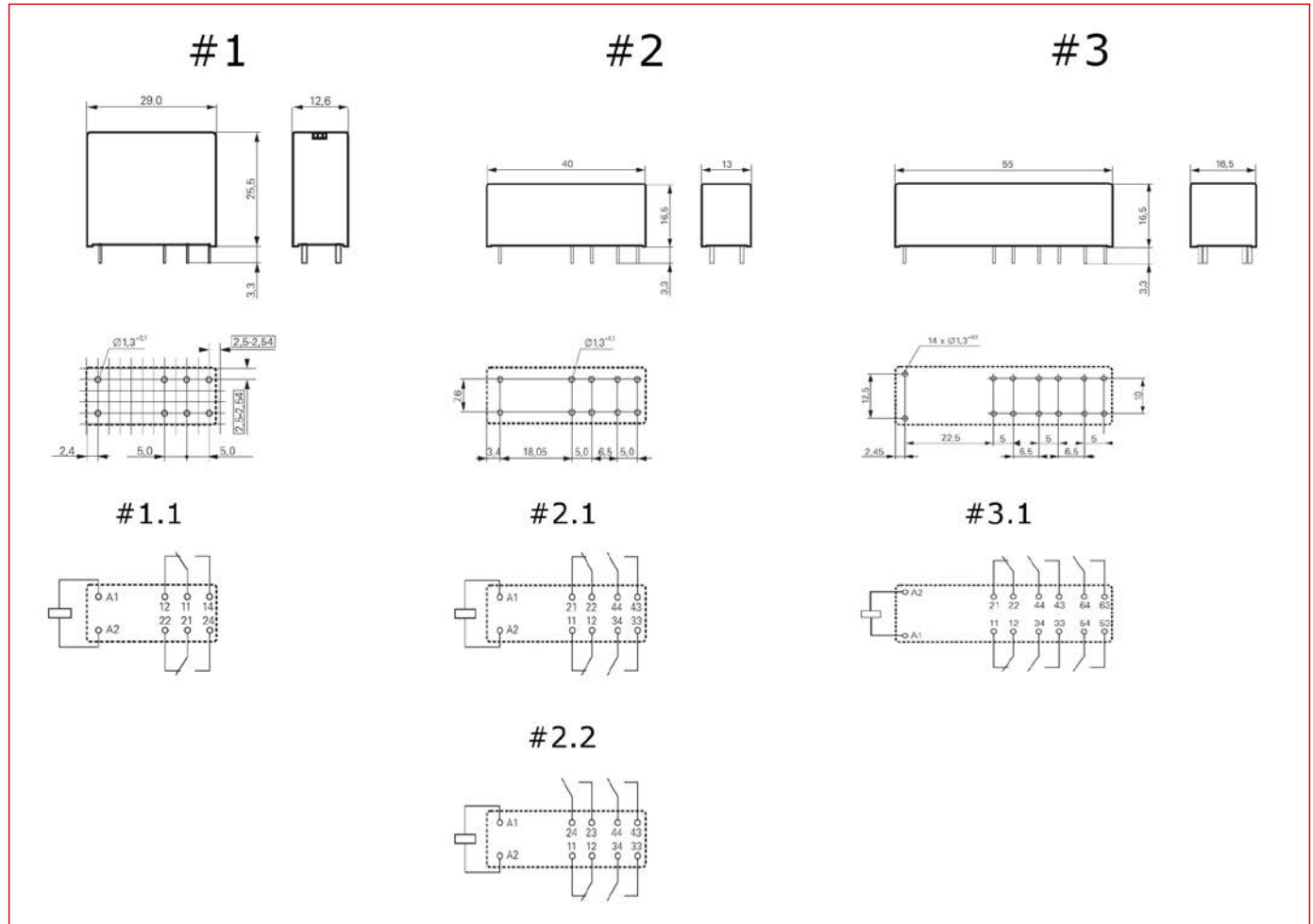
- For machine and press controls, elevators and escalators, safety switches



Mobil Code

Force Guided Contacts Relays Schrack, Series SR, Print Version

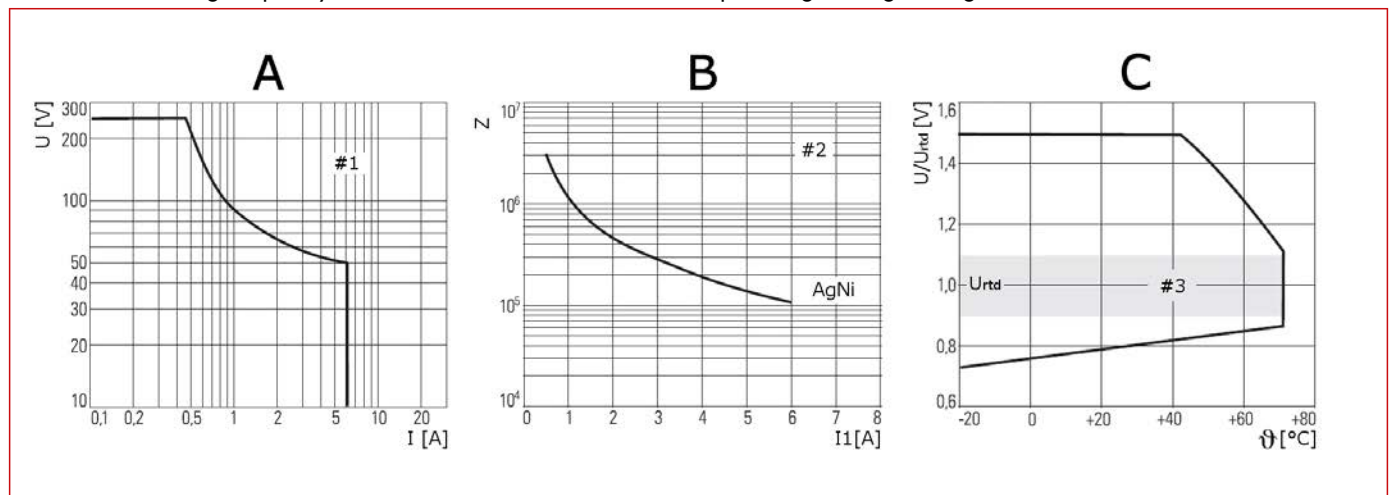
Dimensions (mm) and Circuit Diagrams



Dimensions and Circuit Diagrams

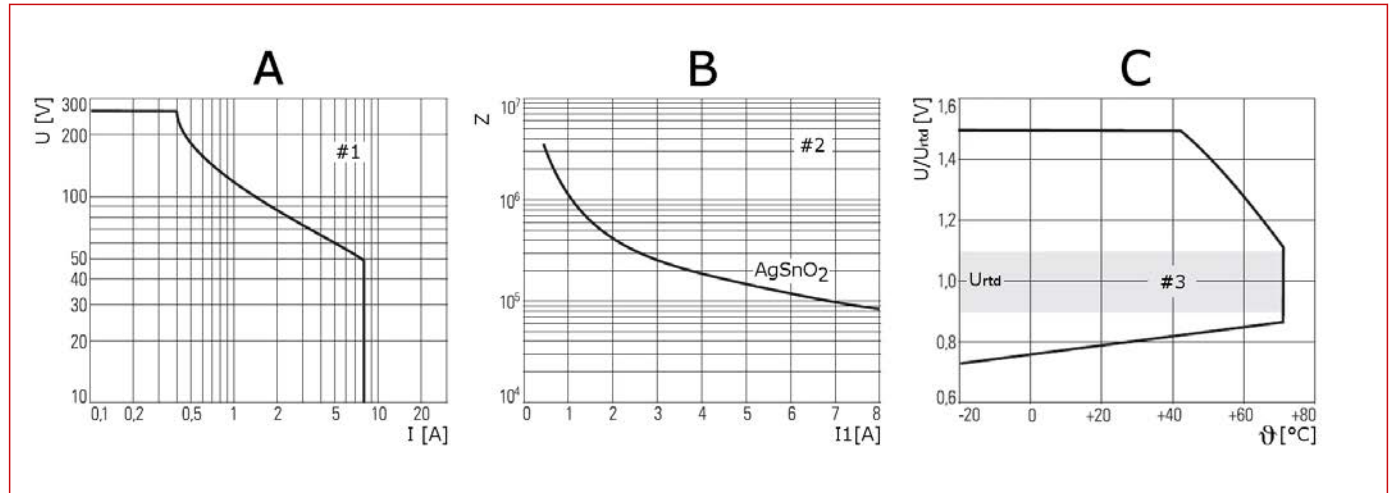
#1	SR2
#1.1	2 CO, 6A
#2	SR4
#2.1	2 NO und 2 NC, 8A
#2.2	3 NO und 1 NC, 8A
#3	SR6
#3.1	4 NO und 2 NC, 8A

Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range SR2

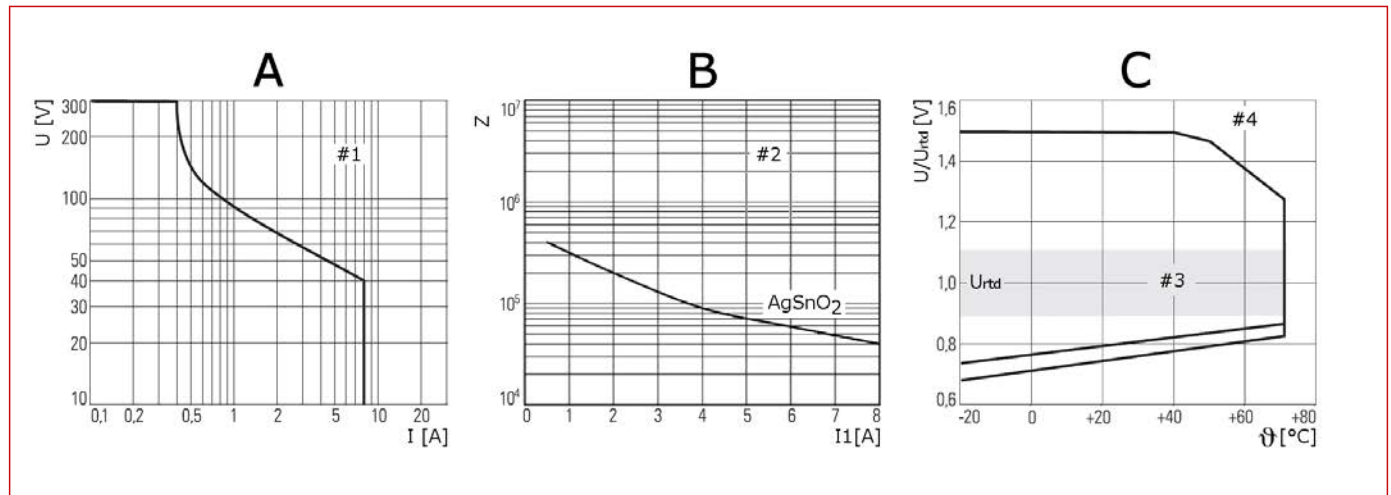


Force Guided Contacts Relays Schrack, Series SR, Print Version

Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range SR4



Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Range SR6



Rated Breaking Capacity, Electrical Service Life and Coil Operating Voltage Ranges

SR2	
A	Max. DC rated breaking capacity
B	Electrical service life
C	Coil operating range DC
#1	Resistive load
#2	250VAC resistive load
#3	Recommended voltage range in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
I1	Switching current in [A]
Z	Cycles
θ	Ambient temperature in [°C]



SR4	
A	Max. DC rated breaking capacity
B	Electrical service life
C	Coil operating range DC
#1	Resistive load
#2	250VAC resistive load on 1 NO contact
#3	Recommended voltage range in [V]
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
I1	Switching current in [A]
Z	Cycles
θ	Ambient temperature in [°C]

SR6	
A	Max. DC rated breaking capacity
B	Electrical service life
C	Coil operating range DC
#1	Resistive load
#2	250VAC resistive load on 1 NO contact
#3	Recommended voltage range in [V]
#4	1200mW coil
U	DC voltage in [V]
U/U_{rtd}	Coil voltage in [V]
I	DC current in [A]
I1	Switching current in [A]
Z	Cycles
θ	Ambient temperature in [°C]

Force Guided Contacts Relays Schrack, Series SR, Print Version

Technical Data

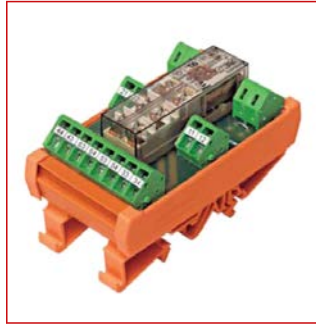
Contact Data		SR2	SR4	SR6
Number of contacts and type		2 CO	2 NO and 2 NC 3 NO and 1 NC	4 NO and 2 NC
Contact style	EN 50205	Single contact, force guided		
Rated current		6A	8A	
Rated voltage / max. switching voltage AC		250 / 400V~		
Min. recommended contact load		5V / 10mA		
Initial contact resistance		< 100mΩ at 1A, 24VDC		
Contact material		AgNi	AgSnO ₂	
Frequency of operation	With load Without load	300min ⁻¹	6min ⁻¹	150min ⁻¹
Contact ratings according to IEC60947-5-1	AC15 DC13	-	3A (1 NO)	5A (2 NO) 6A (2 NO)
Mechanical service life		10 x 10 ⁶ Operations		
Insulation Data				
Dielectric strength	Open contacts	1500V _{rms}		
	Contact and coil	4000V _{rms}		
	Adjacent contacts	3000V _{rms}	2500V _{rms}	3000V _{rms}
Clearance / creepage	Open contacts	Micro disconnection		
	Contact and coil	≥ 8 / 8mm	≥ 10 / 10mm	≥ 5.5 / 5.5mm
	Adjacent contacts	≥ 5.5 / 5.5mm	≥ 3 / 3.5mm	
Insulation to EN 50178				
Type of insulation	Contact and coil Adjacent contacts	Reinforced	Reinforced Basic	Reinforced
Ambient temperature		-25...+70°C		

DESCRIPTION	AVAILABLE	ORDER NO.
24VDC, 2 C/O, 6A		SR2Y5024
24VDC, 2 NC, 2 NO, 8A		SR4D4024
24VDC, 3 NC, 1 NO, 8A		SR4M4024
24VDC, 4 NC, 2 NO, 8A		SR6B4024

Force Guided Contacts Relays Schrack, Series SR, in DIN Rail Module



SR2ZY024



SR6ZB024



SR6ZB024

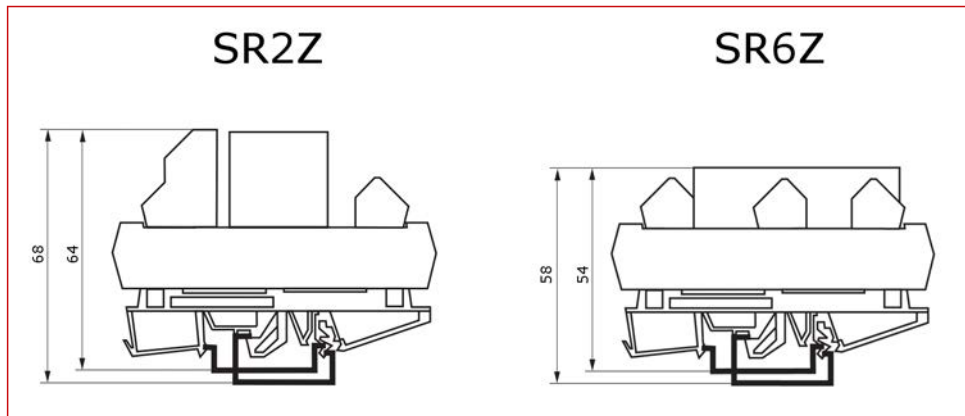
Schrack-Info

- 2 poles 6A
- 2 CO, 6A
- Coil 24VDC
- SR2 on DIN rail module
- Spring clamp terminals



Mobil Code

Dimensions (mm)



Dimensions

SR2Z	Module length: 87mm Module width: 20mm
SR6Z	Module length: 87mm Module width: 46mm

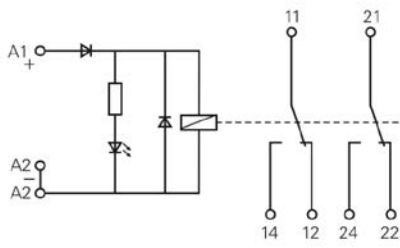
General Info

Fit onto mounting rails according DIN EN 60175

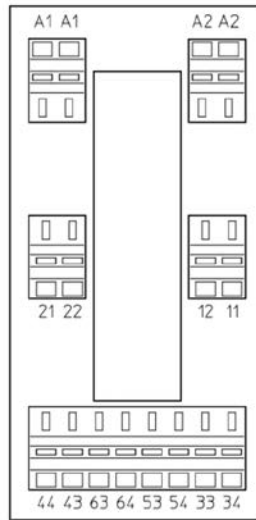
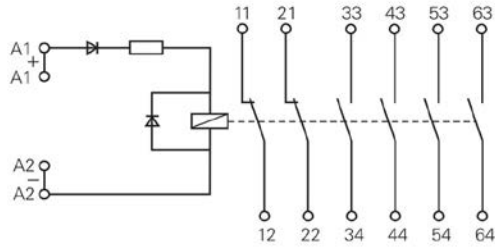
Force Guided Contacts Relays Schrack, Series SR, in DIN Rail Module

Circuit Diagrams

SR2Z



SR6Z



Force Guided Contacts Relays Schrack, Series SR, in DIN Rail Module

Technical Data

Contact Data		SR2Z	SR6Z
Number of contacts and type		2 CO	4 NO and 2 NC
Contact style	EN 50205	Single contact, force guided	
Rated current		6A	8A
Rated voltage / max. switching voltage AC		250 / 250V~	
Min. recommended contact load		5V / 10mA	
Initial contact resistance		≤ 100mΩ at 1A, 24VDC	
Contact material		AgNi	AgSnO ₂
Frequency of operation	With load	6min ⁻¹	
	Without load	300min ⁻¹	150min ⁻¹
Contact ratings according to IEC60947-5-1	AC15	-	5A (1 NO)
	DC13	-	6A (1 NO)
Mechanical service life		10 x 10 ⁶ Operations	
Coil Data			
Operative range	% of rated coil voltage	90 to 110% of U _{rtd}	
	Release voltage (+23°C)	10% of U _{rtd}	
Limiting voltage	% of rated coil voltage	110%	-
	Max. coil power	700mW	1200mW
Input circuit		LED	-
Insulation Data			
Dielectric strength	Open contacts	1500V _{rms}	1000V _{rms}
	Contact and coil	4000V _{rms}	3000V _{rms}
	Adjacent contacts	2000 V _{rms}	
Clearance / creepage	Open contacts	Micro disconnection	
	Contact and coil	≥ 8 / 8mm	≥ 5.5 / 5.5mm
	Adjacent contacts	≥ 1 / 1mm	≥ 2.8 / 2.8mm
Insulation to EN 50178			
Type of insulation	Contact and coil	Reinforced	
	Adjacent contacts	Basic	
Other Data			
Wire cross section	Solid wire	2.5mm ²	
	Stranded wire	2.5mm ²	
	Stranded wire with ferrule	1.5mm ²	
Terminal type		Spring clamp terminals	
Mounting position		Any	
Ambient temperature	For mounting/ handling	0...40°C	
	In operation	-25...-50°C	

DESCRIPTION	AVAILABLE	ORDER NO.
24VDC, 2 C/O, 6A		SR2ZY024
24VDC, 4 NC, 2 NO, 8A		SR6ZB024

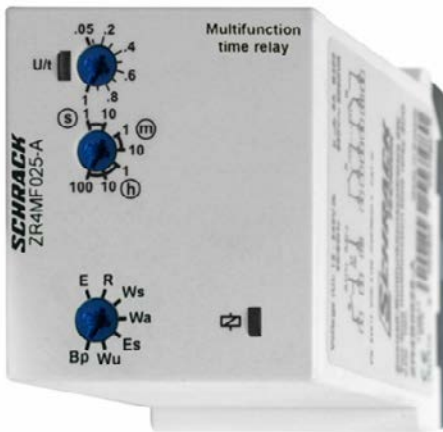
Timer Relays Series ZR5



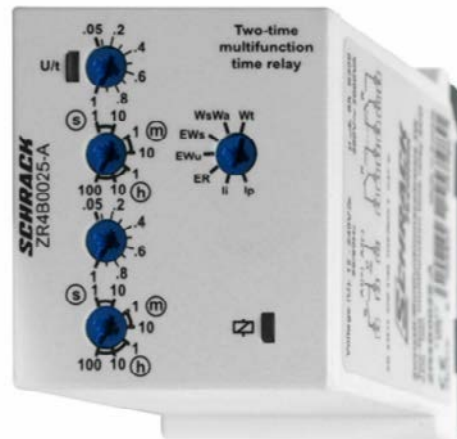
Timer Relays Series ZR5



Timer Relays Series ZR4



Timer Relays Series ZR4



Timer Relays Series AMPARO



Timer Relays Series ZR6



Timer Relays

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Timer Relays Series ZR4	Page	101
Timer Relays Series AMPARO	Page	106
Timer Relays Series ZR6	Page	110

Timer Relays Series ZR5



ZR5E,R,ER



ZR5MF



ZR5B



ZR5S

Schrack-Info

ZR5E0011

- 1 CO
- Mode: "E"
- Multi-voltage 24-240VAC/DC
- In-line design
- 17.5mm component width

ZR5R0011

- 1 CO
- Mode: "R"
- Multi-voltage 24-240VAC/DC
- In-line design
- 17.5mm component width

ZR5ER011

- 1 CO
- Modes: "E" and "R"
- Multi-voltage 24-240VAC/DC
- In-line design
- 17.5mm component width

ZR5MF011

- Multi-function timer relay
- 1 CO
- Modes: "E", "R", "Ws", "Wa", "Es", "Wu" and "Bp"
- Multi-voltage 12-240VAC/DC
- In-line design
- 17.5mm component width

ZR5MF025

- Multi-function timer relay
- 2 CO
- Modes: "E", "R", "Ws", "Wa", "Es", "Wu" and "Bp"
- Multi-voltage 12-240VAC/DC
- In-line design
- 35mm component width

ZR5B0011

- 1 CO
- Modes: "lp" and "li"
- Multi-voltage 12-240VAC/DC
- In-line design
- 17.5mm component width

ZR5B0025

- Multi-function dual time flasher relay with internal clock
- 2 CO
- Wide input voltage range
- Modes: "lp", "li", "ER", "EWu", "EWs", "WsWa" and "Wt"
- Multi-voltage 12-240VAC/DC
- In-line design
- 35mm component width

ZR5SD025

- 2 CO
- Wide input voltage range
- Mode: "S"
- Multi-voltage 12-240VAC/DC
- In-line design
- 35mm component width

ZR5RT011

- Timer function for emergency lighting tests
- 1 CO
- Integrated test switch
- Mode: "Ws"
- 230VAC
- In-line design
- 17.5mm component width

NOTE:

- The timer function must be selected in a de-energised state!



Mobil Code

Timer Relays Series ZR5

Overview Timer Relays ZR5

Article	Number of contacts and type	Voltage range	Number of time ranges	Number of functions	E	R	Ws	Wa	Es	Wu	Bp	Ip	li	ER	EWu	EWs	WsWa	Wt	S	WsTest
ZR5E0011	1 CO	24-240VAC/DC	7	1	X															
ZR5R0011	1 CO	24-240VAC/DC	7	1		X														
ZR5ER011	1 CO	24-240VAC/DC	7	2	X	X														
ZR5MF011	1 CO	12-240VAC/DC	7	7	X	X	X	X	X	X	X									
ZR5MF025	2 CO	12-240VAC/DC	7	7	X	X	X	X	X	X	X									
ZR5B0011	1 CO	12-240VAC/DC	7	2								X	X							
ZR5B0025	2 CO	12-240VAC/DC	7	7								X	X	X	X	X	X	X		
ZR5SD025	2 CO	12-240VAC/DC	4	1															X	
ZR5RT011	1 CO	230VAC	6	1																X

Overview Modes

Article	
ZR5E0011	Time relay ON delay
ZR5R0011	Time relay OFF delay
ZR5ER011	Time relay ON-OFF delay
ZR5MF011	Multifunction time relays
ZR5MF025	
ZR5B0011	Pulse time relay
ZR5B0025	
ZR5SD025	Star-Delta relay
ZR5RT011	Emergency light test relay

Functions

E	ON delay	
R	OFF delay	(with control contact)
Ws	Single shot leading edge	(with control contact)
Wa	Single shot trailing edge	(with control contact)
Es	ON delay	(with control contact)
Wu	Single shot leading edge voltage controlled	
Bp	Flasher pause first	
ER	ON and OFF delay	(with control contact)
EWu	ON delay and single shot leading edge voltage controlled	
EWs	ON delay and single shot leading edge	(with control contact)
WsWa	Single shot leading- and single shot trailing edge	(with control contact)
Wt	Pulse sequence monitoring	
S	Star-Delta start-up	
WsTest	Single shot leading edge	(with control contact)

ZR5B0011

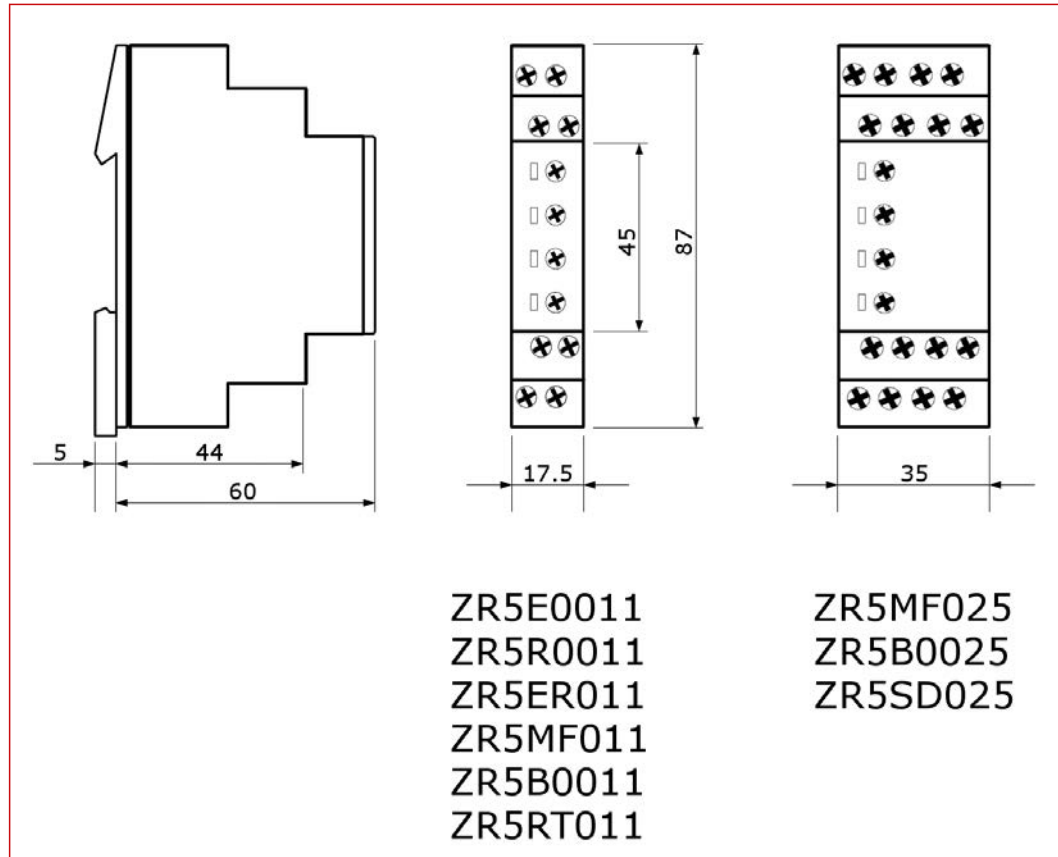
Ip	Asymmetric flasher pause first (flashing)
li	Asymmetric flasher pulse first (flashing)

ZR5B0025

Ip	Asymmetric flasher pause first (pulsing)
li	Asymmetric flasher pulse first (pulsing)

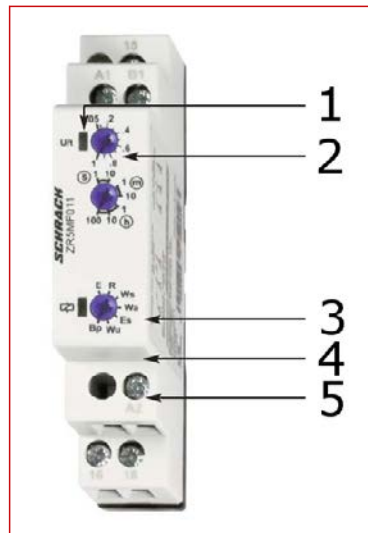
Timer Relays Series ZR5

Dimensions (mm)



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Configuration and Functionalities



Configuration and Functions

Example ZR5MF011

1	Operation display
2	Adjustable time range 50ms to 100h
3	Adjustable function area (E, R, Ws, Wa, Es, Wu and Bp)
4	45mm cap dimension
5	Multi-voltage 12 or 24V to 240VAC/DC

Time Ranges

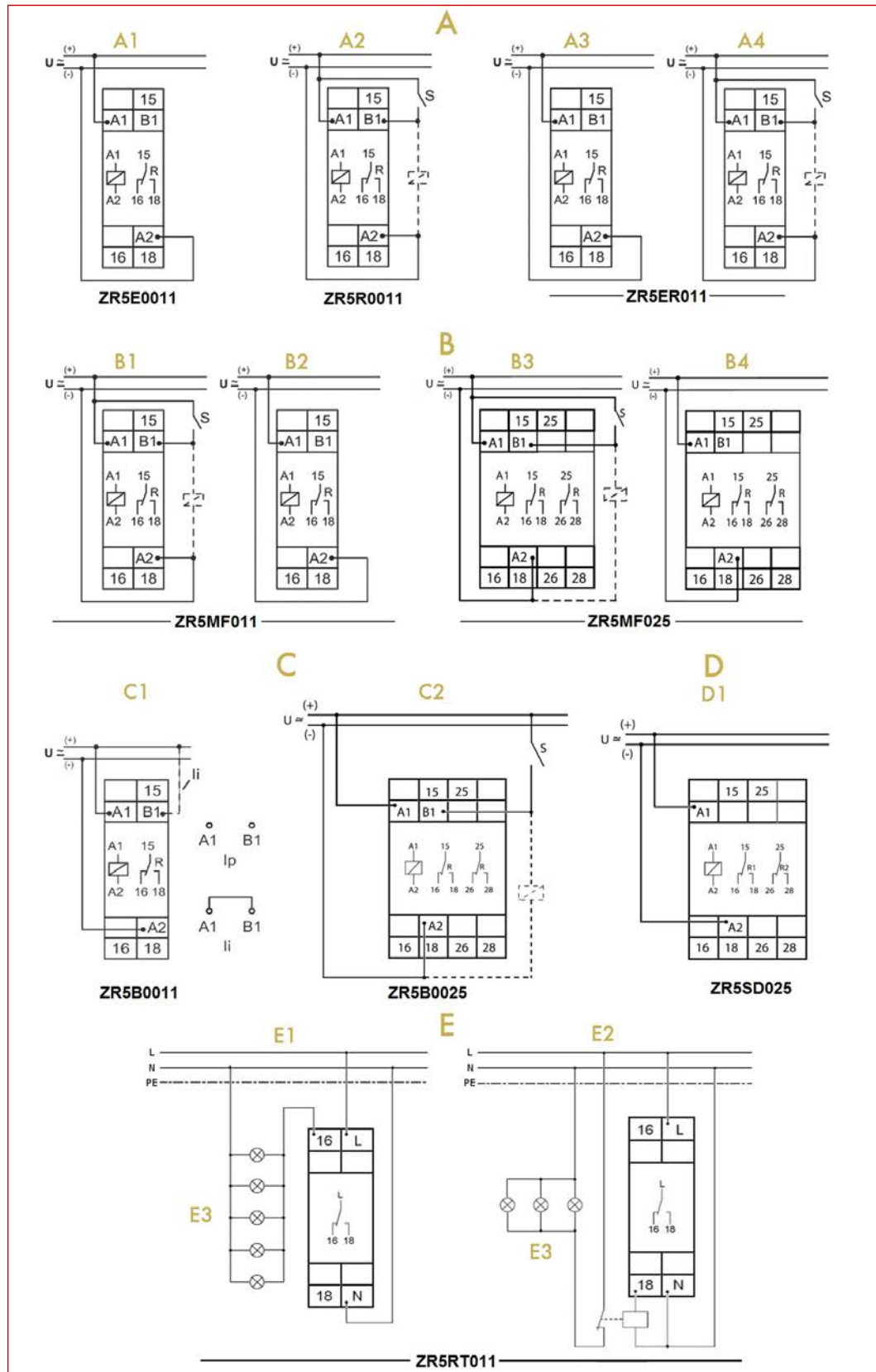
ZR5E0011, ZR5R0011, ZR5ER011, ZR5MF011, ZR5MF025, ZR5B0011, ZR5B0025	
Time range	Adjustment range
1s	50ms - 1s
10s	500ms - 10s
1min	3s - 1min
10min	30s - 10min
1h	3min - 1h
10h	30min - 10h
100h	5h - 100h

ZR5SD025	
Time range	Adjustment range
10s	500ms - 10s
30s	1500ms - 30s
1min	3s - 1min
3min	9s - 3min

ZR5RT011
Time range reversible between 10min, 30min, 60min, 90min, 2h und 3h

Timer Relays Series ZR5

Overview Circuit Diagrams



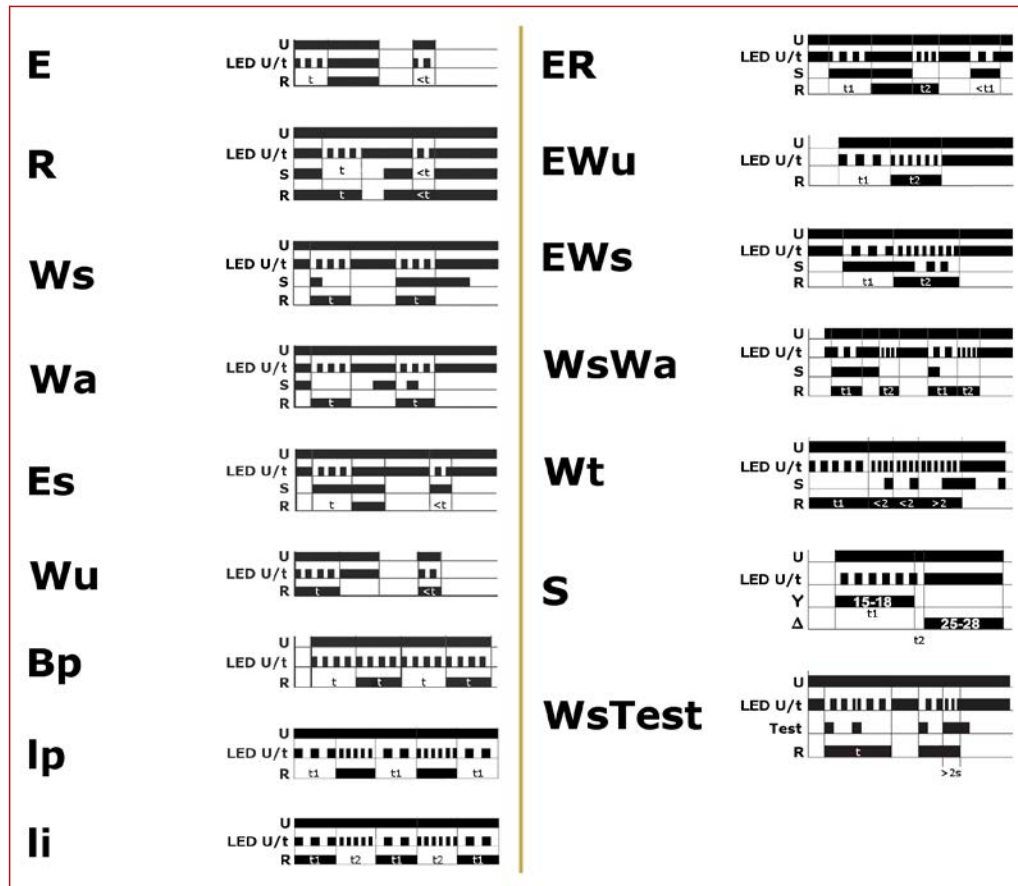
Timer Relays Series ZR5

Overview Circuit Diagrams

A	On/Off-Delay Relays	
A1	ON delay (E)	without control contact
A2	OFF delay (R)	with control contact "S"
A3	ON delay (E)	without control contact
A4	OFF delay (R)	with control contact "S"
B	Multifunction Relays	
B1	OFF delay (R), Single shot leading edge (Ws), Single shot trailing edge (Wa) and ON delay with control input (Es)	with control contact "S"
B2	ON delay (E), Single shot leading edge voltage controlled (Wu) and Flasher pause first (Bp)	without control contact
B3	OFF delay (R), Single shot leading edge (Ws), Single shot trailing edge (Wa) and ON delay with control input (Es)	with control contact "S"
B4	ON delay (E), Single shot leading edge voltage controlled (Wu) and Flasher pause first (Bp)	without control contact
C	Flashing Relays	
C1	Asymmetric flasher pause first (lp) and Asymmetric flasher pulse first (li)	without control contact
C2	Asymmetric flasher pause first (lp), Asymmetric flasher pulse first (li), ON delay and single shot leading edge voltage controlled (EWu), Pulse sequence monitoring (Wt), ON delay and OFF delay with control contact (ER), ON delay and single shot leading edge (EWs) as well as Single shot leading and single shot trailing edge (WsWa)	with control contact "S"
D	Timer Star-Delta	
D1	Star-delta start up (S)	without control contact
E	Emergency Light Test Relay	
	Single shot leading edge (Ws)	with control contact "S"
E1	Direct connection of emergency lights (I < 16A)	
E2	Switching emergency lights with contactor (I > 16A)	
E3	Emergency lights with integrated rechargeable power cells	

Timer Relays Series ZR5

Modes



Overview Modes

Article	E	R	Ws	Wa	Es	Wu	Bp	Ip	li	ER	ERu	EWs	WsWa	Wt	S	WsTest
ZR5E0011	X															
ZR5R0011		X														
ZR5ER011	X	X														
ZR5MF011	X	X	X	X	X	X	X									
ZR5MF025	X	X	X	X	X	X	X									
ZR5B0011								X	X							
ZR5B0025								X	X	X	X	X	X	X		
ZR5SD025															X	
ZR5RT011																X

Detailed Description Of Modes (Part 1)

ZR5B0011	
li	<p>Asymmetric flasher pulse first (flashing)</p> <p>When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.</p>
	<p>Asymmetric flasher pause first (flashing)</p> <p>When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.</p>

ZR5B0025	
li	<p>Asymmetric flasher pulse first (pulsing)</p> <p>When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.</p>
	<p>Asymmetric flasher pause first (pulsing)</p> <p>When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.</p>

Timer Relays Series ZR5

Detailed Description Of Modes (Part 2)

E	ON delay
	When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t , the interval already expired is erased and is restarted when the supply voltage is next applied.

R	OFF delay with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.

Ws	Single shot leading edge with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

Wa	Single shot trailing edge with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R . When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

Es	ON delay with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.

ER	ON delay and OFF delay with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the control contact is opened before the interval t1 has expired, the interval already expired is erased and is restarted with the next cycle.

EWu	ON delay and single shot leading edge, voltage controlled
	When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the supply voltage is interrupted before the interval t1+t2 has expired, the interval already expired is erased and is restarted when the supply voltage is next applied.

EWs	ON delay and single shot leading edge with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

WsWa	Single shot leading and single shot trailing edge with control contact "S"
	The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into off-position (yellow LED not illuminated). If the control contact is opened, the output relay again switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times.

Wt	Pulse sequence monitoring
	When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly) and the output relay R switches into on-position (yellow LED illuminated) After the interval t1 has expired, the set interval t2 begins (green LED U/t flashes fast). So that the output relay R remains into on-position, the control contact S must be closed and opened again within the set interval t2 . If this does not happen, the output relay R switches into off-position (yellow LED not illuminated) and all further pulses at the control contact are ignored. To restart the function the supply voltage must be interrupted and reapplied.

Detailed Description Of Modes (Part 3)

Wu	Single shot leading edge, voltage controlled
	When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position. The interval already is erased and is restarted when the supply voltage is next applied.

Bp	Flasher pause first
	When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.

S	Star-delta start up
	When the supply voltage U is applied, the star-contact switches into on-position (yellow LED illuminated) and the set star-time t1 begins (green LED U/t flashes). After the interval t1 has expired (green LED U/t illuminated), the star-contact switches into off-position (yellow LED not illuminated) and the set transit-time t2 begins. After the interval t2 has expired, the contact for the delta-contactor switches into on-position. To restart the function, the supply voltage must be interrupted and reapplied.



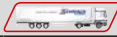
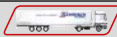


WsTest	Single shot leading edge with control contact "S"
	The supply voltage U must be constantly to the device (green LED U/t illuminated). Pressing the integrated test key forces the output relay R to switch into on-position (yellow LED illuminated), so the emergency lights are disconnected from the mains and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay R switches into off-position (yellow LED not illuminated) and the emergency lights are reconnected to the mains. During the interval, the test key can be operated any number of times. Prolonged pressure on the test key ($\geq 2s$) aborts the running test interval (green LED U/t flashes fast) and a further cycle can be started.

 Timer Relays Series ZR5

 Technical Data

		ZR5E0011	ZR5R0011	ZR5ER011	ZR5MF011	ZR5MF025
Indicators	Green LED U/t ON	Indication of supply voltage				
	Green LED U/t flashes	Indication of time period				
	Yellow LED R ON/OFF	Indication of relay outputs				
Mechanical Design	Housing	Self-extinguishing plastic housing				
	IP rating housing	IP40				
	Mounting	(EN 50022)	DIN-rail TS 35			
	Terminal	(VBG 4, PZ1 required)	Shockproof terminal connection			
	IP rating terminal	IP20				
	Mounting position	Any				
	Tightening torque	Max. 1 Nm				
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end				
Input Circuit	Input	Terminals A1 (+)-A2				
	Supply voltage	24 - 240VAC/DC		12 - 240VAC/DC		
	Tolerance	24V...-15% to 240V...+10 %		12V...-10% to 240V...+10%		
	Rated consumption	4VA (1.5W)			6VA (2W)	
	Rated frequency	48 to 63Hz				
	Duty cycle	100%				
	Reset time	100ms				
	Residual ripple for DC	10%				
	Drop-out voltage	> 30% of minimum rated supply voltage				
	Overvoltage category	(IEC 60664-1)	III			
	Rated surge voltage	4kV				
Output Circuit	Number of contacts and type	1 CO			2 potential free CO contacts	
	Rated voltage	250VAC				
	Switching capacity	2000VA (8A / 250V)				
	Fusing	8A fast acting				
	Mechanical service life	20 x 10 ⁶ operations				
	Electrical service life	2 x 10 ⁵ operations at 1000VA resistive load				
	Switching frequency	(IEC 947-5-1)	Max. 60/min at 100VA resistive load, max. 6/min at 1000VA resistive load			
	Overvoltage category	(IEC 60664-1)	III			
Rated surge voltage	4kV					
Control Input	Input not potential free	No control contact	Terminals A1-B1			
	Loadable		Yes			
	Max. line length		10m			
	Trigger level (sensitivity)		Automatic adaption to supply voltage			
	Min. control pulse length		DC 50ms, AC 100ms			
Accuracy	Base accuracy	±1% of maximum scale value				
	Adjustment accuracy	< 5% of maximum scale value				
	Repetition accuracy	< 0.5% or ± 5ms				
	Voltage influence	-				
	Temperature influence	≤ 0.01%/°C				
Ambient Conditions	Ambient temperature	(IEC 68-1)	-25°C to +55°C			
	Storage temperature	-25°C to +70°C				
	Transport temperature	-25°C to +70°C				
	Relative humidity	(IEC 721-3-3 class 3K3)	15% to 85%			
	Pollution degree	(IEC 664-1)	2, if built in 3			
	Vibration resistance	(IEC 68-2-6)	10 to 55Hz, 0.35mm			
	Shock resistance	(IEC 68-2-27)	15g, 11ms			

Timer Relays Series ZR5

DESCRIPTION	AVAILABLE	ORDER NO.
Tripping and Release Delay		
Timer single function ON-delay 24-240V AC/DC, 1 CO, 8A/250V		ZR5E0011
Timer single function OFF-delay 24-240V AC/DC, 1 CO, 8A/250V		ZR5R0011
Timer duo function ON/OFF-delay 24-240V AC/DC, 1 CO, 8A/250V		ZR5ER011
Multifunction Relays		
Timer multifunction 12-240V AC/DC, 1 CO, 8A/250V		ZR5MF011
Timer multifunction 12-240V AC/DC, 2 CO, 8A/250V		ZR5MF025
Flasher Relays		
Timer flashing 12-240V AC/DC, 1 CO, 8A/250V		ZR5B0011
Two-time multifunction 12-240V AC/DC, 2 CO, 8A/250V		ZR5B0025
Star-Delta Relays		
Timer star-delta 12-240V AC, 2 CO, 8A		ZR5SD025
Emergency Lighting Testers		
Emergency-light-test-relay 230V, modular version		ZR5RT011

Timer Relays Series ZR4, for Round 11 Pole Plug-in Socket



ZR4MF025-A



ZR4B0025-A



YMR78700

Schrack-Info

ZR4MF025-A

- Multi-function relay
- 2 CO
- Modes: "E", "R", "Ws", "Wa", "Es", "Wu" and "Bp"
- For 11 pole plug-in MT socket
- Multi-voltage 12-240VAC/DC
- 38mm component width
- Standard front dimension 45mm

ZR4B0025-A

- Flasher relay
- 2 CO
- Internal clock
- Dual time multi-function
- Zoom voltage
- Modes: "lp", "li", "ER", "EWu", "EWs", "WsWa" and "Wt"
- For 11 pole plug-in MT socket
- Multi-voltage 12-240VAC/DC
- 38mm component width
- Standard front dimension 45mm

YMR78700

- MT socket compatible with pluggable Series ZR4 timer relays



Mobil Code

Overview ZR4 Timer Relays

Article	Number of contacts and type	Voltage range	Number of time ranges	Number of functions	E	R	Ws	Wa	Es	Wu	Bp	lp	li	ER	EWu	EWs	WsWa	Wt
ZR4MF025-A	2 CO	12 - 240VAC/DC	7	7	X	X	X	X	X	X	X							
ZR4B0025-A	2 CO	12 - 240VAC/DC	7	7								X	X	X	X	X	X	X

Timer Relays Series ZR4, for Round 11 Pole Plug-in Socket

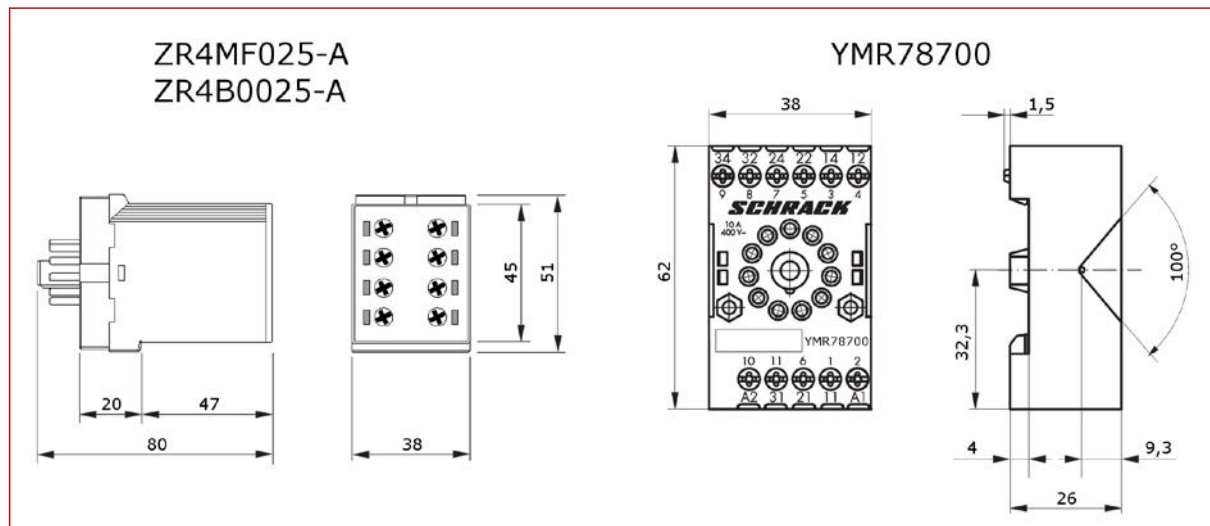
Overview Modes

Article	
ZR4MF025-A	Pluggable multifunction relay
ZR4B0025-A	Pluggable pulse time relay

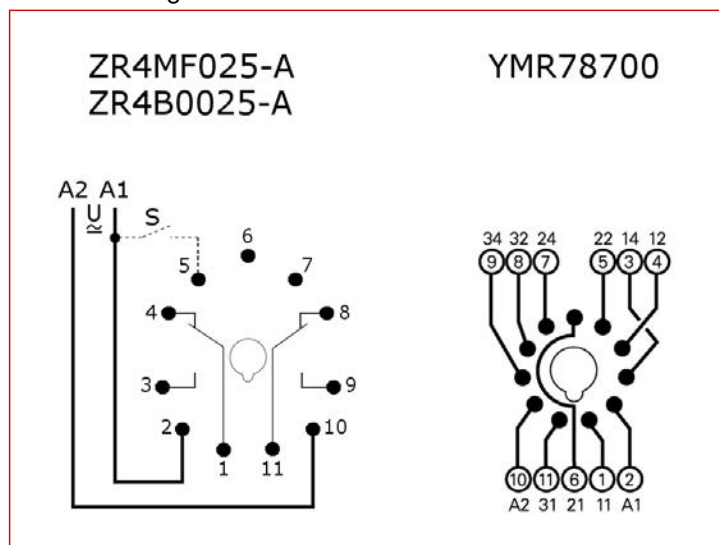
Functions

E	ON delay	
R	OFF delay	(with control contact)
Ws	Single shot leading edge	(with control contact)
Wa	Single shot trailing edge	(with control contact)
Es	ON delay	(with control delay)
Wu	Single shot leading edge voltage controlled	
Bp	Flasher pause first	
ER	ON and OFF delay	(with control contact)
EWu	ON delay and single shot leading edge voltage controlled	
EWs	ON delay and single shot leading edge	(with control contact)
WsWa	Single shot leading- and single shot trailing edge	(with control contact)
Wt	Pulse sequence monitoring	
lp	Asymmetric flasher pause first	
li	Asymmetric flasher pulse first	

Dimensions (mm)



Circuit Diagrams Overview



Timer Relays Series ZR4, for Round 11 Pole Plug-in Socket

Modes



Overview Modes

Article	E	R	Ws	Wa	Es	Wu	Bp	Ip	li	ER	EWu	EWs	WsWa	Wt
ZR4MF025-A	X	X	X	X	X	X	X							
ZR4B0025-A								X	X	X	X	X	X	X

Detailed Description Of Modes (Part 1)

E	<p>ON delay</p> <p>When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.</p>	Ip	<p>Asymmetric flasher pause first</p> <p>When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.</p>
R	<p>OFF delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.</p>	li	<p>Asymmetric flasher pulse first</p> <p>When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.</p>
Ws	<p>Single shot leading edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>	ER	<p>ON delay and OFF delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the control contact is opened before the interval t1 has expired, the interval already expired is erased and is restarted with the next cycle.</p>

Timer Relays Series ZR4, for Round 11 Pole Plug-in Socket

Detailed Description Of Modes (Part 2)

Wa	<p>Single shot trailing edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>	EWu	<p>ON delay and single shot leading edge, voltage controlled</p> <p>When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the supply voltage is interrupted before the interval t1+t2 has expired, the interval already expired is erased and is restarted when the supply voltage is next applied.</p>
Es	<p>ON delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.</p>	EWs	<p>ON delay and single shot leading edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>
Wu	<p>Single shot leading edge, voltage controlled</p> <p>When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position. The interval already is erased and is restarted when the supply voltage is next applied.</p>	WsWa	<p>Single shot leading and single shot trailing edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into off-position (yellow LED not illuminated). If the control contact is opened, the output relay again switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times.</p>
Bp	<p>Flasher pause first</p> <p>When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.</p>	Wt	<p>Pulse sequence monitoring</p> <p>When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly) and the output relay R switches into on-position (yellow LED illuminated) After the interval t1 has expired, the set interval t2 begins (green LED U/t flashes fast). So that the output relay R remains into on-position, the control contact S must be closed and opened again within the set interval t2. If this does not happen, the output relay R switches into off-position (yellow LED not illuminated) and all further pulses at the control contact are ignored. To restart the function the supply voltage must be interrupted and reapplied.</p>

Timer Relays Series ZR4, for Round 11 Pole Plug-in Socket

Technical Data

		ZR4MF025-A	ZR4B0025-A	
Indicators	Green LED U/I ON	Indication of supply voltage		
	Green LED U/I flashes	Indication of time period	Indication of time period t1	
	Green LED U/I flashes fast	-	Indication of time period t2	
	Yellow LED R ON/OFF	Indication of relay output		
Mechanical Design	Housing	Self-extinguishing plastic housing		
	IP rating housing	IP40		
	Mounting	(IEC 60067-1-18a)	11-pole socket YMR78700	
	Terminal	(VBG 4, PZ1 required)	Shockproof terminal connection	
	IP rating terminal	IP20		
	Mounting position	Any		
	Tightening torque	Max. 1 Nm		
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end		
Input Circuit	Pins	S2(+)-S10 / A1(+)-A2		
	Supply voltage	12 - 240VAC/DC		
	Tolerance	-10% to +10%		
	Rated consumption	6VA (2W)		
	Rated frequency	48 to 63Hz		
	Duty cycle	100%		
	Reset time	100ms		
	Residual ripple for DC	10%		
	Drop-out voltage	> 30% of the supply voltage		
	Overvoltage category	(IEC 60664-1)	III	
Rated surge voltage	4kV			
Output Circuit	Number of contacts and type	2 potential free CO contacts		
	Rated voltage	250VAC		
	Switching capacity	2000VA (8A / 250V)		
	Fusing	8A fast acting		
	Mechanical service life	20 x 10 ⁶ operations		
	Electrical service life	2 x 10 ⁵ operations at 1000VA resistive load		
	Switching frequency	(IEC 60947-5-1)	Max. 6 / min at 1000VA resistive load	
	Overvoltage category	(IEC 60664-1)	III	
	Rated surge voltage	4kV		
	Control Circuit	Input not potential free	Pins S2-S5	
Loadable		Yes		
Max. line length		10m		
Trigger level (sensitivity)		Automatic adaption to supply voltage		
Min. control pulse length		DC 50ms, AC 100ms		
Accuracy	Base accuracy	± 1% of maximum scale value		
	Adjusting accuracy	< 5% of maximum scale value		
	Repetition accuracy	< 0.5% or ± 5ms		
	Temperature influence	≤ 0.01 % / °C		
Ambient Conditions	Ambient temperature	-25 °C to +55 °C		
	Storage temperature	-25 °C to +70 °C		
	Transport temperature	-25 °C to +70 °C		
	Relative humidity	(IEC 60721-3-3 class 3K3)	15% to 85%	
	Pollution degree	(IEC 60664-1)	2, if built in 3	

DESCRIPTION	AVAILABLE	ORDER NO.
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Multifunction Relays

Timer multifunction 12-240V AC/DC, 2CO, 8A, plug-version		ZR4MF025-A
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Flasher Relays

Two-time multifunction 12-240VAC/DC, 2CO, 8A, 250V, plug-version		ZR4B0025-A
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Sockets

DIN rail mounted plug-in socket for MT3 relays and timer relays series ZR4, 11-pole, 10A (3 CO), with screw terminals, not compatible with function modules		YMR78700
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Timer Relays Series AMPARO



ZRAE,R,AMF



ZRAE0011



ZRAR0011



ZRAMF011

Schrack-Info

ZRAE0011

- Tripping delayed timer relay
- Mode: "E"
- 1 CO, 5A
- 24-48VDC / 24-240VAC
- Time range 0.05 seconds - 10 hours
- Component width 17.5mm

ZRAR0011

- Release delayed timer relay
- Mode: "R"
- 1 CO, 5A
- 24-48VDC / 24-240VAC
- Time range 0.05 seconds - 10 hours
- Component width 17.5mm

ZRAMF011

- Multi-function timer relay
- Modes: "E", "R", "Ws", "Wu", "Wa", "Bp" and "F"
- 1 CO, 5A
- 24-48VDC / 24-240VAC
- Time range 0.05 seconds - 10 hours
- Component width 17.5mm



Mobil Code

Overview AMPARO Timer Relays

Article	Number of contacts and type	Voltage range	Number of time ranges	Number of functions	E	R	Ws	Wu	Wa	Bp	F
ZRAE0011	1 CO	24 - 240VAC/DC	6	1	X						
ZRAR0011	1 CO	24 - 240VAC/DC	6	1		X					
ZRAMF011	1 CO	24 - 240VAC/DC	6	7	X	X	X	X	X	X	X

Timer Relays Series AMPARO

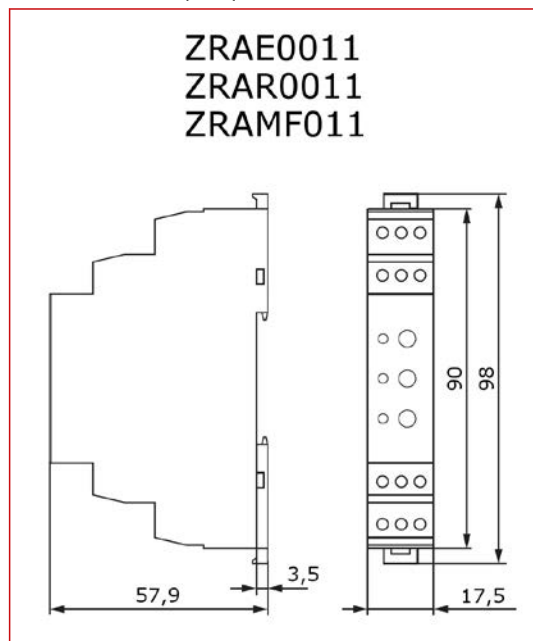
Overview Modes

Article	
ZRAE0011	Time relay ON delay
ZRAR0011	Time relay OFF delay
ZRAMF011	Multifunction time relays

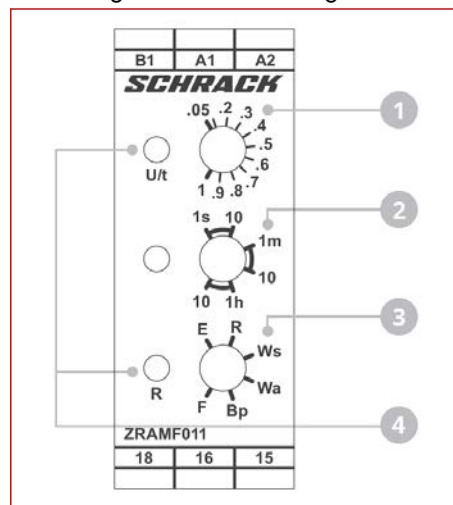
Functions

E	ON delay	
R	OFF delay	(with control contact)
Ws	Single shot leading edge	(with control contact)
Wu	Single shot leading edge voltage controlled	
Wa	Single shot trailing edge	(with control contact)
Bp	Flasher pause first	
F	T-FlipFlop (Toggle)	

Dimensions (mm)



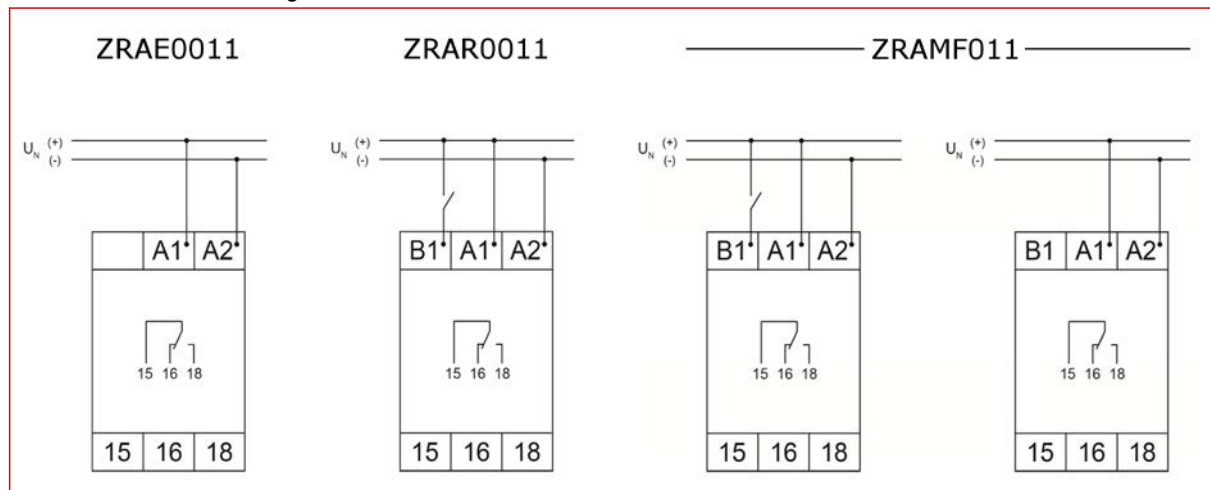
Configuration and Settings



Configuration and Functionalities

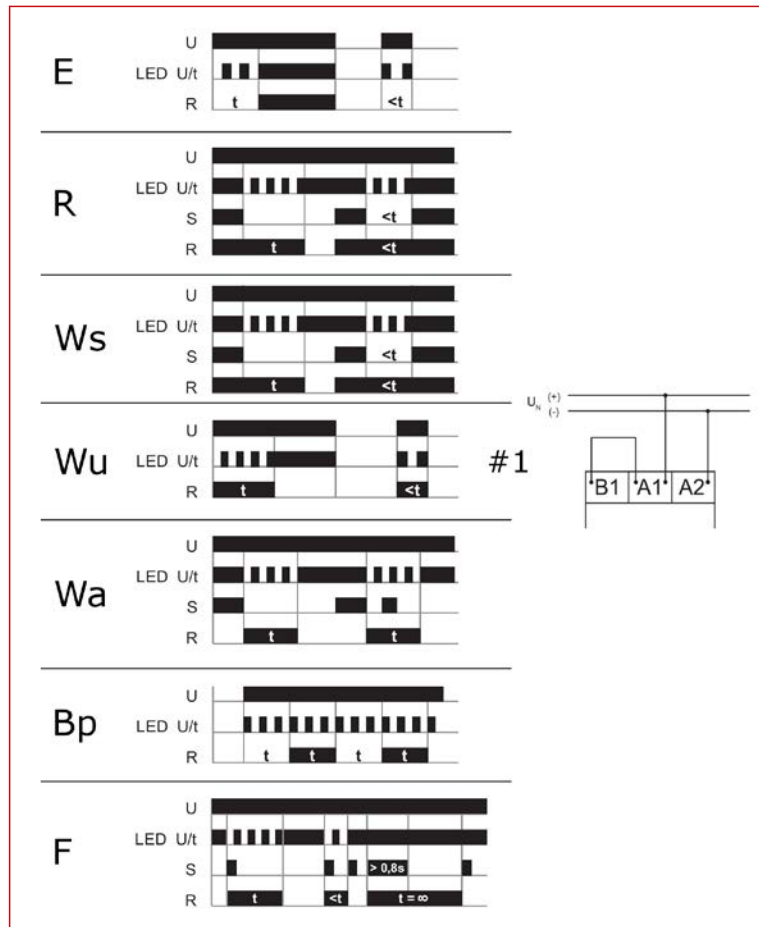
1	Fine adjustment
2	Setting of time range
3	Selection of the desired function
4	Status indication
	U/t: LED green...Supply voltage applied
	R: LED yellow...Relay is active

Overview Circuit Diagrams



Timer Relays Series AMPARO

Modes



Description Of Modes

E	ON delay	
R	OFF delay	with control contact
Ws	Single shot leading edge	with control contact
Wu	Single shot leading edge voltage controlled (function selector must be set on Ws and fixed jumper A1 - B1)	
#1	Function Ws with fixed jumper A1 - B1	
Wa	Single shot trailing edge	with control contact
Bp	Flasher pause first	
F	T-FlipFlop (Toggle)	



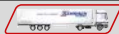
Overview Modes

Article	E	R	Ws	Wu	Wa	Bp	F
ZRAE0011	X						
ZRAR0011		X					
ZRAMF011	X	X	X	X	X	X	X

Timer Relays Series AMPARO

Technical Data

		ZRAE0011	ZRAR0011	ZRAMF011	
Indicators	Green LED U/t ON	Indication of supply voltage			
	Green LED U/t flashes	Indication of time period			
	Yellow LED R ON/OFF	Relay is energized			
Input Circuit	Terminals	A1 - A2			
	Supply voltage	24 - 48VDC / 24 - 240V~			
	Duty cycle	100%			
	Bridging time	< 30ms			
	Reset time	100ms			
	Drop-out voltage	> 30%			
	Power loss	1W			
Output Circuit	Number of contacts and type	1 CO			
	Terminals	15 - 16 - 18			
	Type	Relay			
	Contact material	AgNi			
	Rated voltage	250V			
	Max. switching voltage	250V			
	Max. switching current	5A			
	Rated current	5A / 250V			
	Service life	Mechanical	1 x 10 ⁶ operations		
		Electrical	1 x 10 ⁵ operations		
	Switching frequency	With load	6 / min		
Without load		1200 / min			
Fusing	5A fast acting				
Datas of Insulation	Pollution degree (IEC 61812-1)	2			
	Overvoltage category (IEC 61812-1)	II			
	Rated insulation voltage (IEC 61812-1)	Input circuit/ output circuit	300V		
	Rated surge voltage (IEC 61812-1)	Input circuit/ output circuit	2500V		
	Insulation-test-voltage (IEC 61812-1)	Input circuit/ output circuit	1600V		
Insulation			Basic insulation		
	Terminal	Screw-terminal			
Electrical Connection	Terminal capacity	Rated terminal capacity	2.5mm ²		
	Max. terminal capacity	Flexible with /without ferrule	1 x 0.25...2.5mm ² (23 AWG...14AWG)		
		Flexible without sleeve	2 x 0.25...1.5mm ² (23 AWG...14AWG)		
		Flexible with twin-sleeve	2 x 0.25...1.5mm ² (23 AWG...14AWG)		
		Stranded without sleeve	1 x 0.25...2.5mm ² (23 AWG...14AWG)		
	Length without insulation	7mm			
Tightening torque	Max. 0.5Nm				
General Data	Ambient temperature	Operation	-25...+50 °C		
	Dimensions (DIN 43880)	LxHxD	17.5 x 97 x 57.9mm		
	Mounting	(EN 60715)	DIN-rail		
	Mounting position	Any			
	IP rating	Housing	IP40		
Terminals		IP20			

DESCRIPTION	AVAILABLE	ORDER NO.
Tripping and Release Delay		
Timer single function ON-delay AMPARO, 24V AC/DC or 230V AC, 1 CO, 5A/230V		ZRAE0011
Timer single function OFF-delay AMPARO, 24V AC/DC or 230V AC, 1 CO, 5A/230V		ZRAR0011
Multifunction Relays		
Timer multifunction AMPARO, 24V AC/DC or 230V AC, 1 CO, 5A/230V		ZRAMF011

Timer Relays Series ZR6



ZR6MF052



ZR6MF052

Schrack-Info

- 16 different modes
- 16 time ranges
- 2 CO
- Zoom voltage 24 to 240VAC/DC
- Remote potentiometer connection
- Component width 22.5mm
- Industrial type design



Mobil Code

Overview Modes

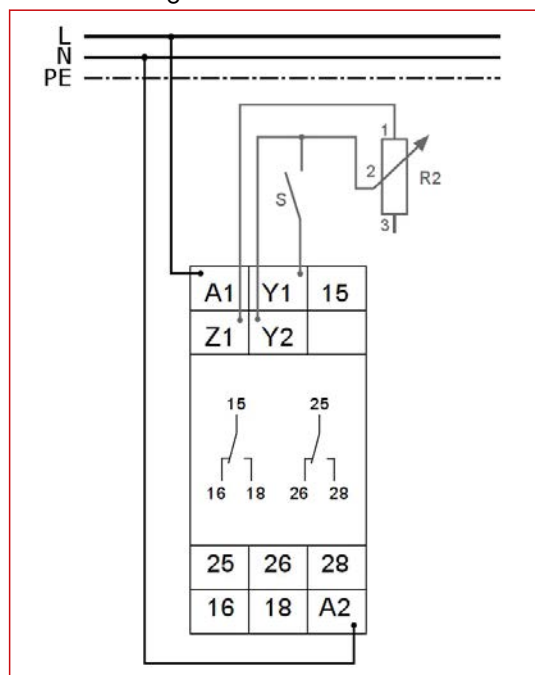
1 delayed contact (terminals 15-16-18) and **1 instantaneous contact** (terminals 25-26-28)

E11	ON delay	
R11	OFF delay	with control contact "S"
Es11	ON delay	with control contact "S"
Wu11	Single shot leading edge voltage controlled	
Ws11	Single shot leading edge	with control contact "S"
Wa11	Single shot trailing edge	with control contact "S"
Bi11	Flasher pulse first	
Bp11	Flasher pause first	

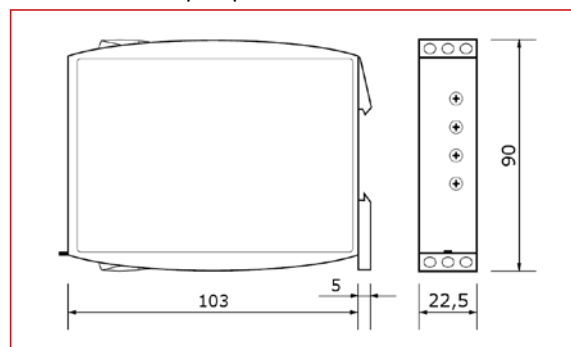
2 delayed contacts

E20	ON delay	
R20	OFF delay	with control contact "S"
Es20	ON delay	with control contact "S"
Wu20	Single shot leading edge voltage controlled	
Ws20	Single shot leading edge	with control contact "S"
Wa20	Single shot trailing edge	with control contact "S"
Bi20	Flasher pulse first	
Bp20	Flasher pause first	

Circuit Diagram



Dimensions (mm)

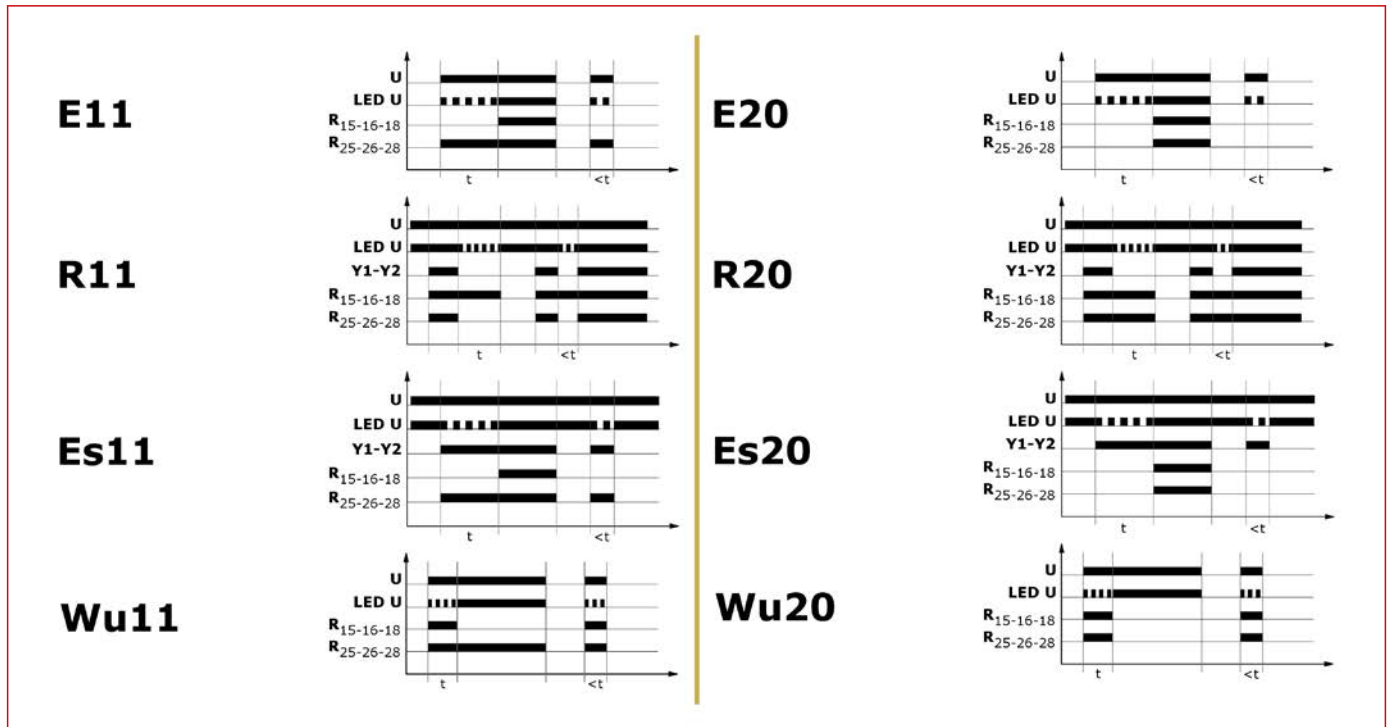


Time Ranges

Time range	Adjustment range
1s	50ms - 1s
3s	150ms - 10s
10s	500ms - 10s
30s	1500ms - 30s
1min	3s - 1min
3min	9s - 3min
10min	30s - 10min
30min	90s - 30min
1h	3min - 1h
3h	9min - 3h
10h	30min - 10h
30h	90min - 30h
1d	72min - 1d
3d	216min - 3d
10d	12h - 10d
30d	36h - 30d

Timer Relays Series ZR6

Modes (Part 1)

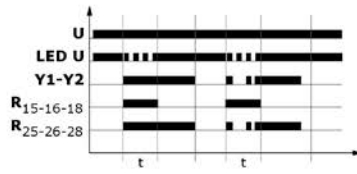


Detailed Description Of Modes (Part 1)

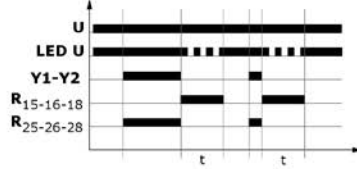
The internal potentiometer is deactivated when a remote potentiometer is connected! The function has to be set before connecting the relay to the supply voltage.

<p>E11</p> <p>ON delay</p> <p>When the supply voltage U is applied, the instantaneous contact switches into on-position and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.</p>	<p>E20</p> <p>ON delay</p> <p>When the supply voltage U is applied, the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.</p>
<p>R11</p> <p>OFF delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, both contacts switch into on-position (yellow LED illuminated). If the control contact is opened, the instantaneous contact switches into off-position and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.</p>	<p>R20</p> <p>OFF delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.</p>
<p>Es11</p> <p>ON delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the instantaneous contact switches into on-position and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.</p>	<p>Es20</p> <p>ON delay with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.</p>
<p>Wu11</p> <p>Single shot leading edge voltage controlled</p> <p>When the supply voltage U is applied, both contacts switch into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the both contacts switch into off-position. The interval already expired is erased and is restarted when the supply voltage is next applied.</p>	<p>Wu20</p> <p>Single shot leading edge voltage controlled</p> <p>When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position. The interval already expired is erased and is restarted when the supply voltage is next applied.</p>

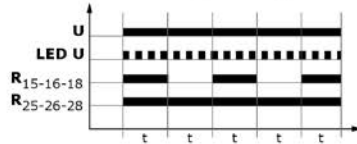
Ws11



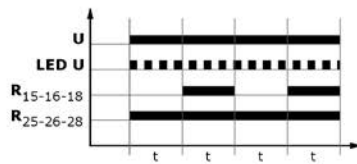
Wa11



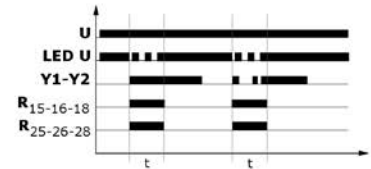
Bi11



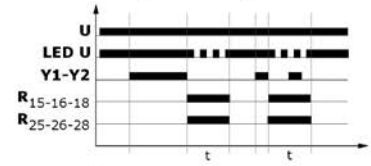
Bp11



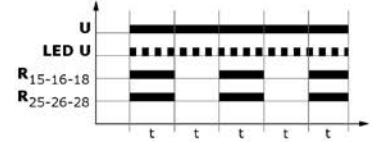
Ws20



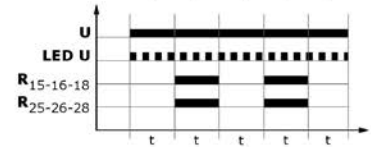
Wa20



Bi20



Bp20



Detailed Description Of Modes (Part 2)

The internal potentiometer is deactivated when a remote potentiometer is connected! The function has to be set before connecting the relay to the supply voltage.


Ws11	<p>Single shot leading edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, both contacts switch into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into off-position (yellow LED not illuminated). The instantaneous contact remains in on-position, until the control contact is opened again. During the interval, the control contact (and the instantaneous contact) can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>	Ws20	<p>Single shot leading edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>
Wa11	<p>Single shot trailing edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed the instantaneous contact switches into on-position. When the control contact is opened, the instantaneous contact switches into off-position, the delayed contact switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated), the delayed contact switches into off-position (yellow LED not illuminated). During the interval, the control contact (and the instantaneous contact) can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>	Wa20	<p>Single shot trailing edge with control contact "S"</p> <p>The supply voltage U must be constantly applied to the device (green LED illuminated). Closing the control contact Y1-Y2 has no influence on the condition of the output relay R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated), the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.</p>
Bi11	<p>Flasher pulse first</p> <p>When the supply voltage U is applied, the instantaneous contact and the delayed contact switch into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired, the delayed contact switches into off-position (yellow LED not illuminated) and the set interval t begins again. The delayed contact is triggered at a ratio of 1:1 until the supply voltage is interrupted.</p>	Bi20	<p>Flasher pulse first</p> <p>When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t begins again. The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.</p>
Bp11	<p>Flasher pause first</p> <p>When the supply voltage U is applied, the instantaneous contact switches into on-position and the set interval t begins (green LED flashes). After the interval t has expired, the delayed contact switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the delayed contact switches into off-position (yellow LED not illuminated). The delayed contact is triggered at a ratio of 1:1 until the supply voltage is interrupted.</p>	Bp20	<p>Flasher pause first</p> <p>When the supply voltage U is applied, the set interval t begins (green LED flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.</p>

Timer Relays Series ZR6

Technical Data

		ZR6MF052	
Indicators	Green LED U/t ON	Indication of supply voltage	
	Green LED U/t flashes	Indication of time period	
	Yellow LED R ON/OFF	Indication of relay output	
Mechanical Design	Housing	Self-extinguishing plastic housing	
	IP rating housing	IP40	
	Mounting	(EN 60715) DIN-rail TS 35	
	Terminal	(VBG 4, PZ1 required) Shockproof terminal connection	
	IP rating terminal	IP20	
	Mounting position	Any	
	Tightening torque	Max. 1Nm	
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end	
Input Circuit	Input	Terminals A1-A2 (galvanically separated)	
	Supply voltage	AC/DC 24V to 240V~	
	Tolerance	24 to 240VDC	-20% to +25%
		24 to 240VAC	-15% to +10%
	Rated frequency	48 to 400Hz	24 to 240V~
		16 to 48Hz	48 to 240V~
	Rated consumption	2.5VA (1W)	
	Duration of operation	100%	
	Reset time	500ms	
	Wave form	For AC Sinus	
	Residual ripple	For DC 10%	
	Drop-out voltage	> 15% of the supply voltage	
	Overvoltage category	(IEC 60664-1) III	
	Rated surge voltage	4kV	
	Output Circuit	Number of contacts and type	2 potential free CO contacts
Rated voltage		250VAC	
Switching capacity		(distance < 5mm)	750VA (3A / 250V~)
		(distance > 5mm)	1250VA (5A / 250V~)
Fusing		5A fast acting	
Mechanical service life		20 x 10 ⁶ operations	
Electrical service life		2 x 10 ⁵ operations at 1000VA resistive load	
Switching capacity		(IEC 60947-5-1)	Max. 60 / min at 100VA resistive load, Max. 6 / min at 1000VA resistive load
	Overvoltage category	(IEC 60664-1) III	
Rated surge voltage	4kV		
Control Contact	Activation	Bridge Y1-Y2	
	Potential free	Yes, basic isolation against input and output circuit	
	Loadable	No	
	Control voltage	Max. 5V	
	Short circuit current	Max. 1mA	
	Line length	Max. 10m	
	Control pulse length	Min. 50ms	
Remote Potentiometer	(not included)	When a remote potentiometer is connected, the internal potentiometer is deactivated!	
	Connections	1MΩ potentiometer, terminals Z1-Y2	
	Line type	Twisted pair	
	Control voltage	Max. 5V	
	Short circuit current	Max. μA range	
Accuracy	Line length	Max. 5m	
	Base accuracy	± 1% (of maximum scale value) using 1MΩ remote potentiometer	
	Frequency response	-	
	Adjustment accuracy	< 5% (of maximum scale value) using 1MΩ remote potentiometer	
	Repetition accuracy	< 0.5% or ± 5ms	
Ambient Conditions	Temperature influence	≤ 0,01%/°C	
	Ambient temperature	(IEC 60068-1)	-25°C to +55°C
		(UL 508)	-25°C to +40°C
	Storage temperature	-25°C to +70°C	
	Transport temperature	-25°C to +70°C	
	Relative humidity	(IEC 60721-3-3 class 3K3) 15% to 85%	
	Pollution degree	(IEC 60664-1) 3	
	Vibration resistance	(IEC 60068-2-6) 10 to 55Hz, 0.35mm	
Shock resistance	(IEC 60068-2-27) 15g, 11ms		

*The potentiometer is used for remote setting of the time. Here, the internal potentiometer (knob for fine adjustment of the time) is automatically disabled. The nominal value of the potentiometer is 1MΩ. At a value approximately > 1.6MΩ at this input the time fine-tuning is again determined by the internal potentiometer.

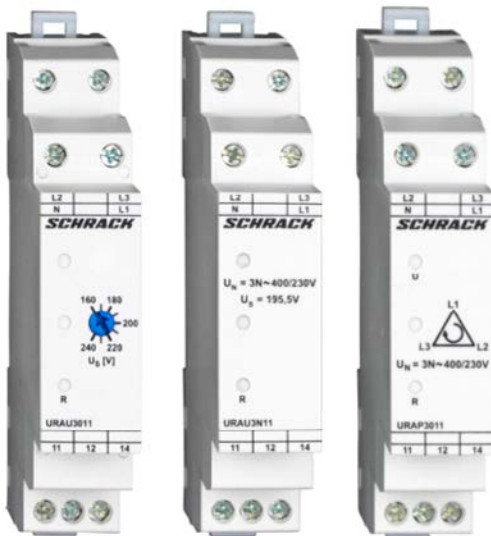
DESCRIPTION	AVAILABLE	ORDER NO.
Multi-function Relays		
Timer multifunction 12-240V AC/DC, 2CO, 8A/250V		ZR6MF052

■ Measuring and Monitoring Relays Series UR5 ■ Measuring and Monitoring Relays Series UR5



■ Measuring and Monitoring Relays Series AMPARO

■ Measuring and Monitoring Relays Series UR6



■ Measuring and Monitoring Relays Series UR9 ■ Relay Module



Measuring and Monitoring Relays

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Measuring and Monitoring Relays Series UR5



UR5U



UR5I, UR5P



UR5R1021



UR5L1021

Schrack-Info

UR5U1011

- Voltage monitoring for AC and DC in 1-phase networks
- Undervoltage monitoring
- 1 CO
- Component width 17.5mm
- In-line design

UR5U3011

- 3-phase voltage monitoring
- Undervoltage monitoring
- Supply voltage = measured voltage
- 1 CO
- Component width 17.5mm
- In-line design

UR5U3N11

- 3-phase undervoltage monitoring
- Fixed switching threshold US and fixed hysteresis
- 1 CO
- Component width 17.5mm
- In-line design

UR5I1011

- AC monitoring in 1-phase networks
- 1 CO
- Component width 17.5mm
- In-line design

UR5P3011

- Phase sequence, phase failure and phase imbalance monitoring
- 1 floating CO (output relay)
- Component width 17.5mm
- In-line design

UR5R1021

- Tripping unit for motor winding temperature monitoring with or without short-circuit monitoring of the thermistor circuit (selectable with terminal bridges)
- Optional reading of a temperature sensor
- Test functionality with integrated Reset switch
- Max. rated insulation voltage sensor circuit up to 690V
- 1 CO
- Component width 35mm
- In-line design

UR5L1021

- Filling level monitoring of conductive liquids
- Multiple modes
- Safe disconnection of measuring circuits
- 1 CO
- Component width 35mm
- In-line design



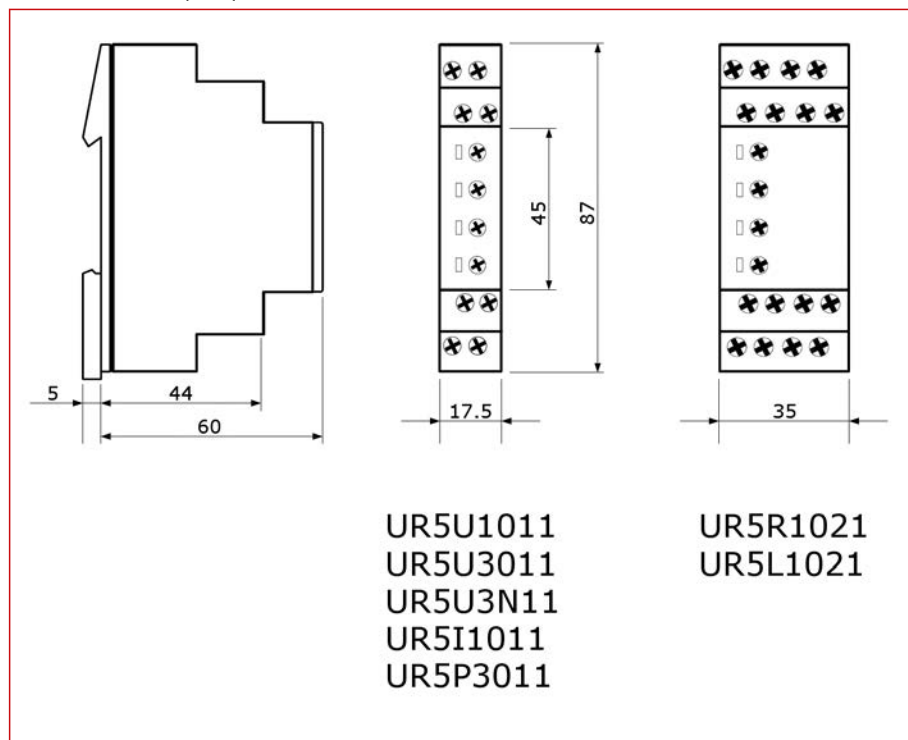
Mobil Code

Measuring and Monitoring Relays Series UR5

Overview Modes

Article number	Functions
UR5U1011	AC/DC under voltage monitoring in 1-phase mains with adjustable threshold and hysteresis. UNDER = Under voltage monitoring
UR5U3011	Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed or adjustable threshold voltage US and fixed hysteresis.
UR5U3N11	Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed threshold voltage US and fixed hysteresis.
UR5I1011	AC current monitoring in 1-phase mains with adjustable threshold and fixed hysteresis.
UR5P3011	Monitoring of phase sequence, phase failure and asymmetry with adjustable asymmetry, connection of neutral wire optional.
UR5R1021	Temperature monitoring of the motor winding (max. 6 PTC) with fault latch for temperature sensors in accordance with DIN 44081, short circuit monitoring of the thermistor line (selectable by means of terminals), integrated test/reset key.
UR5L1021	Level monitoring of conductive liquid, timing for tripping delay and turn-off delay separately adjustable and the following functions (selectable by means of rotary switch): Pump up = Pump up or minimum monitoring Pump down = Pump down or maximum monitoring

Dimensions (mm)

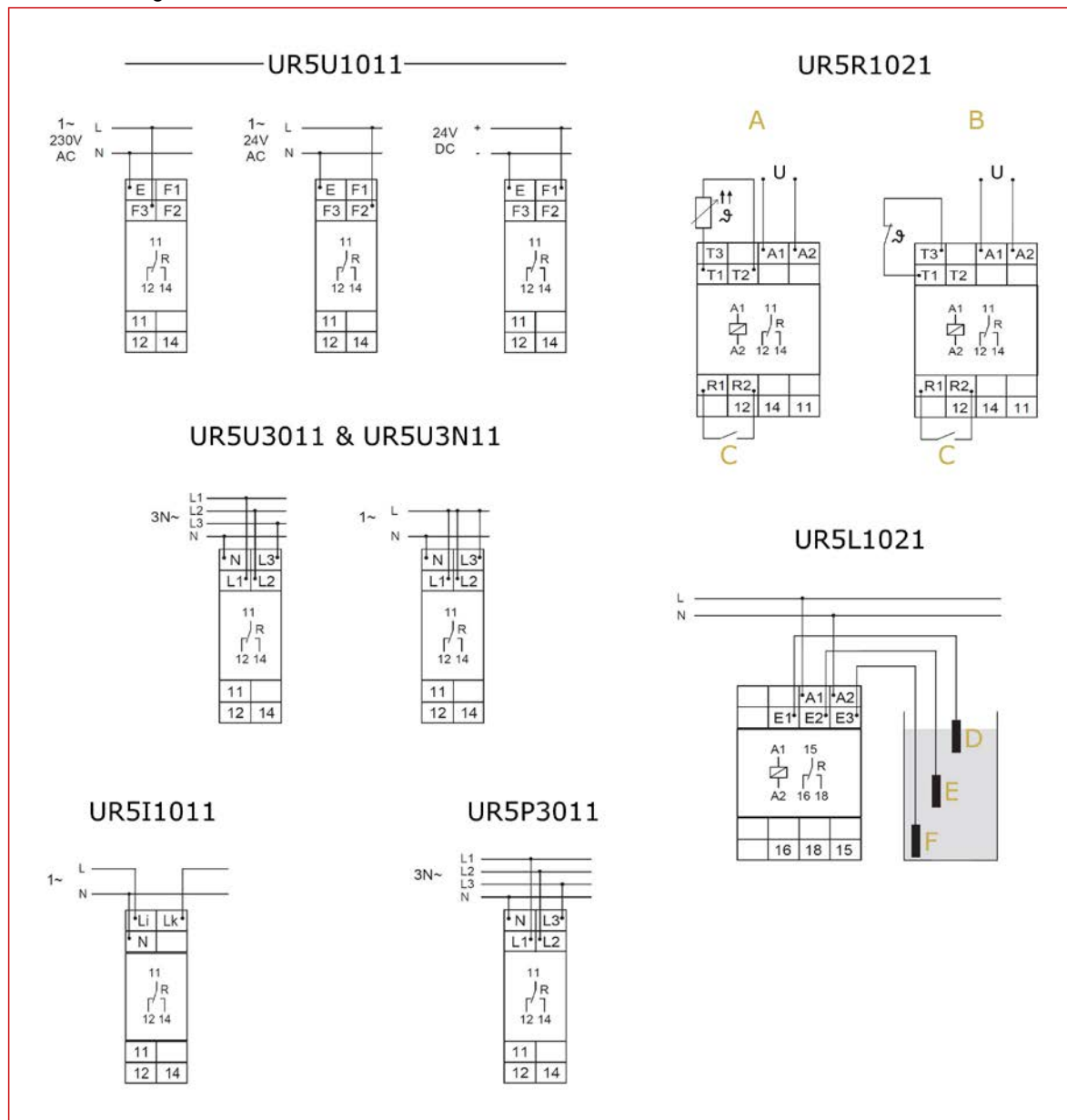


Measuring and Monitoring Relays Series UR5

Time Ranges

Article number	Adjustment range
UR5U1011	Tripping delay (delay): -
UR5U3011	Tripping delay: fixed approx. 200ms
UR5U3N11	Tripping delay: fixed approx. 200ms Threshold Us: (L - N) fixed, 195.5V (L - N)
UR5I1011	Tripping delay (delay): -
UR5P3011	Tripping delay: fixed approx. 100ms
UR5R1021	Start-up suppression time (start): - Tripping delay (delay): -
UR5L1021	Tripping delay (delay ON): 0.5 to 10s Turn-off delay (delay OFF): 0.5 to 10s

Circuit Diagrams



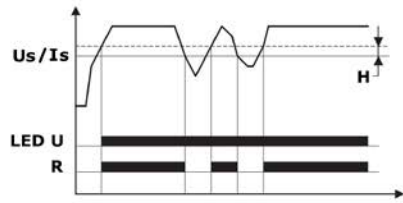
Circuit Diagrams

A	Monitoring temperature sensors
B	Monitoring thermal contact
C	Reset
D	Probe max.
E	Probe min.
F	Mass probe

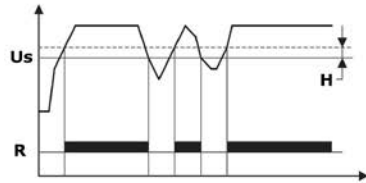
Measuring and Monitoring Relays Series UR5

Modes

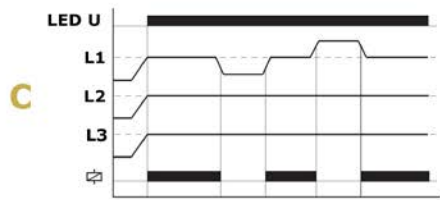
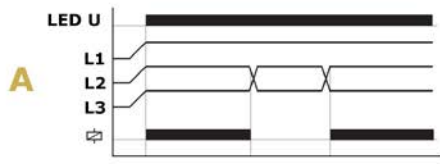
UR5U1011
&
UR5I1011



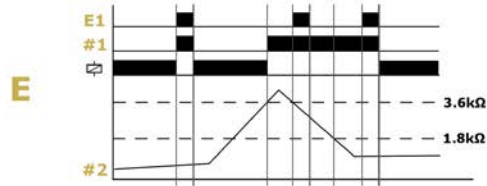
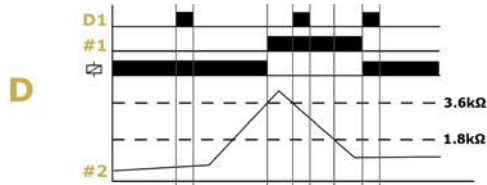
UR5U3011
&
UR5U3N11



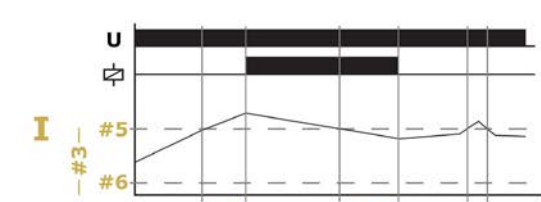
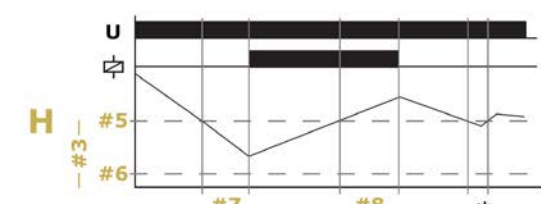
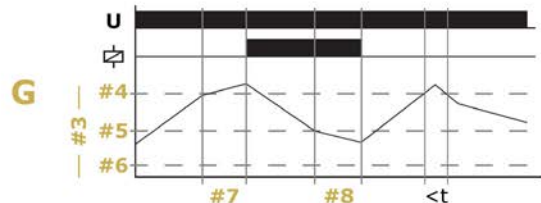
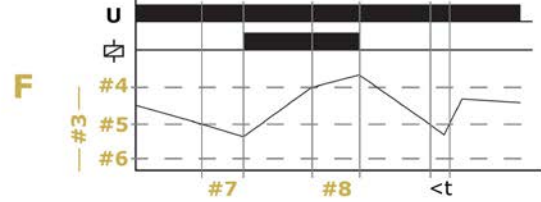
UR5P3011



UR5R1021



UR5L1021



Measuring and Monitoring Relays Series UR5

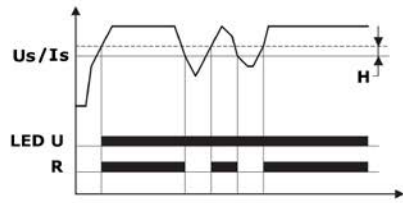
Detailed Description Of Modes (Part 1)

UR5U1011	The supply voltage U must be constantly applied to the device (green LED illuminated). The output relay R switches into on-position (yellow LED illuminated) when the measured voltage U exceeds the value adjusted at the U_s regulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the voltage falls below the set value by more than the fixed hysteresis.													
UR5U3011	<p>Under voltage monitoring for 3-phase AC mains with variable threshold voltage Us and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S relay.</p> <p>Test function (optional) The test function enables a manually disconnection of the output relay.</p> <p>Under voltage monitoring The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_S by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).</p>													
UR5U3N11	<p>Under voltage monitoring for 3-phase AC mains with fixed threshold voltage U_S and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S relay.</p> <p>Test function (optional) The test function enables a manually disconnection of the output relay.</p> <p>Under voltage monitoring The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_S by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).</p>													
UR5I1011	The supply voltage U must be constantly applied to the device (green LED illuminated). The output relay R switches into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the I_s regulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the current falls below the set value by more than the fixed hysteresis.													
UR5P3011	<p>A</p> <p>B</p> <p>C</p>	<p>Phase sequence monitoring When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED not illuminated).</p> <p>Phase failure monitoring The output relay R switches into off-position (yellow LED not illuminated), when one of the three phases fails.</p> <p>Asymmetry monitoring The output relay R switches into off-position (yellow LED not illuminated), when the asymmetry exceeds the value set at the ASYM-regulator. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.</p>												
UR5R1021	<p style="text-align: center;">Temperature monitoring of the motor winding with fault latch</p> <p>If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than $3.6k\Omega$ (standard temperature of the motor), the output relay switches into on-position.</p> <p>Pressing the test/reset key under this conditions, forces the output relay to switch into off-position. It remains in state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault. The test function is not effective by using an external reset key.</p> <p>When the cumulative resistance of the PTC-circuit exceeds $3.6k\Omega$ (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated).</p> <p>The output relay R switches into on-position again (red LED not illuminated), if the cumulative resistance drops below $1.65k\Omega$ by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and reapplied.</p> <table border="1"> <tr> <td>D</td> <td>Application of an external reset</td> </tr> <tr> <td>D1</td> <td>External reset</td> </tr> <tr> <td>E</td> <td>Application of internal test/reset key</td> </tr> <tr> <td>E1</td> <td>Test/Reset</td> </tr> <tr> <td>#1</td> <td>LED Failure</td> </tr> <tr> <td>#2</td> <td>PTC (Positive Temperature Coefficient)</td> </tr> </table>		D	Application of an external reset	D1	External reset	E	Application of internal test/reset key	E1	Test/Reset	#1	LED Failure	#2	PTC (Positive Temperature Coefficient)
D	Application of an external reset													
D1	External reset													
E	Application of internal test/reset key													
E1	Test/Reset													
#1	LED Failure													
#2	PTC (Positive Temperature Coefficient)													

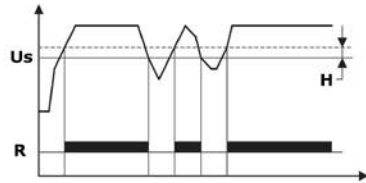
Measuring and Monitoring Relays Series UR5

Modes

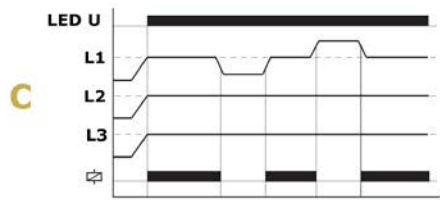
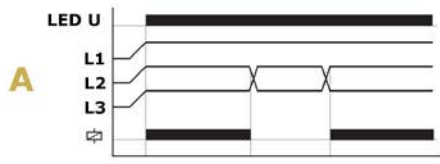
UR5U1011
&
UR5I1011



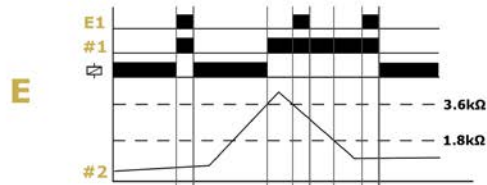
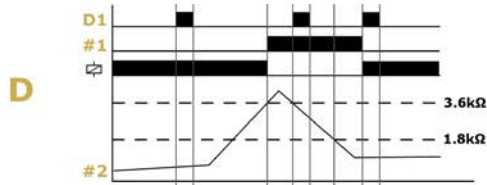
UR5U3011
&
UR5U3N11



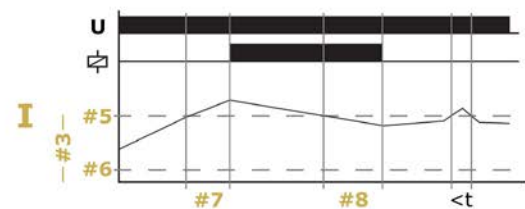
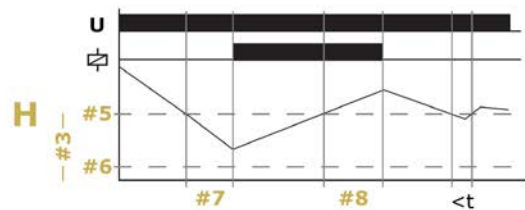
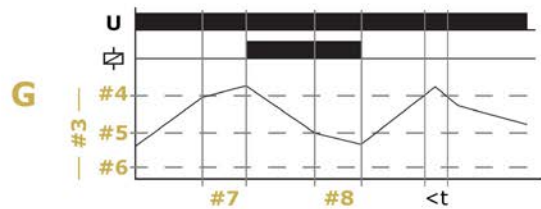
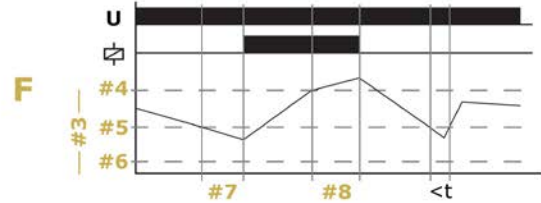
UR5P3011



UR5R1021



UR5L1021



Measuring and Monitoring Relays Series UR5

Detailed Description Of Modes (Part 2)

Note	
Use cables with low capacity for wiring the probes especially with extended wiring length!	
<p>Following processes are suggested for the adjustment:</p> <p>The existent time delay should be to minimum (0.5s).</p> <p>The function selector switch must be in position pump down.</p> <p>Turn the sensitivity controller slowly clockwise from "min." to "max." until the relays switches into on-position (probes must be in dipped state).</p> <p>The moistened probes should be taken out of the liquid to control if the relays switches into off-position. If the relays doesn't switch into off-position, turn the sensitivity controller slightly back to "min." (counter clockwise).</p> <p>Set the existent time delay to desired value to fade out a short term moisten the probes by waves in the liquid.</p> <p>Set the function selector switch to desired position (either pump up or pump down).</p>	
UR5L1021	<p>F Pump up</p> <p>Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the minimum probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the maximum probe E1, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>
	<p>G Pump down</p> <p>Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the maximum probe E1 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval, the output relays R switches into off-position (yellow LED not illuminated).</p>
	<p>H Minimum monitoring (Pump up)</p> <p>Connection the probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>
	<p>I Maximum monitoring (Pump down)</p> <p>Connection of probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the probe E2 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>
	#3 Level
	#4 Probe E1
	#5 Probe E2
	#6 Probe E3
#7 Delay ON	
#8 Delay OFF	

 Measuring and Monitoring Relays Series UR5

 Technical Data (Part 1)

	UR5U1011	UR5U3011	UR5U3N11	UR5I1011		
Indicators	Green LED ON/OFF	Indication of supply voltage	-	-	Indication of supply voltage	
	Green LED L1 ON/OFF	-	Indication of supply voltage L1 - N	-	-	
	Green LED L2 ON/OFF	-	Indication of supply voltage L2 - N	-	-	
	Green LED L3 ON/OFF	-	Indication of supply voltage L3 - N	-	-	
	Yellow LED ON/OFF	Indication of relay output				
Mechanical Design	Housing	Self-extinguishing plastic housing				
	Degree of protection housing	IP40				
	Mounting (EN 60715)	DIN-rail TS 35				
	Terminal (VBG 4, PZ1 required)	Shockproof terminal connection				
	Degree of protection terminal	IP20				
	Mounting position	Any				
	Tightening torque	Max. 1Nm				
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end				
Input Circuit	Supply voltage	Measuring voltage				
	Rated voltage U _N	24VAC/DC, 230V~	3(N) 230 / 400V~		230V~	
	Terminals	230V~ E - F3 24V~ E - F2 (distance > 5mm) 24V DC E - F1(+)	N - L1 - L2 - L3 - - - -		Li - N - -	
	Tolerance	-25% to +20% of U _N	-30% to +10% of U _N	-30% to +15% of U _N	-15% to +15% of U _N	
	Rated consumption	230V~ 10VA (0.6W) 24V~ 1.3VA (0.8W) 24V DC 0.6W	5VA (0.6W) 8VA (0.8W) -	5VA (0.6W) - -	5VA (0.8W) - -	
	Rated frequency	AC 48 to 63Hz				
	Duration of operation	100%				
	Reset time	500ms				
	Wave form	AC/DC Sinus	-		Sinus	
	Hold-up time	-				
	Drop-out voltage	> 60% of supply voltage	Determined by undervoltage detection (see measured circuit)		> 20% of supply voltage	
	Overvoltage category (IEC 60664-1)	III				
	Rated surge voltage	4kV				
	Output Circuit	Number of contacts and type	1 potential free CO			
		Rated voltage	250V~			
Switching capacity		1250VA (5A / 250V~)				
Fusing		5A fast acting				
Mechanical service life		20 x 10 ⁶ operations				
Electrical service life		2 x 10 ⁵ operations at 1000VA resistive load				
Switching capacity (IEC 60947-5-1)		Max. 6 / min at 1000VA resistive load				
Overvoltage category (IEC 60664-1)		III				
Rated surge voltage		4kV				
Measured Voltage		Measuring variable	AC or DC Sinus, 48 to 63Hz	AC Sinus, 48 to 63Hz		
	Measuring input	Supply voltage		160 - 240V~	Supply voltage 5A AC	
	Terminals	230V~ E - F3 24V~ E - F2* 24V DC E - F1(+)	N - L1 - L2 - L3 - - - -		Li, Lk - -	
	Overload capacity	120% of U _N	Determined by tolerance specified for supply voltage		7A (ex 5A: distance > 5mm!)	
	Starting current	-			1 s 40A 3 s 20A	
	Input resistance	-			10mΩ	
	Switching threshold Us	80 - 120%	160 - 240V	fix, 195.5V (L - N)	10 - 100% of I _N	
	Hysteresis H	Fixed, 5%	Approx. 5%		Fixed, 10%	
	Overvoltage category (IEC 60664-1)	III				
	Rated surge voltage	4kV				

Measuring and Monitoring Relays Series UR5

Technical Data (Part 2)

		UR5U1011	UR5U3011	UR5U3N11	UR5I1011
Accuracy	Base accuracy	< 5% of rated value			
	Adjustment accuracy	± 5% of rated value	-		± 5% of rated value
	Repetition accuracy	< 2% of rated value			
	Voltage influence	-			
	Temperature influence	≤ 0.05% / °C			
Ambient Conditions	Ambient temperature (IEC 60068-1)	-25°C to +55°C			
	Storage temperature	-25°C to +70°C			
	Transport temperature	-25°C to +70°C			
	Relative humidity (IEC 60721-3-3 class 3K3)	15% to 85%			
	Pollution degree (IEC 60664-1)	2			2, if built in 3
	Vibration resistance (IEC 68-2-6)	10 to 55Hz, 0.35mm	-		10 to 55Hz, 0.35mm
	Shock resistance (IEC 68-2-27)	15g, 11ms	-		15g, 11ms

*The distance between the devices must be **greater than 5mm!**

Technical Data (Part 3)








		UR5P3011	UR5R1021	UR5L1021
Indicators	Green LED ON/OFF	Indication of supply voltage		
	Yellow LED ON/OFF	Indication of relay output	-	Indication of relay output
	Red LED ON/OFF	-	Indication of failure	
Mechanical Design	Housing	Self-extinguishing plastic housing		
	Degree of protection housing	IP40		
	Mounting (EN 60715)	DIN-rail TS 35		
	Terminal (VBG 4, PZ1 required)	Shockproof terminal connection		
	Degree of protection terminal	IP20		
	Mounting position	Any		
	Tightening torque	Max. 1Nm		
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end		
Input Circuit	Supply voltage	Measured voltage	230V~	
	Rated voltage U _N	3(N) 230 / 400V~	230V~	
	Terminals	N-L1-L2-L3	A1 - A2	
	Tolerance	-30% to +30% of U _N	-15% to +10% of U _N	
	Rated consumption	8VA (0.8W)	1.3VA (1W)	2VA (1W)
	Rated frequency	AC 48 to 63Hz		
	Duty cycle	100%		
	Reset time	500ms	250ms	500ms
	Residual ripple for DC	-	50ms	-
	Drop out voltage	> 20% of the supply voltage	> 30% of the supply voltage	
	Overvoltage category (IEC 60664-1)	III		
	Rated surge voltage	4kV	6kV	
Output Circuit	Number of contacts and type	1 potential free CO		
	Rated voltage	250V~		
	Terminals	-	11 - 12 - 14	-
	Switching capacity	1250VA (5A / 250V~)	1250VA AC1 B300/P300 (IEC 60947-5-1), therm. constant current 5A	
	Fusing	5A fast acting		
	Mechanical service life	15 x 10 ⁶ operations		
	Electrical service life	100 x 10 ³ operations at 1000VA resistive load	2 x 10 ⁵ operations at 1000VA resistive load	
	Switching frequency (IEC 60947-5-1)	Max. 6 / min at 1000VA resistive load		
	Overvoltage category (IEC 60664-1)	III		
	Rated surge voltage	4kV	6kV	

Measuring and Monitoring Relays Series UR5

Technical Data (Part 4)

		UR5P3011	UR5R1021	UR5L1021
Measuring Circuit	Measuring variable	3 (N)~, sinus, 48 to 63Hz	-	-
	Measuring input	Supply voltage		Conductive probes
	Terminals	(N) - L1 - L2 - L3	T1 - T2 or T1 - T3	E1 - E2 - E3
	Overload capacity	Determined by tolerance specified for supply voltage	-	-
	Internal resistance	-	< 1.5kΩ	-
	Response value (relay in off-position)	-	≥ 3.6kΩ	-
	Release value (relay in on-position)	-	≤ 1.65kΩ	-
	Disconnection (short circuit thermistor)	Yes	-	At T1 - T2
		No	-	At T1 - T3
	Measuring voltage T1-T2 (EN 60947-8)		≤ 7.5V at R ≤ 4kΩ	
	Asymmetry	5% to 25% adjustable or disengageable	-	-
	Sensitivity	-	-	0.25 to 100kΩ (4mS to 10S)
	Sensor voltage	-	-	12V~
	Sensor current	-	-	Max. 7mA
	Wiring distance (capacity of cable 100 nF / km)	Set value < 50% Set value 100%	-	Max. 1000m Max. 100m
Overvoltage category (IEC 60664-1)		III		
Rated surge voltage		4kV	6kV	
Accuracy	Base accuracy	± 5% of maximum scale value	± 5%	-
	Adjustment accuracy	< 5%	-	-
	Repetition accuracy	< 2%	< 1%	-
	Voltage influence		-	-
	Temperature influence	≤ 0.05% / °C	≤ 0.15% / °C	-
Control Contact R*	Function	-	Connection of an external reset key	-
	Loadable	-	No	-
	Line length R1 - R2	-	Max. 10m (twisted pair)	-
	Control pulse length	-	Min. 50ms	-
	Reset	-	Potential free NO contact, terminals R1 - R2	-
Ambient Conditions	Ambient temperature (IEC 60068-1)		-25°C to +55°C	
	Storage temperature		-25°C to +70°C	
	Transport temperature		-25°C to +70°C	
	Relative humidity (IEC 60721-3-3 class 3K3)		15% to 85%	
	Pollution degree (IEC 60664-1)		2	2, if built in 3

*Note: The terminals **R2 - T2** are internal affiliated with each other!

DESCRIPTION	AVAILABLE	ORDER NO.
Voltage Monitoring Relays		
Voltage monitoring relay, 1 phase, 1CO		UR5U1011
Voltage monitoring relay with adjustable voltage range 160-240V, 3-phase, 1CO		UR5U3011
Voltage monitoring relay, 3 phase against N, fixed Us=195.5V, 1CO		UR5U3N11
Current Monitoring Relays		
Current monitoring relay 1 phase, input 230V, 1CO		UR5I1011
Phase Monitoring Relays		
Phase monitoring relay, 3 phase, 1CO		UR5P3011
Thermistor Monitoring Relays		
Thermistor monitoring relay, 1 phase, 1CO		UR5R1021
Level Monitoring Relays		
Level monitoring relay, 1 phase, 1CO		UR5L1021

Measuring and Monitoring Relays Series AMPARO



URAU, URAP



URAU3011



URAU3N11



URAP3011

Schrack-Info

URAU3011

- 1- and 3-phase undervoltage monitoring with settable switching threshold
- 1 CO, 5A
- Supply voltage 230/400V
- Supply circuit = measuring circuit
- Neutral conductor is required
- Component width 17.5mm

URAU3N11

- 1- and 3-phase undervoltage monitoring with fixed switching threshold
- 1 CO, 5A
- Supply voltage 230/400V
- Supply circuit = measuring circuit
- Neutral conductor is required
- Component width 17.5mm

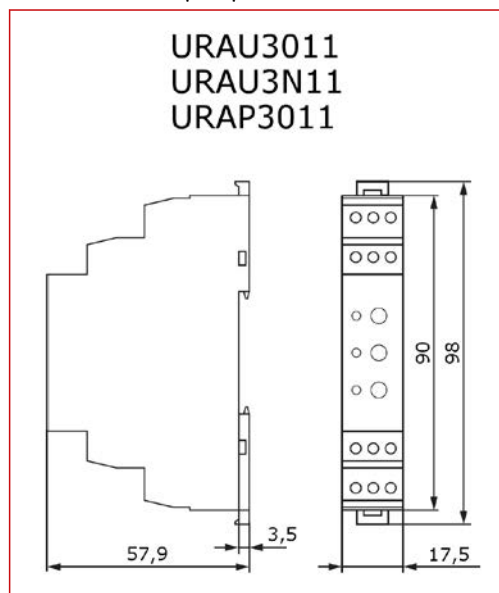
URAP3011

- Phase sequence and phase failure monitoring
- Fixed phase imbalance monitoring
- Supply voltage 230/400V
- Neutral conductor is required
- Component width 17.5mm

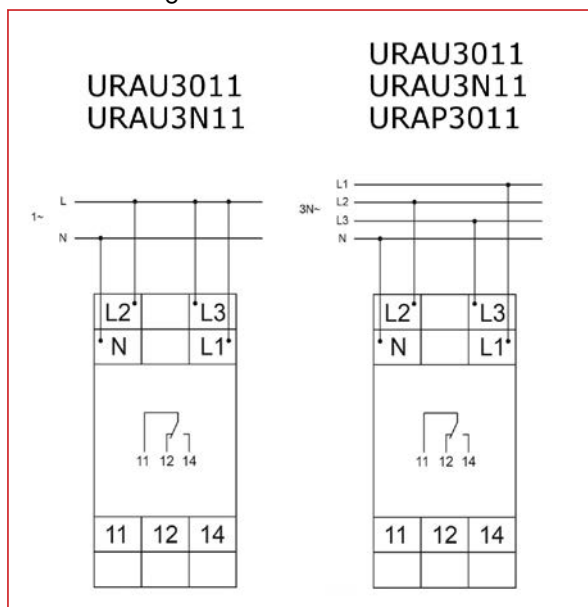


Mobil Code

Dimensions (mm)

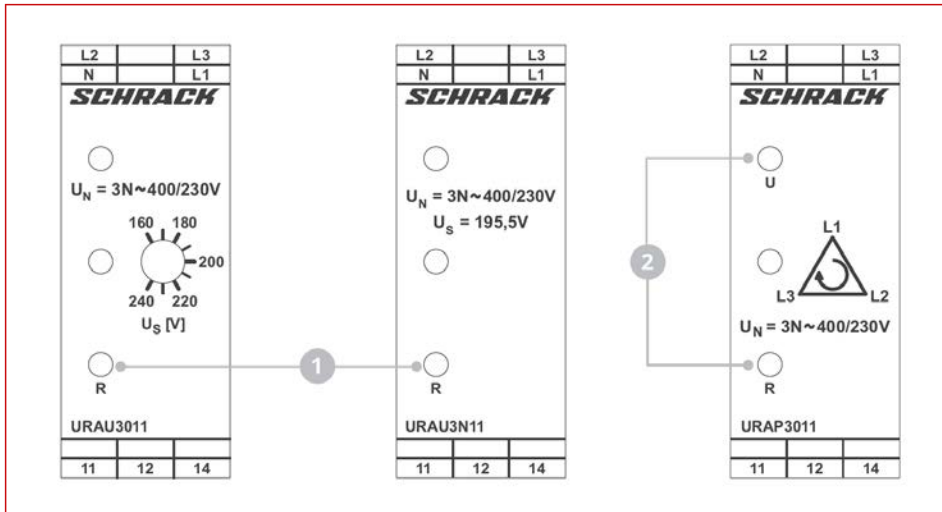


Circuit Diagrams



Measuring and Monitoring Relays Series AMPARO

Configuration and Functionalities



Configuration and Settings

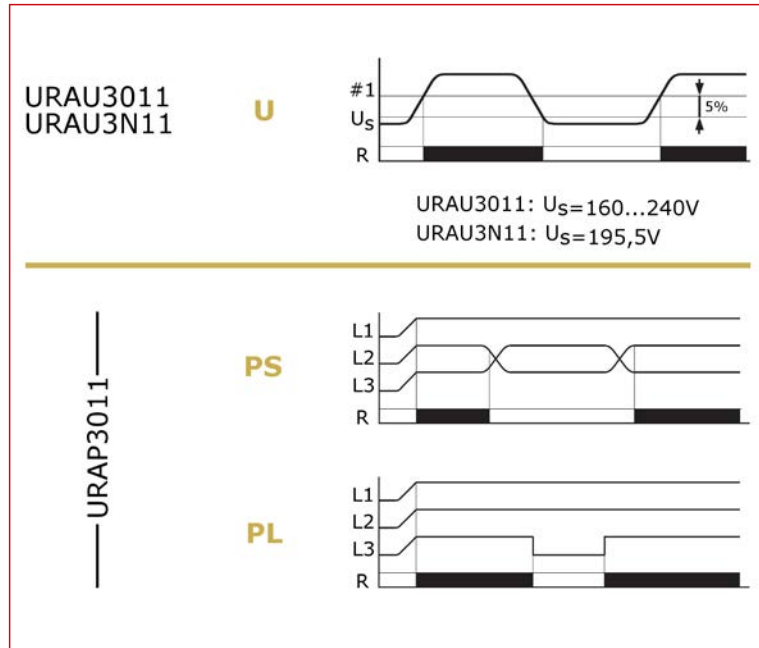
1	URAU3011 and URAU3N11	
	Status indication	
	R	LED yellow = Relay is active

2	URAP3011	
	Status indication	
	U	LED green = Supply voltage is applied
	R	LED yellow = Relay is active

Electrical connection	
L1-L2-L3-N	Supply and measuring voltage 3N~ 230 / 400V, 50 / 60Hz
11-12-14	Output relay AC1 5A / 250V

Measuring and Monitoring Relays Series AMPARO

Modes



Modes

URAU3011	
U	Undervoltage monitoring for 3-phase AC mains with variable threshold voltage U_S and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1 , L2 and L3 . A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S relay.
	Undervoltage monitoring
	The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_S by more than the fixed hysteresis H . When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).
#1	Hysteresis

URAU3N11	
U	Undervoltage monitoring for 3-phase AC mains with fixed threshold voltage U_S (=195.5 V) and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1 , L2 and L3 . A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S relay.
	Undervoltage monitoring
	The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exceeds the fixed threshold U_S by more than the fixed hysteresis H . When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).
#1	Hysteresis

URAP3011	
PS	Monitoring of phase sequence
	When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay R switches into on-position. When the phase sequence changes, the output relay R switches into off-position.
PL	Phase failure monitoring
	The output relay R switches into off-position, when one of the three phases fails.

 Measuring and Monitoring Relays Series AMPARO

 Technical Data (Part 1)

		URAU3011	URAU3N11	URAP3011
Input Circuit	Terminals	L1 - L2 - L3 - N		
	Supply voltage	230 / 400V~		
	Tolerance	-30% to +15% of U_N		
	Rated frequency	50 / 60Hz		
	Duty cycle	100%		
	Bridging time	10ms		
	Reset time	500ms		
	Drop-out voltage	< 30%	According to switching threshold 0.85 of U_N	< 30%
	Power loss	0.8W		
	Measuring Circuit	Terminals	L1 - L2 - L3 - N	
Measure		Voltage 3-phase		
Measurement methods		Rectified value		
Monitoring functions		Undervoltage	Undervoltage	Phase sequence, phase failure, asymmetry
Measuring range		$U_N=230 / 400V\sim$		
Overload		See tolerances of the supply voltage		
Thresholds		Max. Min. Adjustable Asymmetry	- 85% of U_N Yes -	- 85% of U_N No - Fixed, 30%
Hysteresis		5%		
ON delay		Fixed	Approx. 400ms	
OFF delay		< 250ms		
Indication	Supply voltage	Green LED U ON	-	Indication of supply voltage
	Relay status	Yellow LED R ON	Relay is energized	
Output Circuit	Number of contacts and type	1 CO		
	Terminals	11 - 12 - 14		
	Type	Relay		
	Contact material	AgNi		
	Rated voltage	250V		
	Max. switching voltage	250V		
	Max. switching current	5A		
	Rated current	5A / 250V		
	Lifetime	Mechanical Electrical (AC - 1)	1 x 10 ⁶ operations 1 x 10 ⁵ operations	
	Switching frequency	With load Without load	6 / min 300 / min	
Fusing	5A fast acting			
Accuracy	Basic accuracy	< 5%		
	Setting accuracy	-		
	Repeatability	< 2%		
	Influence of temperature	< 0.05% / °C		
Standards	Product standards	EN 61010-2-201:2013		
	Immunity	EN 61326-1	Basic electromagnetic environment	
	Emission	EN 61326-1	Class B	
Datas of Insulation accord. to IEC 61010-2-201	Pollution degree	2		
	Overvoltage category	II		
	Rated insulation voltage	Input circuit/ output circuit	300V	
	Rated surge voltage	Input circuit/ output circuit	2500V	
	Insulation test voltage	Input circuit/ output circuit	1500V	
	Insulation	Input circuit/ output circuit	Basic insulation	

Measuring and Monitoring Relays Series AMPARO


Technical Data (Part 2)

		URAU3011	URAU3N11	URAP3011	
Electrical Connection	Terminal	Screw terminal			
	Rated terminal capacity	2,5mm ²			
	Max. terminal capacity	Flexible with/without ferrule	1 x 0,25...2,5mm ² (23 AWG...14AWG)		
		Flexible without sleeve	2 x 0,25...1,5mm ² (23 AWG...14AWG)		
		Flexible with twin-sleeve	2 x 0,25...1,5mm ² (23 AWG...14AWG)		
		Stranded without sleeve	1 x 0,25...2,5mm ² (23 AWG...14AWG)		
Length without insulation	7mm				
Tightening torque	Max. 0,5Nm				
General Data	Ambient temperature	Operation -25...+50°C			
	Dimensions (DIN 43880)	LxHxD	17,5 x 97 x 57,9mm		
	Mounting (EN 60715)	DIN-Rail			
	Mounting position	Any			
	Degree of protection	Housing	IP40		
		Terminals	IP20		

DESCRIPTION	AVAILABLE	ORDER NO.
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Voltage Monitoring Relays

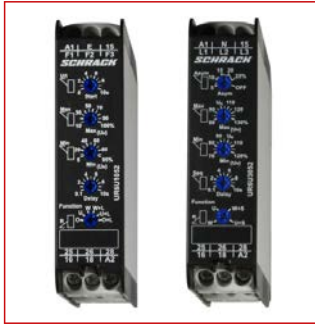
Voltage monitoring relay AMPARO with adjustable voltage range 160-240V, 230V-AC, 3 phase, 1CO, 5A/230V		URAU3011
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Voltage monitoring relay AMPARO, 230V-AC, with fixed switching threshold $U_s=195.5V$, 3 phase against N, 1 CO, 5A/230V		URAU3N11
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Phase Monitoring Relays

Phase monitoring relay AMPARO, 230V-AC, 3 phase, 1CO, 5A/230V		URAP3011
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Measuring and Monitoring Relays Series UR6



UR6U



UR6I1052



UR6P3052



UR6R1052



UR6L1052

Schrack-Info

UR6U1052

- Multi-function monitoring relay
- Voltage monitoring for AC and DC in 1-phase networks
- Error memory
- 16.6 to 400Hz
- 2 CO
- Zoom voltage 24 to 240VAC/DC
- Component width 22.5mm
- Industrial type design

UR6U3052

- Multi-function monitoring relay
- Voltage monitoring in 3-phase networks
- Phase sequence and phase failure monitoring
- Phase imbalance monitoring can be activated/deactivated
- Neutral conductor connection optional
- Loss of neutral wire detection
- 2 CO
- Zoom voltage 24 to 240VAC/DC
- Component width 22.5mm
- Industrial type design

UR6I1052

- Multi-function monitoring relay
- Current monitoring for AC and DC in 1-phase networks
- Error memory
- 16.6 to 400Hz
- 2 CO
- Zoom voltage 24 to 240VAC/DC

- Component width 22.5mm
- Industrial type design

UR6P3052

- Voltage monitoring in 3-phase networks
- Phase sequence and phase failure monitoring
- Supply voltage = measured voltage
- Reverse voltage detection
- Neutral conductor connection optional
- 2 CO
- Component width 22.5mm
- Industrial type design

UR6R1052

- Motor winding temperature monitoring
- 2 CO
- Supply voltage 230VAC
- Connection of external Reset switch possible
- Component width 22.5mm
- Industrial type design

UR6L1052

- Multi-function monitoring relay
- Filling level monitoring of conductive liquids
- Safe disconnection of measuring circuits
- 2 CO
- Component width 22.5mm
- Industrial type design



Mobil Code

Measuring and Monitoring Relays Series UR6

Overview Modes

UR6U1052	AC/DC voltage monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately adjustable as well as the following functions (selectable by means of rotary switch):
	OVER Overvoltage monitoring
	OVER + LATCH Overvoltage monitoring with fault latch
	UNDER Undervoltage monitoring
	UNDER + LATCH Undervoltage monitoring with fault latch
	WIN Monitoring the window between "Min." with "Max."
WIN + LATCH Monitoring the window between "Min." with "Max." with fault latch	

UR6U3052	Voltage monitoring in 3-phase mains with adjustable thresholds, adjustable tripping delay, monitoring of phase sequence and phase failure, monitoring of asymmetry with adjustable threshold as well as the following functions (selectable by means of rotary switch):
	UNDER Undervoltage monitoring
	UNDER + SEQ Undervoltage monitoring and monitoring of phase sequence
	WIN Monitoring the window between "Min." and "Max."
WIN + SEQ Monitoring the window between "Min." and "Max." and monitoring of phase sequence	

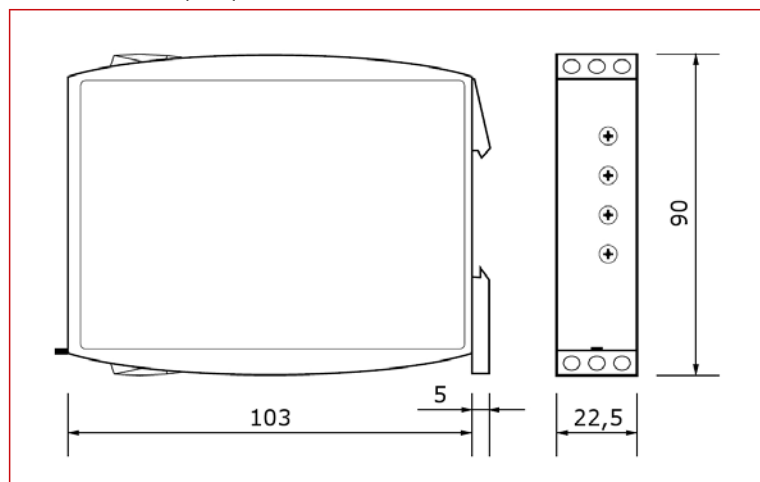
UR6I1052	AC/DC current monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately adjustable as well as the following functions (selectable by means of rotary switch):
	OVER Overcurrent monitoring
	OVER + LATCH Overcurrent monitoring with fault latch
	UNDER Undercurrent monitoring
	UNDER + LATCH Undercurrent monitoring with fault latch
	WIN Monitoring the window between "Min." and "Max."
WIN + LATCH Monitoring the window between "Min." and "Max." with fault latch	

UR6P3052	Monitoring of phase sequence, phase failure and detection of return voltage (by means of evaluating the asymmetry)
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UR6R1052	Temperature monitoring of the motor winding (max. 6 PTC) with fault latch for temperature probes in accordance with DIN 44081 and test function with integrated test/reset key
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UR6L1052	Level monitoring of conductive liquid, timing for tripping delay and turnoff delay separately adjustable as well as the following functions (selectable by means of rotary switch):
	PUMP UP Pump up or minimum monitoring
	PUMP DOWN Pump down or maximum monitoring

Dimensions (mm)

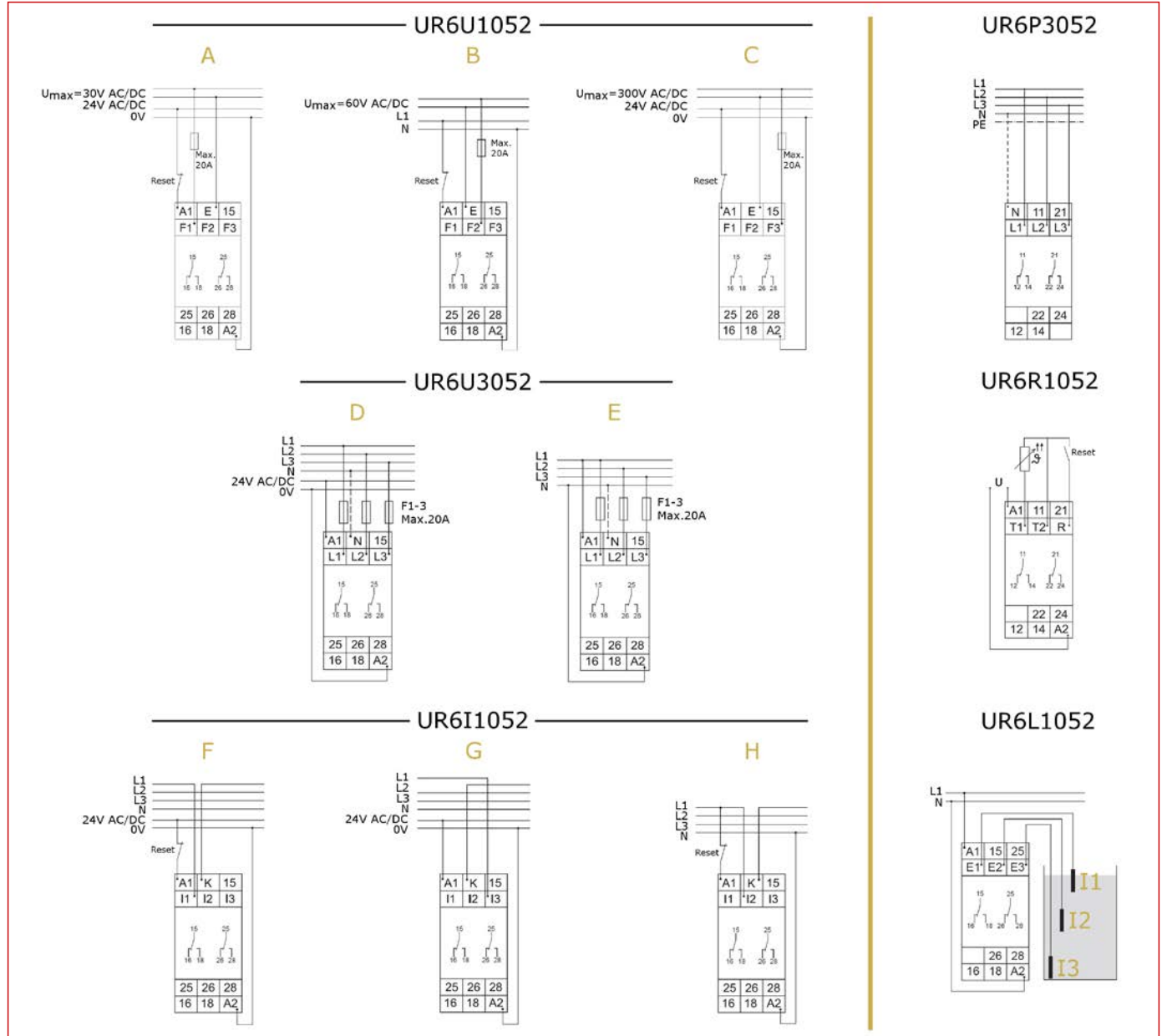


Time Ranges

Article number		Adjustment range	
UR6U1052	Start-up suppression time	0s	10s
	Tripping delay	0.1s	10s
UR6U3052	Start-up suppression time	-	-
	Tripping delay	0.1s	10s
UR6I1052	Start-up suppression time	0s	10s
	Tripping delay	0.1s	10s
UR6P3052	Start-up suppression time	Fixed, max. 500ms	
	Tripping delay	Fixed, max. 350ms	
UR6R1052	Start-up suppression time	-	
	Tripping delay	-	
UR6L1052	Tripping delay (DELAY ON)	0.5s	10s
	Turn-off delay (DELAY OFF)	0.5s	10s

Measuring and Monitoring Relays Series UR6

Circuit Diagrams Overview



Overview Circuit Diagrams

UR6U1052	
A	Supply voltage 24VAC/DC Range 30V and fault latch
B	Supply voltage 230VAC/DC Range 60V and fault latch
C	Supply voltage 24VAC/DC Range 300V and fault latch

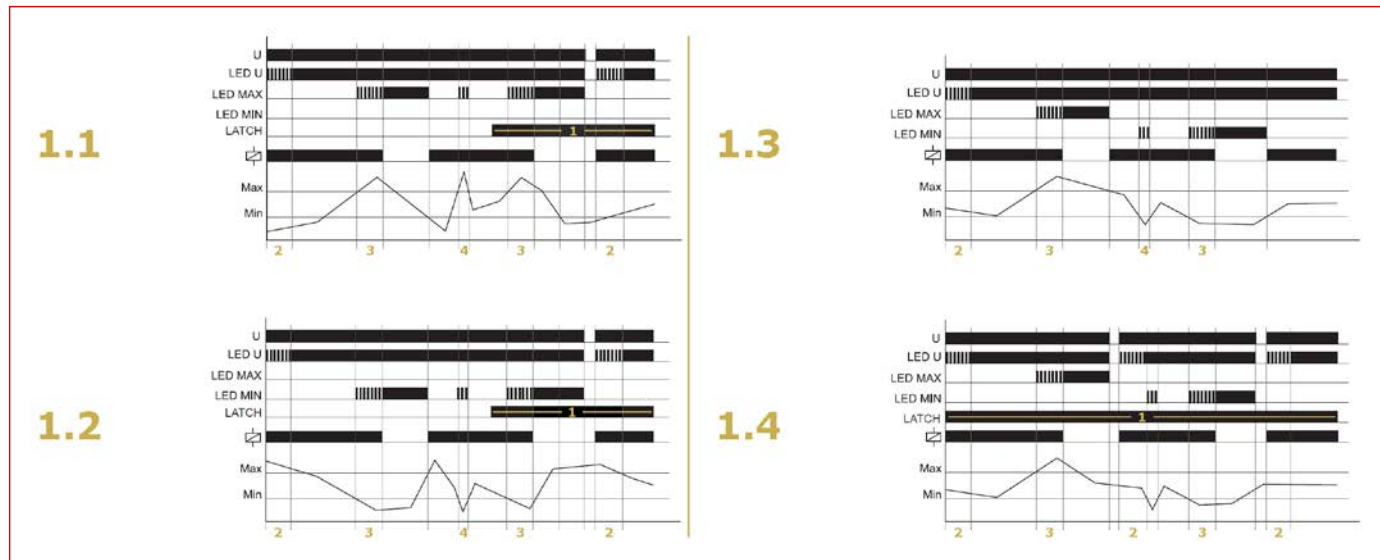
UR6I1052	
F	Supply voltage 24VAC/DC Range 20mA and fault latch
G	Supply voltage 24VAC/DC Range 5A without fault latch
H	Supply voltage 230VAC Range 1A and fault latch

UR6U3052	
D	Supply voltage 24VAC/DC
E	Supply voltage 230VAC

UR6L1052	
I1	Probe max.
I2	Probe min.
I3	Mass probe

Measuring and Monitoring Relays Series UR6

UR6U1052 Modes



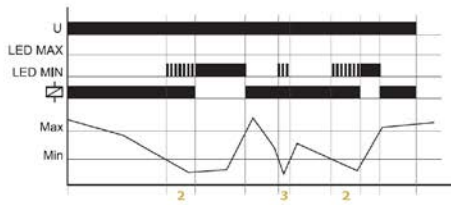
Detailed Description of UR6U1052 Modes

UR6U1052	<p>When the supply voltage U is applied, the output relays switch into on-position (yellow LED illuminated) and the set interval of the start-up suppression (START) begins (green LED U flashes). Changes of the measured voltage during this period do not affect the state of the output relay. After the interval has expired the green LED is illuminated steadily. For all the functions the LEDs "MIN" and "MAX" are flashing alternating, when the minimum value for the measured voltage was chosen to be greater than the maximum value.</p>	
	OVER, OVER + LATCH	<p style="text-align: center;">Overvoltage monitoring</p> <p>When the measured voltage exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage falls below the value adjusted at the MIN-regulator (red LED MAX not illuminated). If the fault latch is activated (OVER+LATCH) and the measured voltage remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured voltage falls below the value adjusted at the MIN-regulator. After resetting the failure (interrupting and reapplying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).</p>
	UNDER, UNDER + LATCH	<p style="text-align: center;">Undervoltage monitoring</p> <p>When the measured voltage falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage exceeds the value adjusted at the MAX-regulator. If the fault latch is activated (UNDER+LATCH) and the measured voltage remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured voltage exceeds the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).</p>
	WIN, WIN+LATCH	<p style="text-align: center;">Window function</p> <p>The output relays switch into on-position (yellow LED illuminated) when the measured voltage exceeds the value adjusted at the MIN-regulator. When the measured voltage exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured voltage falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured voltage falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).</p>
	Diagram	<p>1 Latch activated (Y1-Y2 bridged) 2 Start 3 Delay 4 > Delay</p>

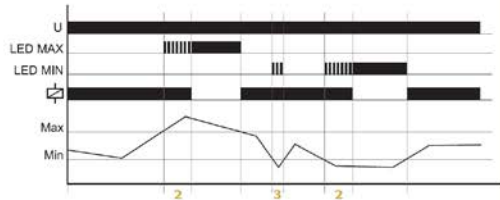
Measuring and Monitoring Relays Series UR6

UR6U3052 Modes

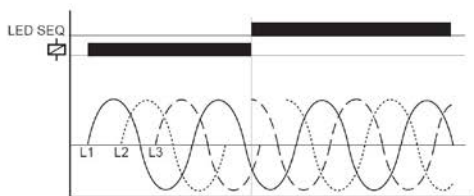
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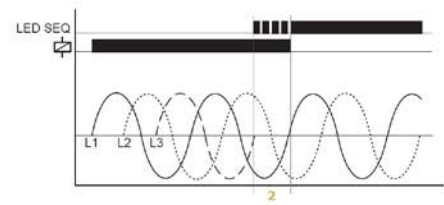
2.2



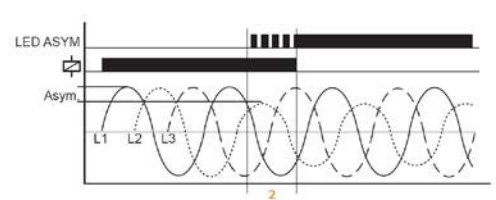
2.3



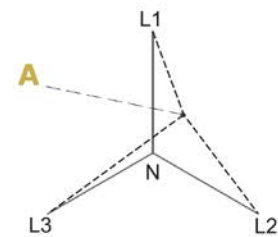
2.4



2.5



2.6



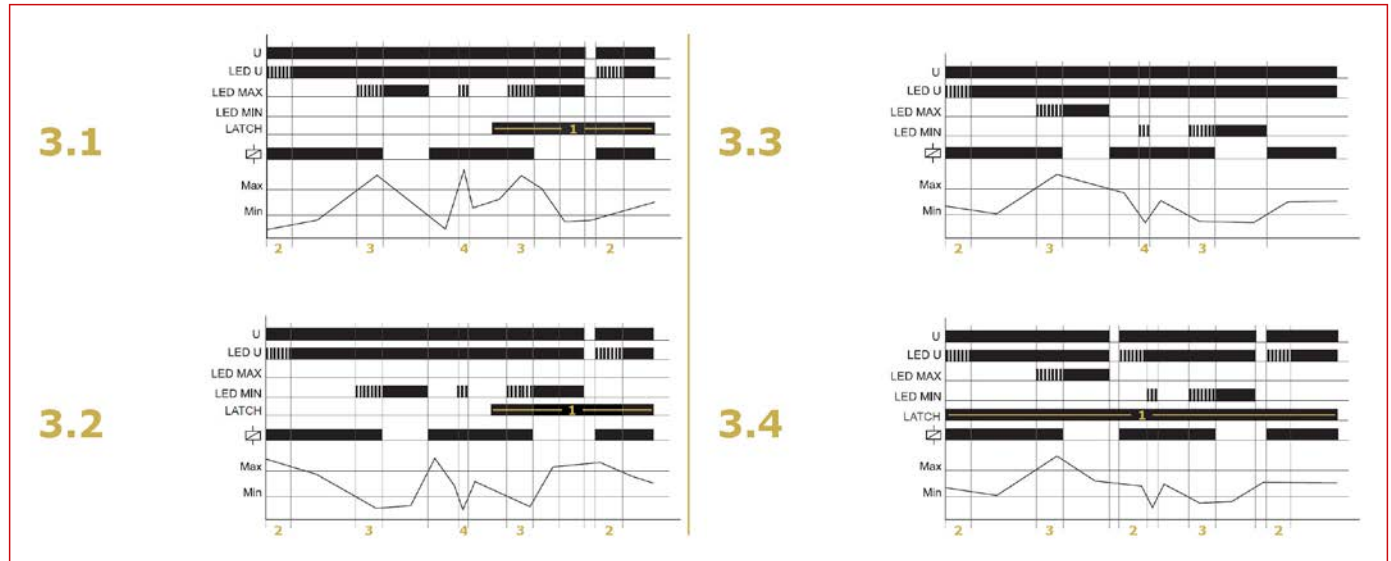
Measuring and Monitoring Relays Series UR6

Detailed Description of UR6U3052 Modes

UR6U3052	For all the functions the LEDs MIN and MAX are flashing alternating, when the minimum value for the measured voltage was chosen to be greater than the maximum value. If a failure already exists when the device is activated, the output relays remain in off-position and the LED for the corresponding threshold is illuminated.	
	UNDER, UNDER + SEQ	<p style="text-align: center;">Undervoltage monitoring</p> <p>When the measured voltage (mean value of phase-to-phase voltages) falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage exceeds the value adjusted at the MAX-regulator.</p>
	WIN, WIN + SEQ	<p style="text-align: center;">Window function</p> <p>The output relays switch into on-position (yellow LED illuminated) when the measured voltage (mean value of phase-to-phase voltages) exceeds the value adjusted at the MIN-regulator. When the measured voltage exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured voltage falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured voltage falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).</p>
	SEQ	<p style="text-align: center;">Phase sequence monitoring</p> <p>Phase sequence monitoring is selectable for all functions. If a change in phase sequence is detected (red LED SEQ illuminated), the output relays switch into off-position immediately (yellow LED not illuminated).</p>
	SEQ	<p style="text-align: center;">Phase failure monitoring</p> <p>If one of the phase voltages fails, the set interval of the tripping delay (DELAY) begins (red LED (SEQ) flashes). After the interval has expired (red LED SEQ illuminated), the output relays switch into off-position (yellow LED not illuminated). Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection but can be monitored by using a proper value for the asymmetry.</p>
	2.5	<p style="text-align: center;">Asymmetry monitoring</p> <p>If the asymmetry of the phase-to-phase voltages exceeds the value set at the ASYM-regulator, the set interval of the tripping delay (DELAY) begins (red LED ASYM flashes). After the interval has expired (red LED ASYM illuminated), the output relays switch into off-position (yellow LED not illuminated). If the neutral wire is connected to the device, the asymmetry of the phase voltages referred to the neutral wire (Y-voltage) is monitored also. In that case both values of the asymmetry are evaluated and if one of the values exceeds the value set at the ASYM-regulator, the set interval of the tripping delay (DELAY) begins (red LED ASYM flashes). After the interval has expired (red LED ASYM illuminated), the output relays switch into off-position (yellow LED not illuminated).</p>
	2.6	<p style="text-align: center;">Loss of neutral wire by means of evaluation of asymmetry</p> <p>A break of the neutral wire between power line and machinery is detected as soon as asymmetry between phase-to-phase voltage and neutral wire occurs. If the asymmetry exceeds the value set at the ASYM-regulator, the set interval of the tripping delay (DELAY) begins (red LED ASYM flashes). After the interval has expired (red LED ASYM illuminated), the output relays switch into off-position (yellow LED not illuminated). A break of the neutral wire between our device and the machinery can not be detected.</p>
	Diagram	<p>A Shift of neutral point (asymmetry) caused by asymmetrical phase loads and missing neutral wire.</p> <p>2 Start</p> <p>3 Delay</p>

Measuring and Monitoring Relays Series UR6

UR6I1052 Modes

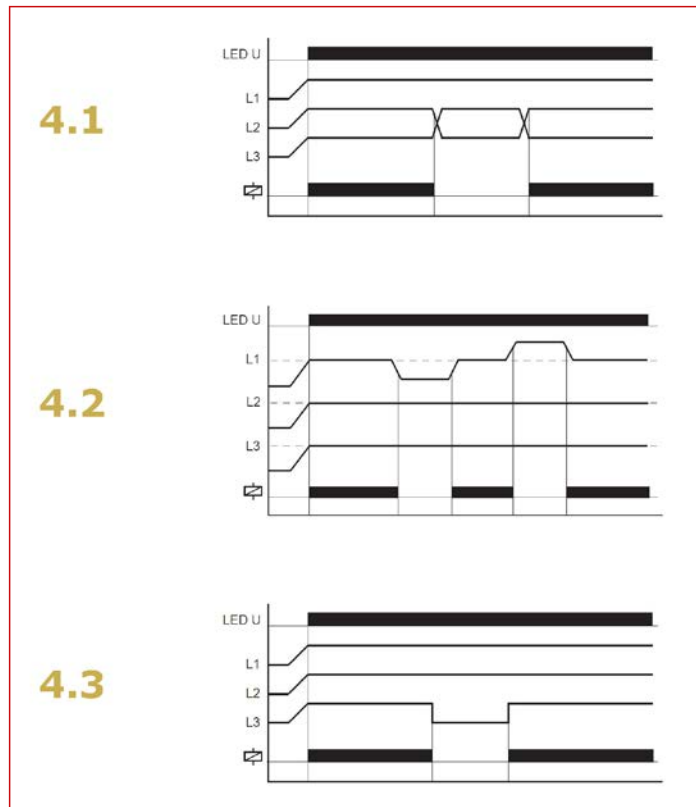


Detailed Description of UR6I1052 Modes

UR6I1052	<p>When the supply voltage U is applied, the output relays switch into on-position (yellow LED illuminated) and the set interval of the startup suppression (START) begins (green LED U flashes). Changes of the measured current during this period do not affect the state of the output relay. After the interval has expired the green LED is illuminated steadily. For all the functions the LEDs "MIN" and "MAX" are flashing alternating, when the minimum value for the measured current was chosen to be greater than the maximum value.</p>	
	OVER, OVER + LATCH	<p style="text-align: center;">Overcurrent monitoring</p> <p>When the measured current exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured current falls below the value adjusted at the MIN-regulator (red LED MAX not illuminated). If the fault latch is activated (OVER+LATCH) and the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current falls below the value adjusted at the MIN-regulator. After resetting the failure (interrupting and reapplying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).</p>
	UNDER, UNDER + LATCH	<p style="text-align: center;">Undercurrent monitoring</p> <p>When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured current exceeds the value adjusted at the MAX-regulator. If the fault latch is activated (UNDER+LATCH) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current exceeds the value adjusted at the MAX-regulator. After resetting the failure (interrupting and reapplying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).</p>
	WIN, WIN + LATCH	<p style="text-align: center;">Window function</p> <p>The output relays switch into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the MIN-regulator. When the measured current exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured current falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).</p>
	Diagram	<p>1 Latch activated 2 Start 3 Delay 4 > Delay</p>

Measuring and Monitoring Relays Series UR6

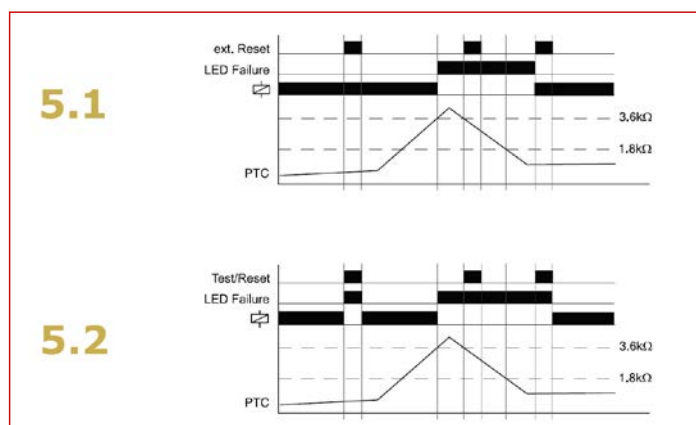
UR6P3052 Modes



Detailed Description Of UR6P3052 Modes

UR6P3052	Phase sequence monitoring
	4.1 When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relays switch into on-position (yellow LED illuminated). When the phase sequence changes, the output relays switch into off-position (yellow LED not illuminated).
	Phase failure monitoring
	4.2 When one of the three phases fails, the output relays switch into off-position (yellow LED not illuminated).
	Detection of reverse voltage (by means of evaluation of asymmetry)
	4.3 The output relays switch into off-position (yellow LED not illuminated) when the asymmetry between the phase voltages exceeds the fixed value of the asymmetry. An asymmetry caused by the reverse voltage of a consumer (e.g. a motor which continues to run on two phases only) does not effect the disconnection.

UR6R1052 Modes



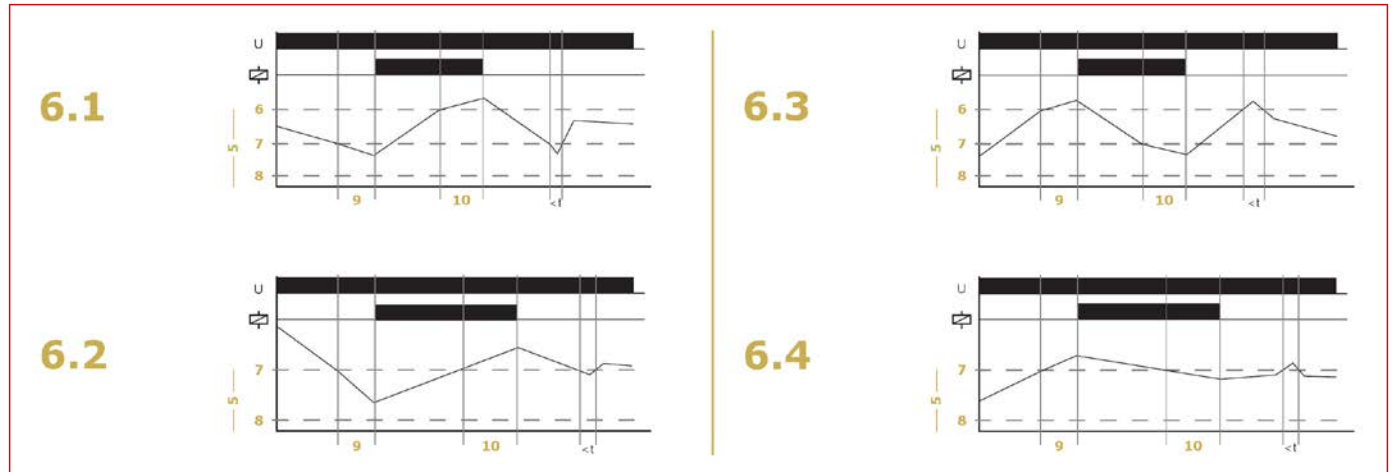
Detailed Description of UR6R1052 Modes

UR6R1052	5.1 If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit* is less than 3.6kΩ (standard temperature of the motor), the output relays switch into on-position. Pressing the test/reset key under this conditions forces the output relays to switch into off-position. They remain in this state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault. The test function is not effective using an external reset key. When the cumulative resistance of the PTC-circuit exceeds 3.6kΩ (at least one of the PTCs has reached the cut-off temperature), the output relays switch into off-position (red LED illuminated). The output relays again switch into on-position (red LED not illuminated), if the cumulative resistance drops below 1.8kΩ by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and reapplied.
	5.2

*PTC = Positive Temperature Coefficient

Measuring and Monitoring Relays Series UR6

UR6L1052 Modes



Detailed Description of UR6L1052 Modes

UR6L1052	PUMP UP	6.1	<p>Pump up Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the minimum probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the maximum probe E1, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>
	PUMP UP	6.2	<p>Minimum monitoring (Pump up) Connection the probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>
	PUMP DOWN	6.3	<p>Pump down Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the maximum probe E1 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval, the output relays R switches into off-position (yellow LED not illuminated).</p>
	PUMP DOWN	6.4	<p>Maximum monitoring (Pump down) Connection of probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the probe E2 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).</p>
	Diagram	<p>5 6 7 8 9 10</p>	<p>Level Probe E1 Probe E2 Probe E3 Delay ON Delay OFF</p>

Measuring and Monitoring Relays Series UR6

Technical Data (Part 1)

		UR6U1052	UR6U3052	UR6I1052
Indicators	Green LED ON	Indication of supply voltage	-	Indication of supply voltage
	Green LED flashes	Indication of start-up suppression time	-	Indication of start-up suppression time
	Yellow LED ON/OFF	Indication of relay output		
	Red LED ON/OFF	Indication of failure of the corresponding threshold		
	Red LED flashes	Indication of tripping delay of the corresponding threshold		
Mechanical Design	Housing	Self-extinguishing plastic housing		
	Degree of protection housing	IPd40		
	Mounting	(EN 60715)	DIN-rail TS 35	
	Terminal	(VBG 4, PZ1 required)	Shockproof terminal connection	
	Degree of protection terminal	IP20		
	Mounting position	Any		
	Tightening torque	Max, 1Nm		
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end		
	Input Circuit	Terminals	A1 - A2 (galvanically separated)	
Supply voltage		24 - 240VAC/DC		
Tolerance		24 to 240VDC	-20% to +25%	
		24 to 240VAC	-15% to +10%	
Rated consumption		4.5VA (1W)		
Rated frequency		24 to 240VAC	48 to 400Hz	
		48 to 240VAC	16 to 48Hz	
Duration of operation		100%		
Reset time		500ms		
Wave form for AC		Sinus		
Residual ripple for DC		10%		
Drop-out voltage		> 15% of the supply voltage		
Overvoltage category		(IEC 60664-1)	III	
Rated surge voltage		4kV		
Output Circuit	Number of contacts and type	2 potential free CO contacts		
	Rated voltage	AC	250V~	
	Switching capacity	Distance between the devices is < 5mm	750VA (3A / 25V~)	
		Distance between the devices is > 5mm	1250VA (5A / 250V~)	
	Fusing	5A fast acting		
	Mechanical service life	20 x 10 ⁶ operations		
	Electrical service life	2 x 10 ⁵ operations at 1000VA resistive load		
	Switching frequency	(IEC 60947-5-1)	max. 60 / min at 100VA resistive load max. 6 / min at 1000VA resistive load	
	Overvoltage category	(IEC 60664-1)	III	
	Rated surge voltage	4kV		

Measuring and Monitoring Relays Series UR6
Technical Data (Part 2)

		UR6U1052	UR6U3052	UR6I1052	
Measuring circuit	Fusing	(UL 508)	Max. 20A		
	Measured variable		DC or AC Sinus (16,6 to 400Hz)	DC or AC Sinus (16,6 to 400Hz)	
	Input	30V AC/DC 60V AC/DC 300V AC/DC	Terminals E-F1(+) Terminals E-F2(+) Klemmen E-F3(+)	3(N)~ Terminals (N)-L1-L2-L3	2mA AC/DC 1A AC/DC 5A AC/DC
	Overload capacity	30V AC/DC 60V AC/DC 300V AC/DC	100V _{eff} 150V _{eff} 440V _{eff}	3(N)~ 3(N)~	20mA AC/DC 1A AC/DC 5A AC/DC
	Input resistance	30V AC/DC 60V AC/DC 300V AC/DC	47Ω 100Ω 470Ω	3(N)~ 1MΩ	20mA AC/DC 1A AC/DC 5A AC/DC
	Switching threshold	Max. Min.	10% to 100% of U _N 5% to 95% of U _N	-20% to +30% of U _N -30% to +20% of U _N	10% to 100% of I _N 5% to 95% of I _N
	Asymmetry		-	5% to 25%	-
	Overvoltage category	(IEC 60664-1)	III		
	Rated surge voltage		4kV		
	Accuracy	Base accuracy	≤ 3% (of maximum scale value)		
Frequency response		-10% to 5% (16,6 to 400Hz)	-	-10% to 5% (16,6 to 400Hz)	
Adjustment accuracy		≤ 5% (of maximum scale value)			
Repetition accuracy		≤ 2%			
Voltage influence		-			
Temperature influence		≤ 0,05%/°C			
Ambient conditions	Ambient temperature	(IEC 60068-1) (UL 508)	-25°C to +55°C -25°C to +40°C		
	Storage temperature		-25°C to +70°C		
	Transport temperature		-25°C to +70°C		
	Relative humidity	(IEC 721 - 3-3 class 3K3)	15% to 85%		
	Pollution degree	(IEC 60664-1)	3		
	Vibration resistance	(IEC 60068-2-6)	10 to 55 Hz	0,35mm	
	Shock resistance	(IEC 60068-2-27)	15g	11 ms	







Measuring and Monitoring Relays Series UR6

Technical Data (Part 3)

		UR6P3052	UR6R1052	UR6L1052	
Indicators	Green LED ON	Indication of supply voltage			
	Yellow LED ON/OFF	Indication of relay output	-	Indication of relay output	
	Red LED ON/OFF	-	Indication of failure	-	
Mechanical Design	Housing	Self-extinguishing plastic housing			
	Degree of protection housing	IP40			
	Mounting (EN 60715)	DIN-rail TS 35			
	Terminal (VBG 4, PZ1 required)	Shockproof terminal connection			
	Degree of protection terminal	IP20			
	Mounting position	Any			
	Tightening torque	Max. 1Nm			
	Terminal capacity	1 x 0.5 to 2.5mm ² with/without multicore cable end 1 x 4mm ² without multicore cable end 2 x 0.5 to 1.5mm ² with/without multicore cable end 2 x 2.5mm ² flexible without multicore cable end			
Input Circuit	Terminals	(N) L1 - L2 - L3 [= measuring voltage]	A1 - A2 (galvanically separated)	A1 - A2	
	Supply voltage	3 (N)~ 230 / 400VAC	230VAC		
	Tolerance	230VAC 3(N)~ 230 / 400VAC	-	-15% to +15%	
	Rated consumption	9VA	2VA (1.5W)		
	Rated frequency	50 / 60Hz			
	Duration of operation	100%			
	Reset time	500ms			
	Wave form for AC	-			
	Residual ripple for DC	-			
	Drop-out voltage	> 20% of the supply voltage	> 15% of the supply voltage	> 30% of the supply voltage	
	Overvoltage category (IEC 60664-1)	III			
	Rated surge voltage	4kV			
	Output Circuit	Number of contacts and type	2 potential free CO contacts		
		Rated voltage	AC	250V~	
Switching capacity		Distance between the devices is < 5mm	750VA (3A / 250V~)		
		Distance between the devices is > 5mm	1250VA (5A / 250V~)		
Fusing		5A fast acting			
Mechanical service life		20 x 10 ⁶ operations			
Electrical service life		2 x 10 ⁵ operations at 1000 VA resistive load			
Switching frequency (IEC 60947-5-1)		Max. 60 / min at 100VA resistive load Max. 6 / min at 1000VA resistive load			
Overvoltage category (IEC 60664-1)		III			
Rated surge voltage		4kV			

Measuring and Monitoring Relays Series UR6
Technical Data (Part 4)

		UR6P3052		UR6R1052		UR6L1052	
Measuring circuit	Measured variable	AC Sinus (48 to 63 Hz)		-		-	
	Input	3(N)~	(N)-L1-L2-L3	Terminals T1-T2		Conductive Sensor	Terminals E1-E2-E3
	Overload capacity	3(N)~	3(N)~	-		-	
	Input resistance	3(N)~	15kΩ	-		-	
	Asymmetry	Fixed, typ. 30%		-		-	
	Initial resistance	-		< 1,5kΩ		-	
	Response value (Relay in off-position)	-		> 3,6kΩ		-	
	Disconnection (Relay in on-position)	-		< 1,8kΩ		-	
	Short circuit thermistor	-		No		-	
	Measuring voltage T1-T2 (DIN VDE 0660 part 302)	-		< 2,5VDC at R < 4kΩ		-	
	Sensitivity	-		-		0,25 to 100kΩ (4mS to 10μS)	
	Sensor voltage	-		-		12V~	
	Sensor current	-		-		Max. 7mA	
	Wiring distance (Capacity of cable 100nF / km)	-		-		Max. 1000m	Set value < 50%
		-		-		Max. 100m	Set value 100%
Overvoltage category (IEC 60664-1)			III				
Rated surge voltage			4kV		6kV		
Control contact R	Function	-		External reset key		-	
	Loadable	-		No		-	
	Line length R-T2	-		Max. 10m (twisted pair)		-	
	Control pulse length	-		-		-	
	Reset	-		Potential free NO contact, terminals R - T2		-	
Accuracy	Base accuracy	-		+10% of maximum scale value		-	
	Frequency response	-		-		-	
	Adjustment accuracy	-		-		-	
	Repetition accuracy	-		≤ 1%		-	
	Voltage influence	-		≤ 2,2%		-	
Temperature influence	-		≤ 0,1%/°C		-		
Ambient conditions	Ambient temperature (IEC 60068-1) (UL 508)			-25°C to +55°C			
				-25°C to +40°C			
	Storage temperature			-25°C to +70°C			
	Transport temperature			-25°C to +70°C			
	Relative humidity (IEC 721-3-3 class 3K3)			15% to 85%			
	Pollution degree (IEC 60664-1)			3			
	Vibration resistance (IEC 60068-2-6)	-	-	10 to 55 Hz	0,35mm	-	-
Shock resistance (IEC 60068-2-27)	-	-	15g	11ms	-	-	

DESCRIPTION	AVAILABLE	ORDER NO.
Voltage Monitoring Relays		
Voltage monitoring relay, 1 phase, AC/DC, 2 CO		UR6U1052
Voltage monitoring relay, 3 phase, AC/DC, 2 CO		UR6U3052
Current Monitoring Relays		
Current monitoring relay, 1 phase, input 24-240V-AC/DC, 1CO		UR6I1052
Phase Monitoring Relays		
Phase monitoring relay, 3 phase, 2 CO		UR6P3052
Thermistor Monitoring Relays		
Thermistor monitoring relay, 1 phase, 230V-AC, 2 CO		UR6R1052
Level Monitoring Relays		
Level monitoring relay, 1 phase, input 230V-AC/5A, 2 CO		UR6L1052

Measuring and Monitoring Relays Series UR9



UR9L1063

Schrack-Info

- Level monitoring in conductive liquids
- 4 probe inputs for level monitoring
- Multifunction
- Adjustable sensor voltage
- Supply voltage 24-240VAC/DC
- Protective separation of measuring circuit
- 3 normally open contacts (NO) with common root
- Width 45mm



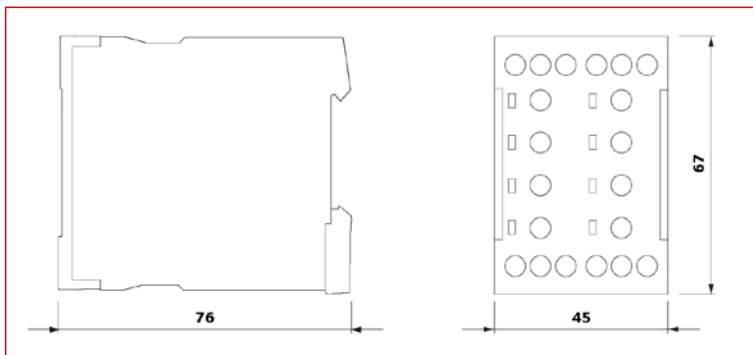
Mobil Code

Function overview

Functions

Function Code	Description	Configuration
2uA	Pump up with MIN and MAX alarm	1 container, 4 probes
2dA	Pump down with MIN and MAX alarm	1 container, 4 probes
3b-	Pump up and down with MIN alarm	1 container, 3(4) probes
3b+	Pump up and down with MAX alarm	1 container, 3(4) probes
2u2	Pump up	2 independent containers, 2 probes each
2d2	Pump down	2 independent containers, 2 probes each
2uc	Pump up with pump change	1 container, 2 probes, 2 pumps
2dc	Pump down with pump change	1 container, 2 probes, 2 pumps
3w-	Well control with MIN alarm	2 containers, 3 probes
4ce	Level-Code	Up to 4 containers, 4 probes

Dimensions (mm)



Measuring and Monitoring Relays Series UR9
Technical data (Part 1)

		UR9L1063	
Mechanical Design	Housing	Self-extinguishing plastic PA 66, class V-0	
	Degree of protection housing	IP40	
	Mounting (EN 60715)	DIN-rail TS 35	
	Terminals	Screw terminals	
	Degree of protection terminal	IP20	
	Mounting position	Any	
	Tightening torque	Max. 1Nm	
	Connection cross-section	Stranded wire with ferrule Stranded wire without ferrule Solid wire	0.5 to 2.5mm ² (20 AWG ... 13 AWG) 0.5 to 4mm ² (20 AWG ... 12 AWG) 0.5 to 4mm ² (20 AWG ... 12 AWG)
	Stripping length	8mm	
	Supply Circuit	Terminals	A1-A2
Supply voltage		24-240VAC/DC	
Supply voltage tolerance		AC DC	-10% to +10% -25% to +25%
Rated frequency		16.6 to 400Hz or DC	
Rated frequency tolerance		16 to 420Hz	
Rated consumption		230VAC 24VDC	typ. 0.9W / 1.3VA typ. 0.65W
Duty-cycle		100%	
Backup power time		> 20ms	
Recovery time		< 500ms	
Drop-out voltage		> 6V	
Output Circuit	Terminals	Rel 1 Rel 2 Rel 3	17-18 17-28 17-38
	Kind of output		Relay (normally open contacts with common root)
	Number of contacts	normally open contacts	3
	Contact material		AgNi / Au
	Rated voltage (IEC 60947-1)		250V
	Maximum switching voltage		250VAC
	Minimum switching voltage / switching current		5V DC / 10mA
	Rated current (IEC 60947-5-1)		AC-1 5A / 250V AC-15 1.5A / 240V (B300) DC-12 5A / 24V
	Endurance	mechanical electrical (AC-1)	1x 10 ⁶ switching cycles 1x 10 ⁵ switching cycles
	Rated frequency of operation	with load without load	6 / min 1200 / min
Fuse rating		5A fast acting	
Measuring Circuit	Terminals		E0-E0-E1-E2-E3-E4 (E0-E0 internal connected)
	Measurand		Liquid level with conductive probes (type SK1, SK5)
	Measuring method		Resistance measurement E1-E0, E2-E0, E3-E0, E4-E0
	Monitoring function		Level monitoring of conductive liquids with adjustable delay (measuring filter)
	Measuring range	Low (L) High (H)	250Ω to 12.5kΩ 10kΩ to 500kΩ
	Sensor voltage V _{SENS}	AC, 18.33Hz, 100%	2.3 Vrms open-circuit voltage
	Sensor current at V _{SENS} = 100 %		Range L: max. 1mA Range H: max. 0.1mA
	Wiring distance to level probes (capacity of cable 100nF/km)		@V _{sens} H = 100%, Sensitivity < 50% 1000m @V _{sens} L = 100%, Sensitivity < 100% 1000m
	Measuring mode		Sequentially (Delay = 1 to 10s) Simultaneously (concurrent sensing)
	Hysteresis		Approx. 2% of adjusted sensitivity

Measuring and Monitoring Relays Series UR9

Technical Data (Part 2)

			UR9L1063		
Range of Functions	Functions	10	2uA = Pump up; Min- / Max-Alarm	(1 container, 4 probes)	
			2dA = Pump down; Min- / Max-Alarm	(1 container, 4 probes)	
			3b- = Pump up and down; Min-Alarm	(1 container, 3 (4) probes)	
			3b+ = Pump up and down; Max-Alarm	(1 container, 3 (4) probes)	
			2u2 = Pump up	(2 independent containers, 2 probes each)	
			2d2 = Pump down	(2 independent containers, 2 probes each)	
			2uc = Pump up with pump change	(1 container, 2 probes)	
			2dc = Pump down with pump change	(1 container, 2 probes)	
			3w- = Well control; Min-Alarm	(2 containers, 3 probes)	
			4ce = Level code	(up to 4 containers, 4 probes)	
	Potentiometers		Sensitivity (threshold)	Low = 0.25 to 12.5kΩ High = 10 to 500kΩ	
			Delay (measuring filter)	1 to 10s	
	Rotary switch		V_{sense} [%] (20, 40, 60, 80, 100%)		
			Sensitivity range Low / High		
			Function selector		
Timing circuit	Measuring filter	Delay		1 to 10s	
Status indication	Supply voltage		LED U/t (green) on	Supply voltage applied	
	Measuring filter (Delay)		LED U/t (green) flashes	Indication of time lapse for measuring filter	
	Relay status		Rel 1 (yellow) on	Output relay 1 energized	
			Rel 2 (yellow) on	Output relay 2 energized	
			Rel 3 (yellow) on	Output relay 3 energized	
Pump performance		PP1 (yellow) on	Pump performance pump 1		
		PP2 (yellow) on	Pump performance pump 2		
Insulation data	Pollution degree	(IEC 60947-5-1)		2	
	Overtoltage category	(IEC 60947-5-1)		III	
	Rated insulation voltage	(IEC 60947-1)	Supply circuit /output circuit		300V
			Supply circuit /output circuit		300V
			Supply circuit /measuring circuit		300V
	Rated impulse withstanding voltage	(IEC 60947-1)	Supply circuit /output circuit		6kV
			Supply circuit /output circuit		6kV
			Supply circuit /measuring circuit		6kV
	Insulation test voltage	(IEC 60947-1)	Supply circuit /output circuit		3780V
			Supply circuit /output circuit		3780V
			Supply circuit /measuring circuit		3780V
	Insulation		Supply circuit /output circuit		Protective separation
		Supply circuit /output circuit		Protective separation	
		Supply circuit /measuring circuit		Protective separation	
Ambient conditions	Ambient temperature	Operation		-25°C to +60°C	
		Storage		-40°C to +70°C	
	Relative humidity			5% to 95%	
	Vibration resistance	EN 60947-1		2 to 13,2Hz: 1mm; 13,2 to 100Hz: 7m/s ²	
	Shock resistance	EN 60947-1		150m/s ² 11ms	

DESCRIPTION	AVAILABLE	ORDER NO.
Level Monitoring Relays		
Level monitoring relay for 5 probes, 24-240 V AC/DC, 3 NO contacts		UR9L1063

Accessories, Probes for Level Monitoring Relays



URL91010



URL900xx



URL90010

Schrack-Info

URL90010, URL90020, URL90030

- Maximum pressure range 1000kPa
- Operating temperature up to 70°C
- Coated with Nylon 66
- For use in all application, except for certain fields of the food processing industry where Nylon 66 is prohibited as insulating material

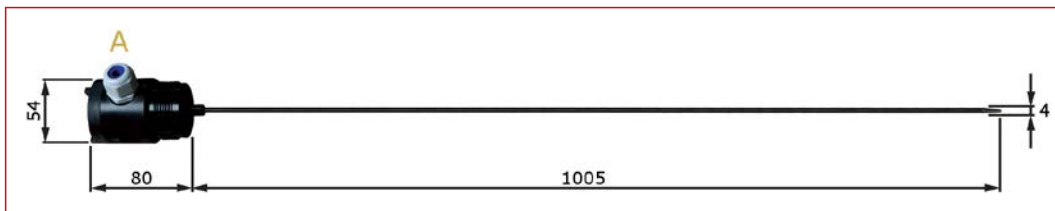
URL91010

- Probe element can be connected to cable



Mobil Code

Dimensions URL90010 (mm)



Dimensions URL90010

Thread	
A	(inch) 1.5"

Technical Data URL90010, URL90020 and URL90030

Holder / Conductive probe	Material	Nylon		
	Thread	Inch	1,5" British standard	
	Degree of protection	IP65		
	Max. temperature	+70°C		
Conductor / Electrode rods	Material	Stainless steel	AISI 316	
	Coating	Black powder epoxy		
	Length	1m		
	Number of conductors	URL90010	1 x 1 metre rod	
		URL90020	2 x 1 metre rod	
	URL90030	3 x 1 metre rod		

Note: Coating of rods improves resistance to false switching caused by frothing of condensation.

DESCRIPTION	AVAILABLE	ORDER NO.
Level monitoring immersion probe		URL91010
Level monitoring 1 probe, 1x1 meter		URL90010
Level monitoring 2 probes, 2x1 meter		URL90020
Level monitoring 3 probes, 3x1 meter		URL90030

Relay Module

Relay PCB



IK022176

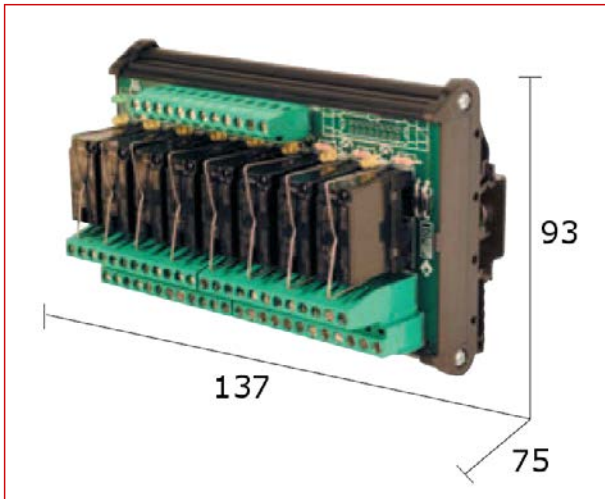
Schrack-Info

- 8 pcs. relay module (24 VDC/8A)
- Version with plug-in relay
- 2 CO per relay
- DC control voltage
- Negative control voltage
- LED operating lights
- Fast and easy DIN rail mounting

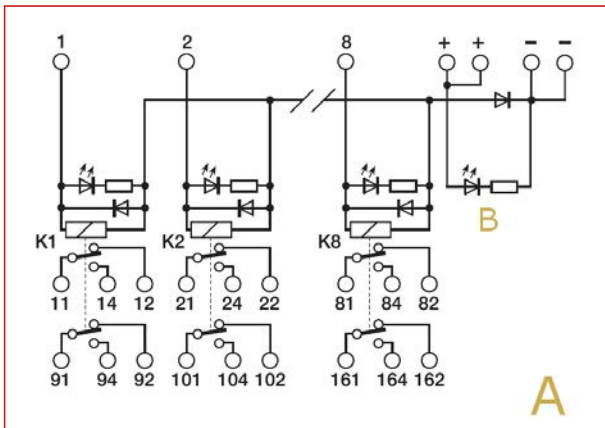


Mobil Code

Dimensions (mm)



Circuit Diagram




Circuit Diagram

A	8 piece relay module
B	Power on
General data	The height dimension includes 35mm DIN rail

 Relay PCB

 Technical Data
8 relay module

Number of contacts and type		8 channels each with 2 CO
Rated current		8A
Supply voltage	AC	250V~
Coil voltage	DC	24V + 10%
Coil current	(1 channel)	22mA + 10%
Turn ON time		15ms
Turn OFF time		10ms
Protection circuit		Damping- and protection diode
LED colors		Yellow and green
Contact material		AgNi
Housing material		UL94V-0 plastic material
Connection terminal	Screw terminal	2.5mm ²
Degree of protection	IEC 529, EN 60529	IP00
Coil-/ contact isolation		2.5kVA / 60s
Isolation between output terminals	(open contacts)	1kVA / 60s
Overvoltage category		III
Pollution degree		2
Ambient temperature	Operation	-10°C to +50°C
Approx. weight		ca. 419g
Reference standard		IEC 664-1, DIN VDE 0110.1
Mounting		Vertical on DIN-rail

DESCRIPTION	AVAILABLE	ORDER NO.
Relay module, 8 pcs. plug-in relays, 24V DC/8A, each with 2CO, for DIN-rail		IK022176

Modular Contactors „R“ AC-1, AC Coil



Modular Contactors „R“ AC-1, AC Coil



Modular Contactors „R“ AC-1, ACDC Coil



Modular Contactors „R“ AC-1, ACDC Coil



Modular Contactors

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Modular Contactors "R" AC-1, AC Coil



BZ326472



BZ326470



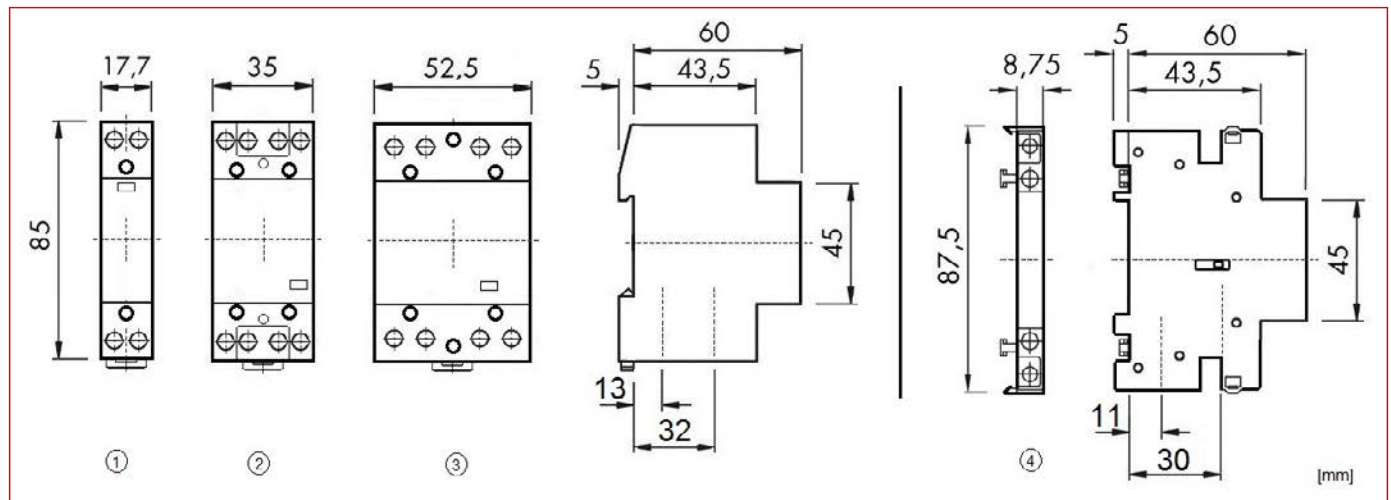
Mobil Code

Schrack-Info

- Modular contactors 1-, 2- or 4-pole
- AC-coil 24VAC 50/60Hz, 230VAC 50Hz
- Rated current 20, 25, 40 or 63A
- Breadth 1, 2 or 3MW, starting with 2MW one auxiliary contact RH11 (0.5MW) retrofit
- Less hum
- 1 MW = 17.5mm

	(VAC)	1-pole / 2-pole		4-pole			RH11
		R20	R25	R25	R40	R63	
Rated insulation voltage U_i	440	440		440			440
Utilization category AC-1 cos φ = 1							
Rated operational power (heating power) at 230VAC	(kW)	4,6	5,5	5,7	9	14,3	-
Rated operational power (heating power) at 400VAC	(kW)	-	-	17	27,5	43	-
Rated operational current I _e = I _{th} at 60°C and 440VAC	(A)	20	25	25	40	63	AC-15 230V 3A DC-13 60V 2A DC-13 220V 0,1A
Utilization category AC-3 and AC-7b							
Rated operational power at 230VAC (single phase motors)	(kW)	1,1	1,3	-	-	-	-
Rated operational power at 400VAC (3-pole motors)	(kW)	-	-	4	12,5	15	-
Rated operational current I _e at 380-400VAC	(A)	-	-	9	27	30	-
Ambient temperature (operation)	(°C)	-25 ... +60					
Permissible mounting position							
Modules		1	2	3	0,5		
Rules and regulations		IEC 947-4-1/ EN60947-4-1					

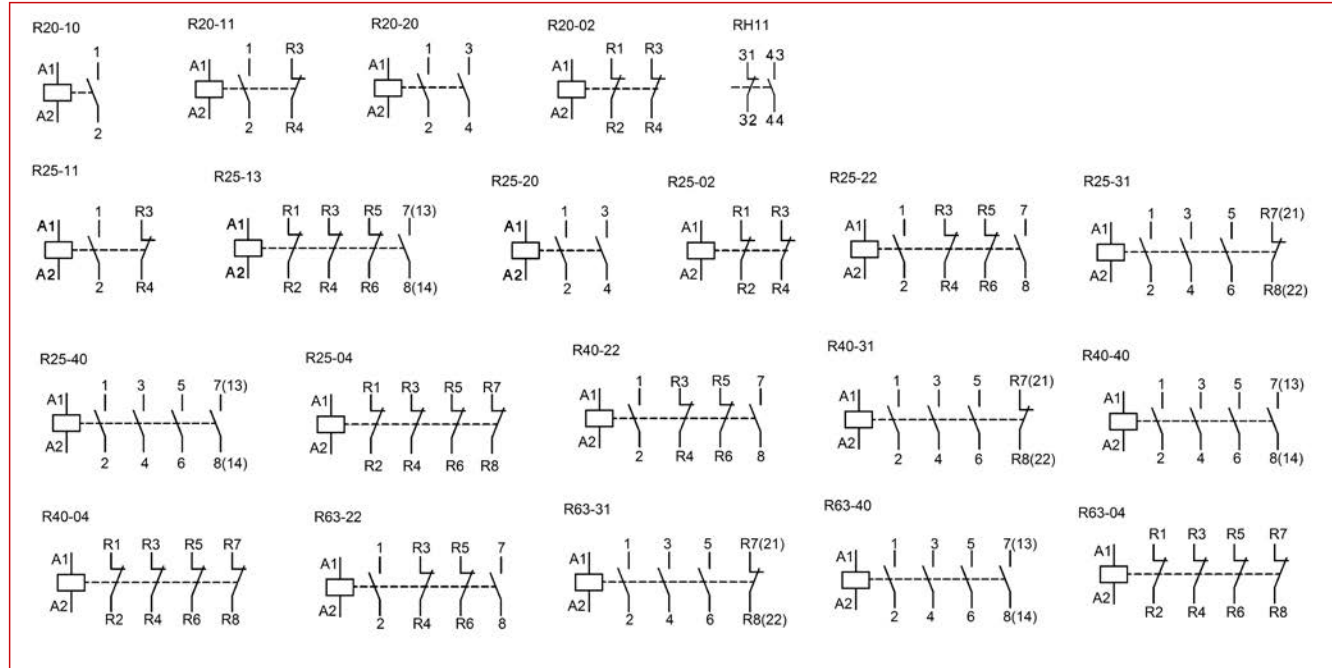
Dimensions



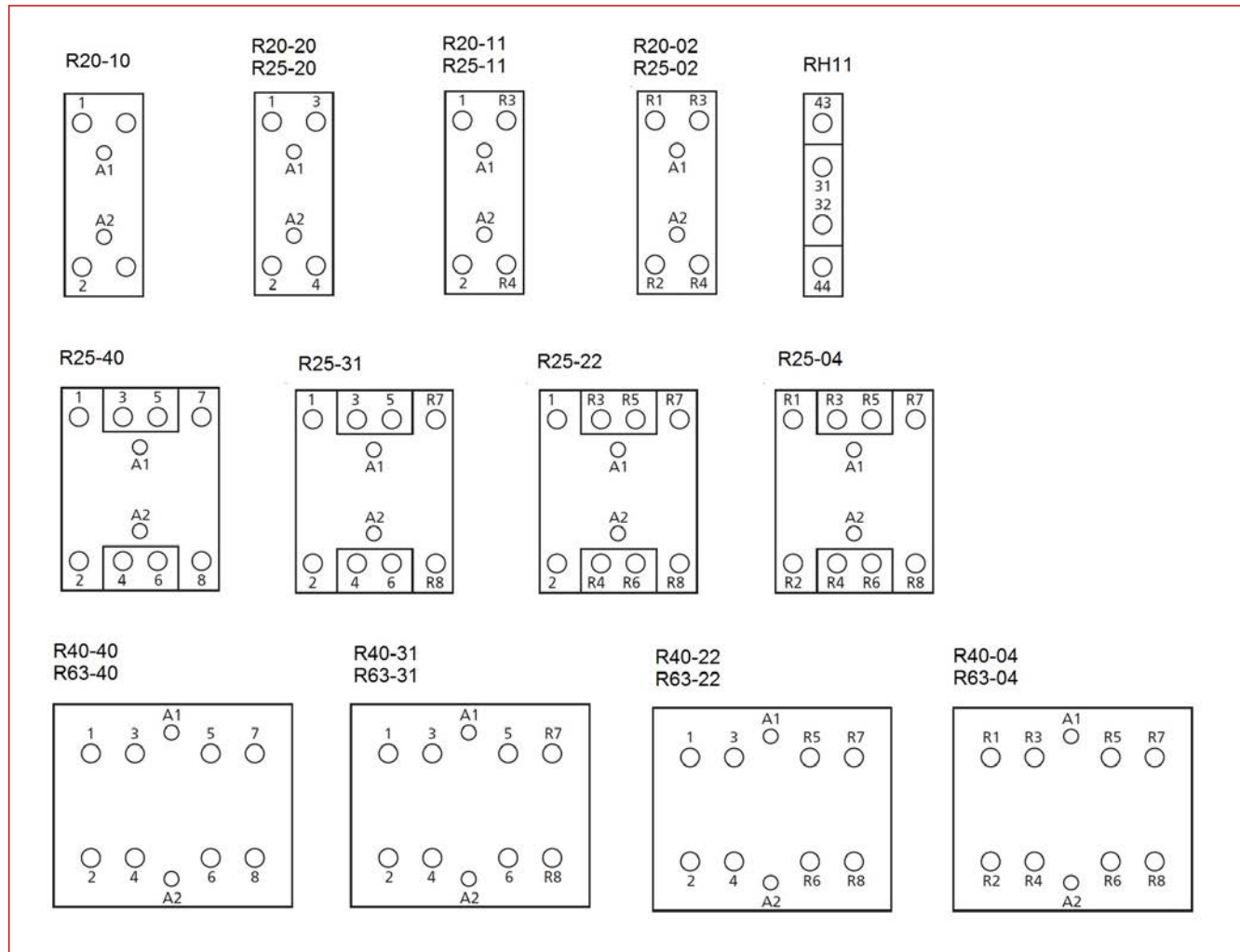
- 1) 1 Module 2) 2 Modules
3) 3 Modules 4) 0,5 Module

Modular Contactors "R" AC-1, AC Coil

Circuit Diagrams


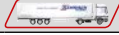
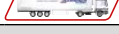





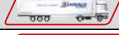










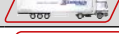


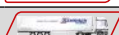





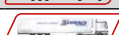
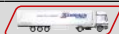






Connection Diagrams



Modular Contactors AC-1

Modular Contactors "R" AC-1, AC Coil

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
24VAC Coil Voltage			
20A, 1NO / 24VAC 1 MW	R20-10		BZ326486
20A, 1NO+1 NC / 24VAC 1 MW	R20-11		BZ326421
20A, 2NO / 24VAC 1 MW	R20-20		BZ326453
20A, 1NO / 24VAC 1 MW	R20-02		BZ326490
25A, 1NO+1NC / 24VAC 1 MW	R25-11		BZ326476
25A, 1NO+3NC / 24VAC 2 MW	R25-13		BZ326464
25A, 2NO / 24VAC 1 MW	R25-20		BZ326474
25A, 2NC / 24VAC 1 MW	R25-02		BZ326480
25A, 2NO+2NC / 24VAC 2 MW	R25-22		BZ326482
25A, 3NO+1NC / 24VAC 2 MW	R25-31		BZ326462
25A, 4NO / 24VAC 2 MW	R25-40		BZ326460
25A, 4NC / 24VAC 2 MW	R25-04		BZ326483
40A, 2NO+2NC / 24VAC 3 MW	R40-22		BZ326488
40A, 3NO+1NC / 24VAC 3 MW	R40-31		BZ326487
40A, 4NO / 24VAC 3 MW	R40-40		BZ326443
40A, 4NC / 24VAC 3 MW	R40-04		BZ326489
63A, 2NO+2NC / 24VAC 3 MW	R63-22		BZ326456
63A, 3NO+1NC / 24VAC 3 MW	R63-31		BZ326455
63A, 4NO / 24VAC 3 MW	R63-40		BZ326445
63A, 4NC / 24VAC 3 MW	R63-04		BZ326458
230VAC Coil Voltage			
20A, 1NO / 230VAC 1 MW	R20-10		BZ326471
20A, 1NO+1 NC / 230VAC 1 MW	R20-11		BZ326438
20A, 2NO / 230VAC 1 MW	R20-20		BZ326437
20A, 2 NC / 230VAC 1 MW	R20-02		BZ326439
25A, 1NO / 230VAC 1 MW	R25-10		BZ326473
25A, 1NO+1NC / 230VAC 1 MW	R25-11		BZ326479
25A, 1NO+3NC / 230VAC 2 MW	R25-13		BZ326465
25A, 2NO / 230VAC 1 MW	R25-20		BZ326475
25A, 2NC / 230VAC 1 MW	R25-02		BZ326481
25A, 2NO+2NC / 230VAC 2 MW	R25-22		BZ326472
25A, 3NO+1NC / 230VAC 2 MW	R25-31		BZ326463
25A, 4NO / 230VAC 2 MW	R25-40		BZ326461
25A, 4NC / 230VAC 2 MW	R25-04		BZ326467
40A, 2NO+2NC / 230VAC 3 MW	R40-22		BZ326466
40A, 3NO / 230VAC 3 MW	R40-30		BZ326468
40A, 3NO+1NC / 230VAC 3 MW	R40-31		BZ326454
40A, 4NO / 230VAC 3 MW	R40-40		BZ326442
40A, 4NC / 230VAC 3 MW	R40-04		BZ326459
63A, 2NO+2NC / 230VAC 3 MW	R63-22		BZ326457
63A, 3NO+1NC / 230VAC 3 MW	R63-31		BZ326452
63A, 4NO / 230VAC 3 MW	R63-40		BZ326444
63A, 4NC / 230VAC 3 MW	R63-04		BZ326469
Accessories			
Auxiliary contact 1NO+1NC 3A 0.5 MW	RH11		BZ326470

Modular Contactors "R" AC-1, ACDC Coil



BZ326482VM



BZ326470VM

Schrack-Info

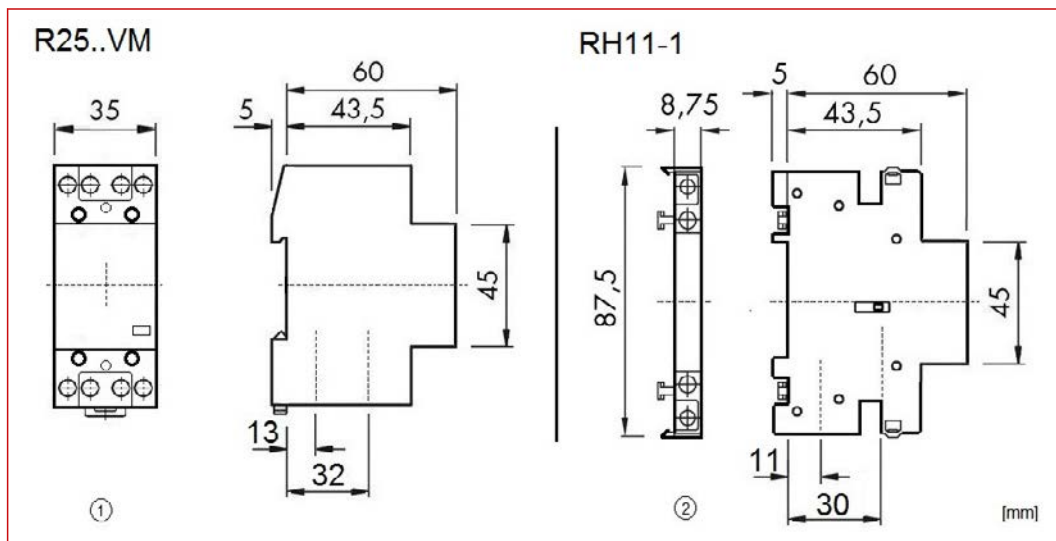
- Modular contactors, 4-pole
- AC/DC-coil 24VACDC or 230VACDC
- Operational current 25A
- Width of contactor 2MW
- Auxiliary contact block RH11-1 (0.5MW) retrofit to each contactor
- Hum free
- 1MW = 17.5mm



Mobil Code

		R25	RH11-1
Rated insulation voltage U_i	(VAC)	440	440
Utilization category AC-1 $\cos \varphi = 1$			
Rated operational power (heating power) at 230VAC	(kW)	5,7	-
Rated operational power (heating power) at 400VAC	(kW)	17	-
Rated operational current $I_e = I_{th}$ at 60°C and 440VAC	(A)	25	AC-15 230V 3A DC-13 60V 2A DC-13 220V 0,1A
Utilization category AC-3 and AC-7b			
Rated operational power at 230VAC (single phase motors)	(kW)	-	-
Rated operational power at 400VAC (3-pole motors)	(kW)	4	-
Rated operational current I_e at 380-400VAC	(A)	9	-
Ambient temperature (operation)	(°C)	-25 ... +60	
Permissible mounting position			
Modules		2	0,5
Rules and regulations		IEC 947-4-1/ EN60947-4-1	

Dimensions

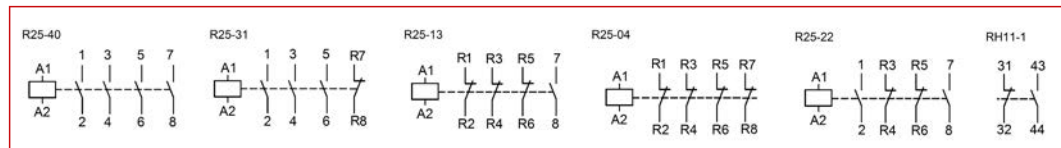


1) 2 Modules

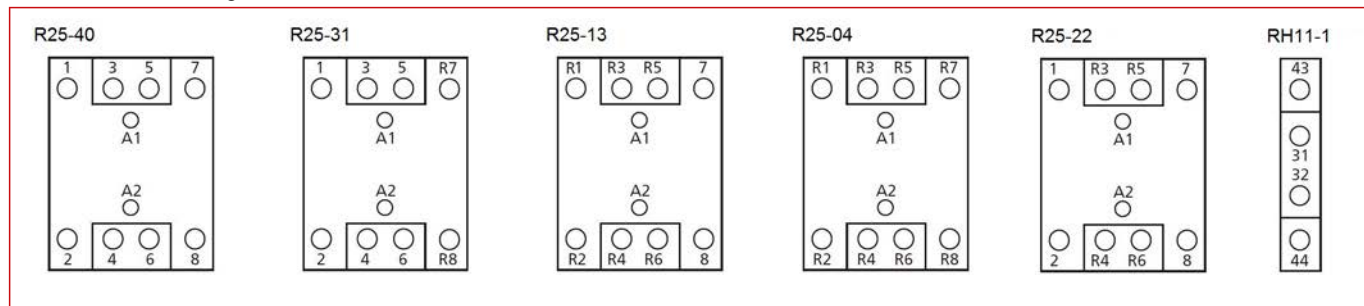
2) 0,5 Module

Modular Contactors "R" AC-1, ACDC Coil

Circuit Diagrams



Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
24VACDC Coil Voltage			
25A, 1NO+3NC / 24VACDC 2 MW	R25-13VM		BZ326464VM
25A, 2NO+2NC / 24VACDC 2 MW	R25-22VM		BZ326482VM
25A, 3NO+1NC / 24VACDC 2 MW	R25-31VM		BZ326462VM
25A, 4NO / 24VACDC 2 MW	R25-40VM		BZ326460VM
25A, 4NC / 24VACDC 2 MW	R25-04VM		BZ326483VM
230VACDC Coil Voltage			
25A, 1NO+3NC / 230VACDC 2 MW	R25-13VM		BZ326465VM
25A, 2NO+2NC / 230VACDC 2 MW	R25-22VM		BZ326472VM
25A, 3NO+1NC / 230VACDC 2 MW	R25-31VM		BZ326463VM
25A, 4NO / 230VACDC 2 MW	R25-40VM		BZ326461VM
25A, 4NC / 230VACDC 2 MW	R25-04VM		BZ326467VM
Accessories			
Auxiliary contact 1NO+1NC 3A for VM-types 0.5 MW	RH11-1		BZ326470VM

Modular Contactors "Amparo" AC-1, AC Coil



BZ326461ME

Schrack-Info

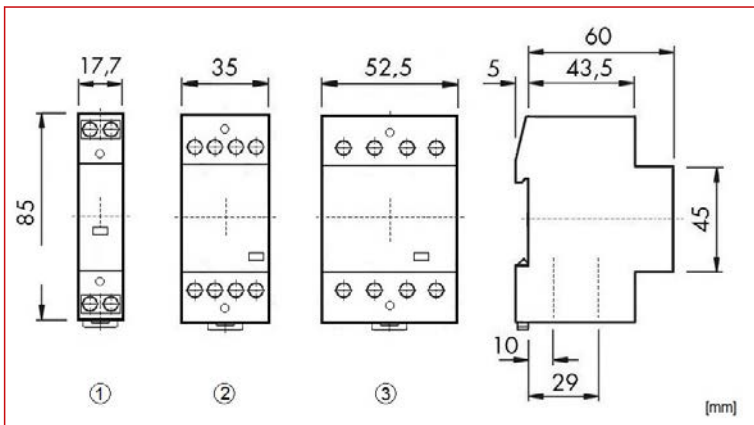
- Modular contactors, 2- or 4-pole
- AC-coil 24VAC 50/60Hz, 230VAC 50Hz
- Operational current 20, 25, 40 and 63A
- Width of contactor 1, 2 or 3MW
- Less hum
- 1MW = approximately 17.5mm



Mobil Code

	(VAC)	2-pole		4-pole	
		R20	R25	R40	R63
Rated insulation voltage U_i		440		440	
Utilization category AC-1 cos φ = 1					
Rated operational power (heating power) at 230VAC	(kW)	4,6	5,7	9	14,3
Rated operational power (heating power) at 400VAC	(kW)	-	17	27,5	43
rated operational current I _o = I _{th} at 60°C und 440VAC	(A)	20	25	40	63
Utilization category AC-3 and AC-7b					
Rated operational power at 230VAC (1-phase motor, 2-pole)	(kW)	1,1	-	-	-
Rated operational power at 400VAC (3-phase motor)	(kW)	-	4	12,5	15
Rated operational current I _e at 380-400VAC	(A)	-	9	27	30
Ambient temperature (operation)	(°C)	-25 ... +60			
Permissible mounting position					
Modules		1	2	3	
Rules and regulations		IEC 947-4-1/ EN60947-4-1			

Dimensions



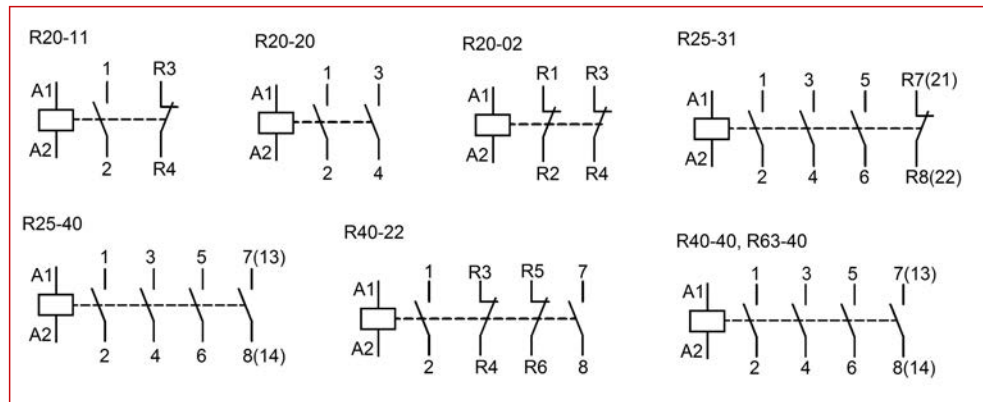
1) 1 Module

2) 2 Modules

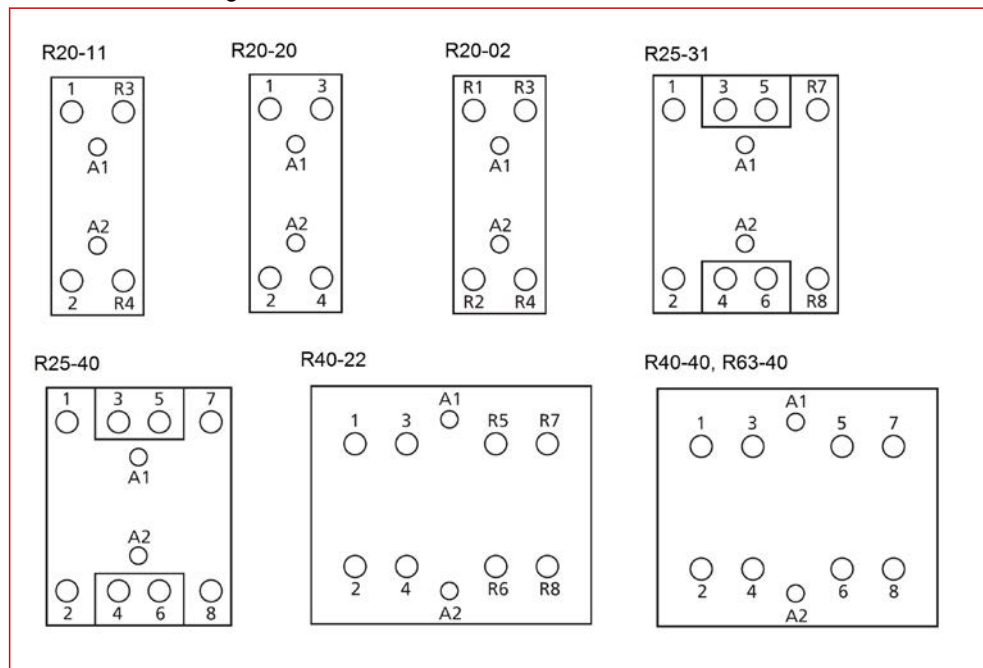
3) 3 Modules

Modular Contactors "Amparo" AC-1, AC Coil

Circuit Diagrams



Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
24VAC Coil Voltage			
20A, 1NO+1 NC / 24VAC 1 MW	R20-11		BZ326421ME
20A, 2NO / 24VAC 1 MW	R20-20		BZ326453ME
25A, 4NO / 24VAC 2 MW	R25-40		BZ326460ME
230VAC Coil Voltage			
20A, 2NO / 230VAC 1 MW	R20-20		BZ326437ME
20A, 1NO+1 NC / 230VAC 1 MW	R20-11		BZ326438ME
20A, 2 NC / 230VAC 1 MW	R20-02		BZ326439ME
40A, 4NO / 230VAC 3 MW	R40-40		BZ326442ME
63A, 4NO / 230VAC 3 MW	R63-40		BZ326444ME
25A, 4NO / 230VAC 2 MW	R25-40		BZ326461ME
25A, 3NO+1NC / 230VAC 2 MW	R25-31		BZ326463ME
40A, 2NO+2NC / 230VAC 3 MW	R40-22		BZ326466ME

 Modular Contactors "R" AC-1, AC Coil

Lamp Type	Power W	Current A	Capacitors µF	Max. lamps per pole at 230V 50Hz and max. 60°C			
				R20..	R25..	R40..	R63..
Incandescent lamps	60	0,27		36	50	92	129
	100	0,45		21	30	55	77
	200	0,91		10	15	27	38
	300	1,36		7	10	19	26
	500	2,27		4	6	11	16
	1000	4,5		2	3	6	8
Fluorescent lamps uncompensated or serial compensated	11	0,16	1,3	60	75	210	310
	18	0,37	2,7	25	30	90	140
	24	0,35	2,5	25	30	90	140
	36	0,43	3,4	20	25	70	140
	58	0,67	5,3	14	17	45	70
	65	0,67	5,3	13	16	40	65
	85	0,8	5,3	11	14	35	60
Fluorescent lamps dual-connection	11	0,07		2 x 100	2 x 110	2 x 220	2 x 250
	18	0,11		2 x 50	2 x 55	2 x 130	2 x 200
	24	0,14		2 x 40	2 x 44	2 x 110	2 x 160
	36	0,22		2 x 30	2 x 33	2 x 70	2 x 100
	58	0,35		2 x 20	2 x 22	2 x 45	2 x 70
	65	0,35		2 x 15	2 x 16	2 x 40	2 x 60
	85	0,47		2 x 10	2 x 11	2 x 30	2 x 40
Fluorescent lamps parallel compensated	11	0,09	2	33	43	67	107
	18	0,13	2	25	32	50	80
	24	0,16	3	25	32	50	80
	36	0,27	4	22	32	50	80
	58	0,45	7	14	18	36	46
	65	0,5	7	14	18	36	46
	85	0,6	8	12	16	33	44
Fluorescent lamps with electronic fluorescent lamp ballast	18	0,09	-	40	40	100	150
	36	0,16	-	20	20	50	75
	58	0,25	-	15	15	30	55
	80	0,4	-	7	10	20	30
	2 x 18	0,17		20	20	50	60
	2 x 28	0,25		15	15	37	45
	2 x 36	0,32		10	10	25	30
	2 x 58	0,49		7	7	15	20
	2 x 80	0,7		4	4	8	10
Transformers for metal halid low voltage lamps	20	0,09	-	40	52	110	174
	50	0,22	-	20	24	50	80
	75	0,33	-	13	16	35	54
	100	0,43	-	10	12	27	43
	150	0,65	-	7	9	19	29
	200	0,87	-	5	5	14	23
	300	1,3	-	3	4	9	14
Mercury-vapour lamps (high-pressure lamps) uncompensated e. g. HQL, HPL	50	0,61	-	16	21	38	55
	80	0,8	-	12	16	28	40
	125	1,15	-	8	11	20	28
	250	2,15	-	4	6	11	15
	400	3,25	-	3	4	7	10
	700	5,4	-	1	2	4	6
	1000	7,5	-	1	1	3	4
Mercury-vapour lamps (high-pressure lamps), compensated e. g. HQL, HPL	50	0,28	7	7	18	36	50
	80	0,41	8	5	16	31	44
	125	0,65	10	3	13	25	35
	250	1,22	18	2	7	14	19
	400	1,95	25	1	5	10	14
	700	3,45	45	1	3	6	8
	1000	4,8	60	-	2	4	6

Modular Contactors "R" AC-1, AC Coil

Lamp Type	Power W	Current A	Capacitors µF	Max. lamps per pole at 230V 50Hz and max. 60°C				
				R20..	R25..	R40..	R63..	
Metal halide lamps uncompensated e. g. HQI, HPI, CDM	35	0,53	-	22	24	57	65	
	70	1	-	12	14	30	35	
	150	1,8	-	6	8	17	18	
	250	3	-	4	5	10	12	
	400	3,5	-	3	4	8	10	
	1000	9,5	-	1	1	3	4	
	2000	16,5	-	-	-	2	2	
	400V per Pole	2000	10,5	-				2
		3500	18	-			1	1
	Metal halide lamps compensated e. g. HQI, HPI, CDM	35	0,25	6	8	21	42	58
70		0,45	12	4	11	21	29	
150		0,75	20	2	7	13	18	
250		1,5	33	1	4	9	11	
400		2,1	35	1	4	9	10	
1000		5,8	95	-	1	3	4	
2000		11,5	148	-	-	2	2	
400V per Pole		2000	6,6	58			3	4
		3500	11,6	100	-	-	2	3
Metal halide lamps with electronic fluorescent with electronic fluorescent lamp ballast (e. g.: PCI) 50-125 x 1n lamp for 0,6ms		20	0,1	integrated	9	9	18	20
	28	0,15	integrated				18	
	35	0,2	integrated	6	6	11	13	
	70	0,36	integrated	5	5	10	12	
	150	0,7	integrated	4	4	8	10	
Sodium-vapour lamps (low pressure lamps), uncompensated	35	1,5	-	7	9	22	30	
	55	1,5	-	7	9	22	30	
	90	2,4	-	4	6	13	19	
	135	3,3	-	3	4	10	14	
	150	3,3	-	3	4	10	14	
	180	3,3	-	3	4	10	14	
	200	3,3	-	3	4	10	14	
Sodium-vapour lamps (low pressure lamps), compensated	35	0,31	20	5	6	15	18	
	55	0,42	20	5	6	15	18	
	90	0,63	30	3	4	10	12	
	135	0,94	45	2	3	7	8	
	150	1	40	2	3	8	9	
	180	1,16	40	2	3	8	9	
200	1,32	25	-	-	10	12		
Sodium-vapour lamps (high pressure lamps), uncompensated	150	1,8	-	5	8	17	22	
	250	3	-	4	5	10	13	
	330	3,7	-	3	4	8	10	
	400	4,7	-	2	3	6	8	
	1000	10,3	-	1	1	3	4	
Sodium-vapour lamps (high pressure lamps), compensated	150	0,83	20	5	7	20	25	
	250	1,5	33	3	4	12	15	
	330	2	40	2	3	10	13	
	400	2,4	48	2	2	8	12	
	1000	6,3	106	1	1	4	6	
Sodium-vapour lamps (high pressure lamps) with serial electronic (e. g.: PCI) 50-125 x 1n lamp for 0,6ms	20	0,1	integrated	9	9	18	20	
	35	0,2	integrated	6	6	11	13	
	70	0,36	integrated	5	5	10	12	
	150	0,7	integrated	4	4	8	10	
LED-Lamps consider the inrush current of the lamp ballast and the cos φ of the lamp	max. inrush current of contactor [A]			195	233	424	565	
				$\frac{\text{inrush current of contactor}}{\text{inrush current of lamp/EVG}} = \text{max. lamps per pole at 230V 50Hz and max. 60°C}$				

 Modular Contactors "R" AC-1, AC Coil

Type			2-pole				4-pole			RH11
			R20	R25	R40	R63	R25	R40	R63	
Main Contacts ^{5) 6) 7)}										
Rated insulation voltage U_i	V~		440 ²⁾	441 ²⁾	442 ²⁾	443 ²⁾	444 ²⁾	445 ²⁾	446 ²⁾	447 ²⁾
Rated operation voltage U _e	V~		440	440	440	440	440	440	440	440
Frequency of operations z	AC1, AC3	1/h	300	300	600	600	300	600	600	600
Mechanical life		S x 10 ⁶	1	1	1	1	1	1	1	1
Utilization category AC1 / AC7A										
Switching of resistive load										
Rated operational current I _e (=I _{th})										
open	at 60°C	A	20	25	40	63	25	40	63	-
Contact life		S x 10 ⁶	0,1	0,1	0,1	0,1	0,1	0,1	0,1	-
Minimum Switch Voltage		V/mA	24/100	24/100	24/100	24/100	24/100	24/100	24/100	17/5
Short time current	10s-current	A	72	72	216	240	72	216	240	-
Power loss per pole at I_e/AC1		W	2	3	3	7	2	3	7	0,5
Utilization category AC2 and AC3 / AC7b										
Switching of three-phase motors										
Rated operational current I _e		A	-	-	-	-	9	27	30	-
Rated operational power										
of three-phase motors	220V	kW	-	-	-	-	2.2	7.5	8	-
50-60Hz	230-240V	kW	-	-	-	-	2.5	8	8,5	-
	380-415V	kW	-	-	-	-	4	12,5	15	-
2-pole motors	230V	kW	1.1	1.3	2,6	5	-	-	-	-
Contact life		S x 10 ⁶	0.15	0.15	0.15	0.15	0.15	0.15	0.15	-
Power consumption of coils										
AC operated	inrush	VA	7 - 9	7 - 9			20 - 25	33 - 45	33 - 45	-
	sealed	VA	2.2 - 4.2	2.2 - 4.2			4 - 6	6 - 8	6 - 8	-
		W	0.8 - 1.6	0.8 - 1.6	5 - 7	5 - 7	1.5 - 2.5	2.6	2.6	-
AC and DC-operated		W	-	-			3 - 4	-	-	-
Operation range of coils										
in multiples of control voltage U _s (-40° - +40°C)			0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	0.85 - 1.1	-

2) Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): U_{imp} = 4kV

5) Rated frequency 50/60Hz

6) Max. occ. switching overvoltage < 4kV

7) Duty cycle: 100%

Modular Contactors "R" AC-1, AC/ACDC Coil

Data According to IEC60 947-4-1, IEC60 947-5-1, VDE 0660

Type			R20	R25 (2p.)	R25 (4p.)	R25-..VM	R40	R63	RH11
Short circuit protection									
max. fuse Coordination-type "1"	gL (gG)	A	35	35	35	35	63	80	-
Rated short circuit current	"r"	kA	3	3	3	3	3	3	-
	"Iq"	kA	3	3	10	10	10	10	-
Switching time at control voltage U ±10%									
	make time	ms	7 - 16	7 - 16	9 - 15	17 - 24	11 - 15	11 - 15	-
	release time	ms	6 - 12	6 - 12	4 - 8	17 - 23	6 - 13	6 - 13	-
	arc duration	ms	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15	10 - 15	-
Cable cross-sections									
Main connector	solid or stranded	mm ²	1.5 - 10	1.5 - 10	1.5 - 10	1.5 - 10	2.5 - 25	2.5 - 25	0.5 - 2.5 ³⁾
	flexible	mm ²	1.5 - 6	1.5 - 6	1.5 - 6	1.5 - 6	2.5 - 16	2.5 - 16	0.5 - 2.5 ³⁾
	flexible with multicore cable end	mm ²	1.5 - 6	1.5 - 6	1.5 - 6	1.5 - 6	2.5 - 16	2.5 - 16	0.5 - 1.5
Clamps per pole			1	1	1	1	1	1	2
Magnetic coil	solid or stranded	mm ²	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5	0.75 - 2.5	-
	flexible	mm ²	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	0.5 - 2.5	-
	flexible with multicore cable end	mm ²	0.5 - 1.5	0.5 - 2.5	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5	0.5 - 1.5	-
Clamps per pole			1	1	1	1	1	1	-
Auxiliary Contacts ^{5) 6) 7)}									
Rated insulation voltage U_i ¹⁾		VAC	-	-	-	-	-	-	440 ²⁾
Thermal rated current I_{th}		40°C	-	-	-	-	-	-	10
Ambient temperature		60°C	-	-	-	-	-	-	6
Utilization category AC15									
Rated operational current I _e	220-240V	A	-	-	-	-	-	-	3
	380-415V	A	-	-	-	-	-	-	2
	440V	A	-	-	-	-	-	-	1,6
Utilization category DC13									
Rated operational current I _e	24-60V	A	-	-	-	-	-	-	2
	110V	A	-	-	-	-	-	-	0.4
	per pole	A	-	-	-	-	-	-	0.1
Short circuit protection									
short-circuit current 1kA, contact welding not accepted									
max. fuse size	gL (gG)	A	-	-	-	-	-	-	10

2) Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): U_{imp} = 4kV.

3) Maximum cable cross-section with prepared conductor

4) AC7b motor 2-pole 230V 1,1kW

5) Rated frequency 50/60Hz

6) Max. occ. switching overvoltage < 4kV

7) Duty cycle: 100%

 Modular Contactors "R" AC-1, ACDC Coil

Type			4-pole R25-..VM	RH11-1
Main contacts 5)6)7)				
Rated insulation voltage U_i		V~	440 2)	440 2)
Rated operational voltage U_e		V~	440	440
Switching frequency	AC1, AC3	1/h	300	600
Mechanical endurance		$S \times 10^6$	1	1
Utilization category AC1				
Rated operational current $I_e (=I_{th})$				
open... at	60°C	A	25	-
Endurance of main contacts		$S \times 10^6$	0.1	-
Minimum switching voltage		V/mA	24/100	17/5
Short time current	10s-current	A	72	-
Power loss per pole $I_e/AC1$		W	2	0.5
Utilization category AC3 / AC7b				
Switching of slipping or squirrel-cage motors				
Rated operational current I_e		A	9	-
Rated power of motor	220V	kW	2.2	-
50-60Hz	230-240V	kW	2.5	-
	380-415V	kW	4	-
2-pole motors	230V	kW		-
Endurance of main contacts		$S \times 10^6$	0.15	-
Power consumption of coil				
AC-operated	closing	VA	20 - 25	-
	closed	VA	4-6	-
		W	3 - 3.5	-
DC-operated		W	3-4	-
Operating range of coil				
in multiples of control voltage U_s (-40°C to +40°C)			0.85 - 1.1	-

2) Valid for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): $U_{imp} = 4kV$

5) Rated frequency 50/60Hz


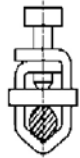
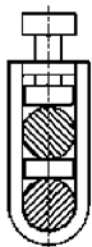
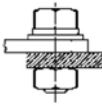




6) Max. occ. switching overvoltage < 4kV

7) Duty cycle: 100%

Modular Contactors "Amparo" AC-1, AC Coil

		R20	R25	R40	R63
Data according:		IEC/EN 60947-4-1			
		IEC/EN 61095			
Rated current I_{th} :		20A	25A	40A	63A
Rated voltage	1-phase U_e :	230V	230V	230V	230V
	3-phase U_e :	-	400V	400V	400V
Rated current I_e :	at AC1 / AC7 _A	20A	25A	40A	63A
Rated power	AC1 at $U_e = 230VAC$ P _{max} :	4kW	16kW	-	-
	AC1 at $U_e = 400VAC$ P _{max} :	-	-	28kW	40kW
	AC3 at $U_e = 400VAC$ P _{max} :	-	4kW	12kW	15kW
Rated insulation voltage U_i :		500V	500V	500V	500V
Rated impulse withstand voltage U_{imp} :		4kV			
Nominal frequency:		50/60Hz			
Maximum short circuit protection		25A gL/gG	35A gL/gG	63A gL/gG	80A gL/gG
Mechanical endurance		3000000	3000000	3000000	3000000
Electrical endurance	at AC1 / AC7 _A	150000	150000	150000	150000
	at AC3 / AC7 _b	-	150000	150000	150000
Breadth (1 MW = 17.8mm)		1 MW	2 MW	3 MW	3 MW
Maximum surrounding temperature		-5°C... +55°C			
Protection degree		IP20			

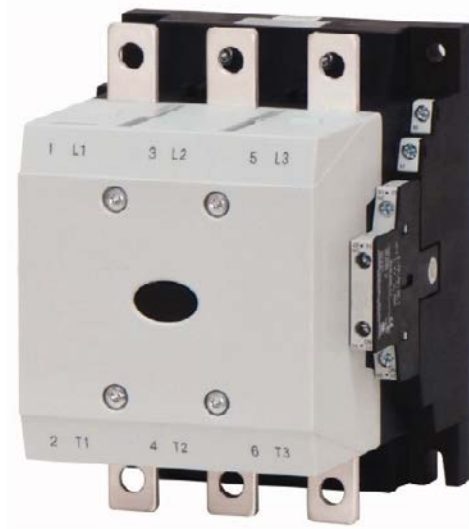
 Terminal Screws

Devices	Kind of connection				Screw driver	Tightening torque	
	Screw with washer	Screw with clamp box	Screw w.nut			Nm	lb. inch
Type							
Main and auxiliary conductors							
R20, R25	-	M3,5	-	-	 Pz1	0.8-1.4	7-12
R40, R63	-	M5	-	-	 Pz2	2.5-3	22-26
Coil conductor							
R20, R25	-	M3,5	-	-	 Pz1	0.6-1.2	5-11
R40, R63	-	M3,5	-	-	 Pz1	0.6-1.2	5-11

Electromechanical Contactors Series LA



Electromechanical Contactors Series ALEA II LT



Reversing Contactor Combinations Series ALEA II LTW



Star-Delta Contactor Combinations Series ALEA II LTY



Contactors Series CUBICO Mini, 3-pole



Contactors Series CUBICO Classic, 3-pole



Electromechanical Contactors

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Contactors Series CUBICO Grand, 3-pole	Page	326

Micro Contactors LA, Size M



LAMD0510



Mobil Code

Schrack-Info

- Contactors up to 2.2kW, 3- or 4-pole
- Worldwide smallest power contactor
- Suitable for safety applications according IEC 60335-1
- 3-pole contactors with one integrated auxiliary contact (1 NO or 1 NC)
- All auxiliary contactors are suitable for electronic circuits according to IEC 60947-5-4
- 4-pole contactors without auxiliary contact
- Contactors can not be fitted with additional auxiliary contacts
- No Thermal overload relays for contactors LAM are available
- Mountable on mounting rail TS15 or with adaptor on DIN rail -TS35
- Further accessories find attached

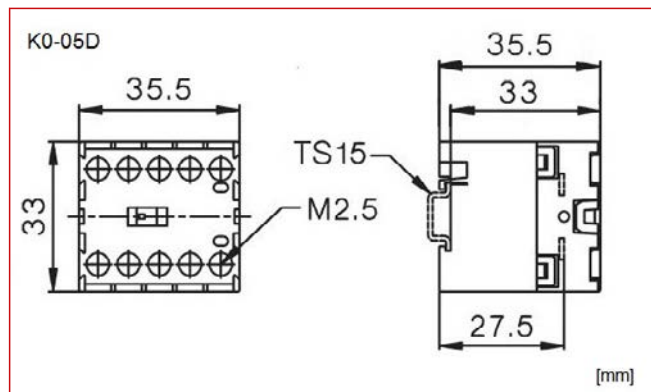
		K0-05D
Rated insulation voltage U_i	(VAC)	440
Utilization category AC-1 $\cos \phi = 1$		
Rated operational power at 400VAC	(kW)	8.3
Rated operational current $I_e = I_{th}$ at 40°C and 480VAC	(A)	12
Utilization category AC-2 and AC-3		
Rated operational power at 400VAC	(kW)	2.2
Rated operational current I_e at 380-440VAC	(A)	5
Ambient temperature (operation)	(°C)	-40 ... +60
Permissible mounting position		
Rules and regulations according	IEC 60947-4-1, EN 60947-4-1	

		Auxiliary contacts
Rated insulation voltage U_i	(VAC)	440
Thermal rated current I_{th} at 40°C and 440VAC	(A)	5
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	3/1
Utilization category DC13 ¹⁾		
Rated operational current I_e at 40°C up to 60VDC	(A)	0.5
Ambient temperature (operation)	(°C)	-40 ... +60
Rules and regulations according	IEC 60947-5-1, EN 60947-5-1	

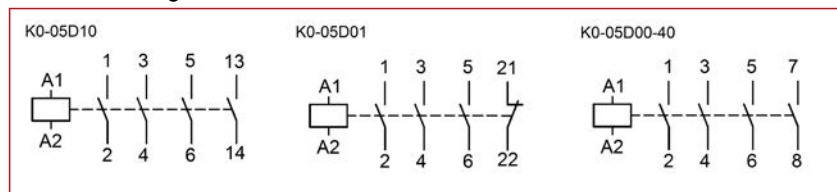
1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC
(Test ratings 17VDC, 5mA) Positively guided contacts

Micro Contactors LA, Size M

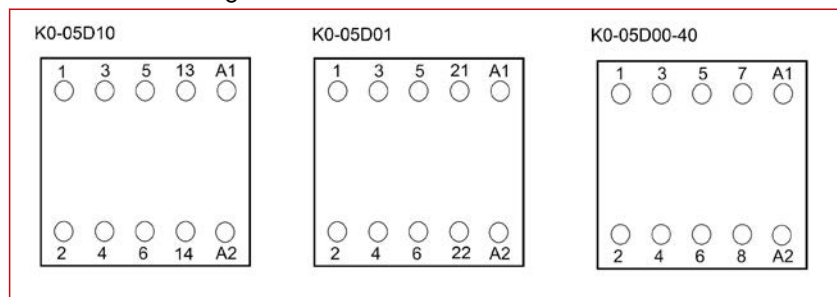
Dimensions



Circuit Diagrams



Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
2.2kW - 3 pole			
AC-3/5A, 3NO+1NO, 24VAC	K0-05D10		LAMD0510
AC-3/5A, 3NO+1NO, 230VAC	K0-05D10		LAMD0513
AC-3/5A, 3NO+1NO, 400VAC	K0-05D10		LAMD0514
AC-3/5A, 3NO+1NO, 24VDC	K0-05D10		LAMD0515
AC-3/5A, 3NO+1NC, 24VAC	K0-05D01		LAMD0520
AC-3/5A, 3NO+1NC, 230VAC	K0-05D01		LAMD0523
AC-3/5A, 3NO+1NC, 400VAC	K0-05D01		LAMD0524
AC-3/5A, 3NO+1NC, 24VDC	K0-05D01		LAMD0525
2.2kW - 4-pole			
AC-3/5A, 4NO, 24VAC	K0-05D00-40		LAMD0540
AC-3/5A, 4NO, 230VAC	K0-05D00-40		LAMD0543
AC-3/5A, 4NO, 400VAC	K0-05D00-40		LAMD0544
AC-3/5A, 4NO, 24VDC	K0-05D00-40		LAMD0545
Accessories for Contactors Size M			
DIN-rail slotted, L=1000 W=15 H=5mm	TS15		LAMZTS15
DIN-rail adaptor TS35	TS35		LAMZTS35

Mini Contactors LA, Size 1



LA100910

Schrack-Info

- Contactors up to 4kW, 3- or 4-pole
- 3-pole contactors with integrated auxiliary contacts (1NO or 1NC), 4-pole contactors without integrated auxiliary contact
- 3-pole contactors with one integrated auxiliary contact NO, auxiliary contact HKM can be snapped on
- 3-pole contactors with one integrated auxiliary contact NC, auxiliary contact HKM can be snapped on
- 4-pole contactors, auxiliary contacts HKM can be snapped on
- 3-pole contactors for direct mounting of Thermal overload relays of type U12/16E..K1 suitable
- 4-pole contactors are not suitable for Thermal overload relays
- Mountable on DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

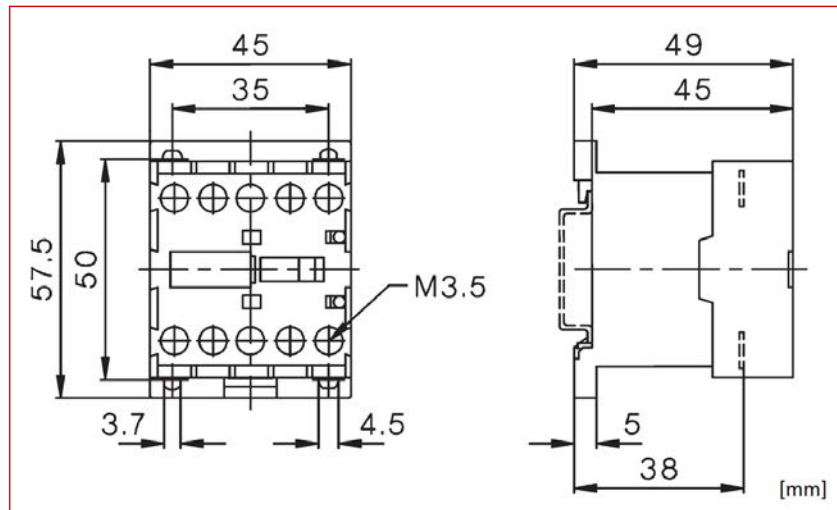
		K1-09
Rated insulation voltage U_i	(VAC)	690
Utilization category AC-1 $\cos \varphi = 1$		
Rated operational power at 400VAC	(kW)	13,8
Rated operational current $I_e = I_{th}$ at 40°C and 690VAC	(A)	20
Utilization category AC-2 and AC-3		
Rated operational power at 400VAC	(kW)	4
Rated operational current I_e at 380-440VAC	(A)	9
Ambient temperature (operation)	(°C)	-40 ... +60
Permissible mounting position		
Rules and regulations according	IEC 60947-4-1, EN60947-4-1	

		included auxiliary contacts
Rated insulation voltage U_i	(VAC)	690
Thermal rated current I_{th} at 40°C and 440VAC	(A)	10
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	3 / 1.6
Utilization category DC13¹⁾		
Rated operational current I_e at 40°C up to 60/110/220VDC	(A)	2 / 0.4 / 0.1
Ambient temperature (operation)	(°C)	-40 ... +60
Rules and regulations according	IEC 60947-5-1, EN 60947-5-1	

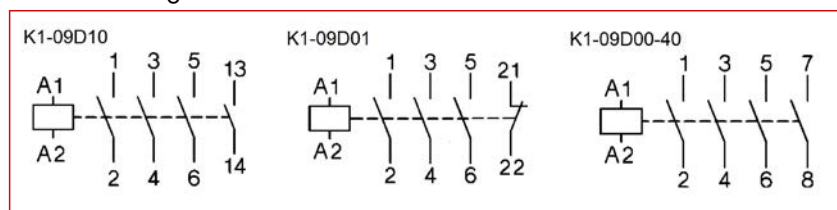
1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA), positively guided contacts

Mini Contactors LA, Size 1

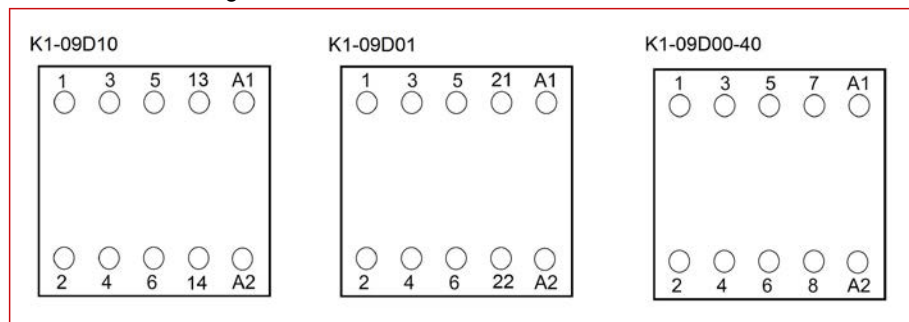
Dimensions



Circuit Diagrams



Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
4kW - 3-pole			
3NO+1NC, 20A, 24VAC	K1-09D10		LA100910
3NO+1NC, 20A, 24VDC	K1-09D10		LA100915
3NO main + 1NC auxiliary contact, 20A, 24VDC+suppressor	K1-09D10		LA10091B
3NO+1NC, 20A, 230VAC	K1-09D10		LA100913
3NO main + 1NC auxiliary contact, 20A, 230VAC+suppressor	K1-09D10		LA10091C
3NO + 1NC, 20A, 24 VAC	K1-09D01		LA100920
3NO + 1NC, 20A, 24 VDC	K1-09D01		LA100925
3NO + 1NC, 20A, 230 VAC	K1-09D01		LA100923
4kW - 4-pole			
4 NO 230V AC, 20A	K1-09D00-40		LA100943
4NO, 20A, 24 VDC+ suppressor	K1-09D00-40		LA10094B
Auxiliary Contacts			
Auxiliary contact block for mini Contactors K1, 2NO	HKM20		LA190143
Auxiliary contact block for mini Contactors K1, 1NO+1NC	HKM11		LA190151
Auxiliary contact block for mini Contactors K1, 2NO+2NC	HKM22		LA190150
Auxiliary contact block for mini Contactors K1, 2NC, HKM02	HKM02		LA190152

Electromechanical Contactors Series LA

Power Contactors LA, Size 2



LA306243

Schrack-Info

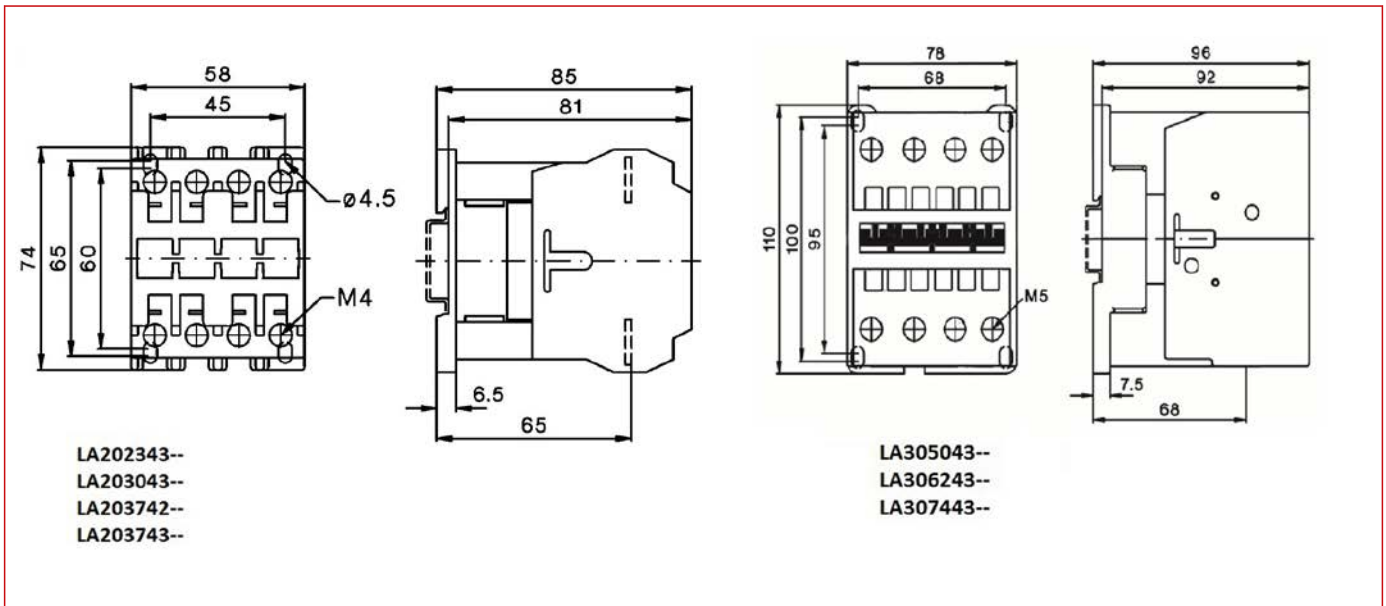
- Contactors 4-pole up to 130A AC1
- LA2... Contactors in maximum 4 frontside auxiliary can be snapped on
- LA3... Contactors in maximum 6 frontside auxiliary can be snapped on
- No Thermal overload relais retrofit
- Mountable on DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

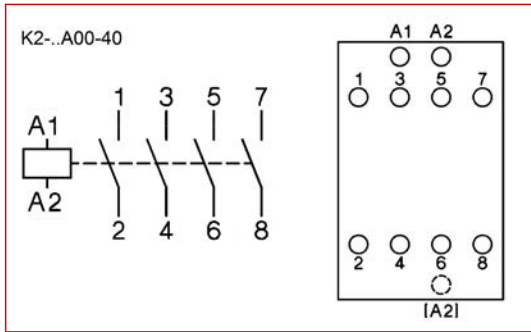
	LA202343	LA203043	LA203743	LA203743	LA305043	LA306243	LA307443
Rated insulation voltage U_i (VAC)	690						
Utilization category AC-1 $\cos \varphi = 1$							
Rated operational power at 400VAC (kW)	31	34,5	34,5	34,5	-	-	-
Rated operational current $I_e = I_{th}$ at 40°C and 690VAC (A)	45	50	50	50	110	120	130
Utilization category AC-2 and AC-3							
Rated operational power at 400VAC (kW)	11	15	18,5	18,5	22	30	37
Rated operational current I_e at 380-400VAC (A)	23	30	37	37	50	62	74
Ambient temperature (operation) (°C)	-40 ... +60						
Permissible mounting position							
Rules and regulations according	IEC / EN60947-4-1						

Dimensions



Power Contactors LA, Size 2

Circuit and Connection Diagram



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
4-pole			
K2-23A00-40 230VAC/11kW	K2-23A00-40		LA202343
K2-30A00-40 230VAC/15kW	K2-30A00-40		LA203043
K2-37A00-40 110VAC/18.5kW	K2-37A00-40		LA203742
K2-37A00-40 230VAC/18kW	K2-37A00-40		LA203743
30 kW, 62A AC3, 120A AC1, 4pole, 230VAC			LA306243
37 kW, 74A AC3, 130A AC1, 4pole, 230VAC			LA307443
Auxiliary Contacts			
front 1NO, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN10		LA190100
front 1NC, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN01		LA190101
front 1NC, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA01		LA190135
front 1NO, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA10		LA190137
front 1early make NO, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN10U		LA190138
front 1delayed NC, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN01U		LA190139

Power Contactors LA, Size 3, 4 - 18.5kW



LA301010N

Schrack-Info

- Contactors from 4kW up to 18.5kW, 3- or 4-pole
- K3-10 up to K3-22, in maximum 4 frontside auxiliary contacts HN or HA can be snapped on
- K3-24 up to K3-40, in maximum 4 frontside auxiliary contacts HN or HA as well as 2 "side mounted" auxiliary contacts HB can be snapped on
- 3-pole contactors K3-10 up to K3-22 suitable for Thermal overload relays of type U12/16E..K3
- 3-pole contactors K3-10 up to K3-40 suitable for Thermal overload relays of type U3/32
- 3-pole contactors K3-24 up to K3-40 suitable for Thermal overload relays of type U3/42
- 4-pole contactors are not suitable for Thermal overload relays
- Mountable on DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

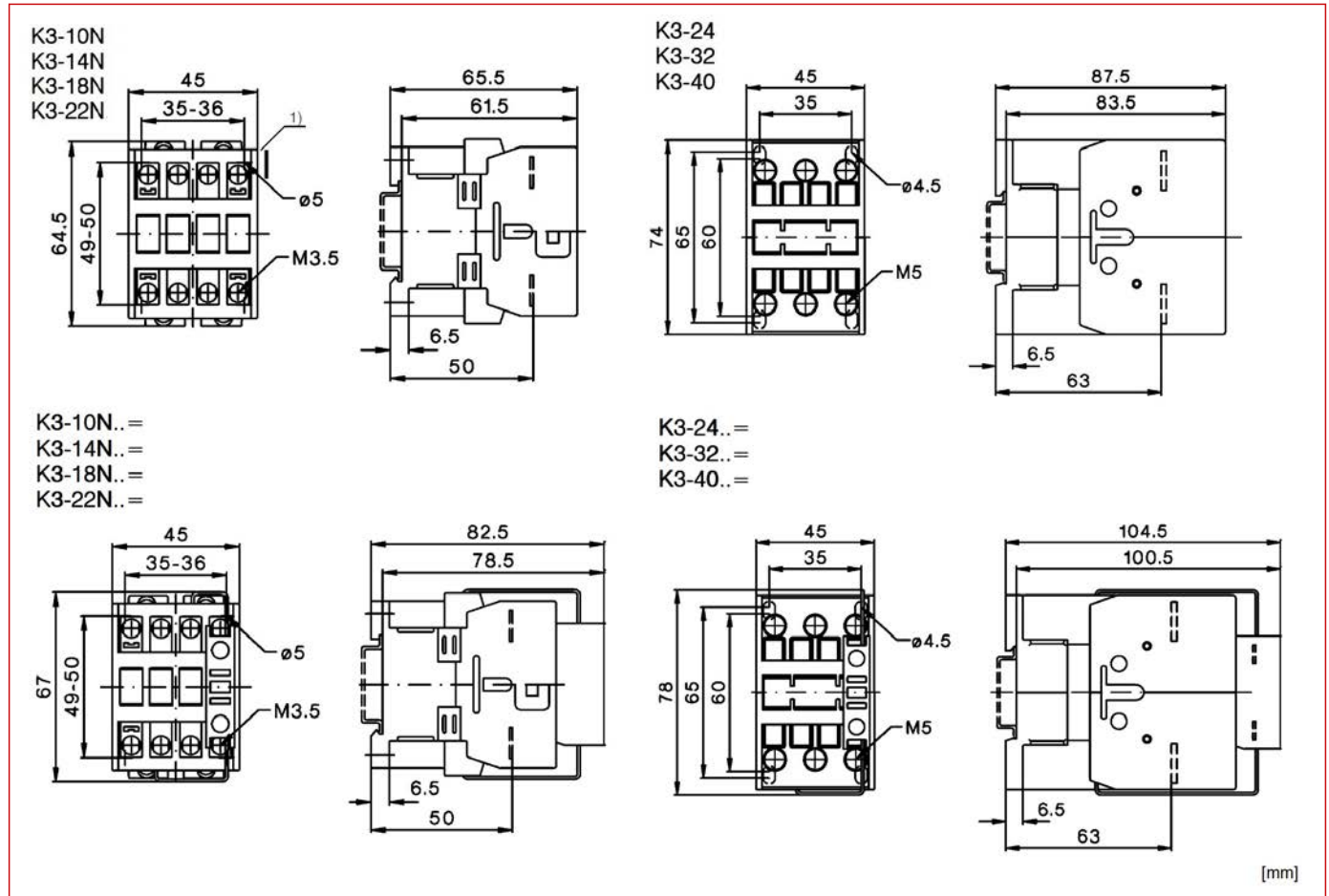
		K3-10	K3-14	K3-18	K3-22	K3-24	K3-32	K3-40
Rated insulation voltage U_i	(VAC)	690						
Utilization category AC-1 $\cos \phi = 1$								
Rated power at 400VAC	(kW)	17,3	17,3	22,1	22,1	34,6	45	55,4
Rated operational current $I_e = I_{th}$ at 40°C and 690VAC	(A)	25	25	32	32	50	65	80
Utilization category AC-2 and AC-3								
Rated power at 400VAC	(kW)	4	5,5	7,5	11	11	15	18,5
Rated operational current I_e at 380-400VAC	(A)	10	14	18	22	24	32	40
Ambient temperature (operation)	(°C)	-40 ... +60						
Permissible mounting position								
Rules and regulations according		IEC 60947-4-1, EN60947-4-1						

		Included auxiliary contacts
Rated insulation voltage U_i	(VAC)	690
Thermal rated current I_{th} at 40°C and 690VAC	(A)	10
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	3 / 1,6
Utilization category DC13¹⁾		
Rated operational current I_e at 40°C up to 60/110/220VDC	(A)	3,5 / 0,5 / 0,1
Ambient temperature (operation)	(°C)	-40 ... +60
Rules and regulations according		IEC 60947-5-1, EN 60947-5-1

1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA), positively guided contacts

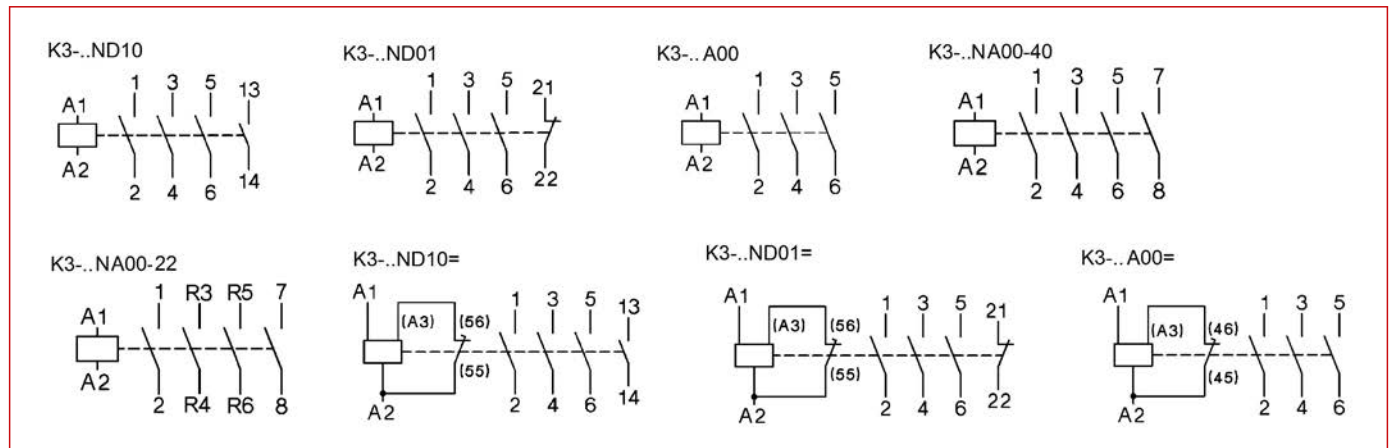
Power Contactors LA, Size 3, 4 - 18.5kW

Dimensions



1) Minimum side distances to conductive parts at coil voltages:
 500V $U_{imp}=6kV$ 2mm
 660-690V $U_{imp}=8kV$ 4,5mm

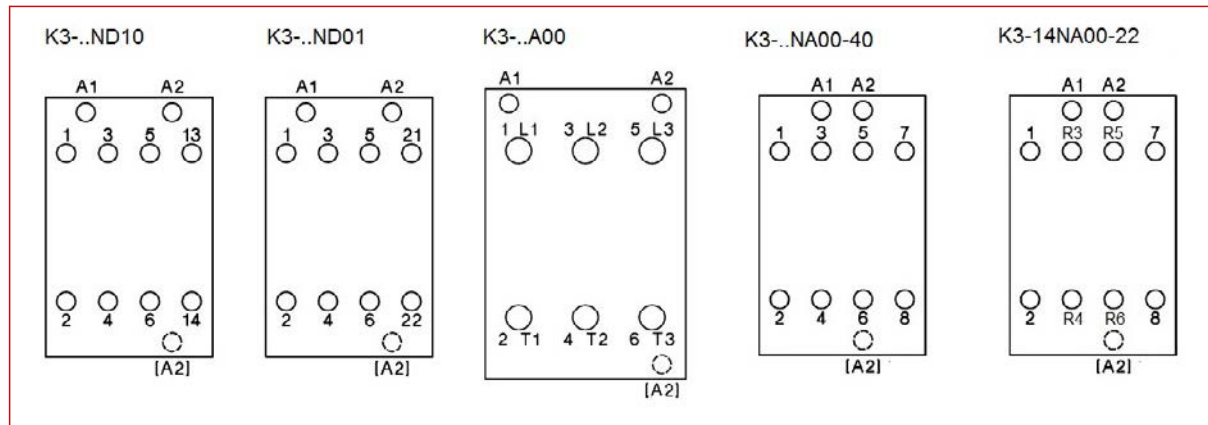
Circuit Diagrams



Electromechanical Contactors Series LA

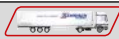
























Power Contactors LA, Size 3, 4 - 18.5kW

Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
4kW / 10A AC3, 25A AC-1, 3-pole			
4kW, AC3, 10A, 24VAC + 1NO built in			LA30101N
4kW, AC3, 10A, 24VDC + 1NO built in			LA301015N
4kW, AC3, 10A, 24VAC + 1NC built in			LA301020N
4kW, AC3, 10A, 48VAC + 1NO built in			LA301011N
4kW, AC3, 10A, 110VAC + 1NO built in			LA301012N
4kW, AC3, 10A, 230VAC + 1NO built in			LA301013N
4kW, AC3, 10A, 400VAC + 1NO built in			LA301014N
4kW, AC3, 10A, 230VAC + 1NC built in			LA301023N
4kW, AC3, 10A, 400VAC + 1NC built in			LA301024N
4kW, AC3, 10A, 230VAC + 1NC built in			LA301025N
5.5kW / 14A AC-3, 25A AC-1, 3-pole			
Contactors 3-pole, 5.5kW, AC3, 14A, 24VAC + 1NO built in	K3-14ND10		LA301410N
Contactors 3-pole, 5.5kW, AC3, 14A, 48VAC + 1NO built in	K3-14ND10		LA301411N
Contactors 3-pole, 5.5kW, AC3, 14A, 24VAC + 1NC built in	K3-14ND01		LA301420N
Contactors 3-pole, 5.5kW/14A AC3, 25A AC1, 1NC, 110VAC	K3-14ND01		LA301422N
Contactors 3-pole, 5.5kW, AC3, 14A, 24VDC + 1NO built in	K3-14ND10=		LA301415N
Contactors 3-pole, 5.5kW/14A AC3, 25A AC1, 1NO, 220VDC	K3-14ND10=		LA301418N
Contactors 3-pole, 5.5kW, AC3, 14A, 24VDC + 1NC built in	K3-14ND01=		LA301425N
Contactors 3-pole, 5.5kW, AC3, 14A, 110VAC + 1NO built in	K3-14ND10		LA301412N
Contactors 3-pole, 5.5kW, AC3, 14A, 230VAC + 1NO built in	K3-14ND10		LA301413N
Contactors 3-pole, 5.5kW, AC3, 14A, 230VAC + 1NC built in	K3-14ND01		LA301423N
Contactors 3-pole, 5.5kW, AC3, 14A, 400VAC + 1NO built in	K3-14ND10		LA301414N
Contactors 3-pole, 5.5kW/14A AC3, 25A AC1, 1NC, 400VAC	K3-14ND01		LA301424N
5.5kW / 14A AC-3, 25A AC-1, 4-pole			
Contactors 4-pole, 5.5kW, AC3, 14A, 230VAC, 4 main contacts	K3-14NA00-40		LA301443N
Contactors 4-pole, 5.5kW/14A AC3, 25A AC1, 2NO+2NC, 230VAC	K3-14NA00-22		LA3014C3N
7.5kW / 18A AC-3, 32A AC-1, 3-pole			
Contactors 3-pole, 7.5kW, 1NO, 24VAC, 18A AC3, 32A AC1	K3-18ND10		LA301810N
Contactors, 3-pole, 7.5kW/18A AC3, 32A AC1, 1NO, 24VDC	K3-18ND10=		LA301815N
Contactors 3-pole, 7.5kW/18A AC3, 32A AC1, 1NO, 48VDC	K3-18ND10=		LA301816N
Contactors, 3-pole, 7.5kW/18A AC3, 32A AC1, 1NC, 24VAC	K3-18ND01		LA301820N
Contactors, 3-pole, 7.5kW/18A AC3, 32A AC1, 1NC, 24VDC	K3-18ND01=		LA301825N
Contactors 3-pole, 7.5kW/18A AC3, 32A AC1, 1NO, 48VAC	K3-18ND10		LA301811N
Contactors 3-pole, 7.5kW/18A AC3, 32A AC1, 1NO, 110VAC	K3-18ND10		LA301812N
Contactors 3-pole, 7.5kW, 1NO, 230VAC, 18A AC3, 32A AC1	K3-18ND10		LA301813N

 Power Contactors LA, Size 3, 4 - 18.5kW

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
7.5kW / 18A AC-3, 32A AC-1, 3-pole			
Contactors, 3-pole, 7.5kW/18A AC3, 32A AC1, 1NC, 230VAC	K3-18ND01		LA301823N
Contactors 3-pole, 7.5kW/18A AC3, 32A AC1, 1NO, 400VAC	K3-18ND10		LA301814N
7.5kW / 18A AC-3, 32A AC-1, 4-pole			
Contactors, 4-pole, 7.5kW, 4 main contacts., 230VAC, 18A AC3, 32A AC1	K3-18NA00-40		LA301843N
11kW / 22A AC-3, 32A AC-1, 3-pole			
Contactors, 3-pole, 11kW, 1NO, 24VAC, 22A AC3, 32A AC1	K3-22ND10		LA302210N
Contactors, 3-pole, 11kW/22A AC3, 32A AC1, 1NO, 24VDC	K3-22ND10=		LA302215N
Contactors 3-pole, 11kW/22A AC3, 32A AC1, 1NO, 48VDC	K3-22ND10=		LA302216N
Contactors, 3-pole, 11kW/22A AC3, 32A AC1, 1NC, 24VDC	K3-22ND01=		LA302225N
Contactors 3-pole, 11kW/22A AC3, 32A AC1, 1NO, 48VAC	K3-22ND10		LA302211N
Contactors 3-pole, 11kW/22A AC3, 32A AC1, 1NO, 110VAC	K3-22ND10		LA302212N
Contactors, 3-pole, 11kW, 1NO, 230VAC, 22A AC3, 32A AC1	K3-22ND10		LA302213N
Contactors, 3-pole, 11kW/22A AC3, 32A AC1, 1NC, 230VAC	K3-22ND01		LA302223N
Contactors, 3-pole 11kW/22A AC3, 32A AC1, 1NO, 400VAC	K3-22ND10		LA302214N
Contactors 3-pole, 11kW/22A AC3, 32A AC1, 1NC, 400VAC	K3-22ND01		LA302224N
11kW / 22A AC-3, 32A AC-1, 4-pole			
Contactors, 4-pole, 11kW/22A AC3, 32A AC1, 4 main contact, 230VAC	K3-22NA00-40		LA302243N
11kW / 24A AC-3, 50A AC-1, 3-pole			
Contactors, 3-pole, 11kW/24A AC3, 50A AC1, 24VAC	K3-24A00		LA302430
Contactors, 3-pole, 11kW/24A AC3, 50A AC1, 48VDC	K3-24A00=		LA302436
Contactors, 3-pole, 11kW/24A AC3, 50A AC1, 24VDC	K3-24A00=		LA302435
Contactors, 3-pole, 11kW/24A AC3, 50A AC1, 48VAC	K3-24A00		LA302431
Contactors, 3-pole, 11kW/24A AC3, 50A AC1, 110VAC	K3-24A00		LA302432
Contactors, 3-pole, 11kW/24A AC3, 50A AC1, 230VAC	K3-24A00		LA302433
15kW / 32A AC-3, 65A AC-1, 3-pole			
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 24VAC	K3-32A00		LA303230
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 24VDC	K3-32A00=		LA303235
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 48VAC	K3-32A00		LA303231
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 110VAC	K3-32A00		LA303232
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 230VAC	K3-32A00		LA303233
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 400VAC	K3-32A00		LA303234
Contactors, 3-pole, 15kW/32A AC3, 65A AC1, 48VDC	K3-32A00=		LA303236
18.5kW / 40A AC-3, 80A AC-1, 3-pole			
Contactors, 3-pole, 18,5kW/40A AC3, 80A AC1, 24VAC	K3-40A00		LA304030
Contactors, 3-pole, 18,5kW/40A AC3, 80A AC1, 110VAC	K3-40A00		LA304032
Contactors, 3-pole, 18,5kW/40A AC3, 80A AC1, 230VAC	K3-40A00		LA304033
Contactors, 3-pole, 18,5kW/40A AC3, 80A AC1, 400VAC	K3-40A00		LA304034
Contactors, 3-pole, 18,5kW/40A AC3, 80A AC1, 24VDC	K3-40A00=		LA304035
Auxiliary Contacts			
front 1NO, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN10		LA190100
front 1NC, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN01		LA190101
front 1NC, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA01		LA190135
front 1NO, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA10		LA190137
front 1early make NO, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN10U		LA190138
front 1delayed NC, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN01U		LA190139

Power Contactors LA, Size 3, 22 - 90kW



LA305030

Schrack-Info

- Contactors from 22kW up to 90kW, 3- or 4-pole
- K3-50 up to K3-74, in maximum 4 frontside auxiliary contacts HN or HA as well as 2 "side mounted" auxiliary contacts HB can be snapped on
- K3-50 up to K3-74 with DC-coil, in maximum 3 frontside auxiliary contacts HN or HA as well as 2 "side mounted" auxiliary contacts HB can be snapped on
- K3-90 and K3-115, in maximum 7 frontside auxiliary contacts HN or HA as well as 2 "side mounted" auxiliary contacts HB can be snapped on
- K3-151 and K3-176, in maximum 1 frontside auxiliary contact HKT as well as 2 "side mounted" auxiliary contacts HKA11 can be snapped on
- 3-pole Contactors K3-50 up to K3-74 suitable for Thermal overload relays of type U3/74
- 3-pole Contactors K3-90 and K3-115 suitable for Thermal overload relays of type U85
- 3-pole Contactors K3-151 and K3-176 suitable for Thermal overload relays of type U180
- 4-pole Contactors are not suitable for Thermal overload relays
- Mounting of K3-50 up to K3-74 on DIN-rail TS35 or mounting plate
- Mounting of K3-90 up to K3-115 on 2 DIN-rails TS35 or mounting plate
- Mounting of K3-151 and K3-176 on mounting plate
- Further accessories find attached

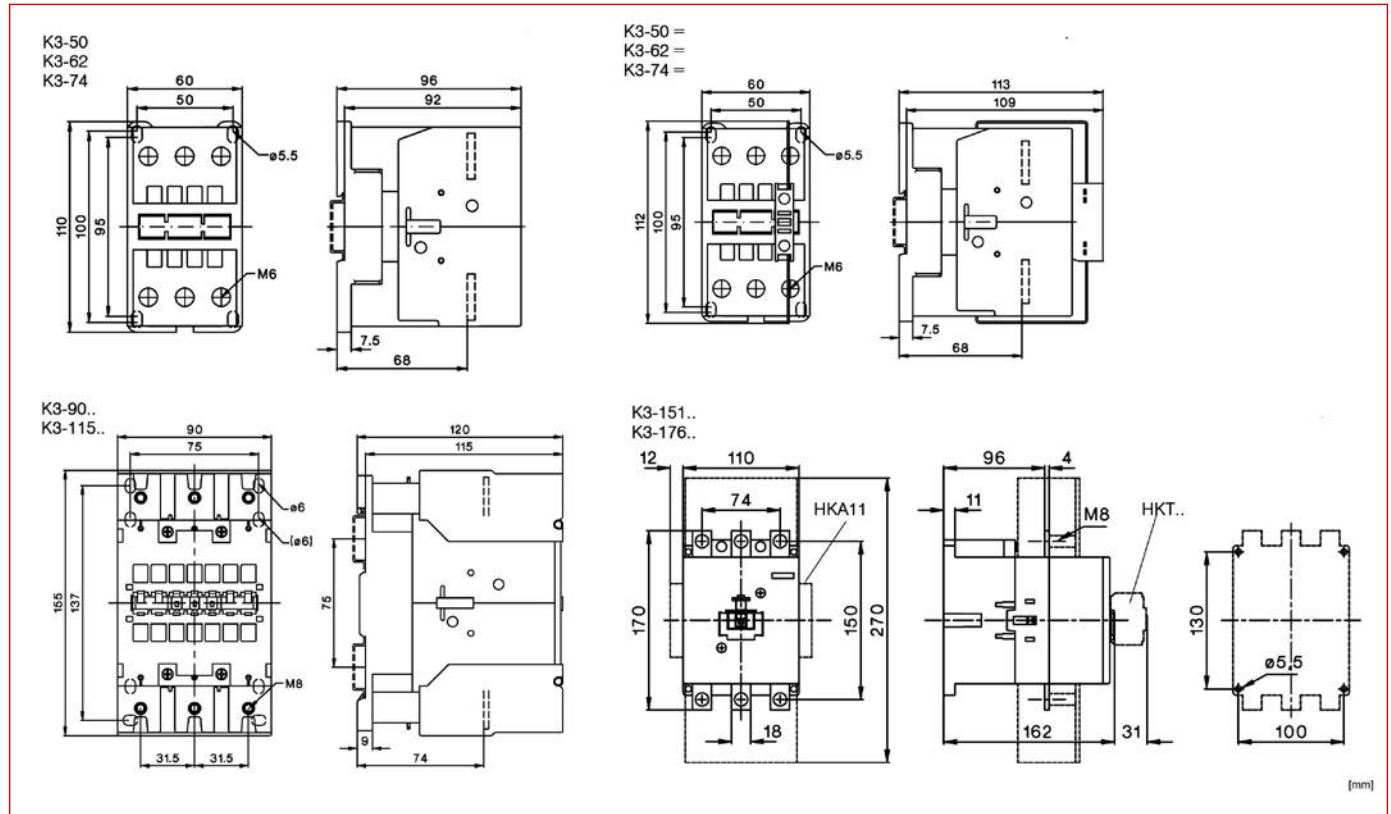


Mobil Code

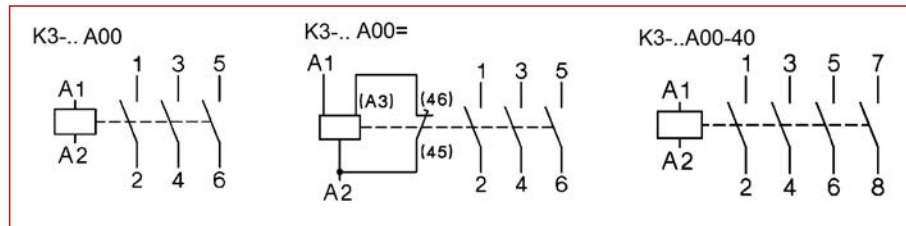
		K3-50	K3-62	K3-74	K3-90	K3-115	K3-116	K3-151	K3-176	
Rated insulation voltage U_i	(VAC)	690			1000					
Utilization category AC-1 $\cos \varphi = 1$										
Rated operational power at 400VAC	(kW)	76.1	83	90	110	138	138	159	173	
Rated operational current $I_e = I_{th}$ at 40°C and 690VAC	(A)	110	120	130	160	200	200	230	250	
Utilization category AC-2 and AC-3										
Rated operational power at 400VAC	(kW)	22	30	37	45	55	55	75	90	
Rated operational current I_e at 380-400VAC	(A)	50	62	74	90	115	115	150	175	
Ambient temperature (operation)	(°C)	-40 ... +60					-25 ... +55			
Permissible mounting position										
Rules and regulations according		IEC 947-4-1, EN60947-4-1								

Power Contactors LA, Size 3, 22 - 90kW

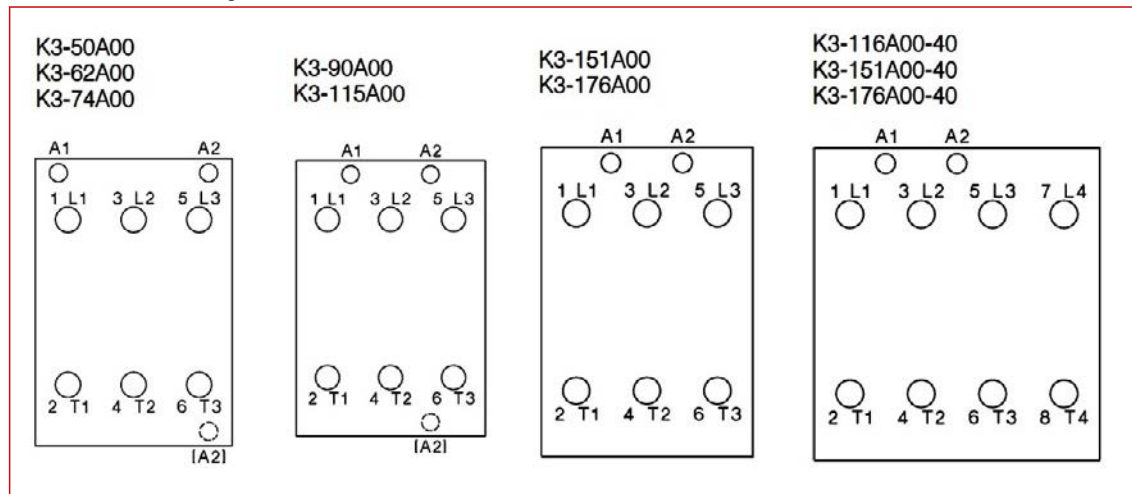
Dimensions



Circuit Diagrams






















Connection Diagrams



Electromechanical Contactors Series LA

Power Contactors LA, Size 3, 22 - 90kW

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
22kW / 50A AC-3, 110A AC-1, 3-pole			
Contactors, 3-pole, 22kW/50A AC3, 110A AC1, 24VAC	K3-50A00		LA305030
Contactors, 3-pole, 22kW/50A AC3, 110A AC1, 110VAC	K3-50A00		LA305032
Contactors, 3-pole, 22kW/50A AC3, 110A AC1, 230VAC	K3-50A00		LA305033
Contactors, 3-pole, 22kW/50A AC3, 110A AC1, 24VDC	K3-50A00=		LA305035
30kW / 62A AC-3, 120A AC-1, 3-pole			
Contactors, 3-pole, 30kW/62A AC3, 120A AC1, 24VAC	K3-62A00		LA306230
Contactors, 3-pole, 30kW/62A AC3, 120A AC1, 48VAC	K3-62A00		LA306231
Contactors, 3-pole, 30kW/62A AC3, 120A AC1, 110VAC	K3-62A00		LA306232
Contactors, 3-pole, 30kW/62A AC3, 120A AC1, 230VAC	K3-62A00		LA306233
Contactors, 3-pole, 30kW/62A AC3, 120A AC1, 400VAC	K3-62A00		LA306234
Contactors, 3-pole, 30kW/62A AC3, 120A AC1, 24VDC	K3-62A00=		LA306235
37-55kW / 74-115A AC-3, 130-200A AC-1, 3-pole			
Contactors, 3-pole, 37kW/74A AC3, 130A AC1, 110VAC	K3-74A00		LA307432
Contactors, 3-pole, 37kW/74A AC3, 130A AC1, 230VAC	K3-74A00		LA307433
Contactors, 3-pole, 37kW/74A AC3, 130A AC1, 400VAC	K3-74A00		LA307434
45kW/85A AC3, 150A AC1, 3-pole, 230VAC/DC	K3-90A00		LA309033
45kW/85A AC3, 150A AC1, 3-pole, 48VAC	K3-90A00		LA30903E
55kW/115A AC3, 200A AC1, 3-pole, 230VAC/DC	K3-115A00		LA311533
75-90kW / 150-175A AC-3, 230-250A AC-1, 3-pole			
75kW/150A AC3, 230A AC1, 3-pole, 230VAC/DC	K3-151A00		LA31500H
90kW/175A AC3, 250A AC1, 3-pole, 230VAC/DC	K3-176A00		LA31750H
55-90kW / 115-175A AC-3, 200-250A AC-1, 4-pole			
55kW/115A AC3, 200A AC1, 4-pole, 230VAC/DC	K3-116A00-40		LA311643
75kW/150A AC3, 230A AC1, 4-pole, 230VAC/DC	K3-151A00-40		LA315043
90kW/175A AC3, 250A AC1, 4-pole, 230VAC/DC	K3-176A00-40		LA317543
Auxiliary Contacts			
front 1NO, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN10		LA190100
front 1NC, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN01		LA190101
lateral 1NO+1NC, 3A (230V AC-15) for K3-24 to K3-115	HB11		LA190134
front 1NC, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA01		LA190135
front 1NO, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA10		LA190137
front 1early make NO, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN10U		LA190138
front 1 delayed NC, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN01U		LA190139
front 2NO+2NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT22		LA190144
lateral 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKA11		LA190145
front 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT11		LA190146

Power Contactors LA, Size 3, 110 - 300kW



LA32103H

Schrack-Info

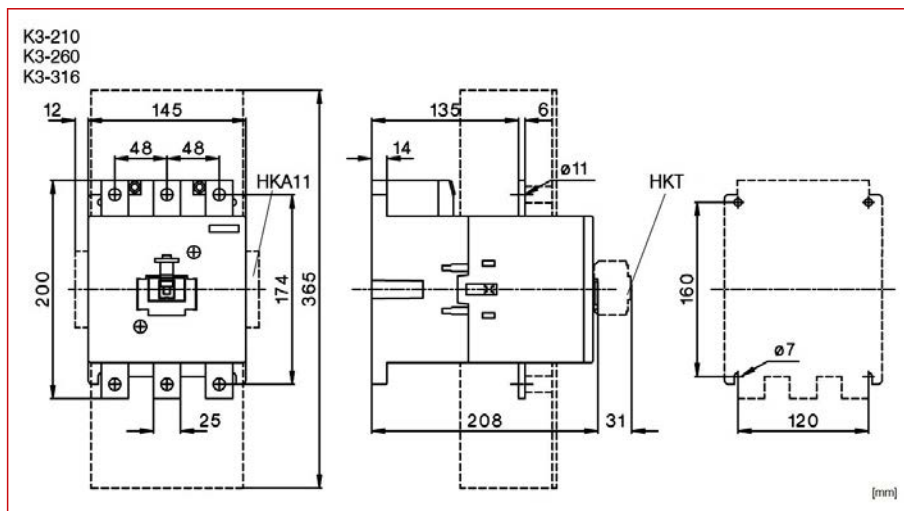
- Contactors from 110kW up to 300kW, 3-pole
- K3-210 up to K3-316, in maximum 1 frontside auxiliary contact HKT as well as 2 "side mounted" auxiliary contacts HKA11 can be snapped on
- K3-450A22 and K3-550A22, 1 additional frontside auxiliary contact HKF22 can be snapped on
- K3-210 up to K3-316 suitable for Thermal overload relays of type U320 (on request)
- K3-450 and K3-550 suitable for Thermal overload relays of type U800 (on request)
- K3-450 up to K3-550 retrofit with a 4th pole "NP" (neutral conductor)
- Mountable on mounting plate
- Further accessories find attached



Mobil Code

		K3-210	K3-260	K3-316	K3-450	K3-550
Rated insulation voltage U_i	(VAC)	1000				
Utilization category AC-1 $\cos \varphi = 1$						
Rated operational power at 400VAC	(kW)	242	311	346	485	526
Rated operational current $I_e = I_{th}$ at 40°C and 690VAC	(A)	350	450	500	700	760
Utilization category AC-2 and AC-3						
Rated operational power at 400VAC	(kW)	110	132	160	250	300
Rated operational current I_e at 380-400VAC	(A)	210	260	316	450	550
Ambient temperature (operation)	(°C)	-25 ... +55				
Permissible mounting position						
Rules and regulations according		IEC 947-4-1, EN60947-4-1				

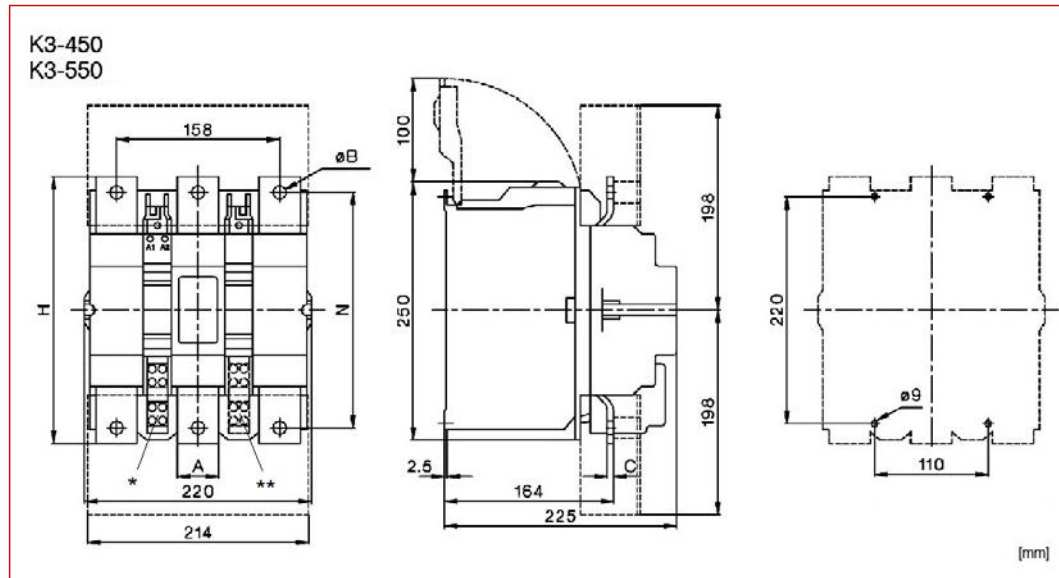
Dimensions



Electromechanical Contactors Series LA

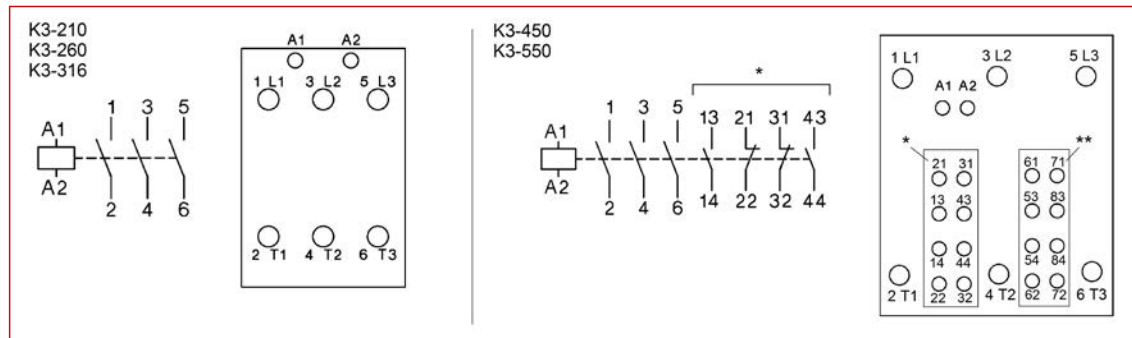
Power Contactors LA, Size 3, 110 - 300kW

Dimensions



Type	A	B	C	H	N
K3-450	40	10,5	4	233	206
K3-550	40	12,5	6	258	228

Circuit and Connection Diagrams



* HKF22 - standard mounted
 ** HKF22 - additional

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
110-300kW / 210-550A AC-3, 230-250A AC-1, 3-pole			
Contactors, 3pole, 110kW/210A AC3, 350A AC1, 230V AC/DC	K3-210A00		LA32103H
Contactors, 3pole, 132kW/260A AC3, 230V AC/DC	K3-260A00		LA32603H
Contactors, 3pole, 160kW/315A AC3, 450A AC1, 230V AC/DC	K3-316A00		LA33163H
Contactors, 3pole, 250kW/450A AC3 600A AC1, 2NO+2NC, 230VACDC	K3-450A22		LA34500H
Contactors, 3pole, 300kW/550A AC3 760A AC1, 2NO+2NC, 230VACDC	K3-550A22		LA35500H
Auxiliary Contacts			
front 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT11		LA190146
front 2NO+2NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT22		LA190144
front 2NO+2NC, 3A (230V, AC-15) for K3-450 to K3-550	HKF22		LA190147
lateral 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKA11		LA190145

Contactors for Photovoltaic Plants, 1000VDC



LA3030D3PV

Schrack-Info

- Contactor 30A, 1000VDC DC-1
- For use as a string-switch in closed-circuit principle (in connection with Fire brigade - Emergency OFF - switch)
- In maximum 2 frontside auxiliary contacts HKT as well as 2 "side mounted" auxiliary contacts HKA11 can be snapped on



Mobil Code

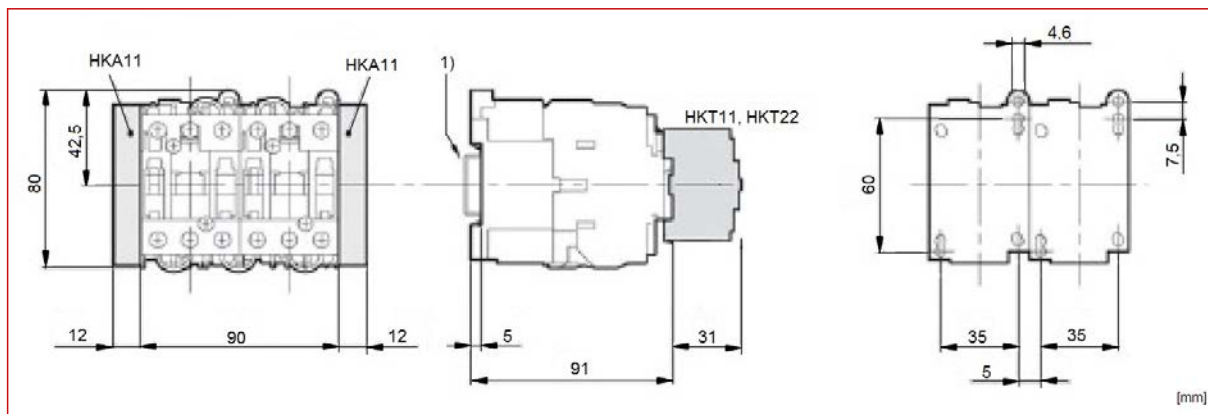
		K3PV-30
Rated insulation voltage U_i	(VDC)	1000
Utilization category DC-1		
Rated operational current $I_e = I_{th}$	at 40°C and 600VDC (A)	30 ¹⁾
	at 40°C and 1000VDC (A)	30 ¹⁾
Poles in series		6
Ambient temperature (operation)	(°C)	-25 ... +40
Permissible mounting position		

Rules and regulations according

IEC 60947-4-1, EN60947-4-1

1) > 40°C ... 1%/°C reduction (e.g.: at 60°C 20% reduction = 24A)

Dimensions

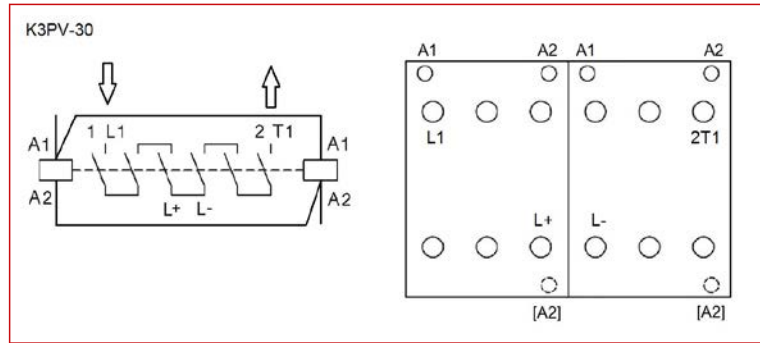





1) DIN rail TS 35

Electromechanical Contactors Series LA

■ Contactors for Photovoltaic Plants, 1000VDC

■ Circuit and Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
Contactors for Photovoltaic plants, 1000VDC			
Contactor, 6-pole, 30A DC-1, 1000VDC, 230VAC	K3PV-30		LA3030D3PV
Auxiliary Contacts			
front 2NO+2NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT22		LA190144
front 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT11		LA190146
lateral 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKA11		LA190145

Micro Auxiliary Contactors, Size M



LAMH0370

Schrack-Info

- Auxiliary contactors 4-pole, 3A AC-15
- Worldwide smallest auxiliary contactor
- Auxiliary contactors not retrofit with additional auxiliary contacts
- Contacts suitable for electronic circuits according to IEC 60947-5-4
- Suitable for safety applications according IEC 60335-1
- Mountable to DIN-rail TS15 or with adaptor to TS35

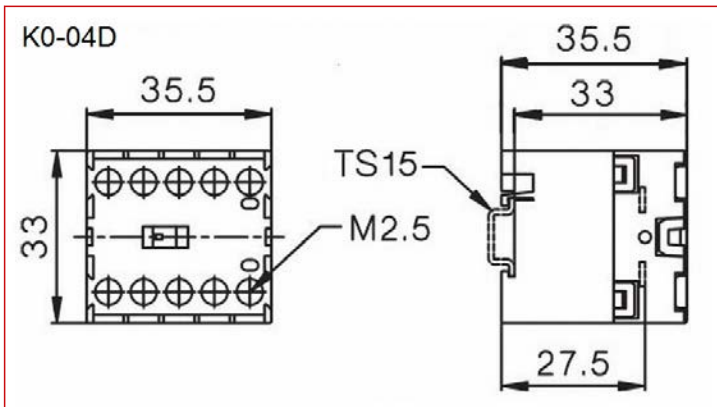


Mobil Code

		K0-04D
Rated insulation voltage U_i	(VAC)	440
Thermal rated current I_{th} at 40°C and 440VAC	(A)	5
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	3/1
Utilization category DC13¹⁾		
Rated operational current I_e at 40°C up to 60VDC	(A)	0,5
Ambient temperature (operation)	(°C)	-40 ... +60
Permissible mounting position		
Rules and regulations according		IEC60947-5-1, EN 60947-5-1

1) Contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA) Positively guided contacts

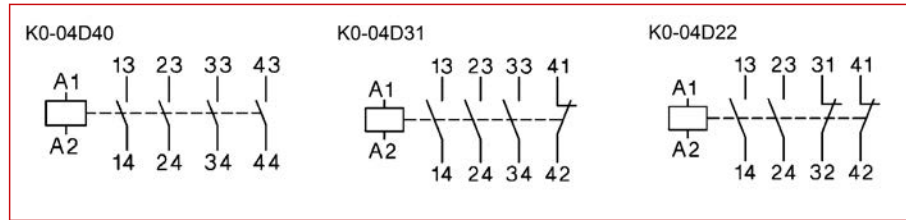
Dimensions



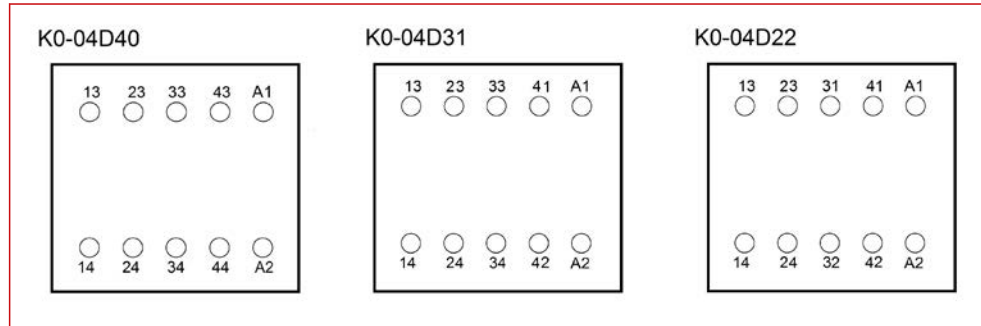
Electromechanical Contactors Series LA

Micro Auxiliary Contactors, Size M

Circuit Diagrams



Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
3A, 4-pole			
AC-15/3A, 4NO, 24VAC	K0-04D40		LAMH0370
AC-15/3A, 4NO, 230VAC	K0-04D40		LAMH0373
AC-15/3A, 4NO, 24VDC	K0-04D40		LAMH0375
AC-15/3A, 3NO+1NC, 24VAC	K0-04D31		LAMH0380
AC-15/3A, 3NO+1NC, 24VDC	K0-04D31		LAMH0385
AC-15/3A, 2NO+2NC, 24VAC	K0-04D22		LAMH0390
AC-15/3A, 2NO+2NC, 230VAC	K0-04D22		LAMH0393
AC-15/3A, 2NO+2NC, 24VDC	K0-04D22		LAMH0395
Accessories			
DIN-rail slotted, L=1000 W=15 H=5mm	TS15		LAMZTS15
DIN-rail adaptor TS35	TS35		LAMZTS35

Micro Auxiliary Contactors, Size 1



LA100783

Schrack-Info

- Auxiliary contactors 4-pole, 3A AC-15
- Auxiliary contactors with additional auxiliary contact HK retrofit
- Contacts suitable for electronic circuits according to IEC 60947-5-4
- Mountable on DIN-rail TS35

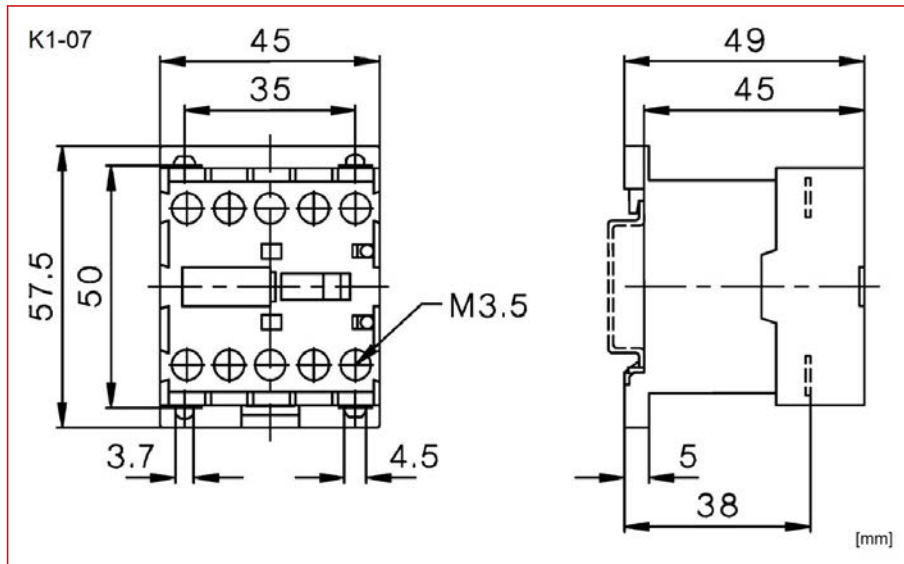


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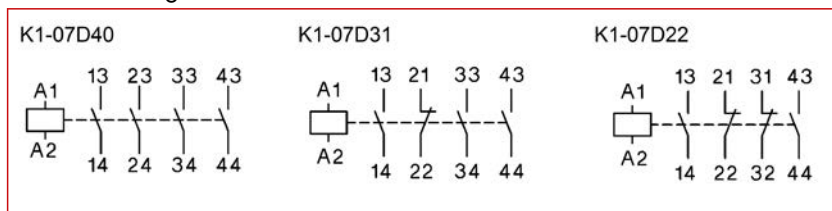
		K1-07
Rated insulation voltage U_i	(VAC)	690
Thermal rated current I_{th} at 40°C and 440VAC	(A)	10
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	3 / 1.6
Utilization category DC13¹⁾		
Rated operational current I_e at 40°C up to 60/110/220VDC	(A)	2 / 0.4 / 0.1
Ambient temperature (operation)	(°C)	-40 ... +60
Permissible mounting position		
Rules and regulations according		IEC 60947-5-1, EN 60947-5-1

1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA), positively guided contacts

Dimensions

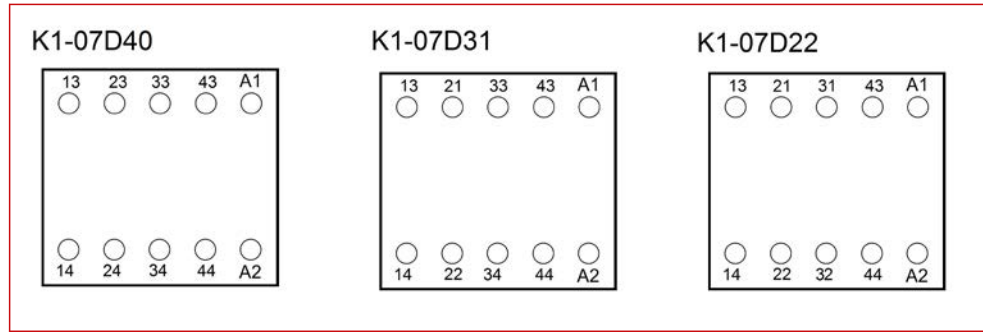


Circuit Diagrams



Micro Auxiliary Contactors, Size 1

Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
10A, 4-pole			
4NO, 3A, 24VAC	K1-07D40		LA100770
4NO, 3A, 230VAC	K1-07D40		LA100773
4NO, 3A, 24VDC	K1-07D40		LA100775
4NO, 3A, 48VDC	K1-07D40		LA100776
4NO, 3A, 400VAC	K1-07D40		LA100774
3NO+1NC, 3A, 24VAC	K1-07D31		LA100780
3NO+1NC, 3A, 48VDC	K1-07D31		LA100786
3NO+1NC, 3A, 230VAC	K1-07D31		LA100783
3NO+1NC, 3A, 400VAC	K1-07D31		LA100784
3NO+1NC, 3A, 24VDC	K1-07D31		LA100785
2NO+2NC, 3A, 24VAC	K1-07D22		LA100790
2NO+2NC, 3A, 24VDC	K1-07D22		LA100795
2NO+2NC, 3A, 48VDC	K1-07D22		LA100796
2NO+2NC, 3A, 230VAC	K1-07D22		LA100793
Auxiliary Contact Blocks			
Auxiliary contact block for mini Contactors K1, 1NO+1NC	HK11		LA190154
Auxiliary contact block for mini Contactors K1, 2NC, HK02	HK02		LA190155
Auxiliary contact block for mini Contactors K1, 4NO, HK40	HK40		LA190156
Auxiliary contact block for mini Contactors K1, 2NO+2NC	HK22		LA190153

Auxiliary Contactors, Size 3, DC Coil



LA300475N

Schrack-Info

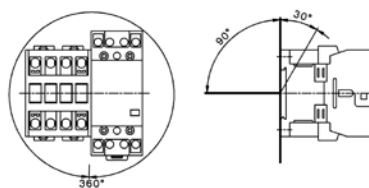
- Auxiliary contactors DC operated, 4-pole, 4A AC-15, for electronic circuits
- Coil in energy saving wiring - with reduced power consumption of 2W (at closed)
- Auxiliary contactors with in maximum 3 additional auxiliary contacts HN retrofit
- Contacts suitable for electronic circuits according to IEC 60947-5-4
- Mountable to DIN-rail TS35



Mobil Code

		K3-07ND
Rated insulation voltage U_i	(VAC)	690
Thermal rated current I_{th} at 40°C and 440VAC	(A)	10
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	4 / 1.6
Utilization category DC13¹⁾		
Rated operational current I_e at 40°C up to 60/110/220VDC	(A)	3.5 / 0.5 / 0.1
Ambient temperature (operation)	(°C)	-40 ... +60

Permissible mounting position

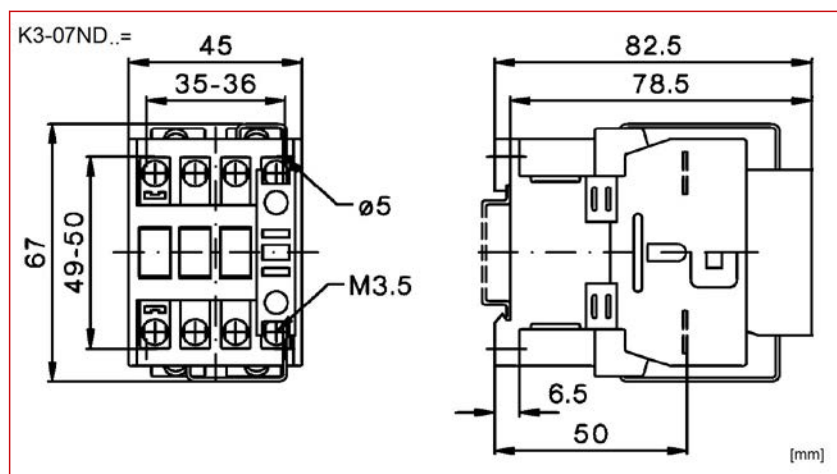


Rules and regulations according

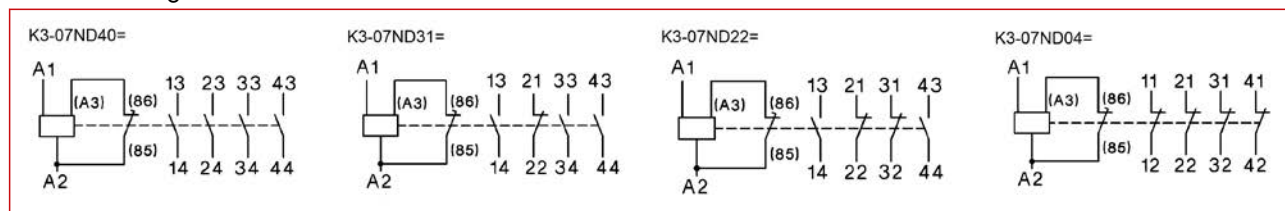
IEC 60947-5-1, EN 60947-5-1

1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA) Positively guided contacts

Dimensions

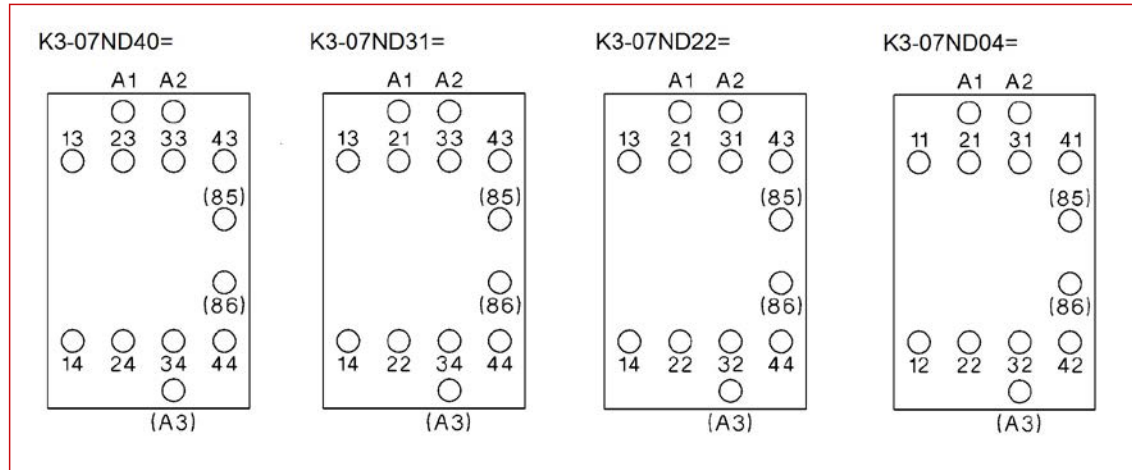


Circuit Diagrams



Auxiliary Contactors, Size 3, DC Coil

Connection Diagrams



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
4A, 4-pole			
for electronic circuits 4A, 24VDC, 4NO	K3-07ND40=		LA300475N
for electronic circuits 4A, 24VDC, 3NO+1NC	K3-07ND31=		LA300485N
Auxiliary Contacts			
front 1NO, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN10		LA190100
front 1NC, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN01		LA190101
front 1early make NO, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN10U		LA190138
front 1 delayed NC, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN01U		LA190139

Capacitor Switching Contactors LA, Size 3



LA3K7433

Schrack-Info

- Contactors for switching of capacitors from 12.5kVAr up to 100kVAr
- With included, magnetic uncoupled, Capacitor pre-loading resistors
- K3-18NK.. with one included auxiliary contact, in maximum 1 additional frontside auxiliary contact HN or HA can be snapped on
- K3-24K up to K3-74K, in maximum 1 frontside auxiliary contact HN or HA as well as 2 "side mounted" auxiliary contacts HB can be snapped on
- K3-90K and K3-115K, in maximum 4 frontside auxiliary contacts HN or HA as well as 2 "side mounted" auxiliary contacts HB can be snapped on
- Mountable on DIN-rail TS35 or mounting plate, mouting of K3-90K and K3-115K on 2 DIN-rails TS35 or mounting plate

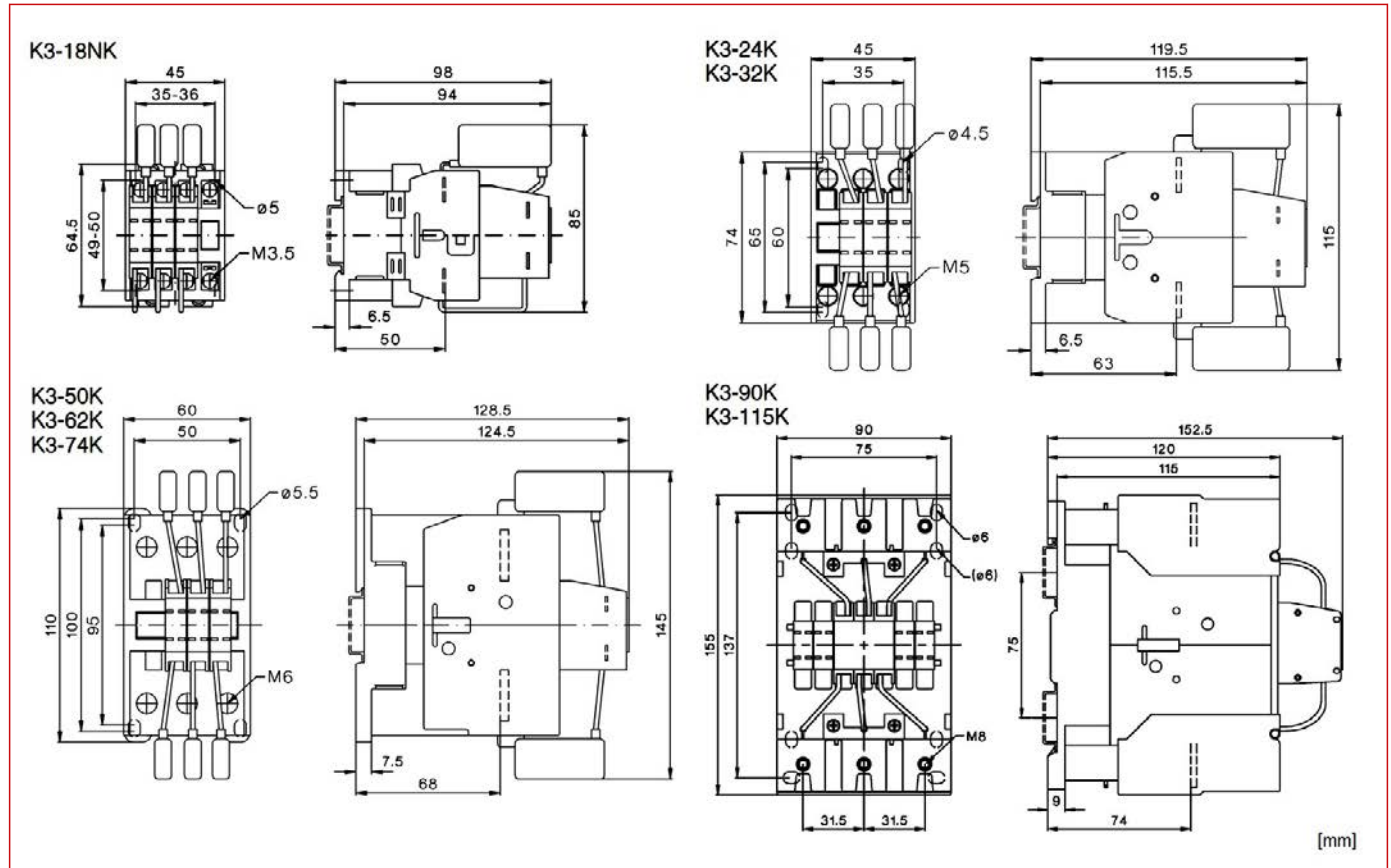


Mobil Code

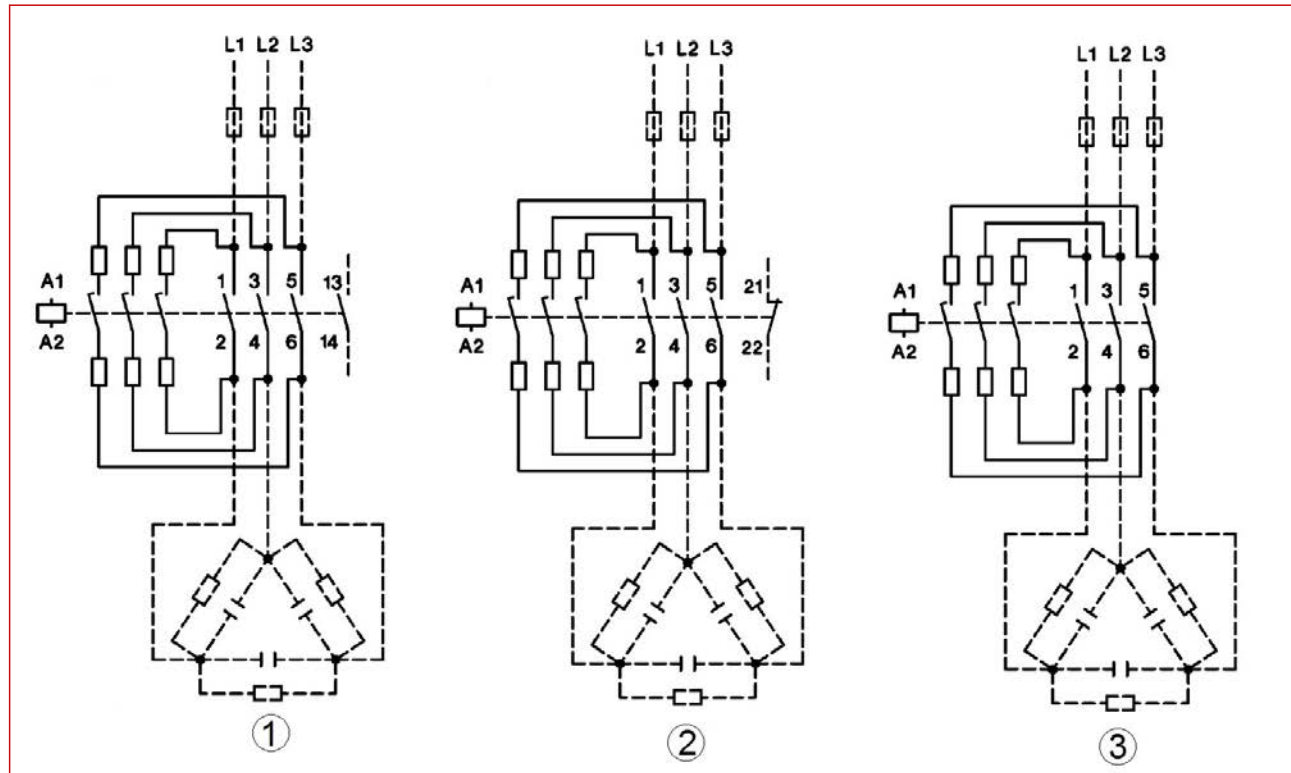
	K3-18NK	K3-24K	K3-32K	K3-50K	K3-62K	K3-74K	K3-90K	K3-115K
Rated insulation voltage U_i (VAC)	690							
Utilization category AC-1								
Rated operational current I_{th} at 50°C and 690VAC (A)	32	45	60	100	110	120	155	190
Utilization category AC-6b								
Rated operational power at 400VAC (kVAr)	0 ... 12.5	10 ... 20	10 ... 25	20 ... 33.3	20 ... 50	20 ... 75	33 ... 80	33 ... 100
Rated operational current I_o at 50°C and 380-400VAC (A)	0 ... 18	14 ... 28	14 ... 36	30 ... 48	30 ... 72	30 ... 108	50 ... 115	50 ... 144
Ambient temperature (operation) (°C)	-40 ... +60							
Permissible mounting position								
Rules and regulations according	IEC 60947-4-1 / EN60947-4-1							

Capacitor Switching Contactors LA, Size 3

Dimensions



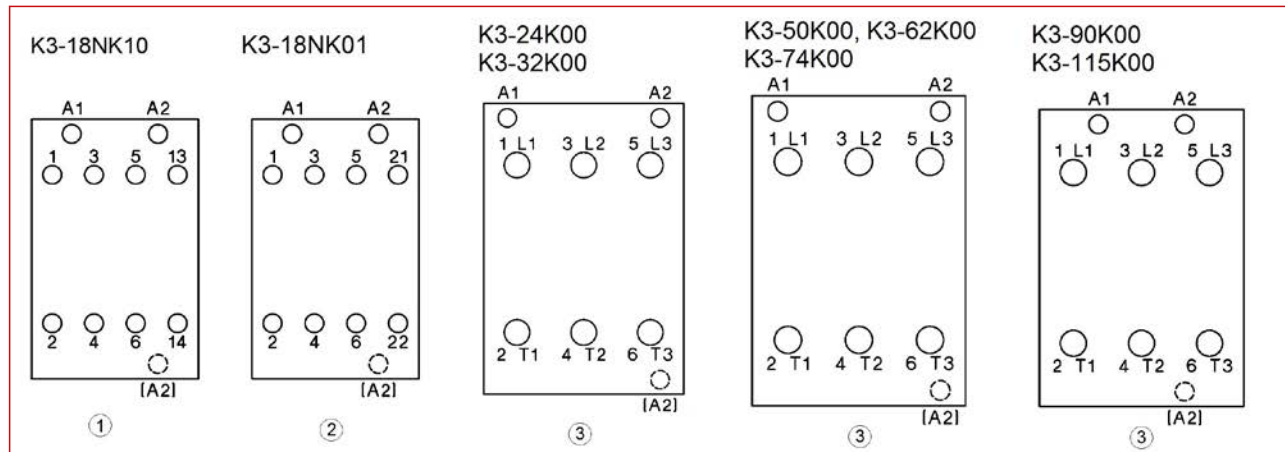
Schematic Diagram



Auxiliary contacts installed: 1) 1 NO 2) 1 NC 3) no contacts

Capacitor Switching Contactors LA, Size 3

Connection Diagrams



Built-in auxiliary contacts: 1) 1 NO 2) 1 NC 3) no contacts

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
12.5kVAr			
12.5kVAr 230VAC / 1 NO	K3-18NK10		LA3K1813N
12.5kVAr 230VAC / 1 NC	K3-18NK01		LA3K1823N
20kVAr			
20kVAr 230VAC	K3-24K00		LA3K2433
25kVAr			
25kVAr 230VAC	K3-32K00		LA3K3233
33.3kVAr			
33.3kVAr 230VAC	K3-50K00		LA3K5033
50kVAr			
50kVAr 230VAC	K3-62K00		LA3K6233
75kVAr			
75kVAr 230VAC	K3-74K00		LA3K7433
80kVAr			
80kVAr 230VAC	K3-90K00		LA3K9033
100kVAr			
100kVAr 230VAC	K3-115K00		LA3K1A33
Auxiliary Contacts			
front 1NO, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN10		LA190100
front 1NC, 3A (230V AC-15) for LA2, LA3004-LA3115, LA4	HN01		LA190101
lateral 1NO+1NC, 3A (230V AC-15) for K3-24 to K3-115	HB11		LA190134
front 1NC, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA01		LA190135
front 1NO, 6A (230V, AC-15) for K2, K3-07 to K3-115, K4	HA10		LA190137
front 1early make NO, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN10U		LA190138
front 1delayed NC, 3A (230V, AC-15) for K2, K3-07 to K3-115, K4	HN01U		LA190139

▀ Sidemounted Auxiliary Contacts for Contactors K3-24 to K3-115



LA190134

▀ Schrack-Info

- Auxiliary contacts "side mounted" HB ...
- Mounting possible at left and right side of contactor
- Correct terminal designation of the auxiliary contacts depends on the mounting-side at contactor
- Auxiliary contact HB are suitable for electronic circuits according to IEC 60947-5-4

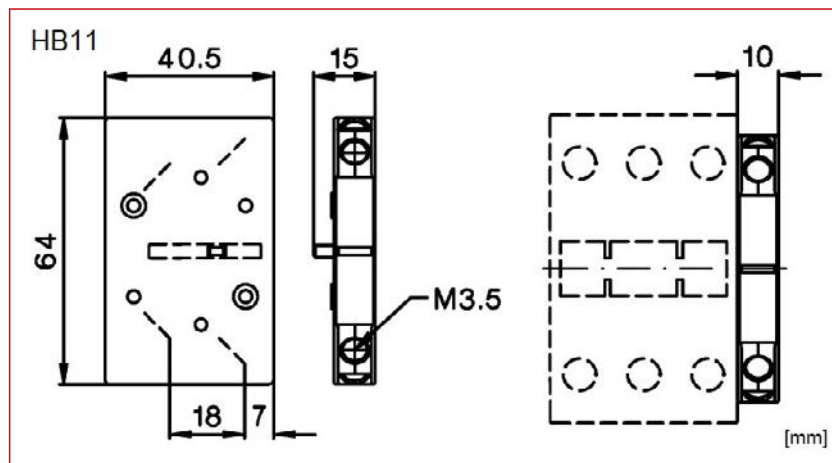


Mobil Code

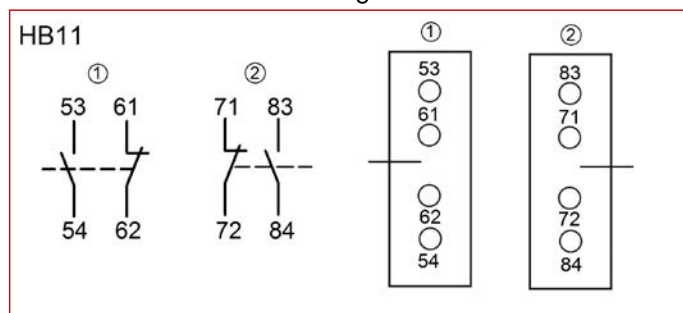
		Auxiliary contact
		HB
Rated insulation voltage U_i	(VAC)	690
Thermal rated current I_{th} at 40°C and 690VAC	(A)	10
Utilization category AC-15		
Rated operational current I_e at 40°C and 230/440VAC	(A)	3 / 1,6
Utilization category DC13¹⁾		
Rated operational current I_e at 40°C up to 60/110/220VDC	(A)	2 / 0,4 / 0,1
Ambient temperature (operation)	(°C)	-40 ... +62
Rules and regulations according		IEC 60947-5-1, EN 60947-5-3

1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA), positively guided contacts

▀ Dimensions



▀ Circuit and Connection Diagrams



1) mounted right

2) mounted left

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
-------------	----------	-----------	-----------

3A, AC-15

lateral 1NO+1NC, 3A (230V AC-15) for K3-24 to K3-115

HB 11



LA190134



Front- and Sidemounted Auxiliary Contacts for Contactors K3-116 to K3-316



LA190144



LA190145

Schrack-Info

- Auxiliary contacts "frontside" HKT and "side mounted" HKA can be snapped on
- Correct terminal designation of the auxiliary contacts "side mounted" depends on the mounting-side at contactor

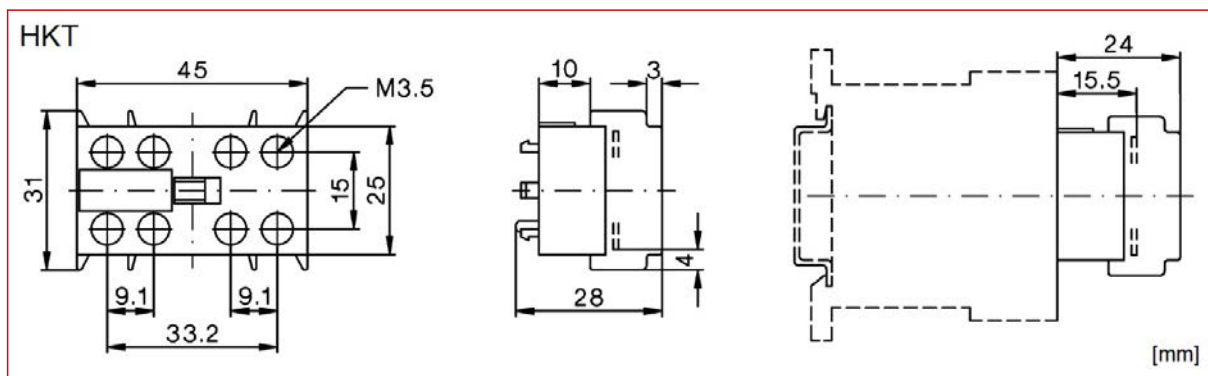


Mobil Code

		Auxiliary contacts (front) HKT	Auxiliary contacts (side) HKA
Rated insulation voltage U_i	(VAC)		690
Thermal rated current I_{th} at 40°C and 690VAC	(A)	10	10
Utilization category AC-15			
Rated operational current I_o at 40°C and 230 / 440VAC	(A)	3 / 1.5	3 / 1.6
Utilization category DC13¹⁾			
Rated operational current I_o at 40°C up to 60 / 110 / 220VDC	(A)	/ 0,5 / 0,2	/ 0,5 / 0,3
Ambient temperature (operation)	(°C)		-40 ... +60
Rules and regulations according			IEC 60947-5-1, EN 60947-5-1

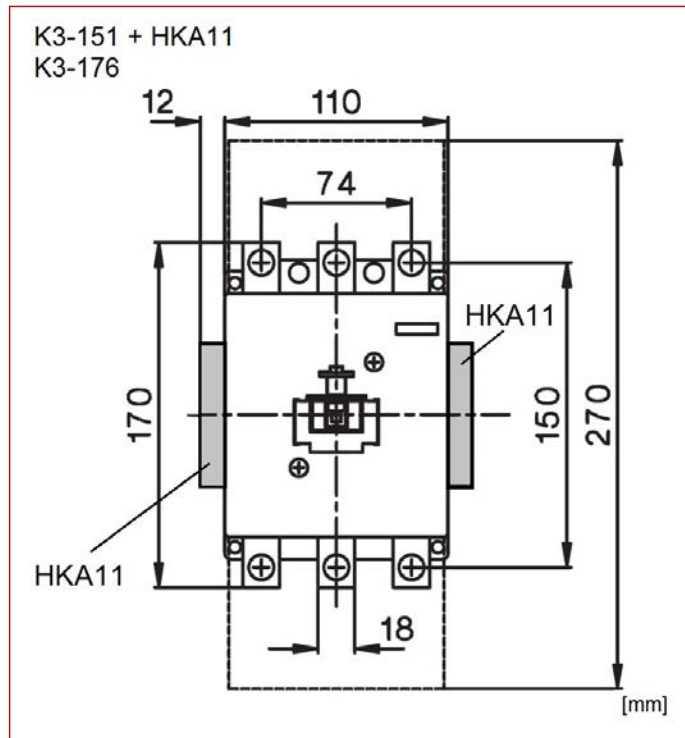
1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA), positively guided contacts

Dimensions

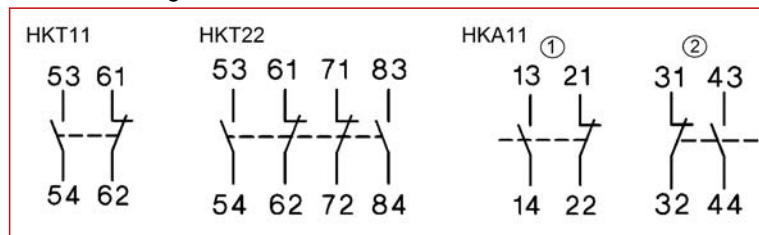


Front- and Sidemounted Auxiliary Contacts for Contactors K3-116 to K3-316

Dimensions

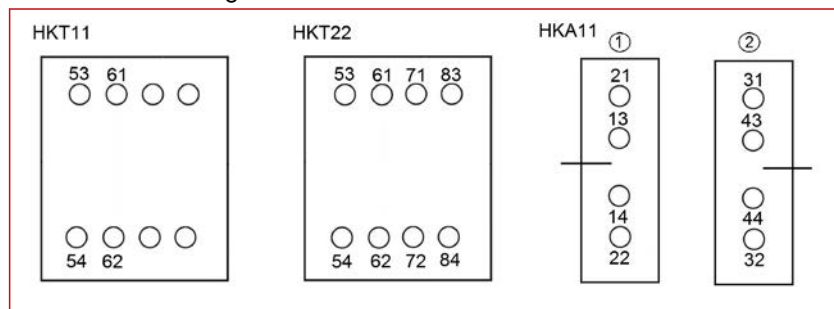


Circuit Diagrams



1) right mounted 2) left mounted

Connection Diagrams



1) right mounted 2) left mounted

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
3A, AC-15			
front 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT11		LA190146
front 2NO+2NC, 3A (230V, AC-15) for K3-116 to K3-316	HKT22		LA190144
lateral 1NO+1NC, 3A (230V, AC-15) for K3-116 to K3-316	HKA11		LA190145

Frontmounted Auxiliary Contacts for Contactors K3-450 to K3-550



LA190147

Schrack-Info

- Auxiliary contacts "frontside" HKF22 ...
- For extension of contactors K3-450 and K3-550 with integrated 2 NO + 2 NC auxiliary contacts to 4 NO + 4 NC

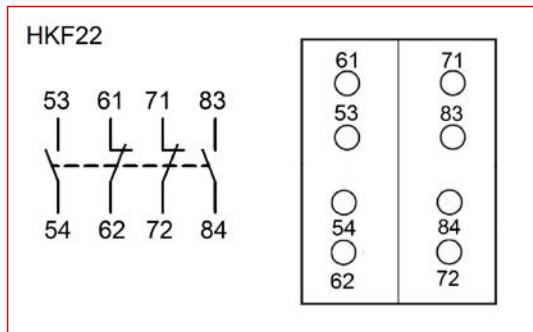


Mobil Code

		Auxiliary contacts (front) HKF
Rated insulation voltage U_i	(VAC)	690
Thermal rated current I_{th} at 40°C and 690VAC	(A)	16
Utilization category AC-15		
Rated operational current I_o at 40°C and 230 / 440VAC	(A)	3 / 1.6
Utilization category DC13¹⁾		
Rated operational current I_o at 40°C up to 60 / 110 / 220VDC	(A)	/ 0.5 / 0.2
Ambient temperature (operation)	(°C)	-40 ... +60
Rules and regulations according		IEC 60947-5-1, EN 60947-5-1

1) Auxiliary contacts suitable for electronic circuits, according EN60947-5-4 for rated voltage 24VDC (Test ratings 17VDC, 5mA), positively guided contacts

Circuit and Connection Diagram



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
3A, AC-15			
front 2NO+2NC, 3A (230V, AC-15) for K3-450 to K3-550	HKF22		LA190147

Direct on Line Starters D.O.L. with Selector Switch



LA003115K3

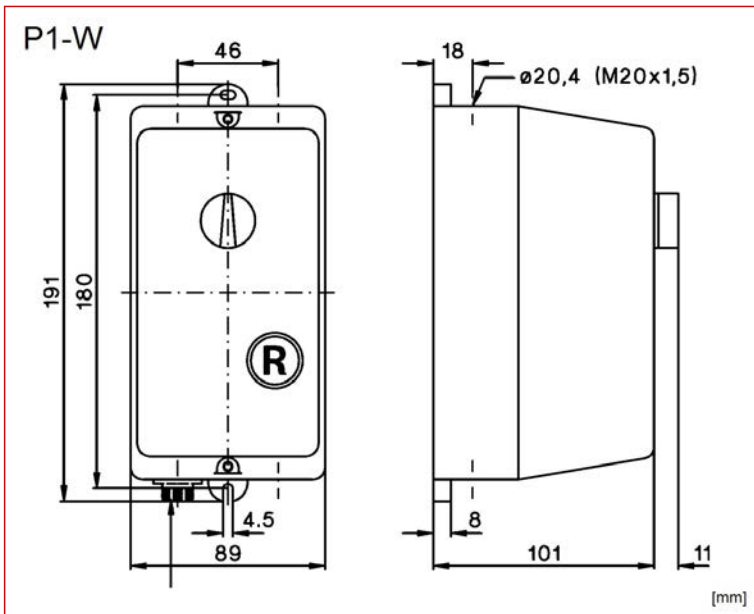
Schrack-Info

- Plastic-housings IP65, with selector switch Man-0-Auto, reset-button for thermal overload relays and included contactor K3
- Thermal overload relays U 12/16..K3 has to be ordered seperately (range according rated current of motor)
- Available for motor powers of up to 4kW, up to 7.5kW and up to 11kW AC-3
- Cable entry cut-out for one cable gland M20x1.5 at upper side of housing, diameter = 20.4mm
- Cable entry cut-outs at rear side of housing, 4 x diameter = 23mm



Mobil Code


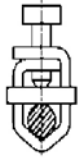
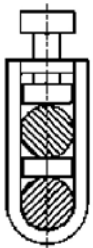
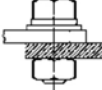












Dimensions



DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
DOL-starter 4kW/400V AC3 (for U 12/16E...K3)	P1-W10		LA003115K3
DOL-starter 7.5kW/400V AC3 (for U 12/16E...K3)	P1-W18		LA003116K3
DOL-starter 11kW/400V AC3 (for U 12/16E...K3)	P1-W22		LA003117K3

Technical Information

Terminal Screws

Devices	Kind of connection				Screw driver	Tightening torque	
	Screw with washer	Screw with clamp box	Screw w.nut			Nm	lb. inch
Type							
K0-.. Mini Contactors, all conductors	M2,5	-	-	-	 0.6-0.8	5-7	
K1-.. Auxiliary Contactors, all conductors	M3,5	-	-	-	 0.8-1.4	7-12	
K[G]3-07.. Contactors	M3,5	-	-	-	 0.8-1.4	7-12	
Main conductor K[G]3-10.. to K3-22.. K[G]3-24.. to K3-40.. K3-50.. to K3-74.. K2-23, -30, -37A00-40	M3,5 - - M4	- M5 M6 -	- - - -	- - - -	 Pz2  Pz2  Pz3 Pz2	0.8-1.4 2.5-3 3.5-4.5	7-12 22-26 31-40 1.2-1.8
K2-45, -60A00-40	-	M6	-	-	 3.5-4.5	31-40	
K3-90, K3-115	-	-	M8	-	 4mm hex socket	4-6.5	35-57
K3-116.. to K3-176..	-	-	-	M8			17
K3-210.. to K3-316 K3-450.. and K3-550.. Auxiliary conductor	- -	- -	- -	M10 M12		35	315 60 540
K[G]3-10 to K3-22 Coil conductor K[G]3-10 to K3-550 Accessories	M3,5 M3,5	- -	- -	- -	 0.8-1.4 Pz2	7-12 0.8-1.4	
HK, HKM HA, HN, K2-.., HB..	M3,5 M3,5	- -	- -	- -	 0.8-1.4 Pz2	7-12 0.8-1.4	

Micro Contactors LA, Size M

Technical Specifications According to IEC 60947-4-1, VDE 0660, EN 60947-4-1

Main contacts	Type	KO-05D
Rated insulation voltage U_i	VAC	440 ¹⁾
Making capacity I_{eff} at $U_e = 440VAC$	A	65
Breaking capacity I_{eff} 400VAC	A	50
cos $\varphi = 0,65$		
Utilization category AC1		
Switching of resistive load		
Rated operational current $I_e (=I_{th})$ at 40°C, open	A	12
Rated operational power of three-phase resistive loads 230V	kW	4.7
50-60 Hz, cos $\varphi = 1$ 240V	kW	4.8
400V	kW	8.3
415V	kW	8.6
440V	kW	9.0
Rated operational current $I_e (=I_{th})$ at 60°C, open	A	8
Rated operational power of three-phase resistive loads 230V	kW	3.1
50-60 Hz, cos $\varphi = 1$ 240V	kW	3.3
400V	kW	5.5
415V	kW	5.7
440V	kW	6.0
Minimum cross-section of conductor at load with $I_e (=I_{th})$	mm ²	1.5
Utilization category AC2 and AC3		
Switching of three-phase motors		
Rated operational current I_e 220V	A	6.2
open and enclosed 230V	A	6.2
240V	A	5.6
380-400V	A	5
415-440V	A	5
Rated operational power of three-phase motors 220-240V	kW	1.5
50-60 Hz 380-440V	kW	2.2
Utilization category AC4		
Switching of squirrel cage motors, inching		
Rated operational current I_e 220V	A	4.9
open and enclosed 230V	A	4.9
240V	A	4.1
380-400V	A	3.5
415-440V	A	3.5
Rated operational power of three-phase motors 220-240V	kW	1.1
50-60 Hz 380-440V	kW	1.5
Utilization category AC5a		
Switching of gas discharge lamps		
Rated operational current I_e per pole at 220/230V		
Fluorescent lamps,		
uncompensated and serial compensated	A	6
parallel compensated	A	0.5
dual-connection	A	9
Metal halide lamps ²⁾ ,		
uncompensated	A	6
parallel compensated	A	0.5
Mercury-vapour lamps ³⁾ ,		
uncompensated	A	9
parallel compensated	A	0.5
Mixed light lamps ⁴⁾		
	A	9
LED-Lamps		
consider the inrush current of the lamp ballast and cos φ of the lamp	max.lamps per pole ($I_{nLED} \leq I_{th}$)=	$\frac{\text{inrush current of contactor}}{\text{inrush current of lamp/EVG}}$
max inrush current of contactor	A	91
Utilization category AC5b		
Switching of incandescent lamps ⁵⁾		
per pole at 220/230V	A	3

¹⁾ Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): $U_{imp} = 4$ kV. Data for other conditions on request.

²⁾ Metal halide lamps on sodium-vapour lamps (high- and low-pressure lamps).

³⁾ High-pressure lamps.

⁴⁾ Blended lamps, containing a mercury high-pressure unit and a tungsten helix in a fluorescent glass bulb (daylight lamps).

⁵⁾ Current inrush approx. $16 \times I_e$




Main contacts		Type	K0-05D
Utilization category DC1			
Switching of resistive load	1 pole 24V	A	12
Time constant L/R ≤ 1 ms	60V	A	12
Rated operational current I _e	110V	A	-
	220V	A	-
	3 poles in series 24V	A	12
	60V	A	12
	110V	A	12
	220V	A	-
Utilization category DC3 and DC5			
Switching of shunt motors and series motors	1 pole 24V	A	12
Time constant L/R ≤ 15ms	60V	A	-
Rated operational current I _e	110V	A	-
	220V	A	-
	3 poles in series 24V	A	12
	60V	A	12
	110V	A	12
	220V	A	-
Maximum ambient temperature			
Operation	open	°C	-40 to +60 (+90) ¹⁾
	enclosed	°C	-40 to +40
Storage		°C	-50 to +90
Short circuit protection			
for contactors without thermal overload relay			
Coordination-type "1" according to IEC 947-4-1			
Contact welding without hazard of persons			
max. fuse size	gL (gG)	A	32
Coordination-type "2" according to IEC 947-4-1			
Light contact welding accepted			
max. fuse size	gL (gG)	A	-
Contact welding not accepted			
max. fuse size	gL (gG)	A	-
For contactors with thermal overload relay the device with the smaller admissible backup fuse (contactor of thermal overload relay) determines the fuse size			
Cable cross-sections			
for contactors			
main connector	solid of stranded	mm ²	0.5-1.5
	flexible	mm ²	0.5-1.5
	flexible with multicore cable end	mm ²	0.5-1.5
Cables per clamp			2
	solid of stranded	AWG	20-14
Frequency of operation z			
contactors without thermal overload relay			
	without load	1/h	10000
	AC3, I _e	1/h	600
	AC4, I _e	1/h	120
	DC3, I _e	1/h	600
Mechanical life			
	AC operated	S x 10 ⁶	3
	DC operated	S x 10 ⁶	4
Short time current			
	10s-current	A	50
Power loss per pole			
	at I _e /AC3 400V	W	0.2
Resistance to shock according to IEC 68-2-27			
Shock time 20 ms sine-wave			
AC operated	NO	g	2.5
	NC	g	2.5

1) 90°C: reduces the control voltage range to 0.9 up to 1.0xU_s and reduces the rated current I_e/AC1 to the value of I_e/AC3

Micro Contactors LA, Size M

Technical Specifications According to IEC 60947-5-1, VDE 0660, EN 60947-5-1

Auxiliary contacts		Type	KO-04D KO-05D
Rated insulation voltage	U_i	VAC	440 ¹⁾
Thermal rated current I_{th} to 440 V			
Ambient temperature	40 °C	A	5
	60 °C	A	3
Power loss per pole	at I _{th}	W	0.25
Utilization category AC15			
Rated operational current I _e	220-240V	A	3
	380-415V	A	1.5
	440V	A	1
Utilization category DC13			
Rated operational current I _e	24-60V	A	0.5
Maximum ambient temperature			
Operation	open	°C	-40 to +60 (+90) ²⁾
	enclosed	°C	-40 to +40
Storage		°C	-40 to +90
Short circuit protection			
short circuit current 1 kA, contact welding not accepted			
max. fuse size	gL (gG)	A	10
For contactors with thermal overload relay the device with the smaller admissible control fuse (contactor of thermal overload relay) determines the fuse size.			
Power consumption of coils			
AC operated	inrush	VA	9
	sealed	VA	4
		W	1.8
DC operated	inrush	W	2.5
	sealed	W	2.5
Operation range of coils			
in multiples of control voltage U _s			0.85-1.1
Switching time at control voltage U_s ± 10% ³⁾			
AC operated	make time	ms	13-18
	release time	ms	5-10
	arc duration	ms	10-15
DC operated	make time	ms	10-20
	release time	ms	2-10
	arc duration	ms	10-15
Cable cross-section			
all connectors	solid	mm ²	0.5-1.5
	flexible	mm ²	0.5-1.5
	flexible with multicore cable end	mm ²	0.5-1.5
Clamps per pole			2
	solid or stranded	AWG	20-14

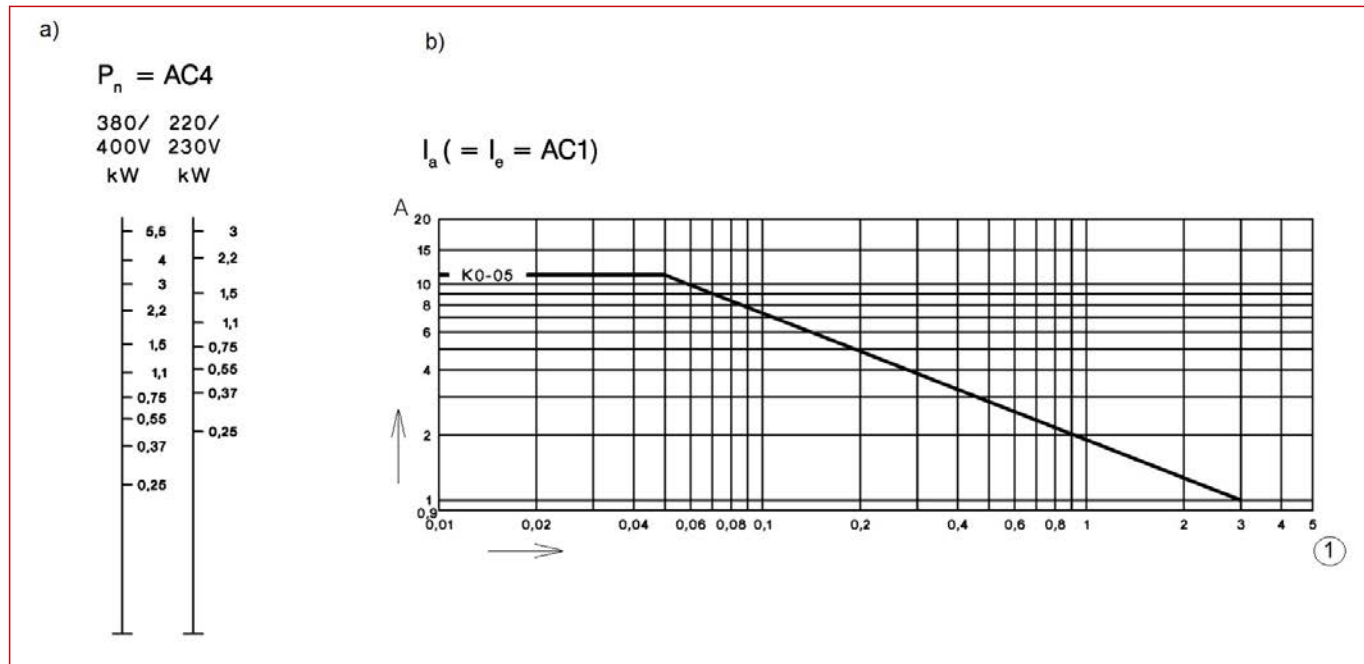
1) Suitable at 690 V for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard industry): U_{imp} = 4kV. Data for other conditions on request.

2) 90 °C: reduces the control voltage range to 0.9 up to 1.0xU_s and reduces the thermal rated current I_{th} to I_e/AC15.

3) Summary switching time = release time + arc duration.

Micro Contactors LA, Size M

Motor Rating and Breaking Current (K0-05D)



1) Millions of Operations

a) Motor Rating

b) Breaking Current

Mini Contactors LA, Size 1

Technical Specifications According to IEC 947-4-1, VDE 0660, EN 60947-4-1

Main contacts		Type	K1-09D
Rated insulation voltage U_i		VAC	690 ¹⁾
Making capacity I_{eff}	at $U_e = 690VAC$	A	165
Breaking capacity I_{eff}	400VAC	A	100
$\cos \varphi = 0.65$	500VAC	A	90
	690VAC	A	80
Utilization category AC1 - Switching of resistive load			
Rated operational current $I_e (=I_{th})$ at 40°C, open		A	20
Rated operational power of three-phase resistive loads	230V	kW	7.9
50-60 Hz, $\cos \varphi = 1$	240V	kW	8.3
	400V	kW	13.8
	415V	kW	14.3
Rated operational current $I_e (=I_{th})$ at 60°C, enclosed		A	16
Rated operational power of three-phase resistive loads	230V	kW	6.3
50-60 Hz, $\cos \varphi = 1$	240V	kW	6.7
	400V	kW	11
	415V	kW	11.5
Minimum cross-section of conductor at load with $I_e (=I_{th})$		mm ²	2.5
Utilization category AC2 and AC3 - Switching of three-phase motors			
Rated operational current I_e	220V	A	12
open and enclosed	230V	A	11.5
	240V	A	11
	380-400V	A	9
	415-440V	A	8
	500V	A	7
	660-690V	A	5
Rated operational power of three-phase motors	220-240V	kW	3
50-60Hz	380-440V	kW	4
	500-690V	kW	4
Utilization category AC4 - Switching of squirrel cage motors, inching			
Rated operational current I_e	220V	A	12
open and enclosed	230V	A	11.5
	240V	A	11
	380-400V	A	9
	415-440V	A	8
	500V	A	7
	660-690V	A	5
Rated operational power of three-phase motors	220-240V	kW	3
50-60Hz	380-440V	kW	4
	500-690V	kW	4
Utilization category AC5a - Switching of gas discharge lamps			
Rated operational current I_e per pole at 220/230V			
Fluorescent lamps,			
	uncompensated and serial compensated	A	10
	parallel compensated	A	2
	dual-connection	A	16
Metal halide lamps ³⁾ ,			
	uncompensated	A	10
	parallel compensated	A	2
Mercury-vapour lamps ⁴⁾			
	uncompensated	A	16
	parallel compensated	A	2
Mixed light lamps ⁵⁾			
		A	16
LED-Lamps			
consider the inrush current of the lamp ballast			max. lamps per pole ($I_{nLED} \leq I_{th}$) =
and $\cos \varphi$ of the lamp			
max. inrush current of contactor		A	233
Utilization category AC5b Switching of incandescent lamps⁶⁾			
Rated operational current I_e per pole at 220/230 V		A	8

1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request.


3) Metal halide lamps and sodium-vapour lamps (high- and low-pressure lamps).

4) High-pressure lamps.

5) Blended lamps, containing a mercury high-pressure unit and a tungsten helix in a fluorescent glass bulb (daylight lamps).

6) Current inrush approx. $16 \times I_e$.

 Mini Contactors LA, Size 1

 Technical Specifications According to IEC 947-4-1, VDE 0660, EN 60947-4-1

Main contacts	Type	K1-09D	
Utilization category DC1			
Switching of resistive load	1 pole 24V A	20	
Time constant L/R ≤ 1 ms	60V A	20	
Rated operational current I _e	110V A	5	
	220V A	0.6	
	3 poles in series 24V A	20	
	60V A	20	
	110V A	20	
	220V A	16	
	Utilization category DC3 and DC5		
	Switching of shunt motors and series motors	1 pole 24V A	20
Time constant L/R ≤ 15 ms	60V A	5	
	110V A	1	
Rated operational current I _e	220V A	0.15	
	3 poles in series 24V A	20	
	60V A	20	
	110V A	20	
	220V A	2	
	Maximum ambient temperature		
Operation	open °C	-40 to +60 (+90) ¹⁾	
	enclosed °C	-40 to +40	
with thermal overload relay	open °C	-25 to +60	
	enclosed °C	-25 to +40	
Storage	°C	-50 to +90	
Short circuit protection - for contactors without thermal overload relay			
Coordination-type "1" according to IEC 947-4-1			
Contact welding without hazard of persons			
max. fuse size	gL (gG) A	40	
Coordination-type "2" according to IEC 947-4-1			
Light contact welding accepted			
max. fuse size	gL (gG) A	25	
Contact welding not accepted			
max. fuse size	gL (gG) A	10	
For contactors without thermal overload relay the device with the smaller admissible backup fuse (contactor or thermal overload relay) determines the fuse size.			
Cable cross-sections			
for contactors without thermal overload relay			
main connector	solid or stranded mm ²	0.5-2.5	
	flexible mm ²	0.5-2.5	
	flexible with multicore cable end mm ²	0.5-1.5	
Cables per clamp		2	
	solid or stranded AWG	18-14	
Frequency of operations z			
Contactors without thermal overload relay	without load 1/h	10000	
	AC3, I _e 1/h	600	
	AC4, I _e 1/h	120	
	DC3, I _e 1/h	600	
Mechanical life			
	AC operated - Sx 106	5	
	DC operated - Sx 106	15	
Short time current	10s-current A	96	
Power loss per pole	at I _e /AC3 400V W	0.15	
Resistance to shock according to IEC 68-2-27			
Shock time 20 ms sine-wave			
AC operated	NO g	5	
	NC g	5	
DC operated	NO g	8	
	NC g	6	

1) 90°C: reduces the control voltage range to 0.9 up to 1.0xU_s and reduces the rated current I_e/AC1 to the value of I_e/AC3

Mini Contactors LA, Size 1

Technical Specifications According to IEC 947-5-1, VDE 0660, EN 60947-5-1

Auxiliary contacts		Type	K1-09D	K1-09D =	HK
Rated insulation voltage U_i		VAC	690 ¹⁾	690 ¹⁾	690 ¹⁾
Thermal rated current I_{th} to 690V					
Ambient temperature	40°C	A	10	10	10
	60°C	A	6	6	6
Power loss per pole		at I_{th}	0.5	0.5	0.5
Utilization category AC15					
Rated operational current I_e	220-240V	A	3	3	3
	380-415V	A	2	2	2
	440V	A	1.6	1.6	1.6
	500V	A	1.2	1.2	1.2
	660-690V	A	0.6	0.6	0.6
Utilization category DC13					
Rated operational current I_e	60V	A	2	2	2
	110V	A	0.4	0.4	0.4
	220V	A	0.1	0.1	0.1
Maximum ambient temperature					
Operation	open	°C	-40 to +60 (+90) ³⁾ -40 to +40		
		°C			
Storage		°C	-40 to +90		
Short circuit protection					
short-circuit current 1kA contact welding not accepted					
max. fuse size	gl (gG)	A	20	20	20
For contactors with thermal overload relay the device with the smaller admissible control fuse (contactor or thermal overload relay) determines the fuse size.					
Power consumption of coils					
AC operated	inrush	VA	25	-	-
	sealed	VA	4-5	-	-
		W	1.2	-	-
DC operated	inrush	W	-	2.5	-
	sealed	W	-	2.5	-
Operation range of coils					
in multiples of control voltage U_s			19-30 VDC		
Switching time at control voltage $U_s \pm 10\%$ 4) 5)			0.85-1.1	0.8-1.1	-
AC operated	make time	ms	15-19	-	-
	release time	ms	8-25	-	-
	arc duration	ms	10-15	-	-
DC operated	make time	ms	-	15-25	-
	release time	ms	-	8-25	-
	arc duration	ms	-	10-15	-
Cable cross-section					
all connectors	solid	mm ²	0.5-2.5	0.5-2.5	0.5-2.5
	flexible	mm ²	0.5-2.5	0.5-2.5	0.5-2.5
	flexible with multicore cable end	mm ²	0.5-1.5	0.5-1.5	0.5-1.5

Clamps per pole

1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request.

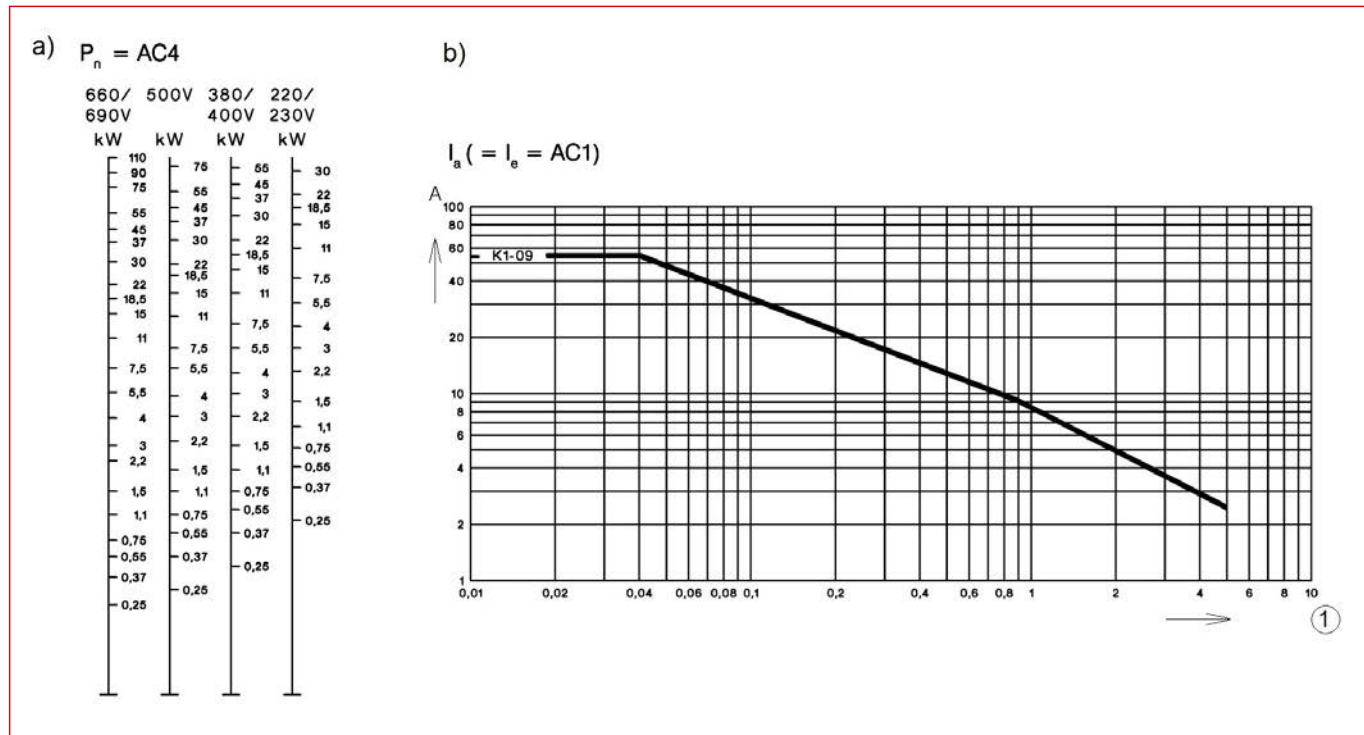
3) 90°C: reduces the control voltage range to 0.9 up to 1.0x U_s and reduces the thermal rated current I_{th} to the value of $I_e/AC15$.

4) Summary switching time = release time + arc duration.

5) Release time of NC make time of NO increase when suppressor units for voltage peak protection are use (Varistor, RC-units, Diode units).

Mini Contactors LA, Size 1

Motor Rating and Breaking Current (K1-09D)



1) Millions of Operations

a) Motor Rating

b) Breaking Current

Auxiliary Contactors LA

Technical Specifications According to IEC 947-5-1, VDE 0660, EN 60947-5-1

			Type	K3-07ND	K3-07ND=	KG3-07A	KG3-07D
Rated insulation voltage U_i ¹⁾			VAC ¹⁾	690	690	690	690
Thermal rated current I_{th} to 690V							
Ambient temperature	40°C	A	10	10	20	10	
	60°C	A	6	6	16	6	
Frequency of operations z			1/h	10000	10000	10000	10000
Mechanical life			$S \times 10^6$	10	10	10	50
Utilization category AC15							
Rated operational current I_e	220-240V	A	4	4	12	4	
	380-415V	A	2	2	4	2	
	440V	A	1.6	1.6	4	1.6	
	500V	A	1.2	1.2	3	1.2	
	660-690V	A	0.6	0.6	1	0.6	
Utilization category DC13							
Rated operational current I_e	24-60V	A	3.5	3.5	8	3.5	
	110V	A	0.5	0.5	1	0.5	
	per pole	A	0.1	0.1	0.1	0.1	
Power consumption of coils							
AC operated	inrush	VA	30-45	-	-	-	
		sealed	VA	7-10	-	-	-
	W	2.6-3	-	-	-		
DC operated	inrush	W	-	75	3	3	
		sealed	W	-	2	3	3
	Operation range of coils						
in multiples of control voltage U_s				0.85-1.1	0.8-1.1	0.8-1.1	0.8-1.1
Switching time at control voltage $U_s \pm 10\%$							
	make time	ms	8-16	8-16	65-85	65-85	
	release time	ms	5-13	5-13	20-30 ³⁾	20-30 ³⁾	
Maximum ambient temperature							
Operation	open	°C	-40 to +60 (+90) ²⁾				
	enclosed	°C					
Storage		°C	-40 to +40				
		°C					-40 to +90
Short circuit protection							
short-circuit current 1 kA, contact welding not accepted							
max. fuse size	gL (gG)	A	20	20	25	20	
Cable cross-section							
Connector	solid	mm ²	0.75-6				
	flexible	mm ²					
	flexible with multicore cable end	mm ²					
Magnet coil	solid	mm ²	0.75-2.5				
	flexible	mm ²					
	flexible with multicore cable end	mm ²					
Clamps per pole			2				
Connector	solid	AWG	18-10				
	flexible	AWG					
Clamps per pole			2				
Magnet coil	solid	AWG	14-12				
	flexible	AWG					
Clamps per pole			2				



1) Suitable at 690 V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request.

2) 90° reduces the control voltage range to 0.9 up to 1.0x U_s and reduces the thermal rated current $I_{th}/AC1$ to the value of $I_e/AC15$

3) With built-in coil suppressor.

Capacitor Switching Contactors LA, Size 3

Rated Operational Power at 50/60Hz

Ambient Temperature						Auxiliary Contacts			Type	Coil voltage ¹⁾		
50°C			60°C			Built-in Add.				Pack	Weight	
380V	415 V	660 V	380 V	415 V	660 V			pcs.	pcs.			kg/pc.
400V	440 V	690 V	400 V	440 V	690 V							
kVA_r	kVA _r	kVA _r	kVA _r	kVA _r	kVA _r	NO	NC	pcs.				
0-12.5	0-13	0-20	0-12.5	0-13	0-20	1	-	1 ²⁾	K3-18NK10	230	1	0.34
0-12.5	0-13	0-20	0-12.5	0-13	0-20	-	1	1 ²⁾	K3-18NK01	230	1	0.34
10-20	10.5-22	17-33	10-20	10.5-22	17-33	-	-	3 ³⁾	K3-24K00	230	1	0.62
10-25	10.5-27	17-41	10-25	10.5-27	17-41	-	-	3 ³⁾	K3-32K00	230	1	0.62
20-33.3	23-36	36-55	20-33.3	23-36	36-55	-	-	3 ³⁾	K3-50K00	230	1	1.0
20-50	23-53	36-82	20-50	23-53	36-82	-	-	3 ³⁾	K3-62K00	230	1	1.0
20-75 ⁴⁾	23-75 ⁴⁾	36-120 ⁴⁾	20-60	23-64	36-100	-	-	3 ³⁾	K3-74K00	230	1	1.0
33-80	36-82	57-120	33-75	36-77	57-120	-	-	6 ⁵⁾	K3-90K00	230	1	2.3
33-100 ⁶⁾	36-103 ⁶⁾	57-148 ⁶⁾	33-90 ⁶⁾	36-93 ⁶⁾	57-148 ⁶⁾	-	-	6 ⁵⁾	K3-115K00	230	1	2.3

Specification: Contactors K3-..K are suitable for switching low-inductive and low loss capacitors in capacitor banks (IEC70 and 831, VDE 0560) without and with reactors.

Capacitor switching contactors are fitted with early make contacts and damping resistors, to reduce the value of make current $< 70 \times I_e$.

Operating Conditions: Capacitor switching contactors are protected against contact welding for a prospective making current of $200 \times I_e$.

1) See coil voltage range and non-standard coil voltages

2) 1 HN.. Or HA.. snap-on.


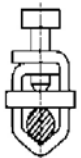
3) 2HB.. for side mounting and 1 HN.. or HA.. snap-on.

4) Consider the max. thermal current of the contactor K3-74A: I_{th} 130A.

Technical Specifications According to IEC 947-4-1, IEC 947-5-1, EN 60947-4-1, EN 60947-5-1, VDE 0660


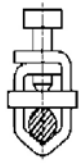
Type			K3-18NK	K3-24K	K3-32K	K3-50K	K3-62K	K3-74K	K3-90K	K3-115K
Max. frequency of operations z		1/h	120	120	120	120	120	80	80	80
Contact life	non reactive capacitor banks	$S \times 10^3$	250	150	150	150	150	120	120	120
	reactive capacitor banks	$S \times 10^3$	400	300	300	300	300	200	200	200
Rated operational current I_e	at 50°C	A	0-18	14-28	14-36	30-48	30-72	30-108	50-115	50-144
AC6b	at 60°C	A	0-18	14-28	14-36	30-48	30-72	30-87	50-108	50-130
Rated operational current I_{th}	at 50°C	A	32	45	60	100	110	120	155	190
AC1	at 60°C	A	32	40	55	90	100	110	145	170
Overload factor	at 50°C	%	78	60	67	108	53	11	35	32
acc. To EN 61921: 30 % min.	at 60°C	%	78	43	53	88	39	26	34	31
Fuses gL (gG)	from/to	A	35/63	50/80	63/100	80/160	125/160	160/200	160/200	160/250

Capacitor Switching Contactors LA, Size 3

Contactor	Type		K3-18NK10	K3-18NK01	K3-24K	K3-32K
Capacitor rating at rated power (Utilization category AC-6b)	230V, 50/60Hz	kVAr	0 – 7	0 – 7	5 – 11	5 – 14
	400V, 50/60Hz	kVAr	0 – 12,5	0 – 12,5	10 – 20	10 – 25
	525V, 50/60Hz	kVAr	0 – 15	0 – 15	12 – 25	12 – 32
	690V, 50/60Hz	kVAr	0 – 20	0 – 20	17 – 33	17 – 41
Auxiliary contact mounted			1NO	1NC	--	--
Auxiliary contacts mountable	snap on front		1NC/6A HA01	1NC/6A HA01	--	--
			1NO/3A HN10	1NO/3A HN10	1NO/3A HN10	1NO/3A HN10
			1NC/3A HN01	1NC/3A HN01	1NC/3A HN01	1NC/3A HN01
	side mounted		--	--	1NO+1NC/3A HB11	1NO+1NC/3A HB11
Magnetic coil operating range			--	--	--	--
Max. switching frequency		h ⁻¹	120	120	120	120
Electrical endurance		operating cycles	250000	250000	150000	150000
Rated operational current I_e	at 50°C	A	0 – 18	0 – 18	14 – 28	14 – 36
	at 60°C	A	0 – 18	0 – 18	14 – 28	14 – 36
Ambient temperature		°C	≤ 60 (90) ¹⁾	≤ 60 (90) ¹⁾	≤ 60 (90) ¹⁾	≤ 60 (90) ¹⁾
Standards			IEC 947-4-1 / EN 60947-4-1 / VDE 0660			
Short-circuit protection	fuse gl/gG	A	35 – 63	35 – 63	50 – 80	63 – 100
Conductor cross-sections						
For contactors without thermal overload relay						
1 cable per clamp	solid or stranded	mm ²	0.75 – 6		1.5 – 25	
	flexible	mm ²	1 – 4		2.5 – 16	
	flexible with multicore cable end	mm ²	0.75 – 4		1.5 – 16	
2 cable per clamp	solid or stranded	mm ²	6 + (1 – 6) / 4 + (0.75 – 4) 2.5 + (0.75 – 2.5) / 1.5 + (0.75 – 1.5)		16 + (2.5 – 6) / 10 + (4 – 10) 6 + (4 – 6) / 4 + (2.5 – 4)	
	flexible	mm ²	6 + (1.5 – 6) / 4 + (1 – 4) 2.5 + (0.75 – 2.5) / 1.5 + (0.75 – 1.5)		16 + (2.5 – 6) / 10 + (4 – 10) 6 + (4 – 6) / 4 + (2.5 – 4)	
Cables per clamp			2		2	
For main connector						
1 cable per clamp	solid	AWG	18 – 10		16 – 10	
	flexible	AWG	18 – 10		14 – 4	
2 cable per clamp	solid	AWG	10 + (16 – 10) / 12 + (18 – 12) 14 + (18 – 16) / 16 + (18 – 16)		10 + (16 – 10) / 12 + (18 – 12) 14 + (18 – 16) / 16 + (18 – 16)	
	flexible	AWG	10 + (14 – 10) / 12 + (18 – 12) 14 + (18 – 14) / 16 + (18 – 16)		4 + (18 – 12) / 6 + (18 – 8) 8 + (18 – 8) / 10 + (18 – 12)	
Cables per clamp			2		2	
Coil voltage	0,85 – 1,1 x U _N		230VAC; 50Hz			
Mechanical life	AC operated S x 10 ⁶		10		10	
	DC operated S x 10 ⁶		10		10	
Short time current	10 S current	A	144		240	
Power loss per pole	at I _e / AC3 400V	W	0.5		1.3	

1) With reduced control voltage range 0.9 up to 1.0 x U_s and with reduced rated current I_e/AC1 according to I_e/AC3

Capacitor Switching Contactors LA, Size 3

Contactor	Type		K3-50K	K3-62K	K3-74K	K3-90K	K3-115K
Capacitor rating at rated power	230V, 50/60Hz	kVA _r	12 – 20	12 – 28	12 – 30	22 – 40	20 – 50
	400V, 50/60Hz	kVA _r	20 – 33.3	20 – 50	20 – 75	33 – 80	33 – 100
(utilization category AC-6b)	525V, 50/60Hz	kVA _r	26 – 43	26 – 64	26 – 75	45 – 95	45 – 115
	690V, 50/60Hz	kVA _r	36 – 55	36 – 82	36 – 120	57 – 120	57 – 148
Auxiliary contacts mounted (unassigned)			--	--	--	--	--
Auxiliary contacts mountable	snap on front		1NC/6A HA01				
			1NO/3A HN10	1NO/3A HN10	1NO/3A HN10	1NO/3A HN10	1NO/3A HN10
			1NC/3A HN01	1NC/3A HN01	1NC/3A HN01	1NC/3A HN01	1NC/3A HN01
	side mounted		1NO+1NC/3A HB11	1NO+1NC/3A HB11	1NO+1NC/3A HB11	1NO+1NC/3A HB11	1NO+1NC/3A HB11
Magnetic coil operating range			--	--	--	--	--
Max. switching frequency		h ⁻¹	120	120	80	80	80
Electrical endurance		Operating cycles	150000	150000	120000	120000	120000
Rated operational current I_e	at 50°C	A	30 – 48	30 – 72	30 – 108	50 – 115	50 – 144
	at 60°C	A	30 – 48	30 – 72	30 – 78	50 – 108	50 – 130
Ambient temperature		°C	≤ 60 (90) ¹⁾	≤ 60 (90) ¹⁾	≤ 60 (90) ¹⁾	≤ 60 (90) ¹⁾	
Standards			IEC 947-4-1 / EN 60947-4-1 / VDE 0660				
Short-circuit protection	fuse gL/gG	A	80 – 160	125 – 160	160 – 200	160 – 200	160 – 250
Conductor cross-sections							
For contactors without thermal overload relay							
1 cable per clamp	solid or stranded	mm ²	4 – 50				
	flexible	mm ²	10 – 35				
	flexible with multicore cable end	mm ²	6 – 35				
2 cable per clamp	solid or stranded	mm ²	50 + 4 / 35 + 6 / 25 + (6 – 16) 16 + (6 – 16) / 10 + (6 – 16)		top 0.5 – 95	below 10 – 120	
	flexible	mm ²	50 + (4 – 10) / 35 + (4 – 16) 25 + (4 – 25) / 16 + (4 – 16)		0.5 – 70	10 – 95	
Cables per clamp			2		1 + 1		
For main connector							
1 cable per clamp	solid	AWG	12 – 10				
	flexible	AWG	10 – 0				
2 cable per clamp	solid	AWG	10 + (12 – 10) / 12 + 12		top 18 – 10	below --	
	flexible	AWG	1 + (12 – 10) / 2 + (8 – 12) 3 + (12 – 8) / 4 + (10 – 6)		18 – 3 / 0	8 – 4 / 0	
Cables per clamp			2		1 + 1		
Coil voltage	0.85 – 1.1 x U _N		230 VAC; 50 Hz				
Mechanical life	AC operated S x 10 ⁶		10	10	10	10	5
	DC operated S x 10 ⁶		10	10	10	10	5
Short time current	10 S current	A	360	504	592	680	880
Power loss per pole	at I _e / AC3 400V	W	2.2	3.9	5.5	4.3	6

 1) With reduced control voltage range 0.9 up to 1.0 x U_e and with reduced rated current I_e/AC1 according to I_e/AC3

Capacitor Switching Contactors LA, Size 3

Mounted auxiliary contacts	Type		K3-18NK	K3-24K, K3-32K	K3-50K, K3-62K K3-74K	K3-90K, K3-115K
Control circuit						
Power consumption of coils						
AC operated	inrush	VA	33-45	90-115	140-165	190-280
	sealed	VA	7-10	9-13	13-18	2.5-5
		W	2.6-3	2.7-4	5.4-7	2.5-5
DC operated	inrush	W	75	140	200	190-280
	sealed	W	2	2	6	2.5-5
Operation range of coils						
in multiples of control voltage U_s	AC operated		0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1
	DC operated		0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
Switching time						
At control voltage $U_s \pm 10\%$ 2)3)						
AC operated	make time	ms	8-16	10-25	12-28	20-35
	release time	ms	5-13	8-15	8-15	35-50
	arc duration	ms	10-15	10-15	10-15	10-15
DC operated	make time	ms	8-12	10-20	12-23	20-35
	release time	ms	8-13	10-15	10-18	35-50
	arc duration	ms	10-15	10-15	10-15	10-15
Cable cross-section						
Auxiliary connector	solid	mm ²	0.75-6	-	-	-
	flexible	mm ²	1-4	-	-	-
	flexible with multicore cable end	mm ²	0.75-4	-	-	-
Magnet coil	solid	mm ²	0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5
	flexible	mm ²	0.5-2.5	0.5-2.5	0.5-2.5	0.5-2.5
	flexible with multicore cable end	mm ²	0.5-1.5	0.5-1.5	0.5-1.5	0.5-1.5
Clamps per pole			2	2	2	2
Auxiliary connector	solid	AWG	18-10	--	--	--
	flexible	AWG	18-10	--	--	--
Magnet coil	solid	AWG	14-12	14-12	14-12	14-12
	flexible	AWG	18-12	18-12	18-12	18-12
Clamps per pole			2	2	2	2
Rated insulation voltage U_i 1)	V~		690	-	-	-
Thermal rated current Ith to 690V						
Ambient temperature	40°C	A	16	-	-	-
	60°C	A	12	-	-	-
Utilization category AC15						
Rated operational current I_e	220-240V	A	12	-	-	-
	380-415V	A	4	-	-	-
	440V	A	4	-	-	-
	500V	A	3	-	-	-
	660-690V	A	1	-	-	-
Utilization category DC13						
Rated operational current I_e	60V	A	8	-	-	-
	110V	A	1	-	-	-
	220V	A	0.1	-	-	-
Short circuit protection						
short-circuit current 1kA, contact welding not accepted						
max. fuse size	gL (gG)	A	25	-	-	-
Auxiliary contacts snap on or side mounted						
	Type		1 NC	HA01 1 NO+1 NC	HB11 1 NO	HN10 1 NC
AC15	230V	A	6	3	3	3
AC15	400V	A	3	2	2	2
AC1	690V	A	25	10	10	10

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request

2) Total breaking time = release time + arc duration

3) Values for delay of the release time of the make contact and the make time of the break contact will be increased, if magnet coils are protected against voltage peaks (varistor, RC-unit, diode-unit)

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts		Type	K(G)3-10	K(G)3-14	K(G)3-18	K(G)3-22	K(G)3-24	K(G)3-32	K(G)3-40	K3-50	K3-62	K3-74
Rated insulation voltage U_i 1)		VAC	690	690	690	690	690	690	690	830	830	830
Making capacity I_{eff}	at $U_e = 690VAC$	A	200	200	200	200	400	500	500	700	900	900
	1000VAC	A	-	-	-	-	-	-	-	-	-	-
Breaking capacity I_{eff}	400VAC	A	180	180	200	200	380	400	400	600	800	800
	K3-10 to K3-22 $\cos \varphi = 0.65$	A	150	150	180	180	300	370	370	500	700	700
K3-24 to K3-1200 $\cos \varphi = 0.35$	690VAC	A	100	100	150	150	260	340	340	400	500	500
	1000VAC	A	-	-	-	-	-	-	-	-	-	-
Utilization category AC1												
Switching of resistive load												
Rated operational current $I_e (=I_{th})$	690V	A	25	25	32	32	50	65	80	110	120	130
at 40 °C, open												
Rated operational power	220V	kW	9.5	9.5	12.2	12.2	19.0	24.7	30.4	41.9	45.7	49.5
of three-phase resistive loads	230V	kW	9.9	9.9	12.7	12.7	19.9	25.9	31.8	43.8	47.7	51.7
50-60 Hz, $\cos \varphi = 1$	240V	kW	10.4	10.4	13.3	13.3	20.8	27.0	33.2	45.7	49.8	54.0
	380V	kW	16.4	16.4	21.0	21.0	32.9	42.7	52.6	72.3	78.9	85.5
	400V	kW	17.3	17.3	22.1	22.1	34.6	45.0	55.4	76.1	83.0	90.0
	415V	kW	17.9	17.9	23.0	23.0	35.9	46.7	57.4	79.0	86.2	93.3
	440V	kW	19.9	19.0	24.4	24.4	38.1	49.5	60.9	83.7	91.3	99.0
	500V	kW	21.6	21.6	27.7	27.7	43.3	56.2	69.2	95.2	103.8	112.5
	660V	kW	28.5	28.5	36.5	36.5	57.1	74.2	91.3	125.6	137.0	148.4
	690V	kW	29.8	29.8	38.2	38.2	59.7	77.6	95.5	131.3	143.2	155.2
	1000V	kW	-	-	-	-	-	-	-	-	-	-
Rated operational current $I_e (=I_{th})$	690V	A	25	25	32	32	40	55	65	90	100	110
at 60 °C, enclosed												
Rated operational power	220V	kW	9.5	9.5	12.2	12.2	15.2	20.9	24.7	34.3	38.1	41.9
of three-phase resistive loads	230V	kW	9.9	9.9	12.7	12.7	15.9	21.9	25.9	35.8	39.8	43.8
50-60 Hz, $\cos \varphi = 1$	240V	kW	10.4	10.4	13.3	13.3	16.6	22.8	27.0	37.4	41.5	45.7
	380V	kW	16.4	16.4	21.0	21.0	26.3	36.2	42.7	59.2	65.7	72.3
	400V	kW	17.3	17.3	22.1	22.1	27.7	38.1	45.0	62.3	69.2	76.1
	415V	kW	17.9	17.9	23.0	23.0	28.7	39.5	46.7	64.6	71.8	79.0
	440V	kW	19.0	19.0	24.4	24.4	30.4	41.9	49.5	68.5	76.1	83.7
	500V	kW	21.6	21.6	27.7	27.7	34.6	47.6	56.2	77.9	86.5	95.2
	660V	kW	28.5	28.5	36.5	36.5	45.7	62.8	74.2	102.8	114.2	125.6
	690V	kW	29.8	29.8	38.2	38.2	47.7	65.7	77.6	107.4	119.4	131.3
	1000V	kW	-	-	-	-	-	-	-	-	-	-
Minimum cross-section of conductor at load with $I_e (=I_{th})$		mm ²	4	4	6	6	10	16	25	35	50	50
Utilization category AC2 and AC3												
Switching of three-phase motors												
Rated operational current I_e	220V	A	12	15	18	22	24	30	40	50	63	74
open and enclosed	230V	A	11.5	14.5	18	22	24	30	40	50	63	74
	240V	A	11	15	18	22	24	30	40	50	63	74
	380-400V	A	10	14	18	22	24	30	40	50	63	74
	415V	A	9	14	18	22	24	30	40	50	63	74
	440V	A	9	14	18	22	24	30	40	50	63	74
	500V	A	8.9	11.9	15	15	22.5	28.5	28.5	44	54	64.5
	660-690V	A	6.7	9	12	12	17.5	21	21	33	42	49
	1000V	A	-	-	-	-	-	-	-	-	-	-
Rated operational power	220-230V	kW	3	4	5	6	6	8.5	11	12.5	18.5	22
of three-phase motors	240V	kW	3	4	5	7	7	9	11.5	13.5	19	23
50-60 Hz	380-400V	kW	4	5.5	7.5	11	11	15	18.5	22	30	37
	415V	kW	4.5	6	8.5	12	12	16	20	24	33	40
	440V	kW	4.5	6	8.5	12	12	16	20	24	33	40
	500V	kW	5.5	7.5	10	10	15	18.5	18.5	30	37	45
	660-690V	kW	5.5	7.5	10	10	15	18.5	18.5	30	37	45
	1000V	kW	-	-	-	-	-	-	-	-	-	-

1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8$ kV. Data for other conditions on request.

Technical Specification - Electromechanical Contactors Series LA

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main Contacts		Type	K3-90	K3-115	K3-116	K3-151	K3-176	K3-210	K3-260	K3-316	K3-450	K3-550	
Rated insulation voltage $U_i^{1)}$		VAC	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Making capacity I_{eff}		at $U_e =$ 690VAC	A	1100	1200	1200	1500	2000	2100	2600	3200	4500	5500
		1000VAC	A	540	600	600	720	840	1020	1200	1500	2400	3000
Breaking capacity I_{eff}		400VAC	A	950	1100	1000	1200	1500	1600	2100	2600	4500	5500
K3-10 up to K3-22 $\cos \varphi = 0.65$		500VAC	A	850	1000	1000	1200	1500	1600	2100	2600	4500	5500
K3-24 up to K3-1200 $\cos \varphi = 0.35$		690VAC	A	600	600	800	1000	800	1200	1900	2300	3200	4400
		1000VAC	A	450	450	400	500	600	700	850	1000	-	-
Utilization category AC1													
Switching of resistive load													
Rated operational current $I_e (=I_{th})$		690V	A	160	200	200	230	250	350	450	500	700	760
at 40°C, open													
Rated operational power		220V	kW	60	76	76	87	95	133	171	190	266	289
of three-phase resistive loads		230V	kW	63	79	79	91	99	139	179	199	279	302
50-60Hz, $\cos \varphi = 1$		240V	kW	66	83	83	95	103	145	187	207	291	315
		380V	kW	105	131	131	151	164	230	296	329	460	500
		400V	kW	110	138	138	159	173	242	311	346	485	526
		415V	kW	115	143	143	165	179	251	323	359	503	546
		440V	kW	121	152	152	175	190	266	342	381	533	579
		500V	kW	138	173	173	199	216	303	389	453	606	658
		660V	kW	182	228	228	262	285	400	514	571	800	868
		690V	kW	191	239	239	274	298	418	537	597	836	908
		1000V	kW	221	277	216	318	346	433	546	606	692	866
Rated operational current $I_e (=I_{th})$		690V	A	145	170	170	180	200	280	360	400	550	600
at 60°C, enclosed													
Rated operational power		220V	kW	55	64	64	68	76	106	137	152	209	228
of three-phase resistive loads		230V	kW	57	67	67	71	79	111	143	159	219	239
50-60Hz, $\cos \varphi = 1$		240V	kW	59	70	70	74	83	116	150	166	228	249
		380V	kW	95	111	111	118	131	184	237	263	362	395
		400V	kW	100	117	117	124	138	193	249	277	381	415
		415V	kW	104	122	122	129	143	201	259	287	395	431
		440V	kW	110	129	129	137	152	213	274	304	419	457
		500V	kW	125	147	147	155	173	242	312	346	476	519
		660V	kW	165	194	194	205	228	320	412	457	628	685
		690V	kW	173	202	202	215	239	334	430	478	657	717
		1000V	kW	166	187	216	277	346	388	499	554	692	866
Minimum cross-section of conductor													
at load with $I_e (=I_{th})$			mm ²	95	120	95	95	120	240	2x150	2x(30x6)	2x(40x5)	2x(50x5)
Utilization category AC2 and AC3													
Switching of three-phase motors													
Rated operational current I_e		220V	A	90	115	115	150	175	210	260	315	450	550
open and enclosed		230V	A	90	115	115	150	175	210	260	315	450	550
		240V	A	90	115	115	150	175	210	260	315	450	550
		380-400V	A	90	115	115	150	175	210	260	315	450	550
		415V	A	90	115	115	150	175	210	260	315	450	550
		440V	A	90	115	115	150	175	210	260	315	450	550
		500V	A	79	79	115	150	175	210	260	315	450	550
		660-690V	A	60	60	100	120	140	150	180	240	400	500
		1000V	A	45	45	45	60	70	85	100	125	200	250
Rated operational power		220-230V	kW	25	33	30	40	50	60	75	90	132	175
of three-phase motors		240V	kW	27	35	35	45	55	65	80	100	140	185
50-60Hz		380-400V	kW	45	55	55	75	90	110	132	160	250	300
		415V	kW	49	63	59	80	95	115	140	180	257	315
		440V	kW	49	63	63	85	100	125	150	190	270	335
		500V	kW	55	55	75	90	100	132	160	210	300	375
		660-690V	kW	55	55	90	110	132	132	160	210	375	500
		1000V	kW	55	55	55	75	90	110	132	160	280	355

1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$.

Data for other conditions on request.

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts		Type	K(G)3-10	K(G)3-14	K(G)3-18	K(G)3-22	K(G)3-24	K(G)3-32	K(G)3-40	K3-50	K3-62	K3-74
Utilization category AC4												
Switching of squirrel cage motors, inching												
Rated operational current I_e open and enclosed	220V	A	12	15	18	18	24	30	40	50	63	63
	230V	A	11,5	14,5	18	18	24	30	40	50	62	62
	240V	A	11	14	18	18	24	32	40	50	62	62
	380-400V	A	10	14	18	18	24	32	40	50	62	62
	415V	A	9	14	18	18	23	30	37	45	60	60
	440V	A	9	14	18	18	23	30	37	45	55	55
	500V	A	9	12	16	16	17,5	21	21	33	42	42
	660V	A	7	9	9	9	17	20	20	31	40	40
	690V	A	6,5	8,5	8,5	8,5	17	20	20	31	40	40
	1000V	A	-	-	-	5	-	-	-	-	-	-
Rated operational power of three-phase motors 50-60Hz	220-230V	kW	3	4	5	5	6	8,5	11	12,5	18,5	18,5
	240V	kW	3	4	5	7,5	7	9	11,5	13,5	19	19
	380-400V	kW	4	5,5	7,5	8,5	11	15	18,5	22	30	30
	415V	kW	4,5	6	8,5	8,5	12	16	20	24	33	33
	440V	kW	4,5	6	8,5	10	12	16	20	24	33	33
	500V	kW	5,5	7,5	10	10	15	18,5	18,5	30	37	37
	660-690V	kW	5,5	7,5	10	-	15	18,5	18,5	30	37	37
1000V	kW	-	-	-	-	-	-	-	-	-	-	
Utilization category AC5a												
Switching of gas discharge lamps												
Rated operational current I_e per pole at 220/230V Fluorescent lamps, uncompensated and serial compensated												
	A	20	20	25	25	40	52	64	88	96	104	104
parallel compensated												
	A	7	9	9	9	18	22	22	30	40	45	45
dual-connection												
	A	22,5	22,5	28	28	45	58	72	98	108	117	117
Metal halide lamps ¹⁾ , uncompensated												
	A	12	15	19	19	30	39	48	66	72	78	78
parallel compensated												
	A	7	9	9	9	18	22	22	30	40	45	45
Mercury-vapour lamps ²⁾ , uncompensated												
	A	22,5	25	28	28	45	58	72	99	108	117	117
parallel compensated												
	A	7	9	9	9	18	22	22	30	40	45	45
Mixed light lamps ³⁾												
	A	20	20	25	25	40	52	64	88	96	104	104
LED-Lamps												
consider the inrush current of the lamp ballast and $\cos \varphi$ of the lamp												
$\text{max. lamps per pole } (I_{nLED} \leq I_{th}) = \frac{\text{inrush current of contactor}}{\text{inrush current of lamp/EVG}}$												
max inrush current of contactor	A	282	282	282	282	564	705	705	987	1269	1268	1268
Utilization category AC5b												
Switching of incandescent lamps⁴⁾												
Rated operational current I_e per pole at 220/230V												
	A	12,5	12,5	12,5	12,5	25	31	31	43	56	56	56

1) Metal halide lamps and sodium-vapour lamps (high- and low-pressure lamps)

2) High-pressure lamps

3) Blended lamps, containing a mercury high-pressure unit and a tungsten helix in a fluorescent glass bulb (daylight lamps)

4) Current inrush approx. $16 \times I_e$

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main Contacts			Type	K3-90	K3-115	K3-151	K3-176	K3-210	K3-260	K3-316	K3-450	K3-550
Utilization category AC4												
Switching of squirrel cage motors, inching												
Rated operational current I _e open and enclosed	220V	A	85	98	55	63	85	100	120	150	180	180
	230V	A	85	98	55	63	85	100	120	150	180	180
	240V	A	85	98	55	63	85	100	120	150	180	180
	380-400V	A	85	85	55	63	85	100	120	150	180	180
	415V	A	85	85	55	63	85	100	120	150	180	180
	440V	A	85	85	55	63	85	100	120	150	180	180
	500V	A	85	85	-	-	-	-	-	-	-	-
	660V	A	60	60	-	-	-	-	-	-	-	-
	690V	A	57.5	57.5	-	-	-	-	-	-	-	-
	1000V	A	-	-	-	-	-	-	-	-	-	-
	Rated operational power of three-phase motors 50-60Hz	220-230V	kW	25	30	15	18,5	25	30	37	45	51
		240V	kW	27	32	15,5	19	26	31	38	47	53
380-400V		kW	45	45	25	30	45	55	63	75	90	
415V		kW	49	49	25	33	45	55	65	80	100	
440V		kW	49	49	30	34	48	55	67	85	100	
500V		kW	55	55	25	30	55	65	75	100	110	
660-690V		kW	55	55	25	30	55	65	75	100	110	
1000V	kW	-	-	-	-	-	-	-	-	-		
Utilization category AC5a												
Switching of gas discharge lamps												
Rated operational current I _e per pole at 220/230V												
Fluorescent lamps,												
uncompensated and serial compensate	A	100	120	120	140	180	220	280	360	450	450	
parallel compensated	A	55	70	85	100	130	160	200	300	360	360	
dual-connection	A	112	144	120	140	180	220	280	360	450	450	
Metal halide lamps ¹⁾												
uncompensated	A	85	90	95	110	140	180	230	300	380	380	
parallel compensated	A	55	70	75	85	110	140	170	260	300	300	
Mercury-vapour lamps ²⁾												
uncompensated	A	112	144	120	140	180	220	280	360	450	450	
parallel compensated	A	55	70	75	85	110	140	170	260	300	300	
Mixed light lamps ³⁾												
Mixed light lamps ³⁾	A	100	120	100	120	160	200	250	320	400	400	
LED-Lamps			max. lamps per pole (I _{nLED} ≤ I _{th})					= $\frac{\text{inrush current of contactor}}{\text{inrush current of lamp/EVG}}$				
consider the inrush current of the lamp ballast and cos φ of the lamp												
max inrush current of contactor	A	1551	1692	2115	2820	2961	3666	4512	6345	7755	7755	
Utilization category AC5b												
Switching of incandescent lamps⁴⁾												
Rated operational current I _e per pole at 220/230V												
	A	69	75	100	120	160	190	220	260	315	315	

1) Metal halide lamps and sodium-vapour lamps (high- and low-pressure lamps)

2) High-pressure lamps

3) Blended lamps, containing a mercury high-pressure unit and a tungsten helix in a fluorescent glass bulb (daylight lamps)

4) Current inrush approx. 16 x I_e

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main Contactors			Type	K(G)3-10	K(G)3-14	K(G)3-18	K(G)3-22	K(G)3-24	K(G)3-32	K(G)3-40	K3-50	K3-62	K3-74	
Utilization category AC6A														
Transformer primary switching														
at inrush		n		30	30	30	30	30	30	30	30	30	30	30
Rated operational current I _e	400V	A		4,5	5,5	7,5	7,5	10,5	13,5	13,5	20	27	33	
Rated operational power	220-230V	kVA		1,8	2,2	3	3	4,2	5,4	5,4	8	10,7	13	
dependent on inrush n	240V	kVA		1,9	2,3	3,1	3,1	4,3	5,6	5,6	8,3	11,2	13,5	
	380-400V	kVA		3,1	3,8	5,2	5,2	7,3	9,3	9,3	13,5	18,5	22,5	
For different inrush-factors x	415-440V	kVA		3,4	4,2	5,7	5,7	8	10,2	10,2	15	20,5	25	
use the following formula:	500V	kVA		3,9	4,8	6,5	6,5	9	11,5	11,5	17	23	28	
P _x =P _n *(n/x)	660-690V	kVA		5,4	6,5	9	9	12,5	16	16	24	32	39	
Utilization category AC6b														
Switching of three-phase capacitors														
Maximum inrush current (peak value) as multiple k of the capacitor rated current														
Rated operational current I _e	500V	k		35	25	20	20	25	25	25	25	25	20	
Rated operational power	220-230V	kVA _r		8	12	15,5	15,5	23	32	32	45	60	70	
(sin φ → 1)	240V	kVA _r		3	4,5	6	6	8,5	12	12	17	24	28	
	380-400V	kVA_r		3,5	5	6,5	6,5	9,5	13	13	18,5	25	29	
For different multiples x	415-440V	kVA _r		5	7,5	10	10	15	20	20	29	39	46	
use the following formula:	500V	kVA _r		5,5	8	11	11	16	22	22	32	43	50	
P _x =P _k *(k/x)	660-690V	kVA _r		7	10	13	13	20	26	26	39	50	58	
		kVA _r		7	10	13	13	20	26	26	40	50	58	
Switching of reactive capacitor banks														
Rated operational current I _e	690V	A		8	13	18	20	28	36	42	48	72	108 ¹⁾	
Rated operational power	220-230V	kVA _r		2,9	5	7	7,5	11	14	16	20	28	33	
	240V	kVA _r		3,1	5,4	7	8	11	14	17	20	28	36	
	380-400V	kVA_r		5	9	12,5	13	20	25	27,5	33,3	50	75 ¹⁾	
	415-440V	kVA _r		5,5	9,5	13	14	22	27	30	36	53	75 ¹⁾	
	500V	kVA _r		6	11	15	17	25	30	36	40	60	75	
	660-690V	kVA _r		8	15	20	22	33	41	48	55	82	100	
	1000V	kVA _r		-	-	-	-	-	-	-	-	-	-	
Utilization category DC1														
Switching of resistive load														
Time constant L/R ≤ 1ms														
Rated operational current I _e	1 pole 24V	A		20	25	32	32	50	65	80	110	120	130	
	60V	A		20	25	32	32	50	65	80	110	120	130	
	110V	A		6	6	6	6	10	10	10	12	12	12	
	220V	A		0,8	0,8	0,8	0,8	1,4	1,4	1,4	1,4	1,4	1,4	
3 poles in series	24V	A		20	25	32	32	50	65	80	110	120	130	
	60V	A		20	25	32	32	50	65	80	110	120	130	
	110V	A		20	25	32	32	50	65	80	110	120	130	
	220V	A		16	20	20	20	30	35	35	63	80	80	
Utilization category DC3 and DC5														
Switching of shunt motors and series motors														
Time constant L/R ≤ 15ms														
Rated operational current I _e	1 pole 24V	A		20	25	32	32	50	65	80	110	120	130	
	60V	A		6	6	6	6	30	30	30	60	60	60	
	110V	A		1,2	1,2	1,2	1,2	1,8	1,8	1,8	1,8	1,8	1,8	
	220V	A		0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,25	0,25	0,25	
3 poles in series	24V	A		20	25	32	32	50	65	80	110	120	130	
	60V	A		20	25	32	32	40	40	40	80	80	80	
	110V	A		20	20	20	20	40	40	40	80	80	80	
	220V	A		2,5	2,5	2,5	2,5	4	4	4	5	5	5	

1) Consider resistive load (I_{th})


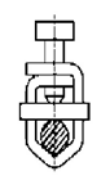
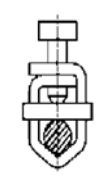
Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main Contacts			Type	K3-90	K3-115	K3-151	K3-176	K3-210	K3-260	K3-316	K3-450	K3-550
Utilization category AC6A												
Transformer primary switching												
at inrush												
		n	30	30	30	30	30	30	30	30	30	30
Rated operational current I _e	400V	A	38	50	65	80	90	120	120	142	203	248
Rated operational power	220-230V	kVA	15	20	25	30	34	45	45	54	77	95
dependent on inrush n	240V	kVA	15,5	20,5	27	33	37	50	50	59	80	100
	380-400V	kVA	26	34	45	55	60	80	80	95	140	170
For different inrush-factors x	415-440V	kVA	29	38	46	57	63	85	85	100	145	175
use the following formula:	500V	kVA	33	43	55	69	75	100	100	120	170	210
P _x =P _n *(n/x)	660-690V	kVA	45	60	56	69	100	135	135	160	200	250
Utilization category AC6b												
Switching of three-phase capacitors												
Maximum inrush current (peak value)												
as multiple k of the												
capacitor rated current		k	20	20	20	20	25	20	20	20	20	20
Rated operational current I _e	500V	A	87	100	120	155	195	225	225	255	300	370
Rated operational power	220-230V	kVA _r	33	38	45	60	75	90	90	100	115	145
(sin φ → 1)	240V	kVA _r	36	42	52	62	78	94	94	104	120	150
	380-400V	kVA _r	57	65	80	100	130	155	155	170	200	250
For different multiples x	415-440V	kVA _r	60	70	95	110	135	165	165	175	210	260
use the following formula:	500V	kVA _r	70	80	100	130	170	194	194	220	260	320
P _x =P _k *(k/x)	660-690V	kVA _r	70	80	100	130	170	194	194	220	260	320
Switching of reactive capacitor banks												
Rated operational current I _e	690V	A	115	144	115	140	200	225	225	250	330	420
Rated operational power	220-230V	kVA _r	45	55	43	53	76	85	85	95	125	160
	240V	kVA _r	45	55	45	55	80	90	90	100	130	170
	380-400V	kVA _r	80	100	75	90	130	145	145	160	210	270
	415-440V	kVA _r	100	120	80	100	140	160	160	170	230	290
	500V	kVA _r	105	125	95	120	170	190	190	210	280	350
	660-690V	kVA _r	120	148	125	150	200	230	230	260	350	450
	1000V	kVA _r	160	200	155	200	300	340	340	400	500	650
Utilization category DC1												
Switching of resistive load												
Time constant L/R ≤ 1ms												
Rated operational current I _e	1 pole 24V	A	160	200	-	-	-	-	-	-	-	-
	60V	A	160	200	-	-	-	-	-	-	-	-
	110V	A	20	25	-	-	-	-	-	-	-	-
	220V	A	2	2,5	-	-	-	-	-	-	-	-
	3 poles in series 24V	A	160	200	200	250	350	400	400	450	600	760
	60V	A	160	200	200	250	350	400	400	450	600	760
	110V	A	160	200	150	170	250	280	280	315	400	480
	220V	A	100	160	80	100	150	180	180	200	250	315
Utilization category DC3 and DC5												
Switching of shunt motors and series motors												
Time constant L/R ≤ 15ms												
Rated operational current I _e	1 pole 24V	A	160	200	-	-	-	-	-	-	-	-
	60V	A	85	110	-	-	-	-	-	-	-	-
	110V	A	2	2,5	-	-	-	-	-	-	-	-
	220V	A	0,5	0,5	-	-	-	-	-	-	-	-
	3 poles in series 24V	A	160	200	-	-	-	-	-	-	-	-
	60V	A	100	110	-	-	-	-	-	-	-	-
	110V	A	100	110	-	-	-	-	-	-	-	-
	220V	A	7	8	-	-	-	-	-	-	-	-

Power Contactors

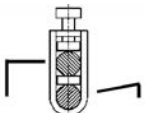




Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts			Type	K(G)3-10	K(G)3-14	K(G)3-18	K(G)3-22	K(G)3-24	K(G)3-32	K(G)3-40	K3-50	K3-62	K3-74	
Maximum ambient temperature														
Operation	open	°C	-40 to +60 (+90) ¹⁾											
	enclosed	°C	-40 to +40											
with thermal overload relay	open	°C	-25 to +60											
	enclosed	°C	-25 to +40											
Storage		°C	-50 to +90											
Short circuit protection														
for contactors without thermal overload relay														
Coordination-type "1" according to IEC 947-4-1														
Contact welding without hazard of persons														
max. fuse size	gL (gG)	A	63	63	63	63	100	100	100	160	160	160	160	
Coordination-type "2" according to IEC 947-4-1														
Light contact welding accepted														
max. fuse size	gL (gG)	A	25	35	35	35	50	50	50	100	125	125	125	
Contact welding not accepted														
max. fuse size	gL (gG)	A	16	16	16	16	25	35	35	50	63	63	63	
For contactors with thermal overload relay the device with the smaller admissible backup fuse (contactor or thermal overload relay) determines the fuse size.														
Cable cross-sections														
for contactors without thermal overload relay														
1 cable per clamp														
main connector														
	solid or stranded	mm ²	0,75 - 6				1,5 - 25				4 - 50			
	flexible	mm ²	1 - 4				2,5 - 16				10 - 35			
flexible with multicore cable end														
2 cables per clamp														
	solid or stranded	mm ²	6+(1-6) / 4+(0,75-4) 2.5+(0,75-2.5) / 1.5+(0,75-1.5)				16+(2,5-16) / 10+(4-16) 6+(4-16) / 4+(2.5-16)				50+4 / 35+6 / 25+(6-16) 16+(6-16) / 10+(6-16)			
	flexible	mm ²	6+(1.5-4) / 4+(1-4)				16+(2.5-6) / 10+(4-10)				50+(4-10) / 35+(4-16) 2.5+(0,75-2.5) / 1.5+(0,75-1.5)			
1 cable per clamp														
main connector														
	flexible	AWG	solid 18 - 10				AWG 14 - 4				18 - 10 10 - 0			
2 cables per clamp														
	solid	AWG	10+(16-10) / 12+(18-12) 14+(18-14) / 16+(18-16) flexible				10+(16-10) / 12+(18-12) 14+(18-14) / 16+(18-16) AWG				10+(12-10) / 12+12 10+(14-10) / 12+(18-12)			
Frequency of operations z														
Contactors without thermal overload relay														
without load	1/h	1000	7000				7000							
	0													
	AC3, I _e	1/h	600				600				400			
	AC4, I _e	1/h	120				120				120			
	DC3, I _e	1/h	600				600				400			
Mechanical life														
AC operated	S x 10 ⁶		10				10				10			
DC operated	S x 10 ⁶		10				10				10			
DC-solenoid operated (KG3)	S x 10 ⁶		50	50	-									
Short time current														
10s-current	A		96	120	144	176	184	240	296	450	504	592	592	
120s-current	A		42	52	58	66	80	97	110	195	203	222	222	
Power loss per pole														
at I _e /AC3 400V	W		0,21	0,35	0,5	0,75	0,7	1,3	2	2,2	3,9	5,5	5,5	
contact resistance	mOhm		2,1	1,8	1,5	1,5	1,2	1,2	1,2	1,2	1	1	1	
Resistance to shock acc. to IEC 68-2-27														
Shock time 20ms sine-wave	NO	g	10	10	10	10	8	8	8	8	8	8	8	

Technical Specification - Electromechanical Contactors Series LA

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts			Type	K3-90	K3-115	K3-116	K3-151	K3-176	K3-210	K3-260	K3-316	K3-450	K3-550	
Maximum ambient temperature														
Operation	open	°C	-40 to +60 (+90) ²⁾					-25 to +55 (+70) ²⁾						
	enclosed	°C	-40 to +40					-25 to +40						
with thermal overload relay	open	°C	-25 to +60					-25 to +55						
	enclosed	°C	-25 to +40					-25 to +40						
Storage		°C	-50 to +90					-55 to +80						
Short circuit protection														
for contactors without thermal overload relay				-	-	-	-	-	-	-	-	-	-	
Coordination-type "1" according to IEC 947-4-1				-	-	-	-	-	-	-	-	-	-	
Contact welding without hazard of persons				-	-	-	-	-	-	-	-	-	-	
max. fuse size	gL (gG)	A	250	250	200	250	315	400	450	500	630	630		
Coordination-type "2" according to IEC 947-4-1				-	-	-	-	-	-	-	-	-	-	
Light contact welding accepted				-	-	-	-	-	-	-	-	-	-	
max. fuse size	gL (gG)	A	160	200	160	200	250	315	400	400	500	560		
Contact welding not accepted				-	-	-	-	-	-	-	-	-	-	
max. fuse size	gL (gG)	A	100	125	125	160	200	250	315	-	-	-		
For contactors with thermal overload relay the device with the smaller admissible backup fuse (contactor or thermal overload relay) determines the fuse size.														
Cable cross-sections														
for contactors without thermal overload relay														
1 cable per clamp														
main connector	solid or stranded	mm ²	0.5 - 95	10 - 120										
		flexible	mm ²	0.5 - 70	25 - 95	busbar			busbar		busbar			
		flexible with multicore cable end	mm ²	0.5 - 70	10 - 95			18 x 4		25 x 6		30 x 5		
2 cables per clamp	solid or stranded	mm ²	0.5 - 70 + 25 - 95		screw			screw		screw		screw		
		flexible	mm ²	0.5 - 70 + 25 - 95		0.5 - 95 + 10 - 120			M8		M10		M12	
1 cable per clamp														
main connector	solid	AWG	18 - 10	-										
	flexible	AWG	18 - 3/0	8 - 4/0										
2 cables per clamp	solid	AWG	-	-										
	flexible	AWG	18 - 3/0 + 8 - 4/0	-										
Frequency of operations z														
Contactors without thermal overload relay														
	without load		1/h		3000									
	AC3, I _e	1/h	300							50				
	AC4, I _e	1/h	120							-				
	DC3, I _e	1/h	300							-				
Mechanical life														
AC operated	S x 10 ⁶	S x 10 ⁶	5		10			5		5				
DC operated	S x 10 ⁶	S x 10 ⁶	5		10			5		5				
DC-solenoid operated (KG3)	S x 10 ⁶	S x 10 ⁶	-		-			-		-				
Short time current														
	10s-current	A	680	880	920	1200	1400	1800	2200	2600	3600	4400		
	120s-current	A	275	330	410	500	575	800	900	1000	1400	1750		
Power loss per pole														
	at I _e /AC3	W	4,8	7,9	7,9	9	11	8	11	14,9	26,3	33,3		
	400V													
contact resistance		mOhm	0,6	0,5	0,5	0,4	0,35	0,18	0,16	0,15				
Resistance to shock acc. to IEC 68-2-27														
Shock time 20ms sine-wave	NO	g	7	7	-	-	-	-	-	-	-	-		
	NO	g	5	5	-	-	-	-	-	-	-	-		

1) 90° reduces the control voltage range to 0.9 up to 1.0xU_s and reduces the rated current I_e/AC1 to the value of I_e/AC3

2) 70° reduces the control voltage range to 1.0xU_s and reduces the rated current I_e/AC1 to the value of I_e/AC3

3) After each 1x10⁶ operations magnetic core and built-in auxiliary contact block must be changed

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Auxiliary Contacts			Type	K(G)3-10	K(G)3-14	K(G)3-18	K(G)3-22	K(G)3-24	K(G)3-32	K(G)3-40	K3-50	K3-62	K3-74
Rated insulation voltage U_i 1)				V~				690					
Thermal rated current I_{th} to 690V													
Ambient temperature	40°C	A		10		(16) ⁵⁾			-			-	
	60°C	A		6		(12) ⁵⁾			-			-	
Utilization category AC15													
Rated operational current I_e	220-240V	A		3		(12) ⁵⁾			-			-	
	380-415V	A		2		(4) ⁵⁾			-			-	
	440V	A		1,6		(4) ⁵⁾			-			-	
	500V	A		1,2		(3) ⁵⁾			-			-	
	660-690V	A		0,6		(1) ⁵⁾			-			-	
Utilization category DC13													
Rated operational current I_e	60V	A		3,5		(8) ⁵⁾			-			-	
	110V	A		0,5		(1) ⁵⁾			-			-	
	220V	A			0,1				-			-	
Short circuit protection			For contactors with thermal overload relay the device with the smaller admissible control fuse (contactor or thermal overload relay) determines the fuse.										
short-circuit current 1kA, contact welding not accepted													
max. fuse size	gL (gG)	A		20		(25) ⁵⁾			-			-	
Control Circuit													
Power consumption of coils													
AC operated	inrush	VA		33-45				90-115			140-165		
	sealed	VA		7-10				9-13			13-18		
		W		2.6-3				2.7-4			5.4-7		
DC operated	inrush	W		75				140			200		
	double winding coil	sealed	W	2				2			6		
	DC solenoid operated	inrush	W	3				4			-		
	sealed	W		3				4			-		
Operation range of coils													
in multiples of control voltage U_s													
	AC operated							0.85-1.1		0.85-1.1			
	DC operated							0.8-1.1		0.8-1.1			
Switching time at control voltage U_s, ±10% 2)													
3)													
AC operated	make time	ms		8-16				10-25			12-28		
	release time	ms		5-13				8-15			8-15		
	arc duration	ms		10-15				10-15			10-15		
DC operated	make time	ms		8-12				10-20			12-23		
	release time	ms		8-13				10-15			10-18		
	arc duration	ms		10-15				10-15			10-15		
DC solenoid operated (KG3)	make time	ms		65 - 85				65 - 85			-		
	release time	ms		20 - 30 4)				20 - 30 4)			-		
	arc duration	ms		10-15				10-15			-		
Cable cross-section													
Auxiliary connector	solid	mm ²		0.75-6				-			-		
	flexible	mm ²		1-4				-			-		
	flexible with multicore cable end	mm ²		0.75-4				-			-		
Magnet coil	solid	mm ²		0.75-2.5				0.75-2.5			0.75-2.5		
	flexible	mm ²		0.5-2.5				0.5-2.5			0.5-2.5		
	flexible with multicore cable end	mm ²		0.5-1.5				0.5-1.5			0.5-1.5		
Clamps per pole													
Auxiliary connector	solid	AWG		18 - 10				-			-		
	flexible	AWG		18 - 10				-			-		
Magnet coil	solid	AWG		14 - 12				14 - 12			14 - 12		
	flexible	AWG		18 - 12				18 - 12			18 - 12		
Clamps per pole													
								2			2		

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request

2) Total breaking time = release time + arc duration

3) Values for delay of the release time of the make contact and the make time of the break contact will be increased, if magnet coils are protected against voltage peaks (varistor, RC-unit, diode-unit)

4) with built-in coil suppressor

5) for contactors KG3-A.. only.

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Auxiliary Contacts			Type	K3-90	K3-115	K3-116	K3-151	K3-176	K3-210	K3-260	K3-316	K3-450	K3-550
Rated insulation voltage $U_i^{1)}$													
Thermal rated current I_{th} up to 690V			V~	-			-			-		690	
Ambient temperature			40°C	A	-		-			-		10	
			60°C	A	-		-			-		-	
Utilization category AC15			-	-		-			-			-	
Rated operational current I_e			220-240V	A	-		-		-			3	
			380-415V	A	-		-		-			2	
			440V	A	-		-		-			1.5	
			500V	A	-		-		-			1.5	
			660-690V	A	-		-		-			1	
Utilization category DC13													
Rated operational current I_e			60V	A	-		-		-			-	
			110V	A	-		-		-			1	
			220V	A	-		-		-			0.5	
Short-circuit protection													
short-circuit current 1kA													
contact welding not accepted													
max. fuse size			gL (gG)	A	-		-		-			10	
Control circuit													
Power consumption of coils													
AC operated			inrush	VA	165-220		350		360			800-950	
			sealed	VA	2.5-5		5		5			9-11	
				W	2.5-5		5		5			9-11	
DC operated			inrush	W	250		350		360			700-850	
			sealed	W	5		5		5			8-10	
DC solenoid operated (KG3)			inrush	W	-		-		-			-	
			sealed	W	-		-		-			-	
Operation range of coils													
in multiples of control voltage U_s													
			AC operated		0.85-1.1		0.85-1.1		0.85-1.1			0.85-1.1	
			DC operated		0.8-1.1		0.85-1.1		0.85-1.1			0.85-1.1	
Switching time at control voltage $U_s \pm 10\%^{2)3)}$													
AC operated			make time	ms	20-35		30-60		40-60			50-100	
			release time	ms	35-50		30-80		15-45			150-200 / 500-1000 ¹⁾	
			arc duration	ms	10-15		-		-			-	
DC operated			make time	ms	20-35		30-60		40-60			-	
double winding coil			release time	ms	35-50		30-80		15-45			-	
			arc duration	ms	10-15		-		-			-	
DC solenoid operated (KG3)			make time	ms	-		-		-			-	
			release time	ms	-		-		-			-	
			arc duration	ms	-		-		-			-	
Cable cross-sections													
Auxiliary connector			solid	mm ²	-		-		-			0.75-2,5	
			flexible	mm ²	-		-		-			0.75-2,5	
			flexible with multicore cable end	mm ²	-		-		-			-	
Magnet coil			solid	mm ²	0.75-2.5		1-2.5		1-2.5			1-2.5	
			flexible	mm ²	0.5-2.5		1-2.5		1-2.5			1-2.5	
			flexible with multicore cable end	mm ²	0.5-1.5		-		-			-	
Clamps per pole					2		2		2			2	
Auxiliary connector			solid	AWG	-		-		-			16 - 12	
			solid	AWG	-		-		-			16 - 12	
Magnet coil			solid	AWG	14 - 12		16 - 12		16 - 12			16 - 12	
			solid	AWG	18 - 12		16 - 12		16 - 12			16 - 12	
Clamps per pole					2		2		2			2	

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request

2) Total breaking time = release time + arc duration

3) Values for delay of the release time of the make contact and the make time of the break contact will be increased, if magnet coils are protected against voltage peaks (varistor, RC-unit, diode-unit)

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts		Type	K2-23	K2-30	K2-37	K2-45	K2-60
Rated insulation voltage U_i ¹⁾		V~	690	690	690	690	690
Making capacity I_{eff}	at $U_e = 690VAC$	A	400	500	500	700	900
Breaking capacity I_{eff}	400V~	A	380	400	400	600	800
K2-09 to K2-16	$\cos \varphi = 0,65$ 500VAC	A	300	370	370	500	700
K2-23 to K3-1200	$\cos \varphi = 0,35$ 690VAC	A	260	340	340	400	500
	1000V~	A	-	-	-	-	-
Utilization category AC1							
Switching of resistive load							
Rated operational current $I_e (=I_{th})$							
at 40°C, open							
		A	45	50	50	80	100
Rated operational power							
	220V	kW	17	19	19	30	38
of three-phase resistive loads							
	230V	kW	18	20	20	31,5	40
50-60Hz, $\cos \varphi = 1$							
	240V	kW	18,5	20,5	20,5	33	41
	380V	kW	29,5	33	33	52	65
	400V	kW	31	34,5	34,5	55	69
	415V	kW	32	36	36	57	71
	440V	kW	34	38	38	61	76
	500V	kW	39	43	43	69	86
	660V	kW	51	57	57	91	114
	690V	kW	53,5	60	60	95	119
Rated operational current $I_e (=I_{th})$							
at 60°C, enclosed							
	220V	kW	13	15	15	24	30
Rated operational power							
	230V	kW	13,5	16	16	25	31,5
of three-phase resistive loads							
	240V	kW	14,5	16,5	16,5	26	33
50-60Hz, $\cos \varphi = 1$							
	380V	kW	23	26	26	41	52
	400V	kW	24	27,5	27,5	43	55
	415V	kW	25	28,5	28,5	45	57
	440V	kW	26,5	30	30	48	61
	500V	kW	30	34	34	54	69
	660V	kW	40	45	45	72	91
	690V	kW	42	48	48	75	95
Minimum cross-section of conductor							
at load with $I_e (=I_{th})$							
		mm ²	10	10	10	25	35
Utilization category AC2 and AC3							
Switching of three-phase motors							
Rated operational current I_e							
open and enclosed							
	220V	A	23	30	37	45	63
	230V	A	23	30	37	45	61
	240V	A	23	30	37	45	60
	380-400V	A	23	30	37	45	60
	415-440V	A	23	30	37	45	60
	500V	A	23	30	30	45	55
	660V	A	17,5	21	21	33	42
	690V	A	17	20	20	31	40
Rated operational power							
of three-phase motors							
	220-230V	kW	6	8,5	11	12,5	18,5
50-60Hz							
	240V	kW	7	9	11,5	13,5	19
	380-400V	kW	11	15	18,5	22	30
	415V	kW	12	16	20	24	33
	440V	kW	12	16	20	24	33
	500V	kW	15	18,5	18,5	30	37
	660-690V	kW	15	18,5	18,5	30	37

1) Suitable at 690V for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$.

Data for other conditions on request.

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts		Type	K2-23	K2-30	K2-37	K2-45	K2-60	
Utilization category AC4								
Switching of squirrel cage motors, inching								
Rated operational current I_e open and enclosed	220V	A	23	30	37	45	63	
	230V	A	23	30	37	45	61	
	240V	A	23	30	37	45	60	
	380-400V	A	23	30	37	45	60	
	415V	A	21	28	37	45	60	
	440V	A	21	28	37	45	60	
	500V	A	17	23	23	45	55	
	660V	A	13	17	17	33	42	
	690V	A	12,5	16,5	16,5	31	40	
Rated operational power of three-phase motors 50-60Hz	220-230V	kW	6	8,5	11	12,5	18,5	
	240V	kW	7	9	11,5	13,5	19	
	380-400V	kW	11	15	18,5	22	30	
	415-440V	kW	11	15	20	24	33	
	500V	kW	11	15	15	30	37	
	660-690V	kW	11	15	15	30	37	
Utilization category AC5a								
Switching of gas discharge lamps								
Rated operational current I_e per pole at 220/230V								
Fluorescent lamps, uncompensated		A	35	40	40	65	85	
Fluorescent lamps, compensated		A	18	22	22	30	40	
Fluorescent lamps, dual-connection		A	41	45	45	72	90	
Metal-halide lamps ¹⁾ , uncompensated		A	28	30	30	50	62	
Metal-halide lamps ¹⁾ , compensated		A	18	22	22	30	40	
Mercury-vapour lamps ²⁾ , uncompensated		A	41	45	45	72	90	
Mercury-vapour lamps ²⁾ , compensated		A	18	22	22	30	40	
Mixed light lamps ³⁾		A	35	40	40	65	85	
Utilization category AC5b								
Switching of incandescent lamps ⁴⁾								
Rated operational current I_e per pole at 220/230V								
		A	25	31	31	43	56	
Utilization category AC6A								
Transformer primary switching at inrush								
		n	30	30	30	30	30	
Rated operational current I_e	400V	A	10,5	13,5	13,5	20	27	
	Rated operational power							
	220-230V	kVA	4,2	5,4	5,4	8	10,7	
	240V	kVA	4,3	5,6	5,6	8,3	11,2	
	380-400V	kVA	7,3	9,3	9,3	13,5	18,5	
dependent on inrush n	415-440V	kVA	8	10,2	10,2	15	20,5	
For different inrush-factors x	500V	kVA	9	11,5	11,5	17	23	
use the following formula: $P_x = P_n \cdot (n/x)$	660-690V	kVA	12,5	16	16	24	32	
Utilization category DC1								
Switching of resistive load								
Time constant $L/R \leq 1$ ms								
Rated operational current I_e	1 pole 24V		A	45	50	50	80	100
	60V		A	45	50	50	80	100
	110V		A	10	10	10	12	12
	220V		A	1,4	1,4	1,4	1,4	1,4
	2 poles in series 24V		A	45	50	50		
	60V		A	45	50	50		
	110V		A	45	50	50		
	220V		A	10	10	10		
	3 poles in series 24V		A	45	50	50	80	100
	60V		A	45	50	50	80	100
	110V		A	45	50	50	80	100
	220V		A	30	35	35	63	80

1) Metal halide lamps and sodium-vapour lamps (high- and low-pressure lamps)

2) High-pressure lamps

3) Blended lamps, containing a mercury high-pressure unit and a tungsten helix in a fluorescent glass bulb (daylight lamps)

4) Current inrush approx. $16 \times I_e$

5) With central compensation pay attention to the current inrush (capacitor switching contactors)

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Main contacts			Type	K2-23	K2-30	K2-37	K2-45	K2-60
Utilization category DC3 and DC5								
Switching of shunt motors and series motors								
Time constant L/R ≤15ms	1 pole 24V	A	45	50	50	80	100	
Rated operational current I _e	60V	A	30	30	30	60	60	
	110V	A	1,8	1,8	1,8	1,8	1,8	
	220V	A	0,2	0,2	0,2	0,25	0,25	
	2 poles in series 24V	A	45	50	50			
	60V	A	45	50	50			
	110V	A	30	30	30			
	220V	A	1,8	1,8	1,8			
	3 poles in series 24V	A	45	50	50	80	100	
	60V	A	40	40	40	80	80	
	110V	A	40	40	40	80	80	
	220V	A	4	4	4	5	5	
Maximum ambient temperature								
Operation	open	°C	-40 to +60 (+90) ¹⁾					
	enclosed	°C	-40 to +40					
with thermal overload relay	open	°C	-25 to +60					
	enclosed	°C	-25 to +40					
Storage		°C	-50 to +90					
Short circuit protection								
for contactors without thermal overload relay, Coordination-type "1" according to IEC 947-4-1, Contact welding without hazard of persons								
max. fuse size	gL (gG)	A	80	80	80	160	160	
Coordination-type "2" according to IEC 947-4-1, Light contact welding accepted								
max. fuse size	gL (gG)	A	50	50	50	100	125	
Contact welding not accepted								
max. fuse size	gL (gG)	A	25	35	35	50	63	
For contactors with thermal overload relay the device with the smaller admissible backup fuse (contactor or thermal overload relay) determines the fuse size.								
Cable cross-sections								
for contactors without thermal overload relay								
main connector	solid or stranded	mm ²	1,5-10 + 1,5-6				4 - 35 ²⁾	
	flexible	mm ²	1,5-6 + 1,5-4				6 - 25 ²⁾	
	flexible with multicore cable end	mm ²	1,5-6 + 1,5-4				4 - 25	
Cables per clamp			1+1				1	
	main connector		14 - 10 + 14 - 10				10	
Cables per clamp	solid	AWG	14 - 8 + 14 - 10				10 - 2	
	flexible	AWG	1+1				1	
Frequency of operations z								
Contactors without thermal overload relay								
	without load	1/h	7000				7000	
	AC3, I _e	1/h	600				400	
	AC4, I _e	1/h	120				120	
	DC3, I _e	1/h	600				400	
Mechanical life								
AC operated		S x 10 ⁶	10				10	
DC operated with economy resistor		S x 10 ⁶	10				10	
Short time current	10s-current	A	184	240	296	360	504	
Power loss per pole	at I _e /AC3 400V	W	0.63	1.1	1.7	1.8	3.6	
Resistance to shock acc. to IEC 68-2-27								
Shock time 20ms sine-wave	NO	g	8	8	8	8	8	
	NO	g	5	5	5	-	-	

1) 90° reduces the control voltage range to 0.9 up to 1.0xU_s and reduces the rated current I_e/AC1 to the value of I_e/AC3

2) Maximum cable cross-section with prepared conductor

Power Contactors

Technical Specifications According to IEC 947-4-1, EN 60947-4-1, VDE 0660

Auxiliary contacts			Type	K2-23	K2-30	K2-37	K2-45	K2-60
Rated insulation voltage U_i 1)			VAC		690			
Thermal rated current I_{th} to 690V								
Ambient temperature			40 °C	A	16		-	
			60 °C	A	12		-	
Utilization category AC15								
Rated operational current I_e			220-240V	A	12		-	
			380-415V	A	4		-	
			440V	A	4		-	
			500V	A	3		-	
			660-690V	A	1		-	
Utilization category DC13								
Rated operational current I_e			60V	A	8		-	
			110V	A	1		-	
			220V	A	0,1		-	
Short circuit protection								
short-circuit current 1kA, contact welding not accepted max. fuse size			gL (gG)	A	-		-	
For contactors with thermal overload relay the device with the smaller admissible control fuse (contactor or thermal overload relay) determines the fuse.								
Control Circuit								
Power consumption of coils								
AC operated			inrush	VA	90-115		140-165	
			sealed	VA	9 - 13		13-18	
				W	2.7-4		5.4-7	
DC operated			inrush	W	140		200	
with economic circuit			sealed	W	2		6	
Operation range of coils								
in multiples of control voltage U_s			AC operated		0.85-1.1		0.85-1.1	
			DC operated		0.8-1.1		0.8-1.1	
Switching time at control voltage $U_s \pm 10\%$ 2) 3)								
AC operated			make time	ms	10-25		12-28	
			release time	ms	8-15		8-15	
			arc duration	ms	10-15		10-15	
DC operated			make time	ms	10-20		12-23	
with AC magnet system			release time	ms	10-15		10-18	
			arc duration	ms	10-15		10-15	
Cable cross-section								
Auxiliary connector			solid	mm ²	-		-	
			flexible	mm ²	-		-	
			flexible with multicore cable end	mm ²	-		-	
Magnet coil			solid	mm ²	0.75-2.5		0.75-2.5	
			flexible	mm ²	0.5-2.5		0.5-2.5	
			flexible with multicore cable end	mm ²	0.5-1.5		0.5-1.5	
Clamps per pole								

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request

2) Total breaking time = release time + arc duration

3) Values for delay of the release time of the make contact and the make time of the break contact will be increased, if magnet coils are protected against voltage peaks (varistor, RC-unit, diode-unit)

■ Contact Life

For selection of the suitable contactor-type according to supply voltage, power rating and application (utilization category AC1, AC3 or AC4) use contact life characteristic diagram.

For the most common supply voltages four scales of power ratings P_n are provided for each utilization category.

Select contactor-type according to utilization category AC3 (breaking current $I_a = I_e$) using the motor rating scales to the right, according to

utilization category AC4 (breaking current $I_a = 6 \times I_e$) using the motor rating

scales to the left. ¹⁾

Select contactor-type according to utilization category AC1 (breaking current $I_a = I_e/AC1$) using the breaking current scale. ¹⁾

For contactors frequently used under AC3/AC4-mixed service conditions calculate contact life with the formula:

$$M = \frac{AC3}{1 + \frac{\%AC4}{100} \times \left(\frac{AC3}{AC4} - 1 \right)}$$

M = Contact life (switching cycles) for AC3/AC4-mixed operations

AC3 = Contact life (switching cycles) for AC3 operations (normal switching conditions).

Breaking current I_a = rated motor current I_n .

AC4 = Contact life (switching cycles) for AC4 operations (inching).

Breaking current I_a = multiples of rated motor current I_n .

%AC4 = Percents of AC4-operations related to the total cycles.

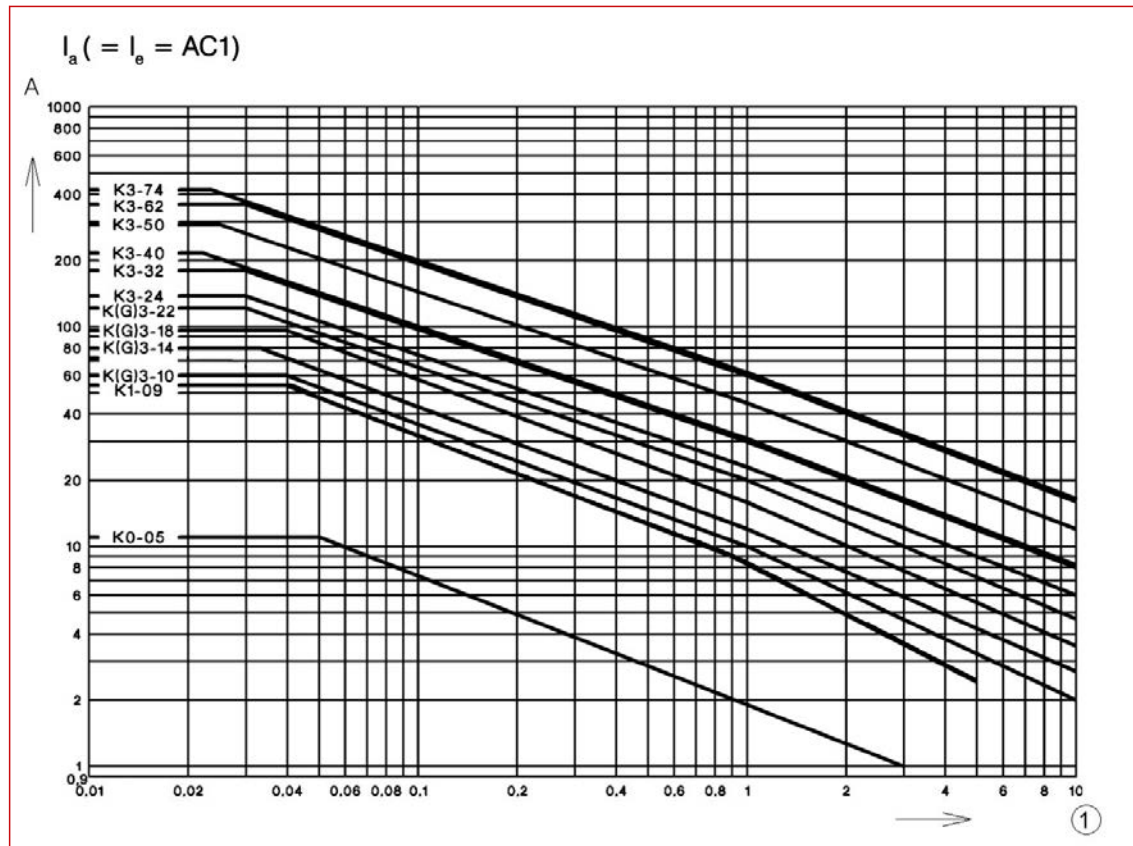
1) Pay attention to the approved rated values of the selected contactor according to the national approvals

Power Contactors - Contact Life

Motor Rating (K1-09 up to K3-74)

$P_n = AC4$				$P_n = AC3$			
660/ 690V	500V	380/ 400V	220/ 230V	660/ 690V	500V	380/ 400V	220/ 230V
kW	kW	kW	kW	kW	kW	kW	kW
110	75	55	30	800	400	315	200
90	55	45	22	500	315	250	160
75	45	37	18,5	400	250	200	132
55	37	30	15	315	200	160	110
45	30	22	11	250	160	132	90
37	22	15	7,5	200	132	110	75
30	18,5	11	5,5	160	110	90	55
22	15	7,5	4	132	90	75	45
18,5	11	5,5	3	110	75	55	37
15	7,5	4	2,2	90	55	45	30
11	5,5	3	1,5	75	45	37	22
7,5	4	2,2	1,1	55	37	30	18,5
5,5	3	1,5	0,75	45	30	22	15
4	2,2	1,1	0,55	37	22	18,5	11
3	1,5	0,75	0,37	30	18,5	15	7,5
2,2	1,1	0,55	0,25	22	15	11	5,5
1,5	0,75	0,37		18,5	11	7,5	4
1,1	0,55	0,25		15	7,5	5,5	3
0,75	0,37	0,25		11	5,5	4	2,2
0,55	0,25			7,5	4	3	1,5
0,37				5,5	3	2,2	1,1
0,25				4	2,2	1,5	0,75
				3	1,5	1,1	0,55
				2,2	1,1	0,75	0,37
				1,5	0,75	0,55	0,25
				1,1	0,55	0,37	
				0,75	0,37	0,25	
				0,55	0,25		
				0,37			
				0,25			

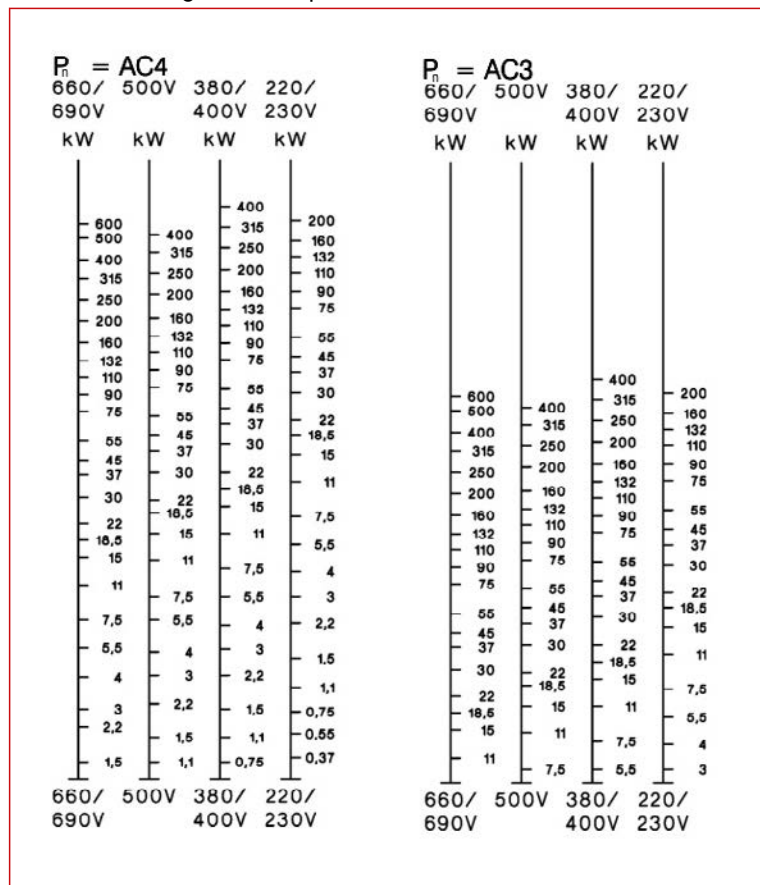
Breaking Current (K1-09 up to K3-74)



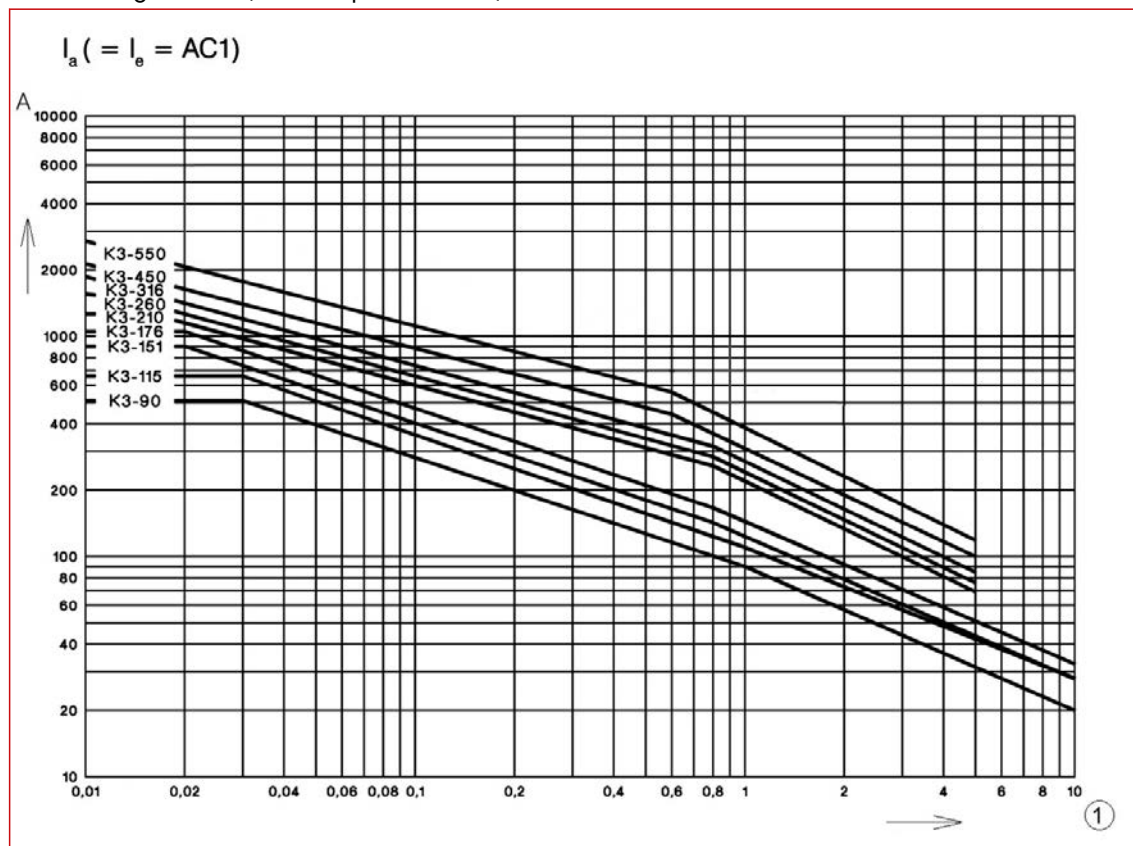
1) Millions of Operations

Power Contactors - Contact Life

Motor Rating (K3-90 up to K3-550)



Breaking Current (K3-90 up to K3-550)



1) Millions of Operations

Accessories - Auxiliary Contacts and Latch

Technical Specifications According to IEC 947-5-1, EN 60947-5-1, VDE 0660

Type			HN	HTN	HA	HB	HKT/HKA	HKF	K2-L 2)
Rated insulation voltage U_i 1)		VAC	690	690	690	690	690	690	690
Thermal rated current I_{th}	to 690V								
Ambient temperature	max. 40°C	A	10	10	25	10	10	16	10
	max. 60°C	A	6	6	20	6	-	-	6
Frequency of operations z		1/h	3000	-	3000	3000	-	-	3000
Mechanical life		$S \times 10^6$	10	10	10	10	-	-	10
Power loss per pole at I_e/AC1		W	0.5	0.5	1.5	0.4	-	-	-
Utilization category AC15									
Rated operational current I_e	220-240V	A	3	3	6	3	3	3	3
	380-400V	A	2	2	3	2	2	2	2
	440V	A	1,6	1,6	2	1,6	1,5	1,5	1,6
	500V	A	1,2	1,2	2	1,2	1,5	1,5	1
	660-690V	A	0,6	0,6	1	0,6	1	1	0,5
Utilization category DC13									
Rated operational current I_e	60V	A	2	2	8	2	-	-	2
	110V	A	0.4	0.4	1	0.4	0.5	0.5	0.4
	220V	A	0.1	0.1	0.1	0.1	0.5	0.2	0.1
Short circuit protection									
short-circuit current 1kA, contact welding not accepted									
max. fuse size	gL (gG)	A	20	20	25	20	10	10	10
For contactors with thermal overload relay or auxiliary contacts the device with the smaller admissible control fuse (contactor or thermal overload relay) determines the fuse size.									
Cable cross-sections									
	solid or stranded	mm ²					0.75-2.5		
	flexible	mm ²					0.75-2.5		
	flexible with multicore cable end	mm ²					0.5-1.5		
	solid	AWG					14 - 12		
	flexible	AWG					18 - 12		
Cables per clamp							2		

1) Suitable for: earthed-neutral systems, overvoltage category I to IV, pollution degree 3 (standard-industry): $U_{imp} = 8kV$. Data for other conditions on request.

2) Command duration min. 30ms, 10% duty cycle, max. 30 eec.

Direct on Line Starters D.O.L. with Selector Switch

D.O.L. Starters with Selector Switch

4	K3-10ND10	2	U12/16 K3	IP65	Ø 20.5mm	P1W10 . . .	1	0,6
7.5	K3-18ND10	2	U12/16 K3	IP65	Ø 20.5mm	P1W18 . . .	1	0,6
11	K3-22ND10	2	U12/16 K3	IP65	Ø 20.5mm	P1W22 . . .	1	0,6

Enclosures for Contactors

Suitable for contactor	Protection Degree	Conduit Entries		Type	Pack pcs.	Weight kg/pc.
		Top	Bottom			
K3-07.. to K3-22.. K3-24.. ¹⁾ to K3-40.. ¹⁾	IP65	2 x Ø 20.5mm	2 x Ø 20.5mm	P1	1	0,35

Enclosures for D.O.L. Starters with reset button

Suitable for contactor	Protection Degree	Conduit Entries		Type	Pack pcs.	Weight kg/pc.
		Top	Bottom			
K3-10.. to K3-22.. +U12/16.. K3	IP65	2 x Ø 20.5mm	2 x Ø 20.5mm	P1R	1	0,35

■ Contactors for Photovoltaic plants, 1000VDC

Rated Operational Current

DC1			Additional	Type		Coil voltage ¹⁾	Pack	Weight
600V	1000V	1200V	Aux. Contacts				pcs.	kg/pc
30A	30A	-	2 HKA11	K3PV-30	230	220-230V 50Hz, 240V 60Hz	1	0.9

Contactors for DC-Switching for PV-installations, as remote controlled fire protection defeat device


In most Photovoltaic-installations, the switch disconnectors according to IEC 60364-7-712 are integrated in the DC/AC-inverter. So the wires between solar-panels and inverter are continuously under voltage.

According to ÖVE-R11-1: 2013, Photovoltaic installations must have a fire protection defeat device.

For this purpose, contactors for DC switching, used as a fire protection defeat device, can switch off the Photovoltaic-installation with a remote controlled fire brigade Emergency-Stop button.

1) Other coil voltages from 24 to 600VAC, on request

■ Technical Specifications

Type					K3PV-30
Rated insulation voltage	VDC				1000
U_{imp}	kV				8
Pole in series					6
DC1	600VDC	I _e	A		30
DC1	1000VDC	I _e	A		30
DC1	1200VDC	I _e	A		-
DC3/5	310VDC	I _e	A		15
DC3/5	460VDC	I _e	A		15
DC3/5	600VDC	I _e	A		-
Main pole resistance	mOhm				1.8
Poles in series resistance	mOhm				10.8
Mechanical life	10 ⁶				10
Protection degree					IP20
Main poles					
Cable cross sections	mm ²				2 x 1.5 - 10
Tightening torque	Nm				2.3 - 2.7
Mounting					DIN-rail or screws
Operating range of coils	U _c				0.85 - 1.1
Power consumption of coils					
AC	inrush	VA			180
	sealed	VA/W			18 / 6
DC	inrush	W			230
	sealed	W			5
Suppressor Unit					
Coil	AC				-
x ... integrated	DC				-
Switching time					
AC	make time	ms			10 - 25
	release time	ms			6 - 18
DC	make time	ms			15 - 25
	release time	ms			40 - 70
Maximum ambient temperature					
Operation °C					-40 to +40 (+70) ²⁾
Storage °C					-40 to +70
Short circuit protection for contactors					
Coordination-type „1“					
max. fuse size gPV	600 VDC	A			-
	1000 VDC	A			63
Coordination-type „2“					
max. fuse size gPV	600 VDC	A			-
	1000 VDC	A			50
Short-circuit current	kA				3

2) > 40° ... 1% / °C de-rating (e.g.. at 60°C 20% de-rating)

LTD Contactors for Switching Motors, 3-pole, Size 0



LTD00710

Schrack-Info

- Contactors from 3kW up to 7.5kW, 3-pole with integrated auxiliary contact NC or NO
- Contactors LTD0 can be provided with an 2- or 4-pole auxiliary contact
- Mirror-contact included
- Contacts according to EN 50012
- Contactors with DC-coil with integrated surge suppressor
- Fitting surge suppressors LTZO
- Contactors LTD0 are suitable for use of Thermal overload relays type LTT0
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

	LTD007 AC-coil	LTD009 AC-coil	LTD012 AC-coil	LTD015 AC-coil	LTD007 DC-coil	LTD009 DC-coil	LTD012 DC-coil	LTD015 DC-coil
Rated operational power AC-3	3kW	4kW	5.5kW	7.5kW	3kW	4kW	5.5kW	7.5kW
Rated current	7A	9A	12A	15A	7A	9A	12A	15A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508							
Lifespan, mechanical AC operated	10000000 Operations				-			
Lifespan, mechanical DC operated	-				10000000 Operations			
Operating frequency, mechanical AC operated	9000 Operations/h				-			
Operating frequency, mechanical DC operated	-				9000 Operations/h			
Climatic proofing	Damp heat constant according IEC60068-2-78, Damp heat cycle according IEC60068-2-30							
Ambient temperature Open	-25 / +60°C				-25 / +60°C			
Rated impulse withstand voltage (U _{imp})	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V
Oversvoltage category	III	III	III	III	III	III	III	III
Rated insulation voltage (U _i)	690V	690V	690V	690V	690V	690V	690V	690V
Rated operational voltage	690V	690V	690V	690V	690V	690V	690V	690V
Safe isolation to EN61140								
Between coil and contacts	400V	400V	400V	400V	400V	400V	400V	400V
Between the contacts	400V	400V	400V	400V	400V	400V	400V	400V
Making capacity p.f. to IEC/EN60947 up to 690V	112A	112A	144A	155A	112A	126A	168A	155A
AC-1								
AC-1 Rated operational current								
Conventional free air therm. current 3pole 50-60Hz								
Open at 40°C (I _{th} =I _e)	22A	22A	22A	22A	22A	22A	22A	22A
Convent. free air thermal cur. 1 pole Open (I _{th})	50A	50A	50A	50A	50A	50A	50A	50A
AC-3								
AC-3 Rated operational current								
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	7A	9A	12A	15.5A	7A	9A	12A	15.5A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	7A	9A	12A	15.5A	7A	9A	12A	15.5A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	4A	5A	7A	9A	4A	5A	7A	9A
AC-3 Motor rating								
AC-3 220V 230V (P)	2.2kW	2.5kW	3.5kW	4kW	2.2kW	2.5kW	3.5kW	4kW
AC-3 380V 400V (P)	3kW	4kW	5.5kW	7.5kW	3kW	4kW	5.5kW	7.5kW
AC-3 660V 690V (P)	3.5kW	4.5kW	6.5kW	7kW	3.5kW	4.5kW	6.5kW	7kW
AC-4								
AC-4 Rated operational current								
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	5A	6A	7A	7A	5A	6A	7A	7A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	5A	6A	7A	7A	5A	6A	7A	7A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	4A	4.5A	5A	5A	4A	4.5A	5A	5A
AC-4 Motor rating								
AC-4 220V 230V (P)	1kW	1.5kW	2kW	2kW	1kW	1.5kW	2kW	2kW
AC-4 380V 400V (P)	2.2kW	2.5kW	3kW	3kW	2.2kW	2.5kW	3kW	3kW
AC-4 660V 690V (P)	2.9kW	3.6kW	4.4kW	4.4kW	2.9kW	3.6kW	4.4kW	4.4kW
DC-1								
DC-1 Rated operational current								
DC-1 Open								
60V (I _e)	20A	20A	20A	20A	20A	20A	20A	20A
220V (I _e)	15A	15A	15A	15A	15A	15A	15A	15A

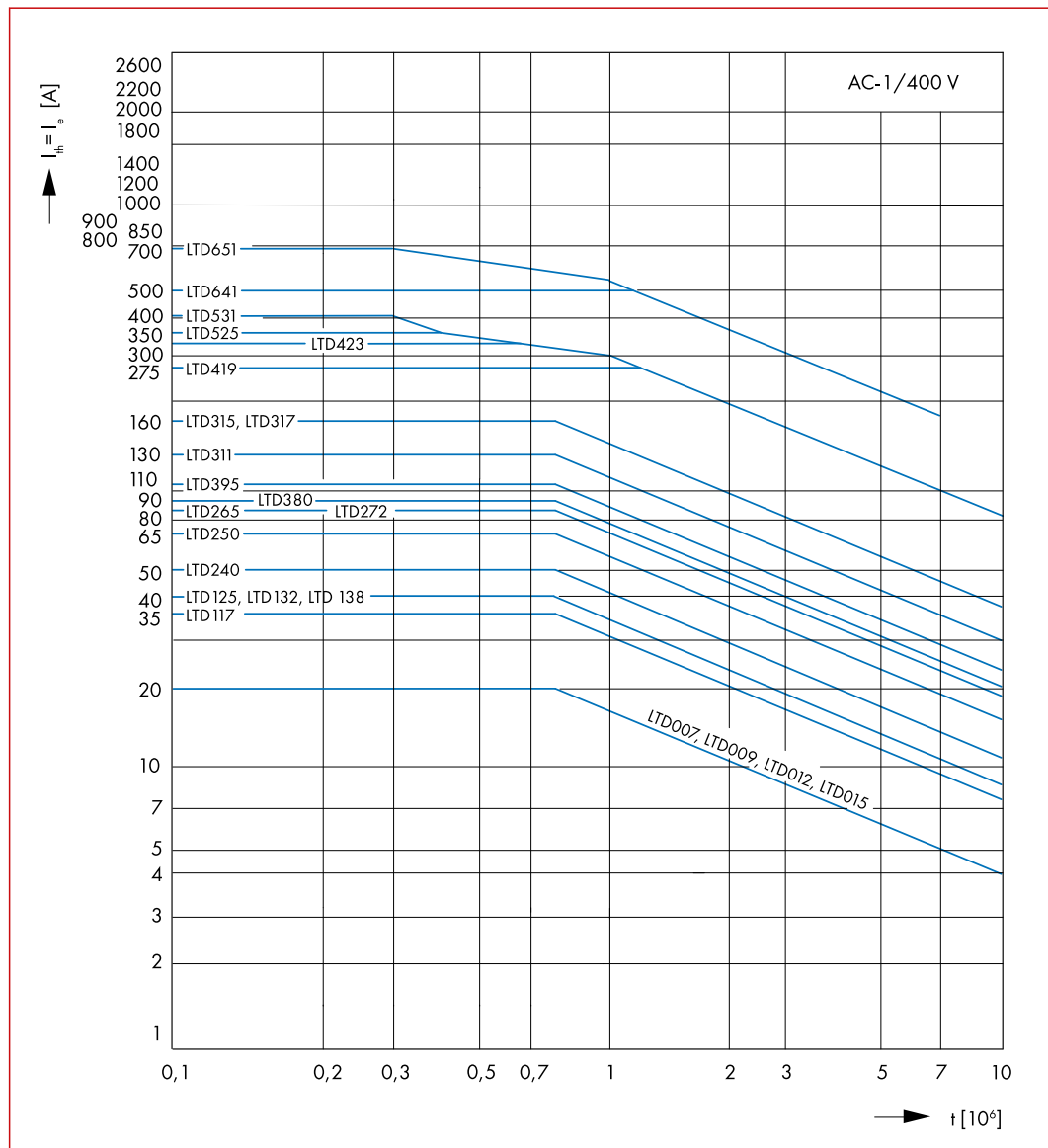
Electromechanical Contactors Series ALEA II LT

LTD Contactors for Switching Motors, 3-pole, Size 0

	LTD007 AC-coil	LTD009 AC-coil	LTD012 AC-coil	LTD015 AC-coil	LTD007 DC-coil	LTD009 DC-coil	LTD012 DC-coil	LTD015 DC-coil
Rated operational power AC-3	3kW	4kW	5.5kW	7.5kW	3kW	4kW	5.5kW	7.5kW
Rated current	7A	9A	12A	15A	7A	9A	12A	15A
Current heat loss								
3 pole, at I _{th} (60°)	2.4W	3W	2.5W	2.5W	4.5W	4.4W	4.2W	4W
Magnet systems								
Voltage tolerance AC operated (Pick-up)	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	-	-	-	-
Voltage tolerance DC operated (Pick-up)	-	-	-	-	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s
Voltage tolerance AC operated (Drop-out)	0.3 - 0.6 U _s	0.3 - 0.6 U _s	0.3 - 0.6 U _s	0.3 - 0.6 U _s	-	-	-	-
Voltage tolerance DC operated (Drop-out)	-	-	-	-	0.15 - 0.6 U _s	0.15 - 0.6 U _s	0.15 - 0.6 U _s	0.15 - 0.6 U _s
Power consumption of the coil in a cold state and 1.0 x U_s								
DC operated (Pick-up)	-	-	-	-	2.6W	4.5W	4.5W	4.5W
DC operated (Sealing)	-	-	-	-	2.6W	4.5W	4.5W	4.5W
Duty factor	100%	100%	100%	100%	100%	100%	100%	100%
EMC Emitted interference	according EN60947-1							
EMC Interference immunity	according EN60947-1							
Protection against direct contact								
When actuated from front (EN50274)	Finger- and back-of-hand proof							
Degree of Protection	IP20	IP20	IP20	IP20	IP20	IP20	IP20	IP20
Pollution degree	3	3	3	3	3	3	3	3
Terminal capacity main cable								
Solid (main cable)	1 x 0.75 - 4mm ² / 2 x 0.75 - 2.5mm ²							
Flexible with ferrule (main cable)	1 x 0.75 - 2.5mm ² / 2 x 0.75 - 2.5mm ²							
Stripping length (main cable)	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm
Terminal screw (main cable)	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque (main cable)	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm
Tools (main cable)								
Philips/Pozidriv screwdriver (main cable)	PZ 2				PZ 2			
Standard screwdriver (main cable)	0,8 x 5,5mm, 1 x 6mm				0,8 x 5,5mm, 1 x 6mm			
Terminal capacity control circuit cables								
Solid (control circuit cables)	1 x 0.75 - 4mm ² / 2 x 0.75 - 2.5mm ²							
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5mm ² / 2 x 0.75 - 2.5mm ²							
Stripping length (control circuit cables)	10	10	10	10	10	10	10	10
Terminal screw (control circuit cables)	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm

LTD Contactors for Switching Motors, 3-pole, Size 0

Diagram AC1 (Breaking Current and Lifecycle) [Operations]



LTD Contactors for Switching Motors, 3-pole, Size 0

Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]

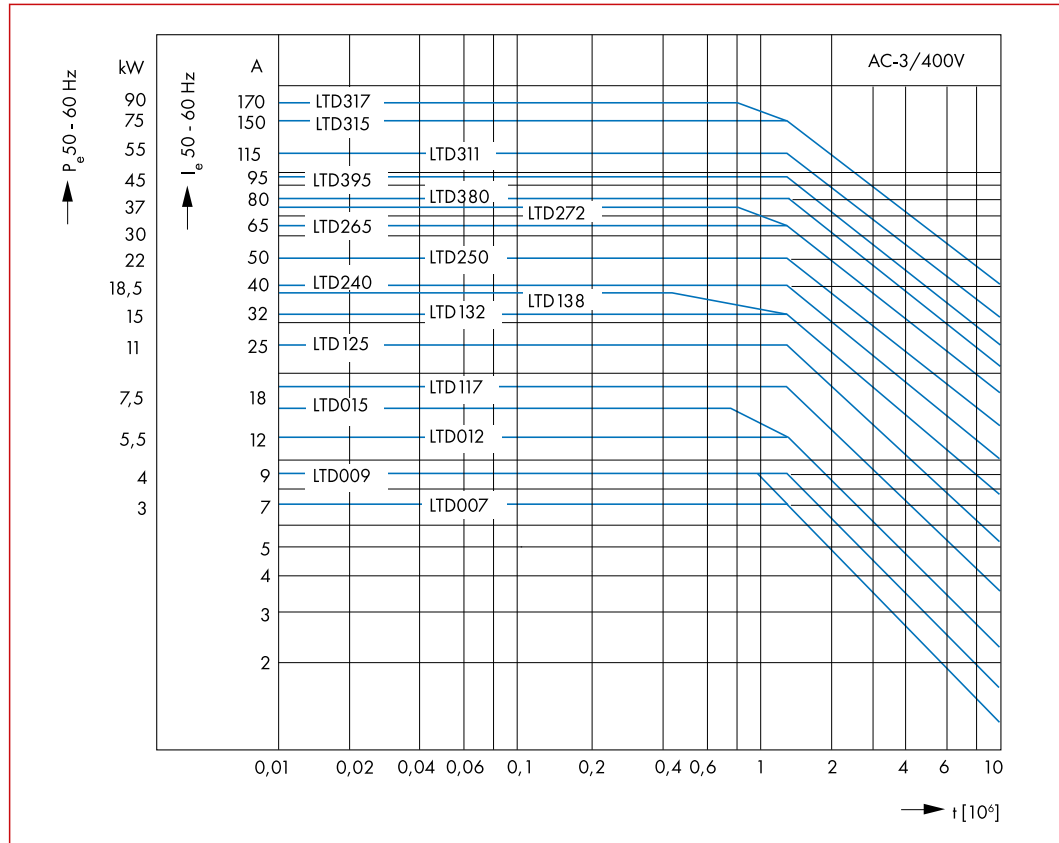
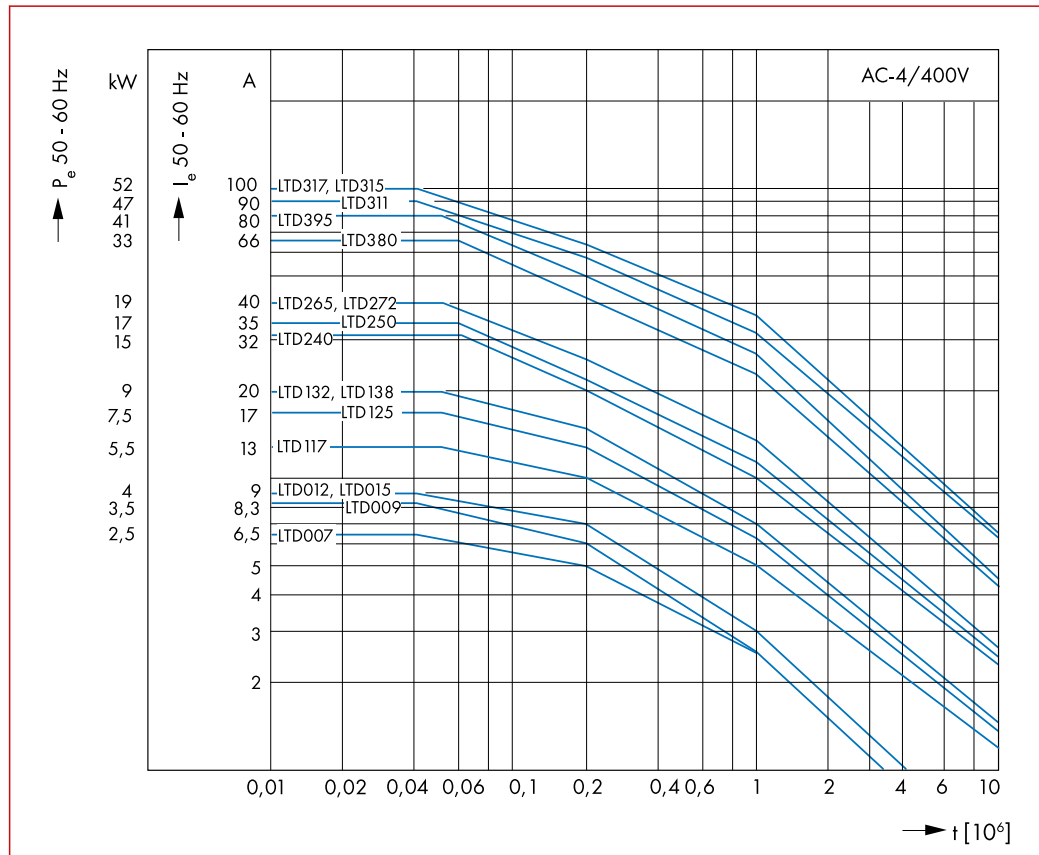
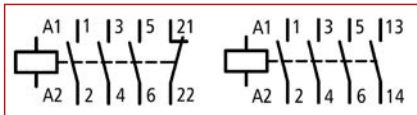


Diagram AC4 (Rated Power, Rated Current and Lifecycle) [Operations]

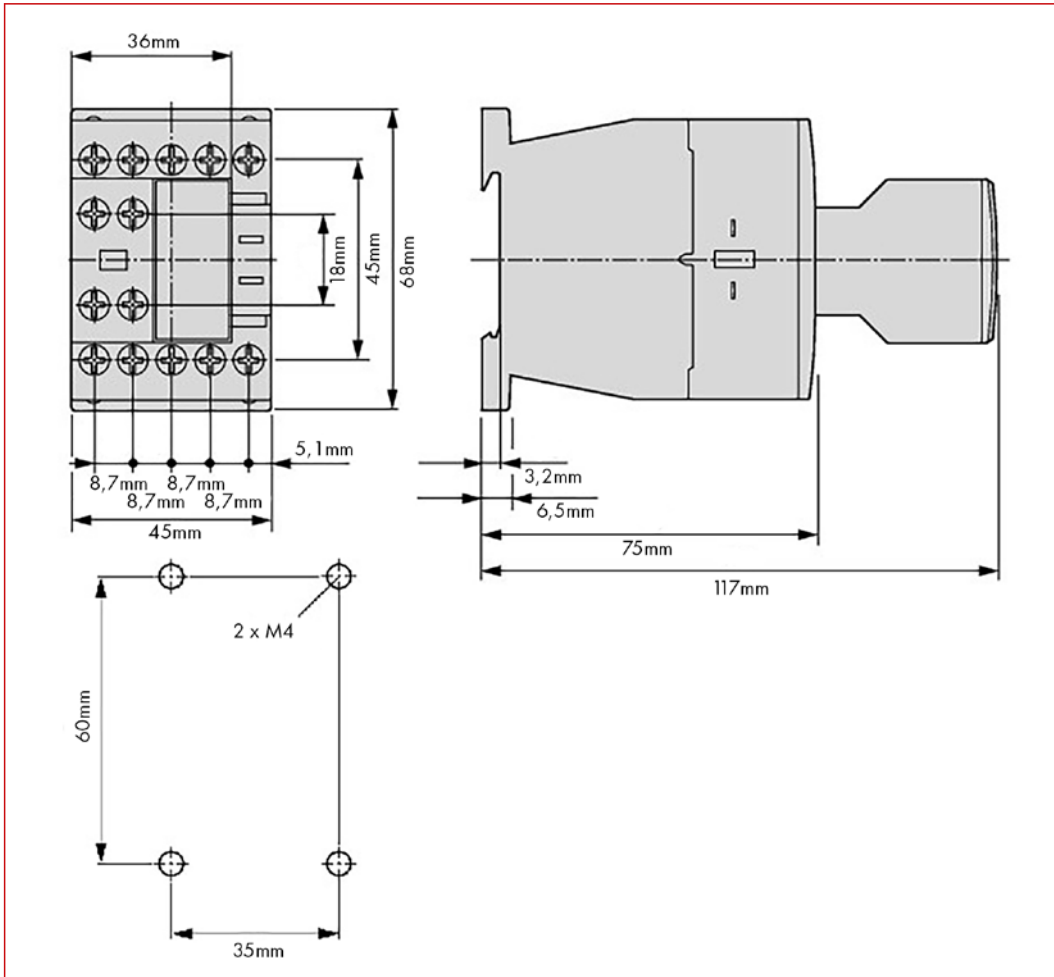


■ LTD Contactors for Switching Motors, 3-pole, Size 0

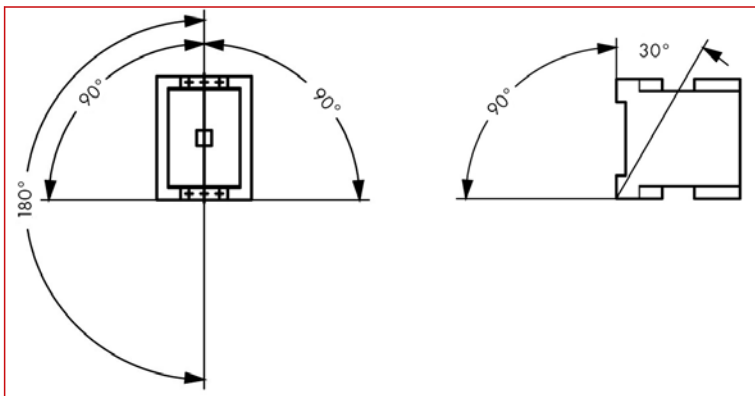
■ Circuit Diagram



■ Dimensions







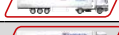
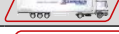













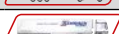



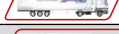


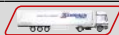

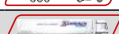
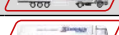

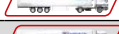
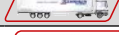



■ Mounting Position



Electromechanical Contactors Series ALEA II LT

LTD Contactors for Switching Motors, 3-pole, Size 0

DESCRIPTION	AVAILABLE	ORDER NO.
Size 0 - Type LTD0 - 7A		
LTD contactor 3kW/400V, 1 NO, coil 24VAC, model size 0		LTD00710
LTD contactor 3kW/400V, 1 NC, coil 24VAC, model size 0		LTD00720
LTD contactor 3kW/400V, 1 NO, coil 110VAC, model size 0		LTD00712
LTD contactor 3kW/400V, 1 NC, coil 110VAC, model size 0		LTD00722
LTD contactor 3kW/400V, 1 NO, coil 230VAC, model size 0		LTD00713
LTD contactor 3kW/400V, 1 NC, coil 230VAC, model size 0		LTD00723
LTD contactor 3kW/400V, 1 NO, coil 24VDC, model size 0		LTD00715
LTD contactor 3kW/400V, 1 NC, coil 24VDC, model size 0		LTD00725
Size 0 - Type LTD0 - 9A		
LTD contactor 4kW/400V, 1 NO, coil 24VAC, model size 0		LTD00910
LTD contactor 4kW/400V/9A, 1 NC, coil 24VAC, model size 0		LTD00920
LTD contactor 4kW/400V/9A, 1 NO, coil 110VAC, model size 0		LTD00912
LTD contactor 4kW/400V/9A/9A, 1 NC, coil 110VAC, model size 0		LTD00922
LTD contactor 4kW/400V/9A, 1 NO, coil 230VAC, model size 0		LTD00913
LTD contactor 4kW/400V/9A, 1 NC, coil 230VAC, model size 0		LTD00923
LTD contactor 4kW/400V/9A, 1 NO, coil 24VDC, model size 0		LTD00915
LTD contactor 4kW/400V/9A, 1 NC, coil 24VDC, model size 0		LTD00925
Size 0 - Type LTD0 - 12A		
LTD contactor 5,5kW/400V/12A, 1 NO, coil 24VAC, model size 0		LTD01210
LTD contactor 5,5kW/400V/12A, 1 NC, coil 24VAC, model size 0		LTD01220
LTD contactor 5,5kW/400V/12A, 1 NO, coil 110VAC, model size 0		LTD01212
LTD contactor 5,5kW/400V/12A, 1 NC, coil 110VAC, model size 0		LTD01222
LTD contactor 5,5kW/400V/12A, 1 NO, coil 230VAC, model size 0		LTD01213
LTD contactor 5,5kW/400V/12A, 1 NC, coil 230VAC, model size 0		LTD01223
LTD contactor 5,5kW/400V/12A, 1 NO, coil 24VDC, model size 0		LTD01215
LTD contactor 5,5kW/400V/12A, 1 NC, coil 24VDC, model size 0		LTD01225
Size 0 - Type LTD0 - 15A		
LTD contactor 7,5kW/400V/15.5A, 1 NO, coil 24VAC, model size 0		LTD01510
LTD contactor 7,5kW/400V/15.5A, 1 NC, coil 24VAC, model size 0		LTD01520
LTD contactor 7,5kW/400V/15.5A, 1 NO, coil 110VAC, model size 0		LTD01512
LTD contactor 7,5kW/400V/15.5A, 1 NC, coil 110VAC, model size 0		LTD01522
LTD contactor 7,5kW/400V, 1 NO, coil 230VAC, model size 0		LTD01513
LTD contactor 7,5kW/400V/15.5A, 1 NC, coil 230VAC, model size 0		LTD01523
LTD contactor 7,5kW/400V/15.5A, 1 NO, coil 24VDC, model size 0		LTD01515
LTD contactor 7,5kW/400V/15.5A, 1 NC, coil 24VDC, model size 0		LTD01525
Auxiliary Contacts Size 0		
Auxiliary contact for contactor size 0-1, 1 NO 1 NC, model size 0-1		LTZ0D311
Auxiliary contact for contactor size 0-1, 2 NC, model size 0-1		LTZ0D302
Auxiliary contact for contactor size 0-1, 2 NO 2 NC, model size 0-1		LTZ0D222
Auxiliary contact for contactor size 0-1, 3 NO 1 NC, model size 0-1		LTZ0D231

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LTD Contactors for Switching Motors, 3-pole, Size 1



LTD11710

Schrack-Info

- Contactors from 7,5kW up to 18.5kW, 3-pole with integrated auxiliary contact NC or NO
- Contactors LTD1 can be provided with an 2 - or 4-pole auxiliary contact
- Mirror-contact included
- Contacts according to EN 50012
- Contactors with DC-coil with integrated surge suppressor
- Fitting surge suppressors LTZ1
- Contactors LTD1 are suitable for use of Thermal overload relays type LTT1
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

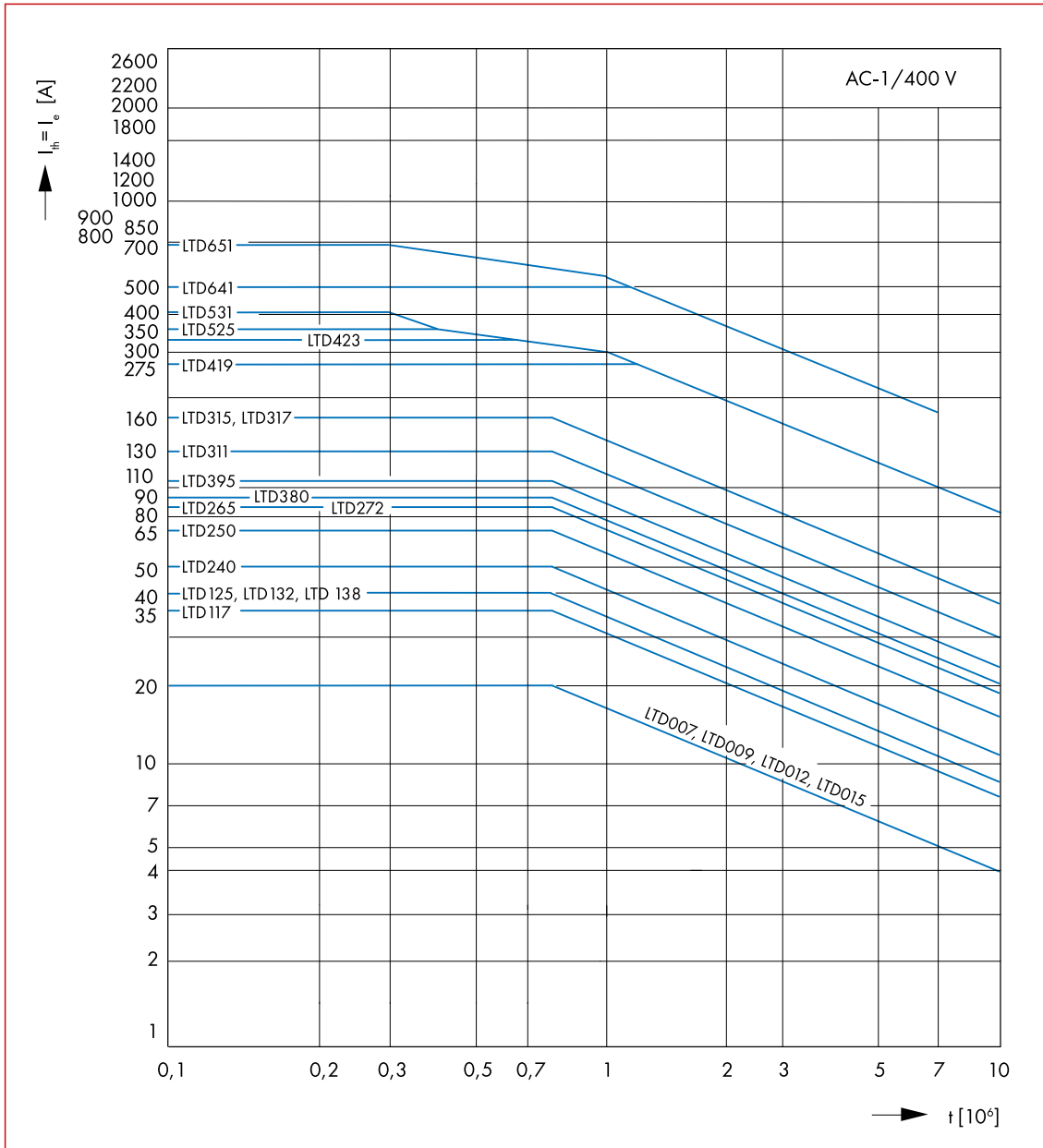
	LTD117 AC-coil	LTD125 AC-coil	LTD132 AC-coil	LTD138 AC-coil	LTD117 DC-coil	LTD125 DC-coil	LTD132 DC-coil	LTD138 DC-coil
Rated operational power AC-3	7.5kW	11kW	15kW	18.5kW	7.5kW	11kW	15kW	18.5kW
Rated current	17A	25A	32A	38A	17A	25A	32A	38A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508							
Lifespan, mechanical AC operated	10000000 Operations				-			
Lifespan, mechanical DC operated	-				10000000 Operations			
Operating frequency, mechanical AC operated	5000 Operations/h				-			
Operating frequency, mechanical DC operated	-				5000 Operations/h			
Climatic proofing	Damp heat constant according IEC60068-2-78, Damp heat cycle according IEC60068-2-30							
Ambient temperature Open	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C
Rated impulse withsand voltage (U _{imp})	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V
Overtoltage category	III	III	III	III	III	III	III	III
Rated insulation voltage (U _i)	690V	690V	690V	690V	690V	690V	690V	690V
Rated operational voltage	690V	690V	690V	690V	690V	690V	690V	690V
Safe isolation to EN61140								
Between coil and contacts	440V	440V	440V	440V	440V	440V	440V	440V
Between the contacts	440V	440V	440V	440V	440V	440V	440V	440V
Making capacity p.f. to IEC/EN60947 up to 690V	238A	350A	384A	384A	238A	350A	384A	384A
AC-1								
AC-1 Rated operational current								
Conventional free air therm. current 3pole 50-60Hz								
Open at 40°C (I _{th} =I _e)	40A	45A	45A	45A	40A	45A	45A	45A
Convent. free air thermal cur. 1 pole Open(I _{th})	88A	100A	100A	100A	88A	100A	100A	100A
AC-3								
AC-3 Rated operational current								
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	18A	25A	32A	38A	18A	25A	32A	38A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	18A	25A	32A	38A	18A	25A	32A	38A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	12A	15A	18A	22.5A	12A	15A	18A	22.5A
AC-3 Motor rating								
AC-3 220V 230V (P)	5kW	7.5kW	10kW	11kW	5kW	7.5kW	10kW	11kW
AC-3 380V 400V (P)	7.5kW	11kW	15kW	18.5kW	7.5kW	11kW	15kW	18.5kW
AC-3 660V 690V (P)	11kW	14kW	17kW	21kW	11kW	14kW	17kW	21kW
AC-4								
AC-4 Rated operational current								
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	10A	13A	15A	15A	10A	13A	15A	15A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	10A	13A	15A	15A	10A	13A	15A	15A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	8A	10A	12A	12A	8A	10A	12A	12A
AC-4 Motor rating								
AC-4 220V 230V (P)	2.5kW	3.5kW	4kW	4kW	2.5kW	3.5kW	4kW	4kW
AC-4 380V 400V (P)	4.5kW	6kW	7kW	7kW	4.5kW	6kW	7kW	7kW
AC-4 660V 690V (P)	6.5kW	8.5kW	10kW	10kW	6.5kW	8.5kW	10kW	10kW
DC-1								
DC-1 Rated operational current								
DC-1 Open								
60V (I _e)	35A	40A	40A	40A	35A	40A	40A	40A
220V (I _e)	35A	40A	40A	40A	35A	40A	40A	40A

LTD Contactors for Switching Motors, 3-pole, Size 1

	LTD117 AC-coil	LTD125 AC-coil	LTD132 AC-coil	LTD138 AC-coil	LTD117 DC-coil	LTD125 DC-coil	LTD132 DC-coil	LTD138 DC-coil
Rated operational power AC-3	7.5kW	11kW	15kW	18.5kW	7.5kW	11kW	15kW	18.5kW
Rated current	17A	25A	32A	38A	17A	25A	32A	38A
Current heat loss								
3 pole, at I_{th} (60°)	7.9A	10.8A	10.3A	10.3A	7.9A	10.8A	10.3A	10.3A
Magnet systems								
Voltage tolerance AC operated (Pick-up)	0.8 - 1.1 U_s				-			
Voltage tolerance DC operated (Pick-up)	-				0.7 - 1.2 U_s			
Voltage tolerance AC operated (Drop-out)	0.3 - 0.6 U_s				-			
Voltage tolerance DC operated (Drop-out)	-				0.15 U_s			
Power consumption of the coil in a cold state and 1.0 x U_s								
DC operated (Pick-up)	-				12W	12W	12W	12W
DC operated (Sealing)	-				0.9W	0.9W	0.9W	0.9W
Duty factor	100%	100%	100%	100%	100%	100%	100%	100%
EMC Emitted interference	according EN60947-1							
EMC Interference immunity	according EN60947-1							
Protection against direct contact								
When actuated from front (EN50274)	Finger- and back-of-hand proof							
Degree of Protection	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00
Pollution degree	3	3	3	3	3	3	3	3
Terminal capacity main cable								
Solid (main cable)	1 x 0.75 - 16mm ² . 2 x 0.75 - 10mm ²				1 x 0.75 - 16mm ² . 2 x 0.75 - 10mm ²			
Flexible with ferrule (main cable)	1 x 0.75 - 16mm ² . 2 x 0.75 - 10mm ²				1 x 0.75 - 16mm ² . 2 x 0.75 - 10mm ²			
Stripping length (main cable)	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm
Terminal screw (main cable)	M5	M5	M5	M5	M5	M5	M5	M5
Tightening torque (main cable)	3.2Nm	3.2Nm	3.2Nm	3.2Nm	3.2Nm	3.2Nm	3.2Nm	3.2Nm
Tools (main cable)								
Philips/Pozidriv screwdriver (main cable)	PZ 2				PZ 2			
Standard screwdriver (main cable)	0,8 x 5,5 / 1 x 6				0,8 x 5,5 / 1 x 6			
Terminal capacity control circuit cables								
Solid (control circuit cables)	1 x 0.75 - 4mm ² . 2 x 0.75 - 2.5mm ²				1 x 0.75 - 4mm ² . 2 x 0.75 - 2.5mm ²			
Flexible with ferrule (control circuit cables)	1 x 0.75 - 4mm ² . 2 x 0.75 - 2.5mm ²				1 x 0.75 - 4mm ² . 2 x 0.75 - 2.5mm ²			
Stripping length (control circuit cables)	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm
Terminal screw (control circuit cables)	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm

LTD Contactors for Switching Motors, 3-pole, Size 1

Diagram AC1 (Breaking Current and Lifecycle) [Operations]



LTD Contactors for Switching Motors, 3-pole, Size 1

Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]

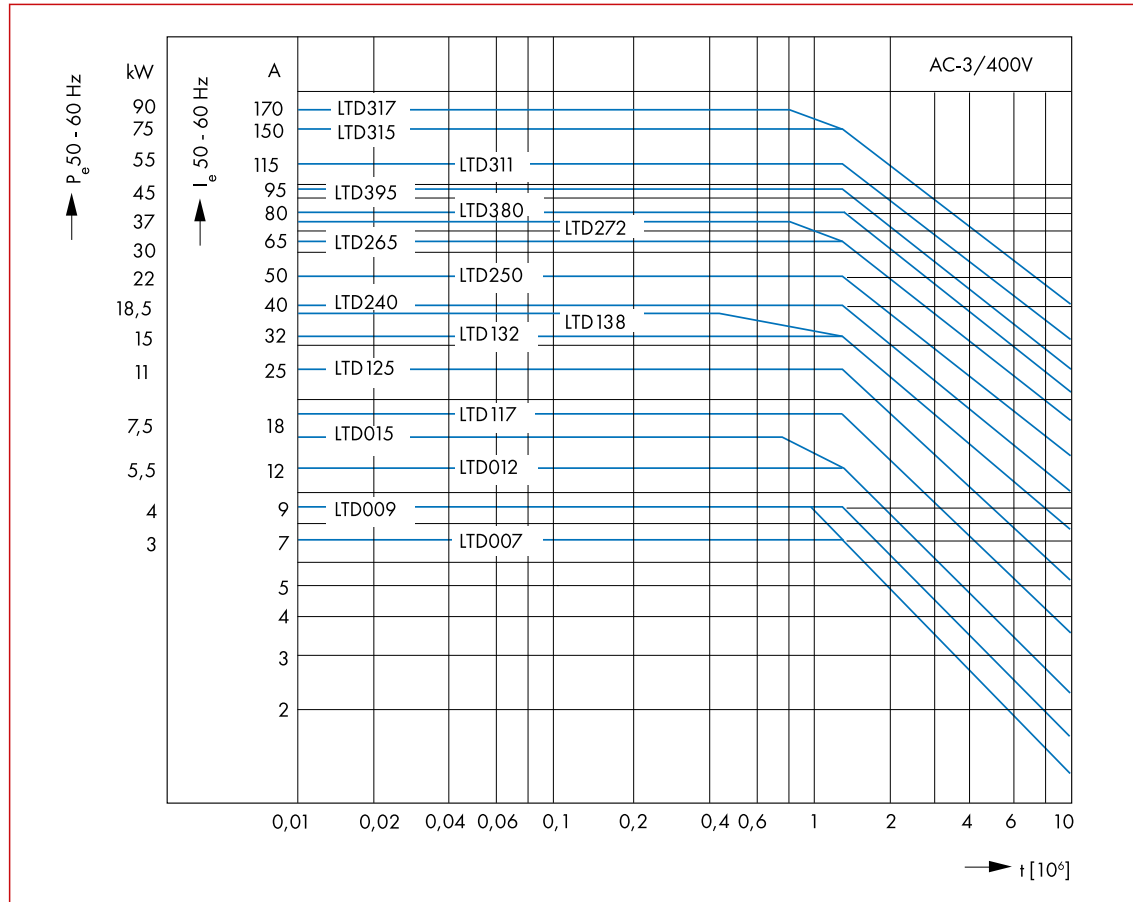
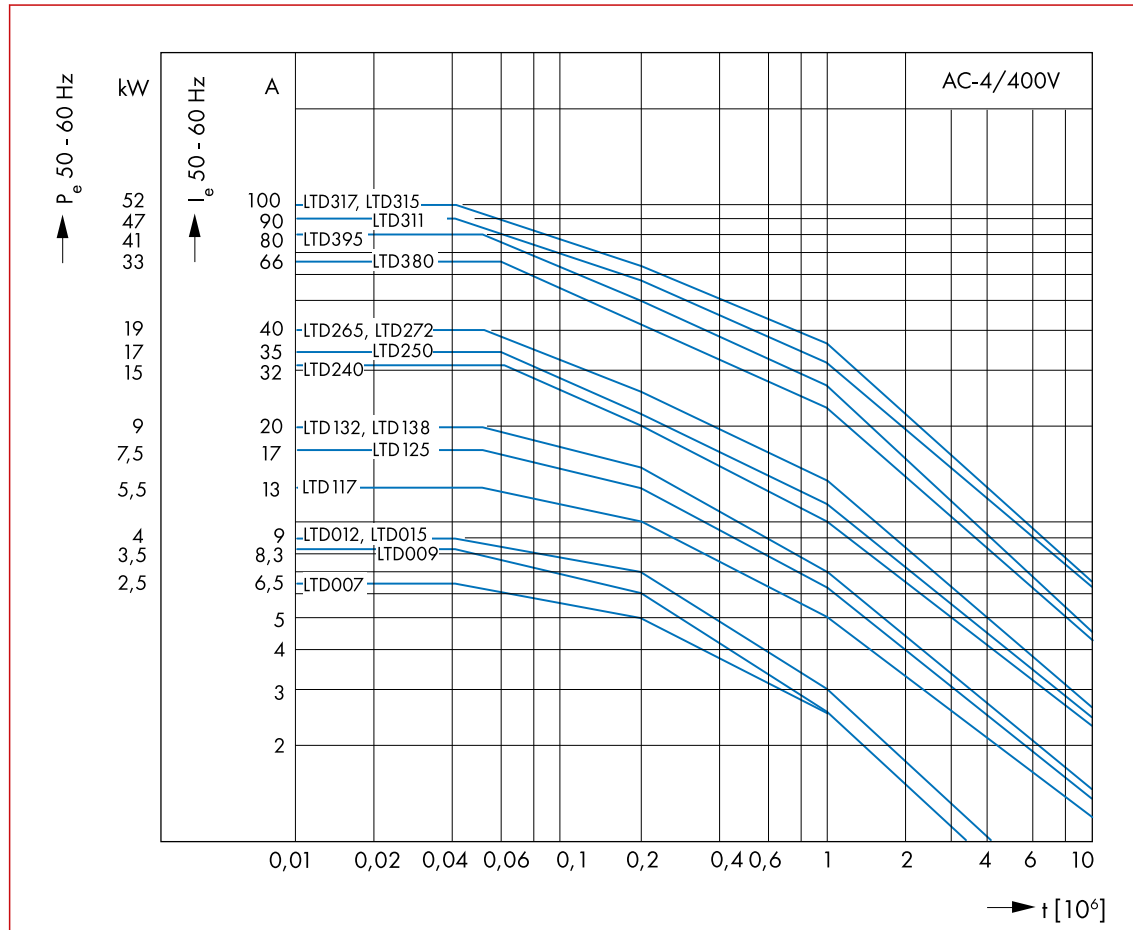
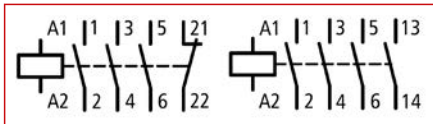


Diagram AC4 (Rated Power, Rated Current and Lifecycle) [Operations]

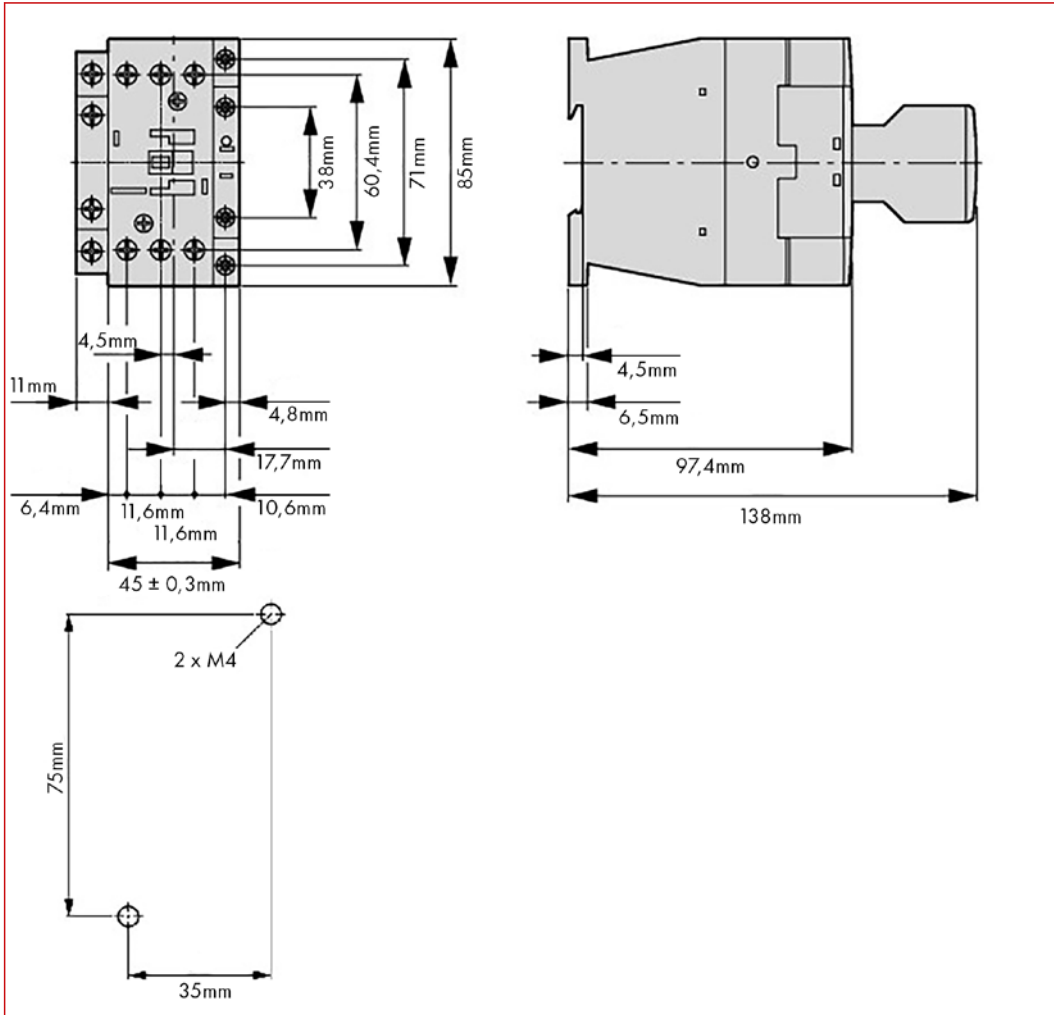


LTD Contactors for Switching Motors, 3-pole, Size 1

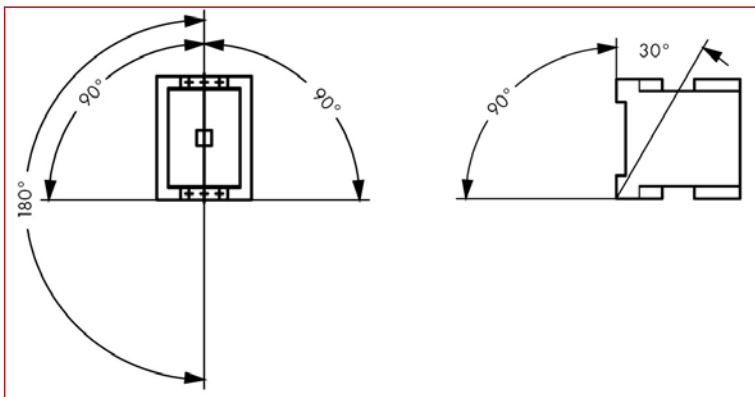
Circuit Diagram







































Dimensions



Mounting Position



LTD Contactors for Switching Motors, 3-pole, Size 1

DESCRIPTION	AVAILABLE	ORDER NO.
Size 1 - Type LTD1 - 17A		
LTD contactor 7,5kW/400V/18A, 1 NO, coil 24VAC, model size 1		LTD11710
LTD contactor 7,5kW/400V/18A, 1 NC, coil 24VAC, model size 1		LTD11720
LTD contactor 7,5kW/400V/18A, 1 NO, coil 110VAC, model size 1		LTD11712
LTD contactor 7,5kW/400V/18A, 1 NC, coil 110VAC, model size 1		LTD11722
LTD contactor 7,5kW/400V/18A, 1 NO, coil 230VAC, model size 1		LTD11713
LTD contactor 7,5kW/400V/18A, 1 NC, coil 230VAC, model size 1		LTD11723
LTD contactor 7,5kW/400V/18A, 1 NO, coil 24VDC, model size 1		LTD11715
LTD contactor 7,5kW/400V/18A, 1 NC, coil 24VDC, model size 1		LTD11725
Size 1 - Type LTD1 - 25A		
LTD contactor 11kW/400V/25A, 1 NO, coil 24VAC, model size 1		LTD12510
LTD contactor 11kW/400V/25A, 1 NC, coil 24VAC, model size 1		LTD12520
LTD contactor 11kW/400V/25A, 1 NO, coil 110VAC, model size 1		LTD12512
LTD contactor 11kW/400V/25A, 1 NC, coil 110VAC, model size 1		LTD12522
LTD contactor 11kW/400V/25A, 1 NO, coil 230VAC, model size 1		LTD12513
LTD contactor 11kW/400V/25A, 1 NC, coil 230VAC, model size 1		LTD12523
LTD contactor 11kW/400V/25A, 1 NO, coil 24VDC, model size 1		LTD12515
LTD contactor 11kW/400V/25A, 1 NC, coil 24VDC, model size 1		LTD12525
Size 1 - Type LTD1 - 32A		
LTD contactor 15kW/400V/32A, 1 NO, coil 24VAC, model size 1		LTD13210
LTD contactor 15kW/400V/32A, 1 NC, coil 24VAC, model size 1		LTD13220
LTD contactor 15kW/400V/32A, 1 NO, coil 110VAC, model size 1		LTD13212
LTD contactor 15kW/400V, 1 NC, coil 110VAC, model size 1		LTD13222
LTD contactor 15kW/400V/32A, 1 NO, coil 230VAC, model size 1		LTD13213
LTD contactor 15kW/400V/32A, 1 NC, coil 230VAC, model size 1		LTD13223
LTD contactor 15kW/400V/32A, 1 NO, coil 24VDC, model size 1		LTD13215
LTD contactor 15kW/400V/32A, 1 NC, coil 24VDC, model size 1		LTD13225
Size 1 - Type LTD1 - 38A		
LTD contactor 18,5kW/400V/38A, 1 NO, coil 24VAC, model size 1		LTD13810
LTD contactor 18,5kW/400V/38A, 1 NC, coil 24VAC, model size 1		LTD13820
LTD contactor 18,5kW/400V/38A, 1 NO, coil 110VAC, model size 1		LTD13812
LTD contactor 18,5kW/400V/38A, 1 NC, coil 110VAC, model size 1		LTD13822
LTD contactor 18,5kW/400V/38A, 1 NO, coil 230VAC, model size 1		LTD13813
LTD contactor 18,5kW/400V/38A, 1 NC, coil 230VAC, model size 1		LTD13823
LTD contactor 18,5kW/400V/38A, 1 NO, coil 24VDC, model size 1		LTD13815
LTD contactor 18,5kW/400V/38A, 1 NC, coil 24VDC, model size 1		LTD13825
Auxiliary Contacts Size 1		
Auxiliary contact for contactor size 0-1, 1 NO 1 NC, model size 0-1		LTZ0D311
Auxiliary contact for contactor size 0-1, 2 NC, model size 0-1		LTZ0D302
Auxiliary contact for contactor size 0-1, 2 NO 2 NC, model size 0-1		LTZ0D222
Auxiliary contact for contactor size 0-1, 3 NO 1 NC, model size 0-1		LTZ0D231

LTD Contactors for Switching Motors, 3-pole, Size 2



LTD24032

Schrack-Info

- Contactors from 18,5kW up to 37kW, 3-pole
- Contactors LTD2 can be provided with an 2- or 4-pole auxiliary contact
- Contacts according to EN 50012
- Contactors with DC-coil with integrated surge suppressor
- Fitting surge suppressors LTZ3
- Contactors LTD2 are suitable for use of Thermal overload relays type LTT2
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

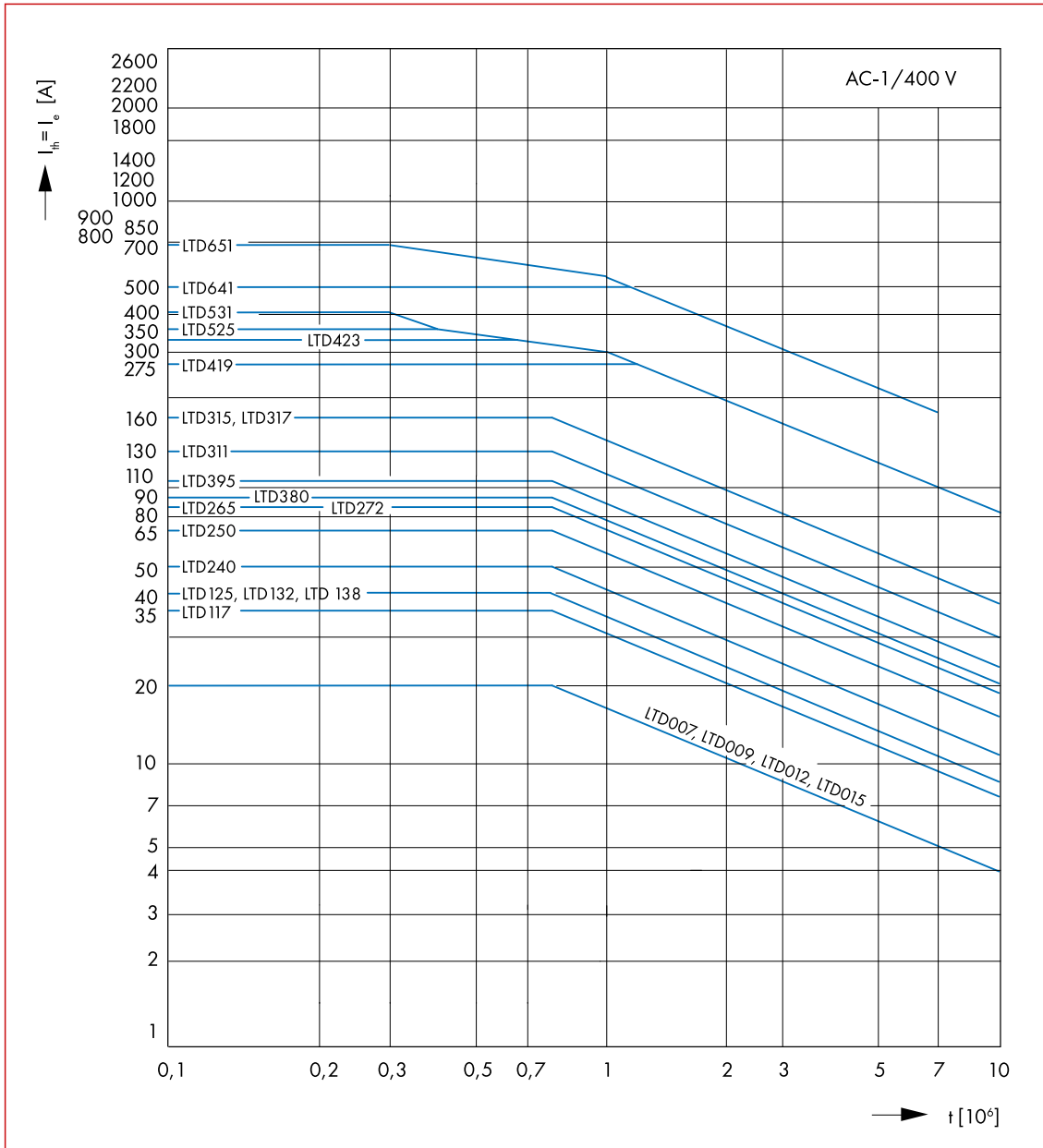
	LTD240 AC-coil	LTD250 AC-coil	LTD265 AC-coil	LTD272 AC-coil	LTD240 DC-coil	LTD250 DC-coil	LTD265 DC-coil	LTD272 DC-coil
Rated operational power AC-3	18.5kW	22kW	30kW	37kW	18.5kW	22kW	30kW	37kW
Rated current	40A	50A	65A	72A	40A	50A	65A	72A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508							
Lifespan, mechanical AC operated	10000000 Operations				-			
Lifespan, mechanical DC operated	-				10000000 Operations			
Operating frequency, mechanical AC operated	5000 Operations/h				-			
Operating frequency, mechanical DC operated	-				5000 Operations/h			
Climatic proofing	Damp heat constant according IEC60068-2-78, Damp heat cycle according IEC60068-2-30							
Ambient temperature Open	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C
Rated impulse withsand voltage (U _{imp})	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V
Oversvoltage category	III	III	III	III	III	III	III	III
Rated insulation voltage (U _i)	690V	690V	690V	690V	690V	690V	690V	690V
Rated operational voltage	690V	690V	690V	690V	690V	690V	690V	690V
Safe isolation to EN61140								
Between coil and contacts	440V	440V	440V	440V	440V	440V	440V	440V
Between the contacts	440V	440V	440V	440V	440V	440V	440V	440V
Making capacity p.f. to IEC/EN60947 up to 690V	560A	700A	910A	910A	560A	700A	910A	910A
AC-1								
AC-1 Rated operational current								
Conventional free air therm. current 3pole 50-60Hz								
Open at 40°C (I _{th} =I _e)	60A	80A	98A	98A	60A	80A	98A	98A
Convent. free air thermal cur. 1 pole Open(I _{th})	125A	162A	200A	200A	125A	162A	200A	200A
AC-3								
AC-3 Rated operational current								
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	40A	50A	65A	72A	40A	50A	65A	72A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	40A	50A	65A	72A	40A	50A	65A	72A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	25A	32A	37A	37A	25A	32A	37A	37A
AC-3 Motor rating								
AC-3 220V 230V (P)	12.5kW	15.5kW	20kW	22kW	12.5kW	15.5kW	20kW	22kW
AC-3 380V 400V (P)	18.5kW	22kW	30kW	37kW	18.5kW	22kW	30kW	37kW
AC-3 660V 690V (P)	23kW	30kW	35kW	35kW	23kW	30kW	35kW	35kW
AC-4								
AC-4 Rated operational current								
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	18A	21A	25A	25A	18A	21A	25A	25A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	18A	21A	25A	25A	18A	21A	25A	25A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	14A	17A	20A	20A	14A	17A	20A	20A
AC-4 Motor rating								
AC-4 220V 230V (P)	5kW	6kW	7kW	7kW	5kW	6kW	7kW	7kW
AC-4 380V 400V (P)	9kW	10kW	12kW	12kW	9kW	10kW	12kW	12kW
AC-4 660V 690V (P)	12kW	14kW	17kW	17kW	12kW	14kW	17kW	17kW
DC-1								
DC-1 Rated operational current								
DC-1 Open								
60V (I _e)	50A	60A	72A	72A	50A	60A	72A	72A
220V (I _e)	45A	45A	65A	65A	45A	45A	65A	65A

LTD Contactors for Switching Motors, 3-pole, Size 2

	LTD240 AC-coil	LTD250 AC-coil	LTD265 AC-coil	LTD272 AC-coil	LTD240 DC-coil	LTD250 DC-coil	LTD265 DC-coil	LTD272 DC-coil
Rated operational power AC-3	18.5kW	22kW	30kW	37kW	18.5kW	22kW	30kW	37kW
Rated current	40A	50A	65A	72A	40A	50A	65A	72A
Current heat loss								
3 pole, at I _{th} (60°)	10.3A	16.7A	25.9A	25.9A	10.3A	16.7A	25.9A	25.9A
Magnet systems								
Voltage tolerance AC operated (Pick-up)	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	-	-	-	-
Voltage tolerance DC operated (Pick-up)	-	-	-	-	0.7 - 1.2 U _s	0.7 - 1.2 U _s	0.7 - 1.2 U _s	0.7 - 1.2 U _s
Voltage tolerance AC operated (Drop-out)	0.3 - 0.6 U _s	0.3 - 0.6 U _s	0.3 - 0.6 U _s	0.3 - 0.6 U _s	-	-	-	-
Voltage tolerance DC operated (Drop-out)	-	-	-	-	0.15 U _s	0.15 U _s	0.15 U _s	0.15 U _s
Power consumption of the coil in a cold state and 1.0 x U_s								
DC operated (Pick-up)	-	-	-	-	24W	24W	24W	24W
DC operated (Sealing)	-	-	-	-	1W	1W	1W	1W
Duty factor	100%	100%	100%	100%	100%	100%	100%	100%
EMC Emitted interference	according EN60947-1							
EMC Interference immunity	according EN60947-1							
Protection against direct contact								
When actuated from front (EN50274)	Finger- and back-of-hand proof							
Degree of Protection	IPO0	IPO0	IPO0	IPO0	IPO0	IPO0	IPO0	IPO0
Pollution degree	3	3	3	3	3	3	3	3
Terminal capacity main cable								
Solid (main cable)	1 x 0.75 - 16mm ² / 2 x 0.75 - 16mm ²				1 x 0.75 - 16mm ² / 2 x 0.75 - 16mm ²			
Flexible with ferrule (main cable)	1 x 0.75 - 35mm ² / 2 x (0.75 - 25mm ²)				1 x 0.75 - 35mm ² / 2 x (0.75 - 25mm ²)			
Stripping length (main cable)	14mm	14mm	14mm	14mm	14mm	14mm	14mm	14mm
Terminal screw (main cable)	M6	M6	M6	M6	M6	M6	M6	M6
Tightening torque (main cable)	3.3Nm	3.3Nm	3.3Nm	3.3Nm	3.3Nm	3.3Nm	3.3Nm	3.3Nm
Tools (main cable)								
Philips/Pozidriv screwdriver (main cable)	PZ 2				PZ 2			
Standard screwdriver (main cable)	0.8 x 5.5mm, 1 x 6mm				0.8 x 5.5mm, 1 x 6mm			
Terminal capacity control circuit cables								
Solid (control circuit cables)	1 x 0.75 - 4mm ² / 2 x (0.75 - 2.5mm ²)				1 x 0.75 - 4mm ² / 2 x (0.75 - 2.5mm ²)			
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5mm ² / 2 x (0.75 - 2.5mm ²)				1 x 0.75 - 2.5mm ² / 2 x (0.75 - 2.5mm ²)			
Stripping length (control circuit cables)	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm
Terminal screw (control circuit cables)	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm

LTD Contactors for Switching Motors, 3-pole, Size 2

Diagram AC1 (Breaking Current and Lifecycle) [Operations]



LTD Contactors for Switching Motors, 3-pole, Size 2

Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]

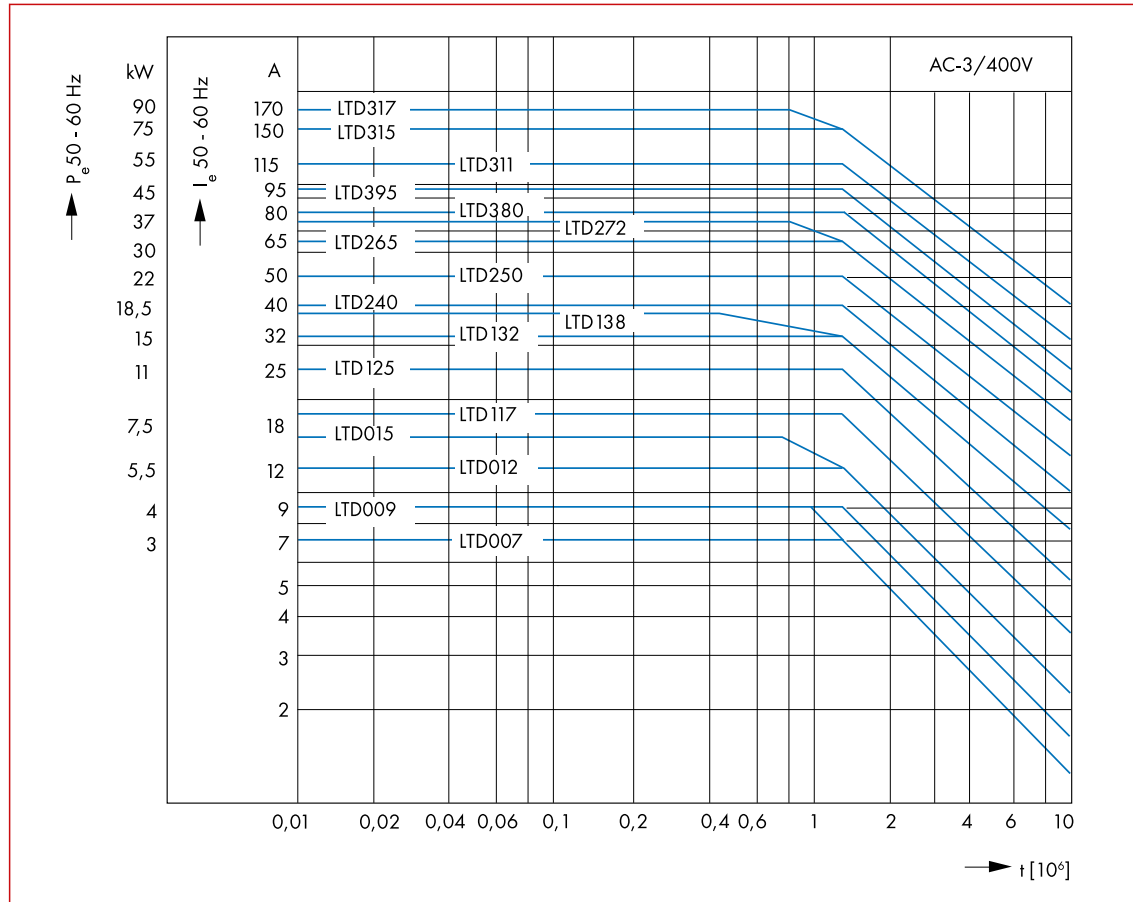
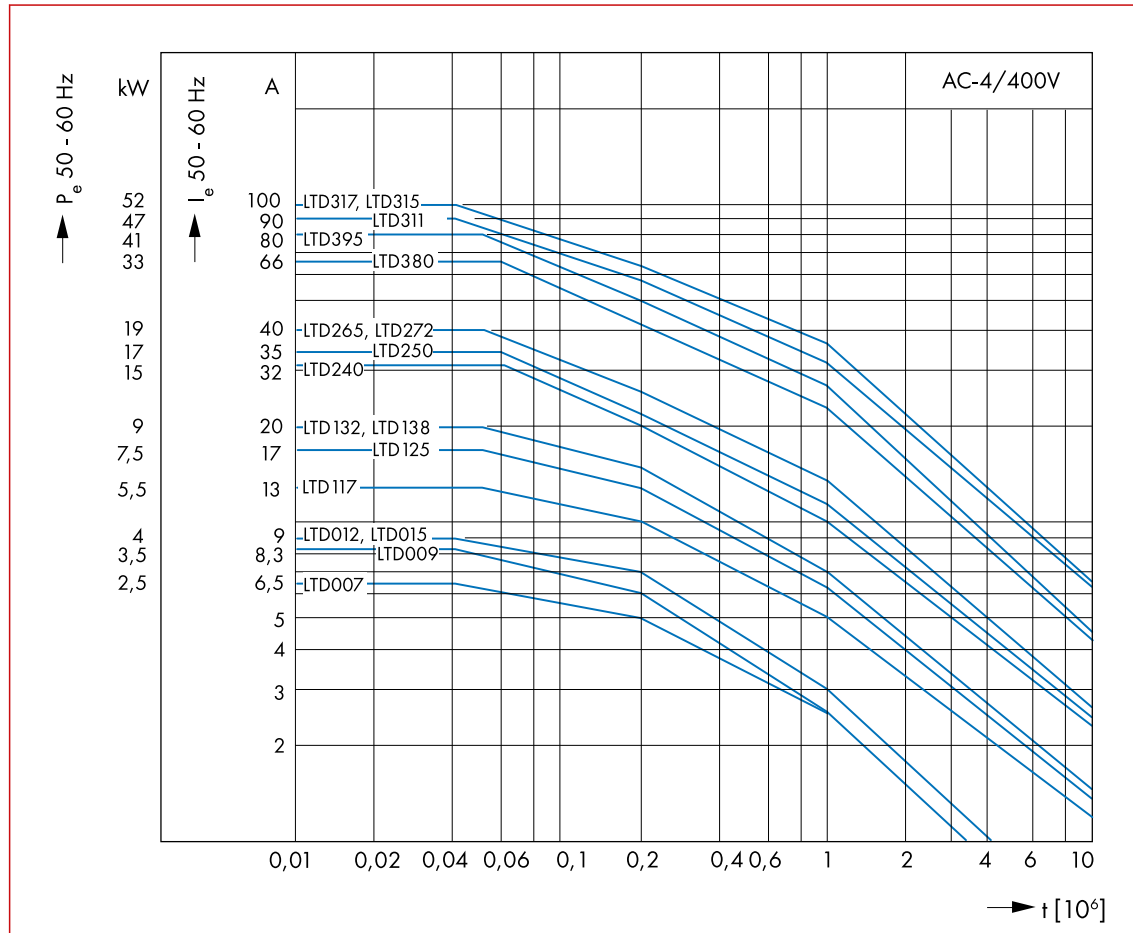
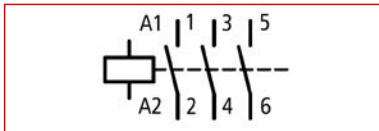


Diagram AC4 (Rated Power, Rated Current and Lifecycle) [Operations]

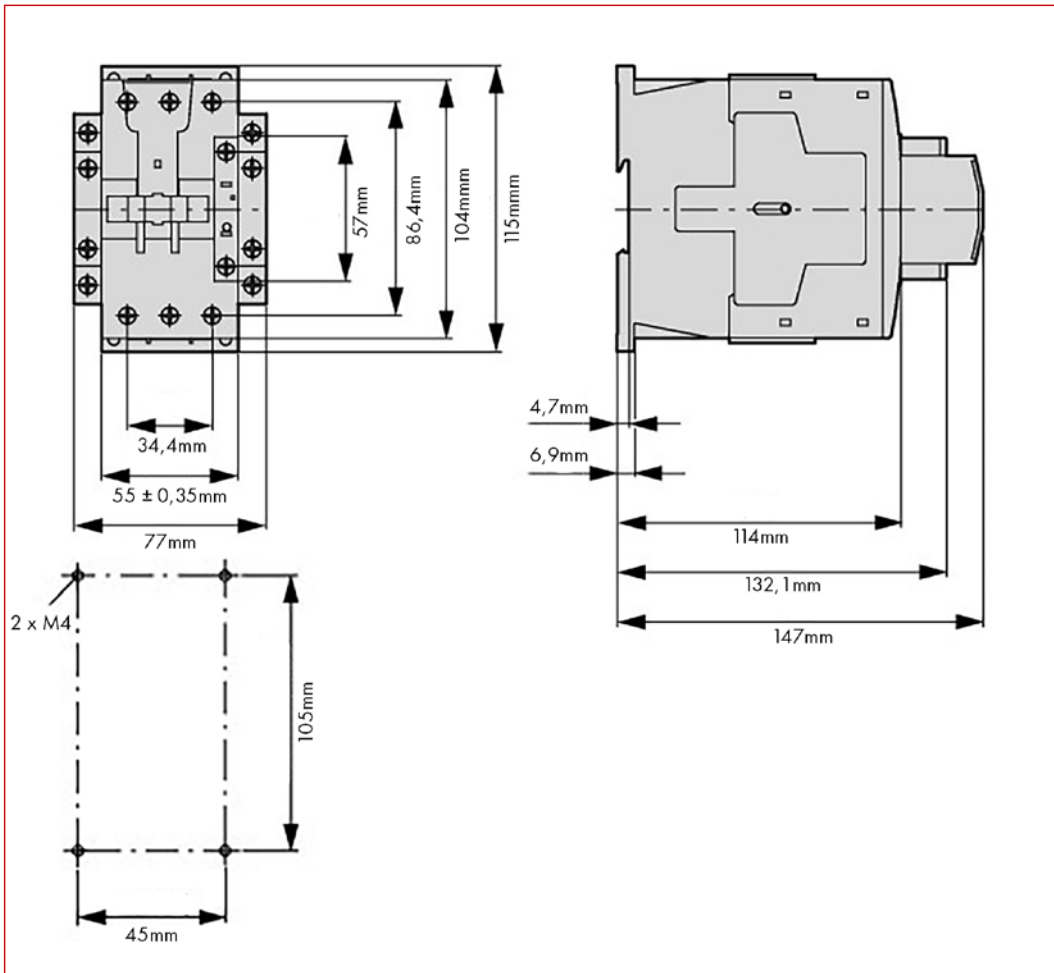


▀ LTD Contactors for Switching Motors, 3-pole, Size 2

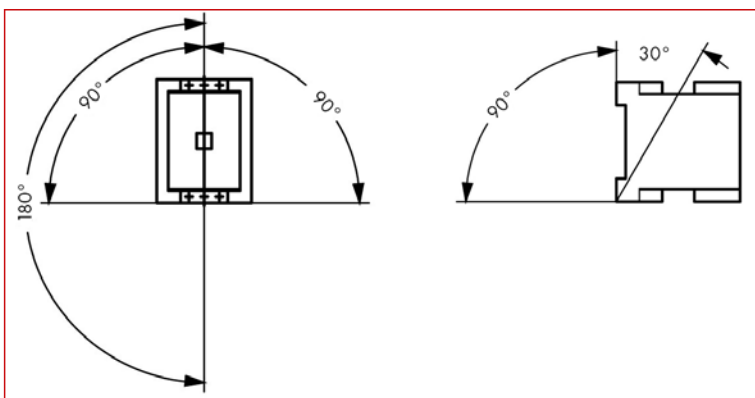
▀ Circuit Diagram



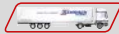









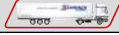





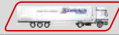


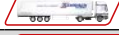
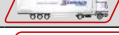
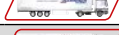




▀ Dimensions



▀ Mounting Position



LTD Contactors for Switching Motors, 3-pole, Size 2

DESCRIPTION	AVAILABLE	ORDER NO.
Size 2 - Type LTD2 - 40A		
LTD contactor 18,5kW/400V/40A, coil 24VAC, model size 2		LTD24030
LTD contactor 18,5kW/400V/40A, coil 110VAC, model size 2		LTD24032
LTD contactor 18,5kW/400V/40A, coil 230VAC, model size 2		LTD24033
LTD contactor 18,5kW/400V/40A, coil 24VDC, model size 2		LTD24035
Size 2 - Type LTD2 - 50A		
LTD contactor 22kW/400V/50A, coil 24VAC, model size 2		LTD25030
LTD contactor 22kW/400V/50A, coil 110VAC, model size 2		LTD25032
LTD contactor 22kW/400V/50A, coil 230VAC, model size 2		LTD25033
LTD contactor 22kW/400V/50A, coil 24VDC, model size 2		LTD25035
Size 2 - Type LTD2 - 65A		
LTD contactor 30kW/400V/65A, coil 24VAC, model size 2		LTD26530
LTD contactor 30kW/400V/65A, coil 110VAC, model size 2		LTD26532
LTD contactor 30kW/400V/65A, coil 230VAC, model size 2		LTD26533
LTD contactor 30kW/400V/65A, coil 24VDC, model size 2		LTD26535
Size 2 - Type LTD2 - 72A		
LTD contactor 37kW/400V/72A, coil 24VAC, model size 2		LTD27230
LTD contactor 37kW/400V/72A, coil 110VAC, model size 2		LTD27232
LTD contactor 37kW/400V/72A, coil 230VAC, model size 2		LTD27233
LTD contactor 37kW/400V/72A, coil 24VDC, model size 2		LTD27235
Auxiliary Contacts Size 2		
Auxiliary contact for contactors, 2 NO, model size 2-3		LTZ3D420
Auxiliary contact for contactors, 1 NO 1 NC, model size 2-3		LTZ3D411
Auxiliary contact for contactors, 2 NC, model size 2-3		LTZ3D402
Auxiliary contact for contactors, 4 NO, model size 2-3		LTZ3D140
Auxiliary contact for contactors, 3 NO 1 NC, model size 2-3		LTZ3D131
Auxiliary contact for contactors, 2 NO 2 NC, model size 2-3		LTZ3D122
Auxiliary contact for contactors, 1 NO 3 NC, model size 2-3		LTZ3D113
Auxiliary contact for contactors, 4 NC, model size 2-3		LTZ3D104
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 2-4		LTZ3D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 2-4		LTZ3D811

LTD Contactors for Switching Motors, 3-pole, Size 3



LTD39533

Schrack-Info

- Contactors from 37kW up to 90kW, 3-pole
- Contactors LTD3 can be provided with a 2- or 4-pole auxiliary contact
- Contacts according to EN 50012
- Contactors with DC-coil with integrated surge suppressor
- Fitting surge suppressors LTZ3
- Contactors LTD3 are suitable for use of Thermal overload relays type LTT3
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

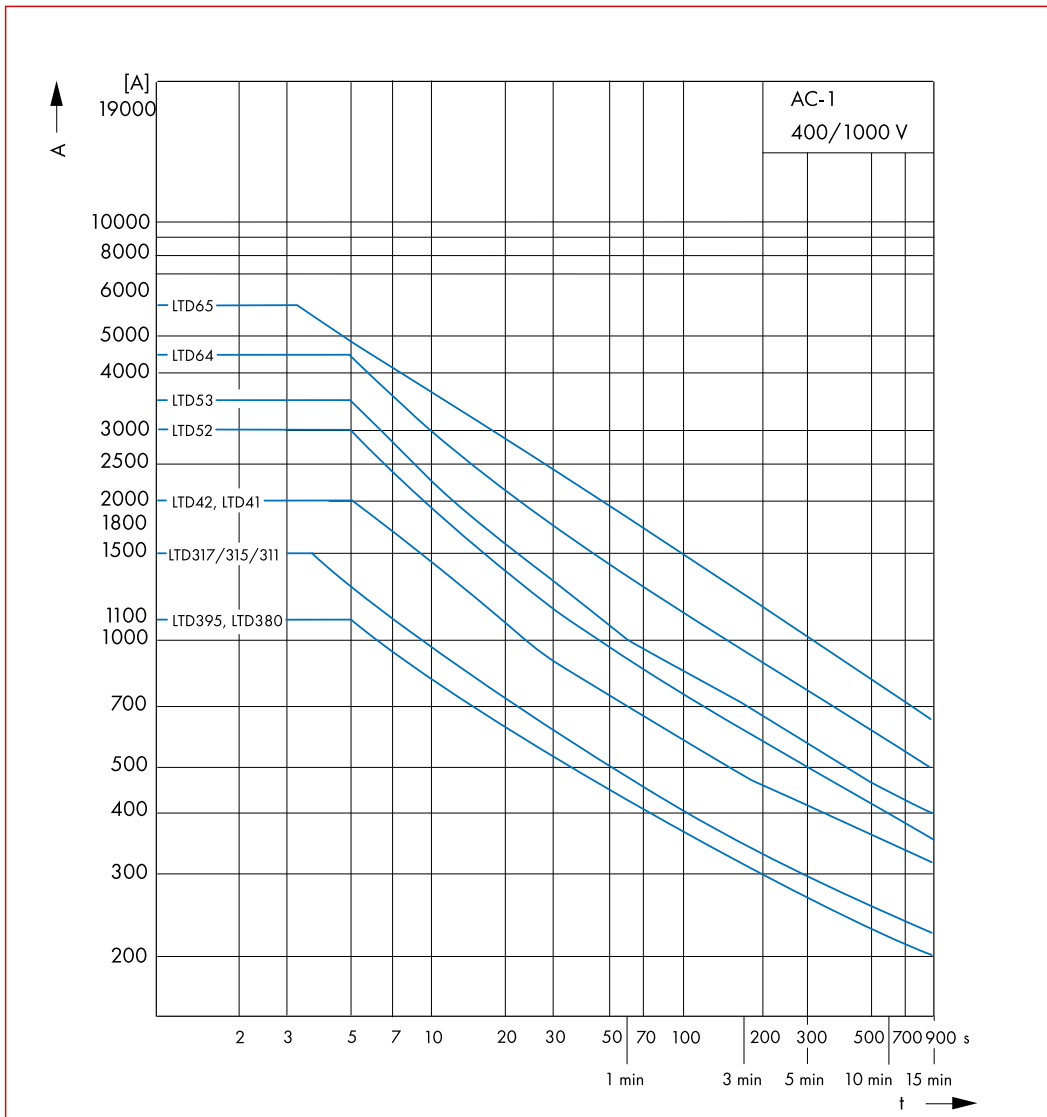
	LTD380 AC-coil	LTD395 AC-coil	LTD311 AC-coil	LTD315 AC-coil	LTD317 AC-coil	LTD380 DC-coil	LTD395 DC-coil	LTD311 DC-coil	LTD315 DC-coil	LTD317 DC-coil
Rated operational power AC-3	37kW	45kW	55kW	75kW	90kW	37kW	45kW	55kW	75kW	90kW
Rated current	80A	95A	115A	150A	170A	80A	95A	115A	150A	170A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508									
Lifespan, mechanical AC operated	10000000 Operations					-				
Lifespan, mechanical DC operated	-					10000000 Operations				
Operating frequency, mechanical AC operated	3000 Operations/h					-				
Operating frequency, mechanical DC operated	-					3600 Operations/h				
Climatic proofing	Damp heat constant according IEC60068-2-78, Damp heat cycle according IEC60068-2-30									
Ambient temperature Open	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C
Rated impulse withstand voltage (U _{imp})	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V
Overvoltage category	III	III	III	III	III	III	III	III	III	III
Rated insulation voltage (U _i)	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
Rated operational voltage	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
Safe isolation to EN61140										
Between coil and contacts	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
Between the contacts	690V	690V	690V	690V	690V	690V	690V	690V	690V	690V
Making capacity p.f. to IEC/EN60947 up to 690V	1120A	1330A	1610A	2100A	2100A	1120A	1330A	1610A	2100A	2100A
AC-1										
AC-1 Rated operational current										
Conventional free air therm. current 3pole 50-60Hz										
Open at 40 °C (I _{th} =I _e)	110A	130A	160A	190A	225A	110A	130A	160A	190A	225A
Convent. free air thermal cur. 1 pole Open(I _{th})	225A	275A	325A	400A	460A	225A	275A	325A	400A	460A
AC-3										
AC-3 Rated operational current										
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	80A	95A	115A	150A	170A	80A	95A	115A	150A	170A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	80A	95A	115A	150A	170A	80A	95A	115A	150A	170A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	65A	80A	93A	100A	100A	65A	80A	93A	100A	100A
AC-3 Motor rating										
AC-3 220V 230V (P)	25kW	30kW	37kW	48kW	52kW	25kW	30kW	37kW	48kW	52kW
AC-3 380V 400V (P)	37kW	45kW	55kW	75kW	90kW	37kW	45kW	55kW	75kW	90kW
AC-3 660V 690V (P)	63kW	75kW	90kW	96kW	96kW	63kW	75kW	90kW	96kW	96kW
AC-4										
AC-4 Rated operational current										
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	40A	50A	55A	65A	65A	40A	50A	55A	65A	65A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	40A	50A	55A	65A	65A	40A	50A	55A	65A	65A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	27A	37A	45A	50A	50A	27A	37A	45A	50A	50A
AC-4 Motor rating										
AC-4 220V 230V (P)	11.5kW	16kW	17kW	20kW	20kW	11.5kW	16kW	17kW	20kW	20kW
AC-4 380V 400V (P)	20kW	26kW	28kW	33kW	33kW	20kW	26kW	28kW	33kW	33kW
AC-4 660V 690V (P)	26kW	35kW	43kW	48kW	48kW	26kW	35kW	43kW	48kW	48kW
DC-1										
DC-1 Rated operational current										
DC-1 Open										
60V (I _e)	110A	110A	160A	160A	160A	110A	110A	160A	160A	160A
220V (I _e)	70A	70A	90A	90A	90A	70A	70A	90A	90A	90A

LTD Contactors for Switching Motors, 3-pole, Size 3

	LTD380 AC-coil	LTD395 AC-coil	LTD311 AC-coil	LTD315 AC-coil	LTD317 AC-coil	LTD380 DC-coil	LTD395 DC-coil	LTD311 DC-coil	LTD315 DC-coil	LTD317 DC-coil
Rated operational power AC-3	75kW	90kW	37kW	45kW	55kW	37kW	45kW	55kW	75kW	90kW
Rated current	150A	170A	80A	95A	115A	80A	95A	115A	150A	170A
Current heat loss										
3 pole, at I_{th} (60°)	11.4A	16.9A	24.2A	36.5A	48.7A	11.4A	16.9A	24.2A	36.5A	48.7A
Magnet systems										
Voltage tolerance AC operated (Pick-up)	0.8 - 1.1 U_s	0.8 - 1.1 U_s	0.8 - 1.15 U_s	0.8 - 1.15 U_s	0.8 - 1.15 U_s	-				
Voltage tolerance DC operated (Pick-up)	-					0.7 - 1.2 U_s	0.7 - 1.2 U_s	0.7 - 1.2 U_s	0.7 - 1.2 U_s	0.7 - 1.2 U_s
Voltage tolerance AC operated (Drop-out)	0.3 - 0.6 U_s	0.3 - 0.6 U_s	0.25 - 0.6 U_s	0.25 - 0.6 U_s	0.25 - 0.6 U_s	-				
Voltage tolerance DC operated (Drop-out)	-					0.15 U_s	0.15 U_s	0.15 U_s	0.15 U_s	0.15 U_s
Power consumption of the coil in a cold state and 1.0 x U_s										
DC operated (Pick-up)	-					90W	90W	149W	149W	149W
DC operated (Sealing)	-					1.5W	1.5W	1.9W	1.9W	1.9W
Duty factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
EMC Emitted interference	according EN60947-1									
EMC Interference immunity	according EN60947-1									
Protection against direct contact										
When actuated from front (EN50274)	Finger- and back-of-hand proof									
Degree of Protection	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00
Pollution degree	3	3	3	3	3	3	3	3	3	3
Terminal capacity main cable										
Flexible with ferrule (main cable)	1 x 10 - 95mm ² / 2 x 10 - 70mm ²					1 x 10 - 95mm ² / 2 x 10 - 70mm ²				
Stripping length (main cable)	24mm	24mm	24mm	24mm	24mm	24mm	24mm	24mm	24mm	24mm
Terminal screw (main cable)	M10	M10	M10	M10	M10	M10	M10	M10	M10	M10
Tightening torque (main cable)	14Nm	14Nm	14Nm	14Nm	14Nm	14Nm	14Nm	14Nm	14Nm	14Nm
Terminal capacity control circuit cables										
Solid (control circuit cables)	1 x 0.75 - 4mm ² / 2 x 0.75 - 2.5mm ²					1 x 0.75 - 4mm ² / 2 x 0.75 - 2.5mm ²				
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5mm ² / 2 x 0.75 - 2.5mm ²					1 x 0.75 - 2.5mm ² / 2 x 0.75 - 2.5mm ²				
Stripping length (control circuit cables)	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm
Terminal screw (control circuit cables)	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm

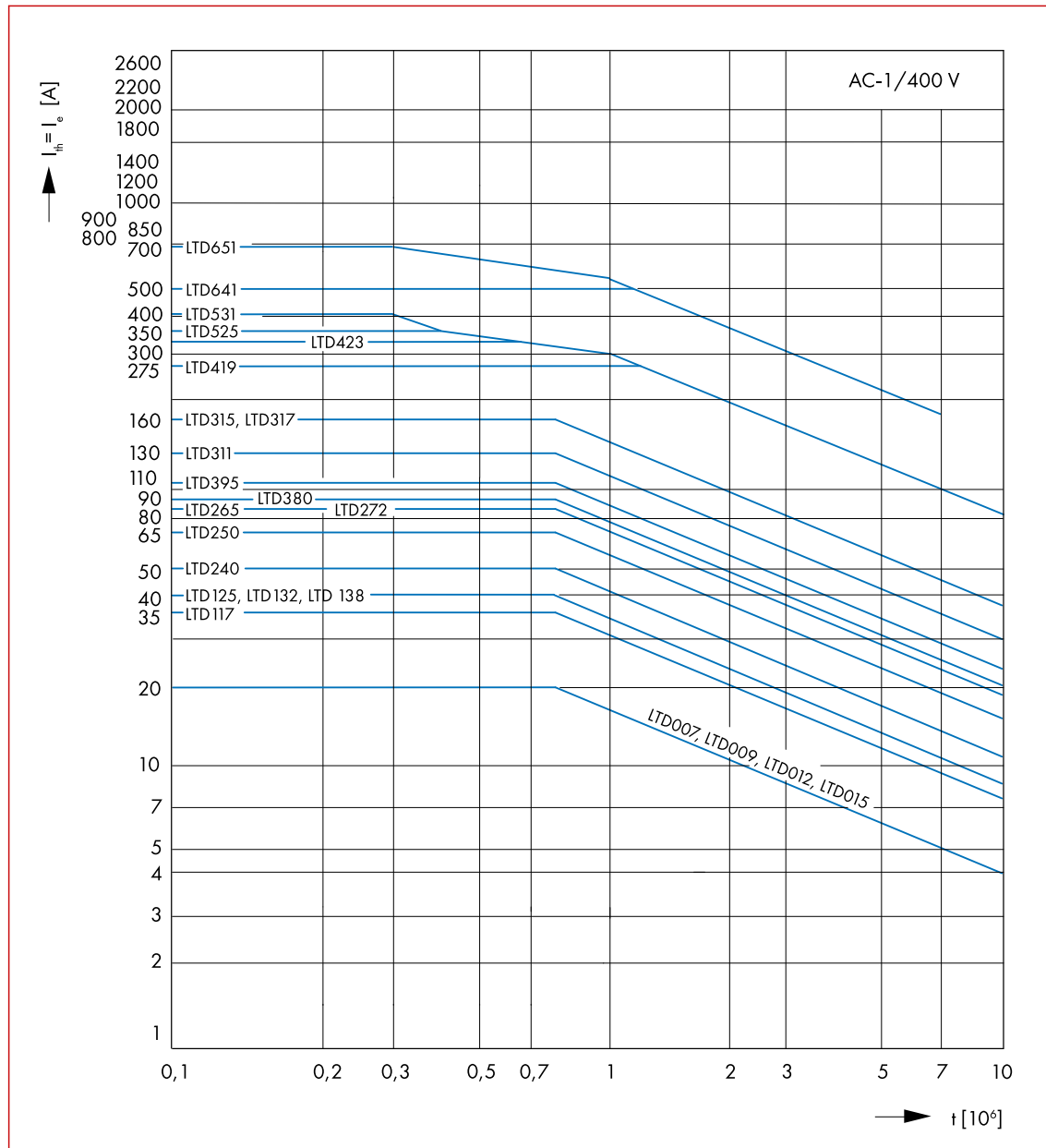
LTD Contactors for Switching Motors, 3-pole, Size 3

Diagram AC1 (Short-time Current and Duration of Load)



■ LTD Contactors for Switching Motors, 3-pole, Size 3

■ Diagram AC1 (Breaking Current and Lifecycle) [Operations]



LTD Contactors for Switching Motors, 3-pole, Size 3

Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]

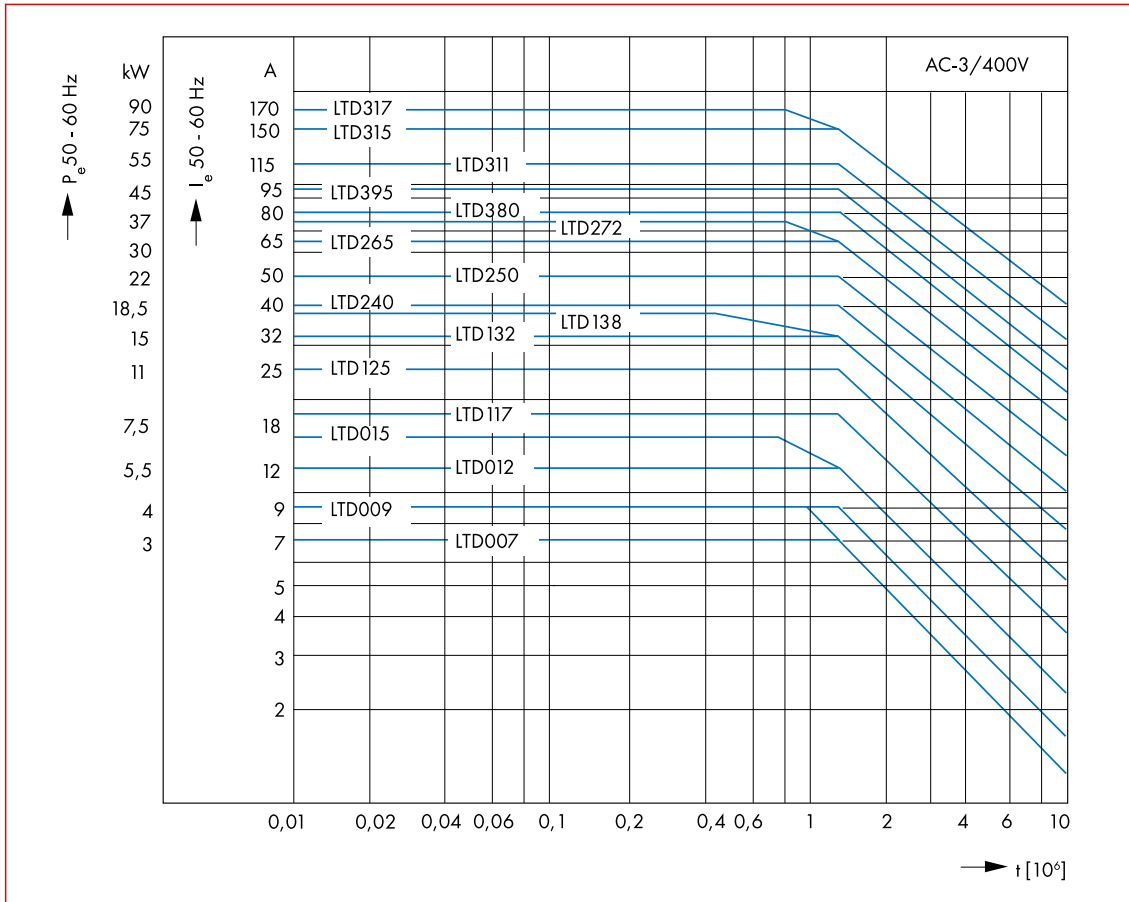
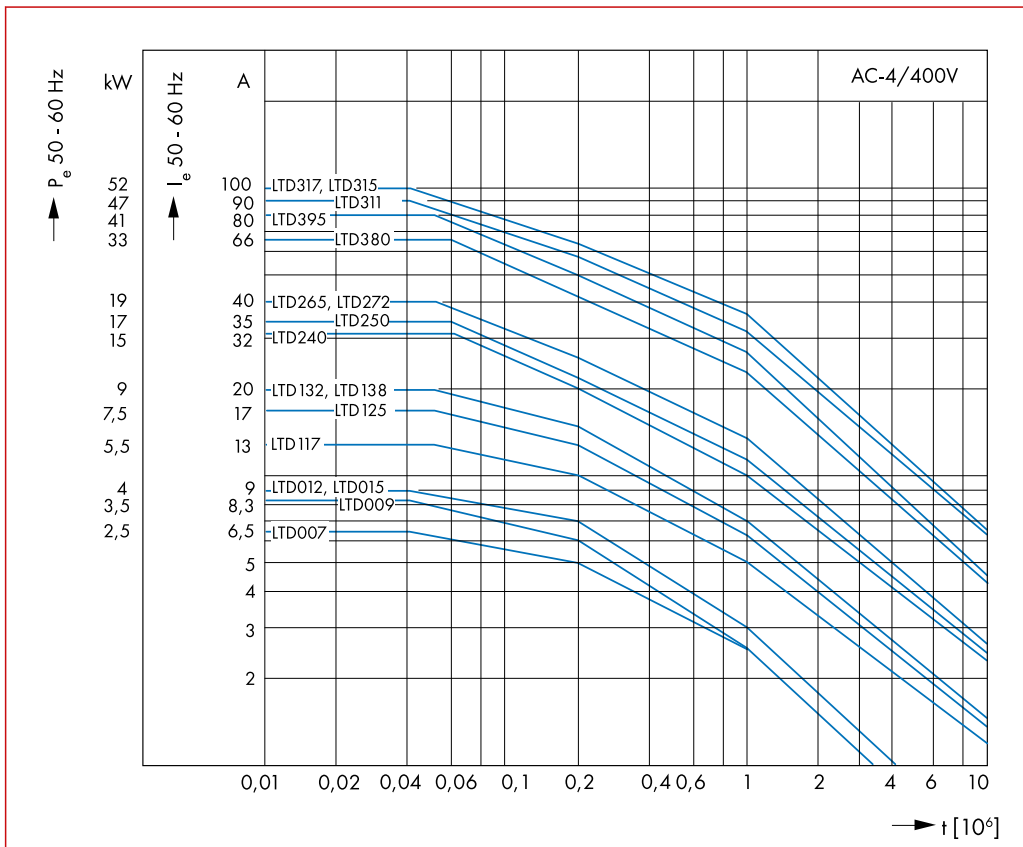


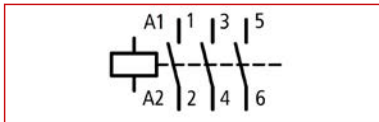
Diagram AC4 (Rated Power, Rated Current and Lifecycle) [Operations]



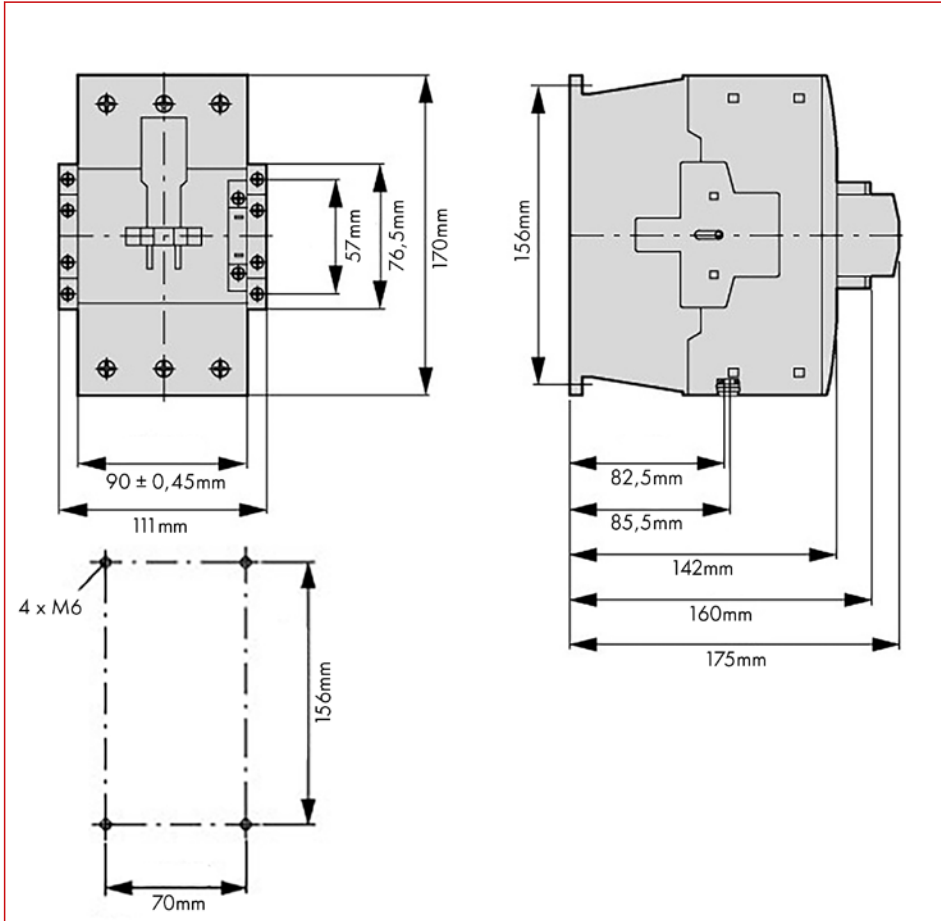
Electromechanical Contactors Series ALEA II LT

■ LTD Contactors for Switching Motors, 3-pole, Size 3

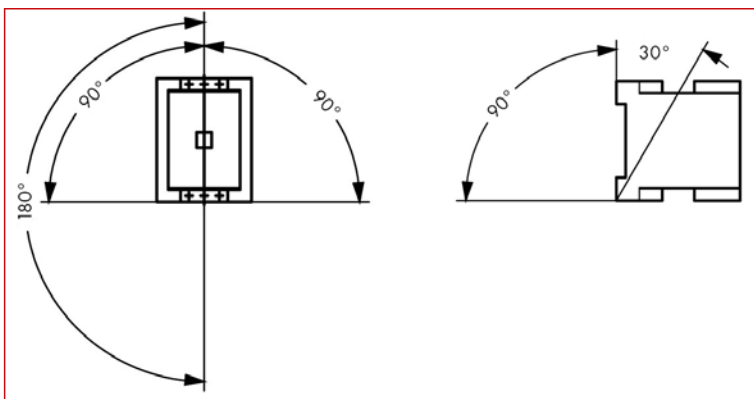
■ Circuit Diagram











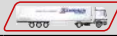







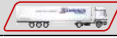













■ Dimensions



■ Mounting Position

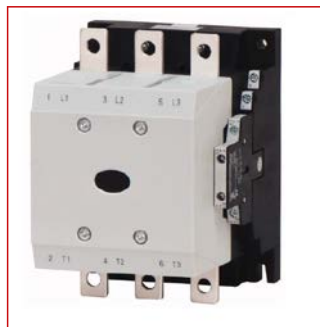


LTD Contactors for Switching Motors, 3-pole, Size 3

DESCRIPTION	AVAILABLE	ORDER NO.
Size 3 - Type LTD3 - 80A		
LTD contactor 37kW/400V/80A, coil 24VAC, model size 3		LTD38030
LTD contactor 37kW/400V/80A, coil 110VAC, model size 3		LTD38032
LTD contactor 37kW/400V/80A, coil 230VAC, model size 3		LTD38033
LTD contactor 37kW/400V/80A, coil 24VDC, model size 3		LTD38035
Size 3 - Type LTD3 - 95A		
LTD contactor 45kW/400V/95A, coil 24VAC, model size 3		LTD39530
LTD contactor 45kW/400V/95A, coil 110VAC, model size 3		LTD39532
LTD contactor 45kW/400V/95A, coil 230VAC, model size 3		LTD39533
LTD contactor 45kW/400V/95A, coil 24VDC, model size 3		LTD39535
Size 3 - Type LTD3 - 115A		
LTD contactor 55kW/400V/115A, coil 24VAC, model size 3		LTD31130
LTD contactor 55kW/400V/115A, coil 110VAC, model size 3		LTD31132
LTD contactor 55kW/400V/115A, coil 230VAC, model size 3		LTD31133
LTD contactor 55kW/400V/115A, coil 24VDC, model size 3		LTD31135
Size 3 - Type LTD3 - 150A		
LTD contactor 75kW/400V/150A, coil 24VAC, model size 3		LTD31530
LTD contactor 75kW/400V/150A, coil 110VAC, model size 3		LTD31532
LTD contactor 75kW/400V/150A, coil 230VAC, model size 3		LTD31533
LTD contactor 75kW/400V/150A, coil 24VDC, model size 3		LTD31535
Size 3 - Type LTD3 - 170A		
LTD contactor 90kW/400V/170A, coil 24VAC, model size 3		LTD31730
LTD contactor 90kW/400V/170A, coil 110VAC, model size 3		LTD31732
LTD contactor 90kW/400V/170A, coil 230VAC, model size 3		LTD31733
LTD contactor 90kW/400V/170A, coil 24VDC, model size 3		LTD31735
Auxiliary Contacts Size 3		
Auxiliary contact for contactors, 2 NO, model size 2-3		LTZ3D420
Auxiliary contact for contactors, 1 NO 1 NC, model size 2-3		LTZ3D411
Auxiliary contact for contactors, 2 NC, model size 2-3		LTZ3D402
Auxiliary contact for contactors, 4 NO, model size 2-3		LTZ3D140
Auxiliary contact for contactors, 3 NO 1 NC, model size 2-3		LTZ3D131
Auxiliary contact for contactors, 2 NO 2 NC, model size 2-3		LTZ3D122
Auxiliary contact for contactors, 1 NO 3 NC, model size 2-3		LTZ3D113
Auxiliary contact for contactors, 4 NC, model size 2-3		LTZ3D104
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 2-4		LTZ3D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 2-4		LTZ3D811



LTD Contactors for Switching Motors, 3-pole, Size 4



LTD41953



Mobil Code

Schrack-Info

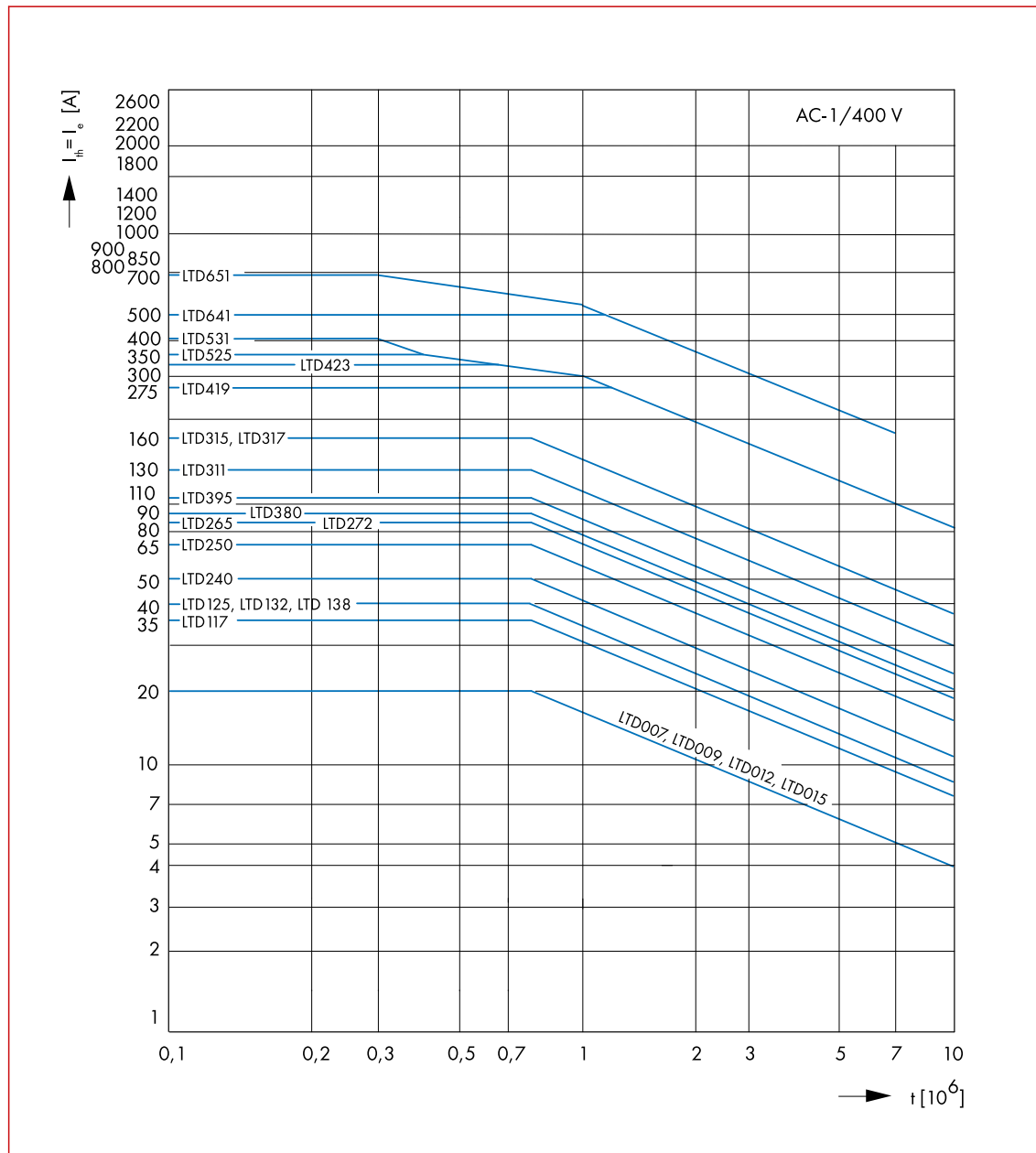
- Contactors from 90kW up to 110kW, 3-pole with integrated auxiliary contacts 2 NC and 2 NO
- Contactors LTD4 can be provided with side mounted auxiliary contacts LTZ3D711 and LTZ3D811
- Contacts according to EN 50012
- Integrated surge suppressor in the electronic control circute
- Mountable to mounting plate
- Further accessories find attached

	LTD41953	LTD42353
Rated operational power AC-3	90kW	110kW
Rated current AC-3	185A	225A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508	
Lifespan, mechanical AC operated	10000000 Operations	10000000 Operations
Operating frequency, mechanical AC operated	3000 Operations/h	3000 Operations/h
Climatic proofing	Damp heat constant according IEC60068-2-78 Damp heat cycle according IEC60068-2-30	
Ambient temperature Open	-40 / +60°C	-40 / +60°C
Degree of Protection	IP00	IP00
Pollution degree	3	3
Rated impulse withstand voltage (U _{imp})	8000V	8000V
Overvoltage category	III	III
Rated insulation voltage (U _i)	1000V	1000V
Rated operational voltage	1000V	1000V
Safe isolation to EN61140		
Between coil and contacts	500V	500V
Between the contacts	500V	500V
Making capacity p.f. to IEC/EN60947 up to 690V	2700A	2700A
AC-1		
AC-1 Rated operational current		
Conventional free air therm. current 3pole 50-60Hz		
Open at 40°C (I _{th} =I _e)	337A	386A
Convent. free air thermal cur. 1 pole Open (I _{th})	685A	707A
AC-3		
AC-3 Rated operational current		
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	185A	225A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	185A	225A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	150A	160A
AC-3 Motor rating		
AC-3 220V 230V (P)	55kW	70kW
AC-3 380V 400V (P)	90kW	110kW
AC-3 660V 690V (P)	140kW	150kW
AC-4		
AC-4 Rated operational current		
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	136A	164A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	136A	164A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	110A	120A
AC-4 Motor rating		
AC-4 220V 230V (P)	41kW	51kW
AC-4 380V 400V (P)	75kW	90kW
AC-4 660V 690V (P)	102kW	110kW

LTD Contactors for Switching Motors, 3-pole, Size 4

	LTD41953--	LTD42353--
Rated operational power AC-3	90kW	110kW
Rated current AC-3	185A	225A
Current heat loss		
3 pole, at I_{th} (60°)	34W	45W
Magnet systems		
Voltage tolerance AC operated (Pick-up)	$0.8 \times U_s \text{ min} - 1.15 \times U_s \text{ max}$	$0.8 \times U_s \text{ min} - 1.15 \times U_s \text{ max}$
Voltage tolerance AC operated (Drop-out)	$0.25 \times U_s \text{ min} - 0.6 \times U_s \text{ max}$	$0.25 \times U_s \text{ min} - 0.6 \times U_s \text{ max}$
Duty factor	100%	100%
EMC Emitted interference	This product is designed for operation in industrial environments (environment A). Its use in residential environments (environment B) may cause radio-frequency interference, requiring additional noise suppression measures.	
Terminal capacity main cable		
Terminal screw (main cable)	M10	M10
Tightening torque (main cable)	24Nm	24Nm
Terminal capacity control circuit cables		
Solid (control circuit cables)	1 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²	2 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²
Terminal screw (control circuit cables)	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm

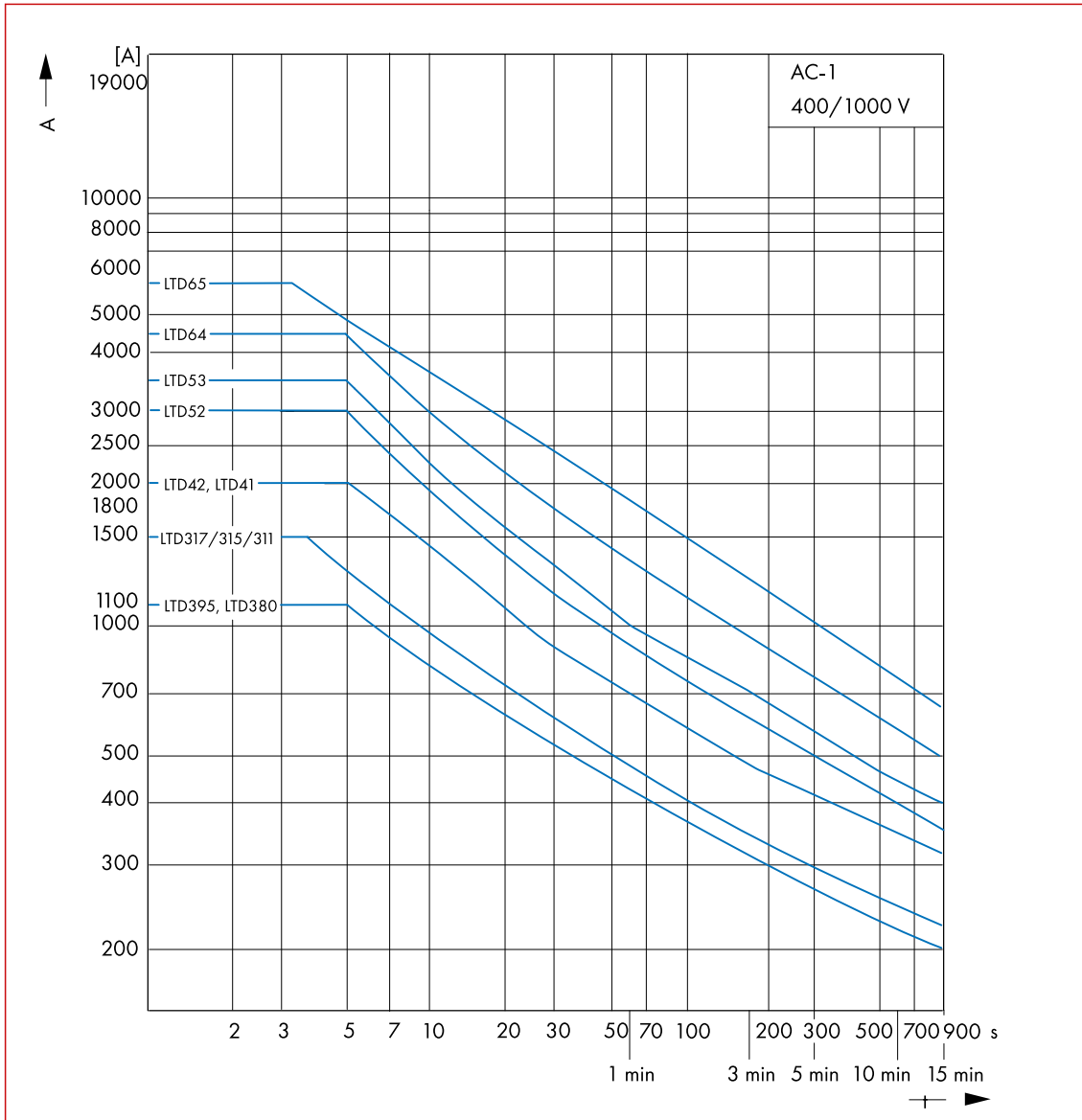
Diagram AC1 (Breaking Current and Lifecycle) [Operations]



Electromechanical Contactors Series ALEA II LT

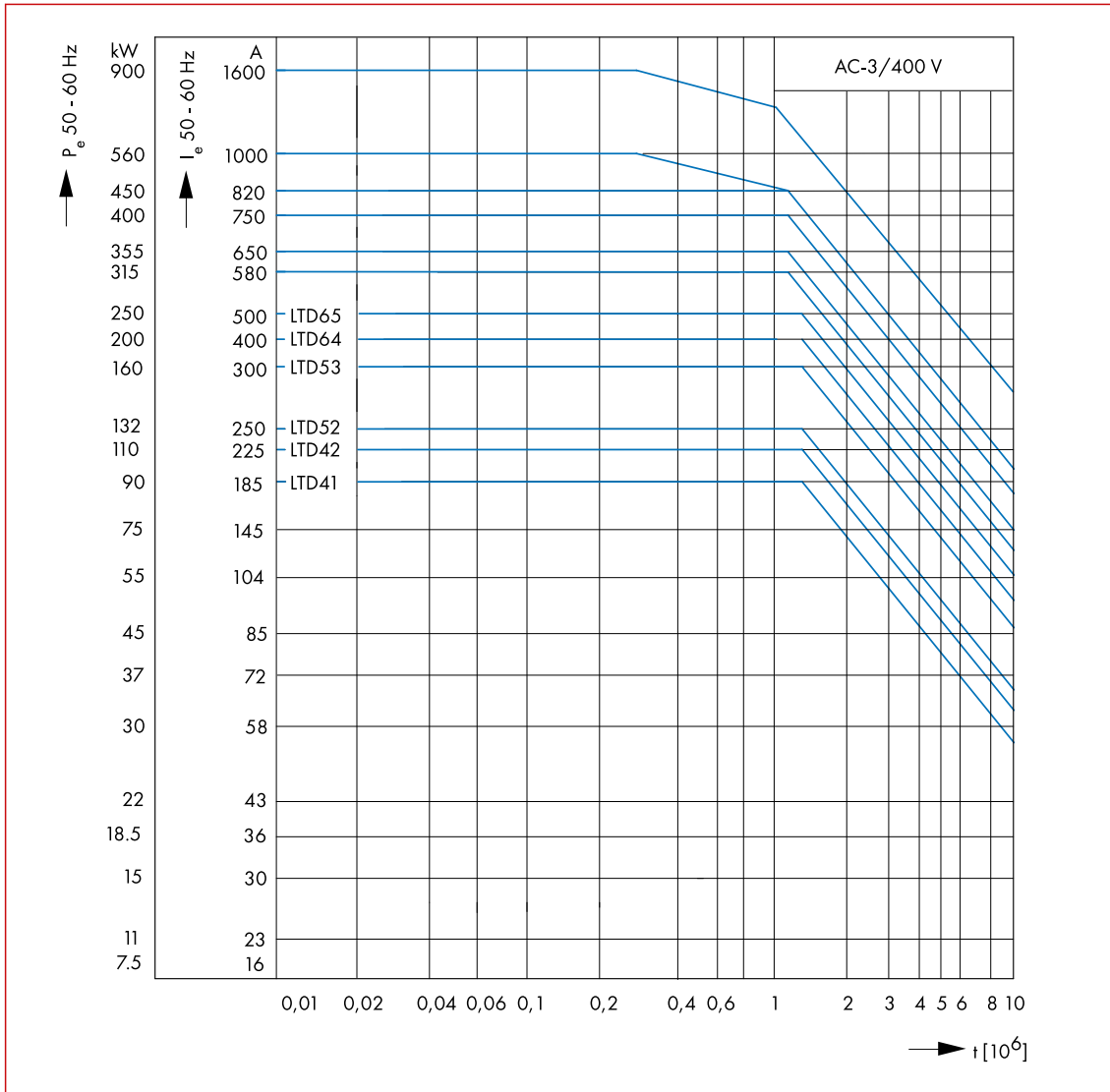
■ LTD Contactors for Switching Motors, 3-pole, Size 4

■ Diagram AC1 (Short-time Current and Duration of Load)



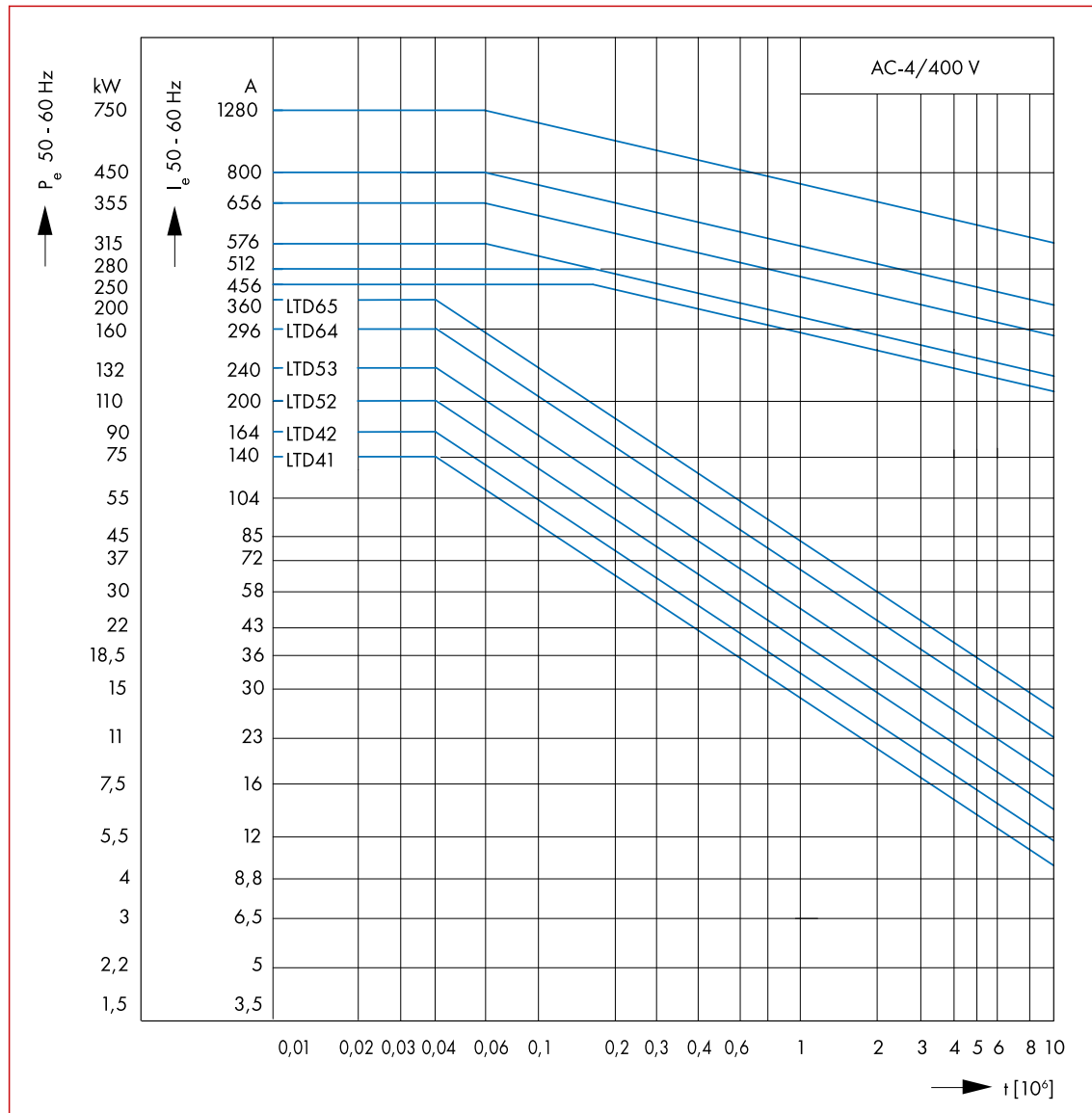
LTD Contactors for Switching Motors, 3-pole, Size 4

Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]

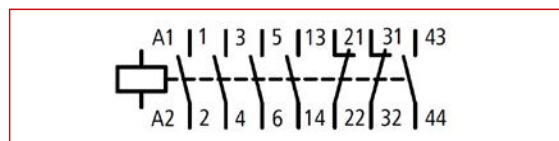


LTD Contactors for Switching Motors, 3-pole, Size 4

Diagram AC4 (Rated Power, Rated Current and Lifecycle) [Operations]

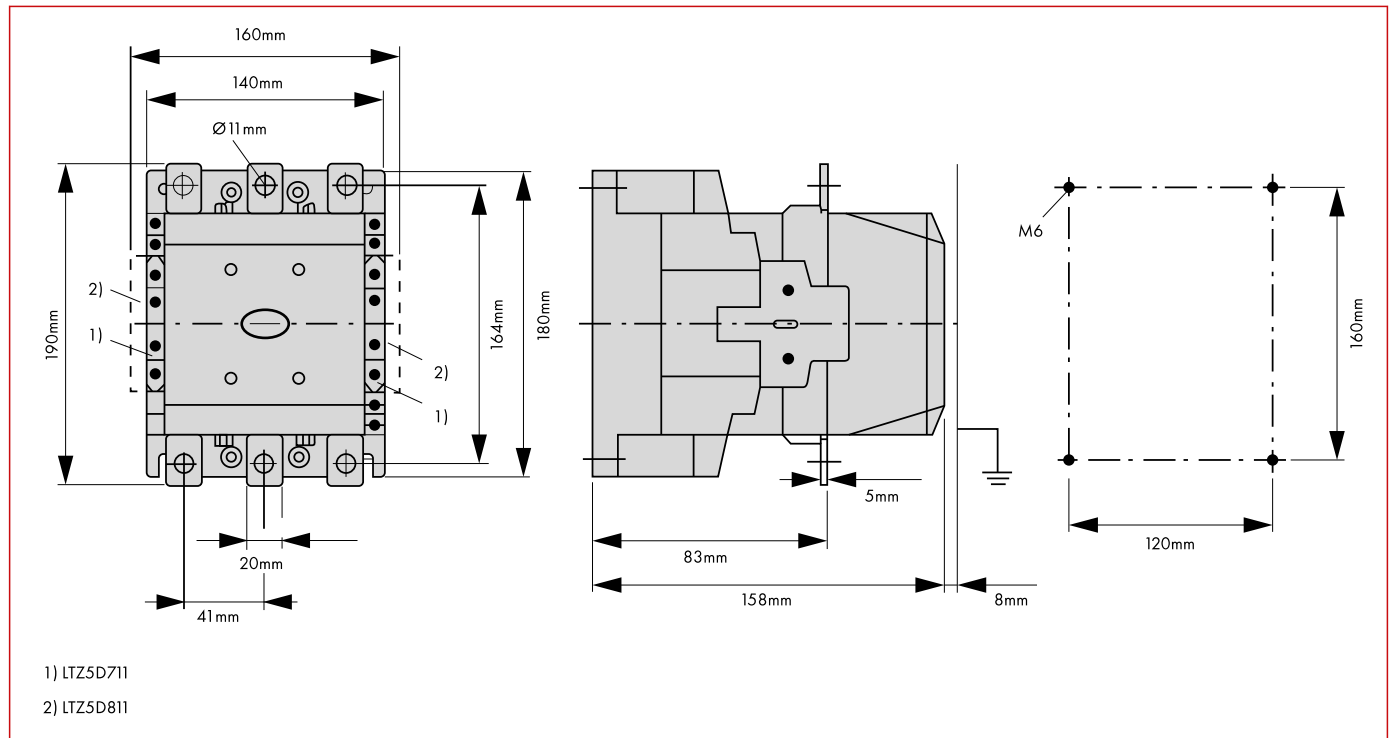


Circuit Diagram

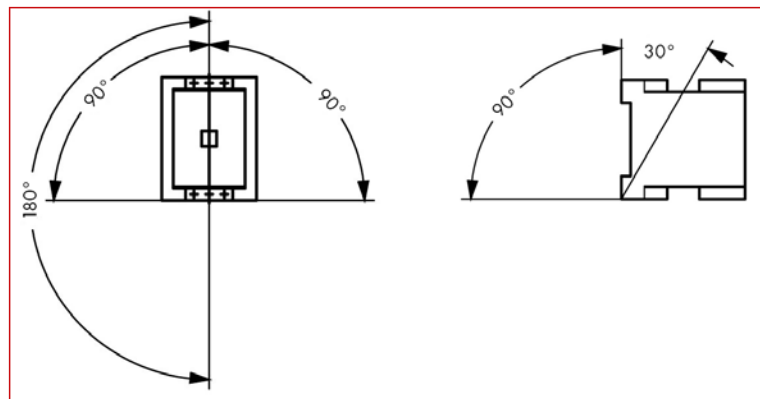


LTD Contactors for Switching Motors, 3-pole, Size 4

Dimensions



Mounting Position



DESCRIPTION	AVAILABLE	ORDER NO.
Size 4 - Type LTD4 - 185A		
LTD contactor 90kW/400V/185A, 2 NO + 2 NC, coil 230VAC, model size 4		LTD41953
Size 4 - Type LTD4 - 225A		
LTD contactor 110kW/400V/225A, 2 NO + 2 NC, coil 230VAC, model size 4		LTD42353
Auxiliary Contacts Size 4		
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 2-4		LTZ3D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 2-4		LTZ3D811

LTD Contactors for Switching Motors, 3-pole, Size 5



LTD53153

Schrack-Info

- Contactors from 132kW up to 160kW, 3-pole with integrated auxiliary contacts 2 NC and 2 NO
- Contactors LTD5 can be provided with side mounted auxiliary contacts LTZ5D711 and LTZ5D811
- Contacts according to EN 50012
- Integrated surge suppressor in the electronic control circute
- Mountable to mounting plate
- Further accessories find attached



Mobil Code

	LTD52553	LTD53153
Rated operational power AC-3	132kW	160kW
Rated current AC-3	250A	300A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508	
Lifespan, mechanical AC operated	10000000 operations	10000000 operations
Operating frequency, mechanical AC operated	3000 operations/h	3000 operations/h
Climatic proofing	Damp heat constant according IEC60068-2-78	
	Damp heat cycle according to IEC60068-2-30	
Ambient temperature Open	-40 / +60°C	-40 / +60°C
Degree of Protection	IP00	IP00
Pollution degree	3	3
Rated impulse withstand voltage (U _{imp})	8000V	8000V
Oversvoltage category	III	III
Rated insulation voltage (U _i)	1000V	1000V
Rated operational voltage	1000V	1000V
Safe isolation to EN61140		
Between coil and contacts	500V	500V
Between the contacts	500V	500V
Making capacity p.f. to IEC/EN60947 up to 690V	3000A	3600A
AC-1		
AC-1 Rated operational current		
Conventional free air thermal current 3pole 50-60Hz		
Open at 40°C (I _{th} =I _e)	430A	490A
Conventional free air thermal current 1 pole Open (I _{th})	875A	875A
AC-3		
AC-3 Rated operational current		
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	250A	300A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	250A	300A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	185A	185A
AC-3 Motor rating		
AC-3 220V 230V (P)	75kW	90kW
AC-3 380V 400V (P)	132kW	160kW
AC-3 660V 690V (P)	170kW	170kW
AC-4		
AC-4 Rated operational current		
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	200A	240A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	200A	240A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	150A	150A
AC-4 Motor rating		
AC-4 220V 230V (P)	62kW	75kW
AC-4 380V 400V (P)	110kW	132kW
AC-4 660V 690V (P)	137kW	137kW

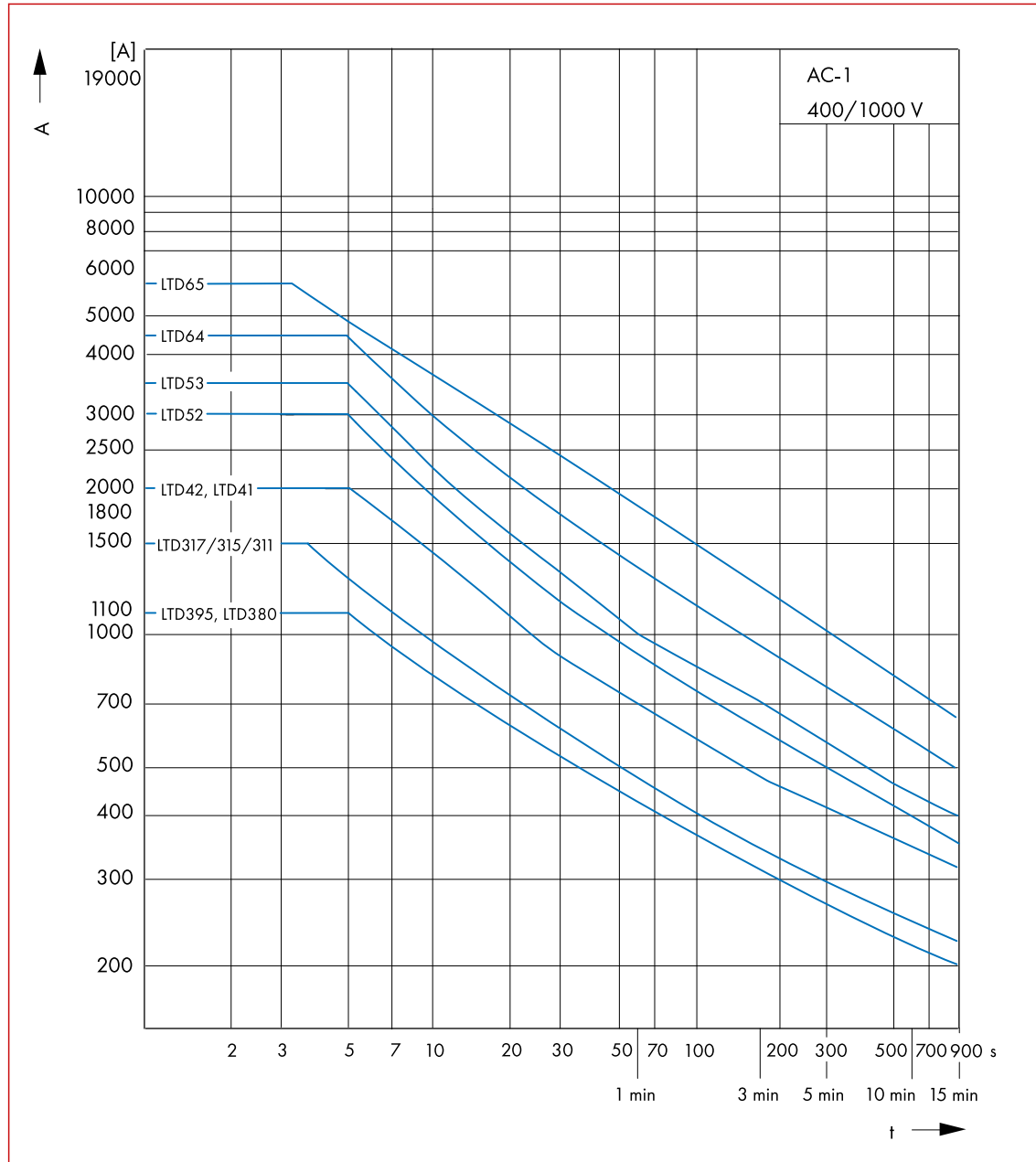
 LTD Contactors for Switching Motors, 3-pole, Size 5

	LTD52553	LTD53153
Rated operational power AC-3	132kW	160kW
Rated current AC-3	250A	300A
Current heat loss		
3 pole, at I_{th} (60°)	55W	37W
Magnet systems		
Voltage tolerance AC operated (Pick-up)	0,85 x U_s min - 1,1 x U_s max	0,85 x U_s min - 1,1 x U_s max
Voltage tolerance AC operated (Drop-out)	0,2 x U_s min - 0,4 x U_s max	0,2 x U_s min - 0,4 x U_s max
Power consumption of the coil within cold state and 1.0 x U_s		
Duty factor	100%	100%
EMC Emitted interference	This product is designed for operation in industrial environments (environment A). Its use in residential environments (environment B) may cause radio-frequency interference, requiring additional noise suppression measures.	
Terminal capacity main cable		
Terminal screw (main cable)	M10	M10
Tightening torque (main cable)	24Nm	24Nm
Terminal capacity control circuit cables		
Solid (control circuit cables)	3 x 0,75 - 2,5mm ² , 2 x 0,75 - 2,5mm ²	4 x 0,75 - 2,5mm ² , 2 x 0,75 - 2,5mm ²
Flexible with ferrule (control circuit cables)	1 x 0,75 - 2,5mm ² , 2 x 0,75 - 2,5mm ²	1 x 0,75 - 2,5mm ² , 2 x 0,75 - 2,5mm ²
Terminal screw (control circuit cables)	M3,5	M3,5
Tightening torque (control circuit cables)	1,2Nm	1,2Nm

Electromechanical Contactors Series ALEA II LT

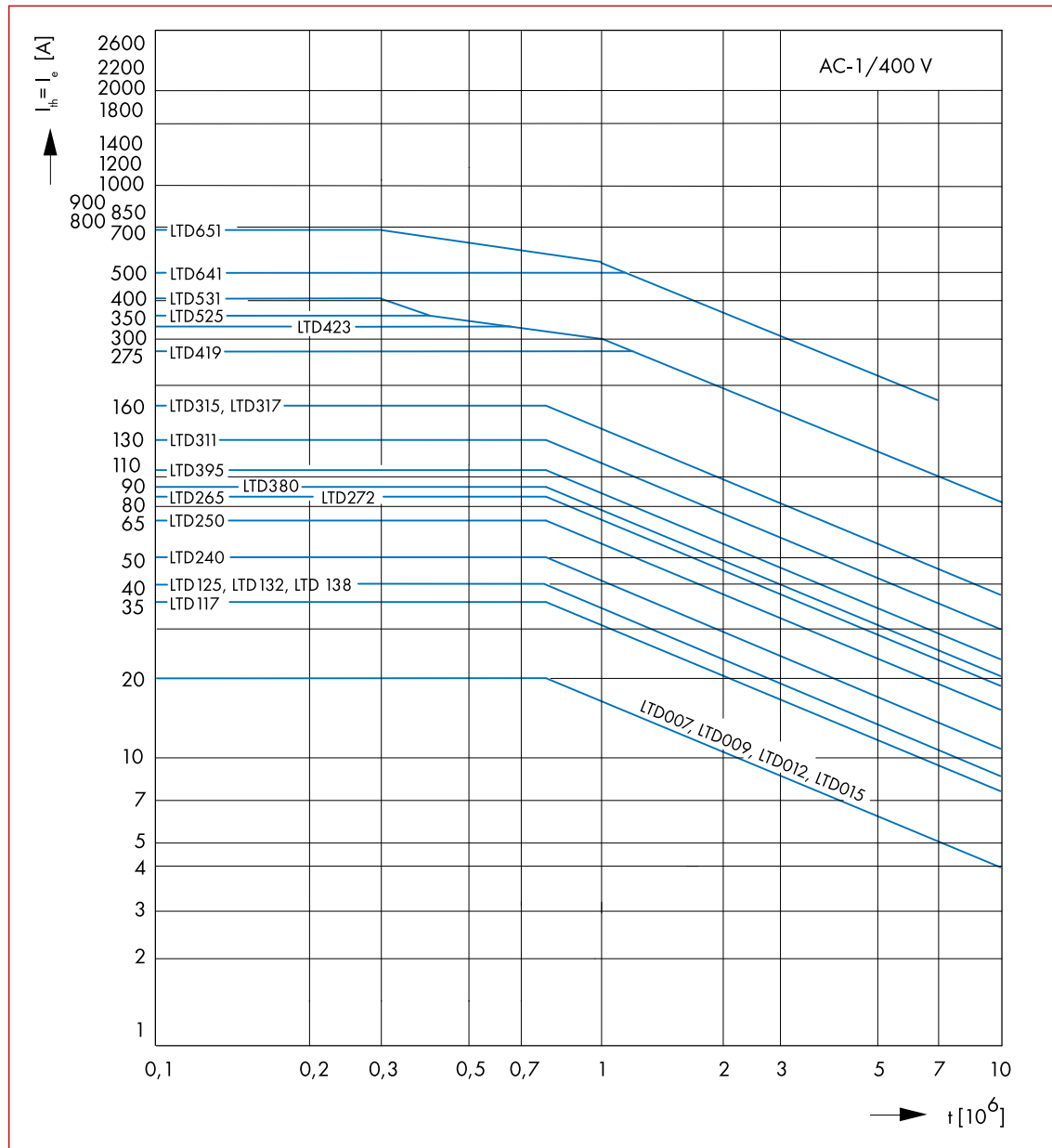
■ LTD Contactors for Switching Motors, 3-pole, Size 5

■ Diagram AC1 (Short-time Current and Duration of Load)



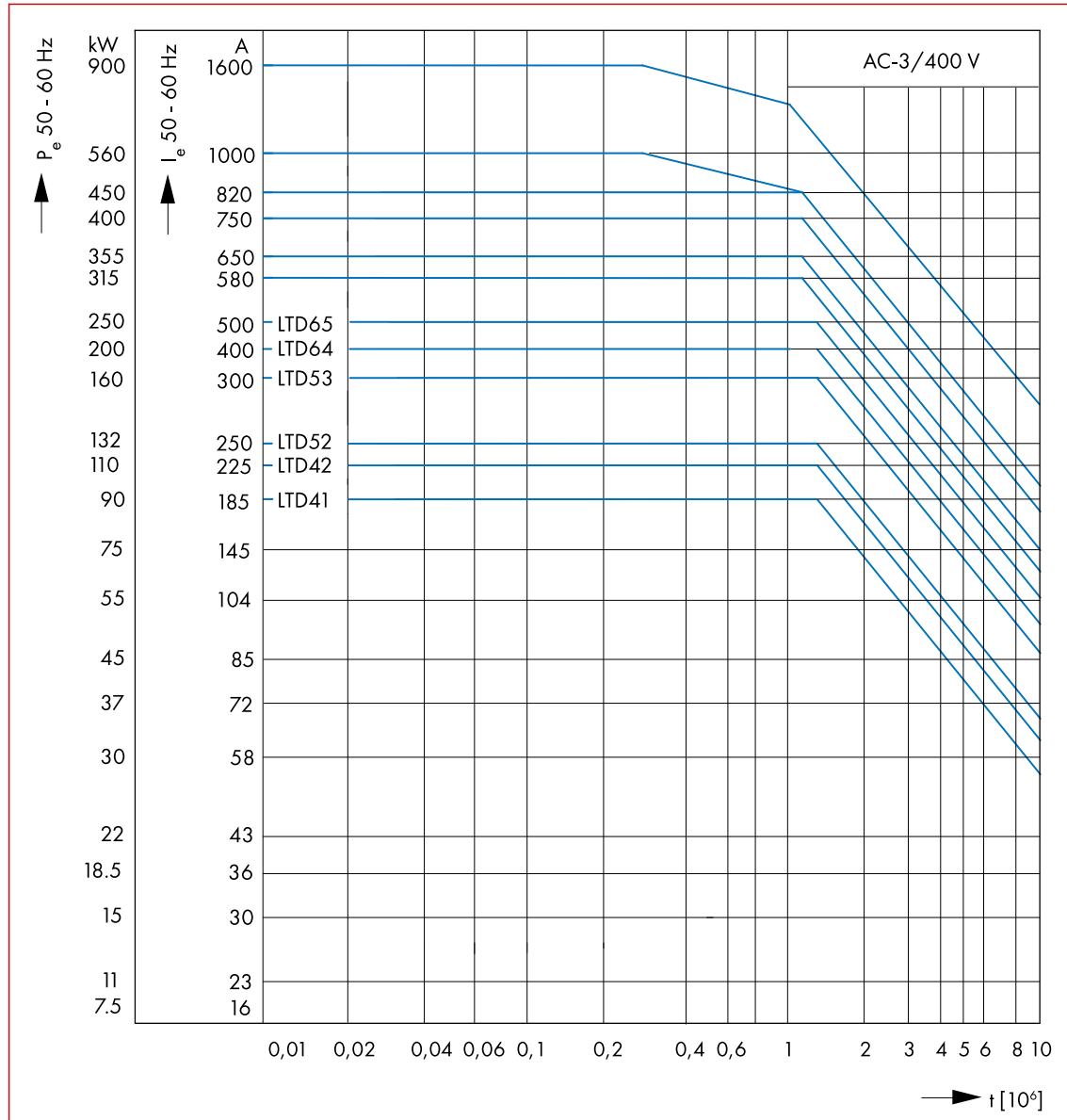
LTD Contactors for Switching Motors, 3-pole, Size 5

Diagram AC1 (Breaking Current and Lifecycle) [Operations]



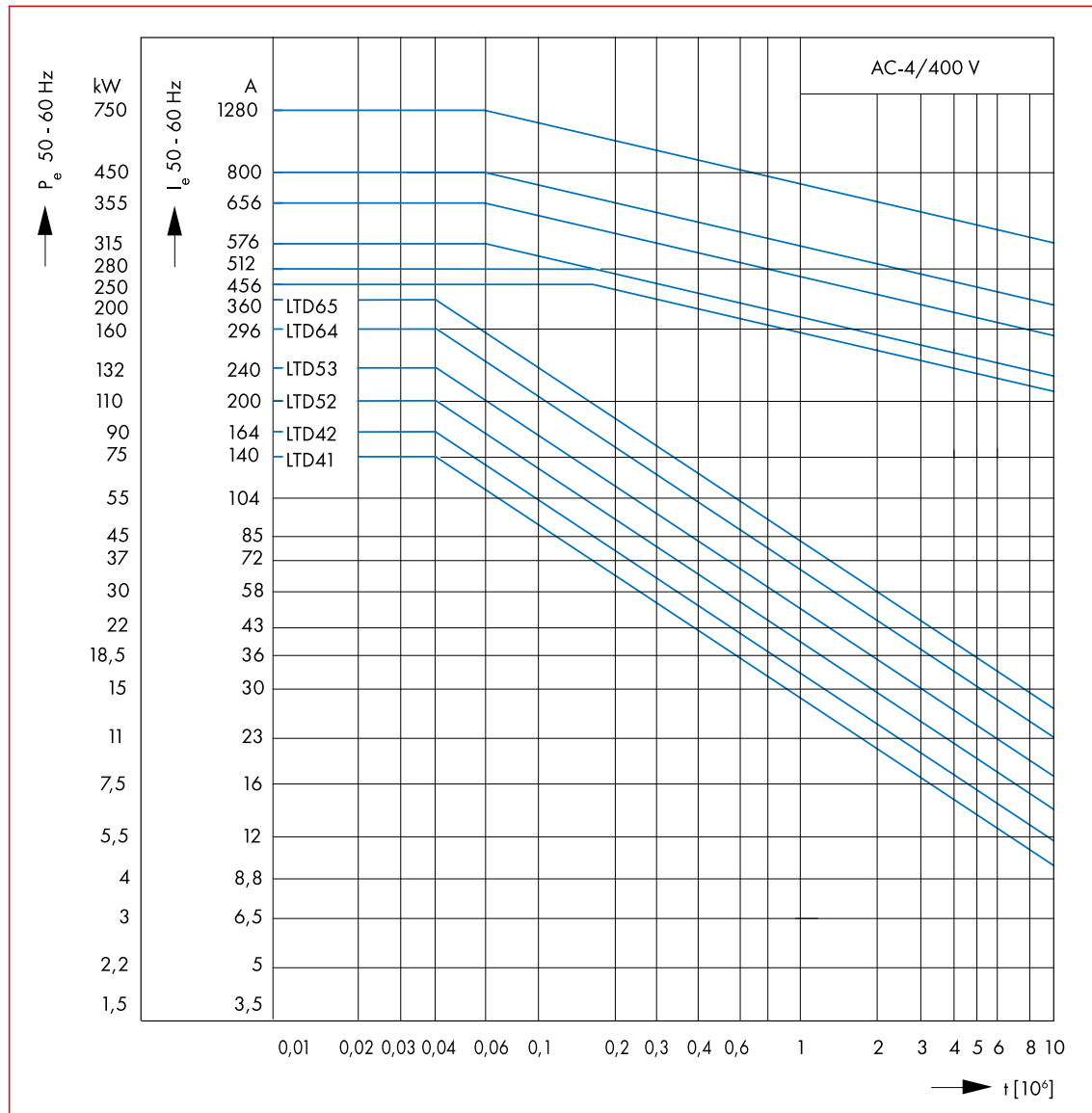
■ LTD Contactors for Switching Motors, 3-pole, Size 5

■ Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]

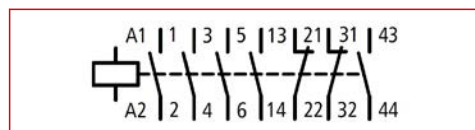


LTD Contactors for Switching Motors, 3-pole, Size 5

Diagram AC4 (Rated Power, Rated Current and Lifecycle) [Operations]



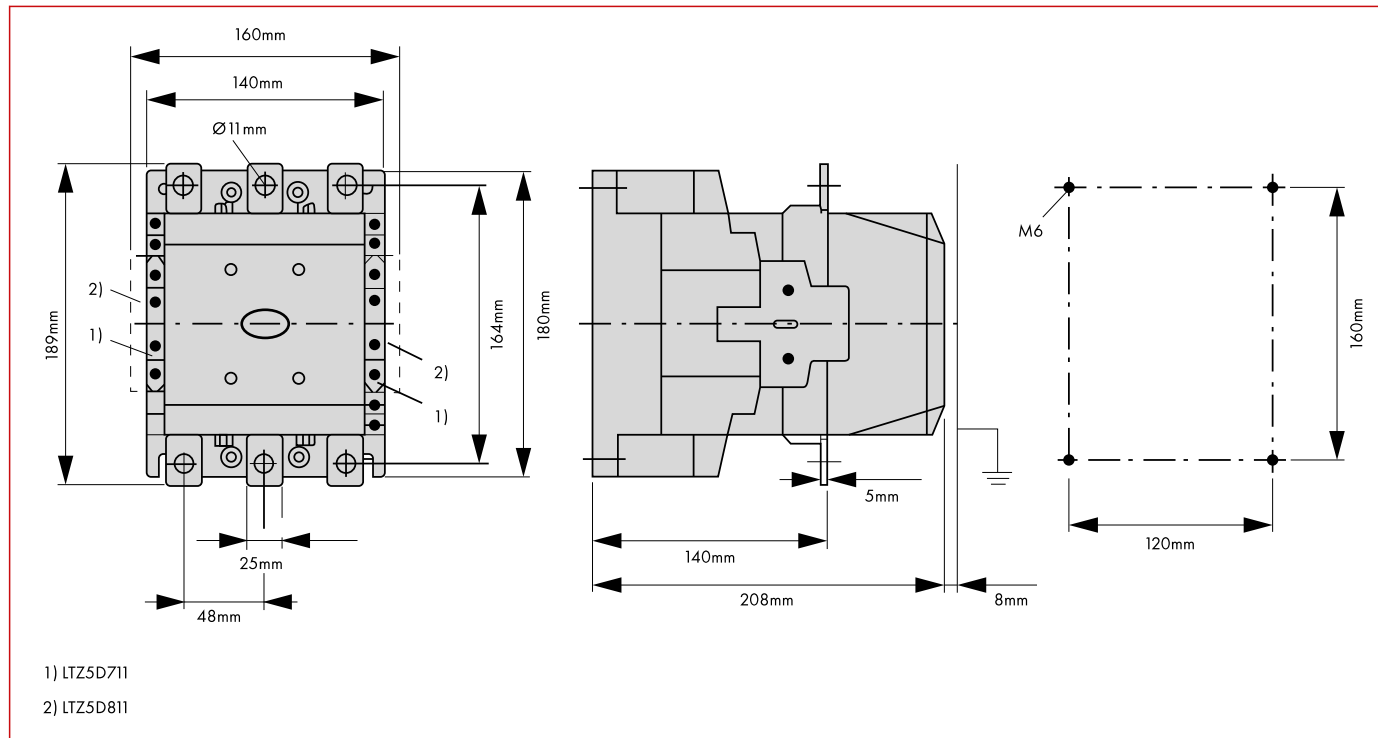
Circuit Diagram



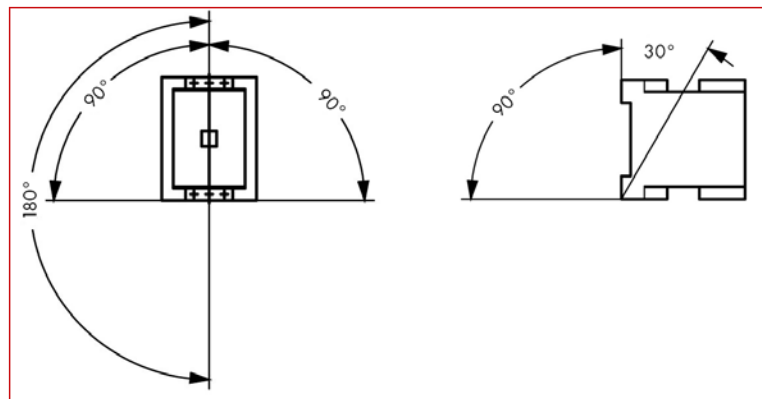
Electromechanical Contactors Series ALEA II LT

LTD Contactors for Switching Motors, 3-pole, Size 5

Dimensions



Mounting Position



DESCRIPTION	AVAILABLE	ORDER NO.
Size 5 - Type LTD5 - 250A		
LTD contactor 132kW/400V/250A, 2 NO + 2 NC, coil 230VAC, model size 5		LTD52553
Size 5 - Type LTD5 - 300A		
LTD contactor 160kW/400V/300A, 2 NO + 2 NC, coil 230VAC, model size 5		LTD53153
Auxiliary Contacts Size 5		
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 5-6		LTZ5D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 5-6		LTZ5D811

LTD Contactors for Switching Motors, 3-pole, Size 6


LTD64153



Mobil Code

Schrack-Info

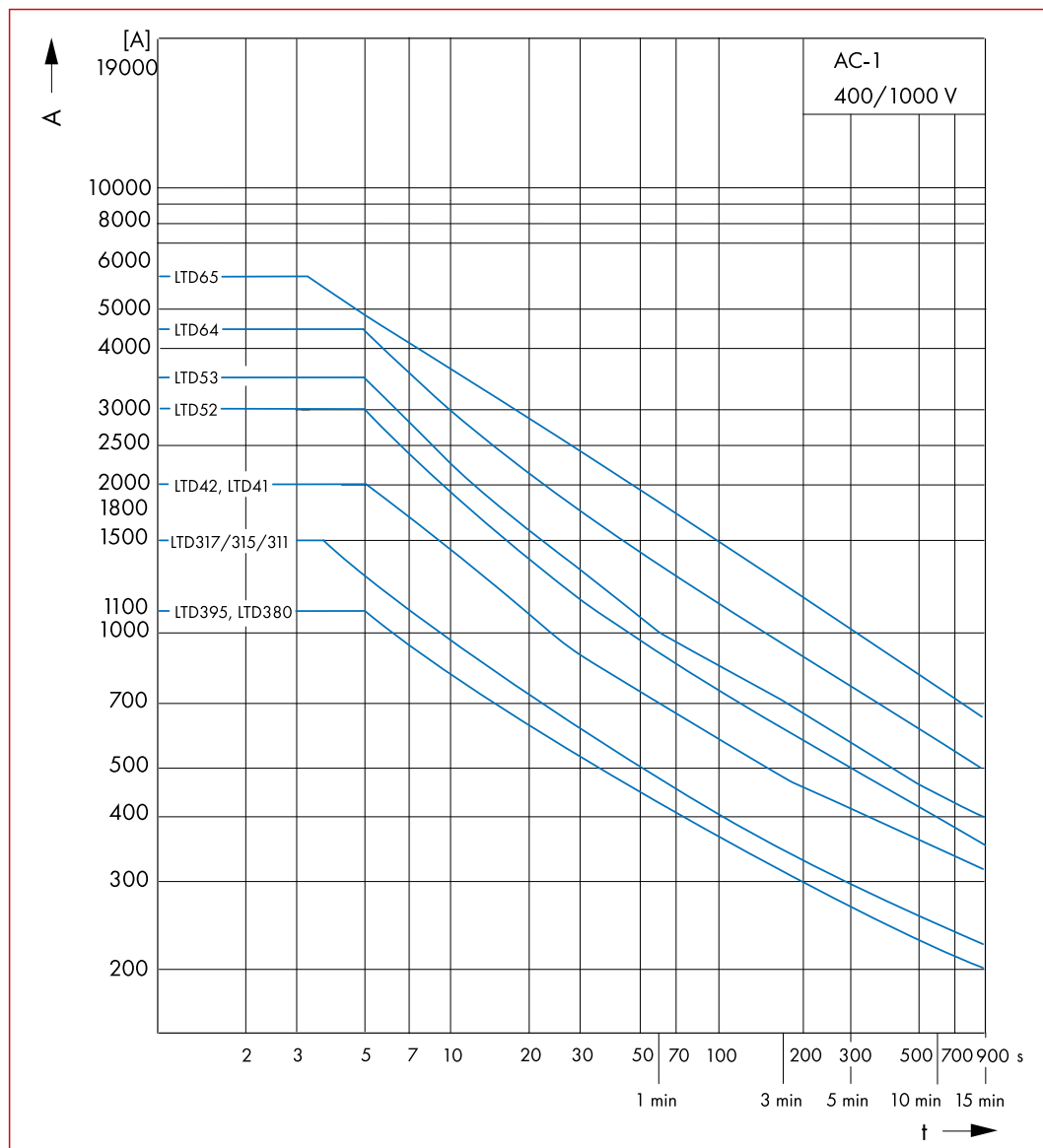
- Contactors from 200kW up to 250kW, 3-pole with integrated auxiliary contacts 2 NC and 2 NO
- Contactors LTD6 can be provided with side mounted auxiliary contacts LTZ5D711 and LTZ5D811
- Contacts according to EN 50012
- Integrated surge suppressor in the electronic control circute
- Mountable to mounting plate
- Further accessories find attached

	LTD64153	LTD65153
Rated operational power AC-3	212kW	265kW
Rated current AC-3	400A	500A
Standards	EN60947-4-1, EN60947-5-1, IEC60947-4-1, IEC60947-5-1, UL508	
Lifespan, mechanical AC operated	7000000 Operations	7000000 Operations
Operating frequency, mechanical AC operated	2000 Operations/h	2000 Operations/h
Climatic proofing	Damp heat constant according IEC60068-2-78 Damp heat cycle according to IEC60068-2-30	
Ambient temperature Open	-40 / +60°C	
Degree of Protection	IP00	IP00
Pollution degree	3	3
Rated impulse withstand voltage (U _{imp})	8000V	8000V
Oversvoltage category	III	III
Rated insulation voltage (U _i)	1000V	1000V
Rated operational voltage	1000V	1000V
Safe isolation to EN61140		
Between coil and contacts	500V	500V
Between the contacts	500V	500V
Making capacity p.f. to IEC/EN60947 up to 690V	5500A	5500A
AC-1		
AC-1 Rated operational current		
Conventional free air therm. current 3pole 50-60Hz		
Open at 40°C (I _{th} =I _e)	612A	800A
Conventional free air thermal current 1 pole Open(I _{th})	1250A	1625A
AC-3		
AC-3 Rated operational current		
AC-3 Open, 3-pole: 50 – 60Hz 220V 230V (I _e)	400A	500A
AC-3 Open, 3-pole: 50 – 60Hz 380V 400V (I _e)	400A	500A
AC-3 Open, 3-pole: 50 – 60Hz 660V 690V (I _e)	325A	325A
AC-3 Motor rating		
AC-3 220V 230V (P)	125kW	155kW
AC-3 380V 400V (P)	212kW	265kW
AC-3 660V 690V (P)	300kW	300kW
AC-4		
AC-4 Rated operational current		
AC-4 Open, 3-pole, 50 – 60Hz 220V 230V (I _e)	296A	360A
AC-4 Open, 3-pole, 50 – 60Hz 380V 400V (I _e)	296A	360A
AC-4 Open, 3-pole, 50 – 60Hz 660V 690V (I _e)	260A	260A
AC-4 Motor rating		
AC-4 220V 230V (P)	92kW	112kW
AC-4 380V 400V (P)	160kW	200kW
AC-4 660V 690V (P)	240kW	240kW

LTD Contactors for Switching Motors, 3-pole, Size 6

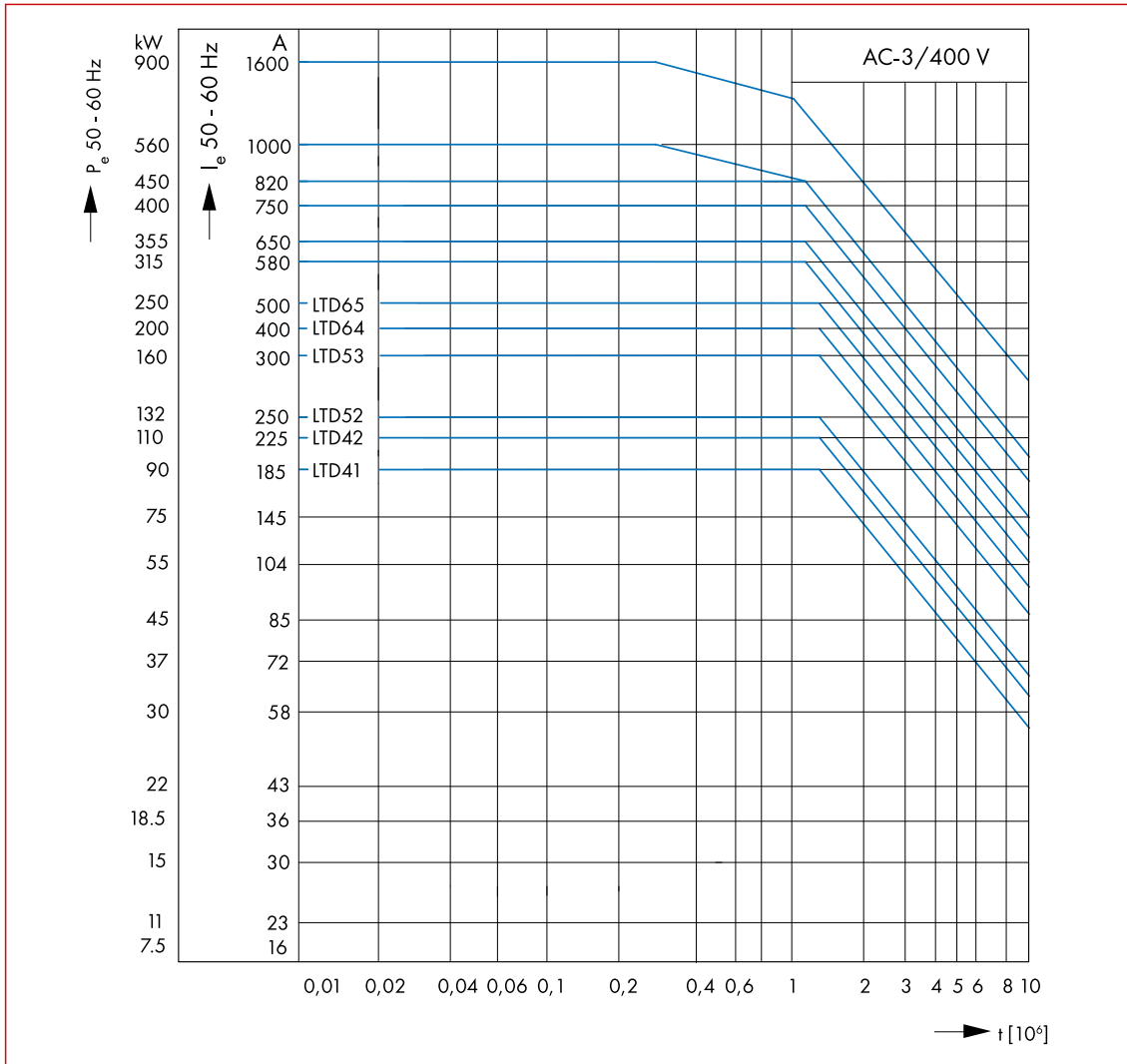
	LTD64153	LTD65153
Rated operational power AC-3	212kW	265kW
Rated current AC-3	400A	500A
Current heat loss		
3 pole, at lth (60°)	58W	113W
Magnet systems		
Voltage tolerance AC operated (Pick-up)	0.85 x U _s min - 1.1 x U _s max	0.85 x U _s min - 1.1 x U _s max
Voltage tolerance AC operated (Drop-out)	0.2 x U _s min - 0.4 x U _s max	0.2 x U _s min - 0.4 x U _s max
Duty factor	100%	100%
EMC Emitted interference	This product is designed for operation in industrial environments (environment A). Its use in residential environments (environment B) may cause radio-frequency interference, requiring additional noise suppression measures.	
Terminal capacity main cable		
Terminal screw (main cable)	M10	M10
Tightening torque (main cable)	24Nm	24Nm
Terminal capacity control circuit cables		
Solid (control circuit cables)	5 x 0.75 - 2.5 mm ² . 2 x 0.75 - 2.5mm ²	6 x 0.75 - 2.5 mm ² . 2 x 0.75 - 2.5mm ²
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5 mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5 mm ² . 2 x 0.75 - 2.5mm ²
Terminal screw (control circuit cables)	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm

Diagram AC1 (Short-time Current and Duration of Load)



LTD Contactors for Switching Motors, 3-pole, Size 6

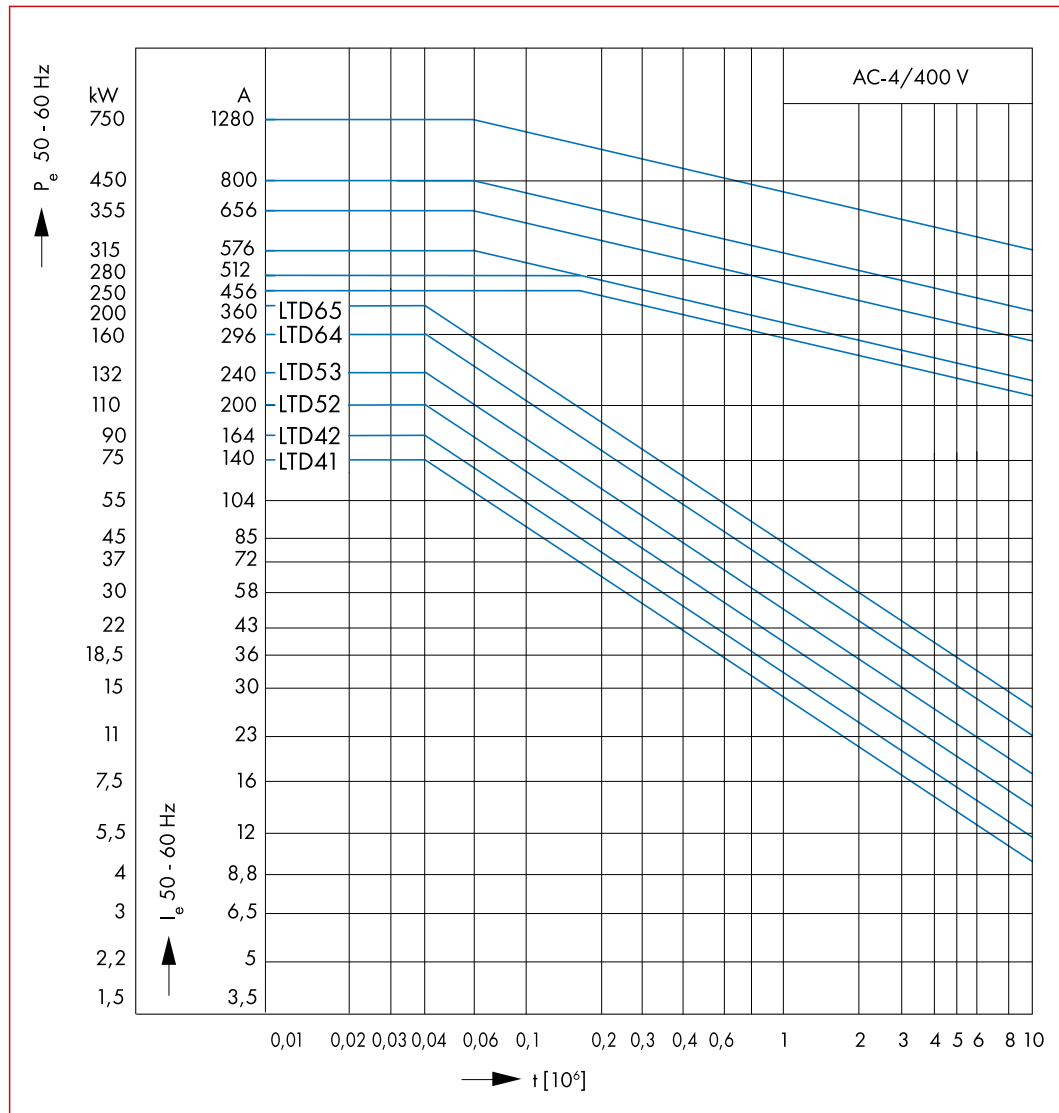
Diagram AC3 (Rated Power, Rated Current and Lifecycle) [Operations]



Electromechanical Contactors Series ALEA II LT

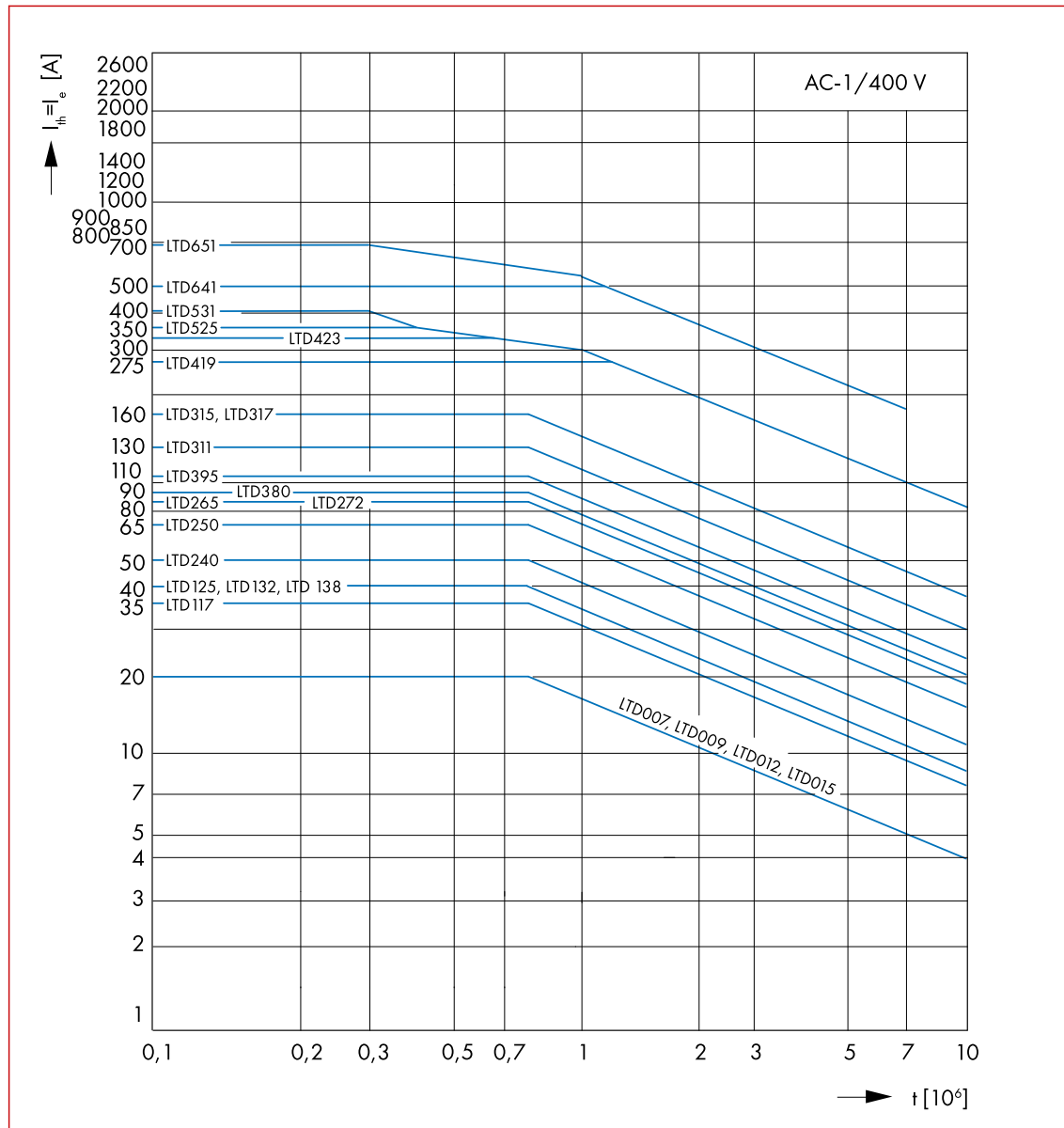
■ LTD Contactors for Switching Motors, 3-pole, Size 6

■ Diagram AC4 (Rated Power, Rated Current and Lifecycle at Load) [Operations]

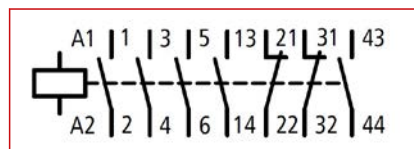


LTD Contactors for Switching Motors, 3-pole, Size 6

Diagram AC1 (Breaking Current and Lifecycle) [Operations]



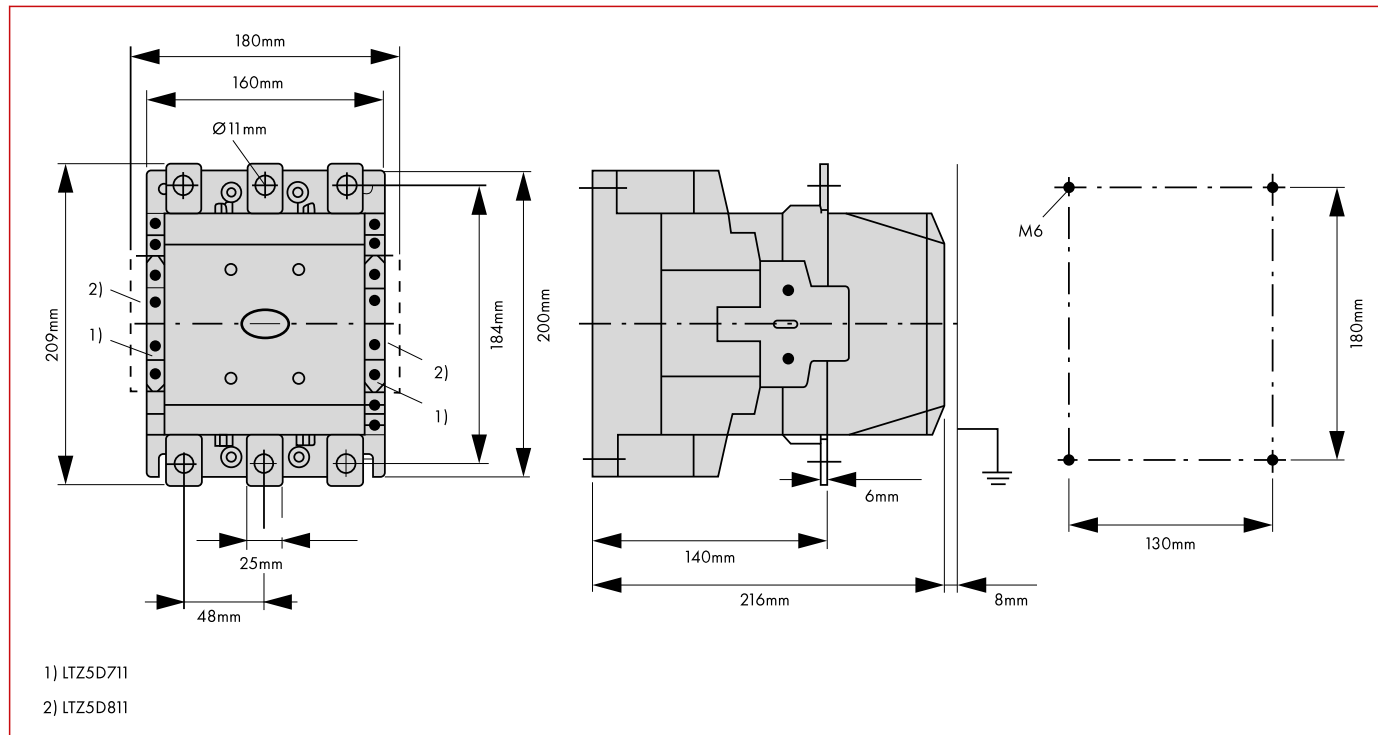
Circuit Diagram



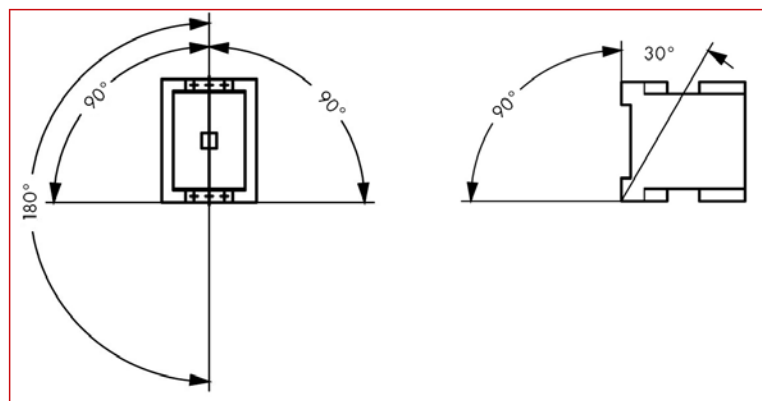
Electromechanical Contactors Series ALEA II LT

LTD Contactors for Switching Motors, 3-pole, Size 6

Dimensions



Mounting Position



DESCRIPTION	AVAILABLE	ORDER NO.
Size 6 - Type LTD6 - 400A		
LTD contactor 200kW/400V/400A, 2 NO + 2 NC, coil 230VAC, model size 6		LTD64153
Size 6 - Type LTD6 - 500A		
LTD contactor 250kW/400V/500A, 2 NO + 2 NC, coil 230VAC, model size 6		LTD65153
Auxiliary Contacts Size 6		
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 5-6		LTZ5D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 5-6		LTZ5D811

LTR Contactors 4-pole, for Switching Resistive Loads AC-1, Size 0 / 1 / 2 / 3


LTR02045

Schrack-Info

- 4-pole Contactors with 4 NO, from 20A up to 200A AC-1 loads
- Contactors LTR0 and LTR1 can be fitted with front mounted auxiliary contacts 2-pole or 4-pole
- Contactors LTR2 and LTR3 can be fitted with side mounted or front mounted auxiliary contacts 2-pole or 4-pole
- Fitting surge suppressors for contactors LTR0 - LTZO
- Fitting surge suppressors for contactors LTR1 - LTZ1
- Fitting surge suppressors for contactors LTR2 and LTR3 - LTZ3
- Electrical data of LTR are identical to according contactors LTDO up to LTD3
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



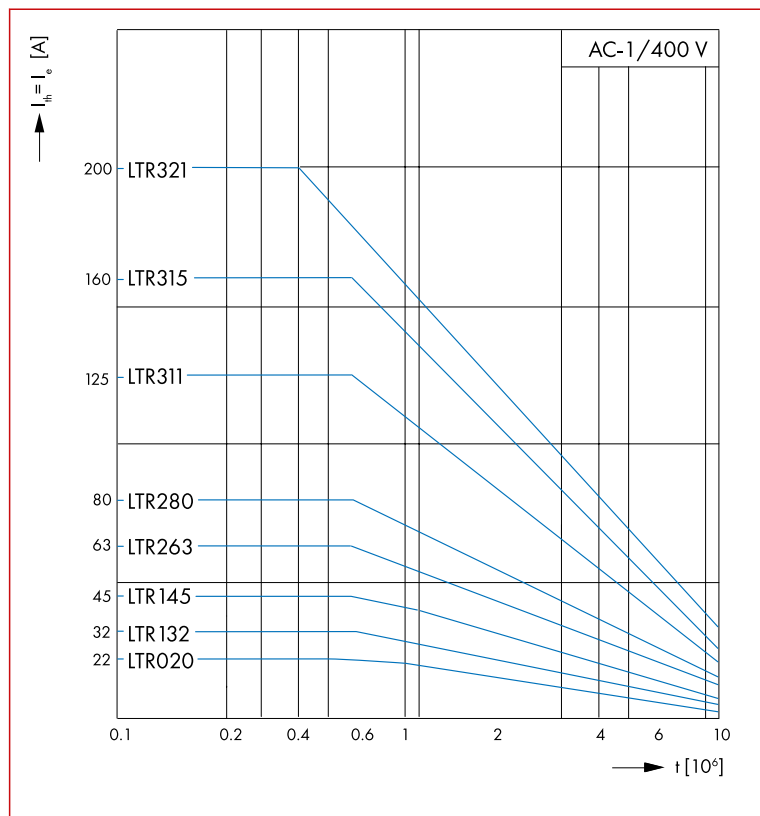
Mobil Code

	LTR02043	LTR132	LTR145	LTR263	LTR280	LTR311	LTR315	LTR321	LTR02045
Rated Current AC-1	22A	32A	45A	63A	80A	125A	160A	200A	22A
Standards	IEC60947, EN60947								
Lifespan, mechanical	10000000 Operations								
Operating frequency, mechanical	5000 Operations/h								
Climatic proofing	Damp heat constant according IEC60068-2-78								
Ambient temperature, open	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C
Rated impulse withstand voltage (U _{imp})	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V	8000V
Overvoltage category	III	III	III	III	III	III	III	III	III
Rated insulation voltage (U _i)	690V	690V	690V	690V	690V	690V	690V	690V	690V
Rated operational voltage	690V	690V	690V	690V	690V	690V	690V	690V	690V
Safe isolation to EN61140									
Between coil and contacts	400V	440V	440V	440V	440V	440V	440V	440V	400V
Between the contacts	400V	440V	440V	440V	440V	440V	440V	440V	400V
Making capacity p.f. to IEC/EN60947 up to 690V	144A	238A	350A	560A	700A	1120A	1330A	1800A	144A
AC-1									
AC-1 Rated operational current									
Conventional free air therm. current 3pole 50-60Hz									
Open at 40°C (I _{th} =I _e)	22A	32A	45A	63A	80A	125A	160A	200A	22A
Convent. free air thermal cur. 1 pole Open(I _{th})	60A	84A	117A	162A	207A	325A	415A	516A	60A
AC-1 Motor rating									
AC-1 220V 230V (P)	8kW	12kW	16kW	23kW	29kW	45kW	58kW	72kW	8kW
AC-1 380V 400V (P)	14kW	20kW	28kW	39kW	50kW	78kW	100kW	125kW	14kW
AC-1 660V 690V (P)	24kW	35kW	49kW	68kW	87kW	136kW	174kW	217kW	24kW
AC-3									
AC-3 Rated operational current									
AC-3 Open, 3-pole, 50-60Hz, 220V 230V (I _e)	12A	18A	25A	40A	50A	80A	95A	115A	12A
AC-3 Open, 3-pole, 50-60Hz, 380V 400V (I _e)	12A	18A	25A	40A	50A	80A	95A	115A	12A
AC-3 Open, 3-pole, 50-60Hz, 660V 690V (I _e)	7A	12A	15A	25A	32A	65A	80A	93A	7A
DC-1									
DC-1 Rated operational current									
DC-1 Open									
60V (I _e)	22V	32V	45V	63V	80V	125V	160V	200V	22V
220V (I _e)	6V	32V	45V	63V	80V	125V	160V	200V	6V
Magnet systems									
Voltage tolerance AC operated (Pick-up)	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.1 U _s	0.8 - 1.15 U _s	0.8 - 1.15 U _s	0.8 - 1.15 U _s	-
Voltage tolerance DC operated (Pick-up)	-	-	-	-	-	-	-	-	0.8 - 1.1 U _s
Voltage tolerance AC operated (Drop-out)	0.4 - 0.6 U _s	0.4 - 0.6 U _s	0.4 - 0.6 U _s	0.4 - 0.6 U _s	0.4 - 0.6 U _s	0.25 - 0.6 U _s	0.25 - 0.6 U _s	0.25 - 0.6 U _s	-
Voltage tolerance DC operated (Drop-out)	-	-	-	-	-	-	-	-	0.2 - 0.6 U _s
Power consumption of the coil in a cold state and 1.0 x U_s									
DC operated (Pick-up)	-	-	-	-	-	-	-	-	4,5W
DC operated (Sealing)	-	-	-	-	-	-	-	-	2,6W
Duty factor	100%	100%	100%	100%	100%	100%	100%	100%	100%

LTR Contactors 4-pole, for Switching Resistive Loads AC-1, Size 0 / 1 / 2 / 3

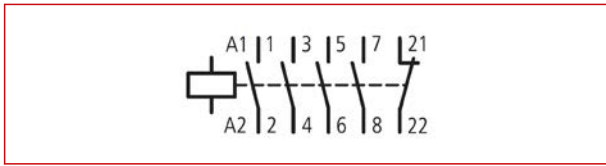
	LTR020	LTR132	LTR145	LTR263	LTR280	LTR311	LTR315	LTR321	LTR020
Rated Current AC-1	22A	32A	45A	63A	80A	125A	160A	200A	22A
Protection against direct contact									
When actuated from front (EN50274)	Finger- and back-of-hand proof	Finger- and back-of-hand proof with terminal cover or terminal block						Finger- and back-of-hand proof	
Degree of Protection	IP20	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP20
Pollution degree	3	3	3	3	3	3	3	3	3
Terminal capacity main cable									
Solid (main cable)	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 16mm ² 2 x 0.75 - 10mm ²	1 x 0.75 - 16mm ² 2 x 0.75 - 10mm ²	1 x 2.5 - 16mm ² 2 x 2.5 - 16mm ²	1 x 2.5 - 16mm ² 2 x 2.5 - 16mm ²	- -	- -	- -	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²
Flexible with ferrule (main cable)	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 16mm ² 2 x 0.75 - 10mm ²	1 x 0.75 - 16mm ² 2 x 0.75 - 10mm ²	1 x 2.5 - 35mm ² 2 x 2.5 - 25mm ²	1 x 2.5 - 35mm ² 2 x 2.5 - 25mm ²	1 x 10 - 95mm ² 2 x 10 - 70mm ²	1 x 10 - 95mm ² 2 x 10 - 70mm ²	1 x 10 - 95mm ² 2 x 10 - 70mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²
Stripping length (main cable)	10mm	10mm	10mm	10mm	10mm	15mm	15mm	15mm	10mm
Terminal screw (main cable)	M3.5	M5	M5	M6	M6	M10	M10	M10	M3.5
Tightening torque (main cable)	1,2Nm	3Nm	3Nm	3,3Nm	3,3Nm	14Nm	14Nm	14Nm	1,2Nm
Tools (main cable)									
Philips/Pozidriv screwdriver (main cable)	PZ 2	PZ 2	PZ 2	PZ 2	PZ 2	-	-	-	PZ 2
Standard screwdriver (main cable)	0.8 x 5.5 / 1 x 6	0.8 x 5.5 / 1 x 6	0.8 x 5.5 / 1 x 6	0.8 x 5.5 / 1 x 6	0.8 x 5.5 / 1 x 6	-	-	-	0.8 x 5.5 / 1 x 6
Terminal capacity control circuit cables									
Solid (control circuit cables)	1 x 0.75 - 4mm ² -	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 4mm ² 2 x 0.75 - 2.5mm ²
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5mm ² -	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²	1 x 0.75 - 2.5mm ² 2 x 0.75 - 2.5mm ²
Stripping length (control circuit cables)	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm	10mm
Terminal screw (control circuit cables)	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque (control circuit cables)	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm

Diagram AC1 (Breaking Current and Lifecycle) [Operations]

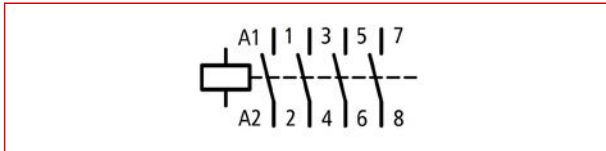


▀ LTR Contactors 4-pole, for Switching Resistive Loads AC-1, Size 0 / 1 / 2 / 3

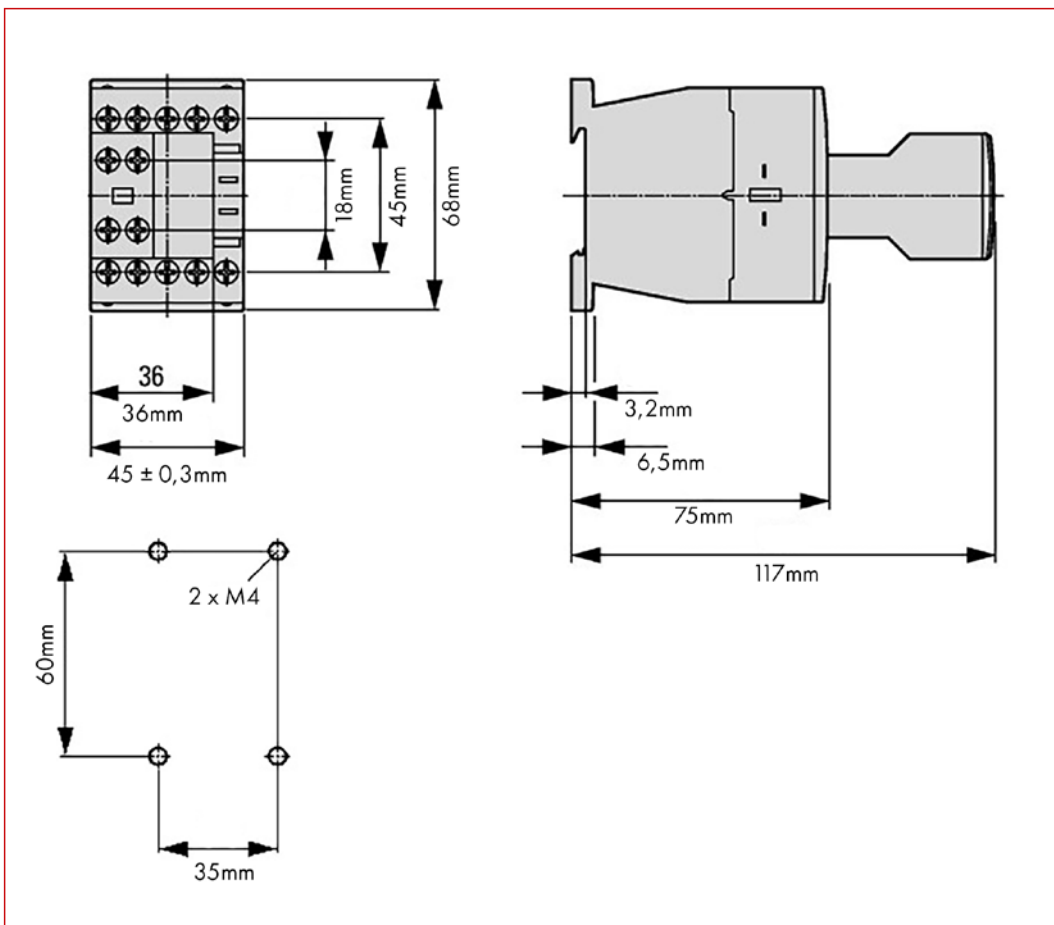
▀ Circuit Diagram Size 1



▀ Circuit Diagram Size 0 / 2 / 3

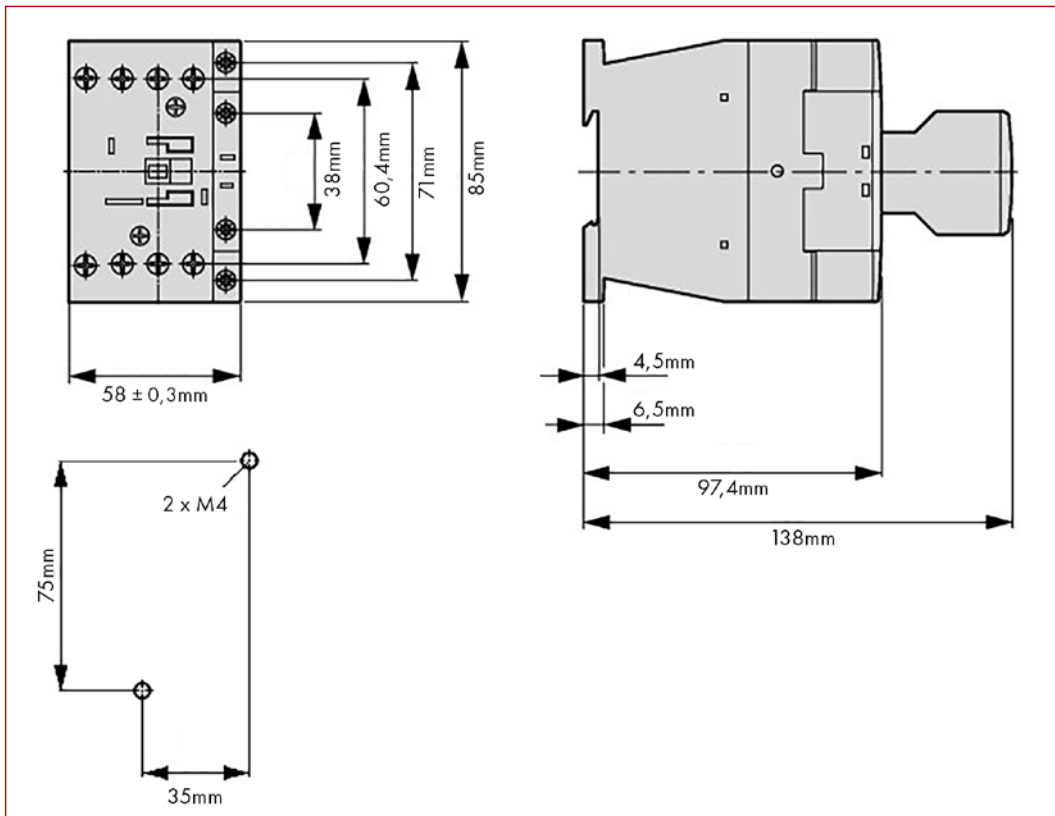


▀ Dimensions Size 0

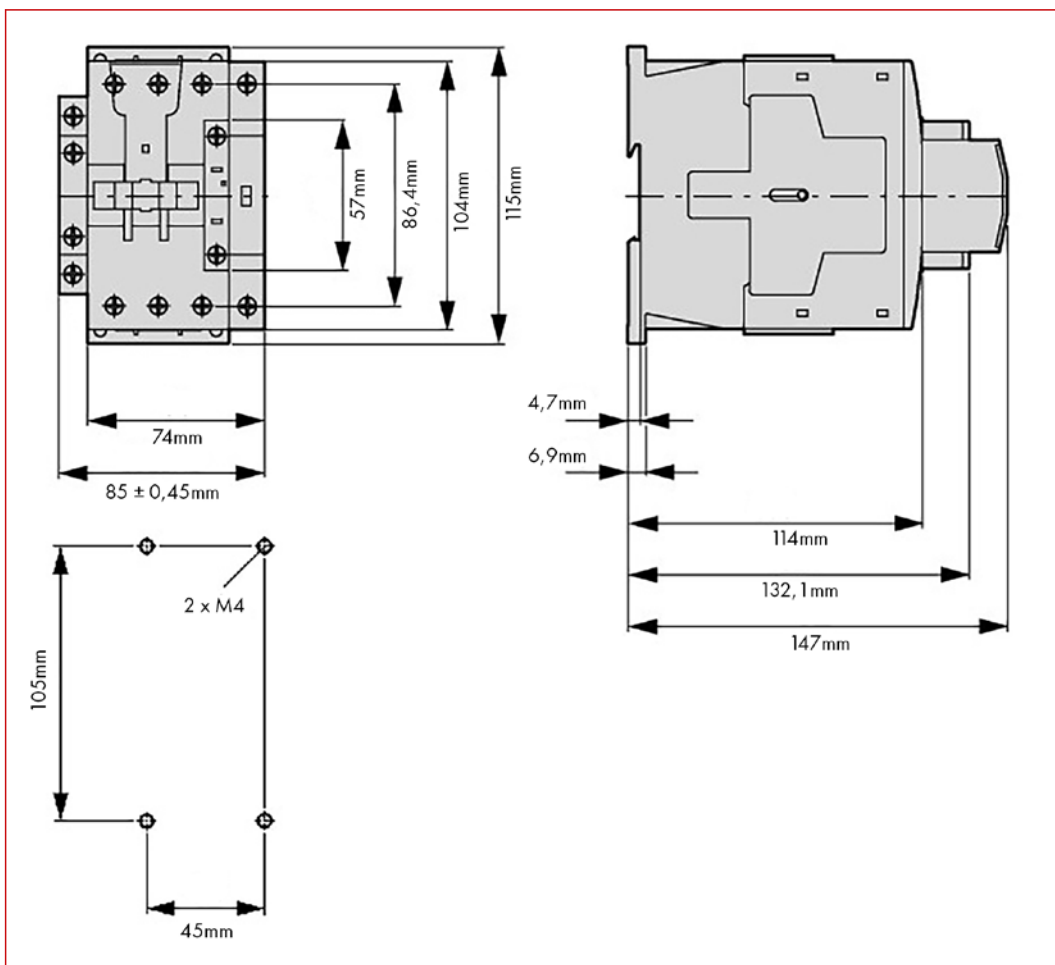


■ LTR Contactors 4-pole, for Switching Resistive Loads AC-1, Size 0 / 1 / 2 / 3

■ Dimensions Size 1

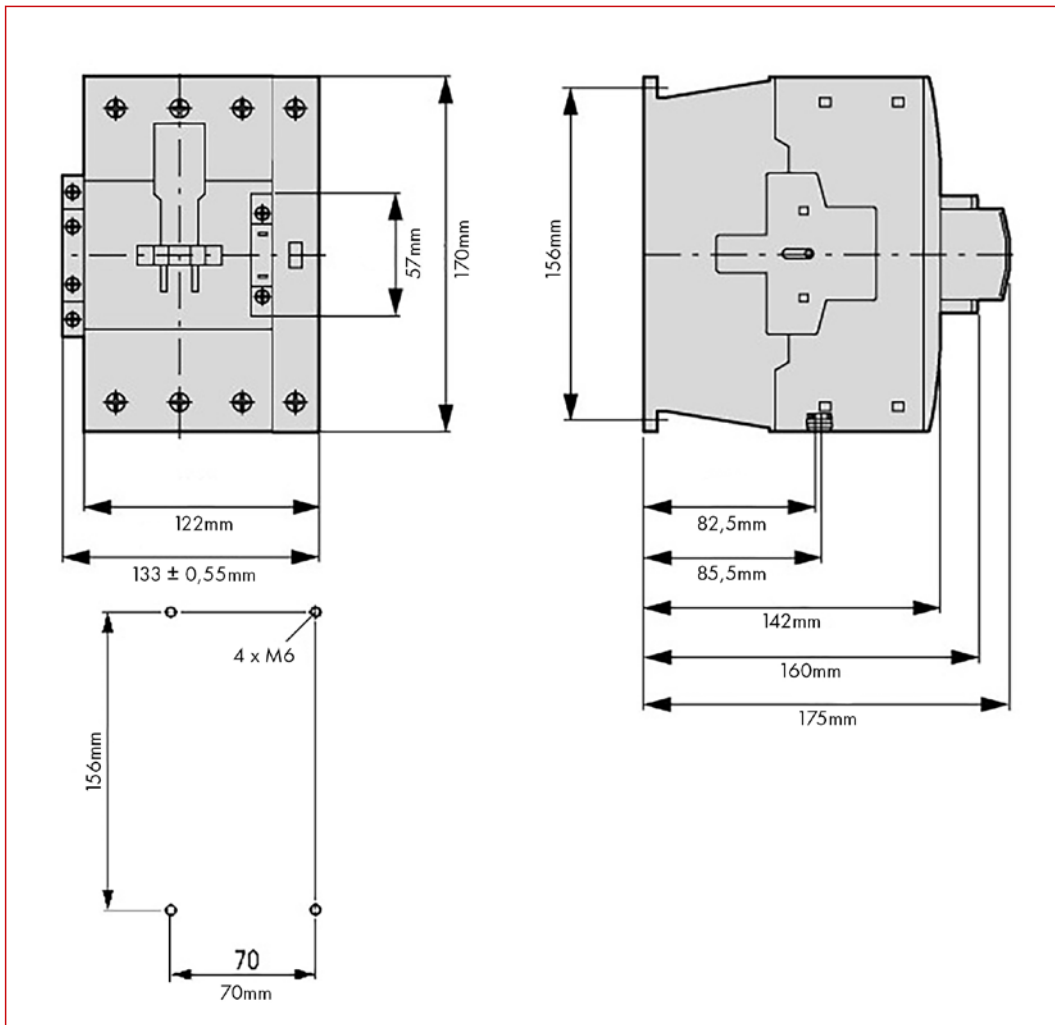


■ Dimensions Size 2

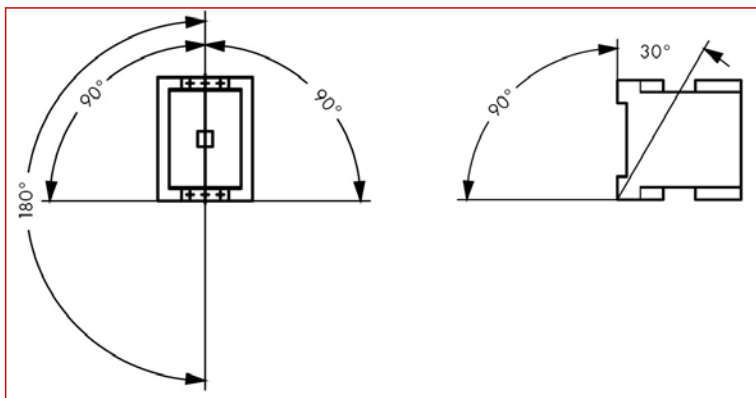


▀ LTR Contactors 4-pole, for Switching Resistive Loads AC-1, Size 0 / 1 / 2 / 3























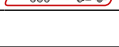
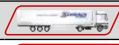













▀ Dimensions Size 3



▀ Mounting Position



LTR Contactors 4-pole, for Switching Resistive Loads AC-1, Size 0 / 1 / 2 / 3

DESCRIPTION	AVAILABLE	ORDER NO.
Size 0 - Type LTR0 up to 20A		
LTR Contactors 20A/AC-1, coil 230VAC, model size 0		LTR02043
LTR Contactors 20A/AC-1, coil 24VDC, model size 0		LTR02045
Auxiliary Contacts for LTR0 Contactors		
Auxiliary contact for contactor size 0-1, 2 NO 2 NC, model size 0-1		LTZ0D222
Auxiliary contact for contactor size 0-1, 3 NO 1 NC, model size 0-1		LTZ0D231
Auxiliary contact for contactor size 0-1, 2 NC, model size 0-1		LTZ0D302
Auxiliary contact for contactor size 0-1, 1 NO 1 NC, model size 0-1		LTZ0D311
Size 1 - Type LTR1 up to 40A		
LTR Contactors 32A/AC-1, coil 230VAC + 1 NC, model size 1		LTR13243
LTR Contactors 45A/AC-1, coil 230VAC + 1 NC, model size 1		LTR14543
Auxiliary Contacts for LTR1 Contactors		
Auxiliary contact for contactor size 0-1, 2 NO 2 NC, model size 0-1		LTZ0D222
Auxiliary contact for contactor size 0-1, 3 NO 1 NC, model size 0-1		LTZ0D231
Auxiliary contact for contactor size 0-1, 2 NC, model size 0-1		LTZ0D302
Auxiliary contact for contactor size 0-1, 1 NO 1 NC, model size 0-1		LTZ0D311
Size 2 - Type LTR2 up to 80A		
LTR Contactors 63A/AC-1, coil 230VAC, model size 2		LTR26343
LTR Contactors 80A/AC-1, coil 230VAC, model size 2		LTR28043
Auxiliary Contacts for LTR2 Contactors		
Auxiliary contact for contactors, 4 NC, model size 2-3		LTZ3D104
Auxiliary contact for contactors, 1 NO 3 NC, model size 2-3		LTZ3D113
Auxiliary contact for contactors, 2 NO 2 NC, model size 2-3		LTZ3D122
Auxiliary contact for contactors, 3 NO 1 NC, model size 2-3		LTZ3D131
Auxiliary contact for contactors, 4 NO, model size 2-3		LTZ3D140
Auxiliary contact for contactors, 2 NC, model size 2-3		LTZ3D402
Auxiliary contact for contactors, 1 NO 1 NC, model size 2-3		LTZ3D411
Auxiliary contact for contactors, 2 NO, model size 2-3		LTZ3D420
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 2-4		LTZ3D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 2-4		LTZ3D811
Size 3 - Type LTR3 up to 200A		
LTR Contactors 125A/AC-1, coil 230VAC, model size 3		LTR31143
LTR Contactors 160A/AC-1, coil 230VAC, model size 3		LTR31543
LTR Contactors 200A/AC-1, coil 230VAC, model size 3		LTR32143
Auxiliary Contacts for LTR3 Contactors		
Auxiliary contact for contactors, 4 NC, model size 2-3		LTZ3D104
Auxiliary contact for contactors, 1 NO 3 NC, model size 2-3		LTZ3D113
Auxiliary contact for contactors, 2 NO 2 NC, model size 2-3		LTZ3D122
Auxiliary contact for contactors, 3 NO 1 NC, model size 2-3		LTZ3D131
Auxiliary contact for contactors, 4 NO, model size 2-3		LTZ3D140
Auxiliary contact for contactors, 2 NC, model size 2-3		LTZ3D402
Auxiliary contact for contactors, 1 NO 1 NC, model size 2-3		LTZ3D411
Auxiliary contact for contactors, 2 NO, model size 2-3		LTZ3D420
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 2-4		LTZ3D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 2-4		LTZ3D811

LTK Capacitor Switching Contactors, Size 1 - 2



LTK250B3

Schrack-Info

- Capacitor switching contactors LTK are a special design of LTD contactors size 1 up to 2. With 3 frontside mounted - early make NO-auxiliary contacts with resistors, the capacitors are pre-charged, when contactor is switching on. Short time delayed to this, the main contacts close. This function prevents, that dangerous backlash of mains causes welding of contactor`s main contacts. LTK contactors only may switch discharged capacitors.
- Technical data according IEC 60947-4-1 EN 60947-4-1
- Capacitor switching contactors LTK1 have 2 free auxiliary contacts 1NO and 1NC
- Capacitor switching contactors LTK2 have 1 free auxiliary contact 1NO
- Capacitor switching contactors can not be fitted with additional auxiliary contacts
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



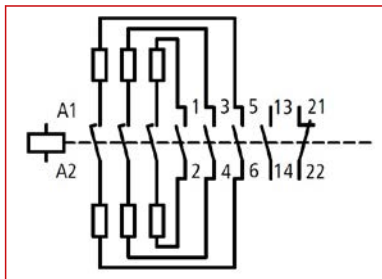
Mobil Code

	LTK112B3	LTK120B3	LTK125B3	LTK233B3	LTK250B3
Rated value	12,5kVAr	20kVAr	25kVAr	33,3kVAr	50kVAr
frame size	1	1	1	2	2
Standards	EN60947, IEC60947	EN60947, IEC60947	EN60947, IEC60947	EN60947, IEC60947	EN60947, IEC60947
Ambient temperature Open	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C	-25 / +60°C
Protection against direct contact					
When actuated from front (EN50274)	Finger- and back-of-hand proof				
Degree of Protection	IP00	IP00	IP00	IP00	IP00
Central compensation					
Rated operating power of three-phase capacitors AC-6b, 50 - 60Hz open					
230V (Q)	7,5kVAr	11 kVAr	15kVAr	20kVAr	25kVAr
400V (Q)	12,5kVAr	20kVAr	25kVAr	33,3kVAr	50kVAr
525V (Q)	16,7kVAr	25kVAr	33,3kVAr	40kVAr	65kVAr
690V (Q)	20kVAr	33,3kVAr	40kVAr	55kVAr	85kVAr
Rated operational current I_e of three-phase capacitors open					
230V (I _e)	18A	29A	38A	50A	72A
400V (I _e)	18A	29A	38A	50A	72A
525V (I _e)	18A	29A	38A	50A	72A
690V (I _e)	18A	29A	38A	50A	72A
enclosed					
230V (I _e)	16A	26A	34A	45A	65A
400V (I _e)	16A	26A	34A	45A	65A
525V (I _e)	16A	26A	34A	45A	65A
690V (I _e)	16A	26A	34A	45A	65A
Making capacity without compensation	180A	180A	180A	180A	180A
Lifespan, mechanical	150000 Operations				
Operating frequency, mechanical	120 Operations/h				
Magnet systems					
Voltage tolerance					
AC operated (Pick-up)	0,8 - 1,1 U _c	0,8 - 1,1 U _c	0,8 - 1,1 U _c	0,8 - 1,15 U _c	0,8 - 1,15 U _c
AC operated (Open-up)	0,3 - 0,6 U _c	0,3 - 0,6 U _c	0,3 - 0,6 U _c	0,3 - 0,6 U _c	0,3 - 0,6 U _c

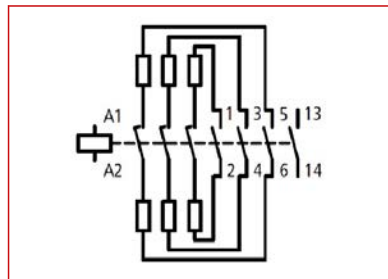
LTK Capacitor Switching Contactors, Size 1 - 2

	LTK112B3	LTK120B3	LTK125B3	LTK233B3	LTK250B3
Power consumption					
AC operation					
50Hz (Pick-up)	58VA	58VA	58VA	45VA	45VA
50Hz (Sealing)	7,6VA	7,6VA	7,6VA	1,5VA	1,5VA
50Hz (Sealing)	2,1W	2,1W	2,1W	4,1W	4,1W
Duty factor	100%	100%	100%	100%	100%
Changeover time at 100% U_s (Recommended value)					
Closing delay	16 - 22ms	16 - 22ms	16 - 22ms	50ms	50ms
Opening delay	8 - 14ms	8 - 14ms	8 - 14ms	40ms	40ms
Arcing time	10ms	10ms	10ms	10ms	10ms
Electromagnetic compatibility (EMC)					
Emission	according EN 60947-1				
Immunity	according EN 60947-1				
Terminal capacity main cable					
Solid	1 x 0,75 - 16mm ²	1 x 0,75 - 16mm ²	1 x 0,75 - 16mm ²	1 x 2,5 - 16mm ²	1 x 2,5 - 16mm ²
Flexible with ferrule	1 x 0,75 - 16mm ²	1 x 0,75 - 16mm ²	1 x 0,75 - 16mm ²	1 x 2,5 - 35mm ²	1 x 2,5 - 35mm ²
Stranded	1 x 16mm ²	1 x 16mm ²	1 x 16mm ²	1 x 16 - 50mm ²	1 x 16 - 50mm ²
Band (lamella x width x thickness)	-	-	-	1 x (6 x 9 x 0,8mm)	1 x (6 x 9 x 0,8mm)

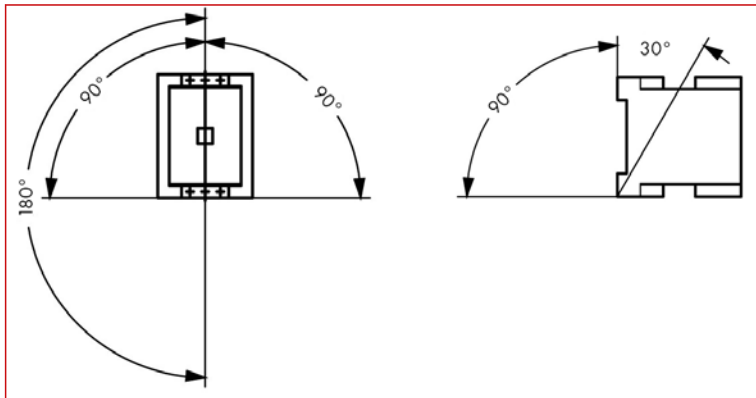
Circuit Diagram Size 1



Circuit Diagram Size 2

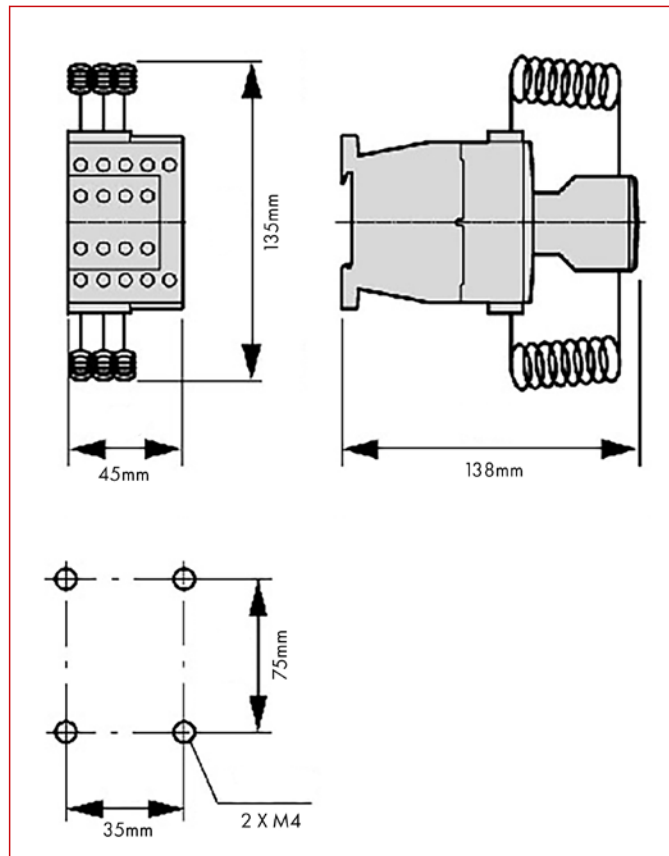


Mounting Position

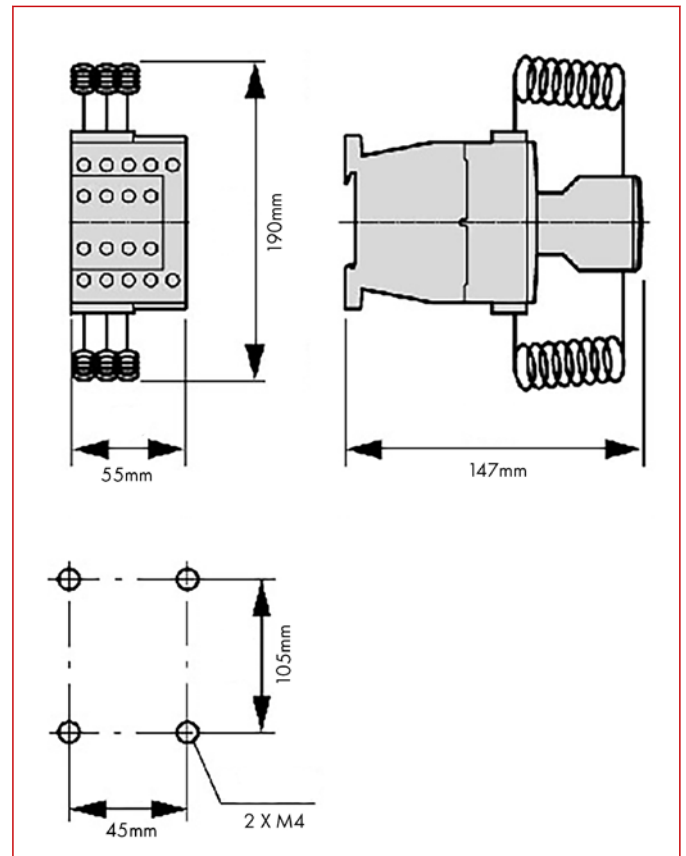



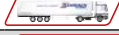
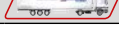


█ LTK Capacitor Switching Contactors, Size 1 - 2

█ Dimensions Size 1



█ Dimensions Size 2



DESCRIPTION	AVAILABLE	ORDER NO.
Size 1 up to 25kVAr		
Capacitor switching Contactor 12,5 kVAr, 1 NO + 1 NC, coil 230VAC, model size 1		LTK112B3
Capacitor switching Contactor 20 kVAr, 1 NO + 1 NC, coil 230VAC, model size 1		LTK120B3
Capacitor switching Contactor 25 kVAr, 1 NO + 1 NC, coil 230VAC, model size 1		LTK125B3
Size 2 up to 50kVAr		
Capacitor switching Contactor 33,3 kVAr, 1 NO, coil 230VAC, model size 2		LTK233B3
Capacitor switching Contactor 50 kVAr, 1 NO, coil 230VAC, model size 2		LTK250B3

LTH0 Auxiliary Contactors 4-pole, Size 0



LTH00470

Schrack-Info

- 4-pole Auxiliary contactors for control functions
- Auxiliary contactors LTH can be extended with additional auxiliary contacts LTZO to 6-pole or 8
- Coil and main contacts for contactors LTH are not exchangeable
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

	LTH004 AC-coil	LTH004 DC-coil
Rated current AC15	4A	4A
Conventional free air thermal current 1 pole Open [I _{th}]	16A	16A
Lifespan, mechanical	20000000 Operations	20000000 Operations
Operating frequency, mechanical	9000 Operations/h	9000 Operations/h
Climatic proofing	Damp heat constant according IEC60068-2-78, Damp heat cycle according IEC60068-2-30	
Ambient temperature Open	-25 / +60°C	-25 / +60°C
Degree of Protection	IP20	IP20
Protection against direct contact		
When actuated from front (EN50274)	Finger- and back-of-hand proof	
Positive operating contacts to EN60947-5-1	yes (incl. auxiliary contacts front)	
Rated impulse withstand voltage [U _{imp}]	8000V	6000V
Overvoltage category	III	III
Pollution degree	3	3
Rated insulation voltage [U _i]	690V	690V
Rated operational voltage	690V	690V
Safe isolation to EN61140		
Between coil and contacts	400V	400V
Between the contacts	400V	400V
Short-circuit protection maximum fuse		
500V (A gG/gL)	10A (gG/gL)	10A (gG/gL)
Magnet systems		
Voltage tolerance DC operated [Pick-up]	0,8 - 1,1 U _s	
Power consumption		
AC operation		
50Hz [Pick-up]	24VA	
50Hz [Sealing]	3,4VA	
50Hz [Sealing]	1,4W	
DC operation [Pick-up = sealing]		3W
Duty factor	100%	100%
Changeover time at 100% US (Recommended value)		
Closing delay	15 - 21ms	31ms
Opening delay	9 - 18ms	12ms
Terminal capacity main cable		
Solid [main cable]	1 x 0,75 - 4mm ² , 2 x 0,75 - 2,5mm ²	1 x 0,75 - 4mm ² , 2 x 0,75 - 2,5mm ²
Flexible with ferrule [main cable]	1 x 0,75 - 2,5mm ² , 2 x 0,75 - 2,5mm ²	1 x 0,75 - 2,5mm ² , 2 x 0,75 - 2,5mm ²
Stripping length [main cable]	10mm	10mm
Terminal screw [main cable]	M3,5	M3,5
Tightening torque [main cable]	1,2Nm	1,2Nm
Philips/Pozidriv screwdriver [main cable]	PZ 2	PZ 2
Standard screwdriver [main cable]	0,8 x 5,5mm, 1 x 6mm	0,8 x 5,5mm, 1 x 6mm

LTH0 Auxiliary Contactors 4-pole, Size 0

Diagram AC15 (Rated operational Current and Lifecycle) [Operations]

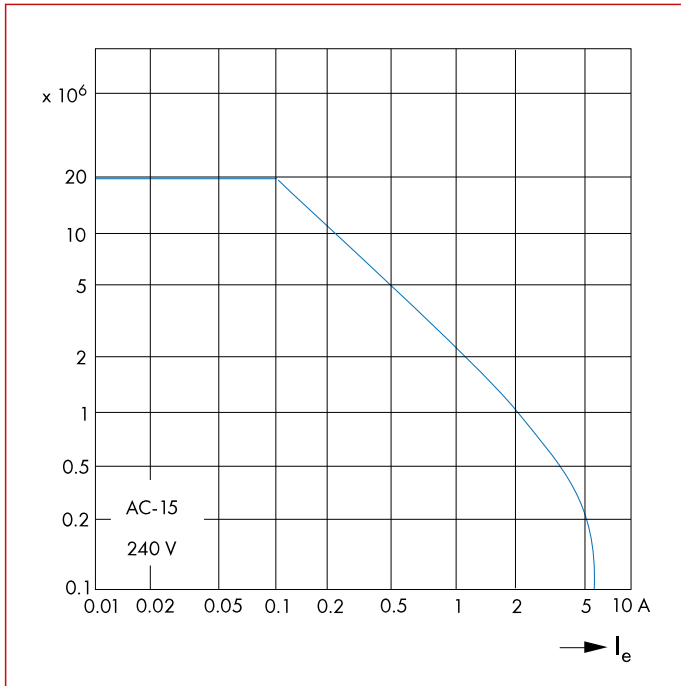
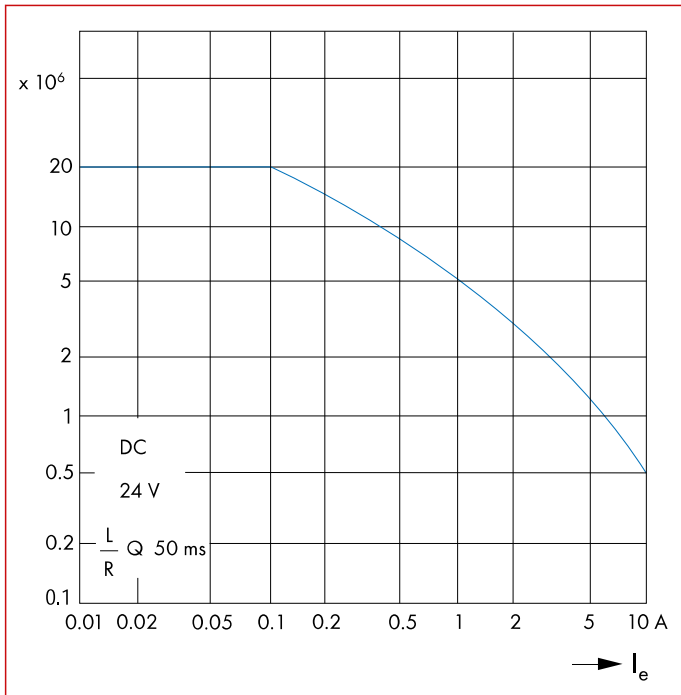
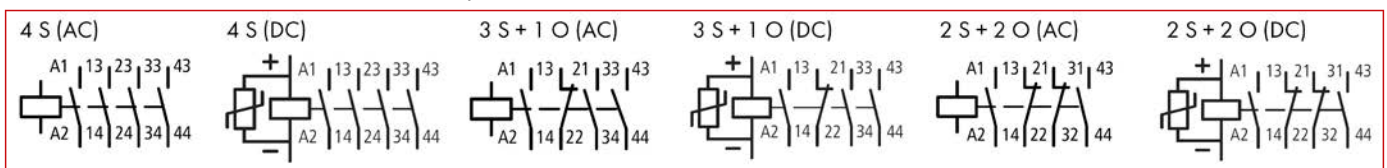


Diagram DC (Rated operational Current and Lifecycle) [Operations], 3 Current paths in series

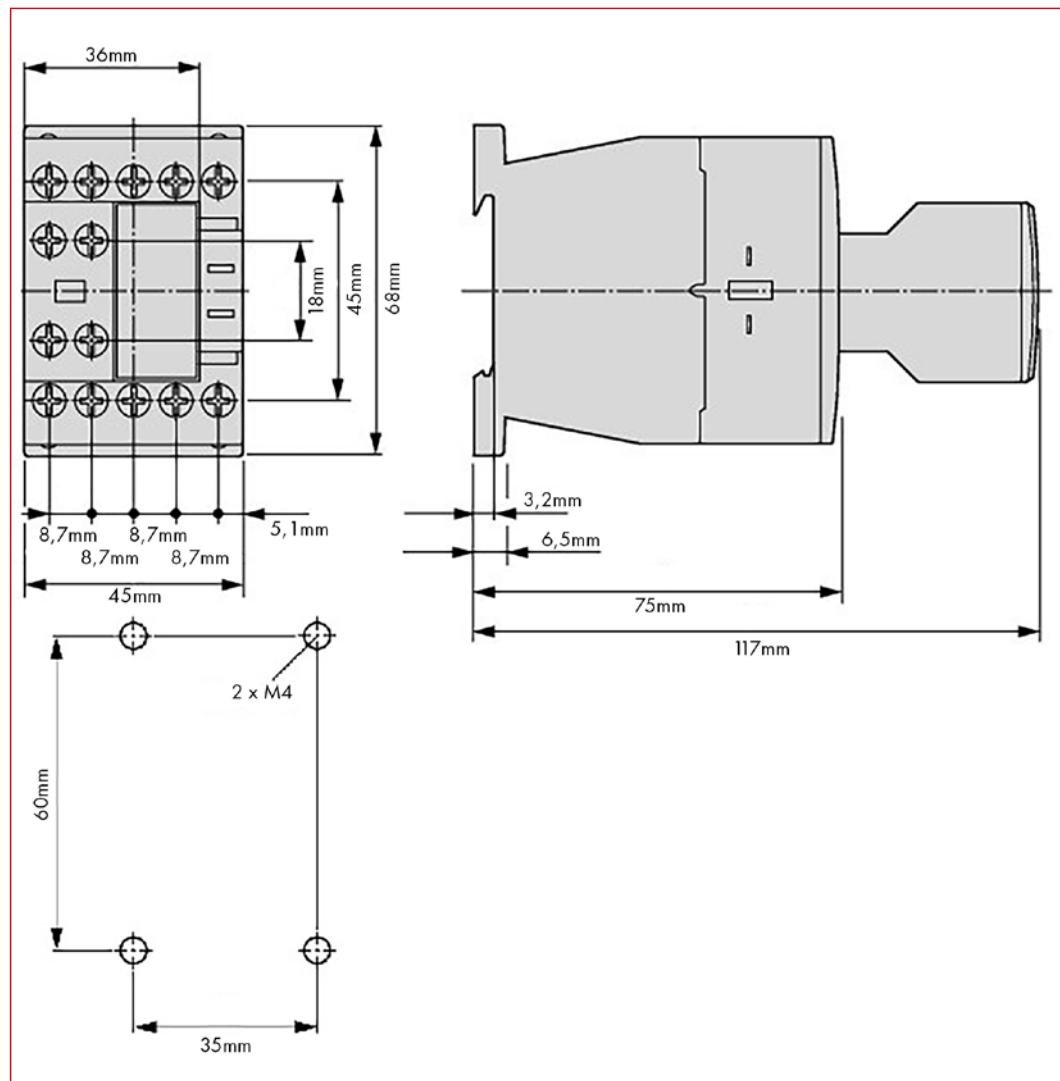


Circuit Diagram (S = Normally Open | O = Normally Closed)

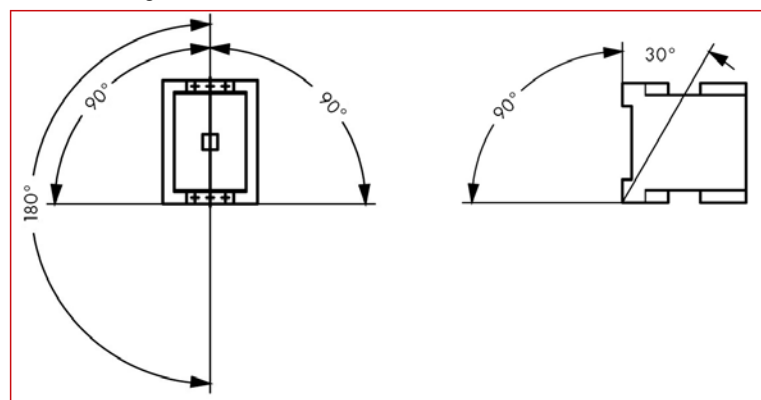


■ LTH0 Auxiliary Contactors 4-pole, Size 0







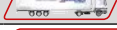
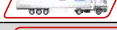




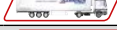
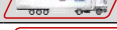





■ Dimensions



■ Mounting Position



LTH0 Auxiliary Contactors 4-pole, Size 0

DESCRIPTION	AVAILABLE	ORDER NO.
Size 0 - Type LTH0		
Auxiliary Contactor, 4 NO, coil 24VAC, model size 0		LTH00470
Auxiliary Contactor, 4 NO, coil 230VAC, model size 0		LTH00473
Auxiliary Contactor, 4 NO, coil 24VDC, model size 0		LTH00475
Auxiliary Contactor, 3 NO + 1 NC, coil 24VAC, model size 0		LTH00480
Auxiliary Contactor, 3 NO + 1 NC, coil 230VAC, model size 0		LTH00483
Auxiliary Contactor, 3 NO + 1 NC, coil 24VDC, model size 0		LTH00485
Auxiliary Contactor, 2 NO + 2 NC, coil 24VAC, model size 0		LTH00490
Auxiliary Contactor, 2 NO + 2 NC, coil 230VAC, model size 0		LTH00493
Auxiliary Contactor, 2 NO + 2 NC, coil 24VDC, model size 0		LTH00495
Auxiliary Contacts for LTR0 Contactors		
Auxiliary contact for aux.contacter, 2 NO + 2 NC , 1 NO + 1 NC with microswitch, model size 0		LTZ0H322
Auxiliary contact for aux.contacter, 2 NC, model size 0		LTZ0H502
Auxiliary contact for aux.contacter, 4 NC, model size 0		LTZ0H504
Auxiliary contact for aux.contacter, 1 NO 1 NC, model size 0		LTZ0H511
Auxiliary contact for aux.contacter, 1 NO 3 NC, model size 0		LTZ0H513
Auxiliary contact for aux.contacter, 2 NO, model size 0		LTZ0H520
Auxiliary contact for aux.contacter, 2 NO 2 NC, model size 0		LTZ0H522
Auxiliary contact for aux.contacter, 3 NO 1 NC, model size 0		LTZ0H531
Auxiliary contact for aux.contacter, 4 NO, model size 0		LTZ0H540
Auxiliary contact for aux.contacter, 1 NO 1 NC delayed, model size 0		LTZ0H911



Frontmounted Auxiliary Contacts, Size 0 - 3



LTZ3D113

Schrack-Info

- 2- or 4-pole auxiliary contacts for frontside mounting
- Available with 2 - 4 contacts in several combinations of NO and NC
- LTZ0 for contactors LT size 0 up to 1
- LTZ3 for contactors LT size 2 up to 3
- Auxiliary contacts NC are suitable as mirror-contact according for electronic circuits according
- IEC/EN 60947-4-1

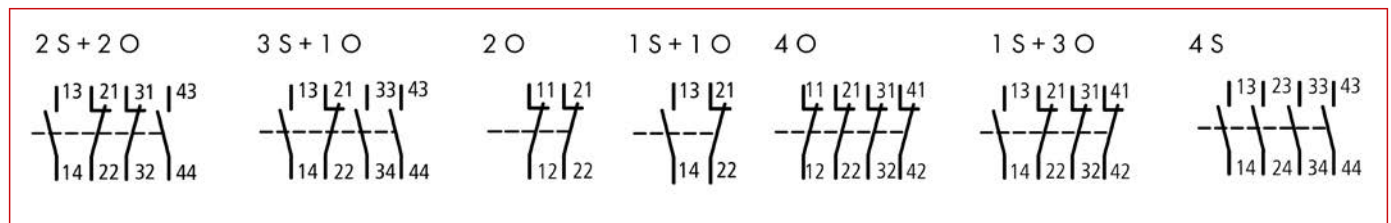


Mobil Code





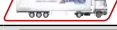
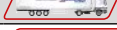



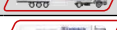

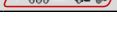
Electrical specifications for standard auxiliary contacts

Interlocked opposing contacts within an auxiliary contact module (to IEC60947-5-1 Annex L)	Yes
N/C contact (not late-break contact) suitable as a mirror contact (to IEC/EN60947-4-1 Annex F)	LTD2, LTD3
Oversvoltage category/pollution degree	III/3
Rated insulation voltage U_i	690VAC
Rated operational voltage U_o	500VAC
Safe isolation to EN61140	
between coil and auxiliary contacts	440VAC
between the auxiliary contacts	440VAC
Rated operational current [A]	
Conventional free air thermal current, 1 pole Open	
at 60°C I _{th}	16A
AC-15	
220V 230V 240V I _e	6A
380V 400V 415V I _e	4A
500V I _e	1,5A
DC current	
DC L/R ≤ 15ms	10-8, < one failure at 100 million operations (at U _e = 24VDC, U _{min} = 17V, I _{min} = 5.4mA)
Contacts in series [A]	
1 24V	10A
1 60V	6A
1 110V	3A
1 220V	1A
Control circuit reliability Failure rate [λ]	10 ⁻⁸ , < ein Ausfall auf 100 Mio. Schaltungen (bei U _e = 24VDC, U _{min} = 17 V, I _{min} = 5.4mA)
Component lifespan	
at U _e = 230V, AC-15, 3A Operations	1,3 x 10 ⁶
Short-circuit rating without welding	
max. fuse	16A gG/gL

Circuit Diagram (S = Normally Open | O = Normally Closed)



Frontmounted Auxiliary Contacts, Size 0 - 3

DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary contact for contactor size 0-1, 2 NO 2 NC, model size 0-1		LTZ0D222
Auxiliary contact for contactor size 0-1, 3 NO 1 NC, model size 0-1		LTZ0D231
Auxiliary contact for contactor size 0-1, 2 NC, model size 0-1		LTZ0D302
Auxiliary contact for contactor size 0-1, 1 NO 1 NC, model size 0-1		LTZ0D311
Auxiliary contact for contactors, 4 NC, model size 2-3		LTZ3D104
Auxiliary contact for contactors, 1 NO 3 NC, model size 2-3		LTZ3D113
Auxiliary contact for contactors, 2 NO 2 NC, model size 2-3		LTZ3D122
Auxiliary contact for contactors, 3 NO 1 NC, model size 2-3		LTZ3D131
Auxiliary contact for contactors, 4 NO, model size 2-3		LTZ3D140
Auxiliary contact for contactors, 2 NC, model size 2-3		LTZ3D402
Auxiliary contact for contactors, 1 NO 1 NC, model size 2-3		LTZ3D411
Auxiliary contact for contactors, 2 NO, model size 2-3		LTZ3D420



■ Sidemounted Auxiliary Contacts, Size 2 - 6



LTZ3D711

■ Schrack-Info

- 2-pole auxiliary contacts for side mounting
- Available with 1 NO and 1 NC
- LTZ3 for contactors LT size 2 up to 4
- LTZ5 for contactors LT size 5 up to 6
- Auxiliary contacts NC are suitable as mirror-contact according for electronic circuits according IEC/EN 60947-4-1



Mobil Code

Electrical specifications for standard auxiliary contacts

Interlocked opposing contacts within an auxiliary contact module (to IEC60947-5-1 Annex L)	Yes
N/C contact (not late-break contact) suitable as a mirror contact (to IEC/EN60947-4-1 Annex F)	LTD2, LTD3
Rated impulse withstand voltage U_{imp}	6kV
Overvoltage category/pollution degree	III/3
Rated insulation voltage U_i	690VAC
Rated operational voltage U_o	500VAC
Safe isolation to EN61140	
between coil and auxiliary contacts	440VAC
between the auxiliary contacts	440VAC
Rated operational current [A]	
Conventional free air thermal current, 1 pole	
Open	
at 60°C I_{th}	10A
AC-15	
220V 230V 240V I_e	4A
380V 400V 415V I_e	4A
380V 400V 500V I_e	4A
500V I_e [A]	1.5A
DC current	
DC L/R ≤ 15 ms	
Contacts in series:	
1 24V	10A
1 60V	6A
1 110V	3A
1 220V	1.5A
DC-13 (6xP)	
24V I_e	2A
60V I_e	1.5A
110V I_e	0.8A
220V I_e	0.3A
Control circuit reliability Failure rate [λ]	10^{-8} , < one failure at 100 million operations (at $U_e = 24VDC$, $U_{min} = 17V$, $I_{min} = 5.4mA$) ⁿ
Component lifespan	
at $U_e = 230V$, AC-15, 3A Operations	1.3×10^6
Short-circuit rating without welding	
max. fuse	16AgG/gL
Rated conditional short-circuit current 500V I_q	1kA
Terminal screw	M3.5
Tightening torque	1.2Nm
Tool	
Control circuit cables	
Pozidriv screwdriver [Size]	2

DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 2-4		LTZ3D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 2-4		LTZ3D811
Auxiliary contact for contactors, 1 NO 1 NC, lateral 1. level, model size 5-6		LTZ5D711
Auxiliary contact for contactors, 1 NO 1 NC, lateral 2. level, model size 5-6		LTZ5D811

Star-Delta Timer



LTZ0YT11



Mobil Code

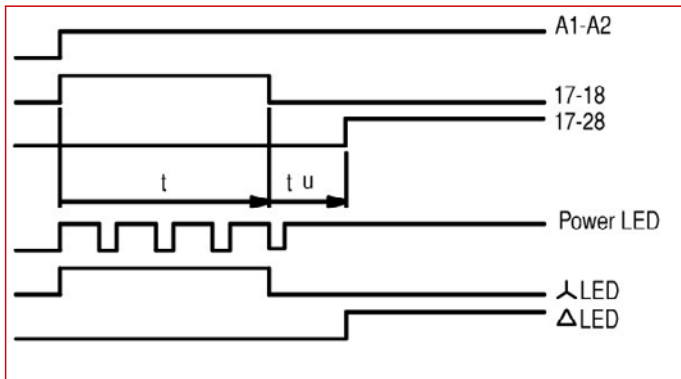
Schrack-Info

- Y-D timer LTZ0YT11 adjustable 3 to 60s, operating voltage 24V up to 240VAC/DC
- changeover contact with 50ms fixed changeover delay

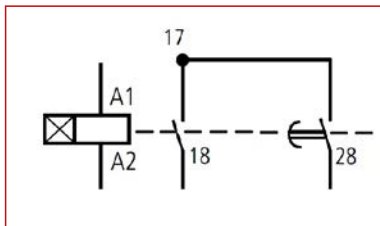
General	
Standards	EN61812, IEC61812
Lifespan, mechanical AC operated	30000000 operations
Lifespan, mechanical DC operated	30000000 operations
Climatic proofing	Damp heat, constant, to IEC60068-2-78, damp heat, cyclic, to IEC60068-2-30
Ambient temperature Open (°C)	-25 / +60
Ambient temperature Enclosed (°C)	-25 / +40
Ambient temperature Storage (°C)	-40 / +80
Mech. shock resistance (IEC/EN60068-2-27)	
Half-sinusoidal shock 20ms, NO contact	4g
Degree of Protection	IP20
Terminal capacity	
Solid (mm ²)	1 x (0,5 - 2,5), 2 x (0,5 - 1,5)
Flexible with ferrule (mm ²)	1 x (0,5 - 2,5), 2 x (0,5 - 1,5)
Bemessungsstoßspannungsfestigkeit [U _{imp}]	4000V
Overvoltage category/pollution degree	III / 2
Rated insulation voltage [U _i]	400V
Rated operational voltage	300V
Safe isolation to EN61140	
Between coil and auxiliary contacts	400VAC
Between the auxiliary contacts	400VAC
Rated operational current I_e [A]	
AC-14 I _e , 400V	3A
AC-15 I _e , 240V	3A
DC-11 Note	Making and breaking conditions to DC13L/R, time constant as stated
24V I _e , L/R max. 15ms	1.5A
24V I _e , L/R max.50ms	1.2A
Conv. thermal current I _{th}	6A
Short-circuit rating without welding	
Note	When supplied directly from mains or transformer > 1000VA
Max. fuse, make contacts	6A gG/gL
Max. fuse, break contacts	6A gG/gL
Max. overcurrent protective device, 220/230V [Type]	MCB for control circuits B 4A (BM918104)
Power consumption	
Pick-up AC	2VA
Sealing AC	2VA
Pick-up DC	1.8W
Sealing DC	1.8W
Duty factor	100ED
Maximum operating frequency	4000s/h
Minimum command timer	
AC	50ms
DC	30ms
Repetition accuracy (deviation) [%]	≤ 0.5
Recovery time (after 100% time delay)	70ms
Contact changeover time t _u	50ms

Star-Delta Timer

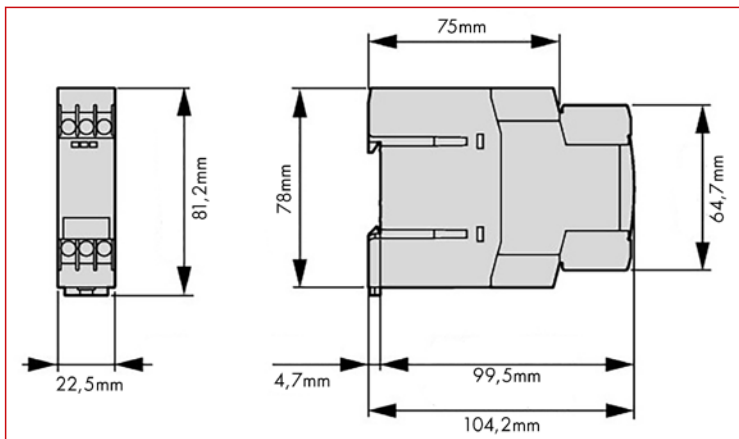
Flow Diagram for timing functions




Circuit Diagram



Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Star-delta timing relay		LTZOYT11

Connection Link for Motor Protection Switches and Contactors



LTZ10006



LTZ00005

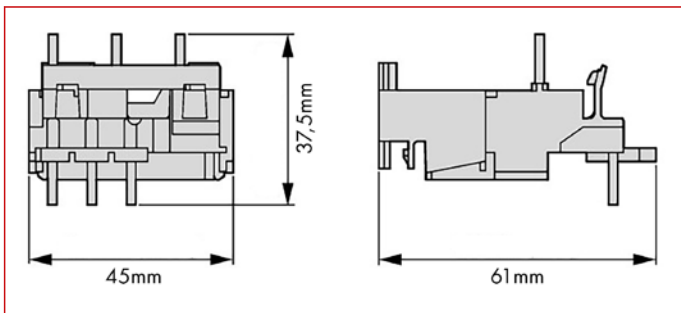
Schrack-Info

- Connection link LTZ00005 for connection of motor protection switch BE5 with AC or DC operated contactor LTD0
- Connection link LTZ10006 for connection of motor protection switch BE5 AC or DC operated contactor LTD1

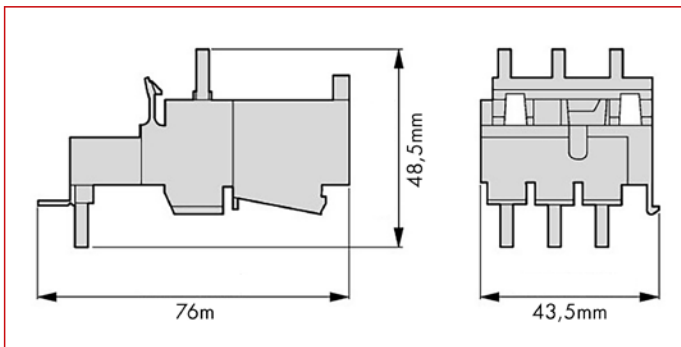


Mobil Code

Dimensions Size 0



Dimensions Size 1



DESCRIPTION	AVAILABLE	ORDER NO.
Connector for contactors, MSS BE5, size 0		LTZ00005
Connector for contactors, MSS BE5, size 1		LTZ10006

Surge Suppressors, Size 0



LTZ00001

Schrack-Info

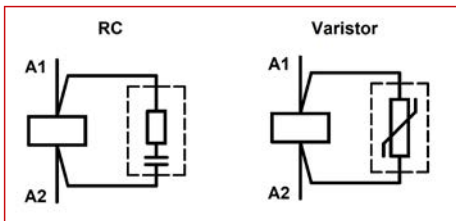
- Suppressor for contactors LTDO
- For contactors with AC 50-60Hz coil
- For contactors LTDO with DC-coil the suppressor is included



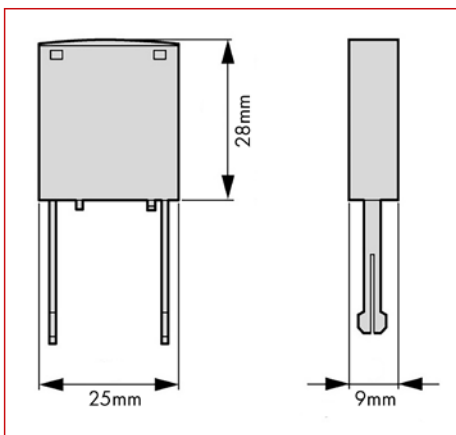
Mobil Code

	LTZ00001	LTZ00002	LTZ00003	LTZ00004
Function	RC-suppressor	Varistor-suppressor	Varistor-suppressor	Varistor-suppressor
For contactors size	0	0	0	0
Rated voltage	110 - 240VAC	24 - 48VAC	48 - 130VAC	130 - 240VAC
Standards	IEC60947-4-1, EN60947-4-1			
Ambient temperature open	-25 / +55°C			

Circuit Diagram



Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
RC-suppressor for contactors, 110-240VAC, size 0		LTZ00001
Varistor-suppressor for contactors, 24-48VAC, size 0		LTZ00002
Varistor-suppressor for contactors, 48-130VAC, size 0		LTZ00003
Varistor-suppressor for contactors, 130-240VAC, size 0		LTZ00004

Surge Suppressors, Size 1



LTZ10001

Schrack-Info

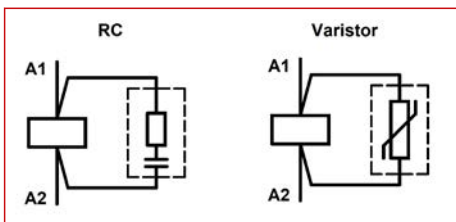
- Suppressor for contactors LTD1
- For contactors with AC 50-60Hz coil
- for contactors LTD1 with DC-coil the suppressor is included



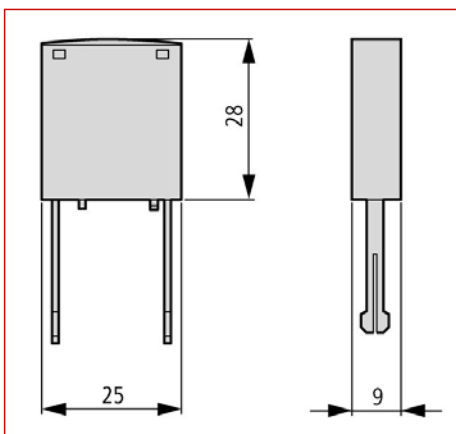
Mobil Code

	LTZ10001	LTZ10002	LTZ10003	LTZ10004
Function	RC-suppressor	Varistor-suppressor	Varistor-suppressor	Varistor-suppressor
For contactors size	1	1	1	1
Rated voltage	110 - 240VAC	24 - 48VAC	48 - 130VAC	130 - 240VAC
Standards	IEC60947-4-1, EN60947-4-1			
Ambient temperature open	-25 / +55°C			

Circuit Diagram

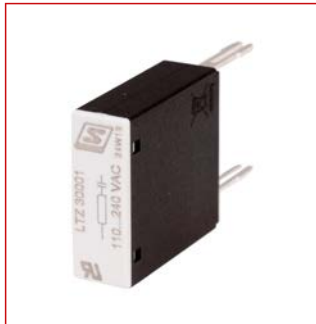


Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
RC-suppressor für for contactors, 110-240VAC, model size 1		LTZ10001
Varistor-suppressor for contactors, 24-48VAC, model size 1		LTZ10002
Varistor-suppressor for contactors, 48-130VAC, model size 1		LTZ10003
Varistor-suppressor for contactors, 130-240VAC, model size 1		LTZ10004

Surge Suppressors, Size 2 - 3



LTZ30001

Schrack-Info

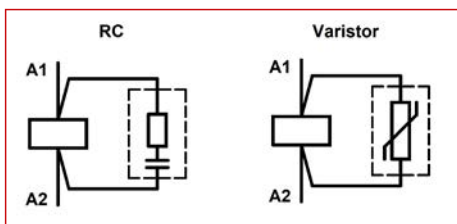
- Suppressor for contactors LTD2 and LTD3
- For contactors with AC 50-60Hz coil
- For contactors LTD2 and LTD3 with DC-coil the suppressor is included



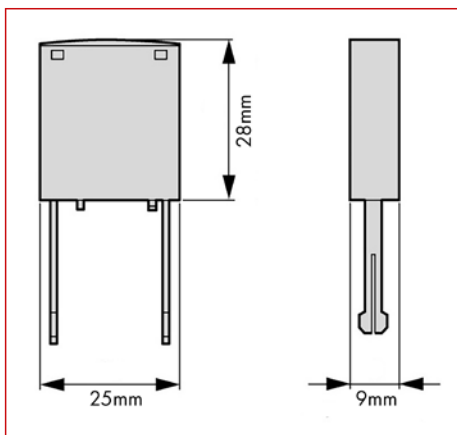
Mobil Code

	LTZ30001	LTZ30002	LTZ30003	LTZ30004
Function	RC-suppressor	Varistor-suppressor	Varistor-suppressor	Varistor-suppressor
For contactors size	2, 3	2, 3	2, 3	2, 3
Rated voltage	110 - 240VAC	24 - 48VAC	48 - 130VAC	130 - 240VAC
Standards	IEC60947-4-1, EN60947-4-1			
Ambient temperature open	-25 / +55°C			

Circuit Diagram



Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
RC-suppressor for contactors, 110-240VAC, model size 2-3		LTZ30001
Varistor-suppressor for contactors, 24-48VAC, model size 2-3		LTZ30002
Varistor-suppressor for contactors, 48-130VAC, model size 2-3		LTZ30003
Varistor-suppressor for contactors, 130-240VAC, model size 2-3		LTZ30004

Terminal Covers, Size 4 - 6



LTZ40001



LTZ50001



LTZ60001

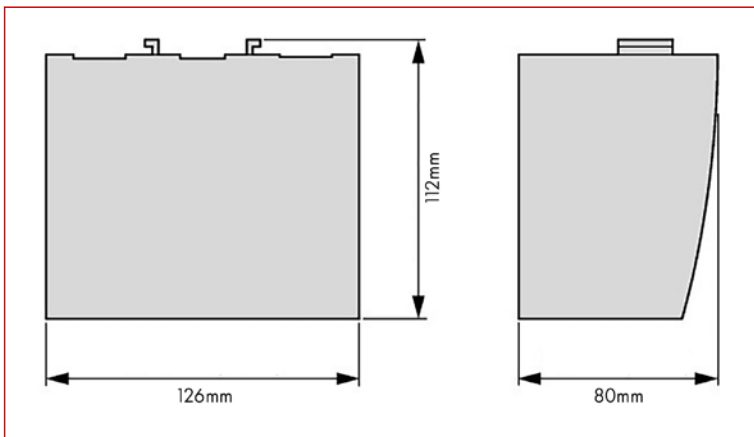
Schrack-Info

- Additional terminal covers for contactors LTD4, LTD5 und LTD6
- Contact protection for the connection lugs in vertical contact from the front
- Consists of 1 piece for one side

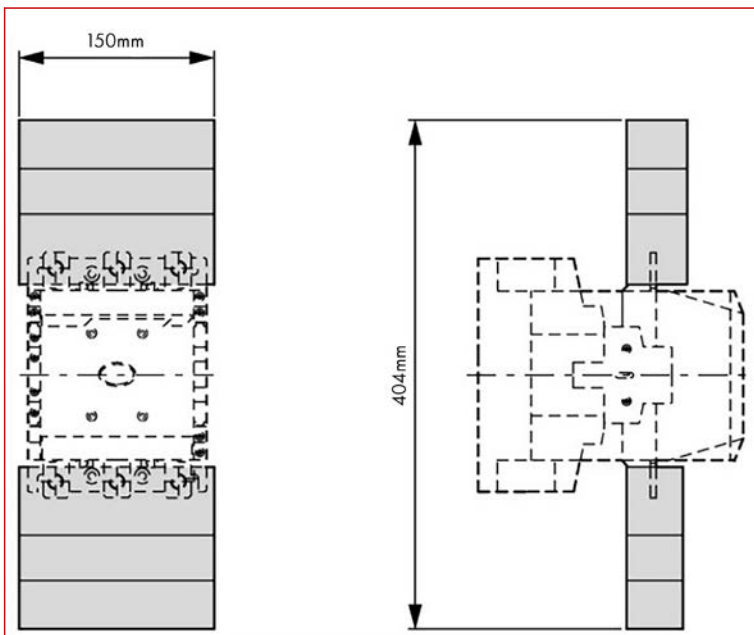


Mobil Code

Dimensions Size 4



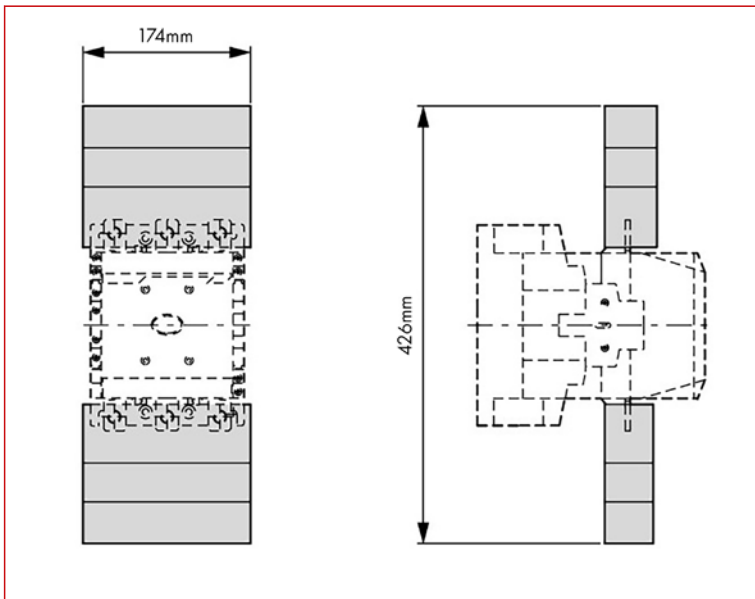
Dimensions Size 5






Electromechanical Contactors Series ALEA II LT

Terminal Covers, Size 4 - 6

Dimensions Size 6



DESCRIPTION	AVAILABLE	ORDER NO.
Terminal shroud for contactors, model size 4 for connection lugs, 1 piece		LTZ40001
Terminal shroud for contactors, model size 5		LTZ50001
Terminal shroud for contactors, model size 6		LTZ60001

Terminal Block, Size 4 - 5



LTZ40002



LTZ50002

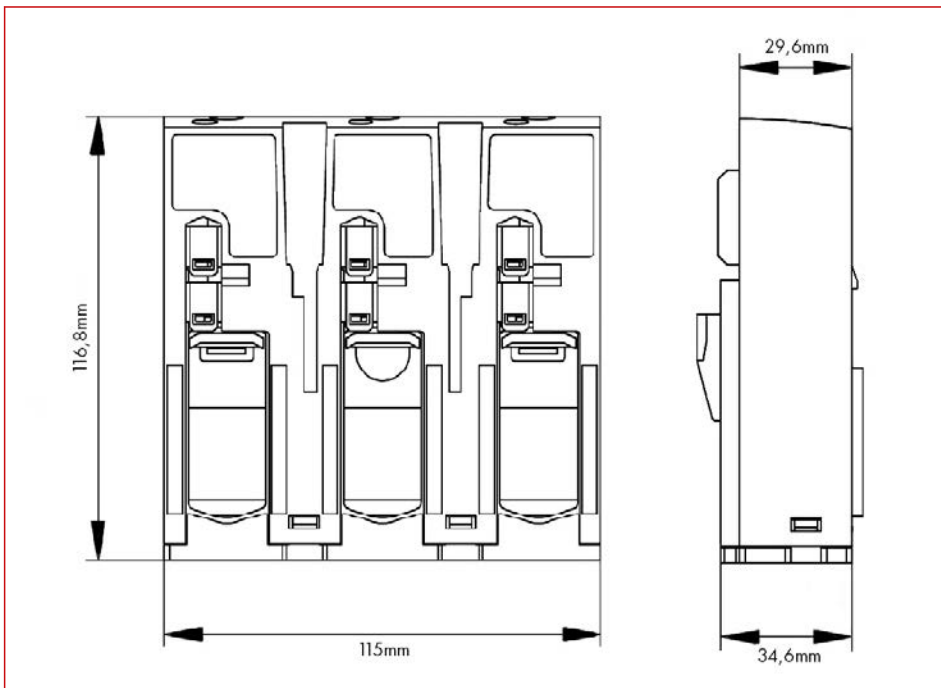
Schrack-Info

- Cable terminal block for contactors LTD4 and LTD5
- LTZ40002 cable with end sleeve 1 x 16 - 150mm² or 2 x 16 - 120mm²
- LTZ50002 cable with end sleeve 1 x 95 - 240mm² or 2 x 70 - 185mm²
- Including control line connection
- Consists of 1 piece for one side



Mobil Code

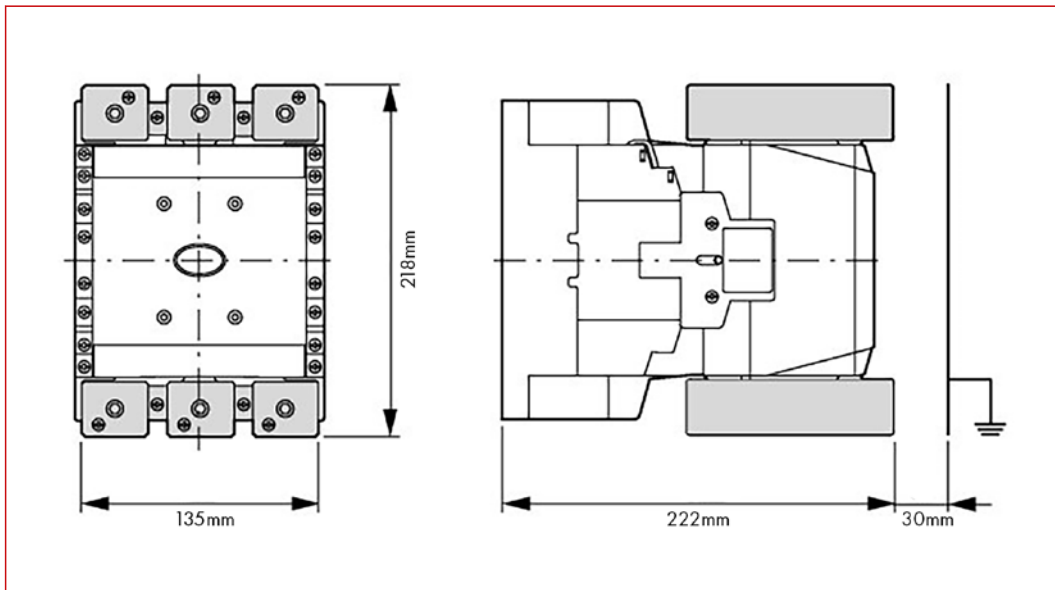
Dimensions Size 4





Electromechanical Contactors Series ALEA II LT

Terminal Block, Size 4 - 5

Dimensions Size 5



DESCRIPTION	AVAILABLE	ORDER NO.
Cable terminal block for contactors, model size 4		LTZ40002
Cable terminal block for contactors, model size 5		LTZ50002

Reversing Contactor Combinations LTW, Size 0



LTW007B3

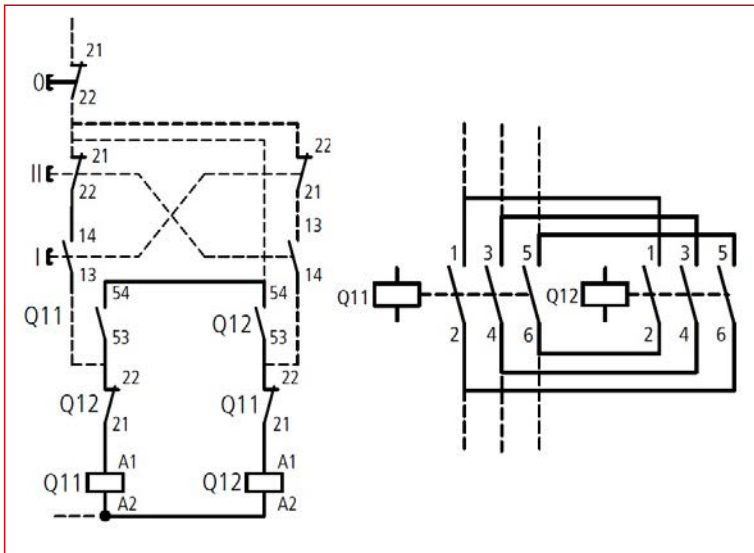


Mobil Code

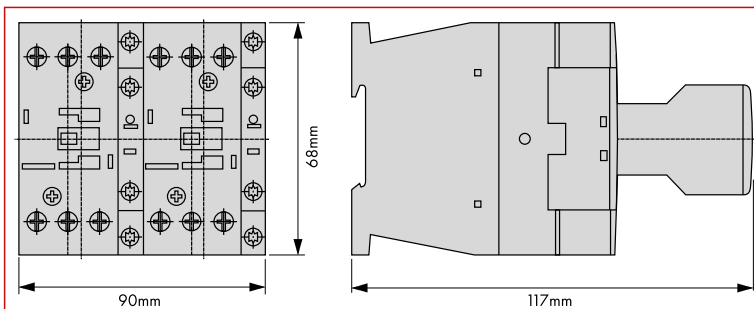
Schrack-Info

- Fully wired Reversing contactor assemblies up to 4kW with integrated mechanical interlock
- free auxiliary contacts 1 NO on each contactor
- Thermal overload relays LTO (not included in Reversing contactor assemblies) are additionally necessary
- Higher power for Reversing contactor assemblies can all be built by single components

Circuit Diagram



Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Size 0, up to 4kW		
Reversing Contactors Combination, 3kW/400V, coil 230VAC, model size 00		LTW007B3
Reversing Contactors Combination, 4kW/400V, coil 230VAC, model size 00		LTW009B3

Mechanical Interlock for Contactors, Size 0 - 6



LTZ0W001



LTZ1W001



LTZ3W001



LTZ4W001

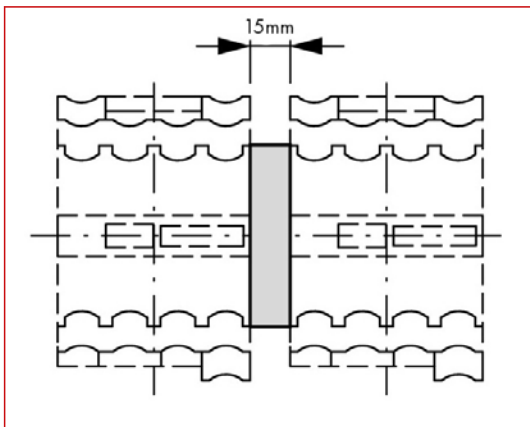
Schrack-Info

- Devices for mechanical interlocking of 2 contactors
- For size 0 - 3 distance between contactors 0mm
- For size 3 additional mounting plate
- For size 4 - 6 no auxiliary contact between contactor and interlock possible



Mobil Code

Distance Advice for Model Sizes 4-6

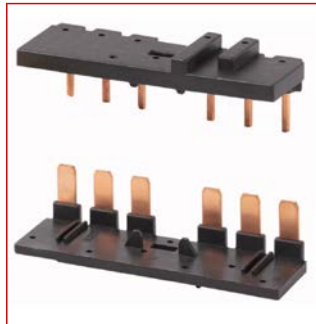


DESCRIPTION	AVAILABLE	ORDER NO.
Mechanical interlock for contactors, model size 0		LTZ0W001
Mechanical interlock for contactors, model size 1		LTZ1W001
Mechanical interlock for contactors, model size 2		LTZ2W001
Mechanical interlock for contactors, model size 3		LTZ3W001
Mechanical interlock for contactors, model size 4-6		LTZ4W001

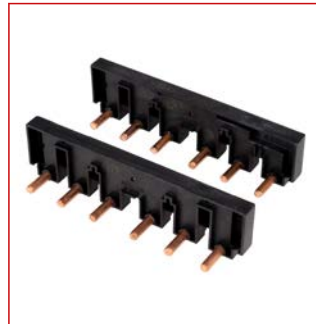
Wiring Sets for Reversing Contactor Combinations, Size 0 - 2



LTZ0W002



LTZ1W002



LTZ2W002

Schrack-Info

- Wiring sets for "self-assembling" of Reversing contactor assemblies
- Wiring set for Reversing contactor assemblies contains all necessary bridges for mains. The mechanical interlock (to be ordered separately) increases the total breadth of contactor assembly not
- Wiring set LTZ0 for Reversing contactor assemblies size 0 contains also the control wires for the electrical interlock



Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Reversing wiring set for contactors, model size 0		LTZ0W002
Reversing wiring set for contactors, model size 1		LTZ1W002
Reversing wiring set for contactors, model size 2		LTZ2W002

Connection Clips for Contactors, Size 0 - 3



LTZ10005



LTZ30005

Schrack-Info

- Set contain 2 clips for 1 contactor assembly (connecting of 2 contactors)
- Connection clips for direct fixing of 2 contactors (without gap) or for assembling 2 contactors with mechanical interlock in between (10mm)
- Connection clips can be mounted without any tool



Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Connector for contactors, model size 0-2		LTZ10005
Connector for contactors, model size 3		LTZ30005

Star-Delta Contactor Combinations LTY, Size 0 - 1



LTY01233

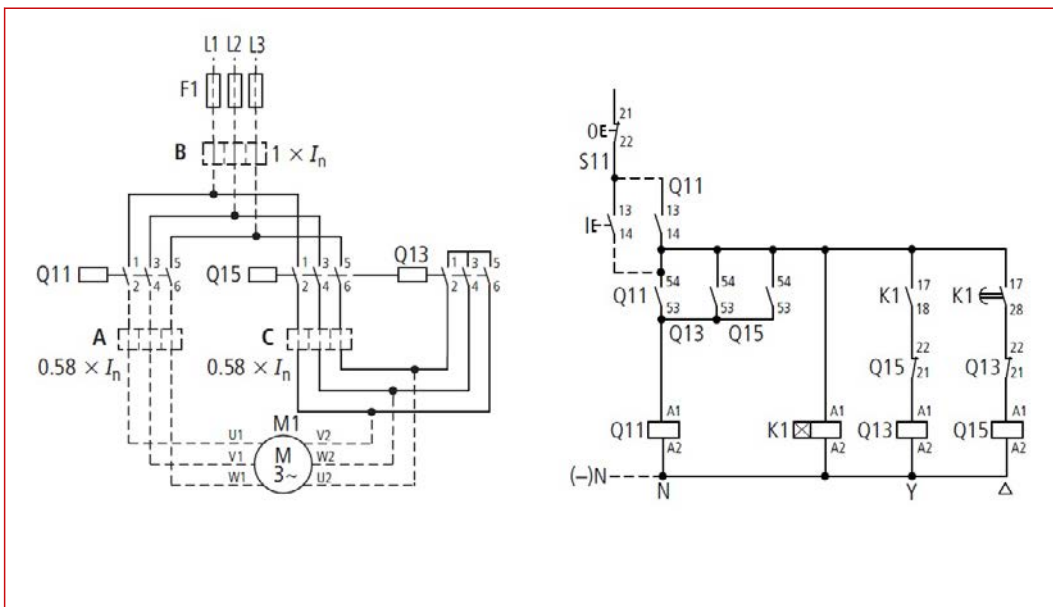
Schrack-Info

- Fully wired Y-D contactor assemblies up to 22kW with integrated mechanical interlock between Delta- and Star-contactor
- For additional auxiliary contacts see "auxiliary contacts" for contactors LTD.
- Thermal overload relays LTT (not included at Y-D contactor assembly) has to be ordered separately
- Thermal overload relays LTT are designed for direct routing to contactor or in "stand alone installation" by help of holder to DIN-rail TS35
- Higher power for Y-D contactor assemblies can all be built by existing single components
- Adjusting values for thermal overload relays at Y-D use = rated current of motor $I_n \times 0.58$



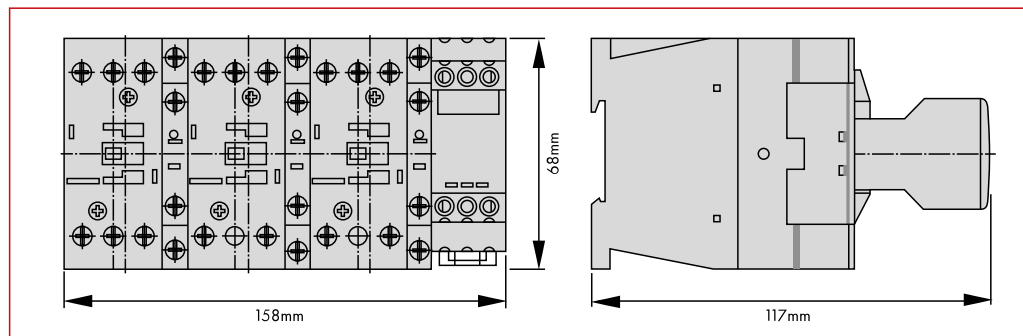
Mobil Code

Circuit Diagram

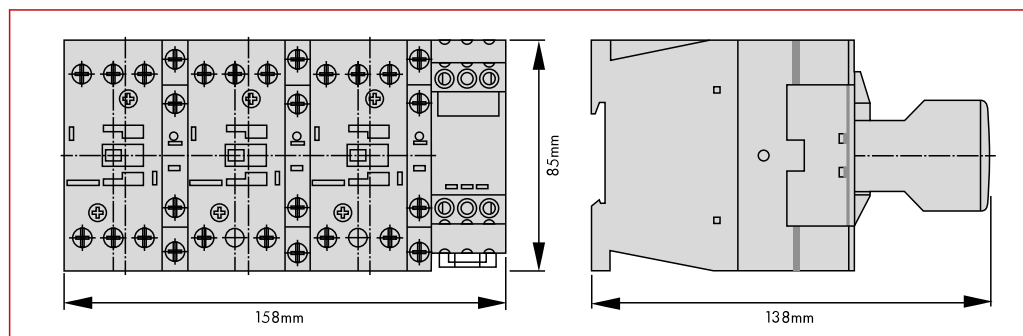


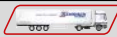


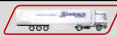

Star-Delta Contactor Combinations LTY, Size 0 - 1

Dimensions Modul Size 0



Dimensions Modul Size 1



DESCRIPTION	AVAILABLE	ORDER NO.
Size 0, up to 11kW		
Star-Delta Contactor Combination, 5,5kW/400V, coil 230VAC, model size 0		LTY01233
Star-Delta Contactor Combination, 7,5kW/400V, coil 230VAC, model size 0		LTY01633
Star-Delta Contactor Combination, 11kW/400V, coil 230VAC, model size 0		LTY02233
Size 1, up to 22kW		
Star-Delta Contactor Combination, 15kW/400V, coil 230VAC, model size 1		LTY13033
Star-Delta Contactor Combination, 22kW/400V, coil 230VAC, model size 1		LTY14533

Parallel Connectors (Star Jumper), Size 0 - 2



LTZ0Y001



LTZ1Y001



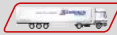


LTZ2Y001

Schrack-Info

- 3-pole Parallel connectors (star jumpers) without terminal for contactors of size 0 up to 2
- Parallel connectors for size 0 in plug-in technology
- Parallel connectors are already included in the wiring kits for star-delta combinations



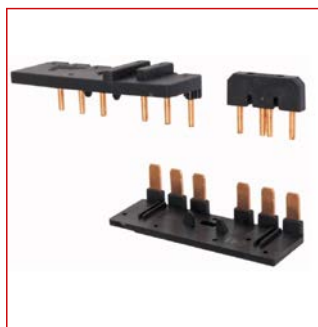
Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Parallel Connectors		
Star-point bridge for contactors, model size 0		LTZ0Y001
Star-point bridge for contactors, model size 1		LTZ1Y001
Star-point bridge for contactors, model size 2		LTZ2Y001

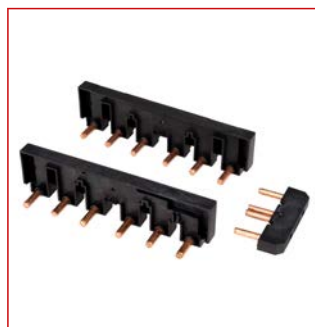
Wiring Sets for Star-Delta Contactor Combinations, Size 0 - 2



LTZOY002



LTZ1Y002



LTZ2Y002

Schrack-Info

- Wiring sets for "self assembling" of Y-D contactor assemblies
- Wiring set LTZOY002 for Y-D contactor assemblies size 0-0-0 (up to 11kW)includes all necessary bridges for mains and the electrical interlock. The mechanical interlock has to be ordered seperately. The star jumper also is included. The Y-D timer also has to be ordered seperately
- Wiring set LTZ1Y002 for Y-D contactor assemblies size 1-1-1 (up to 22kW)includes all necessary bridges for mains. The mechanical interlock has to be ordered seperately. The star jumper also is included. The Y-D timer also has to be ordered seperately
- Wiring set LTZ3Y002 for Y-D contactor assemblies size 2-2-2 includes all necessary bridges for mains. The mechanical interlock has to be ordered seperately. The star jumper also is included. The Y-D timer also has to be ordered seperately



Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Wiring Sets		
Star-delta wiring set for contactors, model size 0		LTZOY002
Star-delta wiring set for contactors, model size 1		LTZ1Y002
Star-delta wiring set for contactors, model size 2		LTZ2Y002

■ Contactors Series CUBICO Mini, 3-pole



LZDM0613

■ Schrack-Info

- Contactors from 2,2kW/6A, 4kW/9A or 5,5kW/12A, 3-pole with integrated auxiliary contact
- Available with 230VAC, 24VAC or 24VDC – coil
- Auxiliary contact NC or NO, depends of type
- Fitting surge suppressors are available
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

Type		LZDM06xx	LZDM09xx	LZDM12xx
Standard		EN 60947-4-1, IEC 60947-4-1		
Rated insulation voltage		690VAC		
Rated frequency		50/60Hz		
Rated impulse withstand voltage		6kV		
Overvoltage category		III		
Rated current AC1		20A	20A	20A
Rated current AC3	230V	6A	9A	12A
	400V	6A	9A	12A
	415V	6A	9A	12A
	690V	3,8A	4,9A	4,9A
Rated current AC4	230V	6A	9A	12A
	400V	6A	9A	9A
	415V	6A	9A	9A
	690V	3,8A	4,9A	4,9A
Rated making capacity		10 x I _e (AC3) / 12 x I _e (AC4)		
Rated breaking capacity		8 x I _e (AC3) / 10 x I _e (AC4)		
Short-time withstand current 10s		48A	72A	96A
Rated power AC3	230V	1,5kW	2,2kW	3kW
	400V	2,2kW	4kW	5,5kW
	415V	2,2kW	4kW	5,5kW
	690V	3kW	4kW	4kW
Operating frequency	AC3	1.200 operations/h		
	AC4	300 operations/h		
Electrical lifetime	AC3	1.200.000 operations		
Mechanical lifetime		10.000.000 operations		
Configuration of main contacts		3NO		
Coil voltage	U _s	24VAC, 230VAC or 24VDC		
Coil acting range	attraction	85% - 110% U _s		
	release	AC: 20%-70% U _s		
		DC: 10%-60% U _s		
Coil average power	start	40VA		
	holding	7VA		
Heat wastage		4W		
Main contact action time	close	10 - 18 ms		
	disconnection	4 - 16 ms		
Protection degree		IP20		
Ambient air temperature		5C up to + 40°C		
Storage temperature		25C up to + 55°C		
Correction coefficient	40°C	1		
	50°C	0,875		
	60°C	0,75 (< 24h)		
	70°C	0,625 (< 24h)		

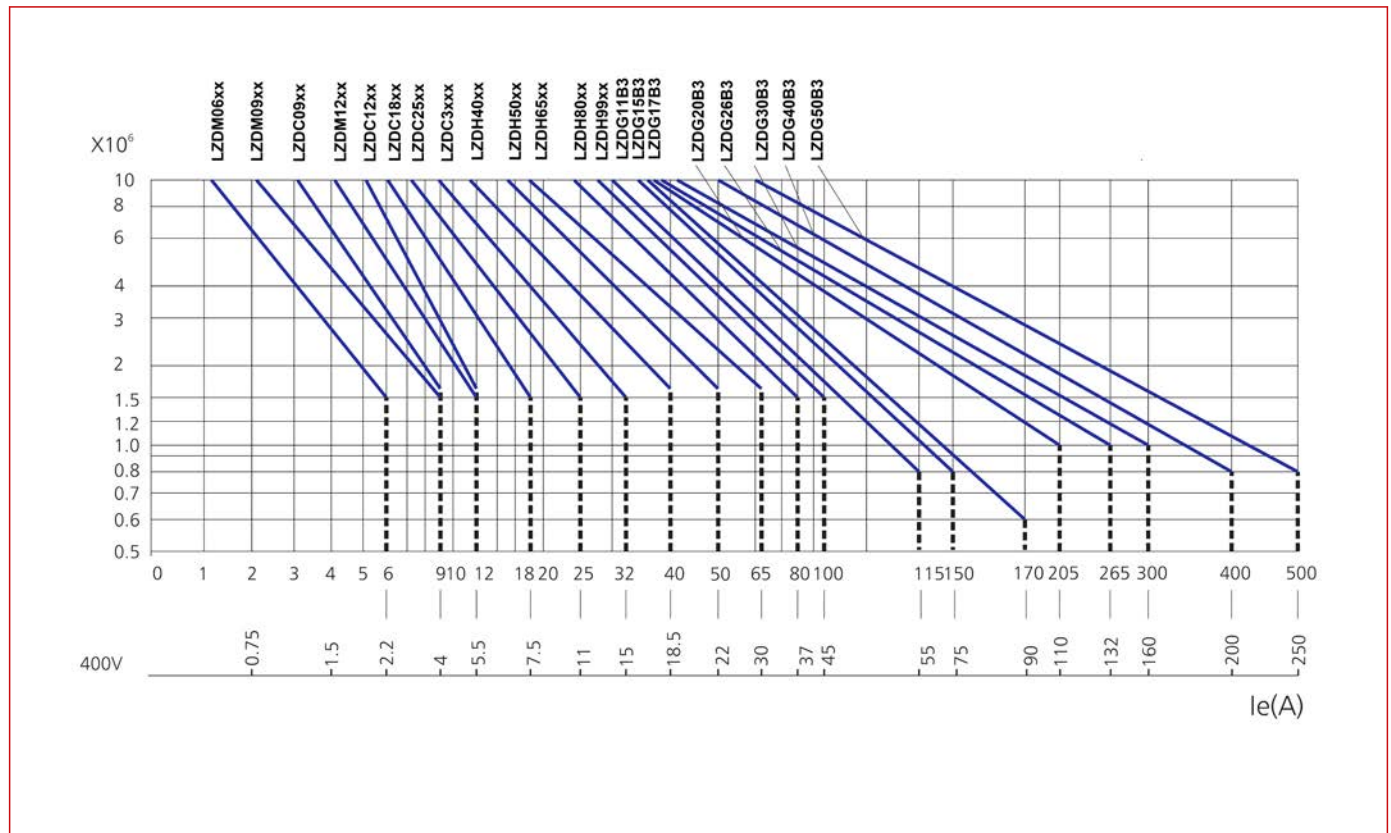
1) 3-pole with auxiliary contact, 1 NO

2) 3-pole with auxiliary contact, 1 NC

Contactors Series CUBICO Mini, 3-pole

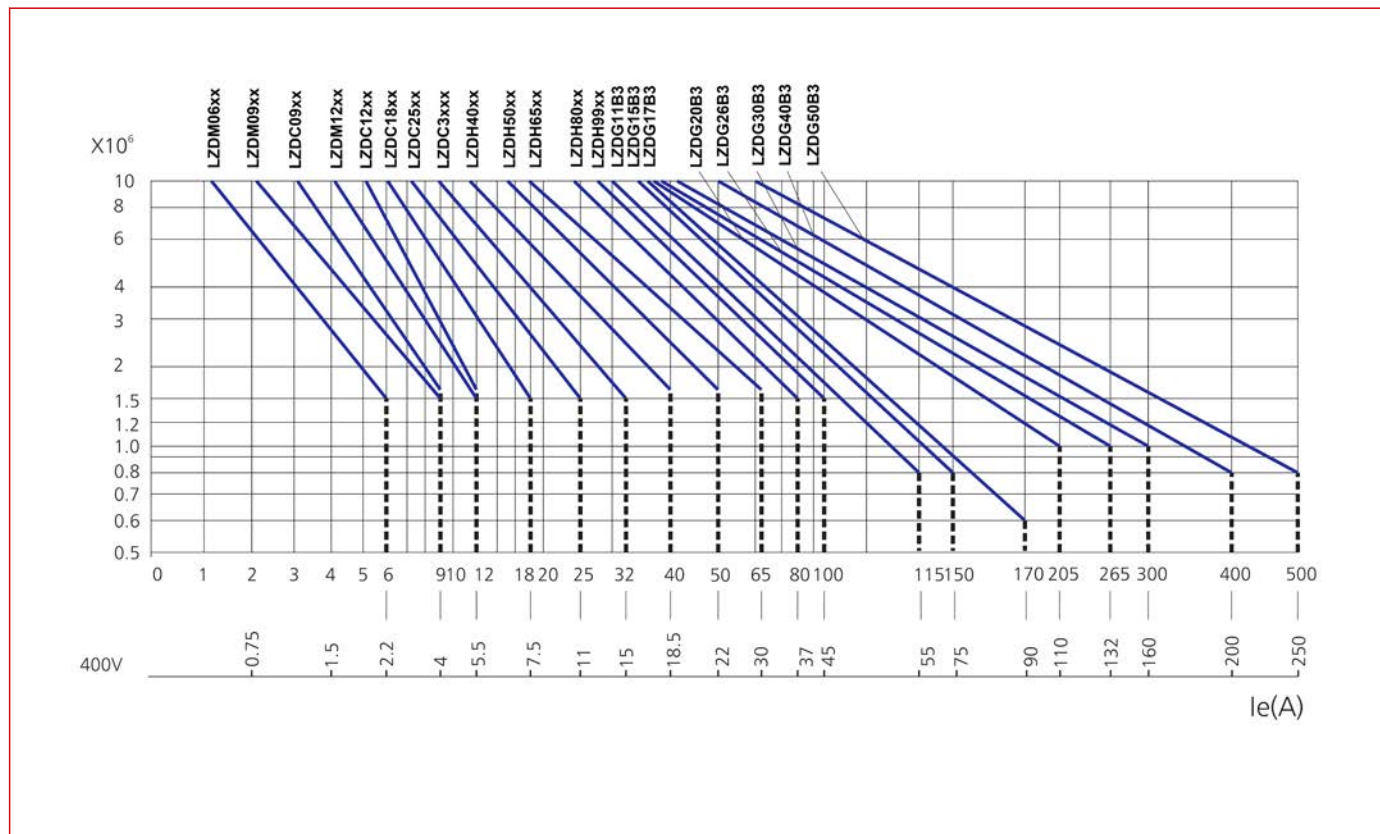
Type	LZDM06xx	LZDM09xx	LZDM12xx
Altitude	2000m		
Atmosphere conditions	50% humidity at +40°C		
Installation position	Horizontal und Vertikal +/- 22,5°		
Terminal capacity of main circuit			
flexible cable with ferrule			
1 x		1 - 2,5mm ²	
2 x		1 - 2,5mm ²	
rigid cable			
1 x		1 - 2,5mm ²	
2 x		1 - 2,5mm ²	
Screw size		M3	
Torque		0,8 Nm	
Terminal capacity of control circuit			
flexible cable with ferrule			
1 x		1 - 2,5mm ²	
2 x		1 - 2,5mm ²	
rigid cable			
1 x		1 - 2,5mm ²	
2 x		1 - 2,5mm ²	
Screw size		M3	
Torque		0,8 Nm	
Terminal capacity of auxiliary contacts			
flexible cable with ferrule			
1 x		1 - 2,5mm ²	
2 x		1 - 2,5mm ²	
rigid cable			
1 x		1 - 2,5mm ²	
2 x		1 - 2,5mm ²	
Screw size		M3	
Torque		0,8 Nm	

Electric life curves (AC3 U_e=400V)

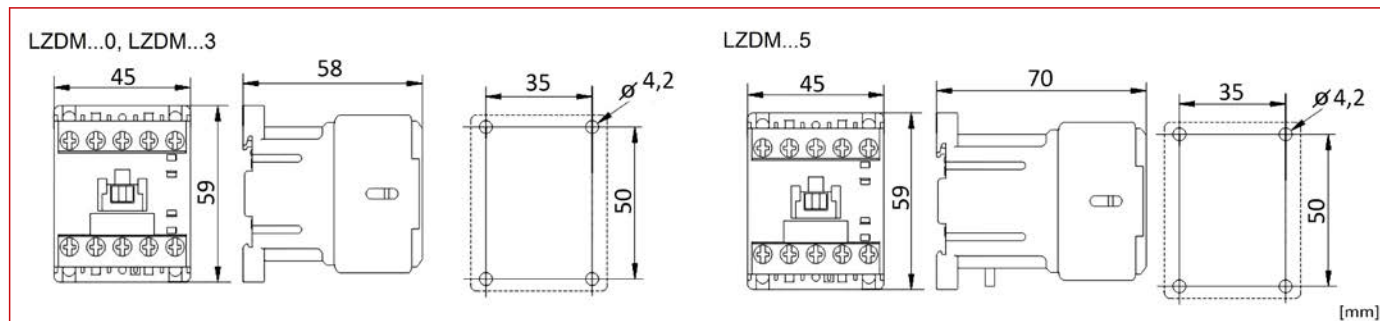


Contactors Series CUBICO Mini, 3-pole

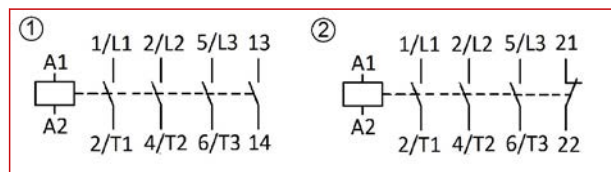
Electric life curves (AC-2, AC-4 U_e=400V)



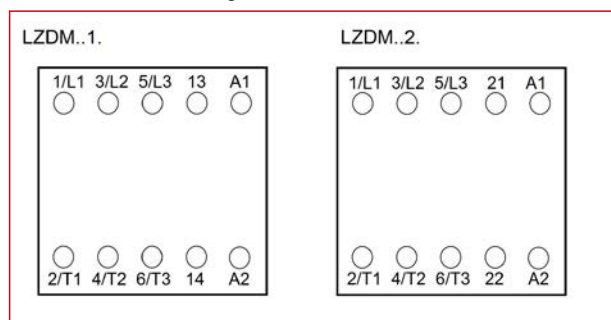
Dimensions





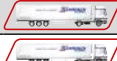
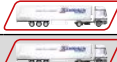














Circuit Diagrams



Connection Diagrams



Contactors Series CUBICO Mini, 3-pole

DESCRIPTION	AVAILABLE	ORDER NO.
6A		
3-pole, 2,2kW, 6A, 1NO, 230VAC		LZDM0613
3-pole, 2,2kW, 6A, 1NC, 230VAC		LZDM0623
3-pole, 2,2kW, 6A, 1NO, 24VAC		LZDM0610
3-pole, 2,2kW, 6A, 1NC, 24VAC		LZDM0620
3-pole, 2,2kW, 6A, 1NO, 24VDC		LZDM0615
3-pole, 2,2kW, 6A, 1NC, 24VDC		LZDM0625
9A		
3-pole, 4kW, 9A, 1NO, 230VAC		LZDM0913
3-pole, 4kW, 9A, 1NC, 230VAC		LZDM0923
3-pole, 4kW, 9A, 1NO, 24VAC		LZDM0910
3-pole, 4kW, 9A, 1NC, 24VAC		LZDM0920
3-pole, 4kW, 9A, 1NO, 24VDC		LZDM0915
3-pole, 4kW, 9A, 1NC, 24VDC		LZDM0925
12A		
3-pole, 5,5kW, 12A, 1NO, 230VAC		LZDM1213
3-pole, 5,5kW, 12A, 1NC, 230VAC		LZDM1223
3-pole, 5,5kW, 12A, 1NO, 24VAC		LZDM1210
3-pole, 5,5kW, 12A, 1NC, 24VAC		LZDM1220
3-pole, 5,5kW, 12A, 1NO, 24VDC		LZDM1215
3-pole, 5,5kW, 12A, 1NC, 24VDC		LZDM1225



Accessories Series CUBICO Mini



LZZMH022



LZZMV024

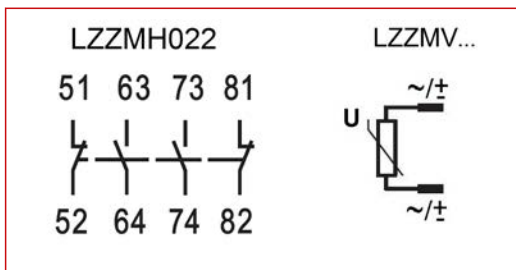
Schrack-Info

- Auxiliary contacts for front-mounting for contactors series CUBICO Mini
- Protective modules for 24V and 230V coil of the contactors

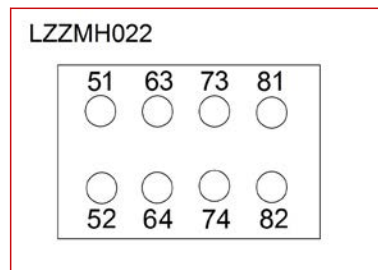


Mobil Code

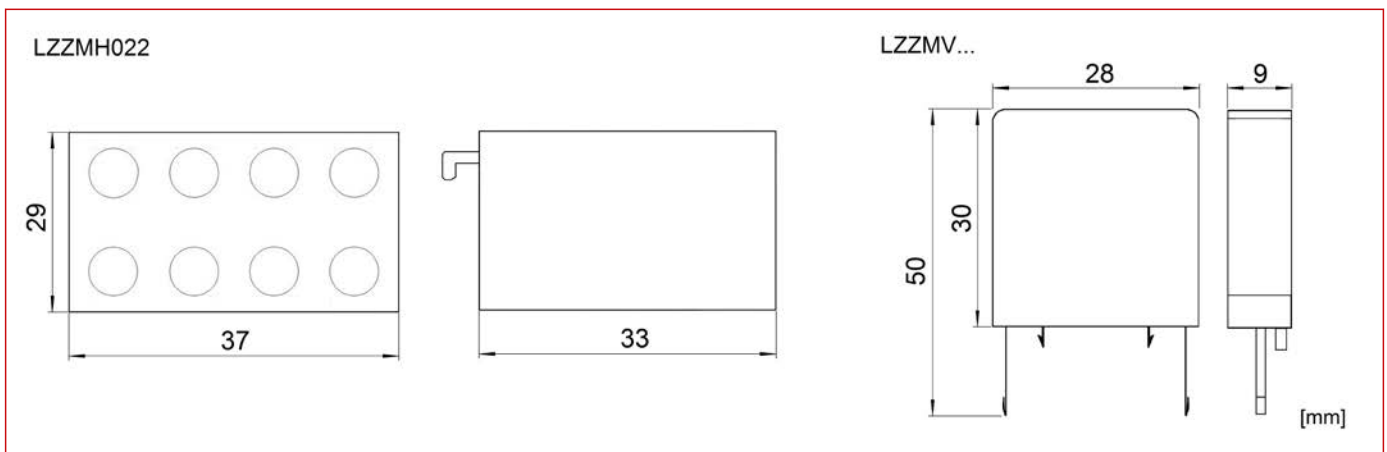
Circuit Diagram



Connection Diagram



Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary Contacts		
Auxiliary contact front-type for CUBICO Mini, 2NO+2NC		LZZMH022
Surge Suppressors		
Varistor Mini 24 - 48 V AC/DC		LZZMV024
Varistor Mini 110 - 250 V AC		LZZMV230

Contactors series CUBICO Classic, 3-pole



LZDC09B3

Schrack-Info

- Contactors from 4kW/9A up to 18,5kW/38A
- 3-pole with integrated auxiliary contact
- Available with 230VAC, 24VAC or 24VDC – coil
- Auxiliary contact NC or NO, depends of type
- Fitting surge suppressors are available
- Mountable to DIN-rail TS35 or mounting plate
- Further accessories find attached



Mobil Code

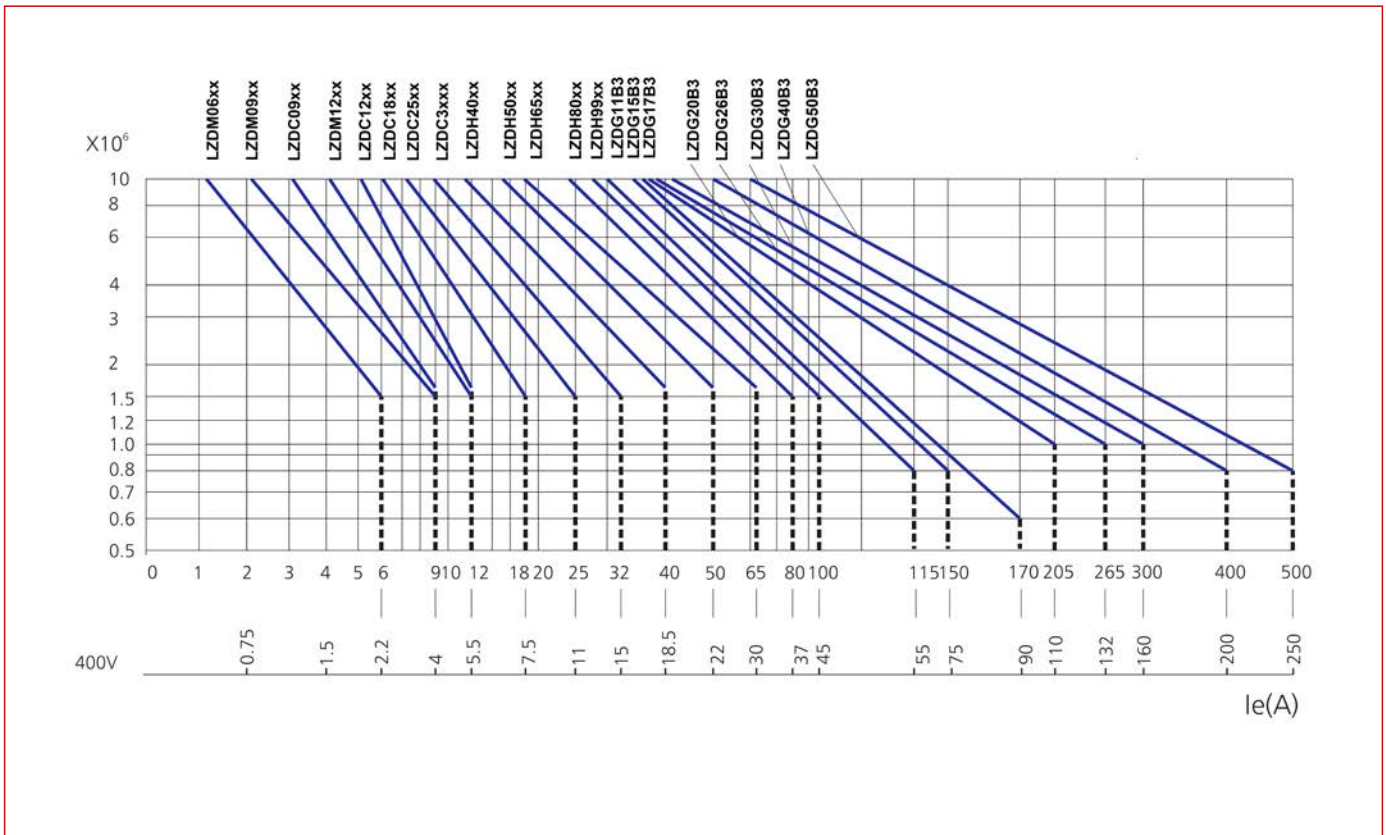
		LZDC09Bx	LZDC12Bx	LZDC18Bx	LZDC25Bx	LZDC32Bx	LZDC38Bx
Standard		EN 60947-4-1, IEC 60947-4-1					
Rated insulation voltage		690VAC					
Rated frequency		50/60Hz					
Rated impulse withstand voltage		6kV					
Overvoltage category		III					
Rated current AC1		25A	25A	32A	40A	50A	50A
Rated current AC3	230V	9A	12A	18A	25A	32A	38A
	400V	9A	12A	18A	25A	32A	38A
	415V	9A	12A	18A	25A	32A	38A
	690V	6.7A	9A	10.6A	17.3A	21.9A	21.9A
Rated current AC4	230V	9A	12A	18A	25A	32A	38A
	400V	9A	12A	18A	25A	32A	32A
	415V	9A	12A	18A	25A	32A	32A
	690V	6.7A	9A	9A	17.3A	21.9A	21.9A
Rated making capacity		10 x I _e (AC3) / 12 x I _e (AC4)					
Rated breaking capacity		8 x I _e (AC3) / 10 x I _e (AC4)					
Short-time withstand current 10s		72A	96A	144A	200A	256A	304A
Rated power AC3	230V	2.2kW	4kW	4kW	5.5kW	7.5kW	9kW
	400V	4kW	5.5kW	7.5kW	11kW	15kW	18.5kW
	415V	4kW	5.5kW	9kW	11kW	15kW	18.5kW
	690V	5.5kW	7.5kW	9kW	15kW	18.5kW	18.5kW
Operating frequency	AC3	1,200 operations/h					
	AC4	300 operations/h					
Electrical lifetime		1,200.000 operations					
Mechanical lifetime		10,000.000 operations					
Configuration of main contacts		3NO	3NO	3NO	3NO	3NO	3NO
Configuration of auxiliary contacts		1NO and 1NC	1NO and 1NC	1NO and 1NC	1NO and 1NC	1NO and 1NC	1NO and 1NC
Coil voltage		230VAC or 24VAC			230VAC or 24VAC		
Coil acting range	attraction	85% - 110% U _s			85% - 110% U _s		
	release	AC: 20%-70% U _s			AC: 20%-70% U _s		
Coil average power	start	70VA			70VA		
	holding	10VA			10VA		
Heat wastage		4W			4W		
Main contact action time	close	12 - 25 ms					
	disconnection	5 - 20 ms					
Protection degree		IP20					
Ambient air temperature		5C up to + 40°C					
Storage temperature		25C up to + 55°C					
Correction coefficient	40°C	1					
	50°C	0.875					
	60°C	0.75					
	70°C	0.625					
Altitude		2000m					
Atmosphere conditions		50% humidity at +40°C					
Installation position		plane and vertical +/- 22,5°					

▀ Contactors series CUBICO Classic, 3-pole

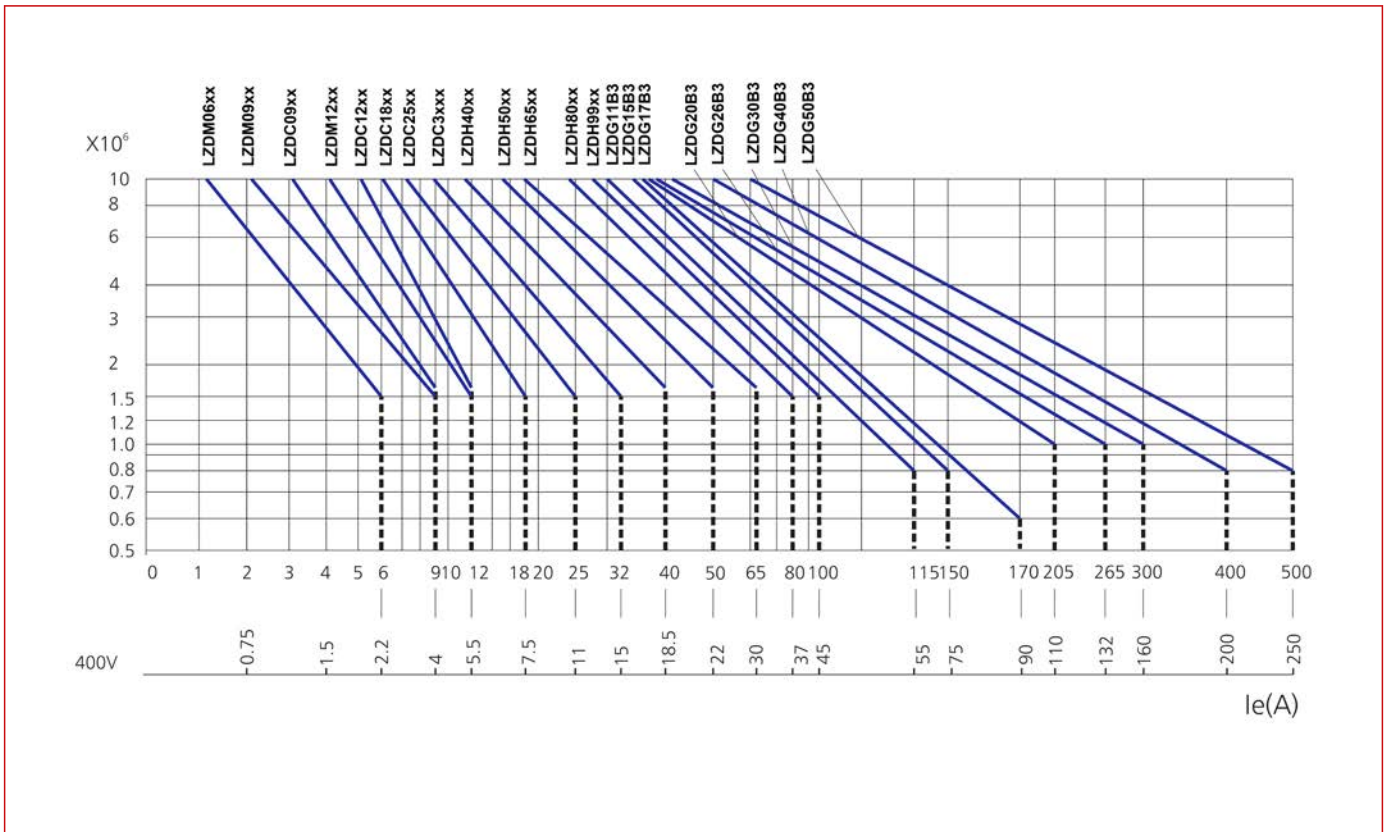
	LZDC09Bx	LZDC12Bx	LZDC18Bx	LZDC25Bx	LZDC32Bx	LZDC38Bx
Terminal capacity of main circuit						
flexible cable with ferrule						
single cable	1 - 4mm ²		1.5 - 6mm ²		2.5 - 10mm ²	
dual cable	1 - 2.5mm ²		1 - 4mm ²		2.5 - 6mm ²	
rigid cable						
single cable	1 - 4mm ²		1.5 - 6mm ²		2.5 - 10mm ²	
dual cable	1 - 4mm ²		1.5 - 6mm ²		2.5 - 10mm ²	
Screw size	M3.5		M3.5		M4	
Torque	1.2Nm		1.2Nm		2Nm	
Terminal capacity of control circuit						
flexible cable with ferrule						
single cable	1 - 4mm ²		1 - 4mm ²		1 - 4mm ²	
dual cable	1 - 2.5mm ²		1 - 2.5mm ²		1 - 2.5mm ²	
rigid cable						
single cable	1 - 4mm ²		1 - 4mm ²		1 - 4mm ²	
dual cable	1 - 4mm ²		1 - 4mm ²		1 - 4mm ²	
Screw size	M3.5		M3,5		M3.5	
Torque	1.2Nm		1.2Nm		1.2Nm	
Terminal capacity of auxiliary contacts						
flexible cable with ferrule						
single cable	1 - 4mm ²		1 - 4mm ²		1 - 4mm ²	
dual cable	1 - 2.5mm ²		1 - 2.5mm ²		1 - 2.5mm ²	
rigid cable						
single cable	1 - 4mm ²		1 - 4mm ²		1 - 4mm ²	
dual cable	1 - 4mm ²		1 - 4mm ²		1 - 4mm ²	
Screw size	M3.5		M3.5		M3.5	
Torque	1.2Nm		1.2Nm		1.2Nm	

Contactors series CUBICO Classic, 3-pole

Electric life curves (AC3 Ue=400V)



Electric life curves (AC-2, AC-4 Ue=400V)

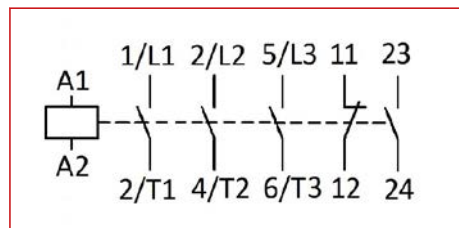
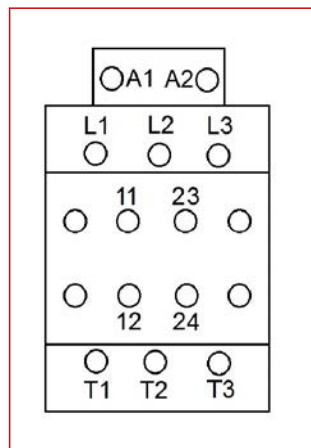


Contactors Series CUBICO Classic, 3-pole

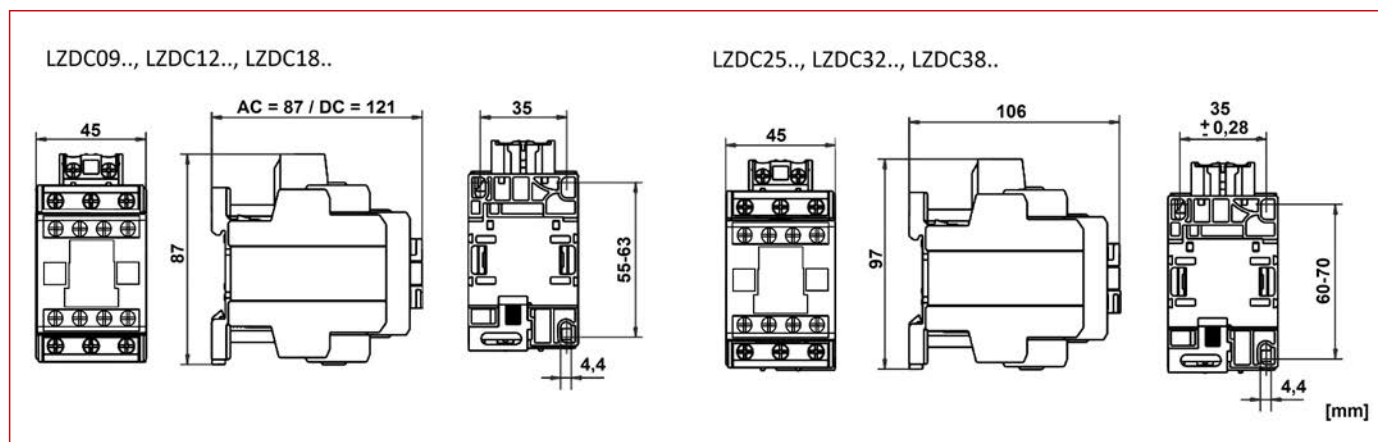
■ Contactors series CUBICO Classic, 3-pole

■ Connection Diagram

■ Circuit Diagram



■ Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
4kW / 9A		
3-pole, 4kW, 9A, 1NO+1NC, 230VAC		LZDC09B3
3-pole, 4kW, 9A, 1NO+1NC, 24VAC		LZDC09B0
3-pole, 4kW, 9A, 1NO+1NC, 24VDC		LZDC09B5
5,5kW / 12A		
3-pole, 5,5kW, 12A, 1NO+1NC, 230VAC		LZDC12B3
3-pole, 5,5kW, 12A, 1NO+1NC, 24VAC		LZDC12B0
3-pole, 5,5kW, 12A, 1NO+1NC, 24VDC		LZDC12B5
7,5kW / 18A		
3-pole, 7,5kW, 18A, 1NO+1NC, 230VAC		LZDC18B3
3-pole, 7,5kW, 18A, 1NO+1NC, 24VAC		LZDC18B0
3-pole, 7,5kW, 18A, 1NO+1NC, 24VDC		LZDC18B5
11kW / 25A		
3-pole, 11kW, 25A, 1NO+1NC, 230VAC		LZDC25B3
3-pole, 11kW, 25A, 1NO+1NC, 24VAC		LZDC25B0
15kW / 32A		
3-pole, 15kW, 32A, 1NO+1NC, 230VAC		LZDC32B3
3-pole, 15kW, 32A, 1NO+1NC, 24VAC		LZDC32B0
18,5kW / 38A		
3-pole, 18,5kW, 38A, 1NO+1NC, 230VAC		LZDC38B3
3-pole, 18,5kW, 38A, 1NO+1NC, 24VAC		LZDC38B0

Accessories Series CUBICO Classic



LZZCH031



LZZCL001

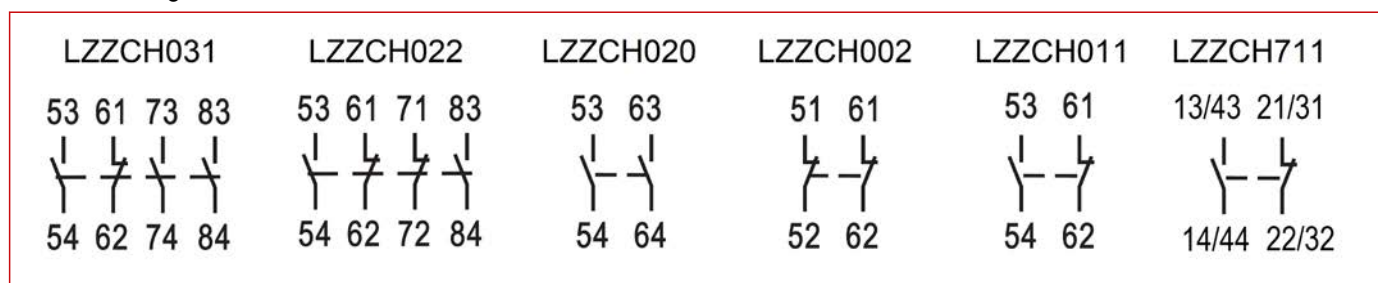
Schrack-Info

- Auxiliary contacts for front or side-mounting for contactors series CUBICO Classic
- Mechanical interlock for two contactors series Classic
- Protective modules for 24V and 230V coil of the contactors

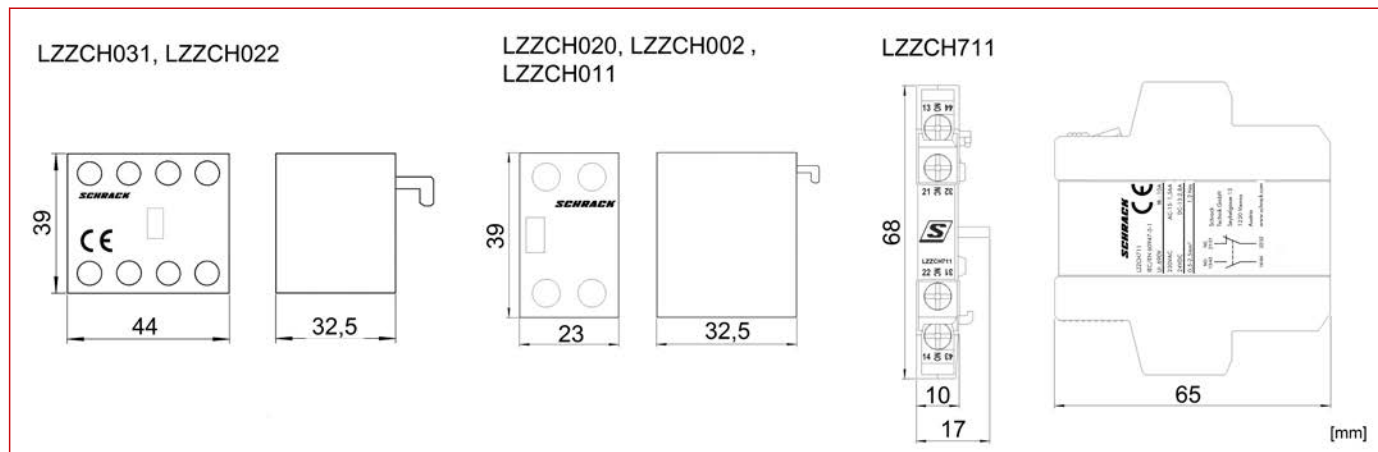


Mobil Code

Circuit Diagrams

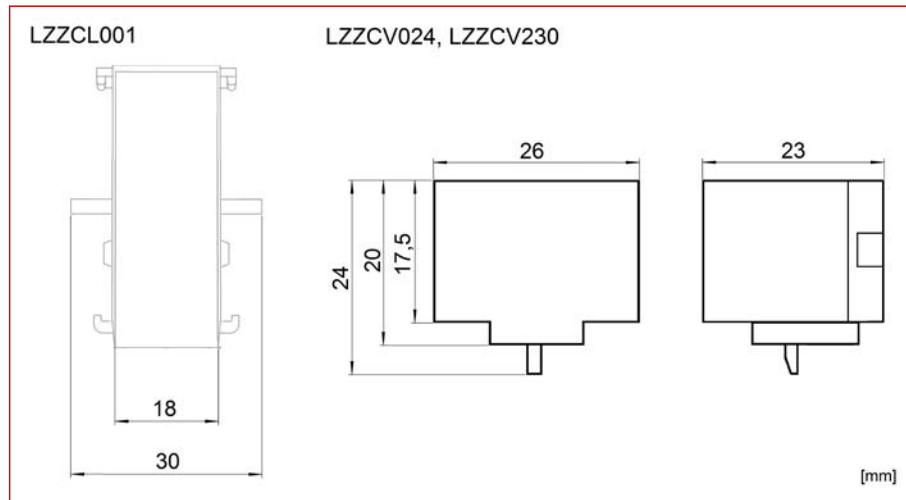


Dimensions



Accessories Series CUBICO Classic

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary Contact Block		
Auxiliary contact front-type for CUBICO Classic and High, 3NO+1NC		LZZCH031
Auxiliary contact front-type for CUBICO Classic and High, 2NO+2NC		LZZCH022
Auxiliary contact front-type for CUBICO Classic and High, 2NO		LZZCH020
Auxiliary contact front-type for CUBICO Classic and High, 2NC		LZZCH002
Auxiliary contact front-type for CUBICO Classic and High, 1NO+1NC		LZZCH011
Auxiliary Contact Block - Side		
Auxiliary contact side-type for CUBICO Classic and High, 1NO+1NC		LZZCH711
Mechanical Interlock		
Mechanical interlock for CUBICO Classic		LZZCL001
Surge Suppressors		
Varistor Classic 24 - 48 V AC/DC		LZZCV024
Varistor Classic 110 - 250 V AC		LZZCV230

■ Contactors Series CUBICO High, 3-pole



LZDH40B3



LZDH80B3



Mobil Code

■ Schrack-Info

- Contactors from 18,5kW/40A up to 45kW/100A
- 3-pole with integrated auxiliary contact
- Available with 230VAC or 24VAC – coil
- Auxiliary contact NC or NO, depends of type
- Mountable to DIN-rail TS35 or mounting plate

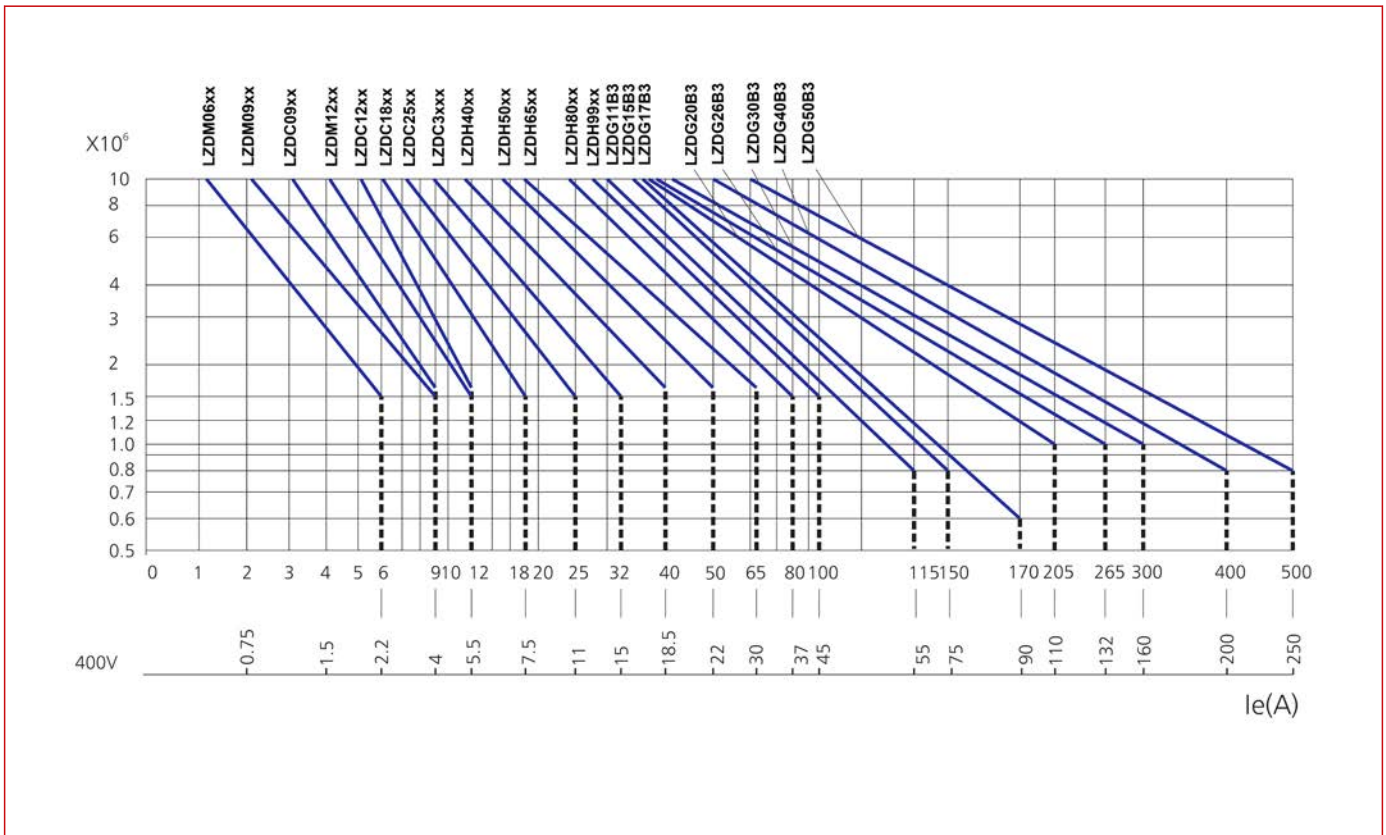
Contactors Series CUBICO High, 3-pole

■ Contactors Series CUBICO High, 3-pole

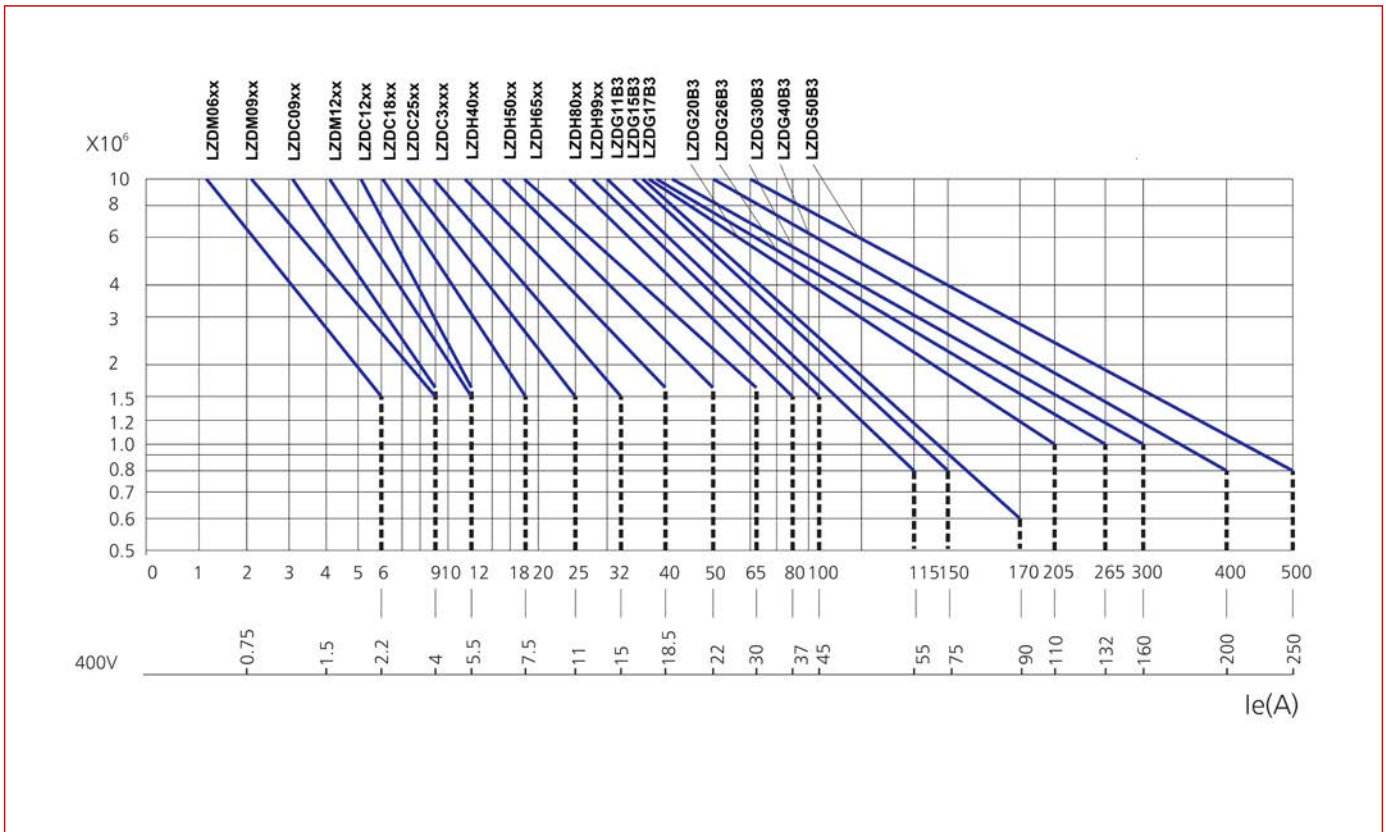
Type		LZDH40...	LZDH50...	LZDH65...	LZDH80...	LZDH99...
Standard		IEC/EN 60947-4-1				
Rated insulation voltage		690VAC				
Rated frequency		50/60Hz				
Rated impulse withstand voltage		8kV				
Overvoltage category		III				
Rated current AC1		60A	80A	80A	125A	125A
Rated current AC3	230V	40A	50A	65A	80A	100A
	400V	40A	50A	65A	80A	100A
	415V	40A	50A	65A	80A	100A
	690V	34A	39A	42A	49A	49A
Rated current AC4	230V	40A	50A	65A	80A	100A
	400V	40A	50A	65A	80A	100A
	415V	40A	50A	65A	80A	100A
	690V	34A	39A	42A	49A	49A
Rated making capacity		10 x I _e (AC3) / 12 x I _e (AC4)				
Rated breaking capacity		8 x I _e (AC3) / 10 x I _e (AC4)				
Short-time withstand current 10s		320A	400A	520A	640A	800A
Rated power AC3	230V	11kW	15kW	18,5kW	22kW	25kW
	400V	18,5kW	22kW	30kW	37kW	45kW
	415V	22kW	25kW	37kW	45kW	45kW
	690V	30kW	33kW	37kW	45kW	45kW
Operating frequency	AC3	1.200 operations/h				
	AC4	120 operations/h				
Electrical lifetime		1.200.000 operations				
Mechanical lifetime		10.000.000 operations				
Configuration of main contacts						
	3-pole	3NO	3NO	3NO	3NO	3NO
Configuration of auxiliary contacts		1NO and 1NC	1NO and 1NC	1NO and 1NC	1NO and 1NC	1NO and 1NC
Protection degree		IP20				
Ambient air temperature		- 5C up to + 40°C				
Storage temperature		- 25C up to + 55°C				
Correction coefficient	40°C	1				
	50°C	0,875				
	60°C	0,75				
	70°C	0,625				
Altitude		2000m				
Atmosphere conditions		50% humidity at +40°C				
Installation position		plane and vertical +/- 22,5°				
Coil voltage		230VAC or 24VAC				
Coil acting range	attraction	85% - 110% U _s				
	release	AC: 20%-70% U _s				
Coil average power	start	210VA	210VA	210VA	250VA	250VA
	holding	25VA	25VA	25VA	30VA	30VA
Heat wastage		7W	7W	7W	8W	8W
Main contact action time	close	25ms	25ms	25ms	30ms	30ms
	disconnection	15ms	15ms	15ms	17ms	17ms
Terminal capacity of main circuit						
	flexible cable with ferrule					
	single cable	10 - 25mm ²	10 - 25mm ²	10 - 25mm ²	16 - 50mm ²	16 - 50mm ²
	dual cable	4 - 16mm ²	4 - 16mm ²	4 - 16mm ²	10 - 35mm ²	10 - 35mm ²
	Screw siz	M8	M8	M8	M8	M8
	Torque	6Nm	6Nm	6Nm	6Nm	6Nm
Terminal capacity of control circuit						
	flexible cable with ferrule					
	single cable	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²
	dual cable	1 - 2,5mm ²	1 - 2,5mm ²	1 - 2,5mm ²	1 - 2,5mm ²	1 - 2,5mm ²
	rigid cable					
	single cable	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²
	dual cable	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²
	Screw size	M3,5	M3,5	M3,5	M3,5	M3,5
	Torque	1,2Nm	1,2Nm	1,2Nm	1,2Nm	1,2Nm
Terminal capacity of auxiliary contacts						
	flexible cable with ferrule					
	single cable	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²
	dual cable	1 - 2,5mm ²	1 - 2,5mm ²	1 - 2,5mm ²	1 - 2,5mm ²	1 - 2,5mm ²
	rigid cable					
	single cable	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²
	dual cable	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²	1 - 4mm ²
	Screw size	M3,5	M3,5	M3,5	M3,5	M3,5
	Torque	1,2Nm	1,2Nm	1,2Nm	1,2Nm	1,2Nm

■ Contactors Series CUBICO High, 3-pole

■ Electric life curves (AC-2, AC-4 U_e=400V)



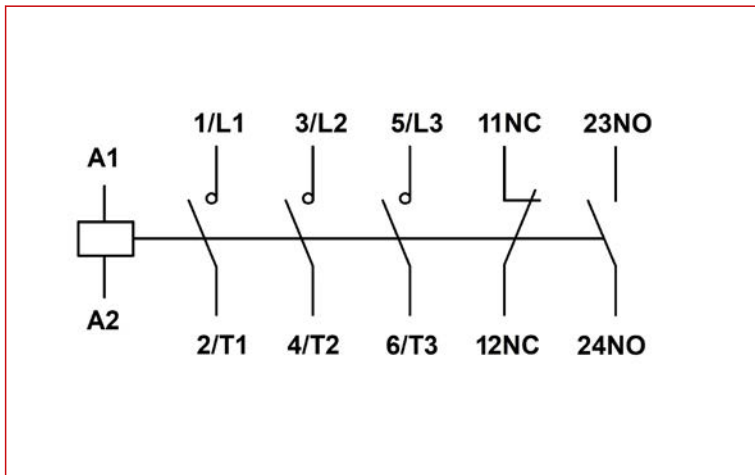
■ Electric life curves (AC3 U_e=400V)



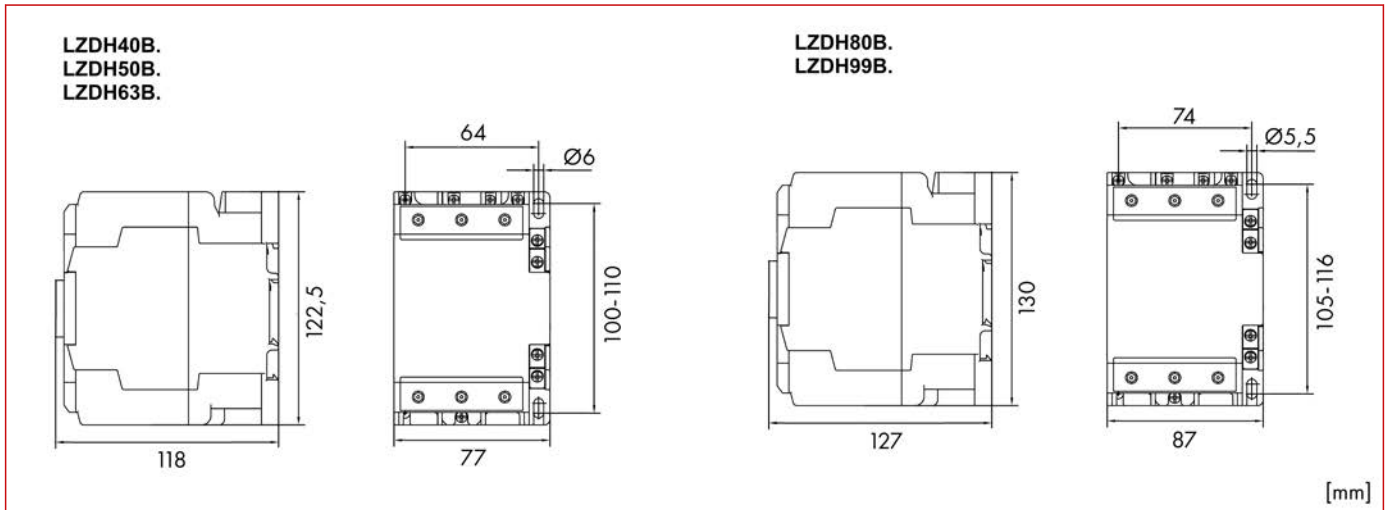
Contactors Series CUBICO High, 3-pole

■ Contactors Series CUBICO High, 3-pole

■ Circuit Diagram



■ Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
18,5kW / 40A		
3-pole, 18,5kW, 40A, 1S+1Ö, 230VAC		LZDH40B3
3-pole, 18,5kW, 40A, 1S+1Ö, 24VAC		LZDH40B0
22kW / 50A		
3-pole, 22kW, 50A, 1S+1Ö, 230VAC		LZDH50B3
3-pole, 22kW, 50A, 1S+1Ö, 24VAC		LZDH50B0
30kW / 65A		
3-pole, 30kW, 65A, 1S+1Ö, 230VAC		LZDH65B3
3-pole, 30kW, 65A, 1S+1Ö, 24VAC		LZDH65B0
37kW / 80A		
3-pole, 37kW, 80A, 1S+1Ö, 230VAC		LZDH80B3
3-pole, 37kW, 80A, 1S+1Ö, 24VAC		LZDH80B0
45kW / 100A		
3-pole, 40kW, 100A, 1S+1Ö, 230VAC		LZDH99B3
3-pole, 40kW, 100A, 1S+1Ö, 24VAC		LZDH99B0

Accessories Series CUBICO High



LZZCH031

Schrack-Info

- Auxiliary contacts for front or side-mounting for contactors series CUBICO High
- Mechanical interlock for two contactors series CUBICO High
- Protective modules for 24V and 230V coil of the contactors

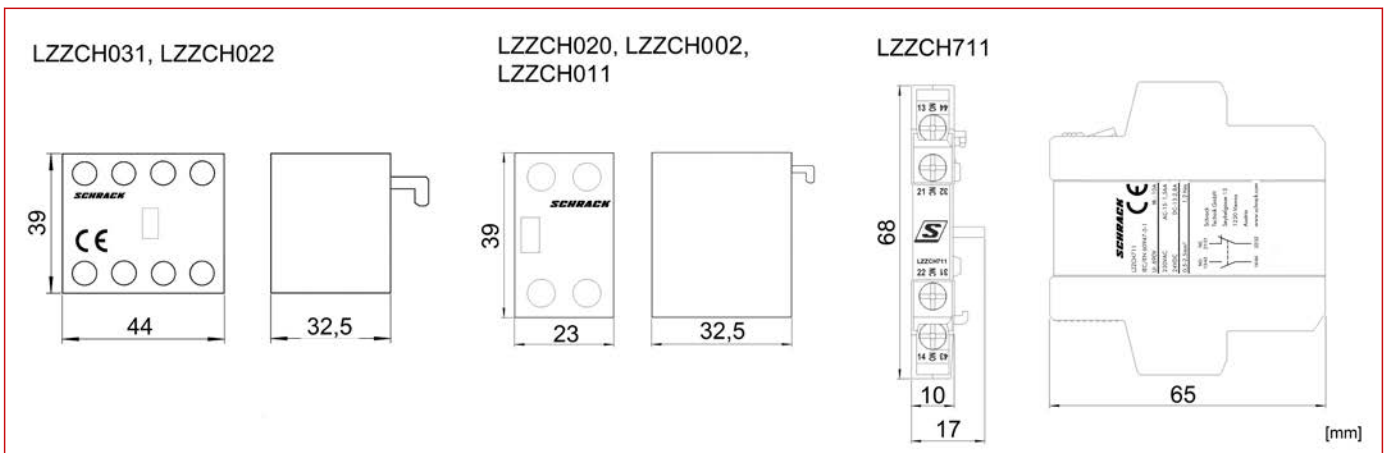


Mobil Code

Circuit Diagrams

LZZCH031	LZZCH022	LZZCH020	LZZCH002	LZZCH011	LZZCH711
53 61 73 83	53 61 71 83	53 63	51 61	53 61	13/43 21/31
54 62 74 84	54 62 72 84	54 64	52 62	54 62	14/44 22/32

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary Contact Block		
Auxiliary contact front-type for CUBICO Classic and High, 3NO+1NC		LZZCH031
Auxiliary contact front-type for CUBICO Classic and High, 2NO+2NC		LZZCH022
Auxiliary contact front-type for CUBICO Classic and High, 2NO		LZZCH020
Auxiliary contact front-type for CUBICO Classic and High, 2NC		LZZCH002
Auxiliary contact front-type for CUBICO Classic and High, 1NO+1NC		LZZCH011
Auxiliary Contact Block - Side		
Auxiliary contact side-type for CUBICO Classic and High, 1NO+1NC		LZZCH711
Mechanical Interlock		
Mechanische Verriegelung für CUBICO High		LZZHL001
Surge Suppressors		
Varistor High 24 - 48 V AC/DC		LZZHV024
Varistor High 110 - 250 V AC		LZZHV230

■ Contactors Series CUBICO Grand, 3-pole



LZDG17B3

■ Schrack-Info

- Contactors from 55kW/115A up to 250kW/500A
- 3-pole with integrated auxiliary contact
- Available with 230VAC – coil
- Auxiliary contact NC and NO, depends of type
- Mountable to mounting plate



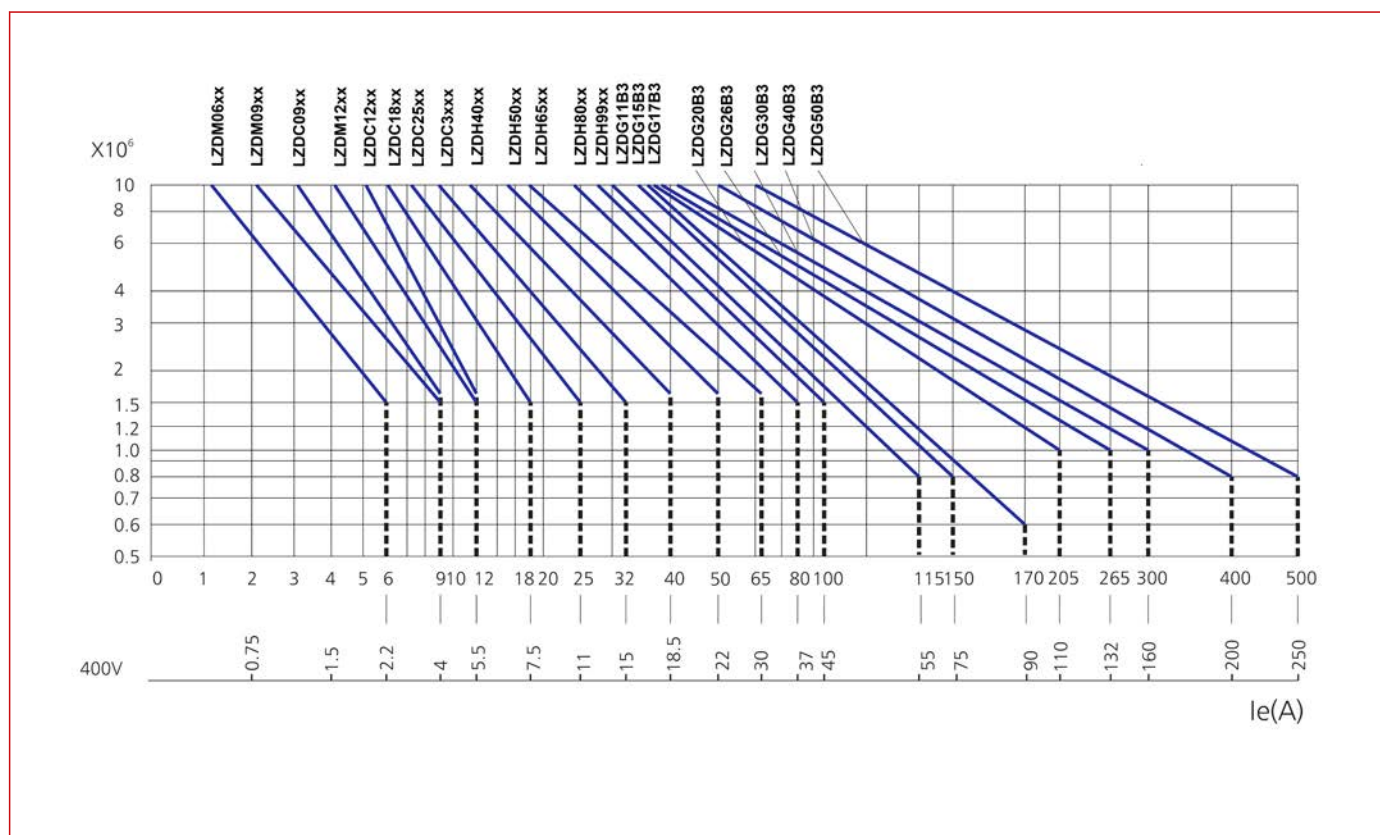
Mobil Code

		LZDG11B3	LZDG15B3	LZDG17B3	LZDG20B3	LZDG26B3	LZDG30B3	LZDG40B3	LZDG50B3
Standards		EN 60947-4-1							
		IEC 60947-4-1							
Breaking capacity	220V / 230V	920A	1200A	1360A	1640A	2120A	2400A	3200A	4000A
	380V / 400V	920A	1200A	1360A	1640A	2120A	2400A	3200A	4000A
	660V / 690V	688A	856A	944A	1096A	1480A	1880A	2424A	2832A
Type "2" coordination	400V [gG/gL 500V]	224A	224A	315A	315A	400A	425A	500A	800A
Conventional free air thermal current, 1 pole	Open [I _{th}]	200A	200A	275A	300A	330A	380A	450A	630A
Rated insulation voltage [U _i]		690V-AC	690V-AC	690V-AC	690V-AC	690V-AC	690V-AC	690V-AC	690V-AC
Rated operational voltage [U _e]		230V-AC	230V-AC	230V-AC	230V-AC	230 V-AC	230V-AC	230V-AC	230V-AC
Rated impulse withstand voltage [U _{imp}]		8	8	8	8	8	8	8	8
Overvoltage category/pollution degree		III	III	III	III	III	III	III	III
AC-3									
Rated operational current									
Open, 3-pole: 50 – 60 Hz	220 V / 230 V [I _e]	115A	150A	170A	205A	265A	300A	400A	500A
	240 V [I _e]	115A	150A	170A	205A	265A	300A	400A	500A
	380 V / 400 V [I _e]	115A	150A	170A	205A	265A	300A	400A	500A
	415 V [I _e]	115A	150A	170A	205A	265A	300A	400A	500A
	660 V / 690 V [I _e]	86A	107A	118A	137A	185A	235A	303A	354A
Motor rating									
	220 V / 230 V [P]	37kW	45kW	55kW	63kW	75kW	90kW	132kW	160kW
	240 V [P]	37kW	45kW	55kW	63kW	75kW	90kW	132kW	160kW
	380 V / 400 V [P]	55kW	75kW	90kW	110kW	132kW	160kW	200kW	250kW
	415 V [P]	59kW	80kW	100kW	110kW	140kW	160kW	220kW	280kW
	660 V / 690 V [P]	80kW	100kW	110kW	132kW	160kW	200kW	300kW	355kW
AC-4									
Rated operational current									
Open, 3-pole, 50 – 60 Hz	220V / 230V [I _e]	115A	150A	170A	205A	265A	300A	400A	500A
	240V [I _e]	115A	150A	170A	205A	265A	300A	400A	500A
	380V / 400V [I _e]	115A	150A	150A	205A	265A	300A	400A	500A
	415V [I _e]	115A	150A	150A	205A	265A	300A	400A	500A
	660V / 690V [I _e]	86A	107A	107A	137A	185A	235A	303A	354A
Power consumption of the coil in a cold state and 1.0 x U _s									
	AC operated [Pick-up]	29W	35W	48W	65W	67W	80W	125W	184W
	AC operated [Sealing]	29W	35W	48W	65W	67W	80W	125W	184W
Lifespan, mechanical		6000000	6000000	6000000	6000000	6000000	6000000	6000000	6000000
Ambient temperature									
	Open	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C
	Enclosed	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C	-5°C / +40°C
	Storage	-25°C / +55°C	-25°C / +55°C	-25°C / +55°C	-25°C / +55°C	-25°C / +55°C	-25°C / +55°C	-25°C / +55°C	-25°C / +55°C

Contactors Series CUBICO Grand, 3-pole

	LZDG11B3	LZDG15B3	LZDG17B3	LZDG20B3	LZDG26B3	LZDG30B3	LZDG40B3	LZDG50B3
Terminal capacity main cable								
Solid	10 - 95mm ² 2 x 10 - 50mm ²	10 - 95mm ² 2 x 10 - 50mm ²	10 - 95mm ² 2 x 10 - 50mm ²	50 - 240mm ² 2 x 50 - 240mm ²	50 - 240mm ² 2 x 50 - 240mm ²	50 - 240mm ² 2 x 50 - 240mm ²	50 - 240mm ² 2 x 50 - 240mm ²	50 - 240mm ² 2 x 50 - 240mm ²
Flexible with ferrule	10 - 95mm ² 2 x 10 - 50mm ²	10 - 95mm ² 2 x 10 - 50mm ²	10 - 95mm ² 2 x 10 - 50mm ²	-	-	-	-	-
Stranded	10 - 95mm ² 2 x 10 - 50mm ²	10 - 95mm ² 2 x 10 - 50mm ²	10 - 95mm ² 2 x 10 - 50mm ²	-	-	-	-	-
Terminal screw	M10	M10	M10	M10	M10	M10	M10	M10
Standard screwdriver	6mm	6mm	6mm					
Allen wrench	4mm	4mm	4mm					
Tightening torque	10Nm	10Nm	10Nm	14Nm	14Nm	14Nm	14Nm	14Nm
Terminal capacity control circuit cables								
Solid	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²
Flexible with ferrule	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²
Philips / Pozidriv screwdriver	PH2	PH2	PH2	PH2	PH2	PH2	PH2	PH2
Standard screwdriver	5mm	5mm	5mm	5mm	5mm	5mm	5mm	5mm
Tightening torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2 Nm	1.2Nm
Terminal capacity auxiliary contacts								
Solid	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²
Flexible with ferrule	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²	1 - 4mm ² 2 x 1 - 4mm ²
Philips / Pozidriv screwdriver	PH2	PH2	PH2	PH2	PH2	PH2	PH2	PH2
Standard screwdriver	5mm	5mm	5mm	5mm	5mm	5mm	5mm	5mm
Tightening torque	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm	1.2Nm

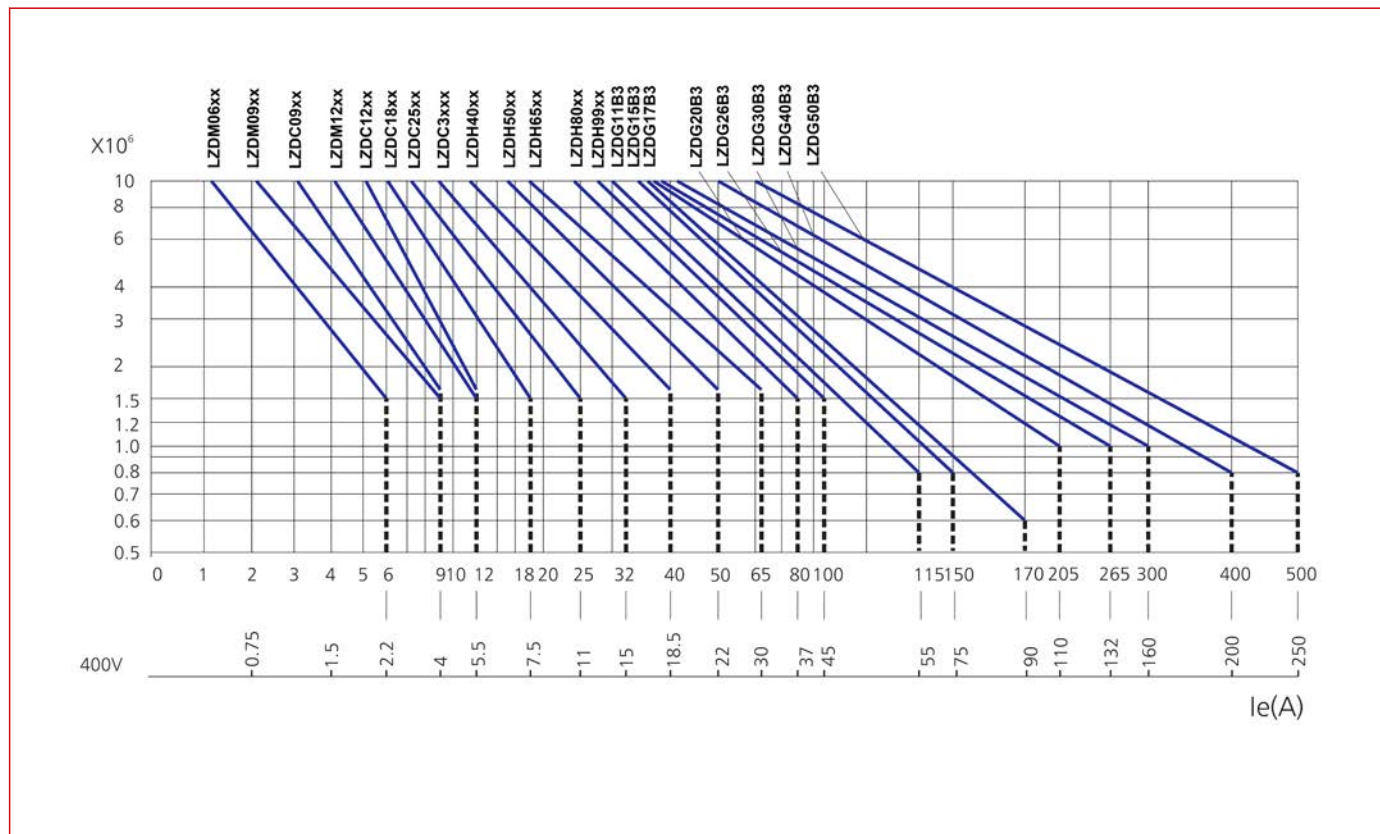
Electric life curves (AC3 Ue=400V)



Contactors Series CUBICO Grand, 3-pole

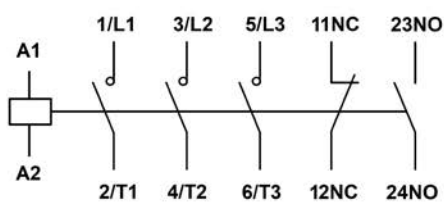
Contactors Series CUBICO Grand, 3-pole

Electric life curves (AC-2, AC-4 U_e=400V)

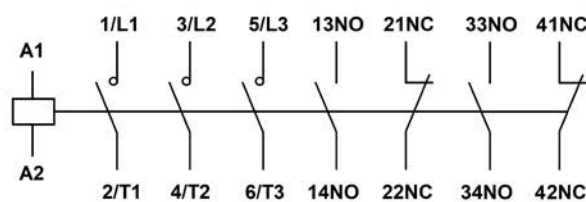


Circuit Diagrams

LZDG11B3, LZDG15B3, LZDG17B3

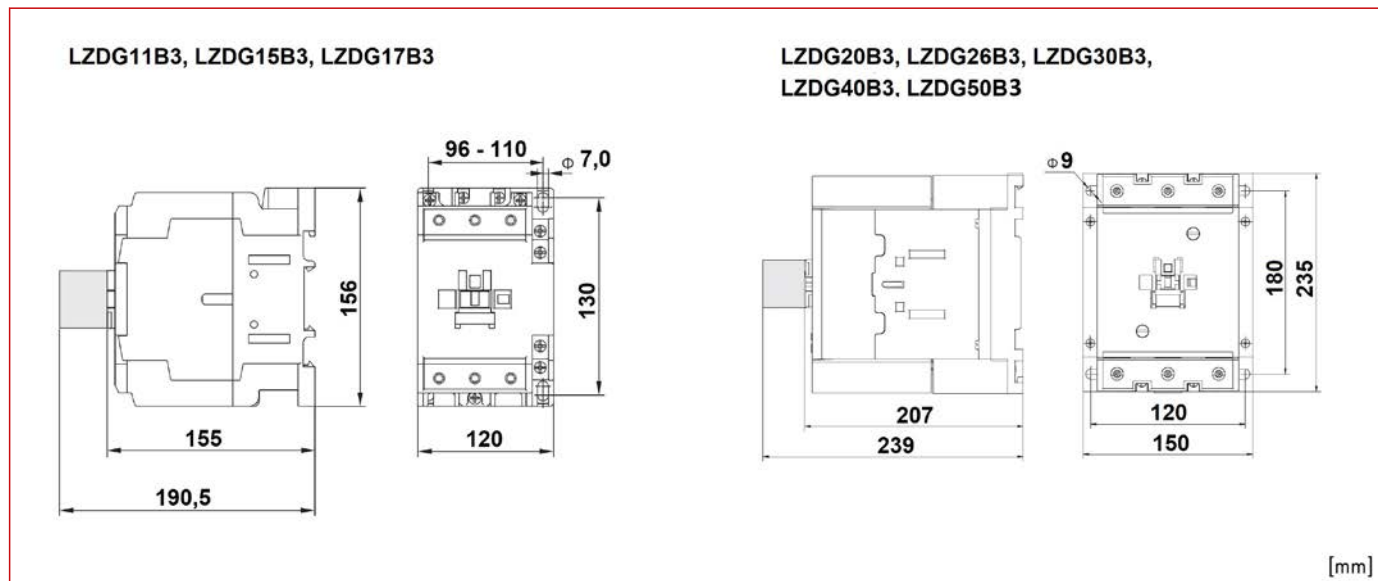


LZDG20B3, LZDG26B3, LZDG30B3, LZDG40B3, LZDG50B3



■ Contactors Series CUBICO Grand, 3-pole

■ Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
55kW / 115A		
3-pole, 55kW, 115A, 1NO+1NC, 230VAC		LZDG11B3
75kW / 150A		
3-pole, 75kW, 150A, 1NO+1NC, 230VAC		LZDG15B3
90kW / 170A		
3-pole, 90kW, 170A, 1NO+1NC, 230VAC		LZDG17B3
110kW / 205A		
3-pole, 110W, 205A, 2NO+2NC, 230VAC		LZDG20B3
132kW / 265A		
3-pole, 132W, 265A, 2NO+2NC, 230VAC		LZDG26B3
160kW / 300A		
3-pole, 160W, 300A, 2NO+2NC, 230VAC		LZDG30B3
200kW / 400A		
3-pole, 200W, 400A, 2NO+2NC, 230VAC		LZDG40B3
250kW / 500A		
3-pole, 250W, 500A, 2NO+2NC, 230VAC		LZDG50B3

Accessories Series CUBICO Grand



LZZCH031

Schrack-Info

- Auxiliary contacts for front or side-mounting for contactors series CUBICO Grand
- Mechanical interlock for two contactors series CUBICO Grand

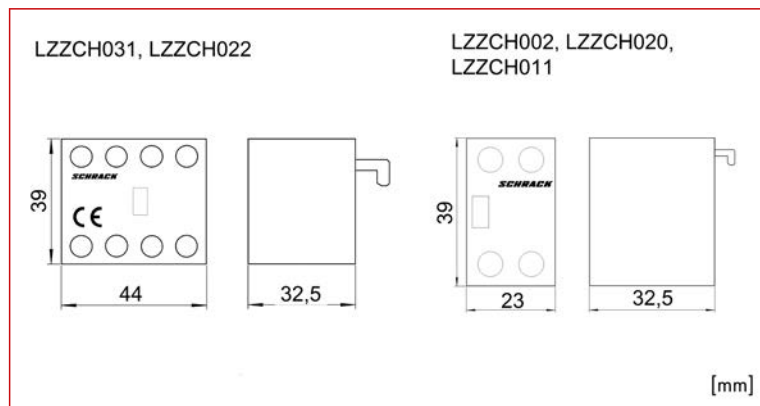


Mobil Code

Circuit Diagrams

LZZCH031	LZZCH022	LZZCH020	LZZCH002	LZZCH011	LZZGH711
53 61 73 83	53 61 71 83	53 63	51 61	53 61	13/43 21/31
54 62 74 84	54 62 72 84	54 64	52 62	54 62	14/44 22/32

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary Contact Block		
Auxiliary contact front-type for CUBICO Classic and High, 2NC		LZZCH002
Auxiliary contact front-type for CUBICO Classic and High, 1NO+1NC		LZZCH011
Auxiliary contact front-type for CUBICO Classic and High, 2NO		LZZCH020
Auxiliary contact front-type for CUBICO Classic and High, 2NO+2NC		LZZCH022
Auxiliary contact front-type for CUBICO Classic and High, 3NO+1NC		LZZCH031
Auxiliary Contact Block - Side		
Auxiliary contact side-type for CUBICO Grand, 1NO+1NC		LZZGH711
Mechanical Interlock		
Mechanical interlock for CUBICO Grand, type for 115 A to 170 A (LZDG11B3, LZDG15B3 und LZDG17B3)		LZZGL001
Mechanical interlock for CUBICO Grand, type for 205 A to 500 A (LZDG20B3, LZDG30B3, LZDG40B3 and LZDG50B3)		LZZGL002

Auxiliary Contactors Series CUBICO Mini, 4-pole



LZHM0673

Schrack-Info

- Auxiliary contactors 6A
- 4-pole
- Available with 230VAC, 24VAC or 24VDC – coil
- Mountable to DIN-rail TS35 or mounting plate



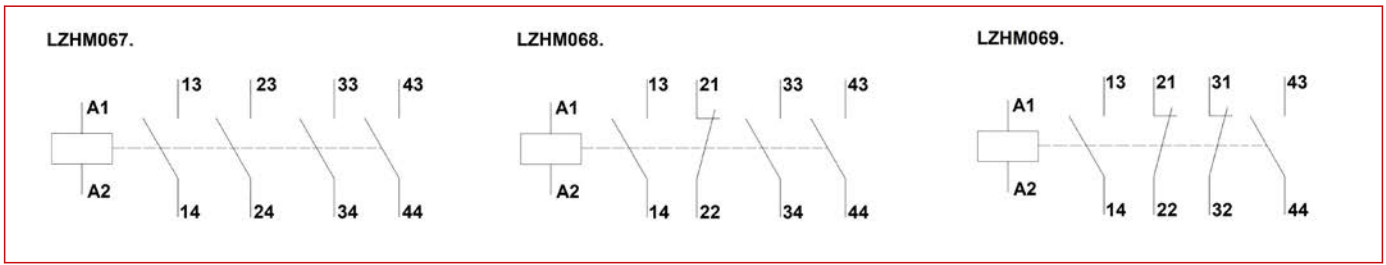
Mobil Code

Type		6A
Standard		IEC/EN 60947-4-1
		690VAC
		50/60Hz
		6kV
Overvoltage category		III
		20A
Rated making capacity		10 x I _e (AC3) / 12 x I _e (AC4)
Rated breaking capacity		8 x I _e (AC3) / 10 x I _e (AC4)
Short-time withstand current 10s		48A
Electrical lifetime	AC1	1.200.000 operations
		10.000.000 operations
	4-pole	4 Closer oder 3 Closer and 1 Opener or 2 Closer and 2 Opener
		IP20
Ambient air temperature		5°C bis zu +40°C
		25°C bis zu +55°C
	40°C	1
	50°C	0.875
	60°C	0.75
	70°C	0.625
		2000m
Installation position		50% humidity at +40°C
Coil voltage	U _s	plane and vertical +/- 22,5°
	start	24VAC, 230VAC or 24VDC
	release	85% - 110% U _s
		AC: 20%-70% U _s
		DC: 10%-60% U _s
Coil average power	start	40VA
	holding	7VA
Heat wastage		4W
Main contact action time	close	10 - 18ms
	disconnection	4 - 16ms
Terminal capacity of operation circuit		
	flexible cable with ferrule	
	1 x	1 - 2,5mm ²
	2 x	1 - 2,5mm ²
	rigid cable	
	1 x	1 - 2.5mm ²
	2 x	1 - 2.5mm ²
	Screw size	M3
	Torque	0.8Nm
Terminal capacity of control circuit		
	flexible cable with ferrule	
	1 x	1 - 2.5mm ²
	2 x	1 - 2.5mm ²
	rigid cable	
	1 x	1 - 2.5mm ²
	2 x	1 - 2.mm ²
	Screw size	M3
	Torque	0.8Nm

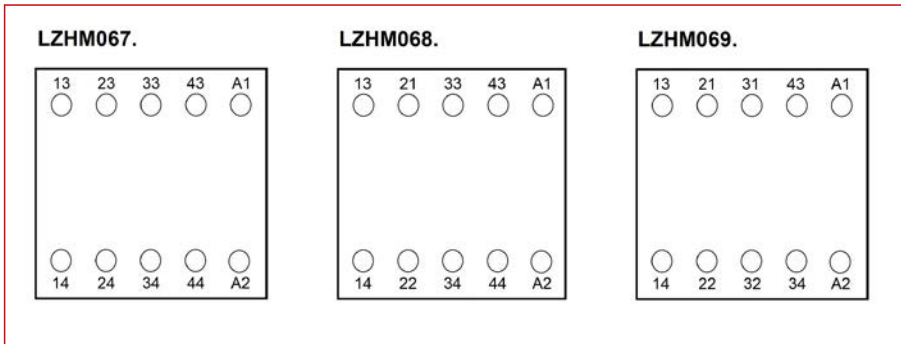
Contactors Series CUBICO Grand, 3-pole

Auxiliary Contactors Series CUBICO Mini, 4-pole

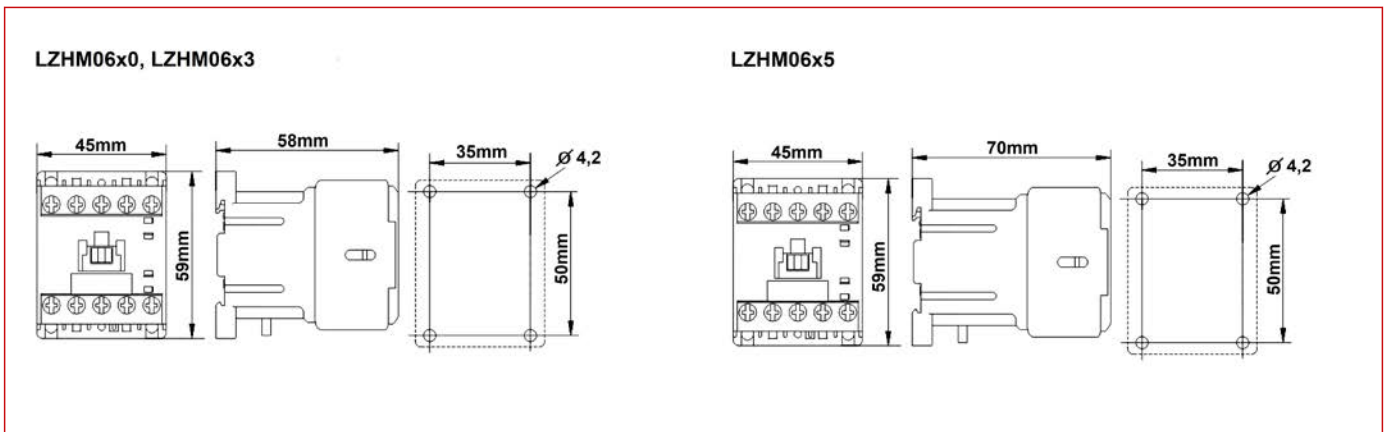
Circuit Diagrams



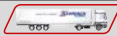








Connection Diagrams



Dimensions

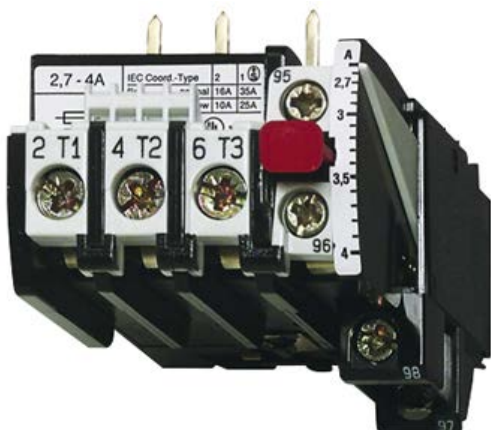


Auxiliary Contactors Series CUBICO Mini, 4-pole

DESCRIPTION	AVAILABLE	ORDER NO.
6A		
4 NO, 6A, 24VDC		LZHM0675
3NO, 1NC, 6A, 24VDC		LZHM0685
2NO, 2NC, 6A, 24VDC		LZHM0695
4 NO, 6A, 24VAC		LZHM0670
3NO, 1NC, 6A, 24VAC		LZHM0680
2NO, 2NC, 6A, 24VAC		LZHM0690
4 NO, 6A, 230VAC		LZHM0673
3NO, 1NC, 6A, 230VAC		LZHM0683
2NO, 2NC, 6A, 230VAC		LZHM0693

Thermal Overload Relays

Motor Protection Relays Series LA, U12/16E...K3



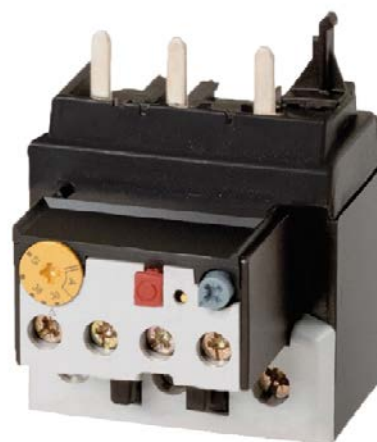
Thermal Overload Relays LTT, Size 0



Thermal Overload Relays LTT, Size 1



Thermal Overload Relays LTT, Size 2



Thermal Overload Relays LTT, Size 3



Thermal Overload Relays Series CUBICO



Thermal Overload Relays

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Motor Protection Relays Series LA	Page	336
Thermal Overload Relays Series ALEA LTT	Page	343
Thermal Overload Relays Series CUBICO.....	Page	358

Motor Protection Relays U12/16E...K3 with Manual Reset for Contactors K(G)3-10 to K(G)3-22



LA300108K3

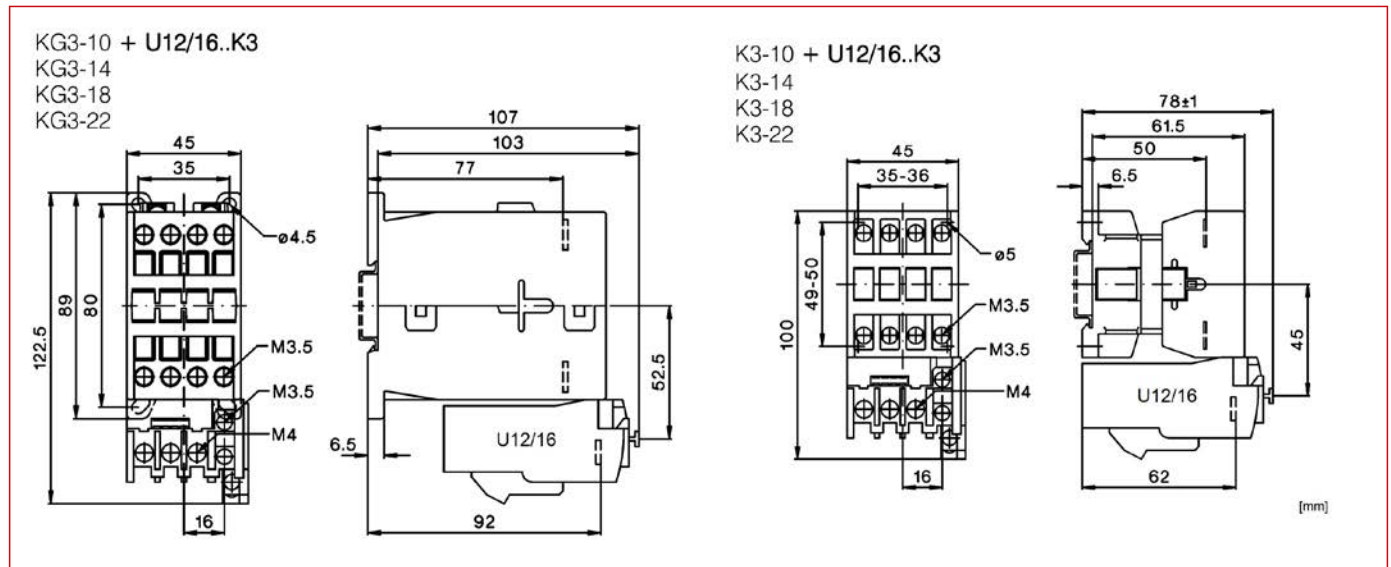
Schrack-Info

- For direct mounting onto contactors K(G)3-10 up to K(G)3-22
- Rated currents for direct starter of 0.12A up to 30A
- Rated currents for YD starter of 7A up to 52A
- Adjustment of relay: rated current of motor $I_n \times 0.58$
- Auxiliary contacts 1NC and 1NO (95/96, 97/98)
- Reset by hand

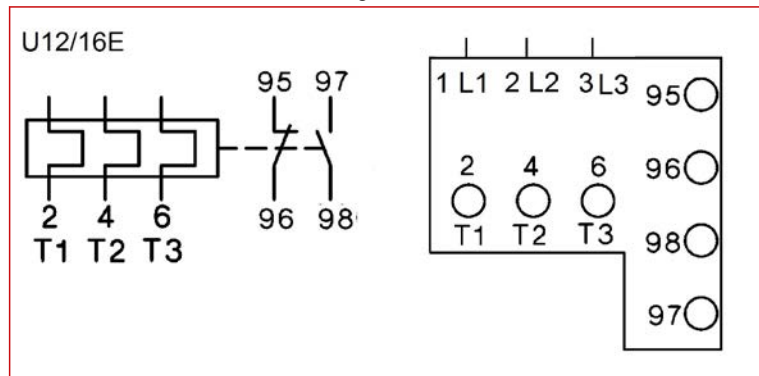


Mobil Code






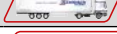
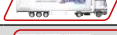





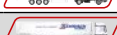
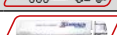


Dimensions



Circuit and Connection Diagram



Motor Protection Relais U12/16E...K3 with Manual Reset for Contactors K(G)3-10 to K(G)3-22

DESCRIPTION	TYPE NO.	AVAILABLE	ORDER NO.
0.12-0.18A U12/16E...K3 Manual-Reset	U12/16 K3		LA300100K3
0.18-0.27A U12/16E...K3 Manual-Reset	U12/16 K3		LA300101K3
0.27-0.4A U12/16E...K3 Manual-Reset	U12/16 K3		LA300102K3
0.4-0.6A U12/16E...K3 Manual-Reset	U12/16 K3		LA300103K3
0.6-0.9A U12/16E...K3 Manual-Reset	U12/16 K3		LA300104K3
0.8-1.2A U12/16E...K3 Manual-Reset	U12/16 K3		LA300105K3
1.2-1.8A U12/16E...K3 Manual-Reset	U12/16 K3		LA300106K3
1.8-2.7A U12/16E...K3 Manual-Reset	U12/16 K3		LA300107K3
2.7-4A U12/16E...K3 Manual-Reset	U12/16 K3		LA300108K3
4-6A U12/16E...K3 Manual-Reset	U12/16 K3		LA300109K3
6-9A U12/16E...K3 Manual-Reset	U12/16 K3		LA300110K3
8-11A U12/16E...K3 Manual-Reset	U12/16 K3		LA300111K3
10-14A U12/16E...K3 Manual-Reset	U12/16 K3		LA300112K3
13-18A U12/16E...K3 Manual-Reset	U12/16 K3		LA300113K3
17-23A U12/16E...K3 Manual-Reset	U12/16 K3		LA300114K3
22-30A U12/16E...K3 Manual-Reset	U12/16 K3		LA300126K3

Motor Protection Relays

Relays Standard Tripping Characteristic

Tripping time depending on the multiple of the current setting from cold condition

(tolerance $\pm 20\%$ of the tripping time)

Setting Range A	I_A/I_N 3	I_A/I_N 4	I_A/I_N 5	I_A/I_N 6	I_A/I_N 7,2	I_A/I_N 8
U12/16E	[s]	[s]	[s]	[s]	[s]	[s]
0.12 - 0.18	18.5	10.4	7.2	5.5	4.3	3.6
0.18 - 0.27	16.7	9.8	6.5	5	4.1	3.5
0.27 - 0.4	19.4	12.1	8.2	5.9	4.9	4.2
0.4 - 0.6	18.7	11.2	8	6	4.9	4.1
0.6 - 0.9	19.7	11.6	8.1	6.1	4.9	4.2
0.8 - 1.2	22.9	13.6	10	7.3	6	5.2
1.2 - 1.8	22.2	13.2	9.2	7.6	5.8	5.3
1.8 - 2.7	23	13.7	9.3	7.6	5.7	5.1
2.7 - 4	24	14.4	9.9	7.8	5.9	5.1
4 - 6	24.7	13.8	9.9	7.3	5.6	4.8
6 - 9	22	13.4	8	5.7	4.1	3.5
8 - 11	17.4	9.2	5.9	4.1	2.9	2.3
10 - 14	26.4	12.9	7.6	5.2	3.5	2.8
13 - 18	14.7	7.7	4.8	3.2	2.3	1.7
17 - 23	16.2	8.4	5	3.6	2.4	1.8
22 - 30	16.8	8.5	5	3.6	2.3	1.9
U3/32	[s]	[s]	[s]	[s]	[s]	[s]
0.12 - 0.18	16.1	9.6	6.8	5.3	4.2	3.7
0.18 - 0.27	16.6	9.7	6.7	5.2	4.1	3.6
0.27 - 0.4	19.4	11.4	7.9	6.1	4.7	4.2
0.4 - 0.6	18.7	10.9	7.6	5.9	4.6	4
0.6 - 0.9	19.2	11.2	7.7	5.9	4.6	4.1
0.8 - 1.2	20.8	12.3	8.5	6.6	5.2	4.6
1.2 - 1.8	25.5	14.1	9.8	7.6	5.9	5.2
1.8 - 2.7	26.6	15.6	10.9	8.3	6.5	5.7
2.7 - 4	22.7	13.6	9.5	7.4	5.8	5.1
4 - 6	22.2	13.3	9.3	7.1	5.6	4.9
6 - 9	20.4	11.9	8.2	6.1	4.7	4
8 - 11	20.9	11.8	7.9	5.7	4.3	3.5
10 - 14	21.3	11.7	7.4	5.1	3.7	3
13 - 18	21.2	12.1	8	6.2	4.6	4.1
17 - 24	20.4	12	8.6	6.3	4.5	3.7
23 - 32	20.2	10.2	6.7	4.7	3.4	2.8
U3/42	[s]	[s]	[s]	[s]	[s]	[s]
10 - 14	21.8	11.4	7	5	3.7	2.8
14 - 20	22.4	11.2	6.7	4.5	3.2	2.4
20 - 28	21.8	10.8	6.5	4.5	3.3	2.5
28 - 42	25.2	13.3	8	5.5	4	3.1
U3/74	[s]	[s]	[s]	[s]	[s]	[s]
20 - 28	21.8	10.8	6.5	4.5	3.3	2.5
28 - 42	25.2	13.3	8	5.5	4	3.1
40 - 52	18.3	9.2	5.6	3.9	2.8	2.2
52 - 65	17.8	8.7	5.2	3.4	2.5	1.9
U85	[s]	[s]	[s]	[s]	[s]	[s]
60 - 90	19.5	13.5	11	10	9.5	8.5
80 - 120	18	11	10	9	8.5	8

 Motor Protection Relays

 Fuses for U3/32, U3/42, U3/74, U12/16E, U85, U180, U320 and U800

Type	Setting Range		Max. Fuse Size According to Coordination-type				Fuse UL	SCCR	
			"2" 1)		"1" 1)				
	direct	YΔ	quick	slow, gL (gG)	slow, gL (gG)	aM			[A]
U12/16E	0,12 - 0,18	-	0,5 2)	0,5 2)	25		15	5	
U3/32	0,18 - 0,27	-	1,0 2)	1,0 2)	25		15	5	
	0,27 - 0,4	-	2	2	25		15	5	
	0,4 - 0,6	-	2	2	25		15	5	
	0,6 - 0,9	-	4	4	25		15	5	
	0,8 - 1,2	-	4	4	25	2	15	5	
	1,2 - 1,8	-	6	6	25	2	15	5	
	1,8 - 2,7	-	10	10	25	4	15	5	
	2,7 - 4	-	16	10	25	4	15	5	
	4 - 6	7 - 10,5	20	16	25	6	15	5	
	6 - 9	10,5 - 15,5	35	25	35	10	25	5	
	8 - 11	14 - 19	35	25	35	16	30	5	
	10 - 14	18 - 24	50	35	63	16	40	5	
	13 - 18	23 - 31	50	35	63	20	50	5	
	17 - (23)24	30 - (40)41	63	50	63	25	60	5	
	(22)23 - (30)32	(38)40 - (52)55	80	63	80	35	70	5	
U3/42	10 - 14	18 - 24	50	35	80	16	40	5	
	14 - 20	24 - 35	63	50	80	25	60	5	
	20 - 28	35 - 48	80	63	80	35	80	5	
	28 - 42	48 - 73	100	80	150	50	110	5	
U3/74	20 - 28	35 - 48	100	80	150	35	80	5	
	28 - 42	48 - 73	125	100	150	50	110	5	
	40 - 52	70 - 90	160	100	150	63	200	5	
	52 - 65	90 - 112	160	125	150	80	250	10	
	60 - 74	104 - 128	160	125	150	80	250	10	
U85	60 - 90	104 - 156					300	10	
	80 - 120	140 - 207						10	
	all ranges		For short circuit protecting overload relays with						-
	all ranges		contactor of the combination.						-

1) Coordination-type according to IEC 947-4-1:


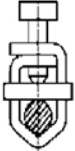
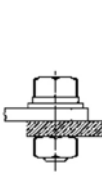



"1" Welding of contactor and damage of the thermal overload relay allowed.

"2" Light contact welding accepted. Thermal overload relay must not be damaged.

2) Miniature fuse

Motor Protection Relays

Terminal Screws

Device	Kind of connection				Screw driver	Tightening torque	
	Screw with washer	Screw with clamp box	Screw w. nut			Nm	lb. Inch
Type							
Main conductor U12/16							
U3/32	M4	-	-	-	Pz2	1.2-1.8	11-16
U3/42	M3,5	-	-	-	Pz2	0.8-1.4	7-12
U3/74	M5	-	-	-		2.5-3	22-26
Auxiliary conductor	-	M6	-	-	Pz3	3.5-4.5	31-40
All devices	M3,5	-	-	-		0.8-1.4	7-12

Motor Protection Relays

Data According to IEC 947-4-1, IEC 947-5-1, VDE 0660, EN 60947-4-1, EN 60947-5-1

Type		U12/16 ⁴⁾	U3/32	U3/42	U3/74	U85	
Rated insulation voltage U_i ¹⁾	V~	690	690	690	690	750	
Permissible ambient temperature							
operation	open	°C					
		-25 to + 60					
storage		°C					
		-50 to + 70					
Trip class		10A	10A	10A	20A	10A	
Cable cross-section							
Main connector							
	solid or stranded	mm ²	0.75-6+0.75-2.5 ²⁾	0.75-6	0.75-10	4-35 ²⁾	3)
	flexible	mm ²	0.75-4+0.5-2.5 ²⁾	1-4	0.75-6	6-25 ²⁾	
	flexible with multicore cable end	mm ²	0.5-2.5+0.5-1.5	0.75-4	0.75-6	4-25	
Cables per clamp	number	1+1	2	2	1		
Auxiliary connector							
	solid or stranded	mm ²	0.75-2.5 ²⁾				
	flexible	mm ²	0.5-2.5 ²⁾				
	flexible with multicore cable end	mm ²	0.5-1.5				
Cables per clamp	number	2					

Type			U3/32	U12/16E	U3/42 U3/74	U85
Auxiliary contacts						
Rated insulation voltage U_i ¹⁾						
same potential	V~		690	690	690	690
different potential	V~		440	440	250	440
Utilization category AC15						
Rated operational	24V	A	3	5	4	5
current I _e	230V	A	2	3	2,5	3
	400V	A	1	2	1,5	2
	690V	A	0,5	0,6	0,6	0,6
Utilization category DC13						
Rated operational	24V	A	1	1,2	1,2	1,2
current I _e	110V	A	0,15	0,15	0,15	0,15
	220V	A	0,1	0,1	0,1	0,1
Short circuit prot. (without welding 1kA)						
highest fuse rating	gL (gG)	A	4	6	6	6

Type		U12/16	U12/16E ⁴⁾	U3/32	U3/42	U3/42	U3/74	U3/74	U85
Setting range		to 23A	22 - 30A	all	to 28A	28 - 42A	to 52A	52 - 65A	all
Power loss per current path (max.)									
minimum setting value	W	1,1	1,7	1,1	1,3	1,3	2	2,9	1.1
maximum setting value	W	2,3	3,7	2,3	2,6	3,3	3,7	4.5	2.5

Temperature Compensation

In case of higher ambient temperature use the following formula:

(Ambient temperature - 20) × 0,125 = correction factor in % of the full load motor current

Example: Ambient temperature 70°C, full load motor current 7A

(70 - 20) × 0,125 = 6,25%

Setting value: 7A + 6,25% = 7,44A

1) Suitable for: earthed-neutral systems, overvoltage category I to III, pollution degree 3 (standard-industry): U_{imp} = 4kV (at 440V), 6kV (at 690V).

Data for other conditions on request.

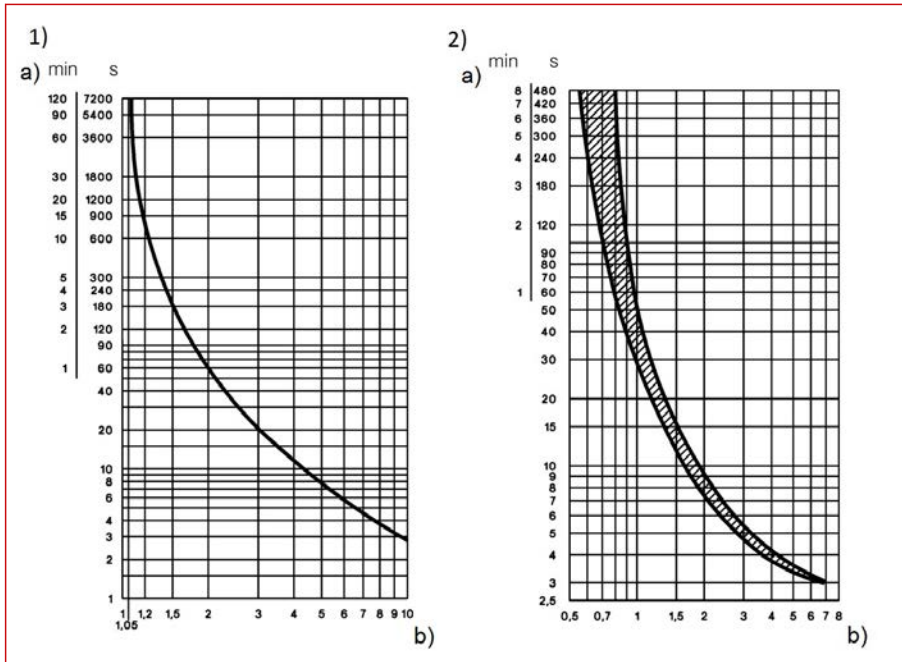
2) Maximum cable cross-section with prepared conductor

3) Without terminals, suitable for bushing one connector 70mm² (stranded) per phase

4) U12/16E... 30A: Cable cross-section for main connector like type U3/42, one connector only

Tripping Characteristics

Tripping Curves for U12/16E, U3/32, U3/42 and U3/74



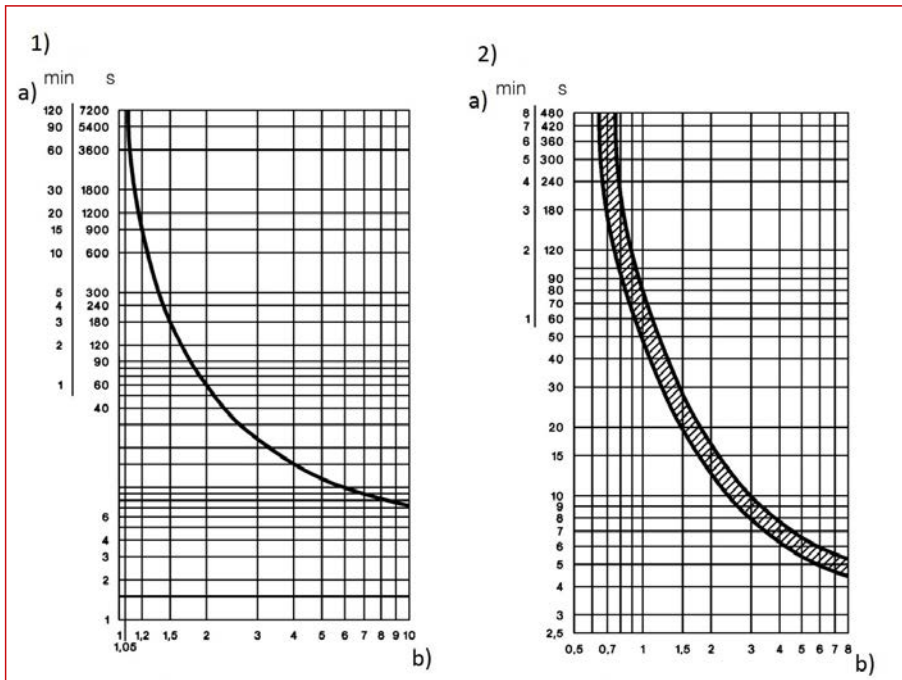
1) with three-phase load - Proceeding from service condition the times decrease to 20-30% of the characteristic values.

2) with two-pole load - Proceeding from service condition the times decrease to 70-80% of the characteristic values.

a) Tripping time (Average value of typical tolerance curves from cold condition)

b) F. L. C. multiplication factor

Tripping Curves for U85



1) with three-phase load - Proceeding from service condition the times decrease to 20-30% of the characteristic values.

2) with two-pole load - Proceeding from service condition the times decrease to 70-80% of the characteristic values.

a) Tripping time (Average value of typical tolerance curves from cold condition)

b) F. L. C. multiplication factor

Thermal Overload Relais LTT, Size 0



LTT01600

Schrack-Info

- Thermal overload relays with phase failure monitoring for direct mounting onto contactors of size 0
- Devices are equipped with potential-free auxiliary contact 1 NO + 1 NC, manual- and automatic-RESET, TEST-function, STOP-button. The terminals of contactors auxiliary contact 14/22 as well as contactors terminal (coil) A2 are connected through the device



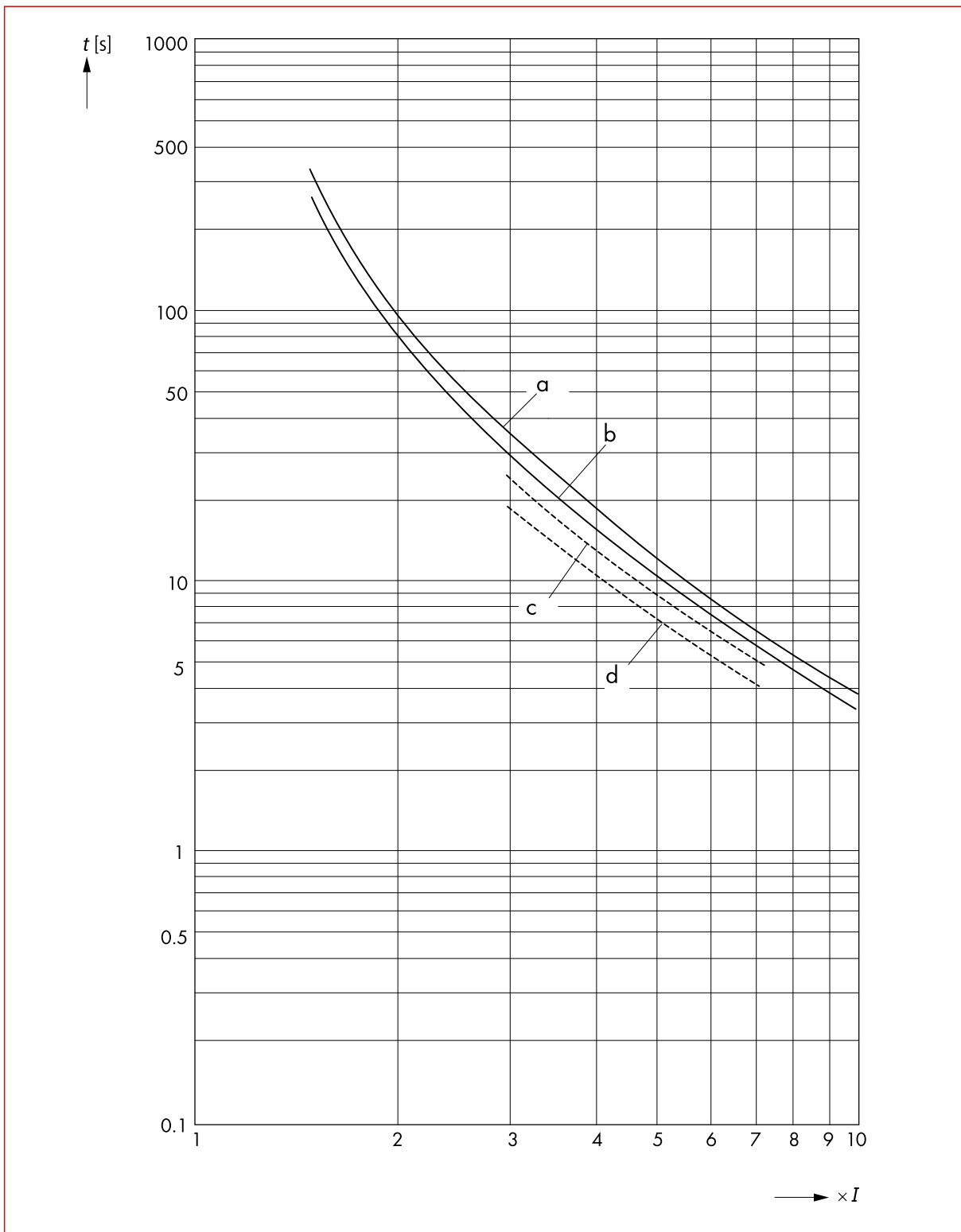
Mobil Code

	LTT00 016	LTT00 024	LTT00 040	LTT00 060	LTT00 100	LTT00 160	LTT00 240	LTT00 400	LTT00 600	LTT01 000	LTT01 200	LTT01 600
Rated current (setting range)	0,1 - 0,16A	0,16 - 0,24A	0,24 - 0,4A	0,4 - 0,6A	0,6 - 1A	1 - 1,6A	1,6 - 2,4A	2,4 - 4A	4 - 6A	6 - 10A	9 - 12A	12 - 16A
For contactor-size	0	0	0	0	0	0	0	0	0	0	0	0
Standards	IEC60947, EN60947											
Ambient temperature open	-25 / +55°C											
Temperature compensation	continuous											
Temperatur compensation residual error > 40 °C	≤ 0.25%/K											
Climatic proofing	Damp heat constant according IEC60068-2-78											
Degree of Protection	IP20											
Protection against direct contact												
When actuated from front (EN50274)	Finger- and back-of-hand proof											
Rated impulse withstand voltage (U _{imp})	6000V											
Overvoltage category/pollution degree	III/3											
Terminal capacity main cable												
Solid (main cable)	1 x 1 - 6mm ² , 2 x 1 - 6mm ²											
Flexible with ferrule (main cable)	1 x 1 - 4mm ² , 2 x 1 - 4mm ²											
Terminal screw (main cable)	M4											
Tightening torque (main cable)	1.8Nm											
Stripping length (main cable)	10mm											
Philips/Pozidriv screwdriver (main cable)	PZ 2											
Standard screwdriver (main cable)	1 x 6mm											
Terminal capacity control circuit cables												
Solid (control circuit cables)	1 x 0.75 - 4mm ² , 2 x 0.75 - 4mm ²											
Flexible with ferrule (control circuit cables)	1 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²											
Terminal screw (control circuit cables)	M3.5											
Tightening torque (control circuit cables)	1.2Nm											
Stripping length (control circuit cables)	8mm											
Tools (control circuit cables)												
Philips/Pozidriv screwdriver (control circuit cables)	PZ 2											
Standard screwdriver (control circuit cables)	1 x 6 mm											

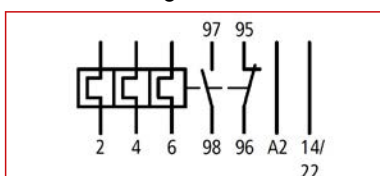
Thermal Overload Relays Series ALEA II LTT

Thermal Overload Relais LTT, Size 0

Tripping Diagram (A: Min. 3 Phase | B: Max. 3 Phase | C: Min. 2 Phase | D: Max. 2 Phase)

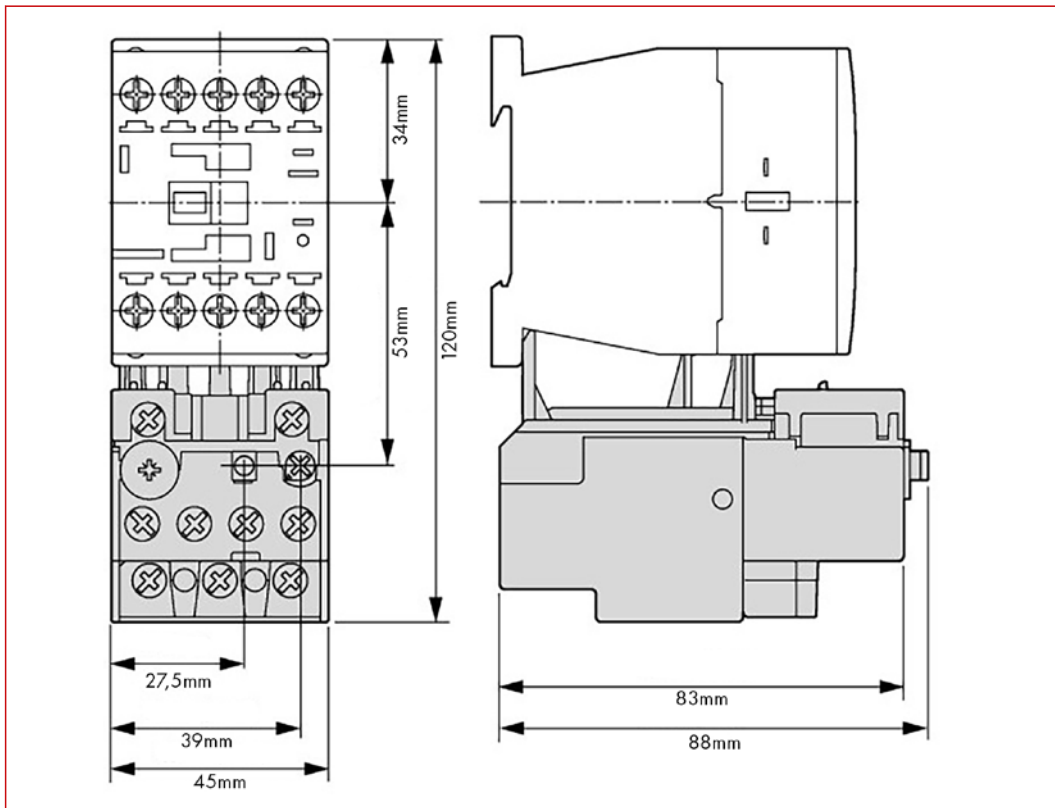


Circuit Diagram



Thermal Overload Relais LTT, Size 0

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Overload relay LTT, relay model size 0, 0,1 - 0,16A		LTT00016
Overload relay LTT, relay model size 0, 0,16 - 0,24A		LTT00024
Overload relay LTT, relay model size 0, 0,24 - 0,4A		LTT00040
Overload relay LTT, relay model size 0, 0,4 - 0,6A		LTT00060
Overload relay LTT, relay model size 0, 0,6 - 1A		LTT00100
Overload relay LTT, relay model size 0, 1 - 1,6A		LTT00160
Overload relay LTT, relay model size 0, 1,6 - 2,4A		LTT00240
Overload relay LTT, relay model size 0, 2,4 - 4A		LTT00400
Overload relay LTT, relay model size 0, 4 - 6A		LTT00600
Overload relay LTT, relay model size 0, 6 - 10A		LTT01000
Overload relay LTT, relay model size 0, 9 - 12A		LTT01200
Overload relay LTT, relay model size 0, 12 - 16A		LTT01600

Thermal Overload Relays LTT, Size 1



LTT12400

Schrack-Info

- Thermal overload relays with phase failure monitoring for direct mounting onto contactors of size 1
- Separate mounting can be realised by "stand alone holder" LTZ1TE01
- Devices are equipped with potential-free auxiliary contact 1 NO + 1 NC, manual- and automatic-RESET, TEST-function, STOP-button. The terminals of contactors auxiliary contact 14/22 are connected through the device

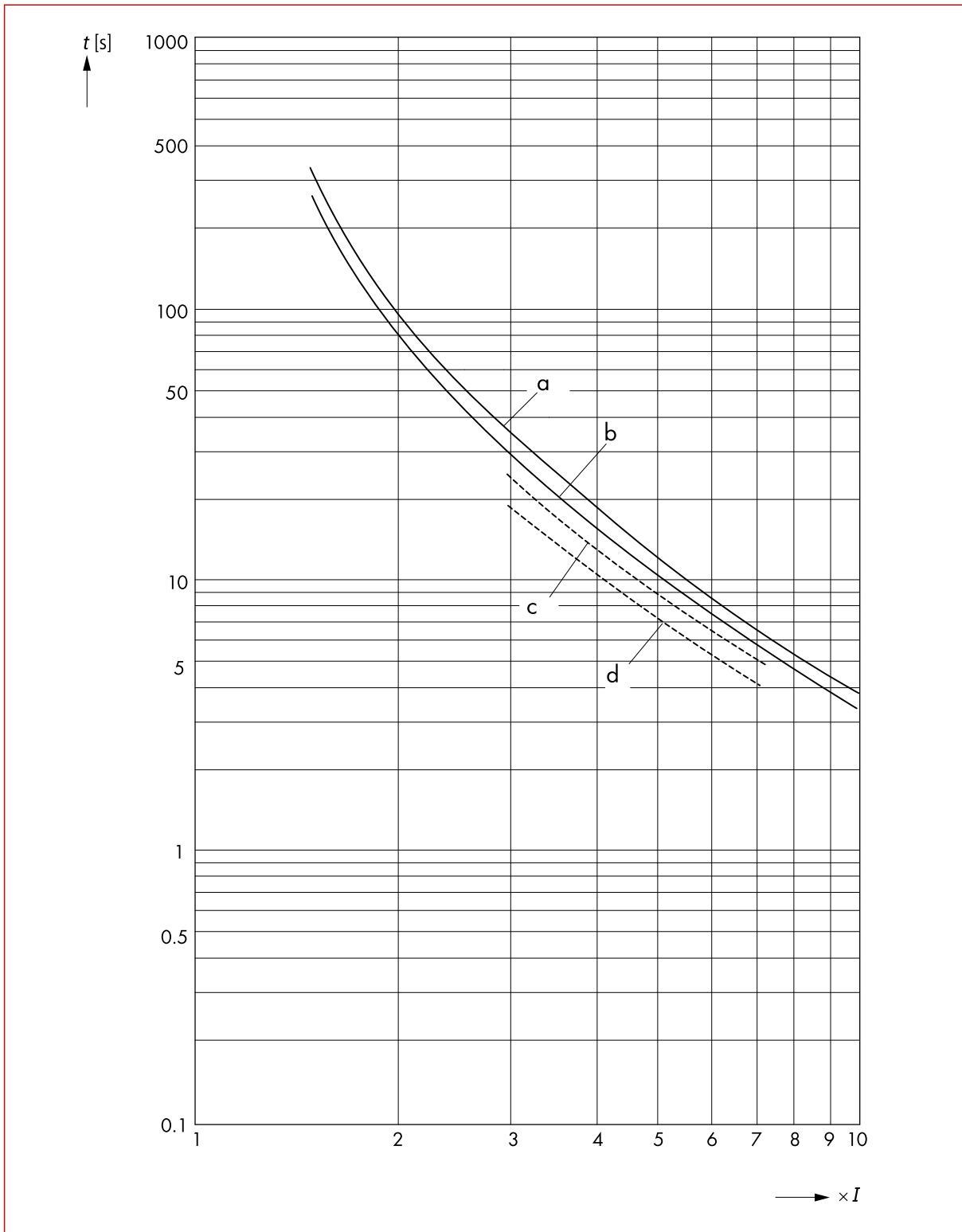


Mobil Code

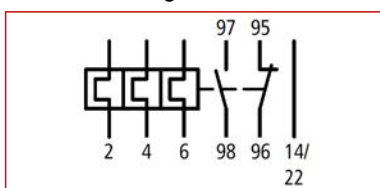
	LTT10 040	LTT10 060	LTT10 100	LTT10 160	LTT10 240	LTT10 400	LTT10 600	LTT11 000	LTT11 600	LTT12 400	LTT13 200	LTT13 800
Rated current (setting range)	0,24 - 0,4A	0,4 - 0,6A	0,6 - 1A	1 - 1,6A	1,6 - 2,4A	2,4 - 4A	4 - 6A	6 - 10A	10 - 16A	16 - 24A	24 - 32A	32 - 38A
For contactor-size	1	1	1	1	1	1	1	1	1	1	1	1
Standards	IEC60947, EN60947											
Ambient temperature open	-25 / +55											
Temperature compensation	continuous											
Temperature compensation residual error > 40°C	≤ 0.25%/K											
Climatic proofing	Damp heat constant according IEC60068-2-78											
Degree of Protection	IP20											
Protection against direct contact												
When actuated from front (EN50274)	Finger- and back-of-hand proof											
Rated impulse withstand voltage (Uimp)	6000V											
Overvoltage category/pollution degree	III/3											
Terminal capacity main cable												
Solid (main contact)	1 x 1 - 6mm ² , 2 x 1 - 6mm ²											
Flexible with ferrule (main contact)	1 x 1 - 4mm ² , 2 x 1 - 4mm ²											
Terminal screw (main contact)	M4											
Tightening torque (main contact)	1.8Nm											
Stripping length (main contact)	10											
Philips/Pozidriv screwdriver (main contact)	PZ 2											
Screwdriver (main contact)	1 x 6mm											
Terminal capacity control circuit cables												
Solid (auxiliary contact)	1 x 0.75 - 4mm ² , 2 x 0.75 - 4mm ²											
Flexible with ferrule (auxiliary contact)	1 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²											
Terminal screw (auxiliary contact)	M3.5											
Tightening torque (auxiliary contact)	1.2Nm											
Stripping length (auxiliary contact)	8mm											
Tools (auxiliary contact)												
Philips/Pozidriv screwdriver (auxiliary contact)	PZ 2											
Slotted screwdriver (auxiliary contact)	1 x 6											

Thermal Overload Relays LTT, Size 1

Tripping Diagram (A: Min. 3 Phase | B: Max. 3 Phase | C: Min. 2 Phase | D: Max. 2 Phase)

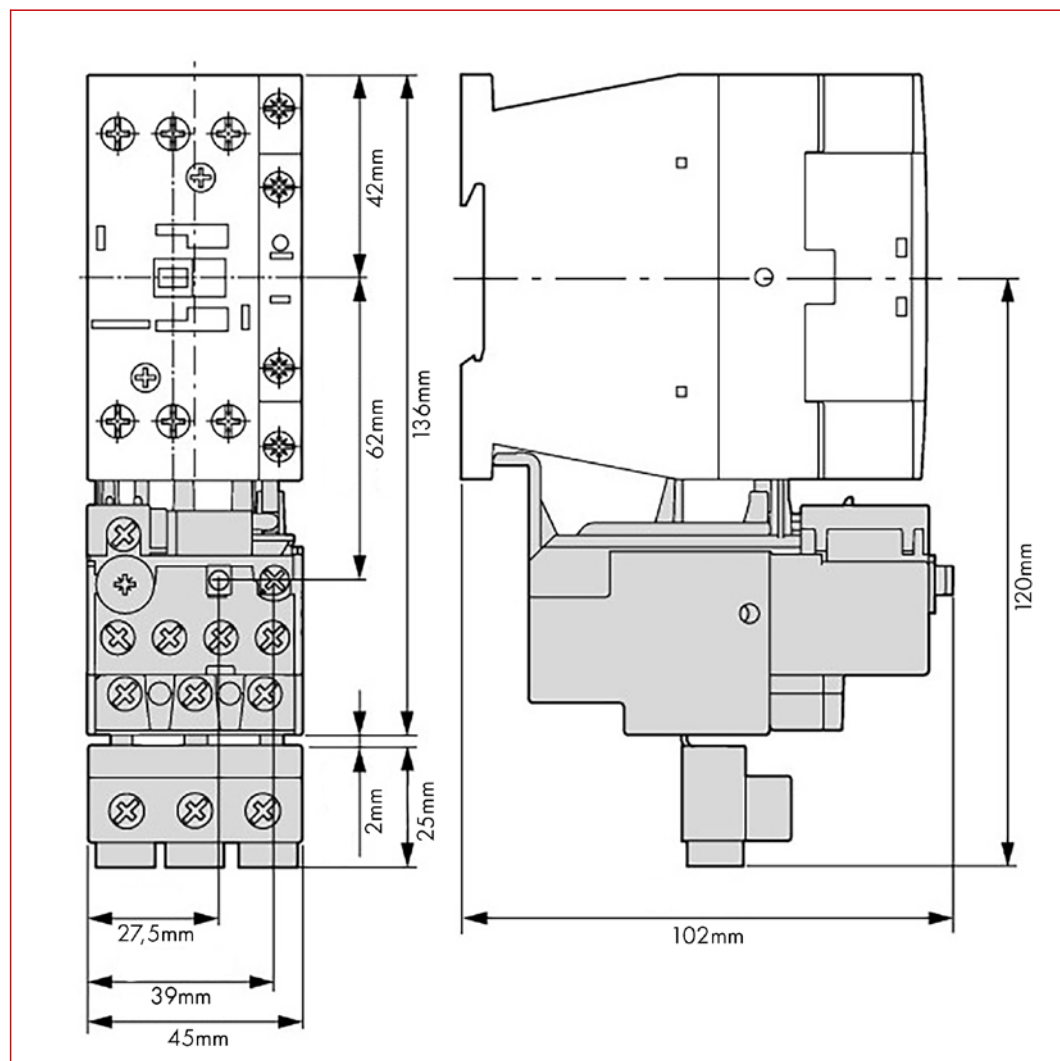


Circuit Diagram



Thermal Overload Relays LTT, Size 1

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Overload relay LTT, relay model size 1, 0,24 - 0,4A		LTT10040
Overload relay LTT, relay model size 1, 0,4 - 0,6A		LTT10060
Overload relay LTT, relay model size 1, 0,6 - 1A		LTT10100
Overload relay LTT, relay model size 1, 1 - 1,6A		LTT10160
Overload relay LTT, relay model size 1, 1,6 - 2,4A		LTT10240
Overload relay LTT, relay model size 1, 2,4 - 4A		LTT10400
Overload relay LTT, relay model size 1, 4 - 6A		LTT10600
Overload relay LTT, relay model size 1, 6 - 10A		LTT11000
Overload relay LTT, relay model size 1, 10 - 16A		LTT11600
Overload relay LTT, relay model size 1, 16 - 24A		LTT12400
Overload relay LTT, relay model size 1, 24 - 32A		LTT13200
Overload relay LTT, relay model size 1, 32 - 38A		LTT13800

Thermal Overload Relays LTT, Size 2



LTT21000



Mobil Code

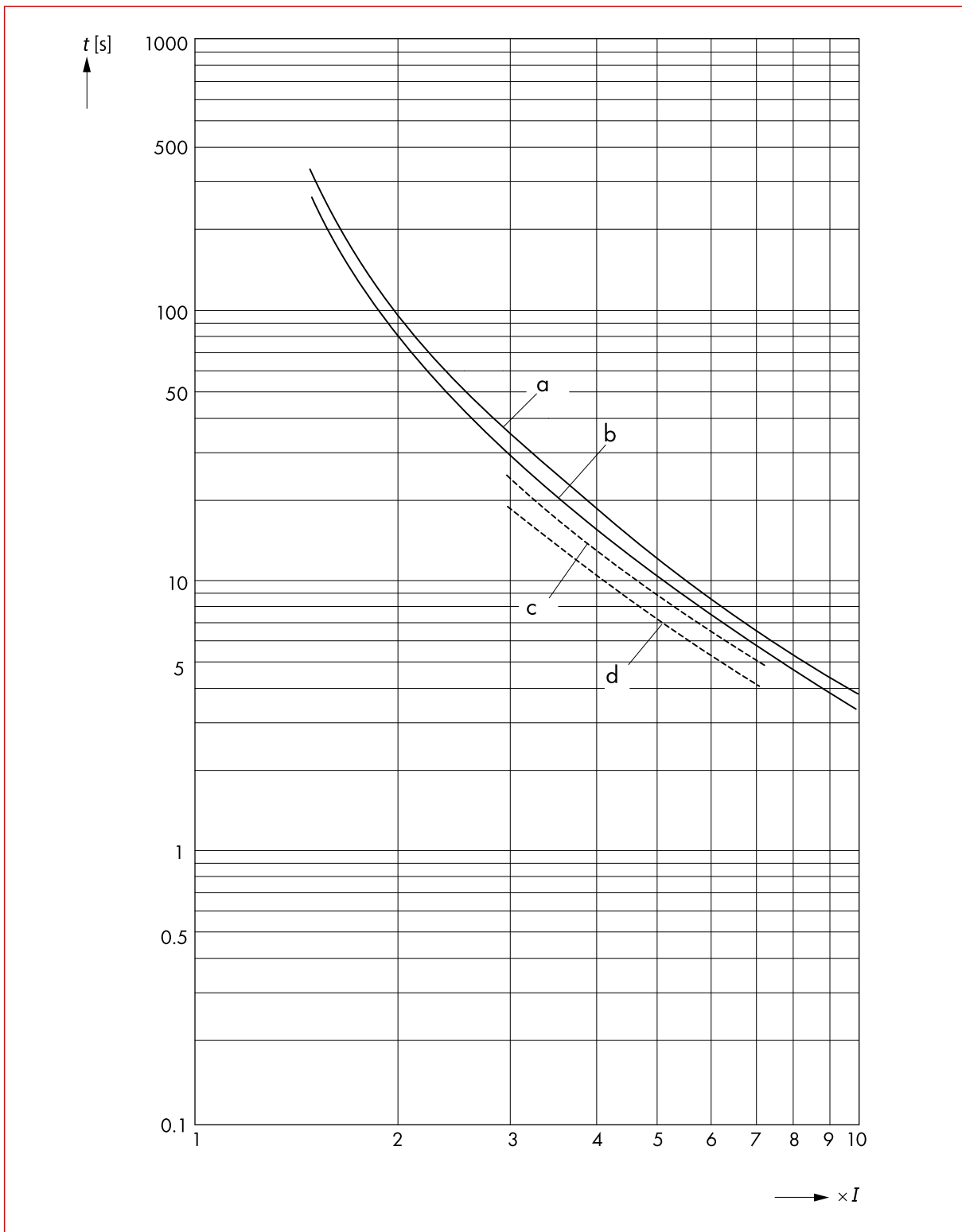
Schrack-Info

- Thermal overload relays with phase failure monitoring for direct mounting onto contactors of size 2
- Separate mounting can be realised by "stand alone holder" LTZ2TE01
- Devices are equipped with potential-free auxiliary contact 1 NO + 1 NC, manual- and automatic-RESET, TEST-function, STOP-button

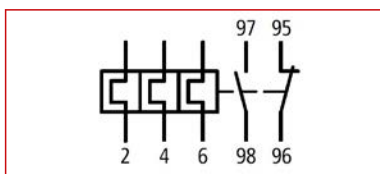
	LTT21000	LTT21600	LTT22400	LTT24000	LTT25700	LTT26500	LTT27500
Rated current (setting range)	6 - 10A	10 - 16A	16 - 24A	24 - 40A	40 - 57A	50 - 65A	65 - 75A
For contactor-size	2	2	2	2	2	2	2
Standards	IEC60947, EN60947						
Ambient temperature open	-25 / +55 °C						
Temperature compensation	continuous						
Temperature compensation residual error > 40°C	≤ 0.25%/K						
Climatic proofing	Damp heat constant according IEC60068-2-78						
Degree of Protection	IP00						
Protection against direct contact							
When actuated from front (EN50274)	Finger- and back-of-hand proof						
Rated impulse withstand voltage (U _{imp})	6000V						
Overvoltage category/pollution degree	III/3						
Terminal capacity main cable							
Solid (main cable)	1 × 1 - 16mm ² , 2 × 1 - 16mm ²						
Flexible with ferrule (main cable)	1 × 1 - 25mm ² , 2 × 1 - 25mm ²						
Terminal screw (main cable)	M6						
Tightening torque (main cable)	3.5Nm						
Stripping length (main cable)	11mm						
Philips/Pozidriv screwdriver (main cable)	PZ 2						
Standard screwdriver (main cable)	1 × 6mm						
Terminal capacity control circuit cables							
Solid (control circuit cables)	1 × 0.75 - 4mm ² , 2 × 0.75 - 4mm ²						
Flexible with ferrule (control circuit cables)	1 × 0.75 - 2.5mm ² , 2 × 0.75 - 2.5mm ²						
Terminal screw (control circuit cables)	M3.5						
Tightening torque (control circuit cables)	1.2Nm						
Stripping length (control circuit cables)	8mm						
Tools (control circuit cables)							
Philips/Pozidriv screwdriver (control circuit cables)	PZ 2						
Standard screwdriver (control circuit cables)	1 × 6mm						

Thermal Overload Relays LTT, Size 2

Tripping Diagram (A: Min. 3 Phase | B: Max. 3 Phase | C: Min. 2 Phase | D: Max. 2 Phase)

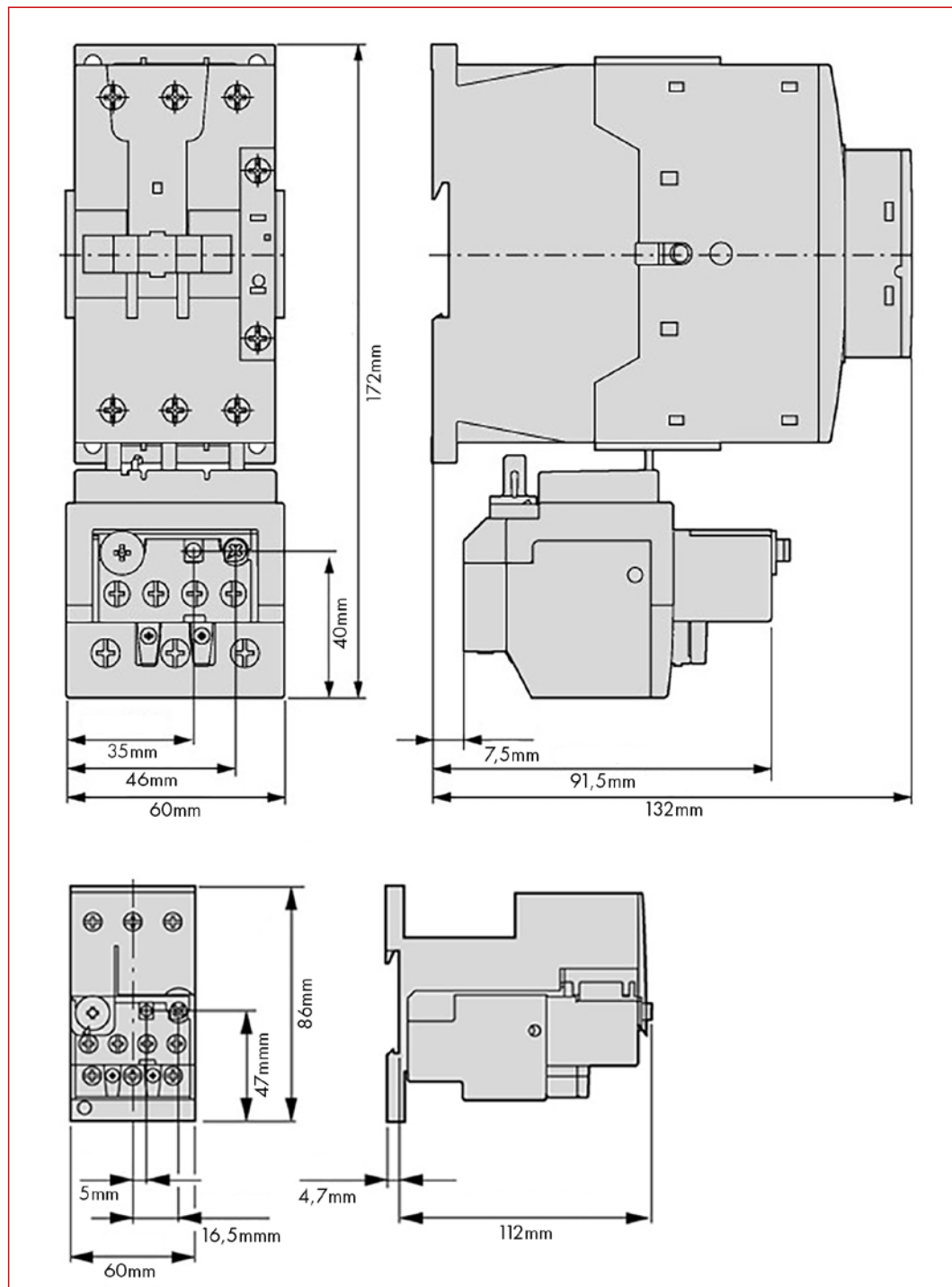









Circuit Diagram



Thermal Overload Relays LTT, Size 2

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Overload relay LTT, relay model size 2, 6 - 10A		LTT21000
Overload relay LTT, relay model size 2, 10 - 16A		LTT21600
Overload relay LTT, relay model size 2, 16 - 24A		LTT22400
Overload relay LTT, relay model size 2, 24 - 40A		LTT24000
Overload relay LTT, relay model size 2, 40 - 57A		LTT25700
Overload relay LTT, relay model size 2, 50 - 65A		LTT26500
Overload relay LTT, relay model size 2, 65 - 75A		LTT27500

Thermal Overload Relays LTT, Size 3



LTT30100

Schrack-Info

- Thermal overload relays with phase failure monitoring for direct mounting onto contactors of size 3
- Devices are equipped with potential-free auxiliary contact 1 NO + 1 NC, manual- and automatic-RESET, TEST-function, STOP-button

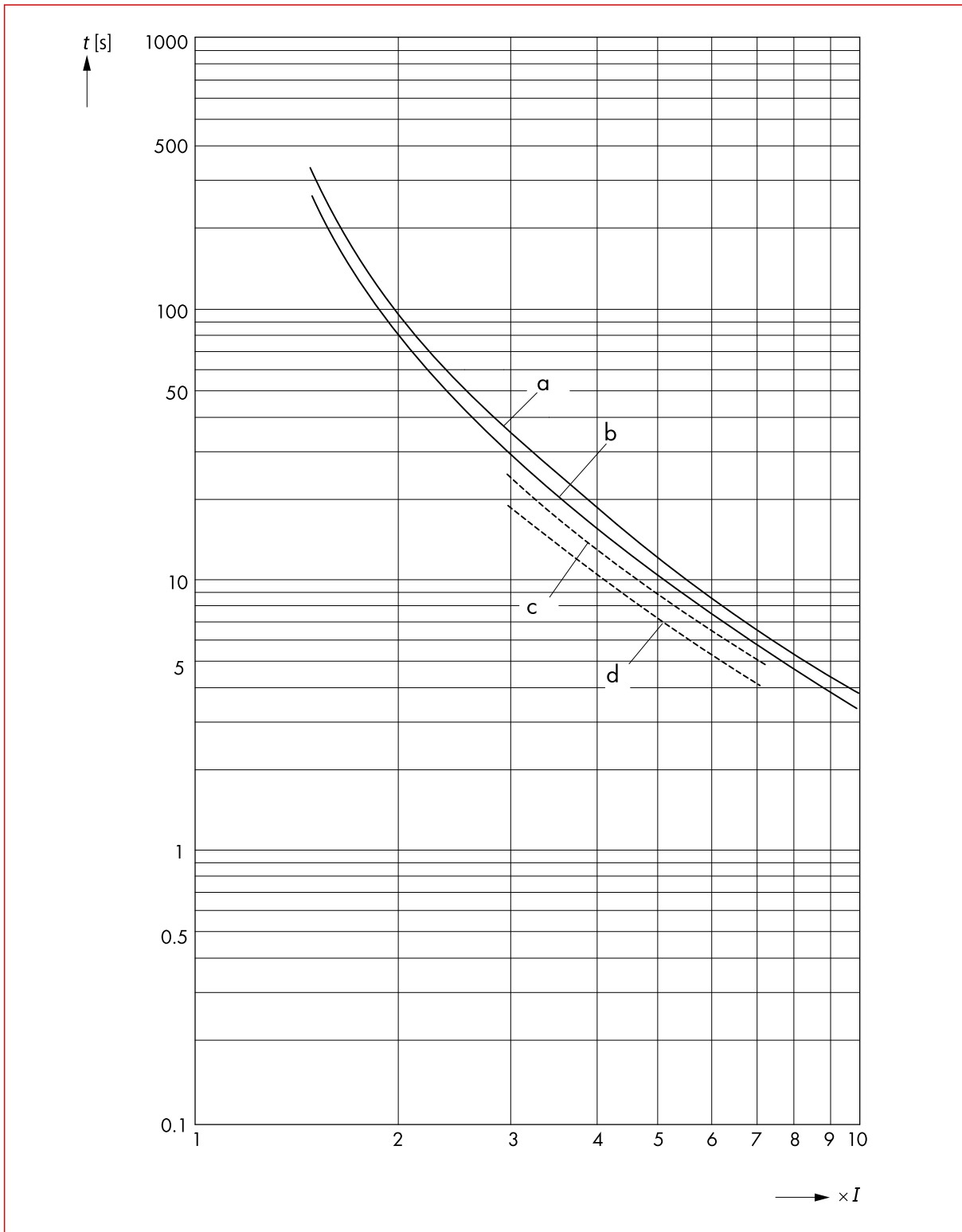


Mobil Code

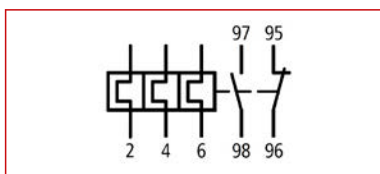
	LTT30035	LTT30050	LTT30070	LTT30100	LTT30125	LTT30150	LTT30175
Rated current (setting range)	25-35A	35-50A	50-70A	70-100A	95-125A	120-150A	145-175A
For contactor-size	3	3	3	3	3	3	3
Standards	IEC60947, EN60947						
Ambient temperature Open	-25 / +55°C						
Temperature compensation	continuous						
Temperatur compensation residual error > 40°C	≤ 0.25%/K						
Climatic proofing	Damp heat constant according IEC60068-2-78						
Degree of Protection	IP00						
Protection against direct contact							
When actuated from front (EN50274)	Finger- and back-of-hand proof						
Rated impulse withstand voltage (U _{imp})	6000V						
Overvoltage category/pollution degree	III/3						
Terminal capacity main cable							
Solid (main contact)	1 x 4 - 16mm ² , 2 x 4 - 16mm ²						
Flexible with ferrule (main cable)	1 x 4 - 70mm ² , 2 x 4 - 70mm ²						
Terminal screw (main contact)	M10						
Tightening torque (main contact)	10Nm						
Stripping length (main contact)	24mm						
Philips/Pozidriv screwdriver (main contact)	PZ 2						
Terminal capacity control circuit cables							
Solid (auxiliary contacts)	1 x 0.75 - 4mm ² , 2 x 0.75 - 4mm ²						
Flexible with ferrule (auxiliary contacts)	1 x 0.75 - 2.5mm ² , 2 x 0.75 - 2.5mm ²						
Terminal screw (auxiliary contacts)	M3.5						
Tightening torque (auxiliary contacts)	1.2Nm						
Stripping length (auxiliary contacts)	8mm						
Tools (auxiliary contacts)							
Philips/Pozidriv screwdriver (auxiliary contacts)	PZ 2						
Standard screwdriver (auxiliary contacts)	1 x 6mm						

Thermal Overload Relays LTT, Size 3

Tripping Diagram (A: Min. 3 Phase | B: Max. 3 Phase | C: Min. 2 Phase | D: Max. 2 Phase)



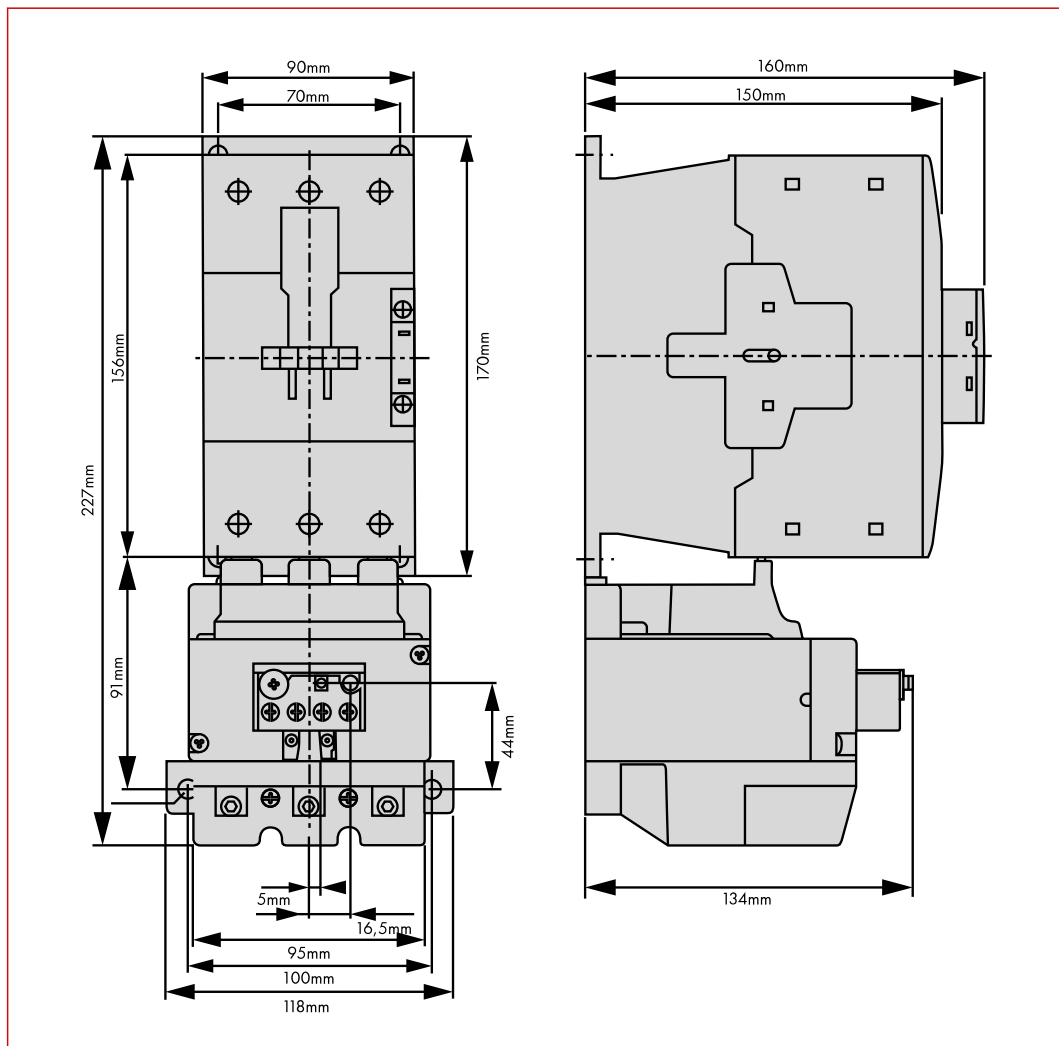
Circuit Diagram






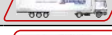



Thermal Overload Relays Series ALEA II LTT

Thermal Overload Relays LTT, Size 3

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
Overload relay LTT, relay model size 3, 25 - 35A		LTT30035
Overload relay LTT, relay model size 3, 35 - 50A		LTT30050
Overload relay LTT, relay model size 3, 50 - 70A		LTT30070
Overload relay LTT, relay model size 3, 70 - 100A		LTT30100
Overload relay LTT, relay model size 3, 95 - 125A		LTT30125
Overload relay LTT, relay model size 3, 120 - 150A		LTT30150
Overload relay LTT, relay model size 3, 145 - 175A		LTT30175

Holder for Stand-Alone Installation of Thermal Overload Relays, Size 1 - 2



LTZ1TE01



LTZ2TE01

Schrack-Info

For separate mouting of Thermal overload relais LTT to DIN-rail TS35 or for screw mounting

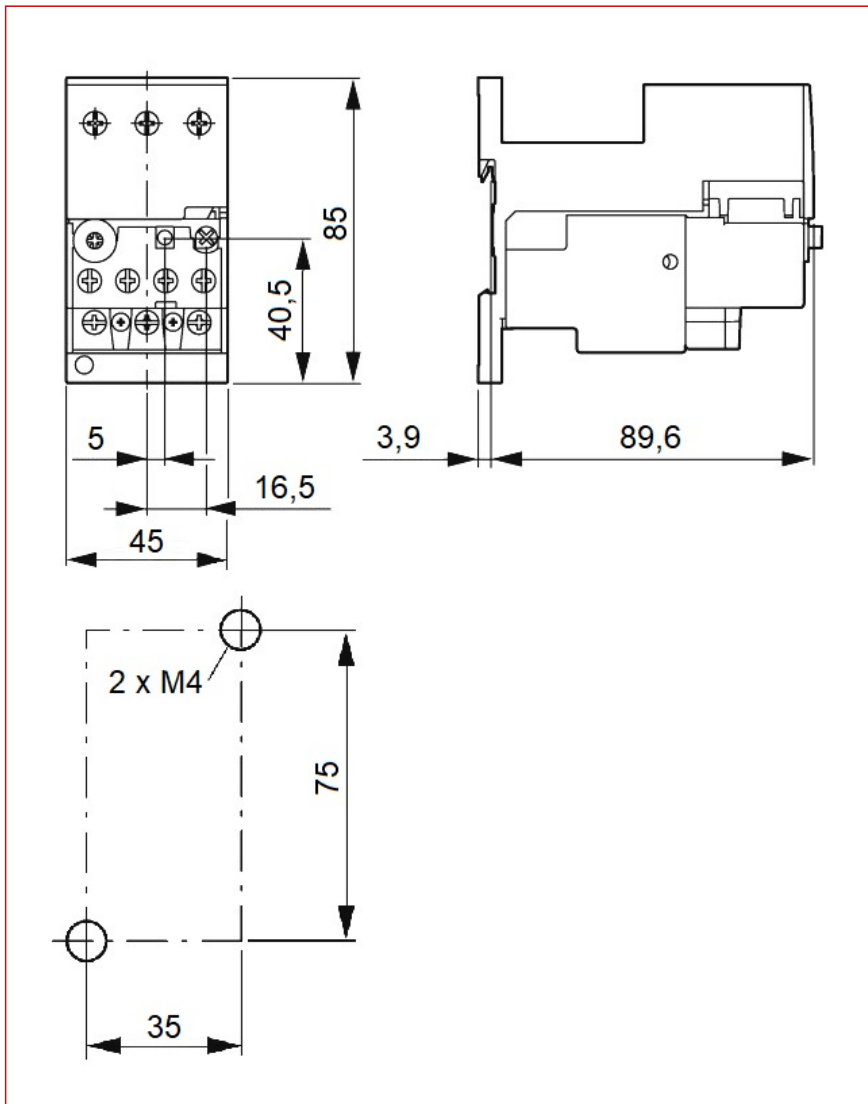


Mobil Code

Main conducting paths	
Rated impulse withstand voltage U_{imp}	6000V
Overvoltage category/pollution degree	III/3
Rated insulation voltage U_i	690V
Rated operational voltage U_e	690V
Safe isolation to EN61140	
Between main circuits	440V
Terminal capacities	
Solid	1 x (1 - 16)mm ²
	2 x (1 - 16)mm ²
Flexible with ferrule	1 x (1 - 25)mm ²
	2 x (1 - 25)mm ²
Stranded	1 x (16 - 35)mm ²
Solid or stranded	14 - 2 AWG
Terminal screw	M6
Tightening torque for terminal screw	3.5Nm
Stripping length	11mm
Tools	
Philips/Pozidriv screwdriver	PZ 2
Standard screwdriver	1 x 6mm

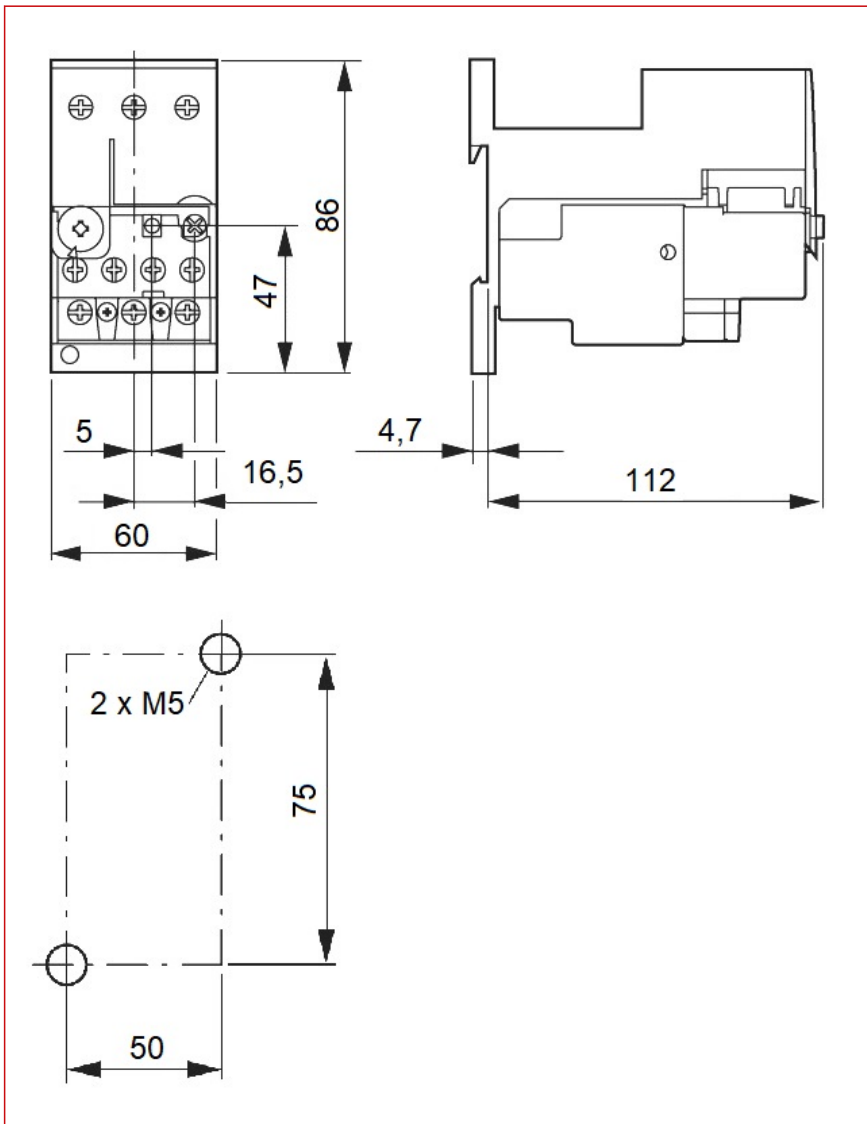
Holder for Stand-Alone Installation of Thermal Overload Relays, Size 1 - 2


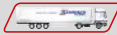
Dimensions Size 1



Holder for Stand-Alone Installation of Thermal Overload Relays, Size 1 - 2

Dimensions Size 2



DESCRIPTION	AVAILABLE	ORDER NO.
Separate mounting overload relay model size 1		LTZ1TE01
Separate mounting overload relay model size 2		LTZ2TE01

Thermal Overload Relays Series CUBICO Mini



LZTM0016

Schrack-Info

- Matching on contactor series CUBICO Mini
- Plug-in type
- Included auxiliary contacts
- Phase failure protection
- Manual and automatic reset
- Temperature compensation
- Tripping indicator
- Test- and Stop-button

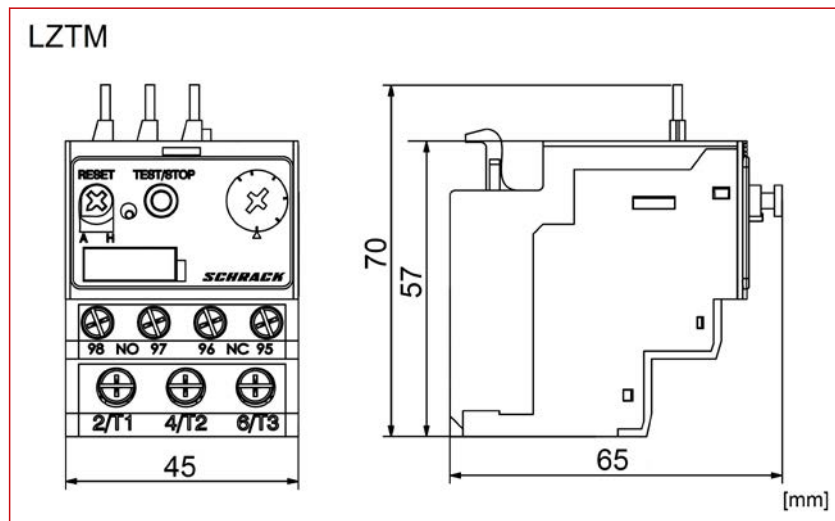


Mobil Code

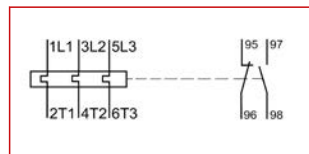
Standard		EN 60947-4-1, IEC 60947-4-1
Rated current		0,1A - 13A
Tripping class		Class 10A
Overload protection	1,05 x I _N	No operation within 2h
	1,2 x I _N	Operation within 2h
	1,5 x I _N	Operation within 2min
	7,2 x I _N	2s < Tripping ≤ 10s
Rated insulation voltage		690VAC
Rated frequency		50/60Hz
Rated impulse withstand voltage		6 kV
Overtoltage category		III
Model of matching contactor		
	LZDM06..	Contactor 3-pole, CUBICO Mini, 3kW, 6A
	LZDM09..	Contactor 3-pole, CUBICO Mini, 4kW, 9A
	LZDM12..	Contactor 3-pole, CUBICO Mini, 5.5kW, 18A
Specification of matching fuse		
	Current setting	
	0.1 - 0.16A	2A gG/gL
	0.16 - 0.25A	2A gG/gL
	0.25 - 0.4A	2A gG/gL
	0.4 - 0.63A	2A gG/gL
	0.63 - 1A	4 A gG/gL
	1 - 1.6A	4A gG/gL
	1.6 - 2.5A	6A gG/gL
	2.5 - 4A	10A gG/gL
	4 - 6A	16A gG/gL
	5.5 - 8A	20A gG/gL
	7 - 10A	20A gG/gL
	9 - 13A	25A gG/gL
Mounting type		Plug-in type
Auxiliary contact		1NO + 1NC
Rated current of auxiliary contact		
	AC-15 230V	2.61A
	AC-15 400V	1.5A
	DC-13 220V	0.2A
Terminal cross section main circuit		
	Single-core conductor	1 - 2.5mm ²
	Standard conductor	1 - 2.5mm ²
	Terminal screw	M4
Terminal cross section main circuit		
	Single-core conductor	0.5 - 2.5mm ²
	Standard conductor	0.5 - 2.5mm ²
	Torque	M3,5

Thermal Overload Relays Series CUBICO Mini

Dimensions






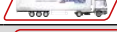

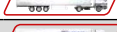






Circuit Diagram



Thermal Overload Relays Series CUBICO

Thermal Overload Relays Series CUBICO Mini

DESCRIPTION	AVAILABLE	ORDER NO.
Bimetal Version		
0,1 - 0,16A		LZTM0016
0,16 - 0,25A		LZTM0025
0,25 - 0,40A		LZTM0040
0,4 - 0,63A		LZTM0063
0,63 - 1A		LZTM0100
1 - 1,6A		LZTM0160
1,6 - 2,5A		LZTM0250
2,5 - 4A		LZTM0400
4 - 6A		LZTM0600
5,5 - 8A		LZTM0800
7 - 10A		LZTM1000
9 - 13A		LZTM1300

Thermal Overload Relays Series CUBICO Classic



LZTC0025



Mobil Code

Schrack-Info

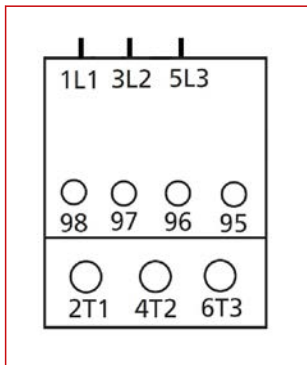
- Matching on contactor series CUBICO Classic
- Plug-in type
- Included auxiliary contacts 1 NO and 1 NC
- Phase failure protection
- Manual and automatic reset
- Temperature compensation
- Tripping indicator
- Test- and Stop-button

Standard		EN 60947-4-1, IEC 60947-4-1
Rated current		0,16A - 38A
Tripping class		Class 10A
Overload protection	1,05 x I _N	No operation within 2h
	1,2 x I _N	Operation within 2h
	1,5 x I _N	Operation within 2min
	7,2 x I _N	2s < Tripping ≤ 10s
Rated insulation voltage		690VAC
Rated frequency		50/60Hz
Rated impulse withstand voltage		6 kV
Overvoltage categorie		III
Model of matching contactor	LZDC09..	Contactor 3-pole, CUBICO Classic, 4kW, 9A
	LZDC12..	Contactor 3-pole, CUBICO Classic, 5,5kW, 12A
	LZDC18..	Contactor 3-pole, CUBICO Classic, 7,5kW, 18A
	LZDC25..	Contactor 3-pole, CUBICO Classic, 11kW, 25A
	LZDC32..	Contactor 3-pole, CUBICO Classic, 15kW, 32A
	LZDC38..	Contactor 3-pole, CUBICO Classic, 18,5kW, 38A
Specification of matching fuse	Current setting	
	0.16 - 0.63A	2A gG/gL
	0.63 - 1.6A	4A gG/gL
	1.6 - 2.5A	6A gG/gL
	2.5 - 4A	10A gG/gL
	4 - 6A	16A gG/gL
	5.5 - 10A	20A gG/gL
	9 - 13A	25A gG/gL
	12 - 18A	35A gG/gL
	16 - 24A	50A gG/gL
	23 - 32A	63A gG/gL
	30 - 38A	80A gG/gL
Mounting type		Plug-in type
Auxiliary		1 NO+ 1 NC
Rated current of auxiliary contact	AC-15 230 V	2.61 A
	AC-15 400 V	1.5 A
	DC-13 220 V	0.2 A
Terminal cross section main circuit	Single-core conductor	1 - 10 mm ²
	Standard conductor	1 - 10 mm ²
	Terminal screw	M4
Terminal cross section main circuit	Singel-core conductor	0.5 - 2.5 mm ²
	Standard conductor	0.5 - 2.5 mm ²
	Terminal screw	M3,5

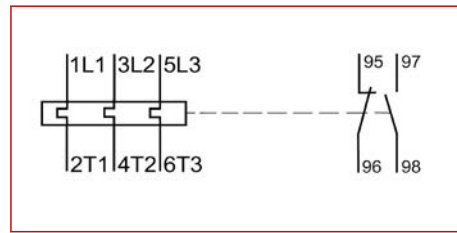
Thermal Overload Relays Series CUBICO

Thermal Overload Relays Series CUBICO Classic

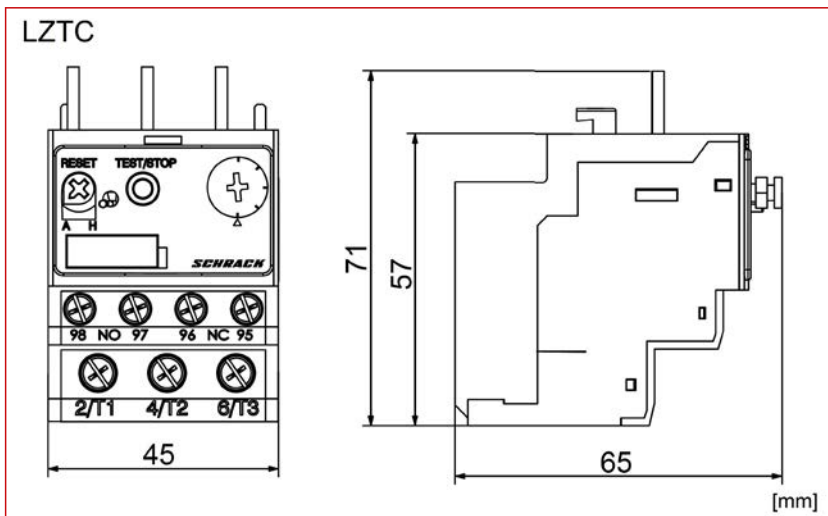
Connection Diagram






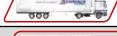
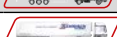




Circuit Diagram



Dimensions



Thermal Overload Relays Series CUBICO Classic

DESCRIPTION	AVAILABLE	ORDER NO.
Bimetal Version		
0.1A - 0.14A		LZTC0010-A
0.14A - 0.2A		LZTC0020-A
0.18A-0.25A		LZTC0025-A
0.22A - 0.32A		LZTC0032-A
0.28A - 0.4A		LZTC0040-A
0.35A - 0.5A		LZTC0050-A
0.45A - 0.63A		LZTC0063-A
0.55A - 0.8A		LZTC0080-A
0.7A - 1A		LZTC0100-A
0.9A - 1.25A		LZTC0125-A
1.1A - 1,6A		LZTC0160-A
1.4A - 2,5A		LZTC0200-A
1.8A - 2,5A		LZTC0250-A
2.2A - 3.2A		LZTC0320-A
2.8A - 4A		LZTC0400-A
3.5A - 5A		LZTC0500-A
4.5 - 6.3A		LZTC0630-A
5.5A - 8A		LZTC0800-A
7.5A - 10A		LZTC1000-A
9A - 13A		LZTC1300-A
12A - 16A		LZTC1600-A
14A - 20A		LZTC2000-A
18A - 24A		LZTC2400-A
23A - 32A		LZTC3200-A
30A - 38A		LZTC3800-A

Thermal Overload Relays Series CUBICO High



Mobil Code

ON DEMAND

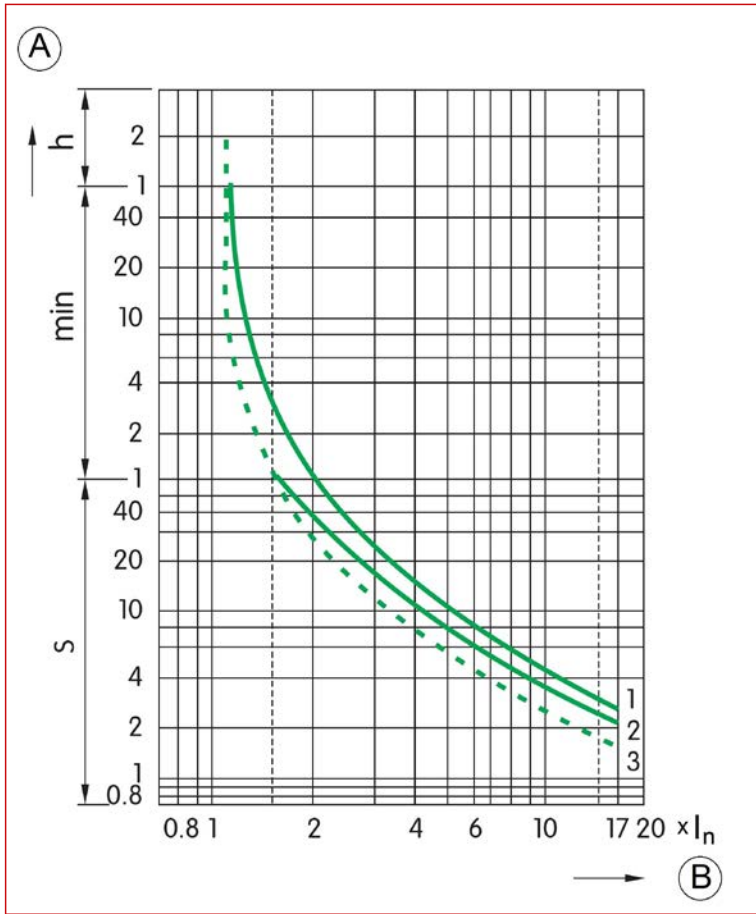
Thermal Overload Relais Series CUBICO Mini

Technical Specifications - LZTM

Standard	IEC/EN 60947-4-1	
Rated insulation voltage	690VAC	
Rated frequency	50/60Hz	
Rated impulse withstand voltage	6kV	
Overvoltage category	III	
Rated current	0.1 - 13A	
Tripping class	Class 10A	
Rated current I_N	0.1 - 0.16A	
	0.16 - 0.25A	
	0.25 - 0.4A	
	0.4 - 0.63A	
	0.63 - 1A	
	1 - 1.6A	
	1.6 - 2.5A	
	2.5 - 4A	
	4 - 6A	
	5.5 - 8A	
	7 - 10A	
	9 - 13A	
	Match to contactor	LZDM....
Matching fuse	0.1 - 0.16A	2A gG/gL
	0.16 - 0.25A	2A gG/gL
	0.25 - 0.4A	2A gG/gL
	0.4 - 0.63A	2A gG/gL
	0.63 - 1A	4A gG/gL
	1 - 1.6A	4A gG/gL
	1.6 - 2.5A	6A gG/gL
	2.5 - 4A	10A gG/gL
	4 - 6A	16A gG/gL
	5.5 - 8A	20A gG/gL
	7 - 10A	20A gG/gL
	9 - 13A	25A gG/gL
	Overload protection	$1.05 \times I_N$
$1.2 \times I_N$		Tripping within 2h
$1.5 \times I_N$		Tripping within 2min
$7.2 \times I_N$		$2s < \text{Tripping} \leq 10s$
Mounting	Plug-in type	
Auxiliary contacts	1 NO + 1 NC	
Rated current of auxiliary contact	AC-15 230V	2.61A
	AC-15 400V	1.5A
	DC-13 220V	0.2A
Terminal cross section main circuit	Single-core conductor	1 - 2.5mm ²
	Stranded conductor	1 - 2.5mm ²
	Terminal screw	M4
Terminal cross section auxiliary circuit	Single-core conductor	0.5 - 2.5mm ²
	Stranded conductor	0.5 - 2.5mm ²
	Terminal screw	M3.5

Thermal Overload Relays Series CUBICO Mini

Electric Tripping Curves - Class 10A



A) Tripping time

B) Current

1) 1-phase operation, cold state start

2) 2-phase operation, cold state start

3) 3-phase operation, cold state start

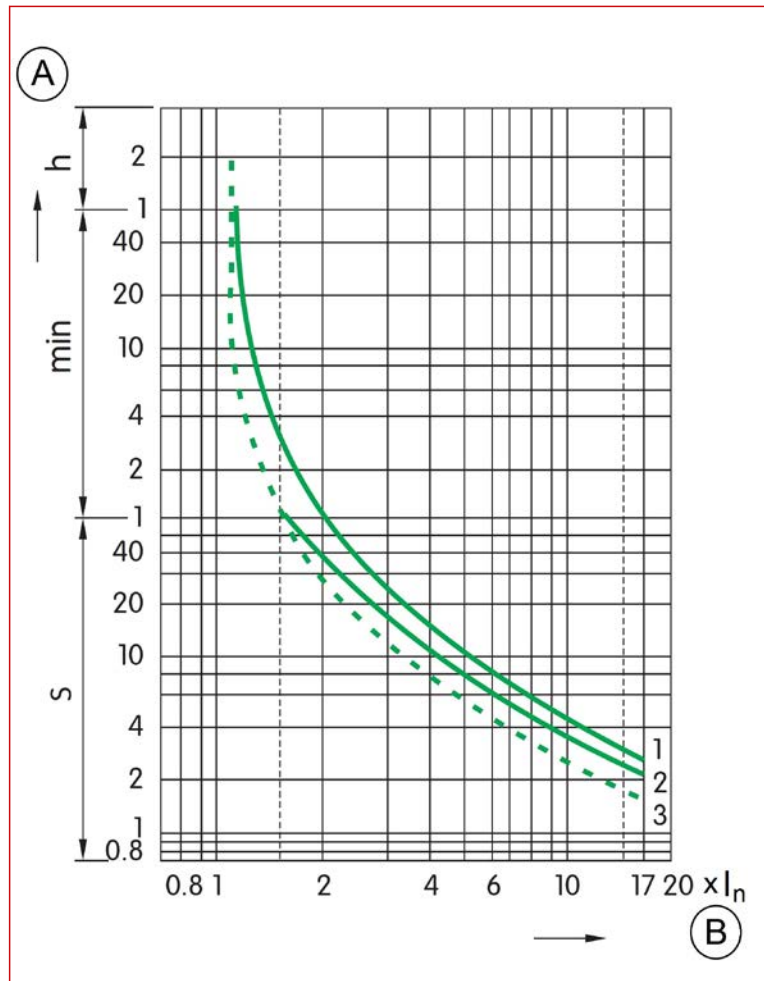
Thermal Overload Relays Series CUBICO Classic

Technical Specifications - LZTC

Standard	IEC/EN 60947-4-1	
Rated insulation voltage	690VAC	
Rated frequency	50/60Hz	
Rated impulse withstand voltage	6kV	
Overvoltage category	III	
Rated current	0.16A - 38A	
Tripping class	Class 10A	
Rated current I_N	0.16-0.25A	
	0.25-0.4A	
	0.4-0.63A	
	0.63-1A	
	1-1.6A	
	1.6-2.5A	
	2.5-4A	
	4-6A	
	5.5-8A	
	7-10A	
	9-13A	
	12-18A	
	16-24A	
	23-32A	
30-38A		
Matching contactor	LZDC....	
Matching fuse	0.16-0.25A	2AgG/gL
	0.25-0.4A	2AgG/gL
	0.4-0.63A	2AgG/gL
	0.63-1A	4AgG/gL
	1-1.6A	4AgG/gL
	1.6-2.5A	6AgG/gL
	2.5-4A	10AgG/gL
	4-6A	16AgG/gL
	5.5-8A	20AgG/gL
	7-10A	20AgG/gL
	9-13A	25AgG/gL
	12-18A	35AgG/gL
	16-24A	50AgG/gL
	23-32A	63AgG/gL
30-38A	80AgG/gL	
Overload protection	$1.05 \times I_N$	No operation within 2h
	$1.2 \times I_N$	Operation within 2h
	$1.5 \times I_N$	Operation within 2min
	$7.2 \times I_N$	$2s < \text{Tripping} \leq 10s$
Mounting	Plug-in type	
Auxiliary contact	1NO + 1NC	
Rated current of auxiliary contact	AC-15 230V	2.6A
	AC-15 400V	1.5A
	DC-13 220V	0.2A
Terminal cross section main circuit	Single-core conductor	1 - 10mm ²
	Stranded conductor	1 - 10mm ²
	Terminal screw	M4
Terminal cross section auxiliary circuit	Single-core conductor	0.5 - 2.5mm ²
	Stranded conductor	0.5 - 2.5mm ²
	Terminal screw	M3.5

Thermal Overload Relays Series CUBICO Classic

Electric Tripping Curve - Class 10A



A) Tripping time

B) Current

1) 1-phase operation, cold state start

2) 2-phase operation, cold state start

3) 3-phase operation, cold state start

Motor Protection Switches Series BE5



Motor Protection Switches Series BE6



Motor Protection Circuit Breaker Series CUBICO



Motor Protection Circuit Breaker Series CUBICO



Enclosures for BE5, BE6



Undervoltage release unit for BE2



Motor Protection Switches

 Index

Motor Protection Switches Series BE5, BE6	Page 370
Motor Protection Circuit Breakers Series CUBICO.....	Page 391

Motor Protection Switches Series BE5



BE500400

Schrack-Info

- Motor protection switch 3-pole for rated current of motor from 0.16A up to 32A
- With phase failure monitoring
- "Side mounted" and frontside auxiliary contacts retrofit
- Suitable for motors with efficiency class IE3



Mobil Code

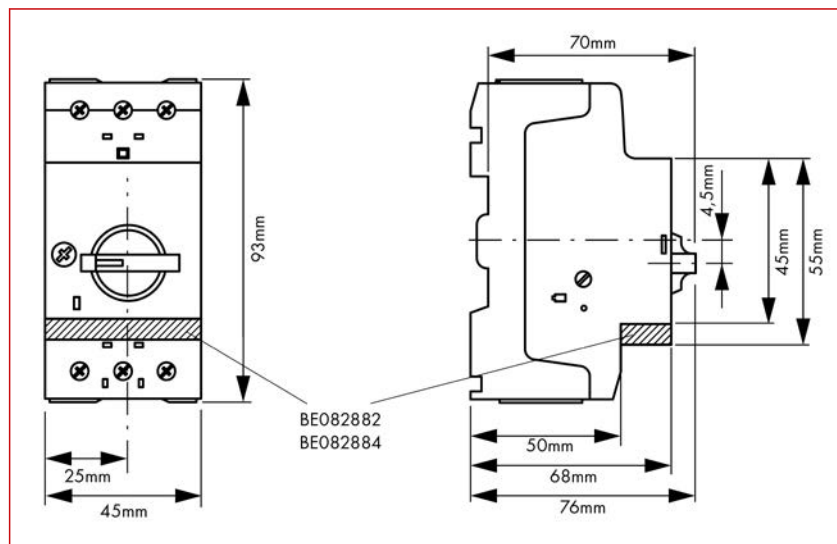
Standards		EN60647, IEC60947	
Rated current I_n		0.1 - 25A	
Rated uninterrupted current = rated operational current $I_u = I_e$		25A or current setting of the overcurrent release	
Rated operational voltage U_e		690VAC	
Rated frequency		40 - 60Hz	
Tripping	Overload	adjustable 0,6 - 1 x I_n	
	Short circuit	set permanently on 14 x I_n	
Phase failure protection		Yes	
Tripping capacity	0,1 - 10A	0,1 - 10A: inherently stable (100kA)	
	10 - 16A	50kA	
	16 - 25A	16kA	
Direction of electric current		any	
Rated impulse withstand voltage U_{imp}		6000VAC	
Overvoltage category		III	
Current heat loss (3 pole at operating temperature)		6W	
Lifespan	mechanical	10000 operations	
	electrical (AC-3At 400V)	10000 operations	
Maximum operating frequency		40 operations per hour	
Short-circuit rating	AC-3 (up to 690V)	25A	
	DC-5 (up to 250V)	25A (3 contacts in series)	
Rated making capacity	$\cos \varphi = 0,45$	230 - 690VAC	110A
Rated breaking capacity	$\cos \varphi = 0,45$	230VAC	90A
	$\cos \varphi = 0,45$	400VAC	90A
	$\cos \varphi = 0,45$	500VAC	64A
	$\cos \varphi = 0,45$	690VAC	54A
Rated operational current enclosed, not enclosed I_e	AC-1-application	230VAC	16A
		400VAC	16A
		440VAC	16A
		500VAC	16A
		690VAC	16A
	AC-3-application	230VAC	8,7A
		400VAC	8,8A
		440VAC	7,7A
		500VAC	6,4A
		690VAC	4,8A
	AC-4-application	230VAC	6,6A
		400VAC	6,6A
		440VAC	6A
		500VAC	5A
		690VAC	3,4A

Motor Protection Switches Series BE5

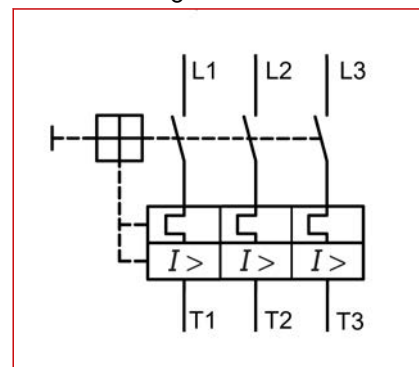
Degree of protection	Device IP20
Protection against direct contact	Terminations IPO0
Mechanical shock resistance half-sinusoidal shock 10ms to IEC60068-2-27	Finger and back-of-hand proof
Altitude	25g
Climatic proofing	max. 2000m
Pollution degree	Damp heat, constant, to IEC60068-2-78
	Damp heat, cyclic, to IEC60068-2-30
Ambient temperature	3
	Stock -25°C up to 80°C
	Not enclosed -25°C up to 55°C
Terminals	Enclosed -25°C up to 40°C
	Screw-terminals
Torque	Single wire 1 x 1 - 6mm ² / 2 x 1 - 2,5mm ²
	Flexible with ferrule 1 x 1 - 4mm ² / 2 x 1 - 2,5mm ²
	Mains 1,7Nm

Article	Max. rated operational power AC-3					Continuous rated current I_u	Setting range	
	220V, 230V, 240V P [kW]	380V, 400V, 415V P [kW]	440V P [kW]	500V P [kW]	660V, 690V P [kW]		Overload tripping I_r	Short circuit tripping I_{rm}
	BE500160	-	-	-	-		0.06	0.16
BE500250	-	0.06	0.06	0.06	0.06	0.12	0.16 - 0.25	3.5
BE500400	0.06	0.09	0.12	0.12	0.12	0.18	0.25 - 0.4	5.6
BE500630	0.09	0.12	0.18	0.25	0.25	0.25	0.4 - 0.63	8.8
BE501000	0.12	0.25	0.25	0.37	0.55	1	0.63 - 1	14
BE501600	0.25	0.55	0.55	0.75	1.1	1.6	1 - 1.6	22
BE502500	0.37	0.75	1.1	1.1	1.5	2.5	1.6 - 2.5	35
BE504000	0.75	1.5	1.5	1.5	3	4	2.5 - 4	56
BE506300	1.1	2.2	3	3	4	6.3	4 - 6.3	88
BE510000	2.2	4	4	4	7.5	10	6.3 - 10	140
BE516000	4	7.5	9	9	12.5	16	10 - 16	224
BE520000	5.5	9	11	12.5	15	20	16 - 20	280
BE525000	5.5	12.5	12.5	15	22	25	20 - 25	350

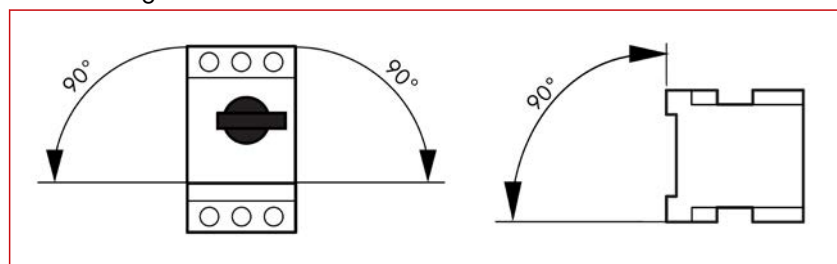
Dimensions



Circuit Diagram

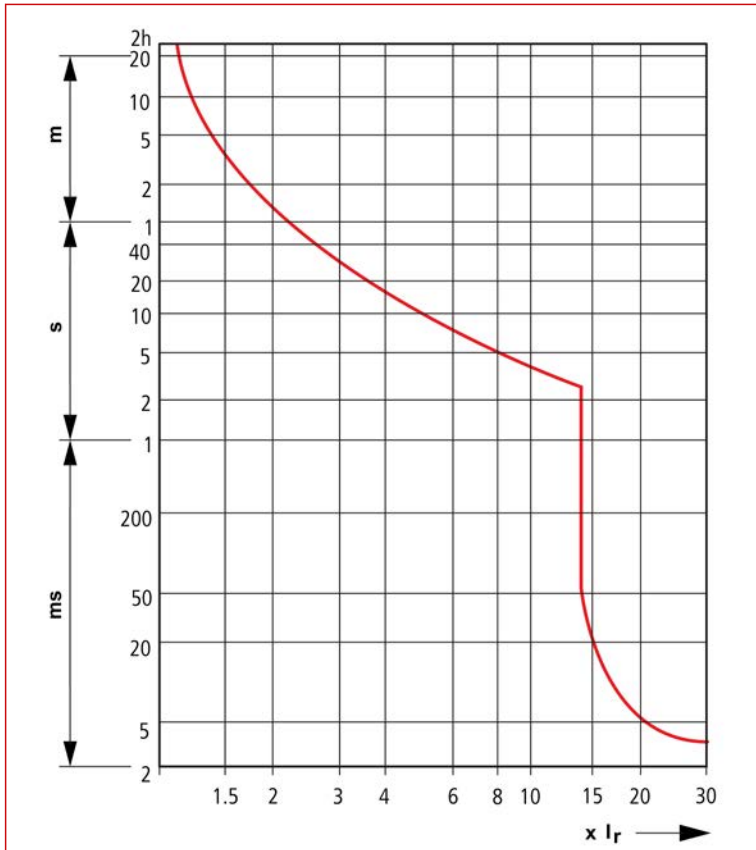


Mounting Position

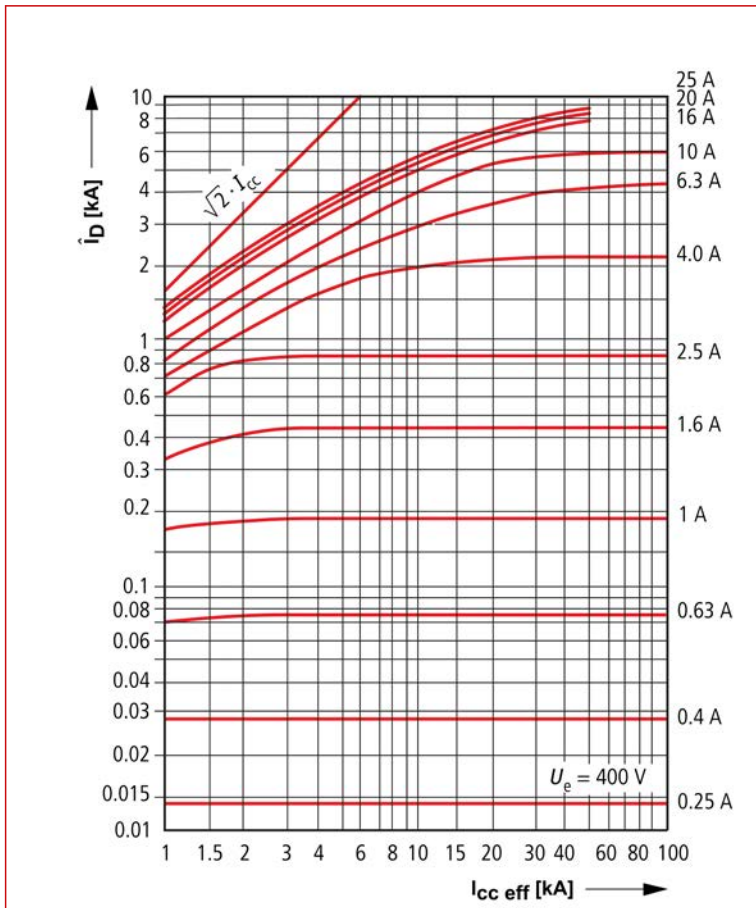


Motor Protection Switches Series BE5















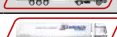
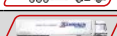





Tripping Characteristic Curve



Let-through Energy Diagram



Motor Protection Switches Series BE5

DESCRIPTION	AVAILABLE	ORDER NO.
Motor Protection Switches Series BE5		
Motor Protection Switch Series BE5, 0.1 - 0.16A		BE500160
Motor Protection Switch Series BE5, 0.16 - 0.25A		BE500250
Motor Protection Switch Series BE5, 0.25 - 0.40A		BE500400
Motor Protection Switch Series BE5, 0.40 - 0.63A		BE500630
Motor Protection Switch Series BE5, 0.63 - 1.00A		BE501000
Motor Protection Switch Series BE5, 1.00 - 1.60A		BE501600
Motor Protection Switch Series BE5, 1.60 - 2.50A		BE502500
Motor Protection Switch Series BE5, 2.5A-4.0A		BE504000
Motor Protection Switch Series BE5, 4.0-6.3A		BE506300
Motor Protection Switch Series BE5, 6.3-10A		BE510000
Motor Protection Switch Series BE5, 8-12A		BE512000
Motor Protection Switch Series BE5, 10-16A		BE516000
Motor Protection Switch Series BE5, 16-20A		BE520000
Motor Protection Switch Series BE5, 20-25A		BE525000
Motor Protection Switch Series BE5, 25-32A		BE532000
Motor Protection Switch Series BE5, 6.3-10A Transformer protection		BE510005-A
Motor Protection Switch Series BE5, 16-20A Transformer protection		BE520005-A
Auxiliary Contacts		
Auxiliary contact front, 1NO+1NC		BE082882
Auxiliary contact front, 1NO		BE082884
Tripped Auxiliary contact side, 2NO, BE5/6		BE072898
Auxiliary contact side, 2NO+1NC, BE5/6		BE590012

Motor Protection Switches Series BE6



BE632000

Schrack-Info

- Motor protection switch 3-pole for rated current of motor from 24A up to 63A
- With phase failure monitoring
- "Side mounted" and frontside auxiliary contacts retrofit
- Suitable for motors with efficiency class IE3



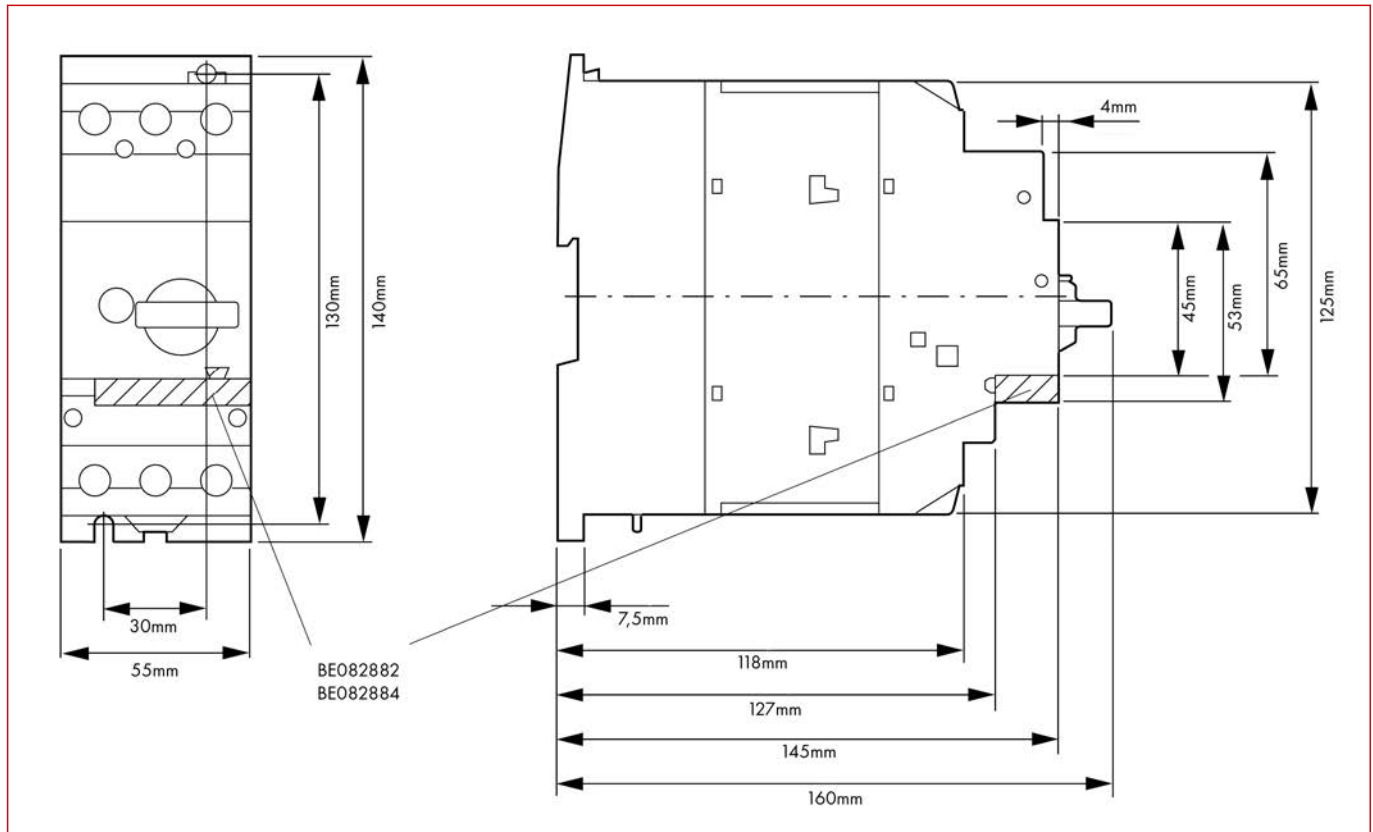
Mobil Code

Standards		EN60647, IEC60947
Rated current I_n		32 - 63A
Rated uninterrupted current = rated operational current $I_u = I_e$		63A or current setting of the overcurrent release
Rated operational voltage U_e		690VAC
Rated frequency		40 - 60Hz
Tripping	Overload	adjustable 0,6 - 1 x I_n
	Short circuit	set permanently on 14 x I_n
Phase failure protection		yes
Tripping capacity		50kA
Direction of electric current		any
Rated impulse withstand voltage U_{imp}		6000VAC
Overvoltage category		III
Current heat loss (3 pole at operating temperature)		9,5W
Lifespan	mechanical switching cycles	30000 operations
	electrical (AC-3 at 400V)	30000 operations
Maximum operating frequency		40 operations per hour
Short-circuit rating	Motor switching capacity AC-3 (up to 690V)	63A or setting current of the overcurrent release
	DC-5 (current tracks in series)	63A
Degree of protection	Device	IP20
	Terminations	IP00
Protection against direct contact		Finger and back-of-hand proof
Mechanical shock resistance half-sinusoidal shock 10 ms to IEC60068-2-27		15g
Altitude		max. 2000 m
Climatic proofing	Damp heat, constant, to IEC 60068-2-78	
	Damp heat, cyclic, to IEC 60068-2-30	
Pollution degree		3
Ambient temperature	Stock -25°C up to 70°C	
	Not enclosed -25°C up to 55°C	
	Enclosed -25°C up to 40°C	
Terminals	Screw-terminals	Single wire 1 x 1 - 50mm ² / 2 x 1 - 35mm ²
		Flexible with ferrule 1 x 1 - 35mm ² / 2 x 1 - 35mm ²
Torque		Mains 3Nm

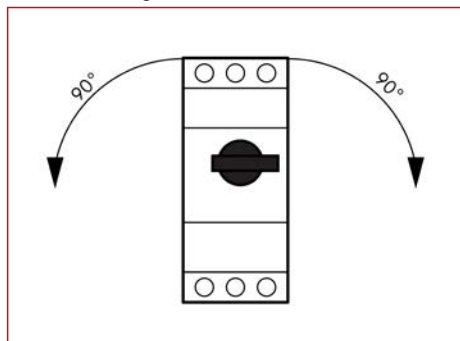
Motor Protection Switches Series BE6

Article number	Max. rated operational power AC-3					Continuous rated current	Setting range	
	220V, 230V, 240V P [kW]	380V, 400V, 415V P [kW]	440V P [kW]	500V P [kW]	660V, 690V P [kW]		Overload tripping I_r	Short circuit tripping I_{rm}
BE632000	7,5	15	17,5	22	22	32	25 - 32	448
BE640000	11	20	22	24	30	40	32-40	560
BE650000	14	25	30	30	45	50	40-50	700
BE658000	17	30	37	37	55	58	50-58	812
BE663000	18,5	34	37	45	55	65	55-63	882

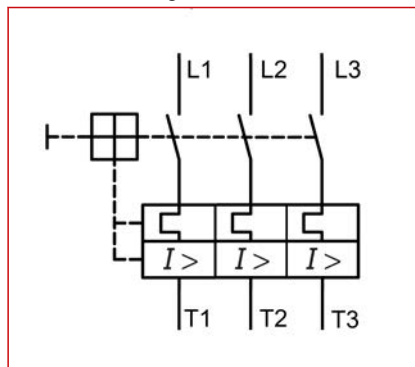
Dimensions



Mounting Position

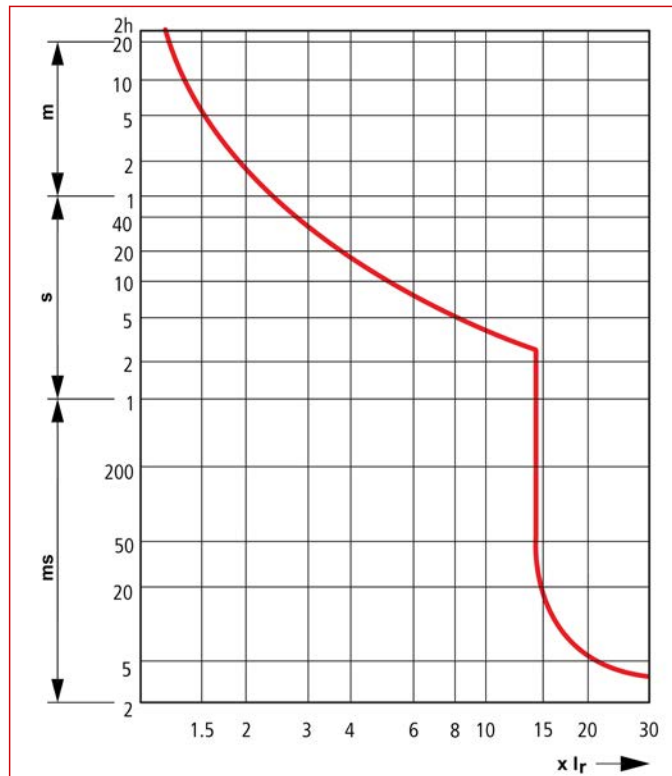


Circuit Diagram

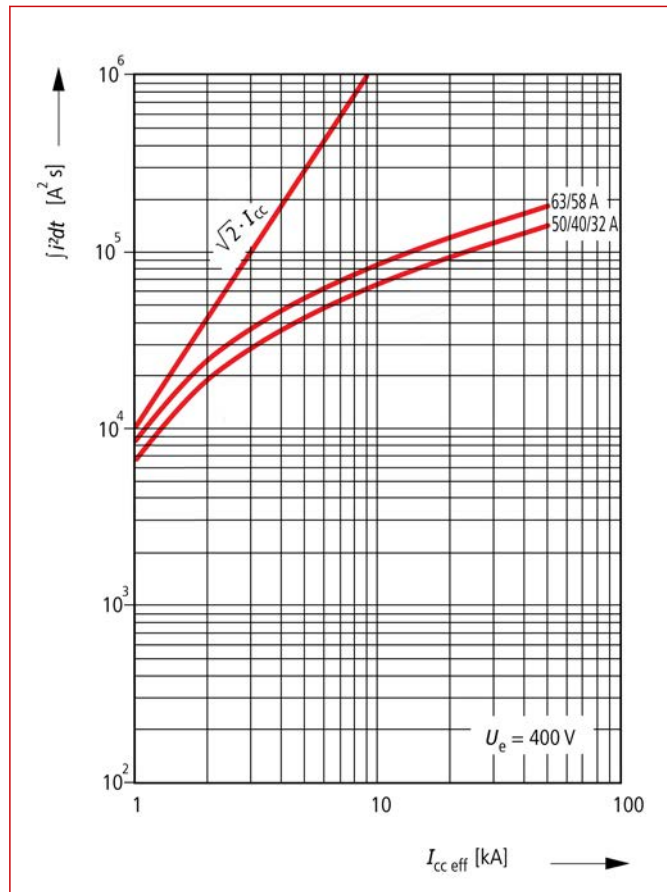


Motor Protection Switches Series BE6

Tripping Characteristic Curve



Let-through Energy Diagram



DESCRIPTION	AVAILABLE	ORDER NO.
Motor Protection Switches Series BE6		
Motor Protection Switch Series BE6, 16-25A		BE625000
Motor Protection Switch Series BE6, 24-32A		BE632000
Motor Protection Switch Series BE6, 32-40A		BE640000
Motor Protection Switch Series BE6, 40-50A		BE650000
Motor Protection Switch Series BE6, 50-58A		BE658000
Motor Protection Switch Series BE6, 55-63A		BE663000
Auxiliary Contacts		
Auxiliary contact front, 1NO+1NC		BE082882
Auxiliary contact front, 1NO		BE082884
Tripped Auxiliary contact side, 2NO, BE5/6		BE072898
Auxiliary contact side, 2NO+1NC, BE5/6		BE590012

Feeding Terminal Blocks for BE5, BE6



BE590009



BE590001



BE690004

Schrack-Info

- Feed terminals BE590001 for Motor protection switches, additionally mountable to busbars, cover for modular devices (slot 45mm) can not be mounted
- Feed terminals BE590002 for Motor protection switches, additionally mountable to busbars, cover for modular devices (slot 45mm) can be mounted

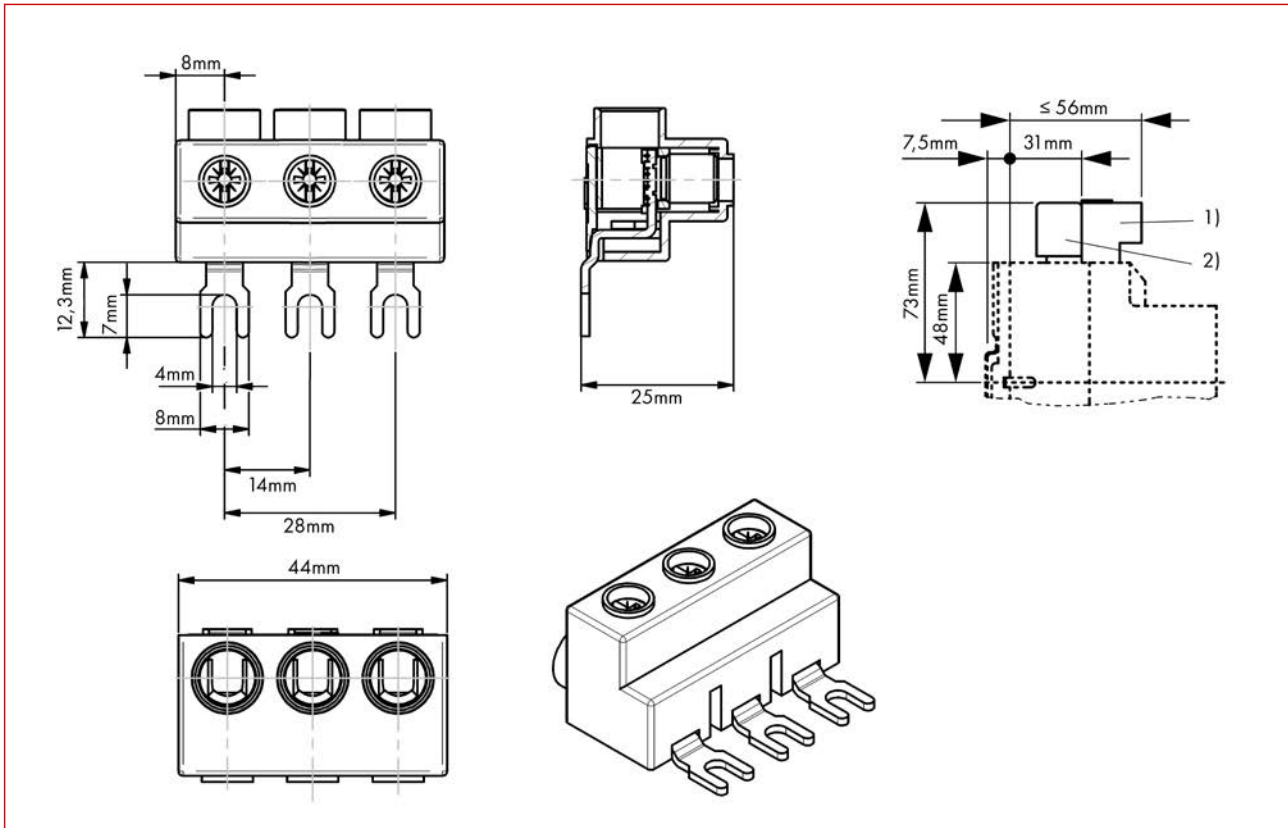


Mobil Code

	BE590001	BE590002
Max. current	63A	
Max. voltage	690V	
Terminal-material	brass	
Pin-material	brass	
Cover	PC / ABS - UL-V0 (PC/ABC - Mixed, flame protected)	
Thermal properties	EN ISO 306 = 138 °C	
Screw	St 5.8	
Stripped insulation	12 mm	
Terminal cross section	U - single wire: 6 - 25mm ²	
	R - stranded wire: 6 - 25mm ²	
	K - flexible with sleeve: 4 - 16mm ²	
	F - flexible with sleeve: 4 - 16mm ²	
Torque of screw	2Nm	

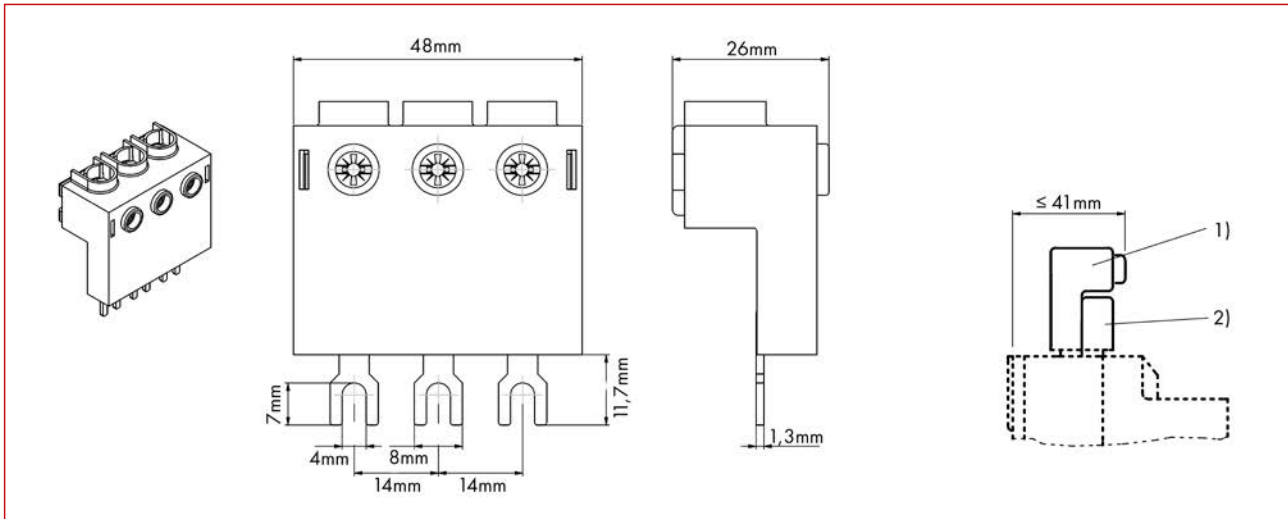
Feeding Terminal Blocks for BE5, BE6

Dimensions BE590001



1) Feeding terminal block 2) Busbar

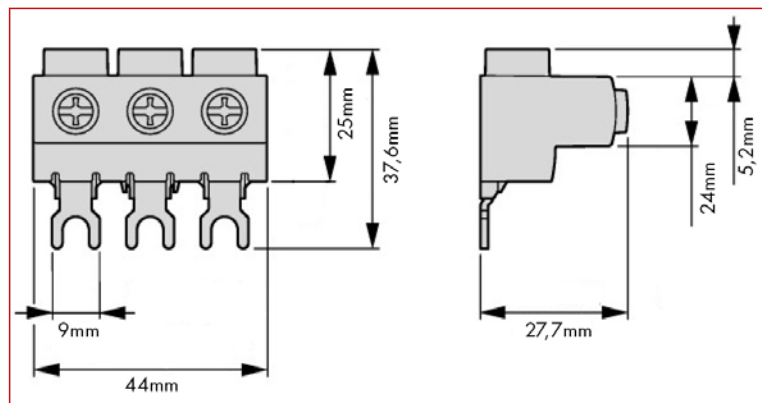
Dimensions BE590002



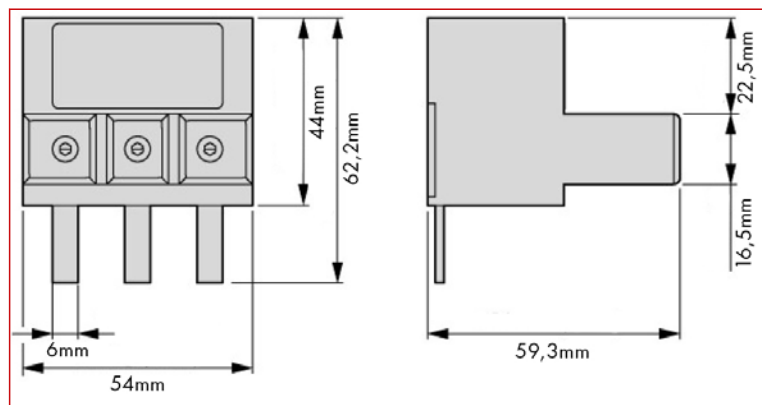
1) Feeding terminal block 2) Busbar





Feeding Terminal Blocks for BE5, BE6

Dimensions BE590009



Dimensions BE690004

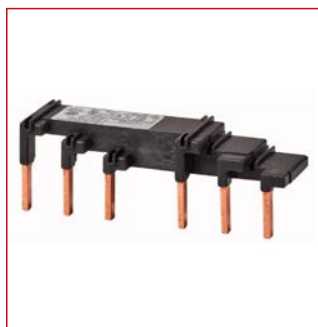


DESCRIPTION	COPPER WEIGHT	AVAILABLE	ORDER NO.
3-pole infeed terminal for BE5, 63A, up to 25mm ² , no cover can be mounted	40,0000		BE590001
3-pole infeed terminal for BE5, 63A, up to 25mm ² , cover can be mounted	59,0000		BE590002
3-pole infeed terminal for BE5, 63A, up to 25mm ² , UL certified			BE590009
3-pole infeed terminal for BE6, 120A, UL certified			BE690004

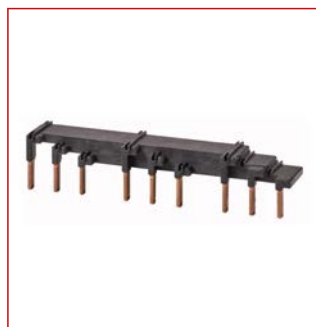
Busbars for BE5, BE6



BE590245



BE690001--



BE690002--



BE690003--



BE590004-A



BE590005--



BE590006--



BE590007--



BE590008--

Schrack-Info

- Fork-busbar, rated current 63A
- Busbar for up to 5 Motor protection switches BE5, available for BE5 with or without "side mounted" auxiliary contacts
- Front mounted auxiliary contacts do not increase width of Motor protection switches
- When total current exceeds 63A - use busbar with 63A and feed in "centric" (middle infeed)

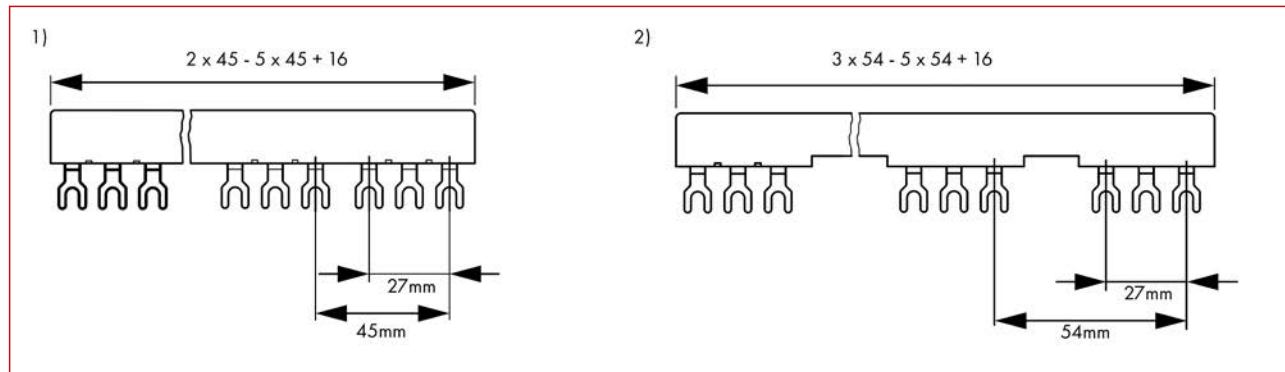


Mobil Code

Bausbar type	Fork-busbar
Number of poles	3-pole
Max. current I_n /Phase	63A
Mounting type	not possible to break off
Cross section	10mm ²
Phase sequence	L1, L2, L3,...
Standards	EN60947-1 / IEC60947-1
Material of busbar	E - Cu 58 F25
Insulation coordination	Overvoltage category III
	Degree of pollution 2
Protection class	IP20
Impulse voltage strength	≥ 4,5kV (1kV/mm clearance)

Busbars for BE5, BE6

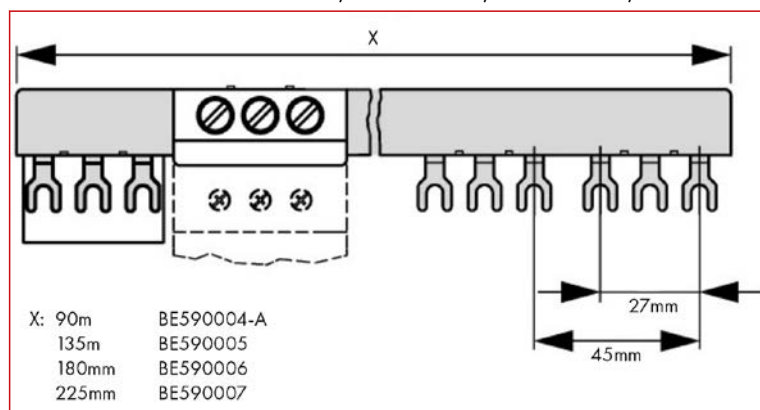
Dimensions



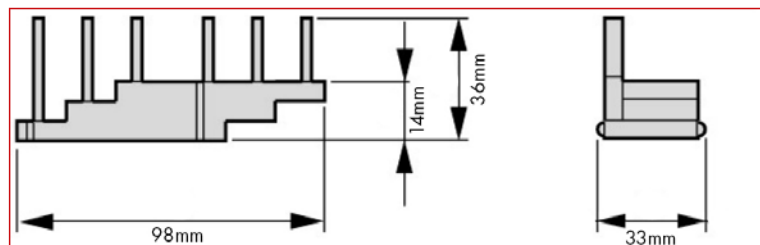
1) BE5 without auxiliary contact

2) BE5 with auxiliary contact

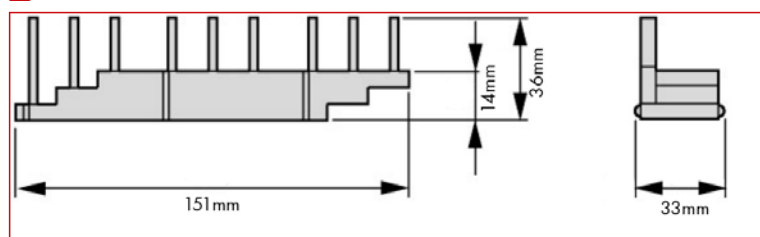
Dimensions BE590004-A, BE590005, BE590006, BE590007



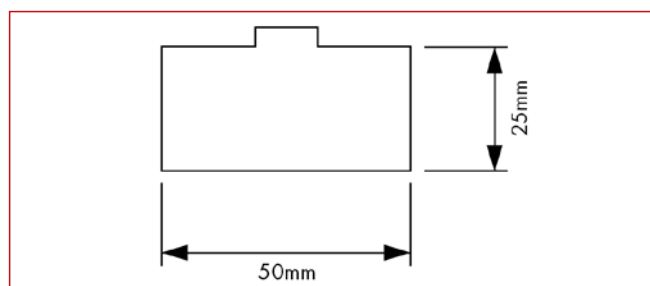
Dimensions BE690001










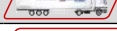







Dimensions BE690002



Dimensions BE690003



Busbars for BE5, BE6

DESCRIPTION	COPPER WEIGHT	AVAILABLE	ORDER NO.
3-phase busbar for 2xBE5 45mm fork	76,0000		BE590245
3-phase busbar for 3xBE5 45mm fork	112,0000		BE590345
3-phase busbar for 3xBE5+auxiliary contact, 54mm fork 63A	134,0000		BE590354
3-phase busbar for 4xBE5 45mm fork	149,0000		BE590445
3-phase busbar for 4xBE5+auxiliary contact, 54mm fork 63A	178,0000		BE590454
3-phase busbar for 5xBE5 45mm fork	185,0000		BE590545
3-phase busbar for 5xBE5+auxiliary contact, 54mm fork 63A	221,0000		BE590554
3-phase busbar for 2xBE5 45mm fork, UL certified			BE590004-A
3-phase busbar for 3xBE5 45mm fork, UL certified			BE590005
3-phase busbar for 4xBE5 45mm fork, UL certified			BE590006
3-phase busbar for 5xBE5 45mm fork, UL certified			BE590007
3-phase busbar for 2xBE6 55mm, UL certified			BE690001
3-phase busbar for 3xBE6 55mm, UL certified			BE690002
Blind terminal cover for BE5, UL certified			BE590008
Blind terminal cover for BE6, UL certified			BE690003

Connection Link for Motor Protection Switches BE5, BE6



BE590011



Mobil Code

Schrack-Info

Connection links for BE5 and contactors K3-10 up to K3-22 for construction of D.O.L. (direct on line) combinations, coordination type "1" 3~ 400V

DESCRIPTION	AVAILABLE	ORDER NO.
Connection block for BE5 to LA3 contactor		 BE590011

Enclosures for BE5, BE6



BE695524



BE599654

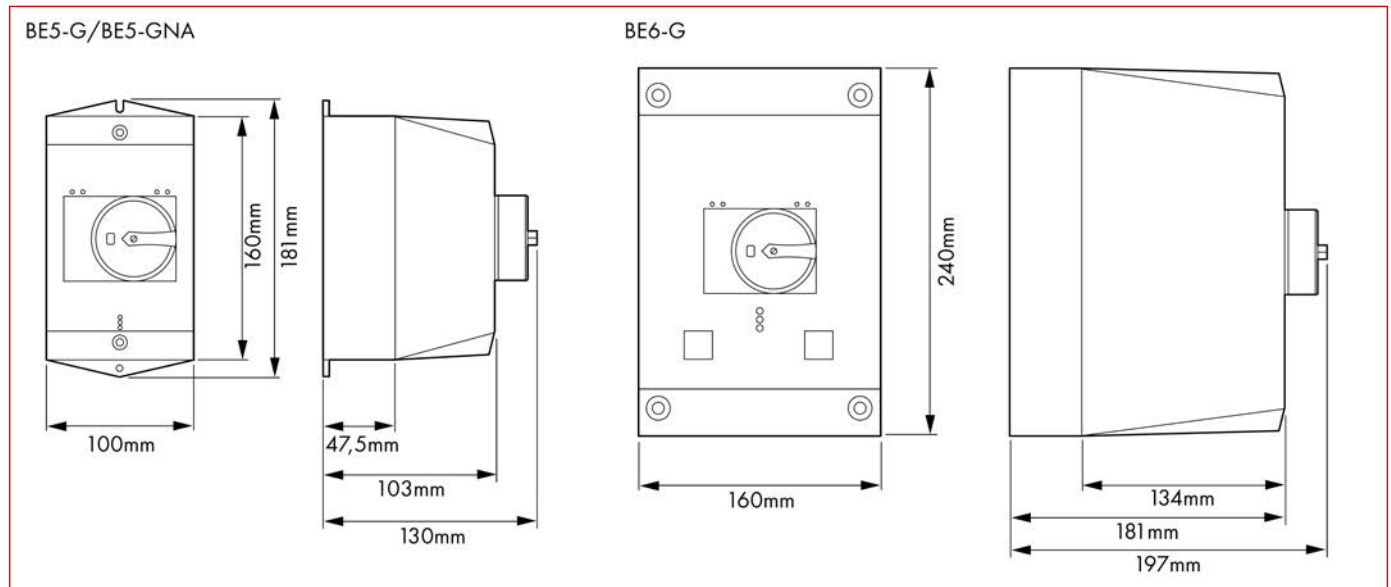
Schrack-Info

Plastic-housings for Motor protection switches for series BE5 and BE6 (without motor protection switch)

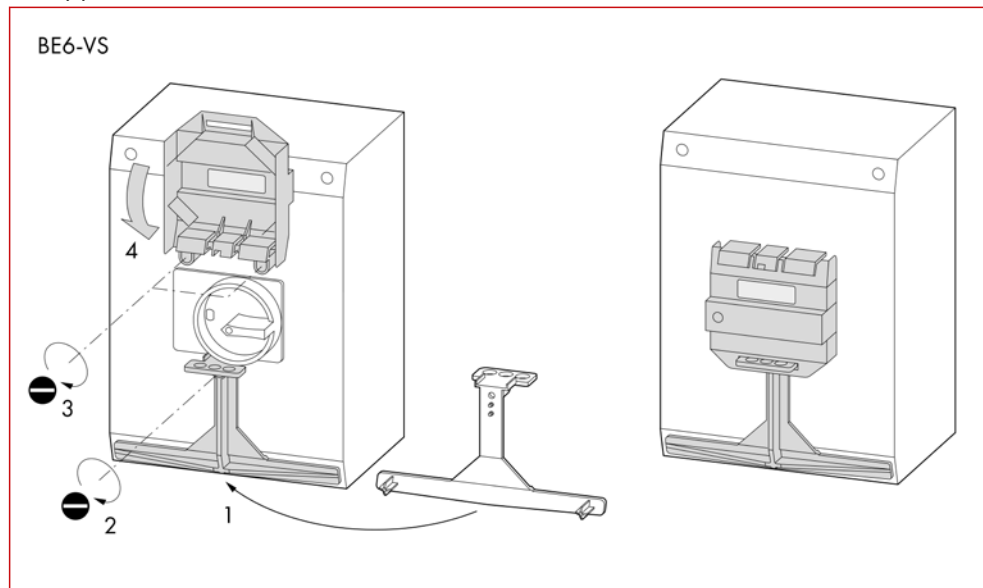


Mobil Code

Dimensions

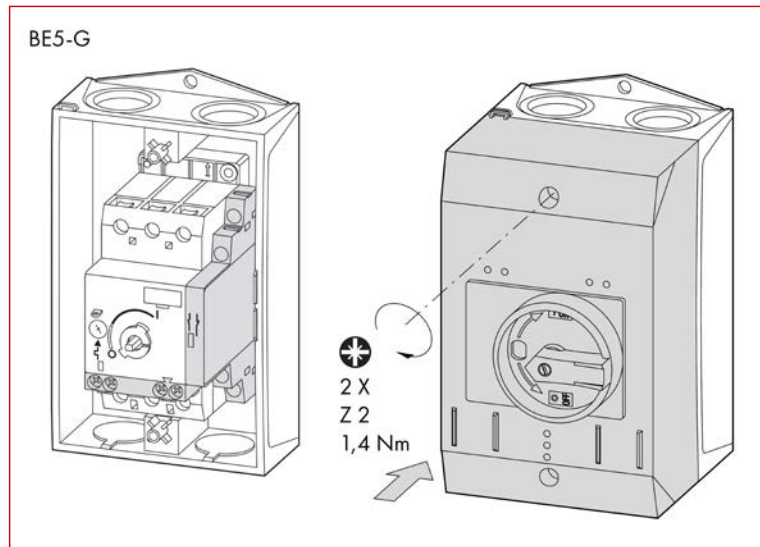


Application

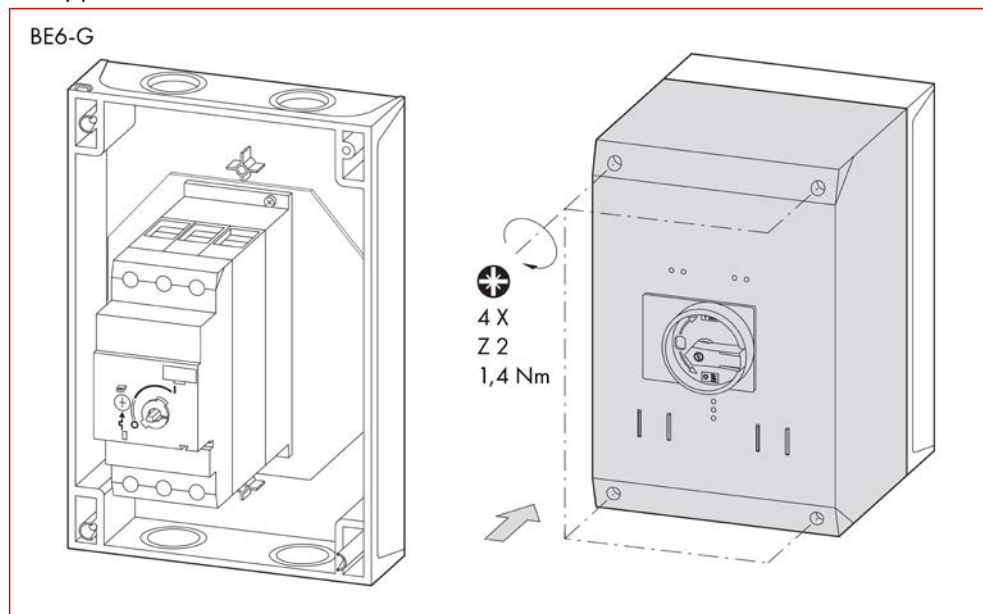




Enclosures for BE5, BE6

Application



Application



DESCRIPTION	AVAILABLE	ORDER NO.
Box for motor protection switch BE5		BE599654
Box for motor protection switch BE6		BE695524
Padlock for box with main-switch for BE6		BE695526

Accessories for BE5, BE6



BE082884



BE590851



BE590012



BE072898



BE073181



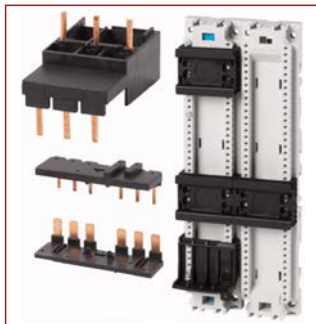
BE073135



BE596321



LTZ10008



LTZ10007



BE593599-A

Schrack-Info

Accessories for Motor protection switches series BE5 or BE6

- Lockable rotary knob for BE5

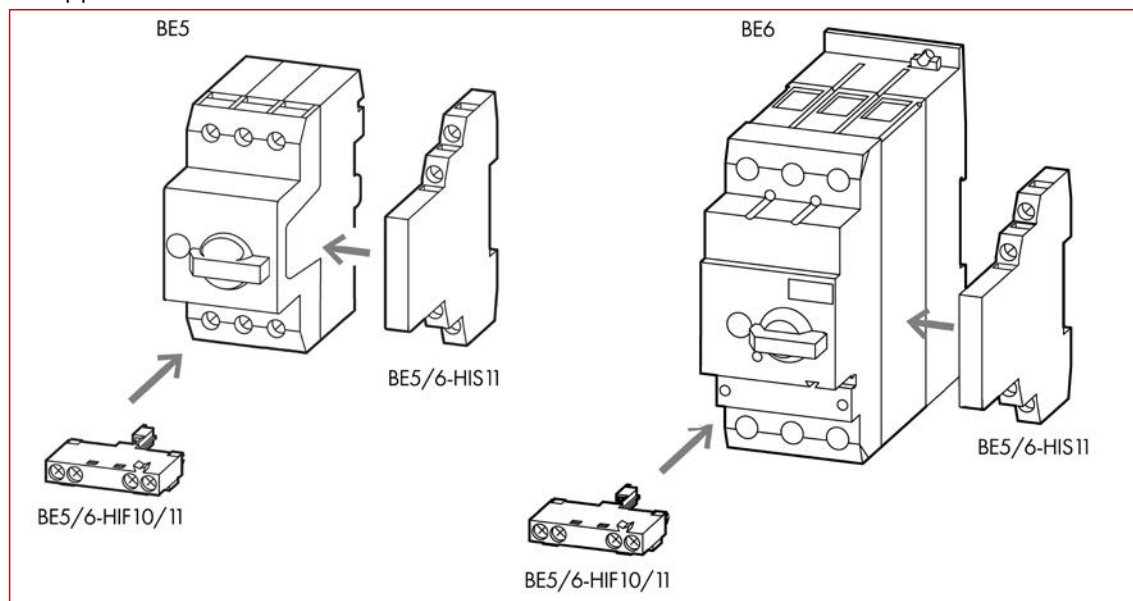


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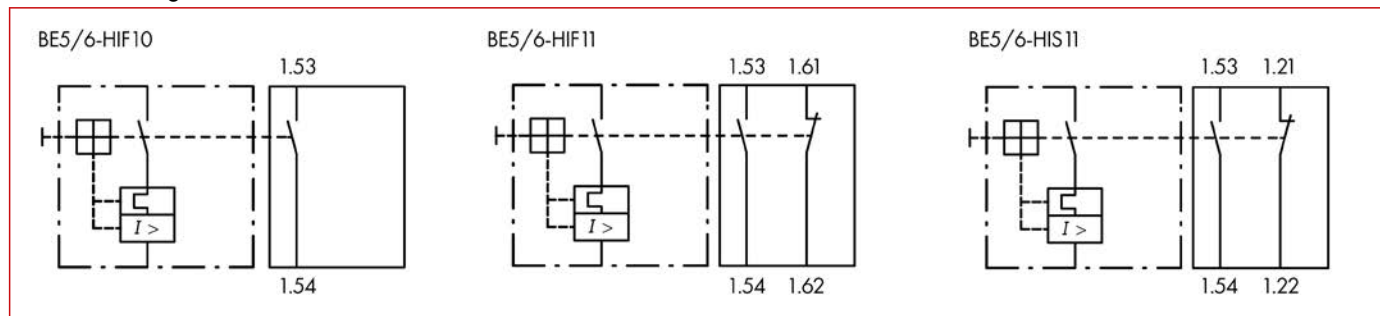
Accessories for BE5, BE6

Articles		BE5/6-HIF10	BE5/6-HIF11	BE5/6-HIS11	
Type		Auxiliary-contact	Auxiliary-contact	Auxiliary-contact	
Mounting		front	front	side	
For product		BE5 and BE6	BE5 and BE6	BE5 and BE6	
Contacts		1 NO	1 NO + 1 NC	1 NO + 1 NC	
Rated impulse withstand voltage U_{imp}		4kVAC		6kVAC	
Overvoltage category / Pollution degree		III/3			
Rated operational voltage		440VAC		500VAC	
		250VDC		250VDC	
Safe isolation according VDE 0106 part 101 and part 101/A1 between auxiliary contacts and main contacts		690VAC		690VAC	
Rated current	AC-15	220 - 240V I_e	1A		
		380 - 415V I_e	-	2A	
		440 - 550V I_e	-	1A	
	DC-13 L/R F 100 ms	24V I_e	-	2A	
		60V I_e	-	1,5A	
		110V I_e	-	1A	
		220V I_e	-	0,25A	
Lifespan	mechanical operations	> 10000		> 10000	
	electrical operations	> 10000		> 5000	
Contact reliability	(at $U_e = 24VDC$, $U_{min} = 17V$, $I_{min} = 5.4mA$)	Failure rate $\lambda < 10^{-8} < 1$ Failure on 1×10^8 operations			
Force guided contacts according ZH 1/457		-	-	yes	
Short circuit rating without welding of contacts	without melting-fuse	-	-	BM918104	
	with melting-fuse	10A gG/gL	10A gG/gL	10A gG/gL	
Terminals	Single or flexible wire with ferrule	0,75 - 1,5mm ²		0,75 - 2,5mm ²	
	Single- or stranded wire AWG	18-16		18-14	

Application



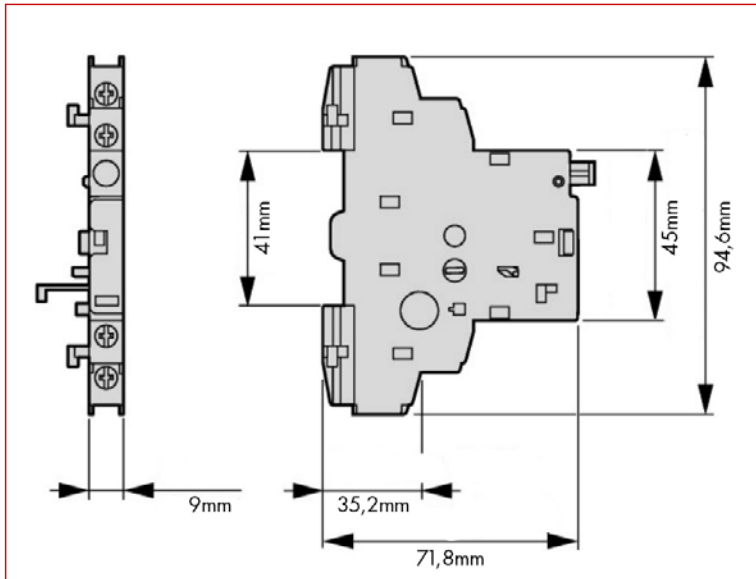
Circuit Diagrams



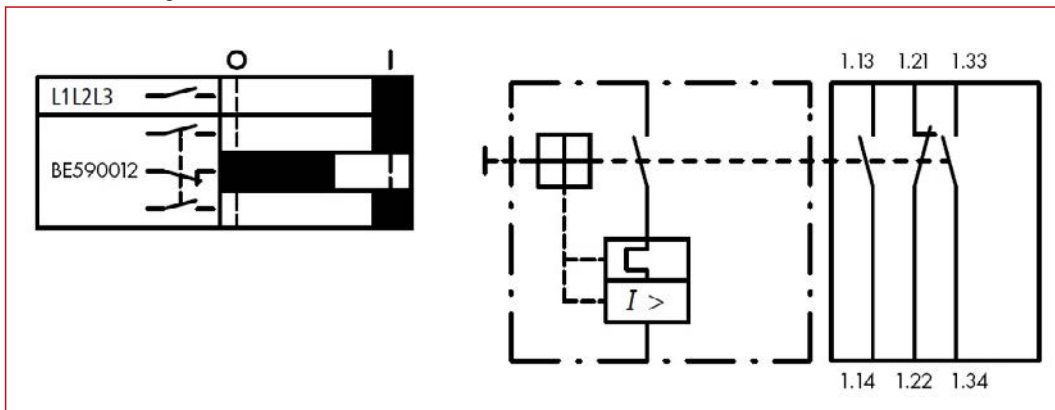
Motor Protection Switches Series BE5, BE6

Accessories for BE5, BE6

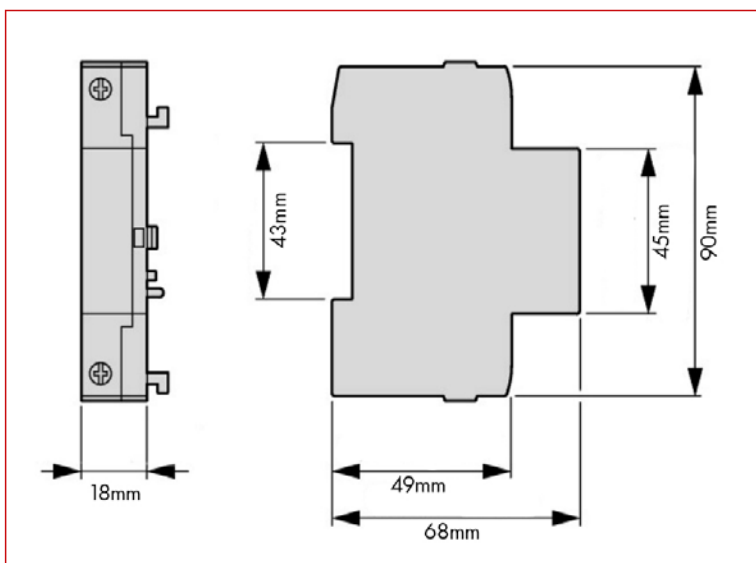
Dimensions BE072898



Circuit Diagram BE590012

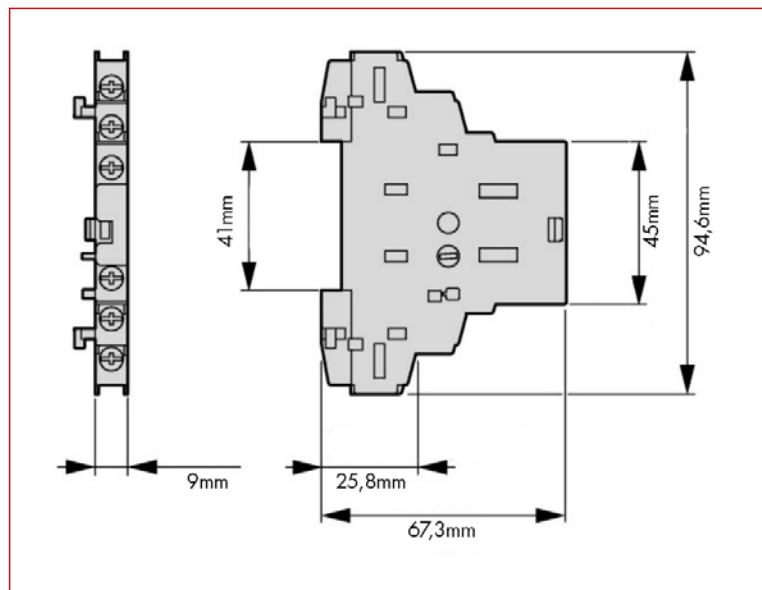


Dimensions BE073181

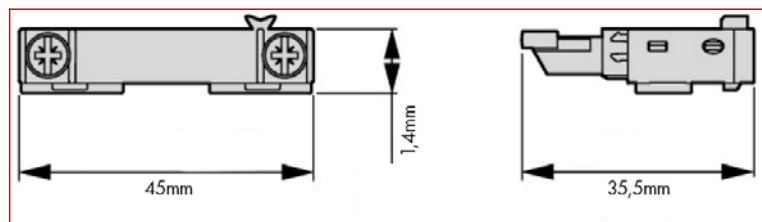


Accessories for BE5, BE6

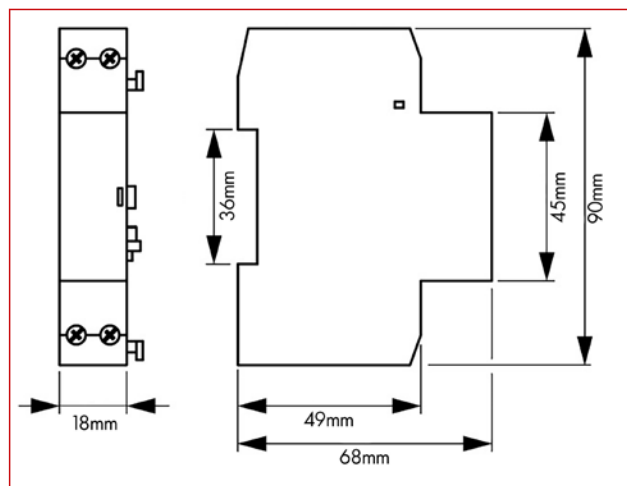
Dimensions BE590012



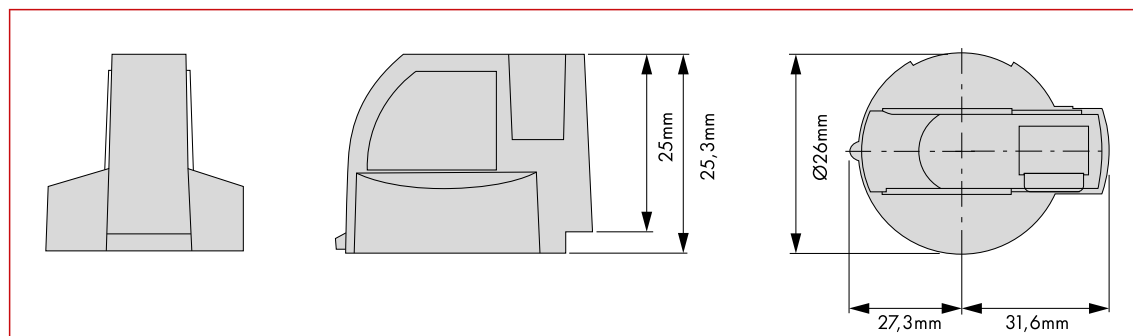
Dimensions BE082884



Dimensions BE073135



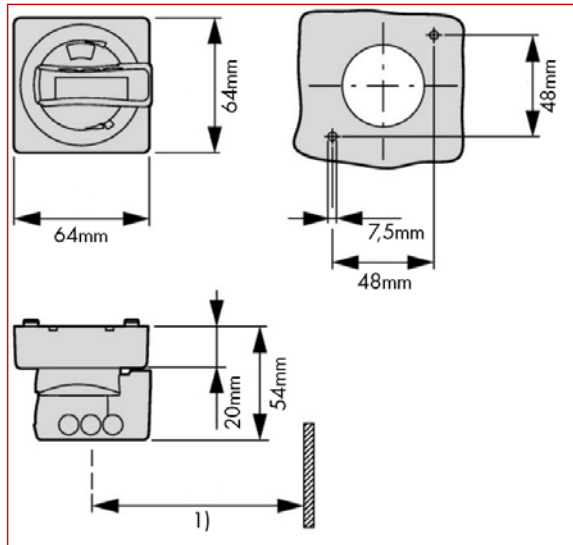
Dimensions BE590851



Motor Protection Switches Series BE5, BE6

Accessories for BE5, BE6

Dimensions BE596321 with at least 100mm distance to cover hinge - See also 1)



DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary contact front, 1NO		BE082884
Auxiliary contact front, 1NO+1NC		BE082882
Auxiliary contact side, 1NO+1NC, BE5/6		BE072896
Auxiliary contact side, 2NO+1NC, BE5/6		BE590012
Tripped Auxiliary contact side, 2NO, BE5/6		BE072898
Shunt release 24VAC		BE073181
Shunt release 230VAC		BE073187
Shunt release 24VDC		BE073200-A
Under voltage release 230VAC		BE073135
Low voltage trip device 400VAC, links		BE073138
Rotary knob for BE5, lockable with up to 3 pad-locks		BE590851
Door connector black BE5/BE6		BE596320-A
Door connector red/yellow BE5/BE6		BE596321
Set reversing starter with connector model size 0 and BE5		LTZ10008
Set reversing starter with connector model size 1 and BE5		LTZ10007
Seal cover for BE5/BE6		BE593599-A

Motor Protection Circuit Breaker series CUBICO Size 0



BE200025

Schrack-Info

- Motor protection switch series CUBICO according to EN 60947-2
- For rated current of motor from 0.16A up to 32A
- Tripping class 10A
- Suitable for IE3 motors
- With phase failure monitoring
- "Side mounted" and frontside auxiliary contacts optional



Mobil Code

Rated service short-circuit breaking capacity Ics (kA)

	BE200025	BE200040	BE200063	BE200100	BE200160	BE200250	BE200400
230/240V	100	100	100	100	100	100	100
400/415V	100	100	100	100	100	100	100
440V	100	100	100	100	100	100	100
480/500V	100	100	100	100	100	100	100
660/690V	100	100	100	100	100	2.25	2.25

	BE200630	BE201000	BE201400	BE201800	BE202300	BE202500	BE203200
230/240V	100	100	100	100	50	50	50
400/415V	100	100	7.5	7.5	6	6	5
440V	50	15	4	4	3	3	3
480/500V	50	10	4.5	4.5	3	3	3
660/690V	2.25	2.25	2.25	2.25	2.25	2.25	2.25

Standard Rated Power of three-Phase motor

	BE200025	BE200040	BE200063	BE200100	BE200160	BE200250	BE200400
230/240V	-	-	-	-	-	0.37	0.75
400V	-	-	-	-	0.37	0.75	1.5
415V	-	-	-	-	-	0.75	1.5
440V	-	-	-	0.37	0.55	1.1	1.5
500V	-	-	-	0.37	0.75	1.1	2.2
660/690V	-	-	0.37	0.55	1.1	1.5	3

	BE200630	BE201000	BE201400	BE201800	BE202300	BE202500	BE203200
230/240V	1.1	2.2	3	4	5.5	5.5	7.5
400V	2.2	4	5.5	7.5	11	11	15
415V	2.2	4	5.5	9	11	11	15
440V	3	4	7.5	9	11	11	15
500V	3.7	5.5	7.5	9	11	15	18.5
660/690V	4	7.5	9	11	15	18.5	25

Motor Protection Circuit Breaker series CUBICO

Motor Protection Circuit Breaker series CUBICO Size 0

Type	0.4 - 0.63A	0.63 - 1A	1 - 1.6A	1.6 - 2.5A	2.5 - 4A
Standard	IEC/EN 60947-2, IEC/EN 60947-4-1				
Rated operational voltage U_e	230/230VAC, 400/415VAC, 440VAC, 500VAC, 690VAC				
Rated insulation voltage U_i	690VAC				
Rated frequency	50Hz				
Rated impulse withstand voltage U_{imp}	8kV				
Overtoltage category	III				
Arcing distance	40mm				
Range of current	0.4 - 0.63A	0.63 - 1A	1 - 1.6A	1.6 - 2.5A	2.5 - 4A
Rated current	0.63A	1A	1.6A	2.5A	4A
Standard rated power of three phase motor					
230/230VAC	-	-	-	0.37kW	0.75kW
400/415VAC	-	-	0.37kW	0.75kW	1.5kW
440VAC	-	0.37kW	0.55kW	1.1kW	1.5kW
500VAC	-	0.37kW	0.75 kW	1.1kW	2.2kW
690VAC	0.37kW	0.55kW	1.1 kW	1.5kW	3.0kW
Rated ultimate short-circuit breaking capacity I_{cu}					
230/230VAC	100kA	100kA	100kA	100kA	100kA
400/415VAC	100kA	100kA	100kA	100kA	100kA
440VAC	100kA	100kA	100kA	100kA	100kA
500VAC	100kA	100kA	100kA	100kA	100kA
690VAC	100kA	100kA	100kA	3kA	3kA
Rated service short-circuit breaking capacity I_{cs}					
230/230VAC	100kA	100kA	100kA	100kA	100kA
400/415VAC	100kA	100kA	100kA	100kA	100kA
440VAC	100kA	100kA	100kA	100kA	100kA
500VAC	100kA	100kA	100kA	100kA	100kA
690VAC	100kA	100kA	100kA	2.25kA	2.25kA
Current setting value of instantaneous electromagnetic release I_r	8A	13A	22.5A	33.5A	51A
Current rating of back-up fuse if $I_{cc} > I_{cu}$					
230/230VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
400/415VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
440VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
500VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
690VAC	aM	-	-	16A	25A
	gG/gL	-	-	20A	32A
Overload protection (ambient temperature 20°C)					
	1.05 x I_N	No operation within 2h			
	1.2 x I_N	Operation within 2h			
	1.5 x I_N	Tripping class 10A: Operation within 2min, Tripping class 10: Operation within 4min			
	7.2 x I_N	Tripping class 10A: 2s < Tripping ≤ 10s, Tripping class 10: 4s < Tripping ≤ 10s			
Dimension:	45 x 90 x 95mm				
Protection degree	IP20				

Motor Protection Circuit Breaker series CUBICO Size 0

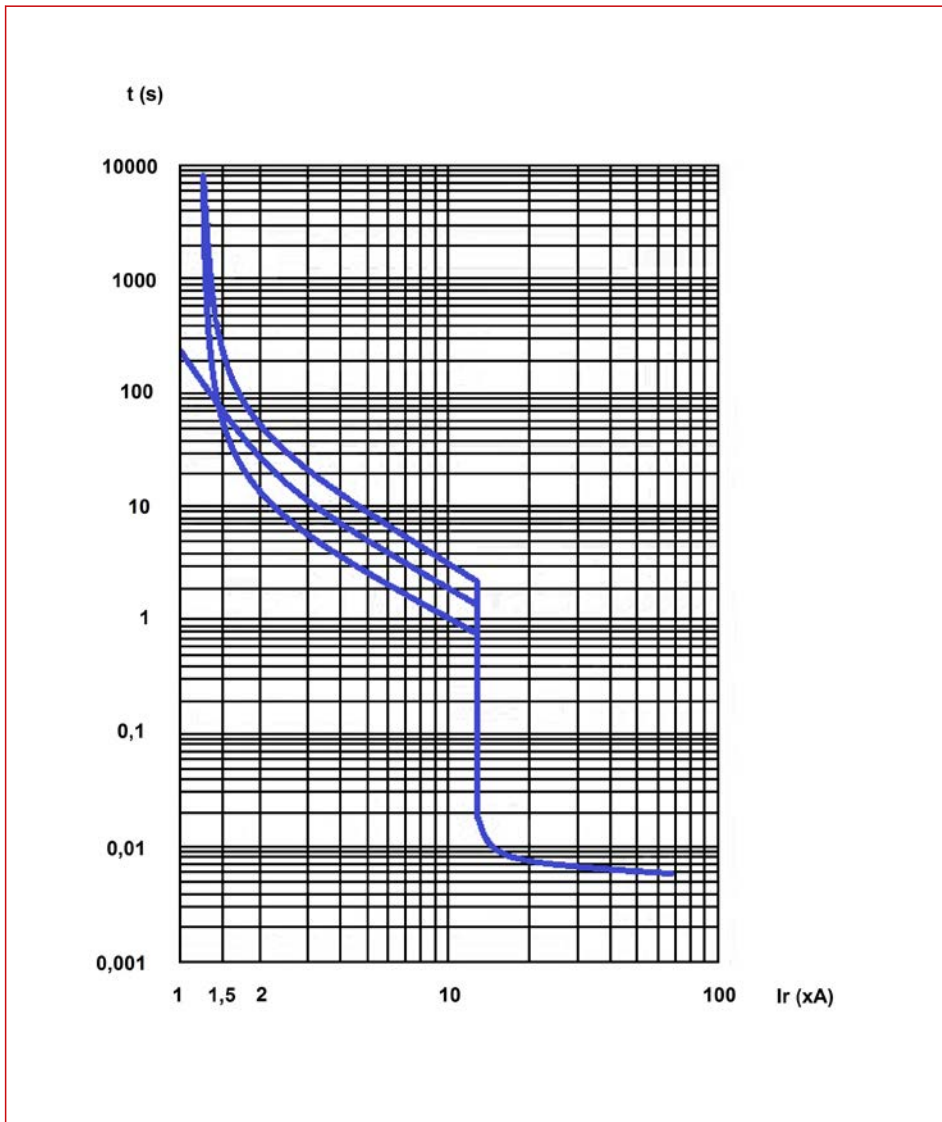
Rated ultimate short-circuit breaking capacity I_{cu} (kA)

Type	4 - 6.3A	6 - 10A	9 - 14A	13 - 18A	17 - 23A	20 - 25A	
Standard	IEC/EN 60947-2, IEC/EN 60947-4-1						
Rated operational voltage U_e	230/230VAC, 400/415VAC, 440VAC, 500VAC, 690VAC						
Rated insulation voltage U_i	690VAC						
Rated frequency	50Hz						
Rated impulse withstand voltage U_{imp}	8kV						
Overvoltage category	III						
Arcing distance	40mm						
Range of current	4 - 6.3A	6 - 10A	9 - 14A	13 - 18A	17 - 23A	20 - 25A	
Rated current	6.3A	10A	14A	18A	23A	25A	
Standard rated power of three phase motor							
	230/230VAC	1.1kW	2.2kW	3.0kW	4.0kW	5.5kW	5.5kW
	400/415VAC	2.2kW	4.0kW	5.5kW	9.0kW	11kW	11kW
	440VAC	3.0kW	4.0kW	7.5kW	9.0kW	11kW	11kW
	500VAC	3.7kW	5.5kW	7.5kW	9.0kW	11kW	15kW
	690VAC	4.0kW	7.5kW	9.0kW	11kW	15kW	18.5kW
Rated ultimate short-circuit breaking capacity I_{cu}							
	230/230VAC	100kA	100kA	100kA	100kA	50kA	50kA
	400/415VAC	100kA	100kA	15kA	15kA	15kA	15kA
	440VAC	50kA	15kA	8kA	8kA	6kA	6kA
	500VAC	50kA	10kA	6kA	6kA	4kA	4kA
	690VAC	3kA	3kA	3kA	3kA	3kA	3kA
Rated ultimate short-circuit breaking capacity I_{cu}							
	230/230VAC	100kA	100kA	100kA	100kA	50kA	50kA
	400/415VAC	100kA	100kA	7.5kA	7.5kA	6kA	6kA
	440VAC	50kA	15kA	4kA	4kA	3kA	3kA
	500VAC	50kA	10kA	4.5kA	4.5kA	3kA	3kA
	690VAC	2.25kA	2.25kA	2.25kA	2.25kA	2.25kA	2.25kA
Current setting value of instantaneous electromagnetic release I_r		78A	138A	170A	223A	327A	327A
Current rating of back-up fuse if $I_{cc} > I_{cu}$							
230/230VAC	aM	-	-	-	-	80A	80A
	gG/gL	-	-	-	-	100A	100A
400/415VAC	aM	-	-	63A	63A	80A	80A
	gG/gL	-	-	80A	80A	100A	100A
440VAC	aM	50A	50A	50A	50A	63A	63A
	gG/gL	63A	63A	63A	63A	80A	80A
500VAC	aM	50A	50A	50A	50A	50A	50A
	gG/gL	63A	63A	63A	63A	63A	63A
690VAC	aM	32A	32A	40A	40A	40A	40A
	gG/gL	40A	40A	50A	50A	50A	50A
Overload protection (ambient temperature 20°C)							
	$1.05 \times I_N$	No operation within 2h					
	$1.2 \times I_N$	Operation within 2h					
	$1.5 \times I_N$	Tripping class 10A: Operation within 2min, Tripping class 10: Operation within 4min					
	$7.2 \times I_N$	Tripping class 10A: $2s < \text{Operation} \leq 10s$, Tripping class 10: $4s < \text{Operation} \leq 10s$					
Dimension:	45 x 90 x 95mm						
Protection Class	IP20						

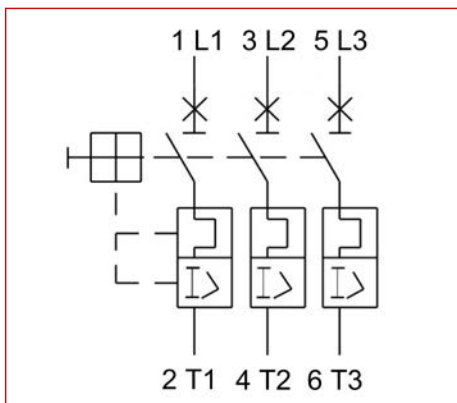
Motor Protection Circuit Breaker series CUBICO

Motor Protection Circuit Breaker series CUBICO Size 0

Characteristics Diagram

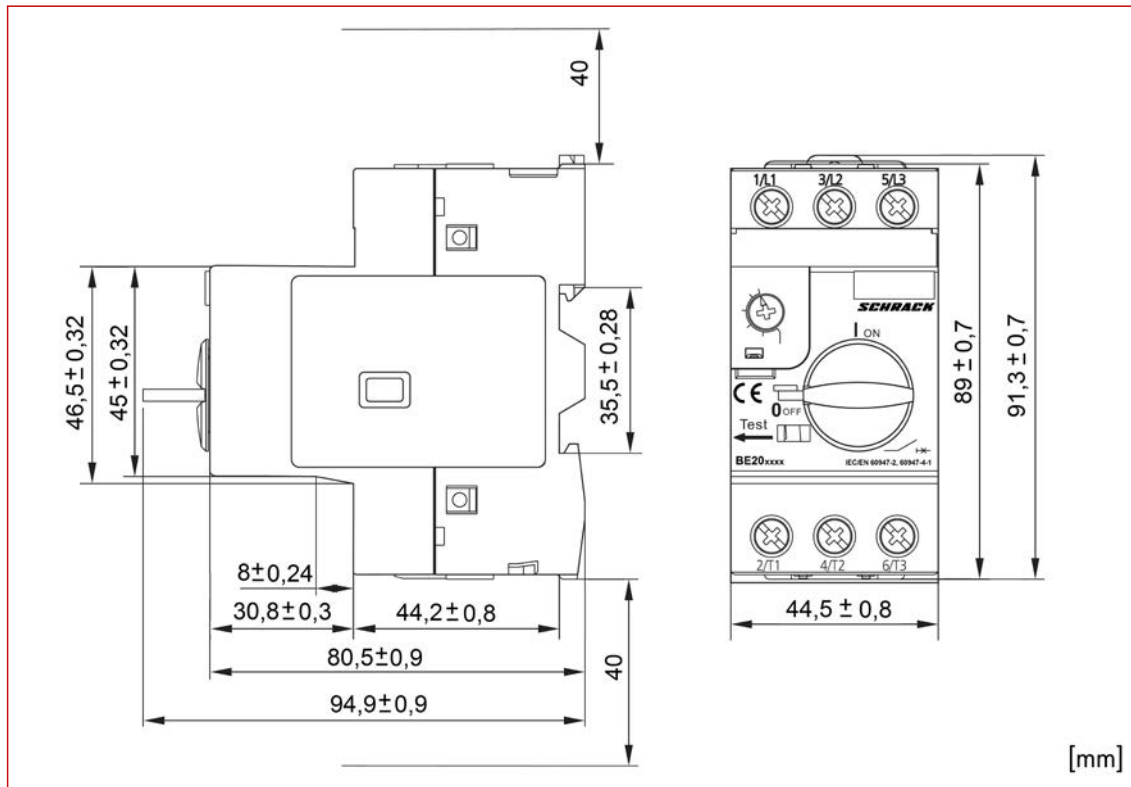


Circuit Diagram



Motor Protection Circuit Breaker series CUBICO Size 0

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
0,16 - 0,25A		BE200025
0,25 - 0,4A		BE200040
0,4 - 0,63A		BE200063
0,63 - 1A		BE200100
1 - 1,6A		BE200160
1,6 - 2,5A		BE200250
2,5 - 4A		BE200400
4 - 6,3A		BE200630
6 - 10A		BE201000
9 - 14A		BE201400
13 - 18A		BE201800
17 - 23A		BE202300
20 - 25A		BE202500
24 - 32A		BE203200

Motor Protection Circuit Breaker series CUBICO Size 1



BE212500

Schrack-Info

- Motor protection switch series CUBICO according to EN 60947-2
- For rated current of motor from 25A up to 80A
- Suitable for IE3 motors
- With phase failure monitoring
- "Side mounted" and frontside auxiliary contacts optional

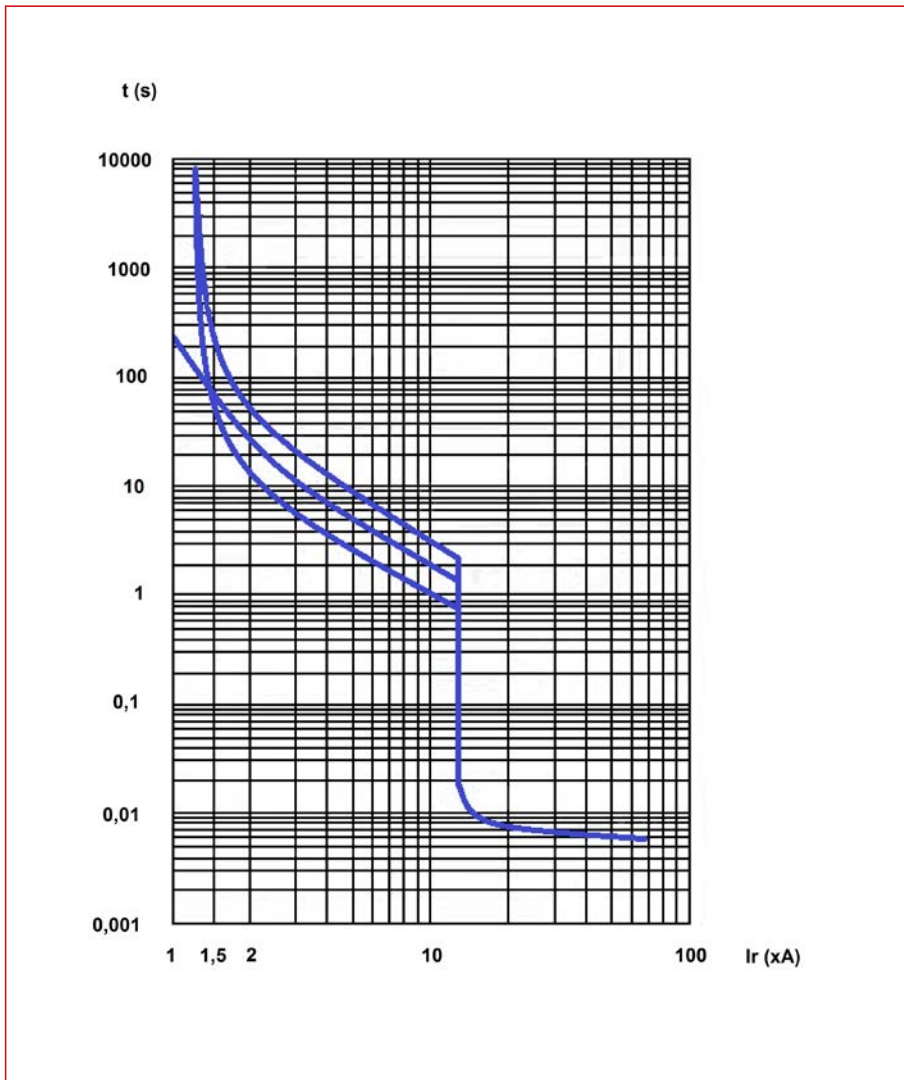


Mobil Code

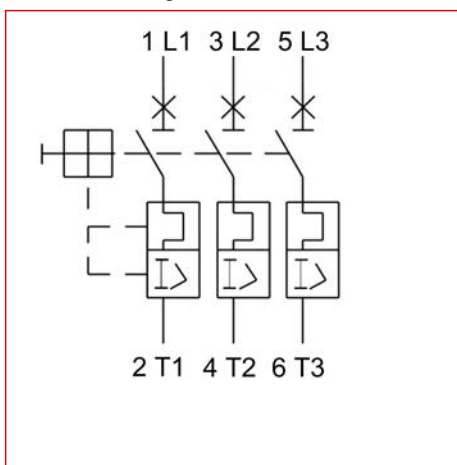
Article number	BE212500--	BE213200--	BE21400	BE215000	BE218000	BE218000		
Standard	IEC/EN 60947-2, IEC/EN 60947-4-1							
Rated operational voltage U_e	400/415VAC, 660/690VAC							
Rated insulation voltage U_i	690VAC							
Frequency	50Hz							
Rated impulse withstand voltage U_{imp}	8kV							
Pollution degree	III							
Temperature range - Operation	5°C/+40°C							
Regulating range of setting current	20 - 25A	23 - 32A	30 - 40A	37 - 50A	48 - 65A	63 - 80A		
Rated current of release	25A	32A	40A	50A	65A	80A		
Standard rated power of three-phase motor								
	400VAC	11kW	15kW	18,5kW	22kW	30kW	37kW	
	415VAC	11kW	15kW	18,5kW	22kW	30kW	37kW	
	660VAC	18.5kW	22kW	37kW	45kW	55kW	63kW	
	690VAC	18.5kW	22kW	37kW	45kW	55kW	63kW	
Rated service short-circuit breaking capacity I_{cs}								
	400VAC	17.5kA	17.5kA	17.5kA	17.5kA	17.5kA	17.5kA	
	415VAC	17.5kA	17.5kA	17.5kA	17.5kA	17.5kA	17.5kA	
	660VAC	2kA	2kA	2kA	2kA	2kA	2kA	
	690VAC	2kA	2kA	2kA	2kA	2kA	2kA	
Rated ultimate short-circuit breaking capacity I_{cs}								
	400VAC	50kA	50kA	50kA	50kA	50kA	50kA	
	415VAC	50kA	50kA	50kA	50kA	50kA	50kA	
	660VAC	4kA	4kA	4kA	4kA	4kA	4kA	
	690VAC	4kA	4kA	4kA	4kA	4kA	4kA	
Current setting value of instantaneous electromagnetic release I_r		350A	448A	560A	700A	910A	1120A	
Current rating of fuse-link of back-up fuse when $I_{cc} > I_{cu}$								
	400/415VAC	aM	250A	25A	25A	315A	315A	315A
		gG/gL	315A	315A	315A	400A	400A	400A
	690VAC	aM	160A	160A	160A	200A	200A	200A
		gG/gL	200A	200A	200A	250A	250A	250A
Humidity	50% Humidity at +40°C							
Degree of protection	IP20							

Motor Protection Circuit Breaker series CUBICO Size 1

CUBICO Series Size 1



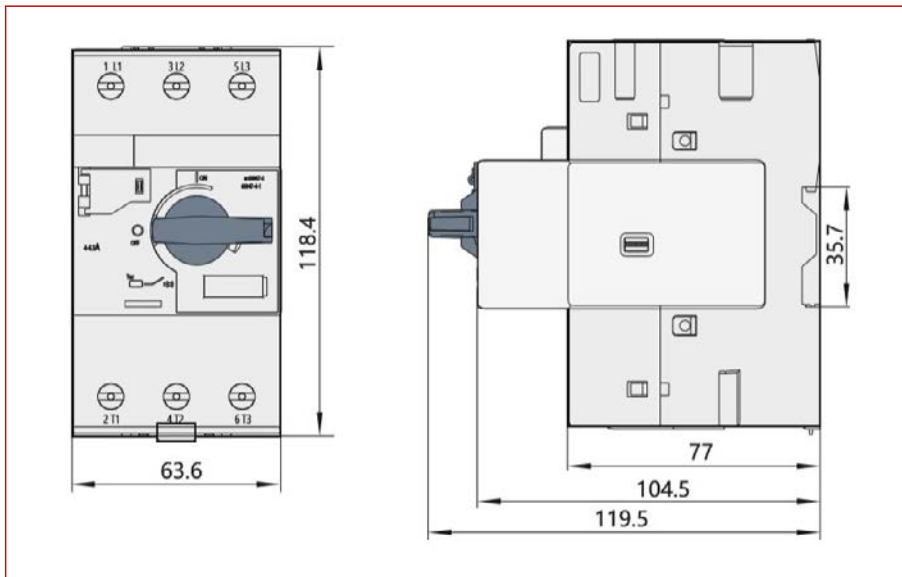
Circuit Diagram



Motor Protection Circuit Breaker series CUBICO

Motor Protection Circuit Breaker series CUBICO Size 1

Maßbild



DESCRIPTION	AVAILABLE	ORDER NO.
20 - 25A		BE212500
25 - 32A		BE213200
32 - 40A		BE214000
37 - 50A		BE215000
48 - 65A		BE216500
63 - 80A		BE218000

Motor Protection Circuit Breaker series CUBICO Size 0, Push-button



BE2P0025

Schrack-Info

- Motor protection switch series CUBICO according to EN 60947-2
- For rated current of motor from 0.16A up to 32A
- Tripping class 10A
- Suitable for IE3 motors
- With phase failure monitoring
- "Side mounted" and frontside auxiliary contacts optional



Mobil Code

	BE2P0025	BE2P0040	BE2P0063	BE2P0100	BE2P0160	BE2P0250	BE2P0400
230/240V	100	100	100	100	100	100	100
400/415V	100	100	100	100	100	100	100
440V	100	100	100	100	100	100	100
480/500V	100	100	100	100	100	100	100
660/690V	100	100	100	100	100	2,25	2,25

	BE2P0630	BE2P1000	BE2P1400	BE2P1800	BE2P2300	BE2P2500	BE2P3200
230/240V	100	100	100	100	50	50	50
400/415V	100	100	7,5	7,5	6	6	5
440V	50	15	4	4	3	3	3
480/500V	50	10	4,5	4,5	3	3	3
660/690V	2,25	2,25	2,25	2,25	2,25	2,25	2,25

	BE2P0025	BE2P0040	BE2P0063	BE2P0100	BE2P0160	BE2P0250	BE2P0400
230/240V	-	-	-	-	-	0,37	0,75
400V	-	-	-	-	0,37	0,75	1,5
415V	-	-	-	-	-	0,75	1,5
440V	-	-	-	0,37	0,55	1,1	1,5
500V	-	-	-	0,37	0,75	1,1	2,2
660/690V	-	-	0,37	0,55	1,1	1,5	3

	BE2P0630	BE2P1000	BE2P1400	BE2P1800	BE2P2300	BE2P2500	BE2P3200
230/240V	1,1	2,2	3	4	5,5	5,5	7,5
400V	2,2	4	5,5	7,5	11	11	15
415V	2,2	4	5,5	9	11	11	15
440V	3	4	7,5	9	11	11	15
500V	3,7	5,5	7,5	9	11	15	18,5
660/690V	4	7,5	9	11	15	18,5	25

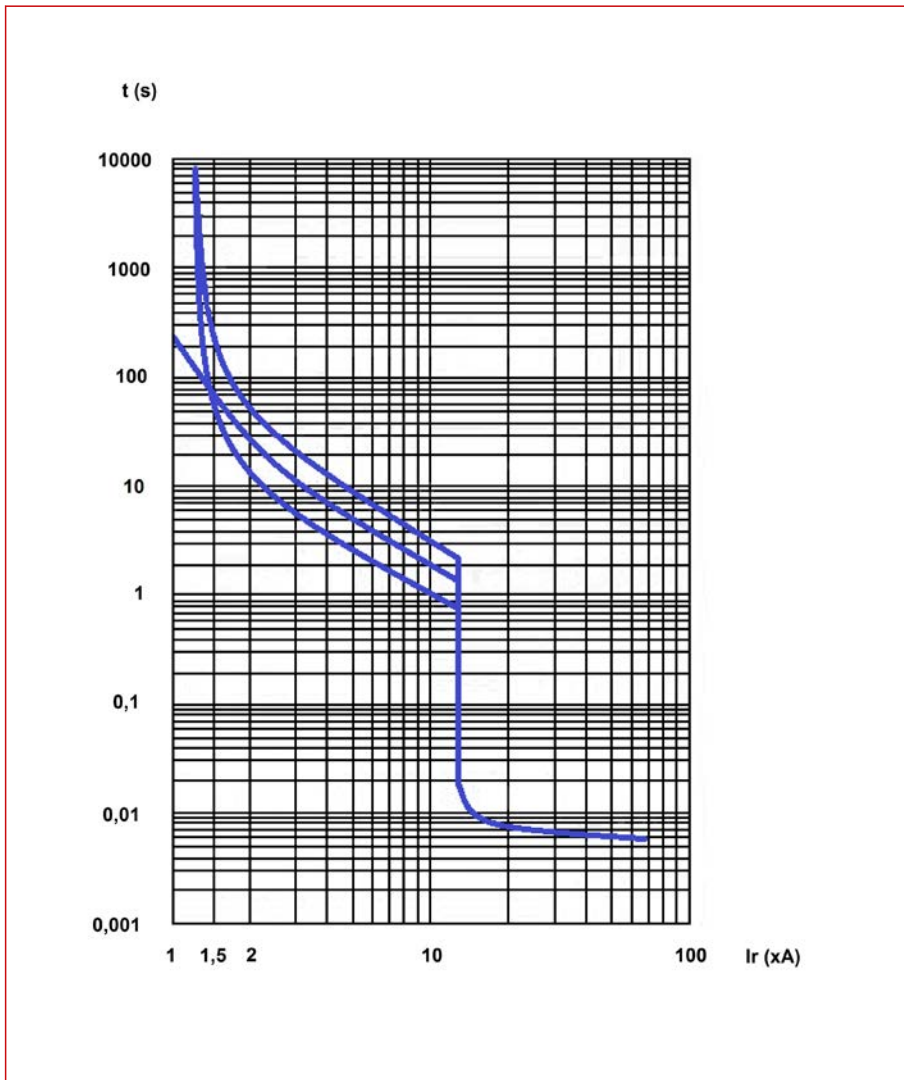
Motor Protection Circuit Breaker series CUBICO

Motor Protection Circuit Breaker series CUBICO Size 0, Push-button

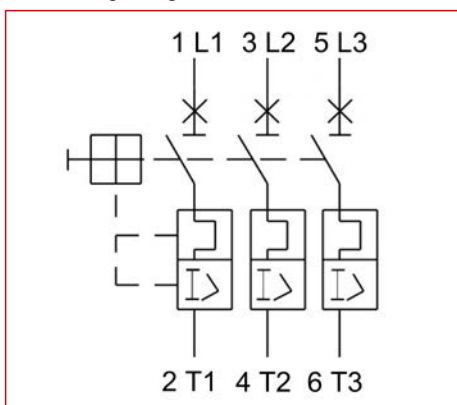
Type	0.4 - 0.63 A	0.63 - 1 A	1 - 1.6 A	1.6 - 2.5 A	2.5 - 4 A
Standard	IEC/EN 60947-2, IEC/EN 60947-4-1				
Rated operational voltage U_e	230/230VAC, 400/415VAC, 440VAC, 500VAC, 690VAC				
Rated insulation voltage U_i	690VAC				
Rated frequency	50Hz				
Rated impulse withstand voltage U_{imp}	8kV				
Overtoltage category	III				
Arcing distance	40mm				
Range of current	0.4 - 0.63A	0.63 - 1 A	1 - 1.6A	1.6 - 2.5A	2.5 - 4A
Rated current	0.63A	1A	1.6A	2.5A	4A
Standard rated power of three phase motor					
230/230VAC	-	-	-	0.37kW	0.75kW
400/415VAC	-	-	0.37kW	0.75kW	1.5kW
440VAC	-	0.37kW	0.55kW	1.1kW	1.5kW
500VAC	-	0.37kW	0.75kW	1.1kW	2.2kW
690VAC	0.37kW	0.55kW	1.1kW	1.5kW	3.0kW
Rated ultimate short-circuit breaking capacity I_{cu}					
230/230VAC	100kA	100kA	100kA	100kA	100kA
400/415VAC	100kA	100kA	100kA	100kA	100kA
440VAC	100kA	100kA	100kA	100kA	100kA
500VAC	100kA	100kA	100kA	100kA	100kA
690VAC	100kA	100kA	100kA	3kA	3kA
Rated service short-circuit breaking capacity I_{cs}					
230/230VAC	100kA	100kA	100kA	100kA	100kA
400/415VAC	100kA	100kA	100kA	100kA	100kA
440VAC	100kA	100kA	100kA	100kA	100kA
500VAC	100kA	100kA	100kA	100kA	100kA
690VAC	100kA	100kA	100kA	2.25kA	2.25kA
Current setting value of instantaneous electromagnetic release I_r	8A	13A	22.5A	33.5A	51A
Current rating of back-up fuse if $I_{cc} > I_{cu}$					
230/230VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
400/415VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
440VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
500VAC	aM	-	-	-	-
	gG/gL	-	-	-	-
690VAC	aM	-	-	16A	25A
	gG/gL	-	-	20A	32A
Overload protection (ambient temperature 20°C)					
	1.05 x I_N	No operation within 2h			
	1.2 x I_N	Operation within 2h			
	1.5 x I_N	Tripping class 10A: Operation within 2min, Tripping class 10: Operation within 4min			
	7.2 x I_N	Tripping class 10A: 2s < Tripping ≤ 10s, Tripping class 10: 4s < Tripping ≤ 10s			
Dimension:	45 x 90 x 95 mm				
Protection degree	IP20				

Motor Protection Circuit Breaker series CUBICO Size 0, Push-button

Auslösekennlinie



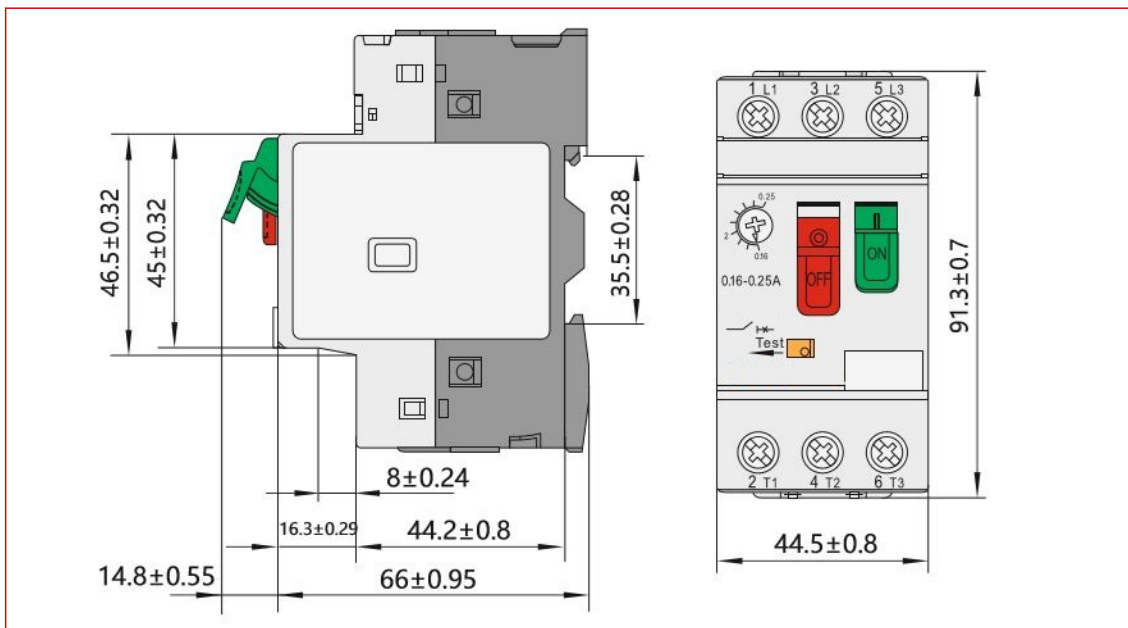
Wiring diagram



Motor Protection Circuit Breaker series CUBICO

Motor Protection Circuit Breaker series CUBICO Size 0, Push-button

Dimensions



DESCRIPTION	AVAILABLE	ORDER NO.
0,16 - 0,25A		BE2P0025
0,25 - 0,4A		BE2P0040
0,4 - 0,63A		BE2P0063
0,63 - 1A		BE2P0100
1 - 1,6A		BE2P0160
1,6 - 2,5A		BE2P0250
2,5 - 4A		BE2P0400
4 - 6,3A		BE2P0630
6 - 10A		BE2P1000
9 - 14A		BE2P1400
13 - 18A		BE2P1800
17 - 23A		BE2P2300
20 - 25A		BE2P2500
24 - 32A		BE2P3200

Accessories for Motor Protection Circuit Breaker series CUBICO



BE2ZAS11



BE2ZU230

Schrack-Info

- Accessories for Motor Protection Circuit Breaker series BE2
- Auxiliary contacts mountable on front or side
- Undervoltage and shunt-release
- Covers



Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Auxiliary contact, side-mounting for BE2		BE2ZAS11
Auxiliary contact, front-mounting for BE2		BE2ZAF11
Auxiliary contact, side-mounting for BE2, 1NO Fault, 1 NO operating position		BE2ZTS20
Auxiliary contact, side-mounting for BE2, 1NC Fault, 1 NC operating position		BE2ZTS02
Undervoltage release unit for BE2 230VAC 50Hz		BE2ZU230
Shunt release unit for BE2 230VAC 50Hz		BE2ZS230
Enclosure for BE2P with membrane		BE2ZBM00
Enclosure for BE2P with emergency-off Push button		BE2ZBE00
Auxiliary contact, side-mounting for BE21		BE21ZAS11

■ Solid State Contactor



■ Solid State Reversing Contactor for Starting of 3-phase Motors



■ Solid State Contactors for Analog Controlled Starting of Motors



■ Torque Limiters



■ Softstarter, 2-phase Controlled with Integrated Bypass



■ Softstarter, 3-phase Controlled



Solid State Contactors and Motor Controllers

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Solid State Contactors	Page 406
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Soft Starters	Page 421

Solid State Contactor, Single Phase Controlled



LAS14302

Schrack-Info

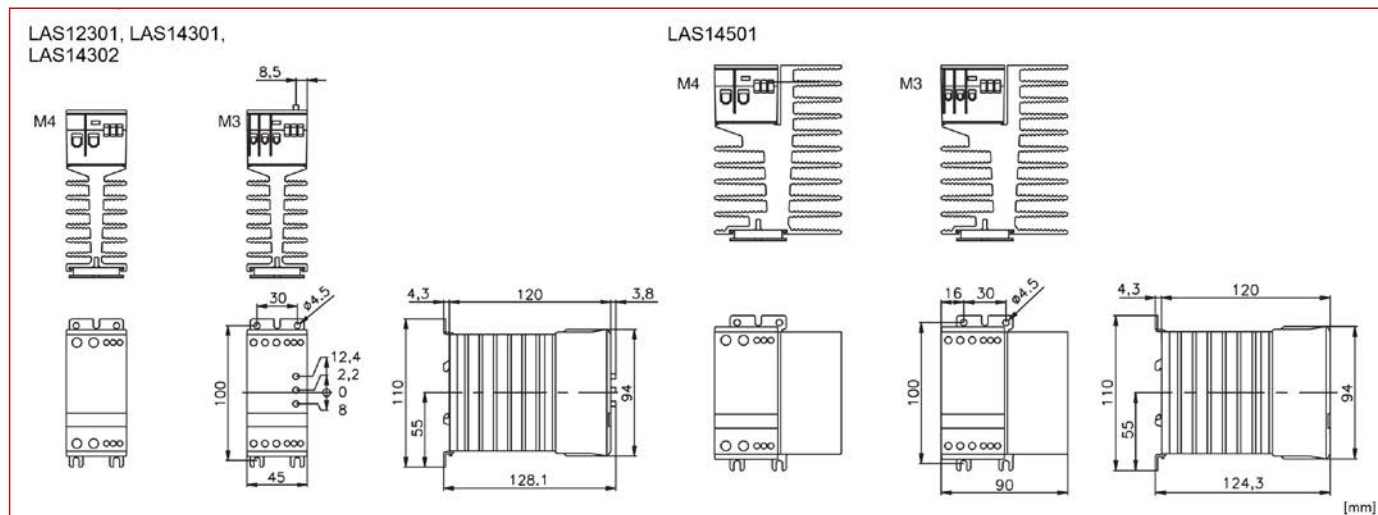
- Solid state contactors products of Schrack are designed for applications, where silently and bounce-free switching is advantageous and long life span without EMC problems in service is claimed.
- The noninductive drive and the switching at zero-crossing of voltage are further features that prevents undefined switching status - which are caused by conventional, mechanical contactors.
- Solid state contactors applies to actuating drives, power units with frequently Stop/Start processes as well as to drives with frequently change of rotation direction



Mobil Code

	LAS12301	LAS14301	LAS14302	LAS14501
Main contacts				
Operational voltage	12-240VAC 50/60Hz	24-480VAC 50/60Hz		
Operational current AC-1/51	30A	30A	30A	50A
Operational current AC-3	15A			
Operational current AC-55b	20A			
Operational current AC-56A	15A			
Control				
Control voltage	5-24VDC	5-24VDC	24-230VAC/DC	5-24VDC
min. response voltage	4.25VDC	4.25VDC	20.4VAC/DC	4.25VDC
min. dropout voltage	1.5VDC	1.5VDC	7.2VAC/DC	1.5VDC
Thermal and mechanical characteristic				
Power loss at PD max.	1.2W/A			
Power loss at periodic duty	1.2W/A x operating cycle			
Cooling	natural convection			
Mounting	vertical +/- 30°			
Mounting distance - vertical mounting	0mm / horizontal min. 80mm			
Mounting distance - horizontal mounting	max. 50% operational currents at 0mm (not recommended)			
Operating temperature range according to EN60947-4-3	-5 up to 40°C			
Storage temperature range according to EN60947-4-3	-20 up to 80°C			
Max. operating temperature	60°C			
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C			
Width	45mm	45mm	45mm	90mm
Height	94mm	94mm	94mm	94mm
Depth	128.1mm	128.1mm	128.1mm	124.3mm
Protective equipment				
Short-circuit protection Installation - fuse	max. 50A gL/gG			
Short-circuit protection Installation and solid-state contactors - fuse	max. 1800A ² s			
Thermal overload protection	optional: LASUP62			

Dimensions



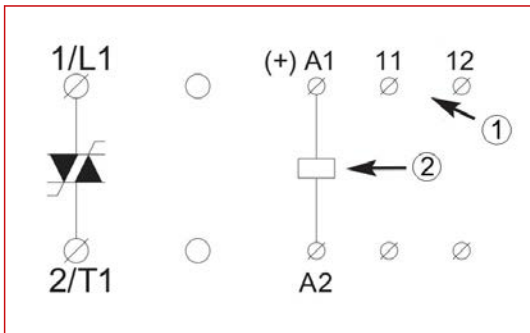
■ Solid State Contactor, Single Phase Controlled

Wiring Connections (Module 45/90mm)
 Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / I1 I2 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

■ Circuit Diagram



Rated operational current up to 63A AC-1

- 1) for LASUP62 (see "Accessories for Solid State Contactors and Controllers")
- 2) Control voltage A1-A2

DESCRIPTION	AVAILABLE	ORDER NO.
30A		
30A/12-230VAC, control voltage 5-24VDC		LAS12301
30A/24-480VAC, control voltage 5-24VDC		LAS14301
30A/24-480VAC, control voltage 24-230VAC/DC		LAS14302
50A		
50A/24-480VAC, control voltage 5-24VDC		LAS14501

Solid State Contactors, 2-phase Controlled



LAS2

Schrack-Info

Solid state contactors products of Schrack are designed for applications, where silently and bounce-free switching is advantageous and long life span without EMC problems in service is claimed

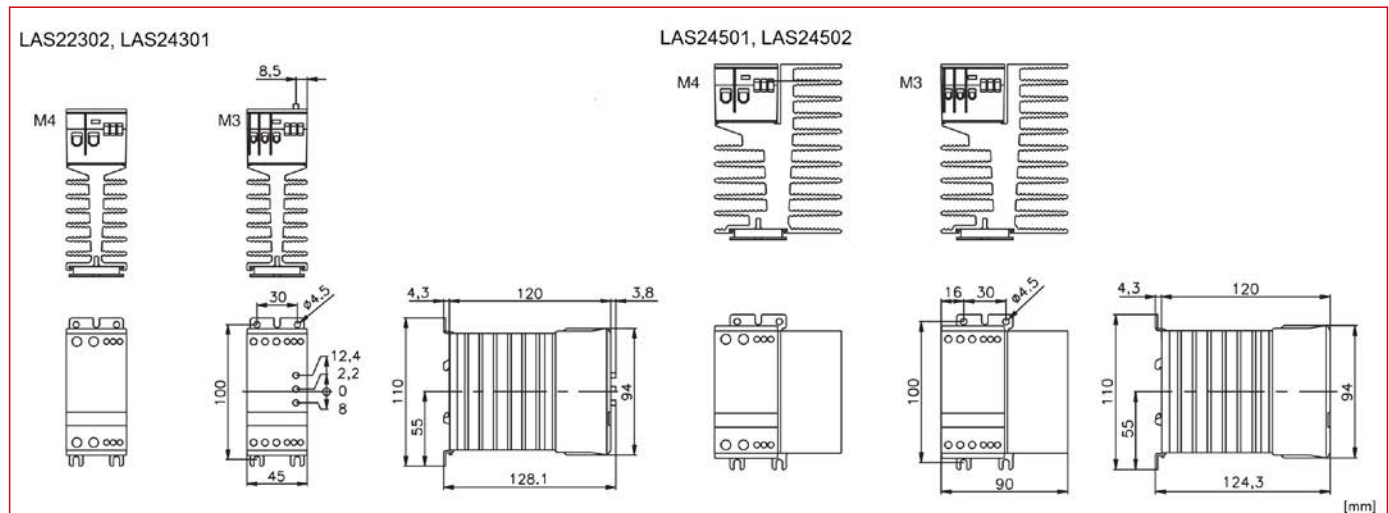
- The noninductive drive and the switching at zero-crossing of voltage are further features that prevents undefined switching status - which are caused by conventional, mechanical contactors.
- Solid state contactors applies to actuating drives, power units with frequently Stop/Start processes as well as to drives with frequently change of rotation direction



Mobil Code

	LAS22302	LAS24301	LAS24501	LAS24502
Main contacts				
Operational voltage	12-240VAC 50/60Hz	24-480VAC 50/60Hz		
Operational current AC-1/51	30A (2x15A)		50A (2x25A)	
Operational current AC-3	15A (2x7.5A)			
Operational current AC-55b	20A (2x10A)			
Operational current AC-56 _A	7A (2x3.5A)			
Control				
Control voltage	24-230VAC/DC	5-24VDC	5-24VDC	24-230VAC/DC
min. response voltage	20.4VAC/DC	4.25VDC	4.25VDC	20.4VAC/DC
min. dropout voltage	7.2VAC/DC	1.5VDC	1.5VDC	7.2VAC/DC
Thermal and mechanical characteristic				
Power loss at PD max.	2.2W/A			
Power loss at periodic duty	2.2W/A x operating cycle			
Cooling	natural convection			
Mounting	vertical +/- 30°			
Mounting distance - vertical mounting	0mm / horizontal min. 80mm			
Mounting distance - horizontal mounting	max. 50% operational current at 0mm (not recommended)			
Operating temperature range according to EN60947-4-3	-5 up to 40°C			
Storage temperature range according to EN60947-4-3	-20 up to 80°C			
Max. operating temperature	60°C			
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C			
Width	45mm	45mm	90mm	90mm
Height	94mm	94mm	94mm	94mm
Depth	128.1mm	128.1mm	124.3mm	124.3mm
Protective gear				
Short-circuit protection installation - fuse	max. 50A gL/gG			
Short-circuit protection Installation and solid-state contactors - fuse	max. 1800A ² s			
Thermal overload protection	optional: LASUP62			

Dimensions



[mm]

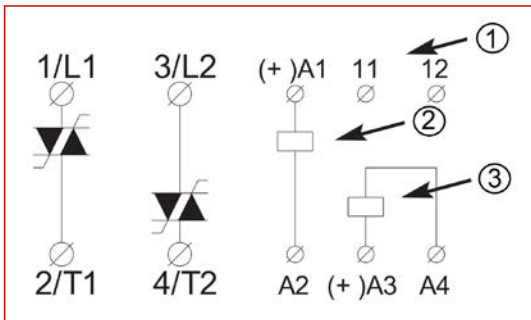
■ Solid State Contactors, 2-phase Controlled

Wiring Connections (Module 45/90mm)
Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / 11 12 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

■ Circuit Diagram



Rated operational current up to 50A AC-1 / 2x15 A AC-3

Two independent single-pole contactors in one housing

- 1) for LASUP62 (see "Accessories for Solid State Contactors and Controllers")
- 2) Control voltage A1-A2
- 3) Control voltage A3-A4

DESCRIPTION	AVAILABLE	ORDER NO.
30A		
2-pole, 2x15A/1x30A/12-230VAC, control voltage 24-230VAC/DC		LAS22302
2-pole, 2x15A/1x30A/24-480VAC, control voltage 5-24VDC		LAS24301
50A		
2-pole, 2x25A/1x50A/24-480VAC, control voltage 5-24VDC		LAS24501
2-pole, 2x25A/1x50A/24-480VAC, control voltage 24-230VAC/DC		LAS24502

Solid State Contactors, 3-phase Controlled



LAS34102



LAS34201

Schrack-Info

Solid state contactors products of Schrack are designed for applications, where silently and bounce-free switching is advantageous and long life span without EMC problems in service is claimed

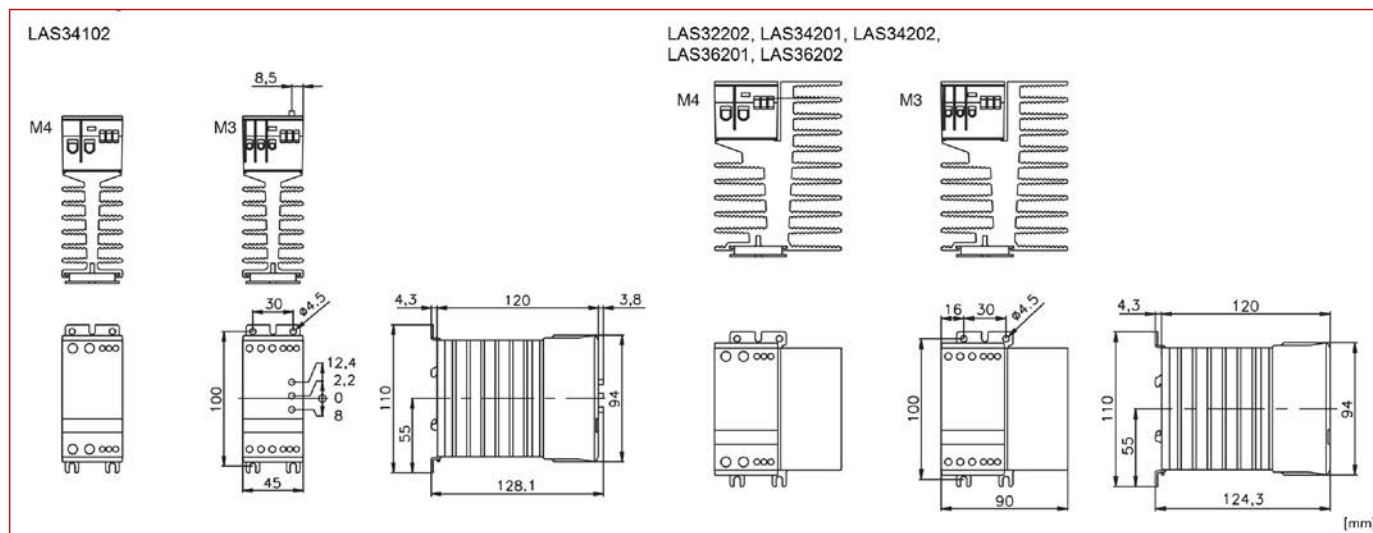
- The noninductive drive and the switching at zero-crossing of voltage are further features that prevents undefined switching status - oftentimes caused by conventional, mechanical contactors.
- Solid state contactors applies to actuating drives, power units with frequently Stop/Start processes as well as to drives with frequently change of rotation direction



Mobil Code

	LAS32202	LAS34102	LAS34201	LAS34202	LAS36201	LAS36202
Main contacts						
Operational voltage	12-240VAC 50/60Hz	24-480VAC 50/60Hz			48-600VAC 50/60Hz	
Operational current AC-1/51	20A	10A	20A	20A	20A	20A
Control						
Control voltage	24-230VAC/DC	5-24VDC	24-230VAC/DC	5-24VDC	24-230VAC/DC	5-24VDC
min. response voltage	20.4VAC/DC	4.25VDC	20.4VAC/DC	4.25VDC	20.4VAC/DC	4.25VDC
min. dropout voltage	7.2VAC/DC	1.5VDC	7.2VAC/DC	1.5VDC	7.2VAC/DC	1.5VDC
Thermal and mechanical characteristic						
Power loss at PD max.	3.3W/A					
Power loss at periodic duty	3.3W/A x operating cycle					
Cooling	natural convection					
Mounting	vertical +/- 30°					
Mounting distance - vertical mounting	0mm / horizontal min. 80mm					
Mounting distance - horizontal mounting	max. 50% operational currents at 0mm (not recommended)					
Operating temperature range according to EN60947-4-3	-5 up to 40°C					
Storage temperature range according to EN60947-4-3	-20 up to 80°C					
Max. operating temperature	60°C					
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C					
Width	90mm	45mm	90mm	90mm	90mm	90mm
Height	94mm	94mm	94mm	94mm	94mm	94mm
Depth	124.3mm	128.1mm	124.3mm	124.3mm	124.3mm	124.3mm
Protective gear						
Short-circuit protection Installation - fuse	max. 50A gL/gG					
Short-circuit protection Installation and solid-state contactors - fuse	max. 450A ² s					
Thermal overload protection	optional: LASUP62					

Dimensions



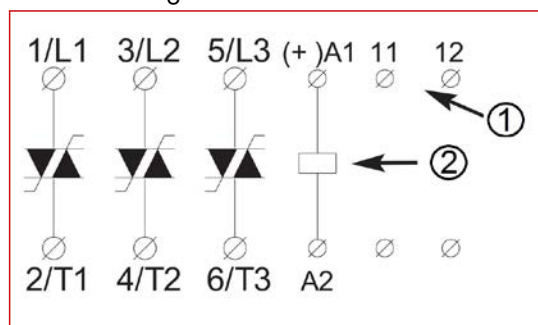
■ Solid State Contactors, 3-phase Controlled

Wiring Connections (Module 45/90mm)
 Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / 11 12 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

■ Circuit Diagram



Rated operational current up to 3x20A AC-1 / 10A AC-3

1) for LASUP62 (see "Accessories for Solid State Contactors and Controllers")

2) Control voltage A1-A2

DESCRIPTION	AVAILABLE	ORDER NO.
10A		
10A/24-480VAC, control voltage 24-230VAC/DC		LAS34102
20A		
20A/12-230VAC, control voltage 24-230VAC/DC		LAS32202
20A/24-480VAC, control voltage 5-24VDC		LAS34201
20A/24-480VAC, control voltage 24-230VAC/DC		LAS34202
20A/48-600VAC, control voltage 5-24VDC		LAS36201
20A/48-600VAC, control voltage 24-230VAC/DC		LAS36202

■ Solid State Contactors for Direct Starting of 3-phase Motors



LAM34154

■ Schrack-Info

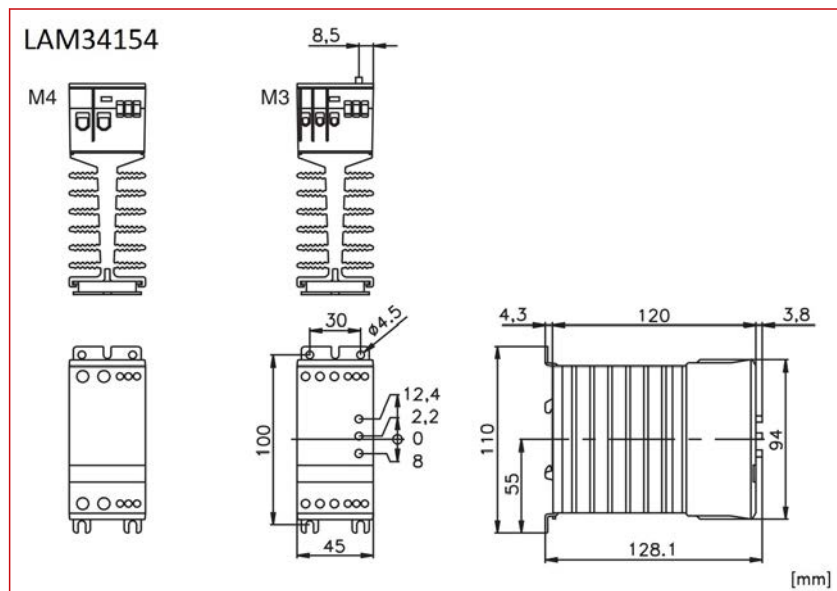
Solid state contactor for direct starting of 3-phase motors fulfills the standard of EN60947-4-2 and has a required space of only 45mm. A control voltage range of 24-60VDC or 24-480VAC and the operational current up to 15A (AC-3, at 40°C) provides a wide range of applications within the realms of "silently switching"



Mobil Code

	LAM34154
Main contacts	
Operational voltage	400-480VAC 50/60Hz
Operational current AC-53/AC-4	15A AC-3
Control	
Control voltage	24-60VDC / 24-480VAC
min. response voltage	20.4VAC/DC
min. dropout voltage	5VAC/DC
Thermal and mechanical characteristic	
Power loss at PD max.	2.2W/A
Power loss at periodic duty	2.2W/A x operating cycle
Cooling	natural convection
Mounting	vertical +/- 30°
Mounting distance - vertical mounting	0mm / horizontal min. 80mm
Mounting distance - horizontal mounting	max. 50% operational currents at 0mm (not recommended)
Operating temperature range according to EN60947-4-3	-5 up to 40°C
Storage temperature range according to EN60947-4-3	-20 up to 80°C
Max. operating temperature	60°C
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C
Width	45mm
Height	94mm
Depth	128.1mm
Protective gear	
Short-circuit protection Installation - fuse	max. 50A gL/gG
Short-circuit protection Installation and solid-state contactor - fuse	max. 1800A ² s
Thermal overload protection	optional: LASUP62

■ Dimensions



[mm]

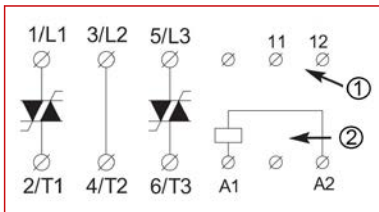
Solid State Contactors for Direct Starting of 3-phase Motors

Wiring Connections (Module 45/90mm)
Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / 11 12 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

Circuit Diagram



1) for LASUP62 (see "Accessories for Solid State Contactors and Controllers")

2) Control voltage A1-A2

DESCRIPTION	AVAILABLE	ORDER NO.
3-pole, 15A/380-480VAC		LAM34154

Solid State Reversing Contactor for Starting of 3-phase Motors



LAW34102

Schrack-Info

Long life span, compact design and unlimited number of cycles per hour characterise these semiconductor based Reversing contactors. The devices apply especially to control of cranes and to conveyor- or packaging machines

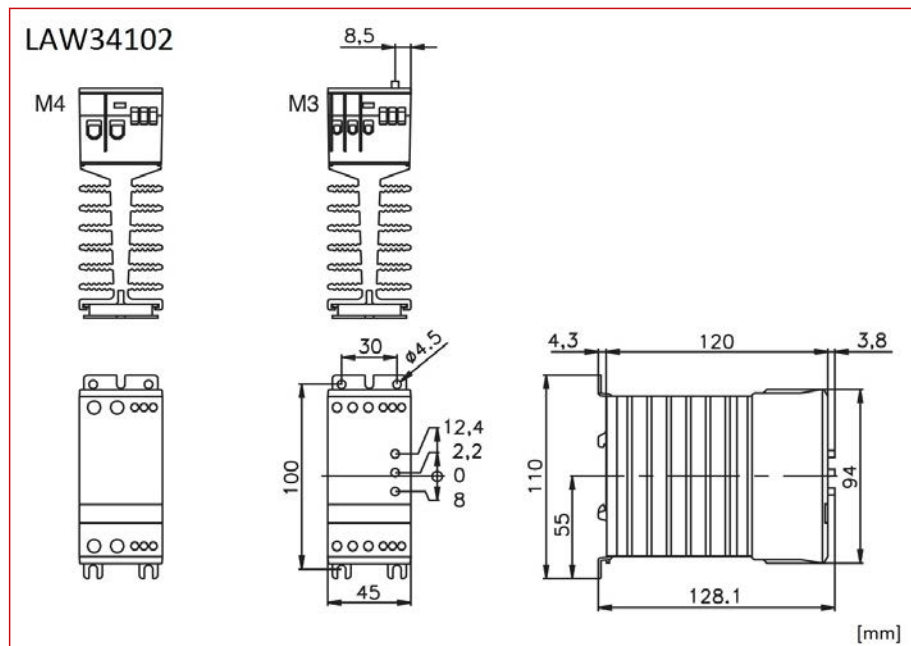


Mobil Code

	LAW34102
Main contacts	
Operational voltage	400-480VAC 50/60Hz
Operational current AC-53, AC-4	10A AC-53/AC-3 / 8A AC-4
Control	
Control voltage	24-230VAC/DC
min. response voltage	20.4VAC/DC
min. dropout voltage	7.2VAC/DC
Thermal and mechanical characteristic	
Power loss at PD max.	2.2W/A
Power loss at periodic duty	2.2W/A x operating cycle
Cooling	natural convection
Mounting	vertical +/- 30°
Mounting distance - vertical mounting	0mm / horizontal min. 80mm
Mounting distance - horizontal mounting	max. 50% Operational currents at 0mm (not recommended)
Operating temperature range according to EN60947-4-3	-5 up to 40°C
Storage temperature range according to EN60947-4-3	-20 up to 80°C
Max. operating temperature	60°C
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C
Width	45mm
Height	94mm
Depth	128.1mm
Protective gear	
Short-circuit protection Installation - fuse	max. 50A gL/gG
Short-circuit protection Installation and solid-state contactor - fuse	max. 450A ² s
Thermal overload protection	optional: LASUP62

Solid State Reversing Contactor for Starting of 3-phase Motors

Dimensions

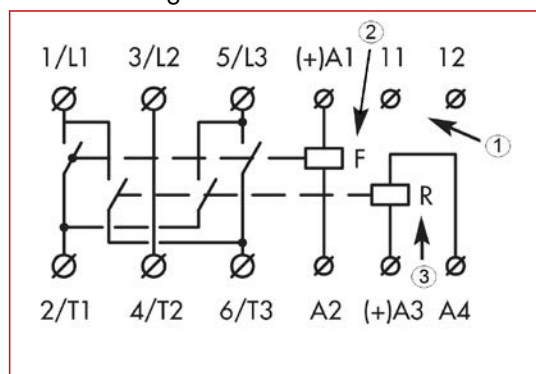


Wiring Connections (Module 45/90mm)
Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / 11 12 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

Circuit Diagram



- 1) for LASUP62 (see "Accessories for Solid State Contactors and Controllers")
- 2) Control voltage, rotation clockwise
- 3) Control voltage, rotation anticlockwise

DESCRIPTION	AVAILABLE	ORDER NO.
3-pole, 10A/24-480VAC/DC		LAW34102

■ Solid State Contactors for Analog Controlled starting of Motors



LAA 14306



Mobil Code

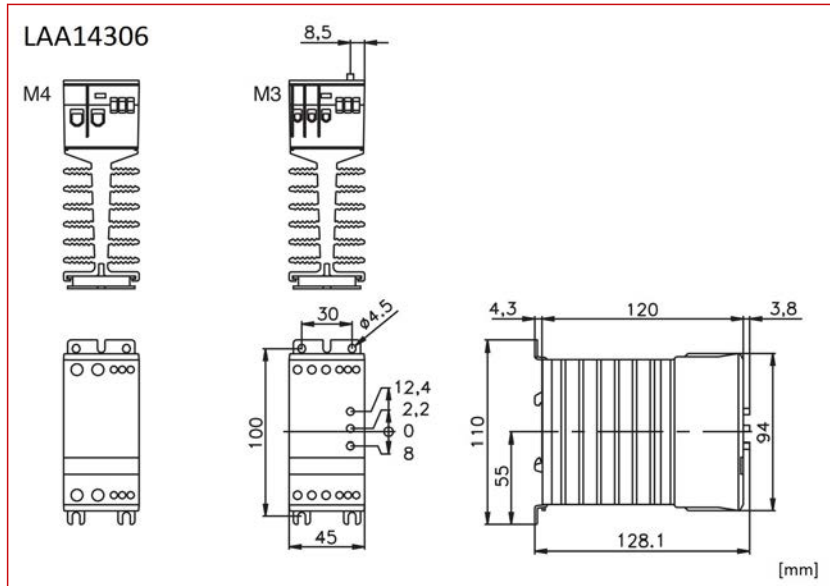
■ Schrack-Info

- The Solid state analog controllers have been designed for analog control of heating elements, infrared lamp radiators applications at the packaging industry.
- The high accuracy at the control of process temperatures is performed by phase angle or shock impuls. Universal control signals are: current loop ... 0-20mA or 4-20mA Control voltage ... 0-10VDC or potentiometer control 10kOhm.

	LAA 14306
Main contacts	
Operational voltage	380-480VAC
Operational current AC-1/51	30A
Operational current AC-55b	30A
Operational current AC-56 _A	30A
Analogue control signals	
Current loop control (voltage drop max. 3V)	0-20mA / 20-0mA
Input resistance (impedance min. 300kOhm)	0-10VDC / 10-0VDC
Manual control with potentiometer	0-10kOhm / 10-0kOhm
External operating voltage / power supply	24VAC/24DC max. 30mA
Thermal and mechanical characteristic	
Power loss at PD max.	1.2W/A
Power loss at periodic duty	1,2W/A x operating cycle
Cooling	natural convection
Mounting	vertical +/- 30°
Mounting distance - vertical mounting	0mm / horizontal min. 80mm
Mounting distance - horizontal mounting	max. 50% operational currents at 0mm (not recommended)
Operating temperature range according to EN60947-4-3	-5 up to 40°C
Storage temperature range according to EN60947-4-3	-20 up to 80°C
Max. operating temperature	60°C
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C
Width	45mm
Height	94mm
Depth	128.1mm
Protective gear	
Short-circuit protection Installation - fuse	max. 50A gL/gG
Short-circuit protection Installation and solid-state contactor - fuse	max. 1800A ² s
Thermal overload protection	optional: LASUP62

Solid State Contactors for Analog Controlled starting of Motors

Dimensions

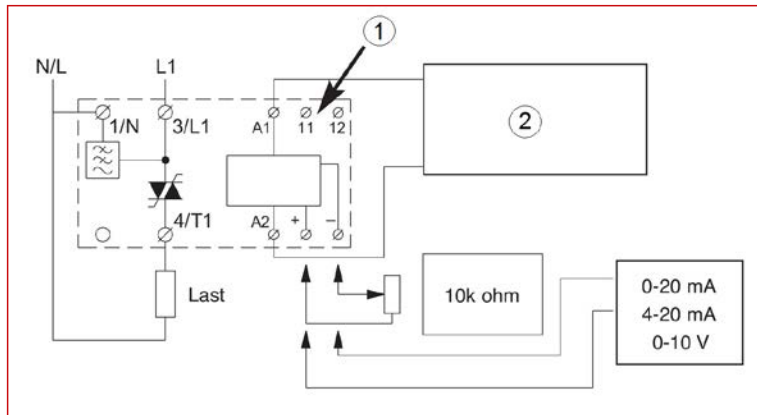


Wiring Connections (Module 45/90mm)
Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / I1 I2 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

Circuit Diagram



- 1) for LASUP62 (see "Accessories for Solid State Contactors and Controllers")
- 2) External power supply 24VAC or 24VDC, max 30mA

DESCRIPTION	AVAILABLE	ORDER NO.
Analogkontroller 50 A		LAA14506

Accessories for Solid State Contactors and Controllers



LASUP62

Schrack-Info

For all Solid state contactor, Motor controllers, Reversing contactors and Analog controllers a Thermal overload relais is recommended. The optional thermal protection unit has to be snapped directly into the allocated space of device and wired to its accoding terminals. At overheating of Solid state contactor, the thermal protection unit disconnects the supply. Reset can be done manually or automatically according cooling down status of drive.



Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Thermal overload protection / thermostat		LASUP62

Torque limiters



LAD34150



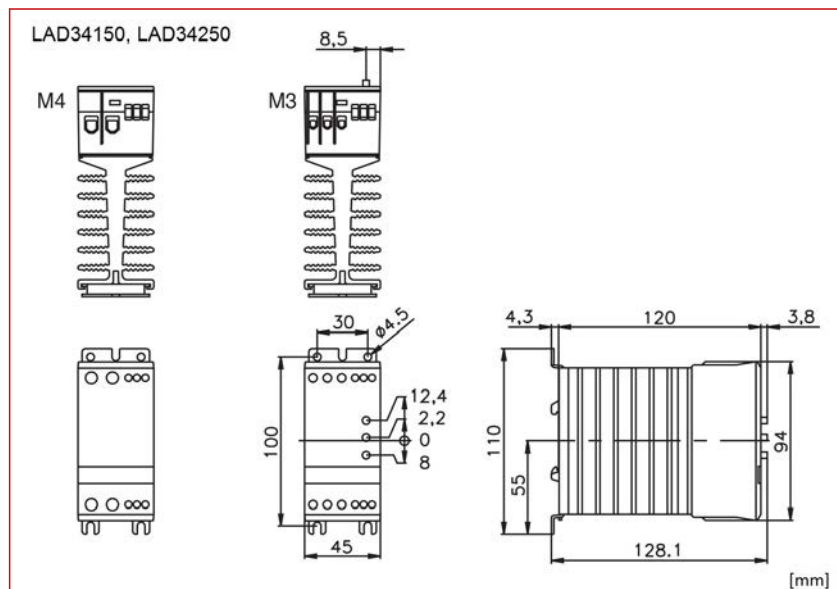
Mobil Code

Schrack-Info

Torque limiter reduces by adjusting the starting torque the mechanical strain of drive is essentially reduced. Same design of devices for 1- and 3-phase motors with adjustable running up time of 0.5 up to 5 seconds. Also the torque at starting is adjustable.

	LAD34150	LAD34250
Main contacts		
Operational voltage	400-480VAC 50/60Hz	
Operational current AC-53a	15A AC-53a	25A AC-53a
Leak current	5mA AC	
min. operational current	50mA	
Class index AC-52a	X-Tx:8-3 : 100-3000	
Overload relay protection class AC-53a	10 or 10A	
Thermal and mechanical characteristic		
Power loss at PD max.	1W/A	
Power loss at periodic duty	1W/A x operating cycle	
Cooling	natural convection	
Mounting	vertical +/- 30°	
Mounting distance - vertical mounting	0mm / horizontal min. 80mm	
Mounting distance - horizontal mounting	max. 50% Operational currents at 0mm (not recommended)	
Operating temperature range according to EN60947-4-3	-5 up to 40°C	
Storage temperature range according to EN60947-4-3	-20 up to 80°C	
Max. operating temperature	60°C	
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C	
Width	45mm	
Height	94mm	
Depth	128.1mm	
Protective facilities		
Short-circuit protection Installation - fuse	max. 50A gL/gG	max. 80A gL/gG
Short-circuit protection Installation and solid-state contactor - fuse	max. 1800A ² s	max. 6300A ² s
Thermal overload protection	optional: LASUP62	

Dimensions



Torque Limiters and Soft Starters

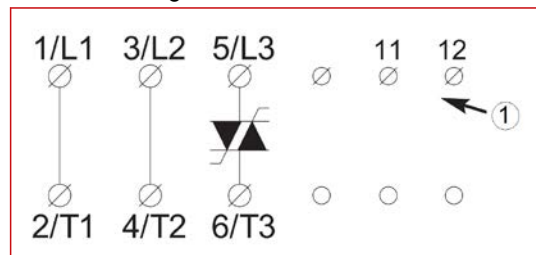
Torque limiters

Wiring Connections (Module 45/90mm)
Wiring type with or without cable/sleeves and other type of terminals *UL tested

L1 T1 / L2 T2 / L3 T3 M4 Power terminals	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3 M3 Power terminals	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / I1 I2 Input terminals	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

Circuit Diagram



1) for LASUP62 (see "Accessories for Torque limiters and Soft starters")

DESCRIPTION	AVAILABLE	ORDER NO.
15A/230-480VAC		LAD34150
25A/230-480VAC		LAD34250

Softstarter, 2-phase Controlled



LAK34155



LAK34255



Mobil Code

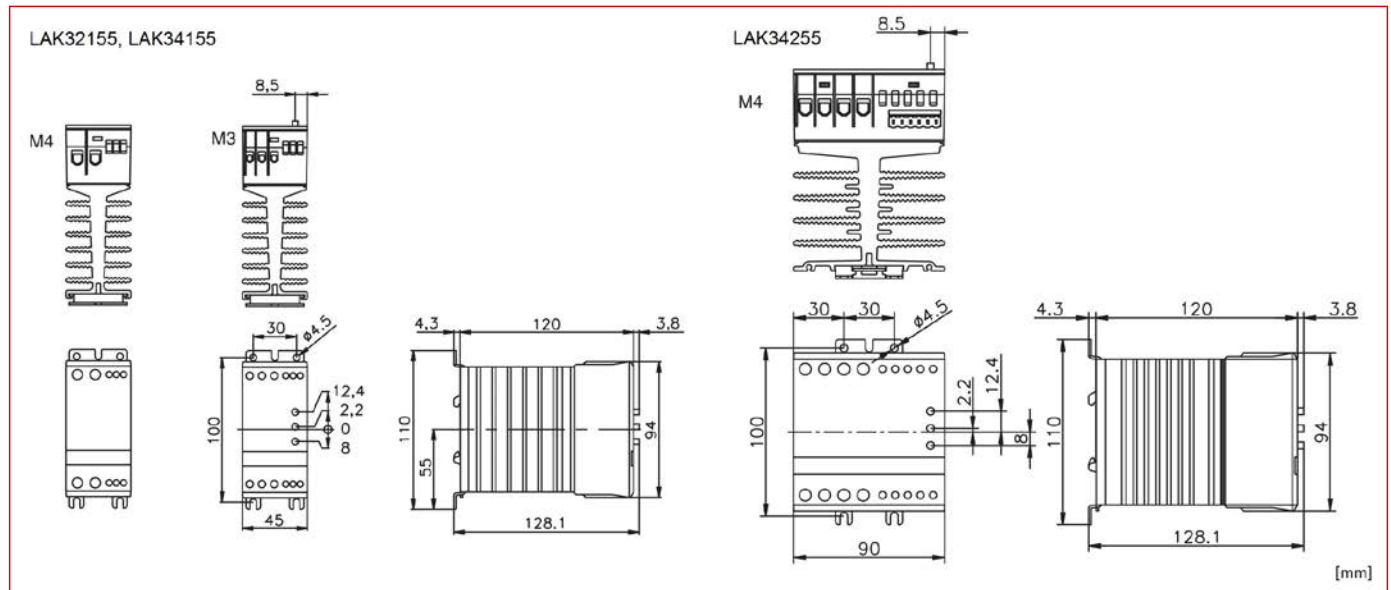
Schrack-Info

- The reduction of mechanical strikes at starting and vibrations during operation are only two aspects for the application of semiconductor based Softstarters. Not necessary replacement of Y-D assemblies, variable ratio transformers or series resistors and therefore increased flexibility makes Softstarters to an efficient solution. A wide range of products for variable power with rated currents up to 200A is available.
- Scopes of application are compressors, conveyors, water pumps and fans


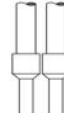
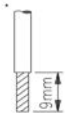
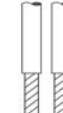



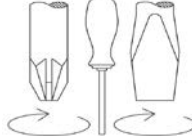
	LAK32155	LAK34155	LAK34255
Main contacts			
Operational voltage	208-240VAC 50/60Hz	400-480VAC 50/60Hz	
Operational current AC-53a (without bypass)	15A	15A	25A
Operational current AC-53b (with bypass)	-	-	-
Connection	3-conductor		
Class index AC-53a (without bypass)	X-Tx: 8-3 : 100-3000		
	8x rated current for max. 3s		
	100% duty cycle, 3000 Switching cycles / h		
Load class	10 or 10A		
Leakage current	max. 5mA		
Load current	min. 50mA		
Start time setting range	0.5-10s		
Stop time setting range	0.5-10s		
Torque adjustment	0-85% of the nominal torque Kick-Start (200ms)		
Thermal overload relay	extern		
Control			
Control voltage	24-230VAC/DC	24-480VAC/DC	
Active control range	-		
Inactive control range	-		
Max. response voltage	20.4VAC/DC		
Min. dropout voltage	5VAC/DC		
Max. current for no operation	1mA		
Max. response time	70ms		
Max. current / power	15mA / 2VA		
Thermal and mechanical characteristic			
Power loss at PD max., without bypass	2W/A without Bypass		
Power loss at bridged contactor	max. 4W		
Cooling	natural convection		
Mounting	vertical +/- 30°		
Mounting distance - vertical mounting	0mm / horizontal min. 80mm		
Mounting distance - horizontal mounting	max. 50% operational currents at 0mm (not recommended)		
Operating temperature range according to EN60947-4-3	-5 up to 40°C		
Storage temperature range according to EN60947-4-3	-20 up to 80°C		
Max. operating temperature	60°C		
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C		
Rated insulation voltage U _i	660V		
Impulse withstand voltage U _{imp}	4kV		
Installation category	III		
Degree of protection	IP20		
Degree of pollution	3		
Width	45mm	45mm	90mm
Height	94mm	94mm	94mm
Depth	128.1mm	128.1mm	128.1mm
Weight	690g	690g	1150g
Material	enclosure: PPO UL94V1; heat sink: aluminium; base plate: galvanized steel		
Protective equipment			
Short-circuit protection installation - fuse	50A gL/gG	50A gL/gG	80A gL/gG
Short-circuit protection installation and solid-state contactor - fuse	1800A ² s	1800A ² s	6300A ² s
Thermal overload protection	LASUP62		

Softstarter, 2-phase Controlled

Dimensions

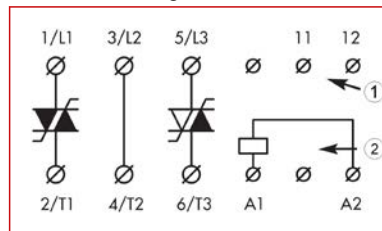


Wiring Connections (Module 45/90mm)
Wiring type with or without cable/sleeves and other type of terminals *UL tested

									
L1 T1 / L2 T2 / L3 T3	1 x 1.5 - 6 mm ²	2 x 1.5 - 6 mm ²	1 x 1.5 - 16 mm ²	2 x 1.5 - 6 mm ²	1 x 1 - 16 mm ²	2 x 1 - 6 mm ²	N.A.	Pozidriv 2 1.2Nm max.	6mm 1.2Nm max.
L1 T1 / L2 T2 / L3 T3	1 x 0.75 - 4 mm ²	2 x 1 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 2,5 mm ²	1 x 0.75 - 6 mm ²	2 x 0.75 - 1.5 mm ²	N.A.	Pozidriv 1 0.5Nm max.	4mm 0.5Nm max.
A1 A2 / 11 12	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 0.75 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	1 x 0.5 - 1.5 mm ²	2 x 0.5 - 1.5 mm ²	N.A.	N.A.	3mm 0.5Nm max.



Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

Circuit Diagram



1) for LASUP62 (see "Accessories for Torque limiters and Soft starters")

2) Control voltage

DESCRIPTION	AVAILABLE	ORDER NO.
3-pole, 2-phase controlled, 15A, 400-480VAC		LAK34155
3-pole, 2-phase controlled, 25A, 400-480VAC		LAK34255

Softstarter, 2-phase Controlled with Integrated Bypass



LAKA....

Schrack-Info

- The reduction of mechanical strikes at starting and vibrations during operation are only two aspects for the application of semiconductor based Softstarters. Not necessary replacement of Y-D assemblies, variable ratio transformers or series resistors and therefore increased flexibility makes Softstarters to an efficient solution. A wide range of products for variable power with rated currents up to 200A is available.
- Scopes of application are compressors, conveyors, water pumps and fans

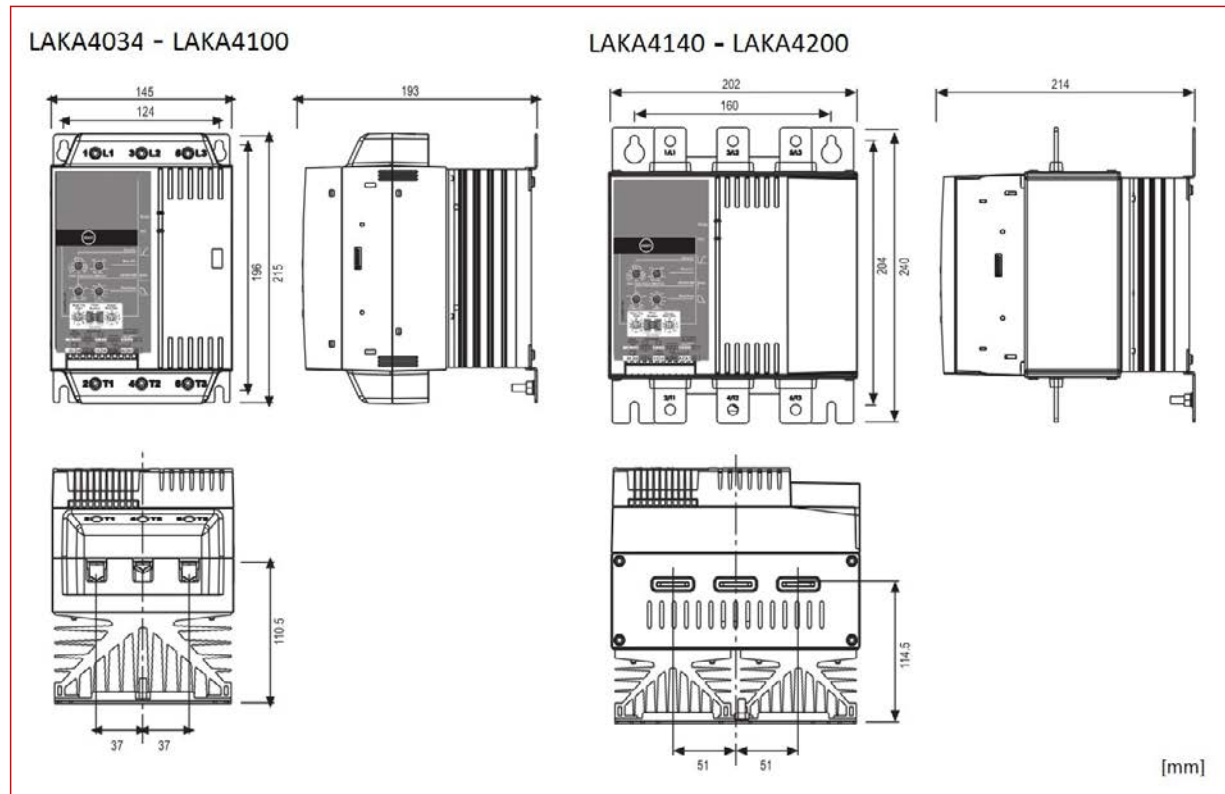


Mobil Code

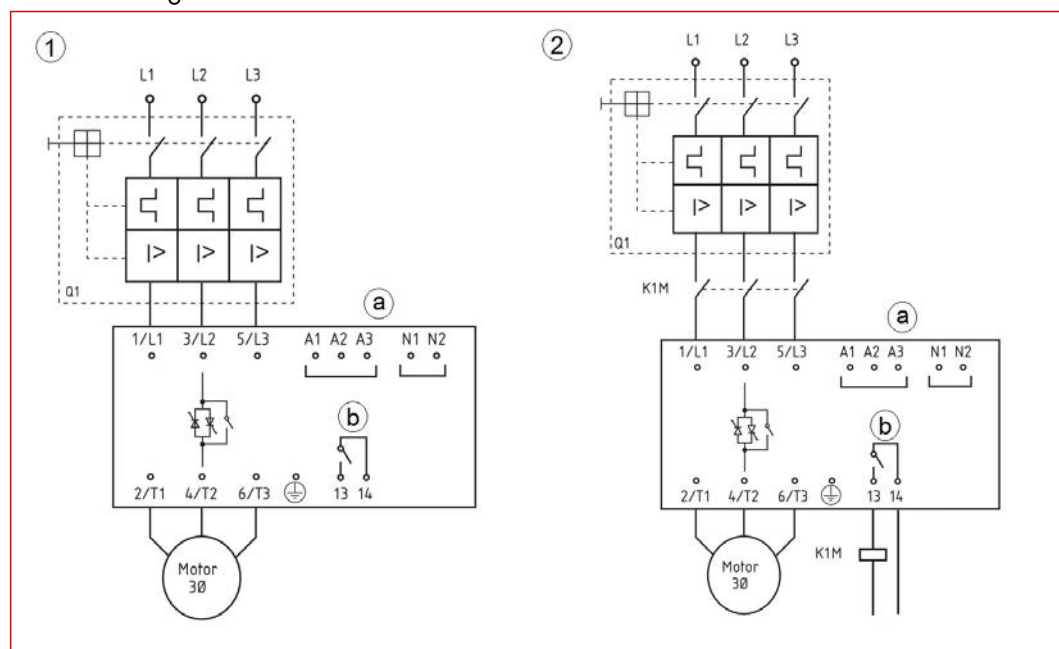
LAKA4			
Main contacts			
Operational voltage	3 x 200VAC - 440VAC (+10%/-15%) / 45-66Hz		
	Operational current AC-53b (with bypass) - normal operation		
	at 40°		
	at 50°		
Operational current AC-53b (with bypass)	LAKA4034	34A	31A
	LAKA4042	42A	38A
	LAKA4048	48A	44A
	LAKA4060	60A	55A
	LAKA4075	75A	69A
	LAKA4085	85A	78A
	LAKA4100	100A	100A
	LAKA4140	140A	133A
	LAKA4170	170A	157A
	LAKA4200	200A	186A
Class index 53b	4-6:594		
	4x rated current for max. 6s		
	min. 594s between start cycles		
Connection	3-wire		
Thermal overload relay	not integrated		
Control			
Control voltage	100-240VAC (+10%/-15%) / 380-440VAC (+10%/-15%)		
Power consumption - normal operation	≤100mA		
Power consumption - start	≤10mA		
Terminal Start N1	NO contact, max. 300VAC		
Terminal Stop N2	NC contact, max. 300VAC		

Softstarter, 2-phase Controlled with Integrated Bypass

Dimensions



Circuit Diagram



Examples:

- 1) LAKA soft starter installed with a motor protection switch/circuit breaker
- 2) LAKA soft starter installed with a motor protection switch/circuit breaker and line contactor K1M

a) Control voltage

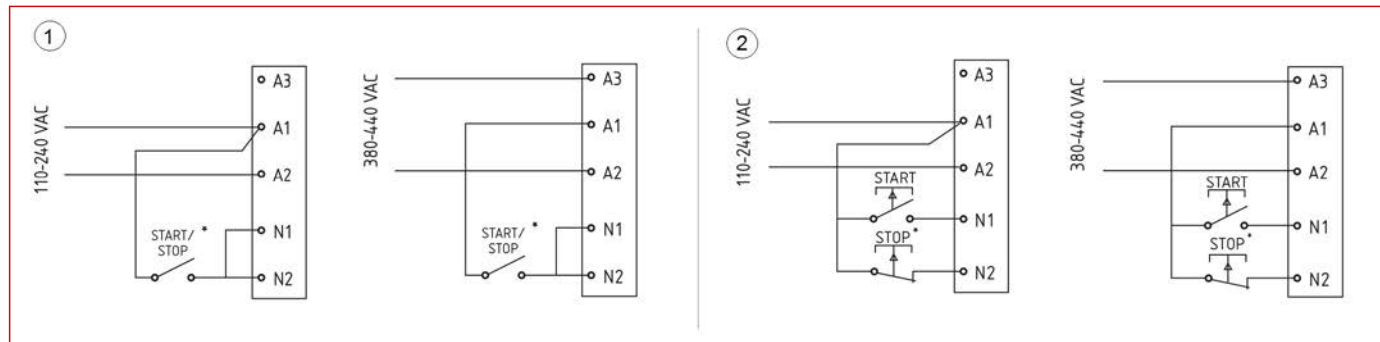
b) Control contacts 13-14:

max 6A at 30VDC/AC11

max 2A at 400VAC/AC11

Softstarter, 2-phase Controlled with Integrated Bypass

Control Circuits



- 1) Two wire control
- 2) Three wire control
- *Also resets the soft starter

DESCRIPTION	AVAILABLE	ORDER NO.
3-pole, 2-phase controlled 200-440V/34A without motor protection		LAKA4034
3-pole, 2-phase controlled 200-440V/42A without motor protection		LAKA4042
3-pole, 2-phase controlled 200-440V/48A without motor protection		LAKA4048
3-pole, 2-phase controlled 200-440V/60A without motor protection		LAKA4060
3-pole, 2-phase controlled 200-440V/75A without motor protection		LAKA4075
3-pole, 2-phase controlled 200-440V/85A without motor protection		LAKA4085
3-pole, 2-phase controlled 200-440V/100A without motor protection		LAKA4100
3-pole, 2-phase controlled 200-440V/140A without motor protection		LAKA4140
3-pole, 2-phase controlled 200-440V/170A without motor protection		LAKA4170
3-pole, 2-phase controlled 200-440V/200A without motor protection		LAKA4200

Softstarter, 2-phase Controlled with integrated Bypass and Function "Motor Protection"



LAKS....

Schrack-Info

- The reduction of mechanical strikes at starting and vibrations during operation are only two aspects for the application of semiconductor based Softstarters. Not necessary replacement of Y-D assemblies, variable ratio transformers or series resistors and therefore increased flexibility makes Softstarters to an efficient solution. A wide range of products for variable power with rated currents up to 200A is available.
- Scopes of application are compressors, conveyors, water pumps and fans



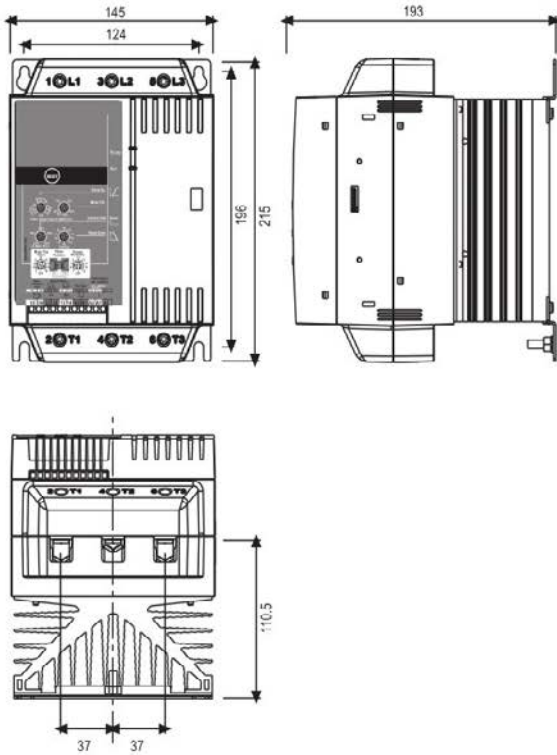
Mobil Code

		LAKS4	
Main contacts			
Operational voltage		3 x 200VAC - 440VAC (+10%/-15%) / 45-66Hz	
		Operational current AC-53b (with bypass) - normal operation	
			at 40°
			at 50°
	LAKS034	34A	31A
	LAKS042	42A	38A
	LAKS048	48A	44A
	LAKS060	60A	55A
	LAKS075	75A	69A
	LAKS085	85A	78A
	LAKS100	100A	100A
	LAKS140	140A	133A
	LAKS170	170A	157A
	LAKS200	200A	186A
		4-6:594	
		4x rated current for max. 6s	
		min. 594s between start cycles	
		3-wire	
		integrated	
Control			
Control voltage		100-240VAC (+10%/-15%) / 380-440VAC (+10%/-15%)	
Power consumption - normal operation		≤100m	
Power consumption - start		≤10mA	
Terminal Start N1		NO contact, max. 300VAC	
Terminal Stop N2		NC contact, max. 300VAC	
Class index 53b			
Operational current AC-53b (with bypass)			
Connection			
Thermal overload relay			

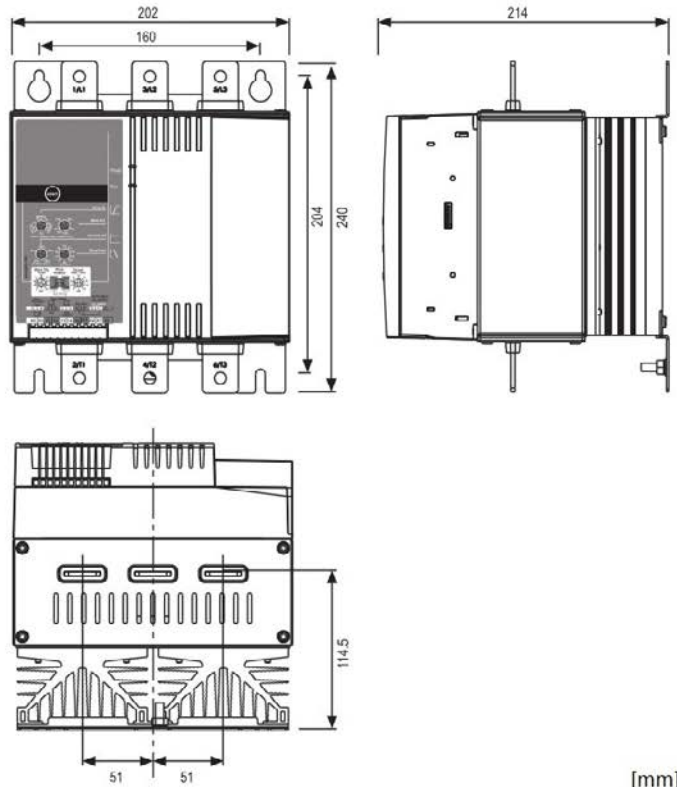
Softstarter, 2-phase Controlled with integrated Bypass and Function "Motor Protection"

Dimensions

LAKS4034 - LAKS4100



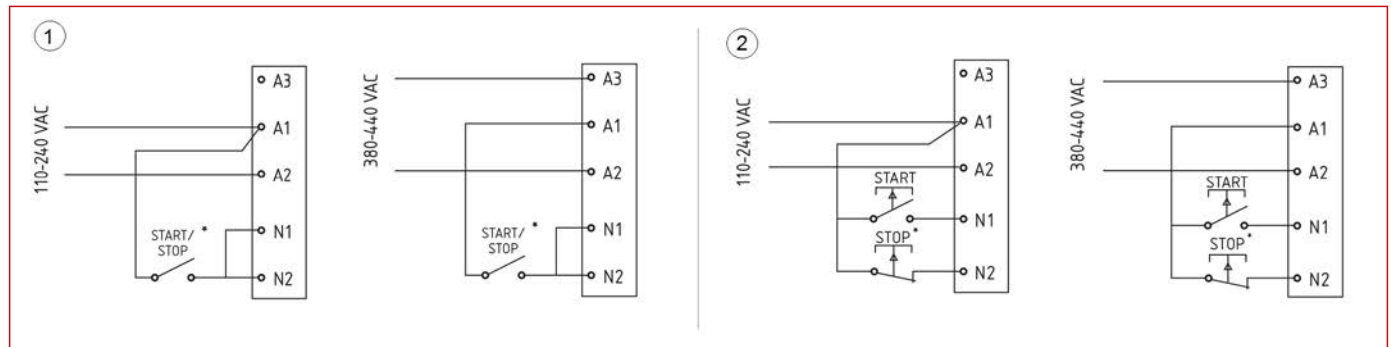
LAKS4140 - LAKS4200



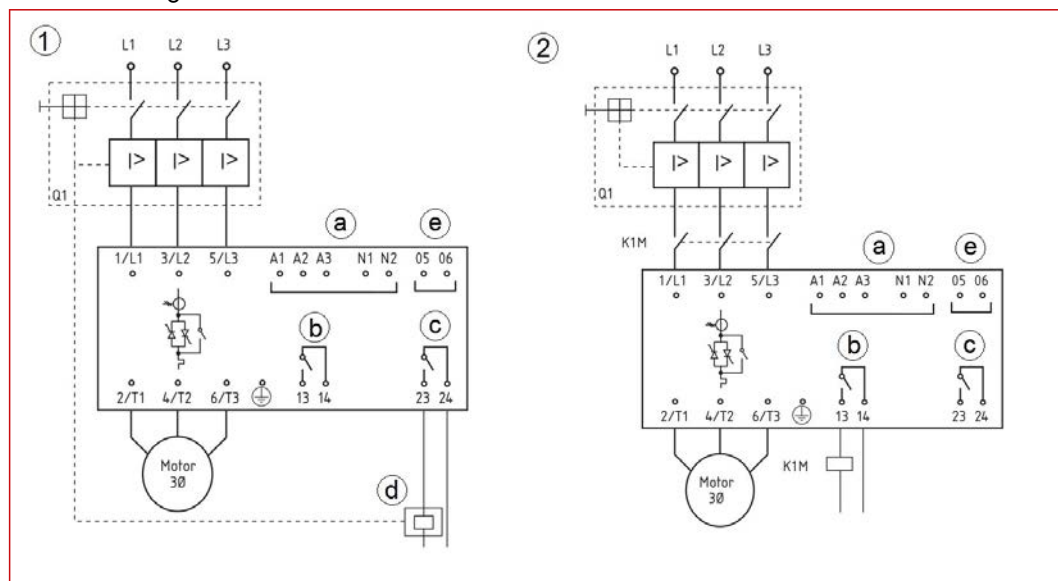
[mm]

Softstarter, 2-phase Controlled with integrated Bypass and Function "Motor Protection"

Control Circuits



Circuit Diagram



Examples:

- 1) LAKS soft starter installed with a system protection circuit breaker complete with a shunt trip device
 - 2) LAKS soft starter installed with a system protection circuit breaker and line contactor K1M
- a) Control voltage
 b) Control contacts 13-14:
 max 6A at 30VDC/AC11
 max 2A at 400VAC/AC11
- c) Auxiliary contact for "Trip"
 d) shunt release
 e) thermistor connection

- 1) Two wire control
 - 2) Three wire control
- *Also resets the soft starter

DESCRIPTION	AVAILABLE	ORDER NO.
3-pole, 2-phase controlled 200-440V/34A with motor protection		LAKS4034
3-pole, 2-phase controlled 200-440V/42A with motor protection		LAKS4042
3-pole, 2-phase controlled 200-440V/48A with motor protection		LAKS4048
3-pole, 2-phase controlled 200-440V/60A with motor protection		LAKS4060
3-pole, 2-phase controlled 200-440V/75A with motor protection		LAKS4075
3-pole, 2-phase controlled 200-440V/100A with motor protection		LAKS4100
3-pole, 2-phase controlled 200-440V/140A with motor protection		LAKS4140
3-pole, 2-phase controlled 200-440V/170A with motor protection		LAKS4170
3-pole, 2-phase controlled 200-440V/200A with motor protection		LAKS4200

Softstarter, 3-phase Controlled



LATB4355



LATD4605



Mobil Code

Schrack-Info

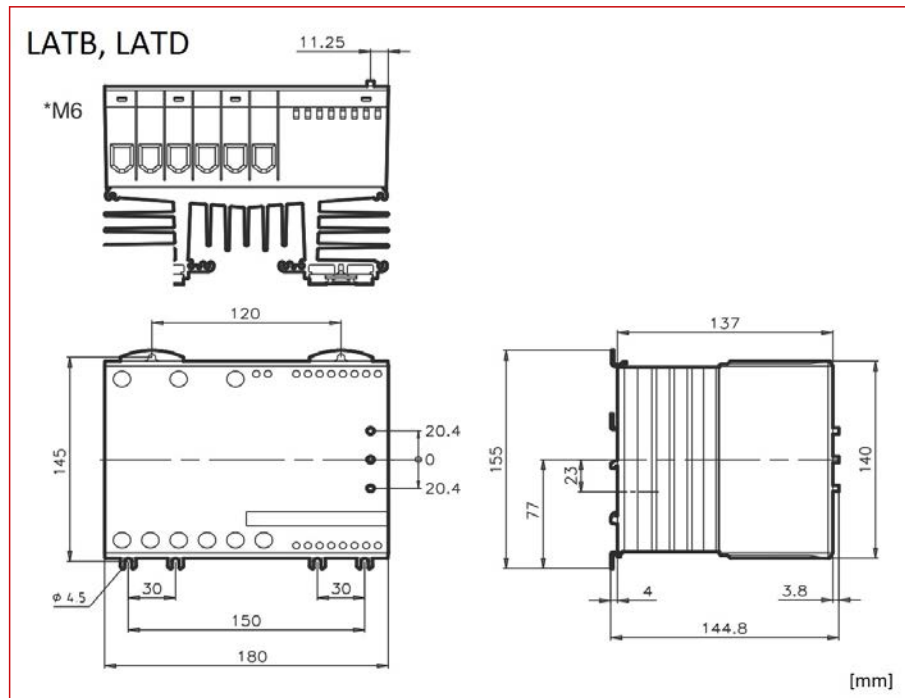
- The reduction of mechanical strikes at starting and vibrations during operation are only two aspects for the application of semiconductor based Softstarters. Not necessary replacement of Y-D assemblies, variable ratio transformers or series resistors and therefore increased flexibility makes Softstarters to an efficient solution. A wide range of products for variable power with rated currents up to 200A is available.
- Scopes of application are compressors, conveyors, water pumps and fans

	LATB4355	LATD4605
Main contacts		
Line voltage	400-480VAC 50/60Hz	
Operational current AC-53a (without Bypass)	35A	60A
Operational current AC-53b (with Bypass)	50A	86A
Connection	3-wires	6-wires (Wurzel3)
Class index AC-53a (without Bypass)	X-Tx: 6-6 : 100-120	
	6x rated current for max. 6s	
	100% duty cycle, 120 switching cycles / h	
Class index AC-53b (with Bypass)	X-Tx: 6-6 : 30	
	6-facher rated current for max. 6s	
	min. 30s between start cycles	
Load class	10 or 10A	
Leakage current	max. 5mA	
Load current	min. 50mA	
Start time setting range	0.5-30s	
Stop time setting range	0.5-60s	
Torque adjustment	0-85% of the nominal torque Kick-Start (200ms)	
Thermal overload relay	extern	
Control		
Control voltage	24-480 VAC/DC	
Active control range	24-528 VAC/DC	
Inactive control range	0-5 VAC/DC	
Max. response voltage	-	
Min. dropout voltage	-	
Max. current for no operation	1mA	
Max. response time	70ms	
Max. current / power	15mA / 2VA	
Thermal and mechanical characteristic		
Power loss at PD max., without bypass	3W/A without bypass	
Power loss at bridged contactor	5W/A with bypass	
Cooling	natural convection	
Mounting	vertical +/- 30°	
Mounting distance - vertical mounting	0mm / horizontal min. 80mm	
Mounting distance - horizontal mounting	max. 50% operational currents at 0mm (not recommended)	
Operating temperature range according to EN60947-4-3	-5 up to 40°C	
Storage temperature range according to EN60947-4-3	-20 up to 80°C	
Max. operating temperature	60°C	
Derating	100% at 40°C, 80% at 50°C, 70% at 60°C	
Rated insulation voltage U _i	660V	
Impulse withstand voltage U _{imp}	4kV	
Installation category	III	
Degree of protection	IP20	
Pollution degree	3	

Softstarter, 3-phase Controlled

	LATB4355	LATD4605
Width	180mm	180mm
Height	140mm	140mm
Depth	144.8mm	144.8mm
Weight	2700g	2700g
Material	enclosure: PPO UL94V1; heat sink: aluminium; base plate: galvanized steel	
Protective equipment		
Short-circuit protection installation - fuse	125A gL/gG	125A gL/gG
Short-circuit protection installation and solid-state contactor - fuse	25300A ² s	25300A ² s
Thermal overload protection	LASUP62	

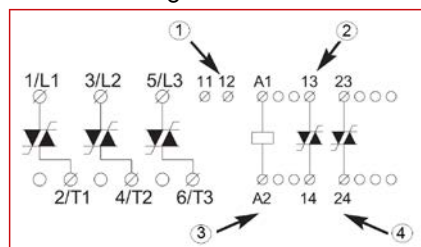
Dimensions



Wiring type with or without cable/sleeves and other type of terminals									
L1 T1 / L2 T2 / L3 T3	1 x 4 - *35mm ²	2 x 2 - 16mm ²	1 x 4 - 35mm ²	2 x 4 - 10mm ²	1 x 4 - *50mm ²	2 x 4 - 16mm ²	N.A.	Pozidriv 3	N.A.
M6 Power terminals	4Nm, *5,5Nm max.								

Important: When using electric or pneumatic tools for screw terminals observe the maximum torque limits

Circuit Diagram



- 1) for LASUP62 (see "Accessories for Torque limiters and Soft starters")
- 2) Connections 13-14: for Start/Stop function
- 3) Control voltage A1-A2
- 4) Connections 23-24: for bypass protection

DESCRIPTION	AVAILABLE	ORDER NO.
35A/400-480VAC		LATB4355
60A/400-480VAC		LATD4605

Accessories for Torque Limiters and Soft Starters




LASUP62

Schrack-Info

For all Solid state contactor, Motor controllers, Reversing contactors and Analog controllers a Thermal overload relais is recommended. The optional thermal protection unit has to be snapped directly into the allocated space of device and wired to its accoding terminals. At overheating of Solid state contactor, the thermal protection unit disconnects the supply. Reset can be done manually or automatically according cooling down status of drive.



Mobil Code

DESCRIPTION	AVAILABLE	ORDER NO.
Thermal overload protection / thermostat		LASUP62

Index

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Fuse Carrier 3 pole, 32A, 10x38



IS506103--

1

PUSH-WIRE connection terminal 5x 0,5-2,5mm²

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




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<p>Fuse Carrier 1 pole, 32A, 10x38</p>   <p>B506101--</p>	<p>Fuse Carrier 2 pole, 32A, 10x38</p>   <p>B506102--</p>	<p>Fuse Carrier 3 pole, 32A, 10x38</p>   <p>B506103--</p>
<p>HRC fuse element, size 00, 63A, 400V AC</p>   <p>B5000563--</p>	<p>HRC fuse element, size 00, 100A, 400V AC</p>   <p>B500100--</p>	<p>HRC fuse element, size 00, 125A, 400V AC</p>   <p>B500102--</p>
<p>Cylindrical fuse link 10x38, 2A, characteristic gD, 500V AC</p>   <p>B5210002--</p>	<p>Cylindrical fuse link 10x38, 4A, characteristic gD, 500V AC</p>   <p>B5210004--</p>	<p>Cylindrical fuse link 10x38, 6A, characteristic gD, 500V AC</p>   <p>B5210006--</p>
<p>Single-phase Power Supply, pushing, 230VAC / 240VDC, 2.5A at 50°C</p>   <p>IF412402--</p>	<p>Single-phase Power Supply, pushing, 230VAC / 240VDC, 3.5A at 50°C</p>   <p>IF412402--</p>	<p>Contactor 4SW / 9A AC-3, 230VAC, 50/60Hz, size 0</p>   <p>LS000933--</p>

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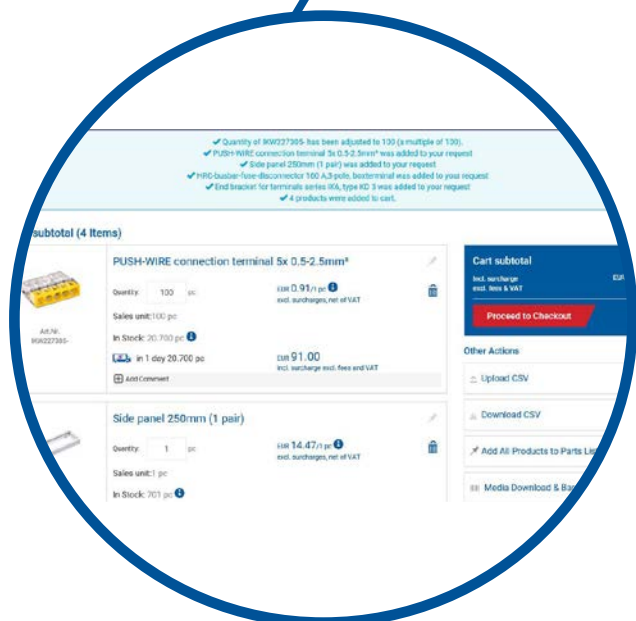


Connect and transfer the data to the Online Shop

- Open software.
- Connect scanner.
- Transfer data.

2

3



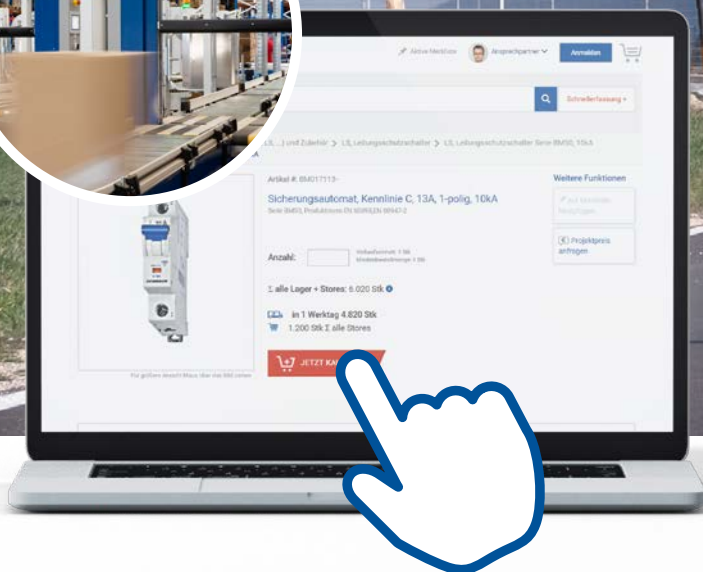
Order in the Web Shop

- Transfer article list directly to the Shop.
- Adjust quantity if necessary.
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General Terms of Delivery

issued by the Austrian Electrical and Electronics Industry Association (FEEI)



1. Scope

- 1.1. These General Terms shall govern legal transactions between business enterprises, namely the delivery of commodities and, mutatis mutandis, the rendering of services. Software transactions are with precedence governed by the Software Conditions issued by the Austrian Electrical and Electronics Industry Association, assembly work by the Terms and Conditions for Assembly Work issued by the Austrian Power Current and Light Current Engineering Industry and/or (where applicable) the Terms and Conditions for the Assembly of Electrical Equipment used in Medicine issued by the Austrian Electrical and Electronics Industry (the current versions are available at www.feei.at).
- 1.2. Any departure from the terms and conditions mentioned in 1.1 above shall be valid only if expressly accepted in writing by Seller.

2. Submission of offers

- 2.1. Seller's offers shall be deemed offers without engagement.
- 2.2. Tender documents and project documentation must not be duplicated nor made available to third parties without the permission of Seller. They may be claimed back at any time and shall be returned to Seller immediately if the order is placed elsewhere.

3. Conclusion of contract

- 3.1. The contract shall be deemed concluded upon written confirmation by Seller of an order received or upon dispatch of a delivery.
- 3.2. Particulars appearing in catalogues, folders etc. as well as any oral or written statements shall only be binding if Seller makes express reference to them in the confirmation of the order.
- 3.3. Subsequent amendments of or additions to the contract shall be subject to written confirmation.

4. Prices

- 4.1. Prices shall be quoted ex works or ex Seller's warehouse without VAT, packing and packaging, loading, disassembly, take-back and proper recycling and disposal of waste electrical and electronic equipment for commercial purposes as defined by the Ordinance Regulating the Handling of Waste Electrical Equipment. Buyer shall be liable for any and all charges, taxes or other duties levied in respect of delivery. If the terms of delivery include transport to a destination designated by Buyer, transport costs as well as the cost of any transport insurance desired by Buyer shall be borne by the latter. Delivery does not, however, include unloading and subsequent handling. Packaging materials will be taken back only by express agreement.
- 4.2. Seller reserves the right to modify prices if the order placed is not in accordance with the offer submitted.
- 4.3. Prices are based on costs obtaining at the time of the first quotation. In the event that the costs have increased by the time of delivery, Seller shall have the right to adjust prices accordingly.
- 4.4. In carrying out repair orders, Seller shall provide all services deemed expedient and shall charge Buyer for the same on the basis of the work input and/or expenditures required. The same holds for any services or additional services the expediency of which becomes apparent only as the repair order is executed. In such an event special notification of Buyer shall not be required.
- 4.5. Expenses for estimates of costs of repair and maintenance or for expert valuations shall be invoiced to Buyer.

5. Delivery

- 5.1. The period allowed for delivery shall commence at the latest of the following dates:
 - a) the date of order confirmation by Seller;
 - b) the date of fulfilment by Buyer of all the conditions, technical, commercial and other, for which he is responsible;
 - c) the date of receipt by Seller of a deposit or security due before delivery of the goods in question.
- 5.2. Buyer shall obtain whatever licences or approvals may be required from authorities or third parties for the construction of plant and equipment. If the granting of such licences or approvals is delayed for any reason the delivery period shall be extended accordingly.
- 5.3. Seller may carry out, and charge Buyer for, partial or advance deliveries. If delivery on call is agreed upon, the commodity shall be deemed called off at the latest one year after the order was placed.
- 5.4. In case of unforeseeable circumstances or circumstances beyond the parties control, such as all cases of force majeure, which impede compliance with the agreed period of delivery, the latter shall be extended in any case for the duration of such circumstances; these include in particular armed conflicts, official interventions and prohibitions, delays in transport or customs clearance, damages in transit, energy shortage and raw materials scarcity, labour disputes, and default on performance by a major component supplier who is difficult to replace. The aforesaid circumstances shall be deemed to prevail irrespective of whether they affect Seller or his subcontractor(s).
- 5.5. If a contractual penalty for default of delivery was agreed upon by contracting parties when the contract was concluded, it shall be executed as follows, and any deviations concerning individual items shall not affect the remaining provisions: Where delay in performance can be shown to have occurred solely through the fault of Seller, Buyer may claim for each completed week of delay an indemnity

of at most one half of one per cent, a total of no more than 5 %, however, of the value of that part of the goods to be delivered which cannot be used on account of Seller's failure to deliver an essential part thereof, provided the Buyer has suffered a damage to the aforesaid extent. Assertion of rights of damages exceeding this extent is precluded.

6. Passage of risk and place of performance

- 6.1. Unless otherwise agreed, the delivery of goods is considered sold EXW in accordance with INCOTERMS® 2010.
- 6.2. For services, the place of performance shall be the place indicated in the written order confirmation, secondary to that at which the service is actually rendered by Seller. The risk in respect of such services or any part thereof shall pass to Buyer at the time the services have been rendered.

7. Payment

- 7.1. Unless otherwise agreed, one third of the purchase price shall fall due at the time of receipt by Buyer of the order confirmation of Seller, one third after half the delivery period has elapsed and the balance at the time of delivery. Irrespective thereof the turnover tax comprised in the amount of the invoice shall be paid within 30 days of the invoice date. If bankruptcy proceedings are instituted against the assets of Buyer or if an application for bankruptcy proceedings is not granted for insufficiency of assets, deliveries shall only be made against cash in advance.
- 7.2. In the case of part settlements the individual part payments shall fall due upon receipt of the respective invoices. The same shall apply to amounts invoiced for additional deliveries or resulting from additional agreements beyond the scope of the original contract, irrespective of the terms of payment agreed upon for the principal delivery.
- 7.3. Payment shall be made without any discount free Seller's domicile in the agreed currency. Drafts and checks shall be accepted on account of payment only, with all interest, fees and charges in connection therewith (such as collection and discounting charges) to be borne by Buyer.
- 7.4. Buyer shall not be entitled to withhold or offset payment on the grounds of any warranty claims or other counterclaims.
- 7.5. Payment shall be deemed to have been effected on the date at which the amount in question is at Seller's disposal.
- 7.6. If Buyer fails to meet the terms of payment or any other obligation arising from this or other legal transactions, Seller may without prejudice to his other rights
 - a) suspend performance of his own obligations until payments have been made or other obligations fulfilled, and exercise his right to extend the period of delivery to a reasonable extent,
 - b) call in debts arisen from this or any other legal transactions and charge default interest amounting to 1.25 % per month plus turnover tax for these amounts beginning with the due dates, unless Seller proves costs exceeding this.
 - c) only perform other legal transactions against cash in advance in the case of qualified insolvency, in other words, following two delays in payment.In any case Seller has the right to invoice all expenses arising prior to a lawsuit, especially reminder charges and lawyer's fees.
- 7.7. Discounts or bonuses are subject to complete payment in due time.
- 7.8. Seller retains title to all goods delivered by him until receipt of all amounts invoiced including interests and charges. Buyer herewith assigns his claim out of a resale of conditional commodities, even if they are processed, transformed or combined with other commodities, to Seller to secure the latter's purchase money claim. In the case of resale granting respite Buyer shall have the power of disposal of the product under retention of ownership only with the proviso that upon reselling Buyer notifies the secondary buyer of the assignment for security or enters the assignment in his account books. Upon request Buyer has to notify the assigned claim and the debtor thereof to Seller, and to make all information and material required for his debt collection available and to notify the assignment to the third-party debtor. If the goods are attached or otherwise levied upon, Buyer shall draw attention to Seller's title and immediately inform Seller of the attachment or levy.

8. Warranty and acceptance of obligation to repair defects

- 8.1. Once the agreed terms of payment have been complied with, Seller shall, subject to the conditions hereunder, remedy any defect existing at the time of acceptance of the article in question whether due to faulty design, material or manufacture, that impairs the functioning of said article. From particulars appearing in catalogues, folders, promotional literature as well as written or oral statements which have not been included in the agreement no warranty obligations may be deduced.
- 8.2. Unless special warranty periods operate for individual items the warranty period shall be 12 months. These conditions shall also apply to any goods supplied, or services rendered in respect of goods supplied, that are firmly attached to buildings or the ground. The warranty period begins at the point of passage of risk acc. to paragraph 6.
- 8.3. For improved or exchanged parts, the warranty period shall start again, but shall end in any case 6 months after the original warranty period has expired.
- 8.4. If delivery or the performance of services is delayed for reasons outside the control of Seller, the warranty period shall begin 2 weeks after Seller is ready to deliver or perform services.

- 8.5. The foregoing warranty obligations are conditional upon the Buyer giving within a reasonable period notice in writing of any defects that have occurred and such notice reaching the Seller. Buyer shall prove within a reasonable period the presence of a defect, in particular he shall make available within a reasonable period to Seller all material and data in his possession. Upon receipt of such notice Seller shall, in the case of a defect covered by the warranty under 8.1 above, have the option to replace the defective goods or defective parts thereof or else to repair them on Buyer's premises or have them returned for repair, or to grant a fair and reasonable price reduction.
- 8.6. Any expenses incurred in connection with rectifying defects (e. g. expenses for assembly and disassembly, transport, waste disposal, travel and siteto-quarters time) shall be borne by Buyer. For warranty work on Buyer's premises Buyer shall make available free of charge any assistance, hoisting gear, scaffolding and sundry supplies and incidentals that may be required. Replaced parts shall become the property of Seller.
- 8.7. If an article is manufactured by Seller on the basis of design data, design drawings, models or other specifications supplied by Buyer, Seller's warranty shall be restricted to non-compliance with Buyers specifications.
- 8.8. Seller's warranty obligation shall not extend to any defects due to assembly and installation work not undertaken by Seller, inadequate equipment, or due to non-compliance with installation requirements and operating conditions, overloading of parts in excess of the design values stipulated by Seller, negligent or faulty handling or the use of inappropriate materials, nor for defects attributable to material supplied by Buyer. Nor shall Seller be liable for damage due to acts of third parties, atmospheric discharges, excess voltage and chemical influences. The warranty does not cover the replacement of parts subject to natural wear and tear. Seller accepts no warranty for the sale of used goods.
- 8.9. The warranty shall lapse immediately if, without written consent of Seller, Buyer himself or a third party not expressly authorised undertakes modifications or repairs on any items delivered.
- 8.10. Claims acc. to § 933b ABGB are struck by the statute of limitation with lapse of the period mentioned under point 8.2.
- 8.11. The provisions of sub-paragraphs 8.1 to 8.10 shall apply, mutatis mutandis, to all cases where the obligation to repair defects has to be accepted for other reasons laid down by law.
- 9. Withdrawal from contract**
- 9.1. Buyer may withdraw from the contract only in the event of delays caused by gross negligence on the part of Seller and only after a reasonable period of grace has elapsed. Withdrawal from contract shall be notified in writing by registered mail.
- 9.2. Irrespective of his other rights Seller shall be entitled to withdraw from the contract
- a) if the execution of delivery or the inception or continuation of services to be rendered under the contract is made impossible for reasons within the responsibility of Buyer and if the delay is extended beyond a reasonable period of grace allowed;
 - b) if doubts have arisen as to Buyer's creditworthiness and if same fails, on Seller's request, to make an advance payment or to provide adequate security prior to delivery, or
 - c) if, for reasons mentioned in 5.4, the period allowed for delivery is extended by more than half of the period originally agreed or by at least 6 months, or
 - d) if Buyer does not or does not properly meet the obligations imposed as per paragraph 13.
- 9.3. For the reasons given above withdrawal from the contract shall also be possible in respect of any outstanding part of the delivery or service contracted for.
- 9.4. If bankruptcy proceedings are instituted against Buyer or an application for bankruptcy proceedings is not granted for insufficiency of assets, Seller may withdraw from the contract without allowing a period of grace. If this withdrawal is taken, it shall take effect immediately upon the decision that the business will not be continued. If the business will be continued, a withdrawal shall not take effect until 6 months after the institution of bankruptcy proceedings or after an application for bankruptcy proceedings has not been granted for insufficiency of assets. In any case, the contract shall be terminated immediately unless the bankruptcy law to which Buyer is subject conflicts with this or if termination of the contract is necessary to prevent significant damages to Seller.
- 9.5. Without prejudice to Seller's claim for damages including expenses arising prior to a lawsuit, upon withdrawal from contract any open accounts in respect of deliveries made or services rendered in whole or in part shall be settled according to contract. This provision also covers deliveries or services not yet accepted by Buyer as well as any preparatory acts performed by Seller. Seller shall, however, have the option alternatively to require the restitution of articles already delivered.
- 9.6. Withdrawal from contract shall have no consequences other than those stipulated above.
- 9.7. The assertion of claims on the ground of *laesio enormis*, error, or lapse of purpose by the Buyer is excluded.

10. Disposal of waste electrical and electronic equipment

- 10.1. The Buyer of electrical/electronic equipment for commercial purposes, incorporated in Austria, is responsible for the financing of the collection and treatment of waste electrical and electronic equipment as defined by the Ordinance Regulating the Handling of Waste Electrical Equipment, if he is himself the user of the electrical/electronic equipment. If the Buyer is not the end user, he shall transfer the full financial commitment to his customer by agreement and furnish proof thereof to the Seller.
- 10.2. The Buyer incorporated in Austria shall ensure that the Seller is provided with all information necessary to meet the Seller's obligations as manufacturer/importer, particularly according to §§ 11 and 24 of the Ordinance Regulating the Handling of Waste Electrical Equipment and the Waste Management Act.
- 10.3. The Buyer incorporated in Austria is liable vis-à-vis the Seller for any damage and other financial disadvantages incurred by Seller due to Buyer's failure to meet or fully meet his financing commitment or any other obligations according to Article 10. The Buyer shall bear the burden of proof of performance of this obligation.

11. Seller's liability

- 11.1. Outside the scope of the Product Liability Act, Seller shall be liable only if the damage in question is proved to be due to intentional acts or acts of gross negligence, within the limits of statutory provisions. Seller's total liability in cases of gross negligence is limited to the net value of the order or EUR 500,000, depending on which amount is lower.
- 11.2. For each incident of damage, Seller shall be liable for 25% of the net value of the order or EUR 125,000, depending on which amount is lower.
- 11.3. Seller shall not be liable for damage due to acts of ordinary negligence nor for consequential damages or damages for pure economic loss, indirect damages, loss of production, financing costs, costs for replacement energy, loss of energy, data or information, loss of profits, loss of savings or interest, or damage resulting from third-party claims against buyer.
- 11.4. Seller shall not be liable for damages in case of non-compliance with instructions for assembly, commissioning and operation (such as are contained in instructions for use) or non-compliance with licensing requirements.
- 11.5. Claims that exceed the contractual penalties that were agreed on are excluded from the respective title. The provisions of paragraph 11 apply exclusively for all claims by Buyer against Seller, regardless of the legal basis or entitlement, and also apply to all employees, subcontractors and subsuppliers of Seller.

12. Industrial property rights and copyrights

- 12.1. Buyer shall indemnify Seller and hold him harmless against any claims for any infringement of industrial property rights raised against him if Seller manufactures an article pursuant to any design data, design drawings, models or other specifications made available to him by Buyer.
- 12.2. Design documents such as plans and drawings and other technical specifications as well as samples, catalogues, prospectuses, pictures and the like shall remain the intellectual property of Seller and are subject to the relevant statutory provisions governing reproduction, imitation, competition etc. The provisions of 2.2 above shall also cover design documents.

13. Compliance with export provisions

- 13.1. When passing on goods delivered by Seller to third parties (as well as any related documentation, regardless of the method of provision or the services performed by Seller [including technical support of any kind]), Buyer must comply with the applicable regulations of national and international (re-)export provisions. In any case, Buyer must observe the (re-)export provisions of Seller's country of residence, the European Union and the United States of America.
- 13.2. If necessary for export controls, Buyer must provide Seller with all necessary information immediately after being requested to do so, for example, information about the final recipient, final destination and purpose of the goods or services.

14. General

Should individual provisions of the contract or of these provisions be invalid the validity of the other provisions shall not be affected. The invalid provision shall be replaced by a valid one, which comes as close to the target goal as possible.

15. Jurisdiction and applicable law

Any litigations arising under the contract including litigations over the existence or non-existence thereof shall fall within the exclusive jurisdiction of the competent court at Seller's domicile; the competent court of the Bezirksgericht Innere Stadt, Vienna, shall have exclusive jurisdiction if Seller is domiciled in Vienna. The contract is subject to Austrian law excluding the referral rules. Application of the UN Convention on Contracts for the International Sale of Goods is renounced.

16. Proviso

The execution of the contract by Seller is subject to the condition that there are no obstacles standing in the way of execution due to national or international (re-)export provisions, and especially no embargos and/or other sanctions.

Last revised in September 2011

THE COMPANY

HEADQUARTERS

SCHRACK TECHNIK GMBH

Seybelgasse 13, 1230 Vienna
PHONE +43(0)1/866 85-5900
FAX +43(0)1/866 85-98800
E-MAIL info@schrack.at

SCHRACK SUBSIDIARIES

BELGIUM

SCHRACK TECHNIK B.V.B.A
Twaalfapostelenstraat 14
BE-9051 St-Denijs-Westrem
PHONE +32 9/384 79 92
FAX +32 9/384 87 69
E-MAIL info@schrack.be

BOSNIA-HERZEGOVINA

SCHRACK TECHNIK BH D.O.O.
Put za aluminijski kombinat bb
BH-88000 Mostar
PHONE +387/36 352 895
FAX +387/36 352 893
E-MAIL schrack@schrack.ba

BULGARIA

SCHRACK TECHNIK EOOD
Prof. Tsvetan Lazarov 162
Druzha - 2
BG-1582 Sofia
PHONE +359 2/890 79 13
FAX +359 2/890 79 30
E-MAIL sofia@schrack.bg

CROATIA

SCHRACK TECHNIK D.O.O.
Zavrtnica 17
HR-10000 Zagreb
PHONE +385 1/605 55 00
FAX +385 1/605 55 66
E-MAIL schrack@schrack.hr

CZECH REPUBLIC

SCHRACK TECHNIK SPOL. SR.O.
Dolnomecholupska 2
CZ-10200 Praha 10 – Hostivar
PHONE +420 (0)2/810 08 264
FAX +420 (0)2/810 08 462
E-MAIL praha@schrack.cz

HUNGARY

SCHRACK TECHNIK KFT.
Vidor u. 5
H-1172 Budapest
PHONE +36 1/253 14 01
FAX +36 1/253 14 91
E-MAIL schrack@schrack.hu

GERMANY

SCHRACK TECHNIK GMBH
Thomas-Wimmer-Ring 17
D-80539 Munich
PHONE +49 89/999 533 900
FAX +49 89/999 533 902
E-MAIL info@schrack-technik.de

POLAND

SCHRACK TECHNIK POLSKA
SP.ZO.O.
ul. Staniewicka 5
PL-03-310 Warszawa
PHONE +48 22/205 31 00
FAX +48 22/205 31 01
E-MAIL kontakt@schrack.pl

ROMANIA

SCHRACK TECHNIK SRL
B-dul Luliu Maniu nr 453-457, sect. 6
RO-061101 Bucharest
PHONE +40 21/317 02 35 42
FAX +40 21/317 02 62
E-MAIL bucuresti@schrack.ro

SERBIA

SCHRACK TECHNIK D.O.O.
Bulevar Peka Dapčevića 42
RS-11000 Beograd
PHONE +38 1/11 309 2600
FAX +38 1/11 309 2620
E-MAIL office@schrack.rs

SLOVAKIA

SCHRACK TECHNIK S.R.O.
Ivanská cesta 10/C
SK-82104 Bratislava
PHONE +421 (02)/491 081 01
FAX +421 (02)/491 081 99
E-MAIL info@schrack.sk

SLOVENIA

SCHRACK TECHNIK D.O.O.
Pameče 175
SLO-2380 Slovenj Gradec
PHONE +38 6/2 883 92 00
FAX +38 6/2 884 34 71
E-MAIL schrack.sg@schrack.si



WWW.SCHRACK.COM

