



Kraus & Naimer

BLUE LINE switchgear

since 1907

Catalog 200

Contactors 16 A-115 A

Motor Starters 1,1 kW-55 kW



Kraus & Naimer

The development of the Blue Line rotary switch, contactor and motor starter product ranges is based on more than seventy-five years experience by Kraus & Naimer in the design and manufacture of electrical switchgear. Kraus & Naimer pioneered the introduction of the cam operated rotary switch and continues to be recognized as the world leader in that product field.

BLUE LINE

Blue Line products are protected by numerous patents throughout the industrial world. They are built to national and international standards and designed to withstand adverse temperatures and climates.

Blue Line products are accepted and universally recognized for their quality and workmanship. They are supported by a worldwide sales and service organization.

The Kraus & Naimer Registered Trademark



WORLDWIDE SYMBOL
FOR QUALITY SWITCHGEAR

Contents	Page
Construction Data	2, 3
How to order	4, 5
Contactors 16 A-115 A	
Multipole Relays	6
Multipole Relays with “amp” Terminals	7
Contactors 2 pole	8, 9
Contactors 3 pole	10-13
Contactors 4 pole	14, 15
Thermal Overload Relays	16, 17
Motor Starters	
Direct-on-line	18-20
Manual Star-delta	21
Automatic Star-delta	22, 23
Special Purpose Contactors	
Contactors with parallel contacts for use with high resistive loads	24
Contactors with NC contacts for heavy duty	25
Contactors with connection for cable lug	25
Optional Extras, Types of Mounting	26
Terminal Markings	27, 28
Coil Characteristics	29, 30
DC Control	31
Switching Capacity	
DC Switching Capacity	32
Fluorescent Light Control	32
Thermal Overload Relays	
Tripping Characteristics	33
Max. Permissible Fuse Size	33
International Standards and Approvals	34
Dimensions	35-43
Blue Line Switchgear: Summary	44



Multipole Relays

- 1-8 pole types available
- compact construction
- suitable for DIN 46277 (35 mm) track mounting or screw fastening
- self-adjusted terminals, captive terminal screws
- finger-proof according to EN 50274, VDE 0660 part 514 and BGV A3
- double "amp" type terminals according to DIN 46244
- available with gold contacts for special applications
- fully encapsulated coils with integral terminals
- rugged construction
- long mechanical life
- voltage range up to 690 V¹
- rated impulse withstand voltage U_{imp} 6 kV



Contactors

- 2, 3 and 4 pole units (auxiliary contacts available)
- complete range from 10 A-115 A. Frame size according to ratings and poles
- suitable for DIN 46277 (35 mm track) mounting or screw fastening
- suitable for mounting in positions other than vertical
- rugged construction
- long mechanical life
- compact construction
- voltage range up to 690 V¹
- rated impulse withstand voltage U_{imp} 6 kV
- mechanically interlocked reversing contactors
- all types available with thermal overload relays for motor protection

The Blue Line range of relays and contactors from 16 A-115 A includes both multipole relays and 2, 3 and 4 pole contactors and exceed the requirements to IEC 60947, EN 60947 and VDE 0660.

The coils are fully encapsulated and have integral terminals. Armature, yoke and shading coils are embedded in nylon (patented). S-type relays and contactors are provided with self-adjusted terminals, captive terminal screws and terminal markings according to the European Standard EN 50005 and EN 50011 resp. DIN 46199.

The design ensures excellent resistance to mechanical and climatic stress and virtually hum-free operation. Many years of experience in the selection of materials ensures that the relays and contactors will have a long mechanical life. High switching capacity is achieved with a minimum of contact bounce.

¹Valid for lines with grounded common neutral termination, overload category III, pollution degree 3. Values for other supply systems on request.



Thermal Overload Relays

Thermal overload relays protect motors from overheating caused by starting failure or excess load and are available with the following feature:

- manual or automatic reset
- can be attached to the contactor or separately mounted
- with open and finger-proof terminals according to EN 50274, VDE 0660 part 514
- high degree of trip accuracy
- adjustable trip setting
- a single phase setting
- a response interval in accordance with the trip classification 10A as per VDE 0660, i. e. min. 2 to 10 seconds at 7,2 times the rated motor current from cold start.

Thermal overload relays may be attached to the contactor or mounted separately. Prior to use T/O relays must be set to the rated motor current (58 % of the rated motor current in the case of star-delta starters). Satisfactory motor protection is ensured up to approximately 15 operations per hour (type T 9E1 up to 30 operations per hour) and on intermittent duty up to 60 operations per hour (40 % on-load) providing that starting currents do not exceed 6 times the nominal current and starting periods are limited to a maximum of 1 second.

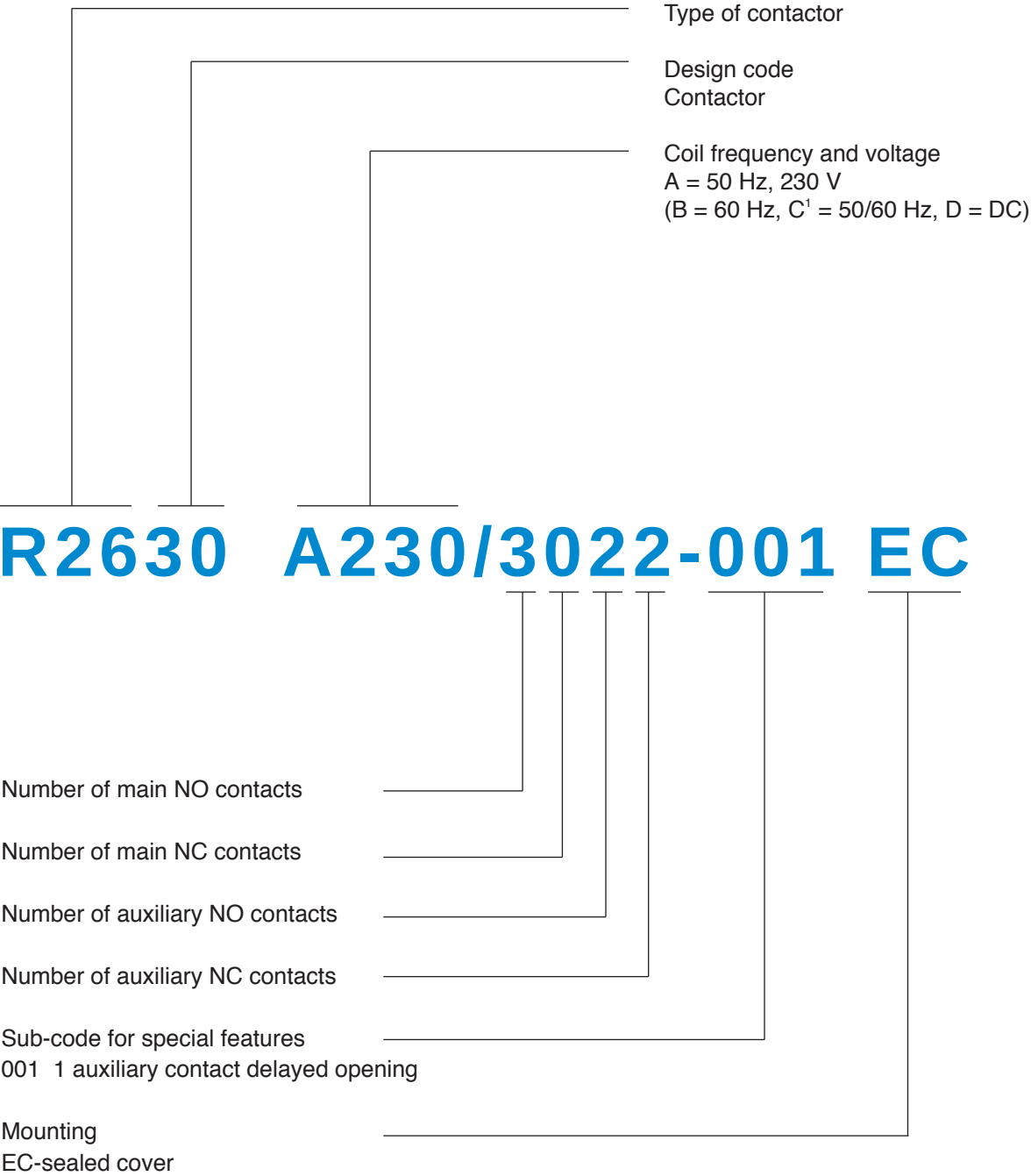


Motor Starters

- for direct-on-line starting of three phase motors
- for star-delta starting with manual control or automatic start
- compact design for direct-on-line starting of single phase motors and three phase motors
- shatter proof enclosures with transparent or opaque covers
- self-adjusting terminals with easy access
- clear construction
- high mechanical endurance and life expectancy

All motor starters include the required rated contactors, thermal overload relays, timers and associated control components and are available as "open" or in enclosures. When supplied without an enclosure "open" type starters are supplied on DIN 46277 track or on a base plate.

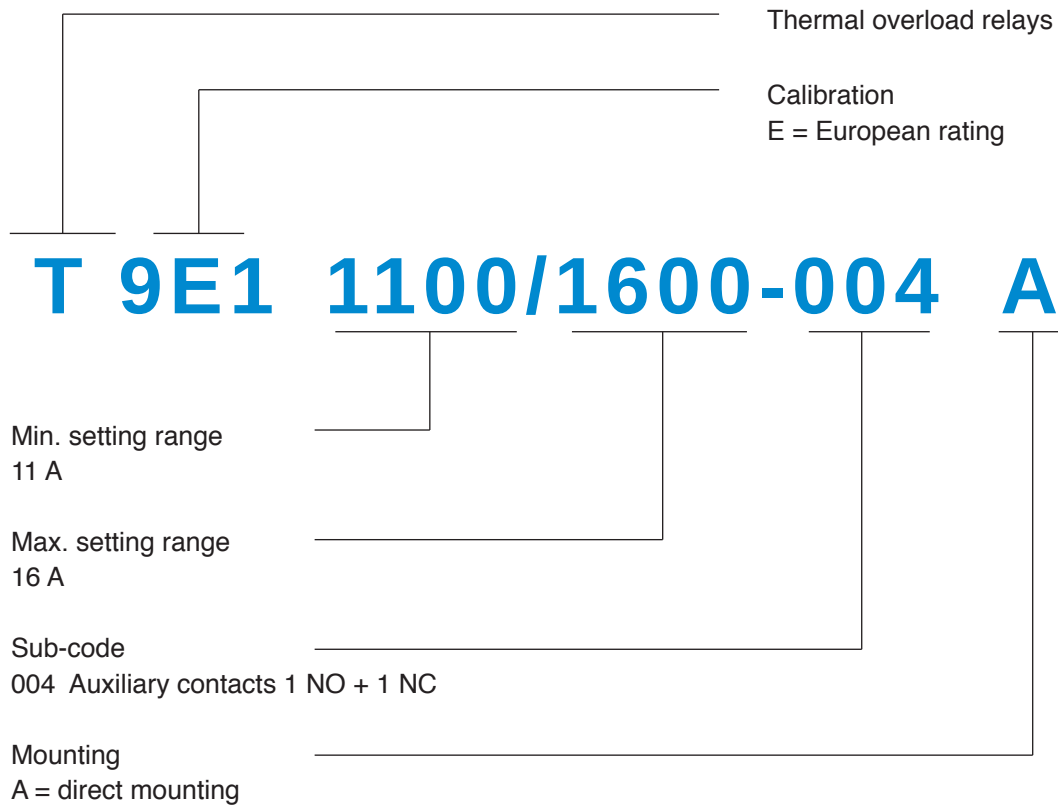
Contactors



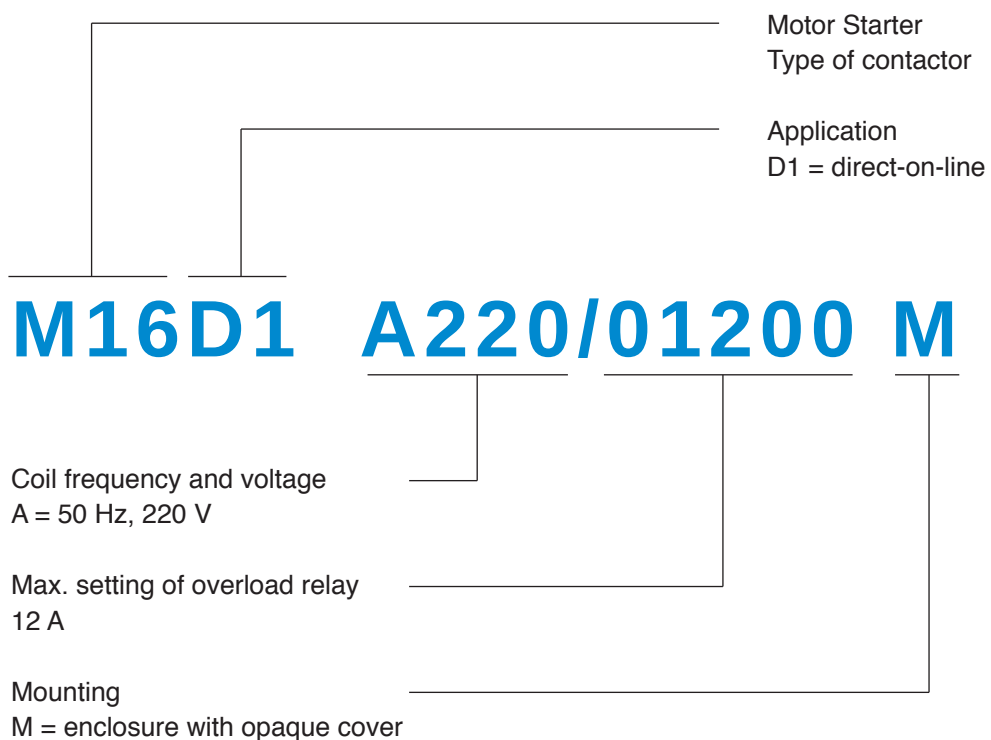
¹only for contactors S....

How to order

Thermal Overload Relays



Motor Starters

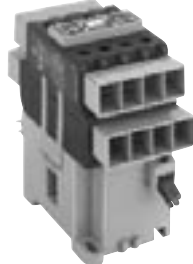
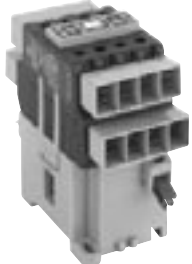


Multipole Relays

Rated Values	S1000				S1200				S1500				S1700				
																	
Insulation Voltage U_i	690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				
Thermal current I_u/I_{th} open I_{the} enclosed	16 A 10 A				20 A 16 A				16 A 10 A				20 A 16 A				
Ampere-Rating UL, CSA	16 amp./600 VAC				20 amp./600 VAC				16 amp./600 VAC				18 amp./600 VAC				
Operational Current I_e AC-15	240 V 6 A	380 V 5 A	440 V 2,5 A	500 V 2,5 A	240 V 8 A	380 V 6 A	440 V 2,5 A	500 V 3 A	240 V 6 A	380 V 5 A	440 V 2,5 A	500 V 2,5 A	240 V 8 A	380 V 6 A	440 V 2,5 A	500 V 3 A	
DC-13 L/R ≤ 15 ms	1 contact 16 A	2 in -	3 series -	24 V 6 A	60 V 2 A	110 V 8 A	220 V 0,5 A	2 A	24 V 16 A	60 V 6 A	110 V 8 A	220 V 0,5 A	2 A	24 V 20 A	60 V 8 A	110 V 11 A	220 V 0,6 A
L/R ≤ 50 ms	1 contact 16 A	2 in -	3 series -	24 V 6 A	60 V 2 A	110 V 8 A	220 V 0,5 A	2 A	24 V 16 A	60 V 6 A	110 V 8 A	220 V 0,5 A	2 A	24 V 20 A	60 V 8 A	110 V 11 A	220 V 0,6 A
L/R ≤ 200 ms	1 contact 0,7 A	2 in 2 A	3 series 4 A	24 V 0,7 A	60 V 0,12 A	110 V 0,01 A	220 V 0,01 A	2 A	24 V 0,7 A	60 V 0,12 A	110 V 0,01 A	220 V 0,01 A	2 A	24 V 0,9 A	60 V 0,15 A	110 V 0,02 A	220 V 0,01 A
Pilot Duty UL, CSA	Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)				
Max. Fuse Size (gL-characteristic)	16 A				20 A				16 A				20 A				
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations			30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations			30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations			30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations			
Wire Gage single-core wire flexible wire ¹	mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14			mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14			mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14			mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14			
Contact Configuration	Contacts NO NC	Distinct. No. EN 50011	Code No.		Contacts NO NC	Distinct. No. EN 50011	Code No.		Contacts NO NC	Distinct. No. EN 50011	Code No.		Contacts NO NC	Distinct. No. EN 50011	Code No.		
	4 -	40E	0040		4 -	40E	0040		8 -	80E	0080		8 -	80E	0080		
	3 1	31E	0031		3 1	31E	0031		7 1	71E	0071		7 1	71E	0071		
	2 2	22E	0022		2 2	22E	0022		6 2	62E	0062		6 2	62E	0062		
	1 3	13E	0013		1 3	13E	0013		5 3	53E	0053		5 3	53E	0053		
	- 4	04E	0004		- 4	04E	0004		4 4	44E	0044		4 4	44E	0044		
	3 -	30E	0030		3 -	30E	0030		3 5	-	0035		3 5	-	0035		
	2 1	21E	0021		2 1	21E	0021		2 6	-	0026		2 6	-	0026		
	1 2	12E	0012		1 2	12E	0012		7 -	-	0070		- 8	-	0008		
	2 -	20E	0020		2 -	20E	0020		6 1	-	0061		7 -	-	0070		
	1 1	11E	0011		1 1	11E	0011		5 2	-	0052		6 1	-	0061		
	1 -	10E	0010		1 -	10E	0010		4 3	-	0043		5 2	-	0052		
	- 1	01E	0001		- 1	01E	0001		6 -	60E	0060		4 3	-	0043		
									5 1	51E	0051		6 -	60E	0060		
									4 2	42E	0042		5 1	51E	0051		
									5 -	50E	0050		4 2	42E	0042		
									4 1	41E	0041		5 -	50E	0050		
													4 1	41E	0041		

¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Multipole Relays with “amp” Terminals

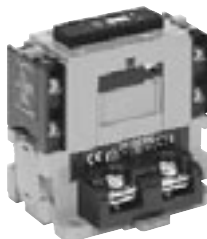
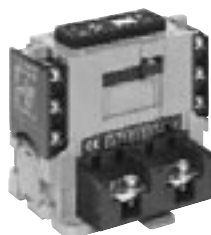
Rated Values	S1002				S1202				S1502				S1702						
																			
Insulation Voltage U_i	690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)						
Thermal Current I_u/I_{th} open I_{the} enclosed	16 A 10 A				20 A 16 A				16 A 10 A				20 A 16 A						
Ampere-Rating U_L , CSA	16 amp./600 VAC				18 amp./600 VAC				16 amp./600 VAC				18 amp./600 VAC						
Operational Current I_e AC-15	240 V 6 A	380 V 5 A	440 V 2,5 A	500 V 2,5 A	240 V 8 A	380 V 6 A	440 V 3 A	500 V 3 A	240 V 6 A	380 V 5 A	440 V 2,5 A	500 V 2,5 A	240 V 8 A	380 V 6 A	440 V 3 A	500 V 3 A			
DC-13 L/R ≤ 15 ms	1 contact 16 A	2 in -	3 series -	24 V 16 A	60 V 6 A	110 V 2 A	220 V 0,5 A	24 V 20 A	60 V 8 A	110 V 2,4 A	220 V 0,6 A	24 V 16 A	60 V 6 A	110 V 2 A	220 V 0,5 A	24 V 20 A	60 V 8 A	110 V 2,4 A	220 V 0,6 A
L/R ≤ 50 ms	1 contact -	2 in -	3 series -	24 V 16 A	60 V 6 A	110 V 2 A	220 V 0,5 A	24 V 20 A	60 V 8 A	110 V 2,4 A	220 V 0,6 A	24 V 16 A	60 V 6 A	110 V 2 A	220 V 0,5 A	24 V 20 A	60 V 8 A	110 V 2,4 A	220 V 0,6 A
L/R ≤ 200 ms	1 contact -	2 in -	3 series -	24 V 16 A	60 V 6 A	110 V 2 A	220 V 0,5 A	24 V 20 A	60 V 8 A	110 V 2,4 A	220 V 0,6 A	24 V 16 A	60 V 6 A	110 V 2 A	220 V 0,5 A	24 V 20 A	60 V 8 A	110 V 2,4 A	220 V 0,6 A
Pilot Duty U_L , CSA	Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)						
Max. Fuse Size (gL-characteristic)	16 A				20 A				16 A				20 A						
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations				30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations				30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations				30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations						
Flat Connection acc. to DIN 46244 (diameter) No. of connection per terminal	2,8 resp. 6,3 mm 2				2,8 resp. 6,3 mm 2				2,8 resp. 6,3 mm 2				2,8 resp. 6,3 mm 2						
Contact Configuration	Contacts NO NC	Distinct. No. EN 50011	Code No.		Contacts NO NC	Distinct. No. EN 50011	Code No.		Contacts NO NC	Distinct. No. EN 50011	Code No.		Contacts NO NC	Distinct. No. EN 50011	Code No.				
	4 -	40E	0040		4 -	40E	0040		8 -	80E	0080		8 -	80E	0080				
	3 1	31E	0031		3 1	31E	0031		7 1	71E	0071		7 1	71E	0071				
	2 2	22E	0022		2 2	22E	0022		6 2	62E	0062		6 2	62E	0062				
	1 3	13E	0013		1 3	13E	0013		5 3	53E	0053		5 3	53E	0053				
	- 4	04E	0004		- 4	04E	0004		4 4	44E	0044		4 4	44E	0044				
	3 -	30E	0030		3 -	30E	0030		3 5	-	0035		3 5	-	0035				
	2 1	21E	0021		2 1	21E	0021		2 6	-	0026		2 6	-	0026				
	2 -	20E	0020		2 -	20E	0020		7 -	-	0070		7 -	-	0070				
	1 1	11E	0011		1 1	11E	0011		6 1	-	0061		6 1	-	0061				
	1 -	10E	0010		1 -	10E	0010		5 2	-	0052		5 2	-	0052				
	- 1	01E	0001		- 1	01E	0001		4 3	-	0043		4 3	-	0043				
									6 -	60E	0060		6 -	60E	0060				
									5 1	51E	0051		5 1	51E	0051				
									4 2	42E	0042		4 2	42E	0042				
									5 -	50E	0050		5 -	50E	0050				
									4 1	41E	0041		4 1	41E	0041				

Contactors 2 pole

Rated Values	S1010				S1210				S1020						
															
Main Contacts															
Insulation Voltage U_i	690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)						
Thermal Current I_u/I_{th} open I_{the} enclosed	20 A 16 A				20 A 16 A				32 A 20 A						
Ampere-Rating UL, CSA	16 amp./600 VAC				20 amp./600 VAC				30 amp./600 VAC						
Operational Voltage	220 V 380 V 500 V 660 V 240 V 440 V 690 V				220 V 380 V 500 V 660 V 240 V 440 V 690 V				220 V 380 V 500 V 660 V 240 V 440 V 690 V						
Operational Current/Rating (1 phase) AC-1 open A AC-1 enclosed A AC-3 kW AC-4 kW	20 20 20 20 16 16 16 16 1,1 2,2 2,2 2,2 0,55 1,1 1,1 1,1				20 20 20 20 16 16 16 16 1,5 3 3 3 0,75 1,5 1,5 1,5				32 32 32 32 20 20 20 20 2,2 3,7 3,7 3,7 1,1 3 3 3						
HP-Rating (single-phase) UL, CSA HP	120 V 240 V 480 V 600 V 0,5 1 2 2				120 V 240 V 480 V 600 V 0,75 1,5 4 5				120 V 240 V 480 V 600 V 1,5 3 5 7,5						
Max. Fuse Size (gL-charac.) Assignment "1" + "2"	20 A				20 A				35 A						
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations				30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations				30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations						
Wire Gage single-core wire flexible wire ¹	mm ² AWG 0,75-4 18-12 0,5-2,5 20-14				mm ² AWG 0,75-4 18-12 0,5-2,5 20-14				mm ² AWG 1-6 16-10 0,75-4 18-12						
Auxiliary Contacts															
Insulation Voltage U_i	690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)						
Thermal Current I_u/I_{th} open	16 A 230 V 400 V 500 V				16 A 230 V 400 V 500 V				16 A 230 V 400 V 500 V						
Operational Current I_e AC-15	6 A 5 A 2,5 A				6 A 5 A 2,5 A				6 A 5 A 2,5 A						
Pilot Duty UL, CSA	Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)						
Max. Fuse Size (gL-charac.)	16 A				16 A				16 A						
Wire Gage single-core wire flexible wire ¹	mm ² AWG 0,75-4 18-12 0,5-2,5 20-14				mm ² AWG 0,75-4 18-12 0,5-2,5 20-14				mm ² AWG 0,75-2,5 18-12 0,5-1,5 20-14						
Contact Configuration	Main Contacts NO NC		Auxiliary Contacts NO NC		Code No.	Main Contacts NO NC		Auxiliary Contacts NO NC		Code No.	Main Contacts NO NC		Auxiliary Contacts NO NC		Code No.
	2 -		- -		2000 2020 2011 2002 2010 2001	2 -		- -		2000 2020 2011 2002 2010 2001	2 -		- -		2000 2010 2001
	2 -		2 -			2 -		2 -			2 -		1 -		
	2 -		1 1			2 -		1 1			2 -		- 1		
	2 -		- 2			2 -		- 2							
	2 -		1 -			2 -		1 -							
	2 -		- 1			2 -		- 1							

¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Contactors 2 pole

Rated Values	S1730			R2640			R3570		
									
Main Contacts Insulation Voltage U_i	690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)		
Thermal Current I_u/I_{th} open I_{the} enclosed	40 A 32 A			50 A 40 A			115 A 100 A		
Ampere-Rating UL, CSA	40 amp./600 VAC			50 amp./600 VAC			100 amp./600 VAC		
Operational Voltage	220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V		
Operational Current/Rating (1 phase) AC-1 open	A	40	40	A	50	50	A	115	115
AC-1 enclosed	A	32	32	A	40	40	A	100	100
AC-3	kW	3,7	5,5	kW	4	7,5	kW	7,5	11
AC-4	kW	1,5	3	kW	2,2	4	kW	5,5	7,5
HP-Rating (single-phase) UL, CSA HP	120 V 240 V 480 V 600 V 2 5 10 15			120 V 240 V 480 V 600 V 2 5 10 15			120 V 240 V 480 V 600 V 5 10 20 25		
Max. Fuse Size (gL-charac.) Assignment "1" + "2"	50 A			63 A			125 A		
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations			30 x 10 ⁶ No. of operations 5 x 10 ⁶ No. of operations			20 x 10 ⁶ No. of operations 3 x 10 ⁶ No. of operations		
Wire Gage single-core or stranded wire flexible wire ¹	mm ² 1,5-10 1-6	AWG 14-8 16-10		mm ² 2,5-16 1,5-10	AWG 12-6 14-8		mm ² 6-35 4-25	AWG 8-2 10-4	
Auxiliary Contacts Insulation Voltage U_i	690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)		
Thermal Current I_u/I_{th} open	16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V		
Operational Current I_e AC-15	6 A 5 A 2,5 A			6 A 5 A 2,5 A			6 A 5 A 2,5 A		
Pilot Duty UL, CSA	Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)		
Max. Fuse Size (gL-charac.)	16 A			16 A			16 A		
Wire Gage single-core wire flexible wire ¹	mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14		mm ² 0,75-2,5 0,5-1,5	AWG 18-12 20-14		mm ² 0,75-2,5 0,5-1,5	AWG 18-12 20-14	
Contact Configuration	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.
	2 -	4 -	2040	2 -	- -	2000	2 -	- -	2000
	2 -	3 1	2031	2 -	4 -	2040	2 -	4 2	2042
	2 -	2 2	2022	2 -	3 1	2031	2 -	3 3	2033
	2 -	1 3	2013	2 -	2 2	2022	2 -	2 4	2024
	2 -	0 4	2004						
	2 -	3 -	2030						
	2 -	2 1	2021						
	2 -	1 2	2012						
	2 -	- 3	2003						
	2 -	2 -	2020						
	2 -	1 1	2011						
	2 -	- 2	2002						
	2 -	1 -	2010						
	2 -	- 1	2001						
	2 -	- -	2000						

¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Contactors 3 pole

Rated Values	S1010			S1210			S1510			S1710		
												
Main Contacts												
Insulation Voltage U_i	690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)		
Thermal Current I_u/I_{th} open I_{the} enclosed	20 A 16 A			20 A 16 A			20 A 16 A			20 A 16 A		
Ampere-Rating UL, CSA	16 amp./600 VAC			20 amp./600 VAC			16 amp./600 VAC			20 amp./600 VAC		
Operational Voltage	220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V		
Operational Current/Rating (3 phase) AC-1 open A	20 20 20 20			20 20 20 20			20 20 20 20			20 20 20 20		
AC-1 enclosed A	16 16 16 16			16 16 16 16			16 16 16 16			16 16 16 16		
AC-2 kW	2,2 4 5,5 5,5			3,7 5,5 7,5 7,5			2,2 4 5,5 5,5			3,7 5,5 7,5 7,5		
AC-3 kW	2,2 4 4 4			3 5,5 5,5 5,5			2,2 4 4 4			3 5,5 5,5 5,5		
AC-4 kW	1,5 3 3 3			2,2 4 4 4			1,5 3 3 3			2,2 4 4 4		
HP-Rating (3 phase) UL, CSA HP	120 V 240 V 480 V 600 V 1 2 5 5			120 V 240 V 480 V 600 V 2 3 7,5 7,5			120 V 240 V 480 V 600 V 1 2 5 5			120 V 240 V 480 V 600 V 2 3 7,5 7,5		
Max. Fuse Size (gL-charac.) Assignment "1" + "2"	20 A			20 A			20 A			20 A		
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations			30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations			30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations			30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations		
Wire Gage single-core wire flexible wire ¹	mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			mm ² AWG 0,75-4 18-12 0,5-2,5 20-14		
Auxiliary Contacts												
Insulation Voltage U_i	690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)		
Thermal Current I_u/I_{th} open	16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V		
Operational Current I_e AC-15	6 A 5 A 2,5 A			6 A 5 A 2,5 A			6 A 5 A 2,5 A			6 A 5 A 2,5 A		
Pilot Duty UL, CSA	Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)		
Max. Fuse Size (gL-charac.)	16 A			16 A			16 A			16 A		
Wire Gage single-core wire flexible wire ¹	mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			mm ² AWG 0,75-4 18-12 0,5-2,5 20-14		
Contact Configuration	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.
	3 - - -	- - -	3000	3 - - -	- - -	3000	3 - 5 -	- - -	3050	3 - 5 -	- - -	3050
	3 - 1 -	- - -	3010	3 - 1 -	- - -	3010	3 - 4 1	- - -	3041	3 - 4 1	- - -	3041
	3 - - 1	- - -	3001	3 - - 1	- - -	3001	3 - 3 2	- - -	3032	3 - 3 2	- - -	3032
							3 - 2 3	- - -	3023	3 - 2 3	- - -	3023
							3 - 1 4	- - -	3014	3 - 1 4	- - -	3014
							3 - 4 -	- - -	3040	3 - 4 -	- - -	3040
							3 - 3 1	- - -	3031	3 - 3 1	- - -	3031
							3 - 2 2	- - -	3022	3 - 2 2	- - -	3022
							3 - 1 3	- - -	3013	3 - 1 3	- - -	3013
							3 - 3 -	- - -	3030	3 - 3 -	- - -	3030
							3 - 2 1	- - -	3021	3 - 2 1	- - -	3021
							3 - 1 2	- - -	3012	3 - 1 2	- - -	3012
							3 - 2 -	- - -	3020	3 - 2 -	- - -	3020
							3 - 1 1	- - -	3011	3 - 1 1	- - -	3011
Compatible Thermal Overload Relays	T 9E1			T 9E1			T 9E1			T 9E1		

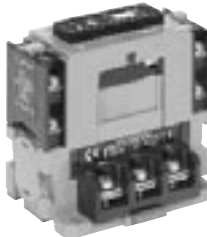
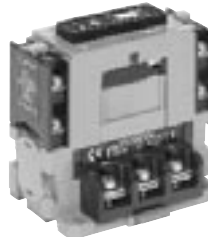
¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Contactors 3 pole

Rated Values		S1520				S1720																																																																																																																																																																											
																																																																																																																																																																																	
Main Contacts Insulation Voltage U_i		690 V (600 V UL/CSA)				690 V (600 V UL/CSA)																																																																																																																																																																											
Thermal Current I_u/I_{th} open I_{the} enclosed		32 A 20 A				32 A 20 A																																																																																																																																																																											
Ampere-Rating UL, CSA		25 amp./600 VAC				25 amp./600 VAC																																																																																																																																																																											
Operational Voltage		220 V 380 V 500 V 660 V 240 V 440 V 690 V				220 V 380 V 500 V 660 V 240 V 440 V 690 V																																																																																																																																																																											
Operational Current/Rating (3 phase) AC-1 open A AC-1 enclosed A AC-2 kW AC-3 kW AC-4 kW		32 32 32 32 20 20 20 20 5,5 10 11 11 4 7,5 7,5 7,5 3 5,5 5,5 5,5				32 32 32 32 20 20 20 20 7,5 11 11 11 5,5 11 7,5 7,5 3,7 6,5 6,5 5,5																																																																																																																																																																											
HP-Rating (3 phase) UL, CSA HP		120 V 240 V 480 V 600 V 3 5 10 15				120 V 240 V 480 V 600 V 3 7,5 10 15																																																																																																																																																																											
Max. Fuse Size (gL-charac.) Assignment "1" + "2"		35 A				35 A																																																																																																																																																																											
Mechanical Life Expectancy AC powered DC powered		30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations				30 x 10 ⁶ No. of operations 6 x 10 ⁶ No. of operations																																																																																																																																																																											
Wire Gage single-core wire flexible wire ¹		mm ² AWG 0,75-6 18-10 0,75-4 18-12				mm ² AWG 0,75-6 18-10 0,75-4 18-12																																																																																																																																																																											
Auxiliary Contacts Insulation Voltage U_i		690 V (600 V UL/CSA)				690 V (600 V UL/CSA)																																																																																																																																																																											
Thermal Current I_u/I_{th} open		16 A 230 V 400 V 500 V 6 A 5 A 2,5 A				16 A 230 V 400 V 500 V 6 A 5 A 2,5 A																																																																																																																																																																											
Operational Current I_e AC-15		Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)																																																																																																																																																																											
Pilot Duty UL, CSA		Rating Code A 600 (Heavy Duty)				Rating Code A 600 (Heavy Duty)																																																																																																																																																																											
Max. Fuse Size (gL-charac.)		16 A				16 A																																																																																																																																																																											
Wire Gage single-core wire flexible wire ¹		mm ² AWG 0,75-4 18-12 0,5-2,5 20-14				mm ² AWG 0,75-4 18-12 0,5-2,5 20-14																																																																																																																																																																											
Contact Configuration		<table><tr><td>Main</td><td colspan="2">Contacts</td><td>Auxiliary</td><td rowspan="2">Code</td></tr><tr><td>NO</td><td>NC</td><td>NO</td><td>NC</td></tr><tr><td>3</td><td>-</td><td>4</td><td>-</td><td>3040</td></tr><tr><td>3</td><td>-</td><td>3</td><td>1</td><td>3031</td></tr><tr><td>3</td><td>-</td><td>2</td><td>2</td><td>3022</td></tr><tr><td>3</td><td>-</td><td>1</td><td>3</td><td>3013</td></tr><tr><td>3</td><td>-</td><td>0</td><td>4</td><td>3004</td></tr><tr><td>3</td><td>-</td><td>3</td><td>-</td><td>3030</td></tr><tr><td>3</td><td>-</td><td>2</td><td>1</td><td>3021</td></tr><tr><td>3</td><td>-</td><td>1</td><td>2</td><td>3012</td></tr><tr><td>3</td><td>-</td><td>-</td><td>3</td><td>3003</td></tr><tr><td>3</td><td>-</td><td>2</td><td>-</td><td>3020</td></tr><tr><td>3</td><td>-</td><td>1</td><td>1</td><td>3011</td></tr><tr><td>3</td><td>-</td><td>-</td><td>2</td><td>3002</td></tr><tr><td>3</td><td>-</td><td>1</td><td>-</td><td>3010</td></tr><tr><td>3</td><td>-</td><td>-</td><td>1</td><td>3001</td></tr><tr><td>3</td><td>-</td><td>-</td><td>-</td><td>3000</td></tr></table>				Main	Contacts		Auxiliary	Code	NO	NC	NO	NC	3	-	4	-	3040	3	-	3	1	3031	3	-	2	2	3022	3	-	1	3	3013	3	-	0	4	3004	3	-	3	-	3030	3	-	2	1	3021	3	-	1	2	3012	3	-	-	3	3003	3	-	2	-	3020	3	-	1	1	3011	3	-	-	2	3002	3	-	1	-	3010	3	-	-	1	3001	3	-	-	-	3000	<table><tr><td>Main</td><td colspan="2">Contacts</td><td>Auxiliary</td><td rowspan="2">Code</td></tr><tr><td>NO</td><td>NC</td><td>NO</td><td>NC</td></tr><tr><td>3</td><td>-</td><td>4</td><td>-</td><td>3040</td></tr><tr><td>3</td><td>-</td><td>3</td><td>1</td><td>3031</td></tr><tr><td>3</td><td>-</td><td>2</td><td>2</td><td>3022</td></tr><tr><td>3</td><td>-</td><td>1</td><td>3</td><td>3013</td></tr><tr><td>3</td><td>-</td><td>0</td><td>4</td><td>3004</td></tr><tr><td>3</td><td>-</td><td>3</td><td>-</td><td>3030</td></tr><tr><td>3</td><td>-</td><td>2</td><td>1</td><td>3021</td></tr><tr><td>3</td><td>-</td><td>1</td><td>2</td><td>3012</td></tr><tr><td>3</td><td>-</td><td>-</td><td>3</td><td>3003</td></tr><tr><td>3</td><td>-</td><td>2</td><td>-</td><td>3020</td></tr><tr><td>3</td><td>-</td><td>1</td><td>1</td><td>3011</td></tr><tr><td>3</td><td>-</td><td>-</td><td>2</td><td>3002</td></tr><tr><td>3</td><td>-</td><td>1</td><td>-</td><td>3010</td></tr><tr><td>3</td><td>-</td><td>-</td><td>1</td><td>3001</td></tr><tr><td>3</td><td>-</td><td>-</td><td>-</td><td>3000</td></tr></table>				Main	Contacts		Auxiliary	Code	NO	NC	NO	NC	3	-	4	-	3040	3	-	3	1	3031	3	-	2	2	3022	3	-	1	3	3013	3	-	0	4	3004	3	-	3	-	3030	3	-	2	1	3021	3	-	1	2	3012	3	-	-	3	3003	3	-	2	-	3020	3	-	1	1	3011	3	-	-	2	3002	3	-	1	-	3010	3	-	-	1	3001	3	-	-	-	3000
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Compatible Thermal Overload Relays		T 9E1				T 9E1																																																																																																																																																																											

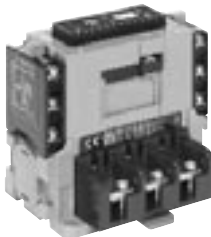
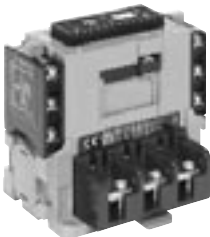
¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Contactors 3 pole

Rated Values		R2630	R2730	
				
Main Contacts Insulation Voltage U_i Thermal Current I_u/I_{th} open I_{the} enclosed Ampere-Rating UL, CSA Operational Voltage Operational Current/Rating (3 phase) AC-1 open A AC-1 enclosed A AC-2 kW AC-3 kW AC-4 kW HP-Rating (3 phase) UL, CSA HP Max. Fuse Size (gL-charac.) Assignment "1" + "2" Mechanical Life Expectancy AC powered DC powered Wire Gage single-core wire flexible wire ¹ Auxiliary Contacts Insulation Voltage U_i Thermal Current I_u/I_{th} open Operational Current I_e AC-15 Pilot Duty UL, CSA Max. Fuse Size (gL-charac.) Wire Gage single-core wire flexible wire ¹		690 V (600 V UL/CSA) 40 A 32 A 40 amp./600 VAC 220 V 380 V 500 V 660 V 240 V 440 V 690 V 40 40 40 40 32 32 32 32 7,5 15 18,5 18,5 7,5 15 11 11 4 7,5 7,5 7,5 120 V 240 V 480 V 600 V 3 10 15 20 50 A 30 x 10 ⁶ No. of operations 5 x 10 ⁶ No. of operations mm ² AWG 1,5-10 14-8 1-6 16-10 690 V (600 V UL/CSA) 16 A 230 V 400 V 500 V 6 A 5 A 2,5 A Rating Code A 600 (Heavy Duty) 16 A mm ² AWG 0,75-2,5 18-12 0,5-1,5 20-14	690 V (600 V UL/CSA) 40 A 32 A 40 amp./600 VAC 220 V 380 V 500 V 660 V 240 V 440 V 690 V 40 40 40 40 32 32 32 32 11 18,5 22 18,5 11 18,5 15 11 5,5 11 11 7,5 120 V 240 V 480 V 600 V 5 10 20 25 50 A 30 x 10 ⁶ No. of operations 5 x 10 ⁶ No. of operations mm ² AWG 1,5-10 14-8 1-6 16-10 690 V (600 V UL/CSA) 16 A 230 V 400 V 500 V 6 A 5 A 2,5 A Rating Code A 600 (Heavy Duty) 16 A mm ² AWG 0,75-2,5 18-12 0,5-1,5 20-14	
Contact Configuration Compatible Thermal Overload Relays		Main Contacts NO NC ² 3 - - - 3 - 4 - 3 - 3 1 3 - 2 2 2 1 - - 2 1 4 - 2 1 3 1 2 1 2 2 Code No. 3000 3040 3031 3022 2100 2140 2131 2122	Main Contacts NO NC 3 - - - 3 - 4 - 3 - 3 1 3 - 2 2 Code No. 3000 3040 3031 3022	
		T 26E4	T 26E4	

¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve ²Ratings for main NC contacts see page 25.

Contactors 3 pole

Rated Values		R3560				R3660																																							
																																													
Main Contacts Insulation Voltage U_i Thermal Current I_u/I_{th} open I_{the} enclosed Ampere-Rating UL, CSA Operational Voltage Operational Current/Rating (3 phase) AC-1 open A AC-1 enclosed A AC-2 kW AC-3 kW AC-4 kW HP-Rating (3 phase) UL, CSA HP Max. Fuse Size (gL-charac.) Assignment "1" Mechanical Life Expectancy AC powered DC powered Wire Gage single-core or stranded wire flexible wire ¹ Auxiliary Contacts Insulation Voltage U_i Thermal Current I_u/I_{th} open Operational Current I_e AC-15 Pilot Duty UL, CSA Max. Fuse Size (gL-charac.) Wire Gage single-core wire flexible wire ¹		690 V (600 V UL/CSA) 70 A 63 A 63 amp./600 VAC 220 V 380 V 500 V 660 V 240 V 440 V 690 V 70 70 70 70 63 63 63 63 18,5 30 37 37 15 22 18,5 15 7,5 15 15 11 120 V 240 V 480 V 600 V 10 20 30 40 80 A 20 x 10 ⁶ No. of operations 3 x 10 ⁶ No. of operations mm ² AWG 2,5-25 12-4 1,5-16 14-4 690 V (600 V UL/CSA) 16 A 230 V 400 V 500 V 6 A 5 A 2,5 A Rating Code A 600 (Heavy Duty) 16 A mm ² AWG 0,75-2,5 18-12 0,5-1,5 20-14				690 V (600 V UL/CSA) 70 A 63 A 63 amp./600 VAC 220 V 380 V 500 V 660 V 240 V 440 V 690 V 70 70 70 70 63 63 63 63 18,5 30 37 37 15 30 22 15 11 18,5 18,5 11 120 V 240 V 480 V 600 V 10 20 30 40 80 A 20 x 10 ⁶ No. of operations 3 x 10 ⁶ No. of operations mm ² AWG 2,5-25 12-4 1,5-16 14-4 690 V (600 V UL/CSA) 16 A 230 V 400 V 500 V 6 A 5 A 2,5 A Rating Code A 600 (Heavy Duty) 16 A mm ² AWG 0,75-2,5 18-12 0,5-1,5 20-14																																							
Contact Configuration		<table><tr><th>Main Contacts</th><th>Auxiliary Contacts</th><th>Code No.</th></tr><tr><td>NO NC NO NC</td><td>NO NC NO NC</td><td></td></tr><tr><td>3 - - -</td><td></td><td>3000</td></tr><tr><td>3 - 4 2</td><td></td><td>3042</td></tr><tr><td>3 - 3 3</td><td></td><td>3033</td></tr><tr><td>3 - 2 4</td><td></td><td>3024</td></tr></table>				Main Contacts	Auxiliary Contacts	Code No.	NO NC NO NC	NO NC NO NC		3 - - -		3000	3 - 4 2		3042	3 - 3 3		3033	3 - 2 4		3024	<table><tr><th>Main Contacts</th><th>Auxiliary Contacts</th><th>Code No.</th></tr><tr><td>NO NC NO NC</td><td>NO NC NO NC</td><td></td></tr><tr><td>3 - - -</td><td></td><td>3000</td></tr><tr><td>3 - 4 2</td><td></td><td>3042</td></tr><tr><td>3 - 3 3</td><td></td><td>3033</td></tr><tr><td>3 - 2 4</td><td></td><td>3024</td></tr></table>				Main Contacts	Auxiliary Contacts	Code No.	NO NC NO NC	NO NC NO NC		3 - - -		3000	3 - 4 2		3042	3 - 3 3		3033	3 - 2 4		3024
Main Contacts	Auxiliary Contacts	Code No.																																											
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Compatible Thermal Overload Relays		T 35E4																																											

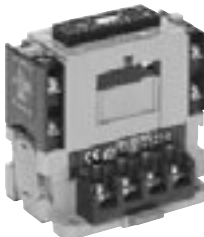
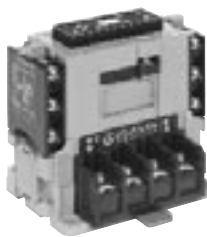
¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Contactors 4 pole

Rated Values	S1010				S1210				S1510			
												
Main Contacts												
Insulation Voltage U_i	690 V (600 V UL/CSA)				690 V (600 V UL/CSA)				690 V (600 V UL/CSA)			
Thermal Current I_u/I_{th} open I_{the} enclosed	20 A 16 A				20 A 16 A				20 A 16 A			
Ampere-Rating UL, CSA	16 amp./600 VAC				20 amp./600 VAC				16 amp./600 VAC			
Operational Voltage	220 V 380 V 500 V 660 V 240 V 440 V 690 V				220 V 380 V 500 V 660 V 240 V 440 V 690 V				220 V 380 V 500 V 660 V 240 V 440 V 690 V			
Operational Current/Rating (3 phase) AC-1 open A	20	20	20	20	20	20	20	20	20	20	20	
AC-1 enclosed A	16	16	16	16	16	16	16	16	16	16	16	
AC-2 kW	2,2	4	5,5	5,5	3,7	5,5	7,5	7,5	2,2	4	5,5	
AC-3 kW	2,2	4	4	4	3	5,5	5,5	5,5	2,2	4	4	
AC-4 kW	1,5	3	3	3	2,2	4	4	4	1,5	3	3	
HP-Rating (3 phase) UL, CSA HP	120 V 1	240 V 2	480 V 5	600 V 5	120 V 2	240 V 3	480 V 7,5	600 V 7,5	120 V 1	240 V 2	480 V 5	
Max. Fuse Size (gL-charac.) Assignment "1" + "2"	20 A				20 A				20 A			
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations			30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations			30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations		
Wire Gage single-core wire flexible wire ¹	mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14			mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14			mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14		
Auxiliary Contacts												
Insulation Voltage U_i									690 V (600 V UL/CSA)			
Thermal Current I_u/I_{th} open									16 A 230 V 400 V 500 V 6 A 5 A 2,5 A			
Operational Current I_e AC-15												
Pilot Duty UL, CSA									Rating Code A 600 (Heavy Duty)			
Max. Fuse Size (gL-charac.)									16 A			
Wire Gage single-core wire flexible wire ¹									mm ² AWG 0,75-4 18-12 0,5-2,5 20-14			
Contact Configuration	Main Contacts NO NC 4 -	Auxiliary Contacts NO NC - -		Code No. 4000	Main Contacts NO NC 4 -	Auxiliary Contacts NO NC - -		Code No. 4000	Main Contacts NO NC 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -	Auxiliary Contacts NO NC 4 - 3 1 2 2 1 3 - 4 3 - 2 1 1 2 - 3 2 - 1 1 - 2 1 - - 1		Code No. 4040 4031 4022 4013 4004 4030 4021 4012 4003 4020 4011 4002 4010 4001

¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve

Contactors 4 pole

Rated Values	S1710			R2620			R3530		
									
Main Contacts Insulation Voltage U_i	690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)		
Thermal Current I_u/I_{th} open I_{the} enclosed	20 A 16 A			25 A 20 A			40 A 32 A		
Ampere-Rating UL, CSA	20 amp./600 VAC			30 (25 acc. to CSA) amp./600 VAC			40 amp./600 VAC		
Operational Voltage	220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V			220 V 380 V 500 V 660 V 240 V 440 V 690 V		
Operational Current/Rating (3 phase) AC-1 open A	20	20	20	25	25	25	40	40	40
AC-1 enclosed A	16	16	16	20	20	20	32	32	32
AC-2 kW	3,7	5,5	7,5	5,5	10	11	7,5	15	18,5
AC-3 kW	3	5,5	5,5	4	7,5	7,5	7,5	15	11
AC-4 kW	2,2	4	4	3	5,5	5,5	4	7,5	7,5
HP-Rating (3 phase) UL, CSA HP	120 V 240 V 480 V 600 V 2 3 7,5 7,5				120 V 240 V 480 V 600 V 3 5 10 15				120 V 240 V 480 V 600 V 5 10 15 20
Max. Fuse Size (gL-charac.) Assignment "1" + "2"	20 A			35 A			50 A		
Mechanical Life Expectancy AC powered DC powered	30 x 10 ⁶ 6 x 10 ⁶	No. of operations No. of operations		30 x 10 ⁶ 5 x 10 ⁶	No. of operations No. of operations		20 x 10 ⁶ 3 x 10 ⁶	No. of operations No. of operations	
Wire Gage single-core wire flexible wire ¹	mm ² 0,75-4 0,5-2,5	AWG 18-12 20-14		mm ² 1-4 0,75-2,5	AWG 16-10 18-12		mm ² 1,5-10 1-6	AWG 14-8 16-10	
Auxiliary Contacts Insulation Voltage U_i	690 V (600 V UL/CSA)			690 V (600 V UL/CSA)			690 V (600 V UL/CSA)		
Thermal Current I_u/I_{th} open	16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V			16 A 230 V 400 V 500 V		
Operational Current I_e AC-15	6 A 5 A 2,5 A			6 A 5 A 2,5 A			6 A 5 A 2,5 A		
Pilot Duty UL, CSA	Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)			Rating Code A 600 (Heavy Duty)		
Max. Fuse Size (gL-charac.)	16 A			16 A			16 A		
Wire Gage single-core wire flexible wire ¹	mm ² 0,75-4 0,5-2,5	AWG 18-12 20-16		mm ² 0,75-2,5 0,5-1,5	AWG 18-12 20-14		mm ² 0,75-2,5 0,5-1,5	AWG 18-12 20-14	
Contact Configuration	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC ²	Auxiliary Contacts NO NC	Code No.	Main Contacts NO NC	Auxiliary Contacts NO NC	Code No.
	4 -	4 -	4040	4 -	- -	4000	4 -	- -	4000
	4 -	3 1	4031	4 -	4 -	4040	4 -	4 2	4042
	4 -	2 2	4022	4 -	3 1	4031	4 -	3 3	4033
	4 -	1 3	4013	4 -	2 2	4022	4 -	2 4	4024
	4 -	- 4	4004						
	4 -	3 -	4030	3 1	- -	3100			
	4 -	2 1	4021	3 1	4 -	3140			
	4 -	1 2	4012	3 1	3 1	3131			
	4 -	- 3	4003	3 1	2 2	3122			
	4 -	2 -	4020						
	4 -	1 1	4011	2 2	- -	2200			
	4 -	- 2	4002	2 2	4 -	2240			
	4 -	1 -	4010	2 2	3 1	2231			
	4 -	- 1	4001	2 2	2 2	2222			

¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve ²Ratings for main NC contacts see page 25.

Thermal Overload Relays

[illegible]

Thermal Overload Relays

Rated Values	T 26E4		T 35E4		
					
Main Current Path: Insulation Voltage U_i IEC/VDE UL/CSA	500 V 600 VAC		500 V 600 VAC		
Thermal Loss per phase	max. 5 W		max. 5 W		
Short Circuit Protection (see page 33)					
Wire Gage single-core or stranded wire flexible wire ¹	mm ² 1,5-35 1,5-25	AWG 14-2 14-4	mm ² 1,5-35 1,5-25	AWG 14-2 14-4	
Auxiliary Contacts Insulation Voltage U_i IEC/VDE UL/CSA	1 SPDT 500 V 600 VAC		1 SPDT 500 V 600 VAC		
Thermal Current I_u/I_{the}	4 A		4 A		
Operational Voltage Operational Current I_e AC-15	230 V 400 V 500 V 4 A 4 A 4 A		230 V 400 V 500 V 4 A 4 A 4 A		
Pilot Duty UL/CSA ²	Rating Code C 600		Rating Code C 600		
Wire Gage single-core wire flexible wire ¹	mm ² 0,5-2,5 0,5-1,5	AWG 20-14 20-16	mm ² 0,5-2,5 0,5-1,5	AWG 20-14 20-16	
Reset Temperature Compensation Single Phase Protection Manual Test	manual/automatic (selectable) 0 to +35 °C incorporated incorporated		manual/automatic (selectable) 0 to +35 °C incorporated incorporated		
Calibration Setting Ranges	VDE Ampere 10-16 16-23 22-32 30-45	Code No. 1000/1600 A ⁺ 1600/2300 A 2200/3200 A 3000/4500 A	VDE Ampere 22-32 30-45 42-63	Code No. 2200/3200 A ⁺ 3000/4500 A 4200/6300 A	
For use with	R2630/3000-R2630/3040 R2730/3000-R2730/3040		R3560/3000-R3560/3042 R3660/3000-R3660/3042		
*A = Adapter to contactor					

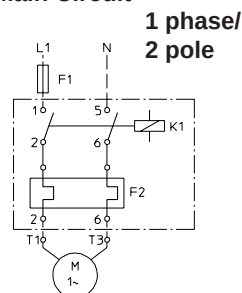
¹sleeving in accordance with DIN 46228, flexible AWG wires without sleeve ²International Standards and Approvals, refer to page 34.

Motor Starters - Direct-on-line with Push Buttons

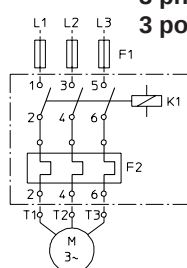
Enclosed Types IP 65



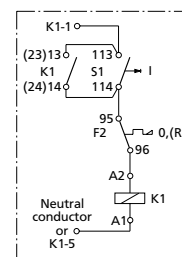
Main Circuit



3 phase/ 3 pole



Control Circuit



1 phase/2 pole Rated Values		M10D11				M12D11				M10D21				M17D11			
Operational Voltage	V	220 240	380 440	500 660 690		220 240	380 440	500 660 690		220 240	380 440	500 660 690		220 240	380 440	500 660 690	
Max. Motor Capacity	kW HP	1,1 1,5	2,2 3	2,2 3	2,2 3	1,5 2	3 4	3 4	3 4	2,2 3	3,7 5	3,7 5	3,7 5	3,7 5	5,5 7,5	4 5,5	4 5,5
Type	I_{MOT}	Code No. 1,3 A¹ /00130 KL 1,9 A /00190 KL 2,8 A /00280 KL 4,2 A /00420 KL 6,2 A /00620 KL 9,2 A /00920 KL 12,75 A /01275 KL				Code No. 1,9 A¹ /00190 KL 2,8 A /00280 KL 4,2 A /00420 KL 6,2 A /00620 KL 9,2 A /00920 KL 12,75 A /01275 KL 16 A /01600 KL				Code No. 2,8 A¹ /00280 KL 4,2 A /00420 KL 6,2 A /00620 KL 9,2 A /00920 KL 12,75 A /01275 KL 16 A /01600 KL 20 A /02000 KL				Code No. 6,2 A¹ /00620 KL 9,2 A /00920 KL 12,75 A /01275 KL 16 A /01600 KL 20 A /02000 KL 25 A /02500 KL 32 A /03200 KL			
Contactor		S1013/2010				S1213/2010				S1023/2010				S1733/2010			
T/O Relay		T 9E2				T 9E2				T 9E2				T 9E2			
Enclosure		KL				KL				KL				KL			
Auxiliary Contacts (available)		-				-				-				-			
Conduit Entries		Multi access entries 19 mm Ø for PG11 and 23 mm Ø for PG16 (see page 42).															
Features		Wired unit with start-stop push buttons.															

3 phase/3 pole Rated Values		M10D13				M12D13				M15D23				M17D23			
Operational Voltage	V	220 240	380 440	500 660 690		220 240	380 440	500 660 690		220 240	380 440	500 660 690		220 240	380 440	500 660 690	
Max. Motor Capacity	kW HP	2,2 3	4 5,5	4 5,5	4 5,5	3 4	5,5 7,5	5,5 7,5	5,5 7,5	4 5,5	7,5 10	7,5 10	7,5 10	5,5 7,5	11 15	7,5 10	7,5 10
Type	I_{MOT}	Code No. 1,3 A¹ /00130 KL 1,9 A /00190 KL 2,8 A /00280 KL 4,2 A /00420 KL 6,2 A /00620 KL 9,2 A /00920 KL				Code No. 1,9 A¹ /00190 KL 2,8 A /00280 KL 4,2 A /00420 KL 6,2 A /00620 KL 9,2 A /00920 KL 12 A /01200 KL				Code No. 2,8 A¹ /00280 KL 4,2 A /00420 KL 6,2 A /00620 KL 9,2 A /00920 KL 12 A /01200 KL 16 A /01600 KL				Code No. 6,2 A¹ /00620 KL 9,2 A /00920 KL 12 A /01200 KL 16 A /01600 KL 20 A /02000 KL 25 A /02500 KL			
Contactor		S1013/3010				S1213/3010				S1523/3010				S1723/3010			
T/O Relay		T 9E1				T 9E1				T 9E1				T 9E1			
Enclosure		KL				KL				KL				KL			
Auxiliary Contacts (available)		-				-				-				-			
Conduit Entries		Multi access entries 19 mm Ø for PG11 and 23 mm Ø for PG16 (see page 42).															
Features		Wired unit with start-stop push buttons.															

¹Coil frequency and voltage: A230, A = 50 Hz, (B = 60 Hz), 230 = 230 V
Max. fuse size see T/O relays page 33.

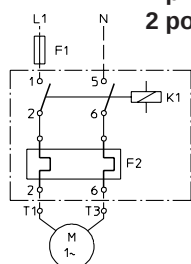
Motor Starters - Direct-on-line with Selector Switch

Enclosed Types IP 65

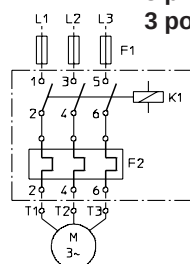


Main Circuit

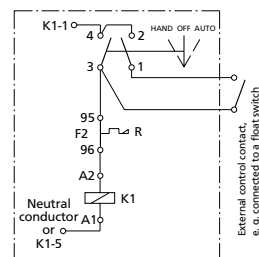
1 phase/
2 pole



3 phase/
3 pole



Control Circuit



1 phase/2 pole Rated Values		M10D51				M10D51				
Operational Voltage	V	220 380 500 660 240 440 690				220 380 500 660 240 440 690				
Max. Motor Capacity	kW HP	1,1 2,2 2,2 2,2 1,5 3 3 3				1,1 2,2 2,2 2,2 1,5 3 3 3				
Type	I _{MOT}	Code No.¹ /00130 KL /00190 KL /00280 KL /00420 KL /00620 KL /00920 KL /01275 KL				Code No.¹ /00000 KL				
Contactor		S1010/2010				S1010/2010				
T/O Relay		T 9E2				without				
Enclosure		KL				KL				
Auxiliary Contacts (available)		1 NO				1 NO				
Conduit Entries		Multi access entries 19 mm Ø for PG11 and 23 mm Ø for PG16 (see page 42).								
Features		Wired unit with selector switch (CG4 A210) and reset unit.								

3 phase/3 pole Rated Values		M10D53				M10D53				
Operational Voltage	V	220 380 500 660 240 440 690				220 380 500 660 240 440 690				
Max. Motor Capacity	kW HP	2,2 4 4 4 3 5,5 5,5 5,5				2,2 4 4 4 3 5,5 5,5 5,5				
Type	I _{MOT}	Code No.¹ /00130 KL /00190 KL /00280 KL /00420 KL /00620 KL /00920 KL				Code No.¹ /00000 KL				
Contactor		S1010/3010				S1010/3010				
T/O Relay		T 9E1				without				
Enclosure		KL				KL				
Auxiliary Contacts (available)		1 NO				1 NO				
Conduit Entries		Multi access entries 19 mm Ø for PG11 and 23 mm Ø for PG16 (see page 42).								
Features		Wired unit with selector switch (CG4 A210) and reset unit.								

¹Coil frequency and voltage: A230, A = 50 Hz, (B = 60 Hz), 230 = 230 V
Max. fuse size see T/O relays page 33.

Motor Starters - Direct-on-line

Enclosed Types IP 54



Main Circuit

Control Circuit

3 phase/3 pole Rated Values	M10D1				M15D1				M12D1				M17D1				M15D2			
Operational Voltage V	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690
Max. Motor Capacity kW HP	2,2 3	4 5,5	4 5,5	4 5,5	2,2 3	4 5,5	4 5,5	4 5,5	3 4	5,5 7,5	5,5 7,5	5,5 7,5	3 4	5,5 7,5	5,5 7,5	5,5 7,5	4 5,5	7,5 10	7,5 10	7,5 10
Type	I_{MOT}	1,3 A	Code No. ¹ /00130 . ²		1,3 A	Code No. ¹ /00130 . ²		1,9 A	Code No. ¹ /00190 . ²		1,9 A	Code No. ¹ /00190 . ²		2,8 A	Code No. ¹ /00280 . ²					
1,9 A		Code No. /00190 .		1,9 A	Code No. /00190 .		2,8 A	Code No. /00280 .		2,8 A	Code No. /00280 .		4,2 A	Code No. /00420 .						
2,8 A		Code No. /00280 .		2,8 A	Code No. /00280 .		4,2 A	Code No. /00420 .		4,2 A	Code No. /00420 .		6,2 A	Code No. /00620 .						
4,2 A		Code No. /00420 .		4,2 A	Code No. /00420 .		6,2 A	Code No. /00620 .		6,2 A	Code No. /00620 .		9,2 A	Code No. /00920 .						
6,2 A		Code No. /00620 .		6,2 A	Code No. /00620 .		9,2 A	Code No. /00920 .		9,2 A	Code No. /00920 .		12 A	Code No. /01200 .						
9,2 A		Code No. /00920 .		9,2 A	Code No. /00920 .		12 A	Code No. /01200 .		12 A	Code No. /01200 .		16 A	Code No. /01600 .						
Contactor	S1010/3010				S1510/3021				S1210/3010				S1710/3021				S1520/3021			
T/O Relay	T 9E1				T 9E1				T 9E1				T 9E1				T 9E1			
Enclosure	ST5 M303				ST5 M303				ST5 M303				ST5 M303				ST5 M303			
Auxiliary Contacts available	NO	-			1	1			-	-			1	1			1	1		
NC	-	-			1	1			-	-			1	1			1	1		
Conduit Entries	Multi access entries 23 mm Ø for PG16 or 29 mm Ø for PG21 and 15,5 mm Ø for PG9 or 21 mm Ø for PG13,5 (see page 42).																			
Features	Wired unit with start-stop push buttons and reset unit.																			

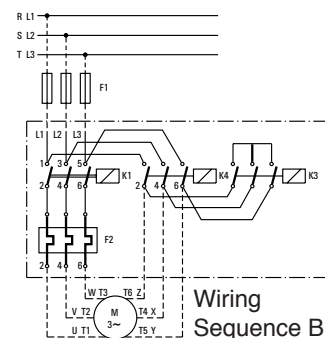
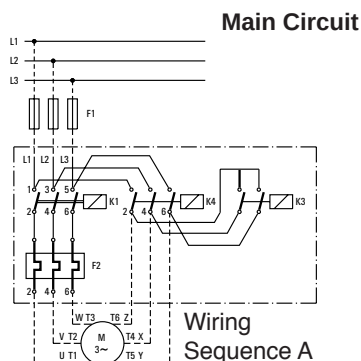
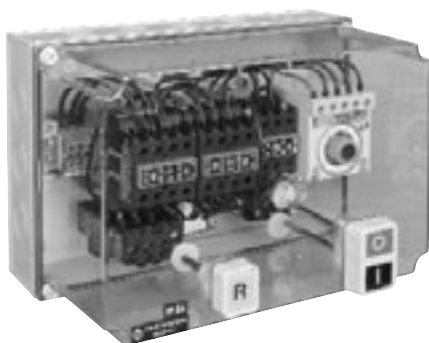
3 phase/3 pole Rated Values	M17D2				M26D1				M27D1				M35D1				M36D1			
Operational Voltage V	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690
Max. Motor Capacity kW HP	5,5 7,5	11 15	7,5 10	7,5 10	7,5 10	15 20	11 15	11 15	11 15	18,5 25	15 20	11 15	15 20	22 30	18,5 25	15 20	15 20	30 40	22 30	15 20
Type	I_{MOT}	6,2 A	Code No. ¹ /00620 . ²		16 A	Code No. ¹ /01600 . ²		16 A	Code No. ¹ /01600 . ²		23 A	Code No. ¹ /02300 . ²		23 A	Code No. ¹ /02300 . ²					
9,2 A		Code No. /00920 .		23 A	Code No. /02300 .		23 A	Code No. /02300 .		32 A	Code No. /03200 .		32 A	Code No. /03200 .						
12 A		Code No. /01200 .		32 A	Code No. /03200 .		32 A	Code No. /03200 .		45 A	Code No. /04500 .		45 A	Code No. /04500 .						
16 A		Code No. /01600 .				45 A	Code No. /04500 .		45 A	Code No. /04500 .		63 A	Code No. /06300 .		63 A	Code No. /06300 .				
20 A		Code No. /02000 .																		
25 A		Code No. /02500 .																		
Contactor	S1720/3021				R2630/3031				R2730/3031				R3560/3042				R3660/3042			
T/O Relay	T 9E1				T 26E4				T 26E4				T 35E4				T 35E4			
Enclosure	ST5 M303				ST5 M304				ST6 M105				ST6 M106				ST6 M106			
Auxiliary Contacts available	NO	1			2	1			2	1			3	2			3	2		
NC	1	1			1	1			1	1			2	2			2	2		
Conduit Entries	ST5 M303 and ST5 M304: Multi access entries for 23 mm Ø for PG16 or 29 mm Ø for PG21 and 15,5 mm Ø for PG9 or 21 mm Ø for PG13,5 (see page 42). ST6 M105 and ST6 M106: Order blank entry plated separately (see page 43).																			
Features	Wired unit with start-stop push buttons and reset unit.																			

¹Coil frequency and voltage: A230, A = 50 Hz, (B = 60 Hz), 230 = 230 V
²M: Enclosure with opaque cover, P: Enclosure with transparent cover
Max. fuse size see T/O relays page 33.

Motor Starters - Manual Star-delta

		Main Circuit								Control Circuit									
																			
Enclosed Types IP 54																			
3 phase/3 pole Rated Values		M10S5				M12S5				M15S5				M17S5					
Operational Voltage	V	220 240	380 440	500 660 690		220 240	380 440	500 660 690		220 240	380 440	500 660 690		220 240	380 440	500 660 690			
Max. Motor Capacity	kW HP	2,2 3	4 5,5	4 5,5	4 5,5	3 4	5,5 7,5	5,5 7,5	5,5 7,5	4 5,5	7,5 10	7,5 10	7,5 10	5,5 7,5	11 15	7,5 10	7,5 10		
Type	I _{MOT}	Code No. 1,5 A¹ /00092 .² 2,2 A /00130 . 3,2 A /00190 . 4,8 A /00280 . 7,3 A /00420 . 9 A /00620 .				Code No. 2,2 A¹ /00130 .² 3,2 A /00190 . 4,8 A /00280 . 7,3 A /00420 . 10,5 A /00620 . 12 A /00920 .				Code No. 2,2 A¹ /00130 .² 3,2 A /00190 . 4,8 A /00280 . 7,3 A /00420 . 10,5 A /00620 . 16 A /00920 .				Code No. 4,8 A¹ /00280 .² 7,3 A /00420 . 10,5 A /00620 . 16 A /00920 . 20 A /01200 . 22 A /01600 .					
Switch		CA10 A419				CA20 A419				CA20 A419				CA20 A419					
Contactor		S1010/3010				S1210/3010				S1520/3010				S1720/3010					
T/O Relay		T 9E1				T 9E1				T 9E1				T 9E1					
Enclosure		ST5 M303				ST5 M303				ST5 M303				ST5 M303					
Conduit Entries		Multi access entries 23 mm Ø for PG16 or 29 mm Ø for PG21 and 15,5 mm Ø for PG9 or 21 mm Ø for PG13,5 (see page 42).																	
Features		Wired unit with manual star-delta and reset unit.																	
Open Types IP 00																			
3 phase/3 pole Rated Values		M10S5				M12S5				M15S5				M17S5					
Type	I _{MOT}	Code No. 1,5 A¹ /00092 E 2,2 A /00130 E 3,2 A /00190 E 4,8 A /00280 E 7,3 A /00420 E 9 A /00620 E				Code No. 2,2 A¹ /00130 E 3,2 A /00190 E 4,8 A /00280 E 7,3 A /00420 E 10,5 A /00620 E 12 A /00920 E				Code No. 2,2 A¹ /00130 E 3,2 A /00190 E 4,8 A /00280 E 7,3 A /00420 E 10,5 A /00620 E 16 A /00920 E				Code No. 4,8 A¹ /00280 E 7,3 A /00420 E 10,5 A /00620 E 16 A /00920 E 20 A /01200 E 22 A /01600 E					
Features		Pre-wired unit on EN 50022 track or base plate without reset unit.																	
¹Coil frequency and voltage: A230, A = 50 Hz, (B = 60 Hz), 230 = 230 V ²M: Enclosure with opaque cover, P: Enclosure with transparent cover Max. fuse size see T/O relays page 33. Overload relay set at 58 % of motor running current.																			

Motor Starters - Automatic Star-delta



Enclosed Types IP 54

3 phase/3 pole Rated Values		M15S1				M15S2				M17S1				M17S2				M26S2			
Operational Voltage	V	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690	220 240	380 440	500 690	660 690
Max. Motor Capacity	kW HP	4 5,5	7,5 10	7,5 10	7,5 10	5,5 7,5	11 15	11 15	11 15	7,5 10	15 20	15 20	12 16	11 15	18,5 25	15 20	12 16	13 17,5	22 30	18,5 25	15 20
Type	I _{MOT}	Code No. 2,2 A ¹ /00130 . ² 3,2 A /00190 . 4,8 A /00280 . 7,3 A /00420 . 10,5 A /00620 . 16 A /00920 .				Code No. 4,8 A ¹ /00280 . ² 7,3 A /00420 . 10,5 A /00620 . 16 A /00920 . 20 A /01200 . 22 A /01600 .				Code No. 7,3 A ¹ /00420 . ² 10,5 A /00620 . 16 A /00920 . 20 A /01200 . 27 A /01600 . 30 A /02000 .				Code No. 10,5 A ¹ /00620 . ² 16 A /00920 . 20 A /01200 . 27 A /01600 . 34 A /02000 . 40 A /02500 .				Code No. 27 A ¹ /01600 . ² 39 A /02300 . 46 A /03200 .			
Main Contactor		S1510/3031				S1520/3031				S1720/3031				S1720/3031				R2630/3031			
Star Contactor		S1010/2011				S1010/2011				S1210/2011				S1520/3011				S1520/3021			
Delta Contactor		S1510/3022				S1520/3012				S1720/3012				S1720/3012				R2630/3022			
T/O Relay		T 9E1				T 9E1				T 9E1				T 9E1				T 26E4			
Enclosure		ST5 M405				ST5 M405				ST5 M405				ST5 M405				ST6 M108			
Auxiliary Contacts	NO	Main Cont.	Star Cont.	Delta Cont.		Main Cont.	Star Cont.	Delta Cont.		Main Cont.	Star Cont.	Delta Cont.		Main Cont.	Star Cont.	Delta Cont.		Main Cont.	Star Cont.	Delta Cont.	
available	NC	1	-	1		1	-	-		1	-	-		1	-	-		1	1	1	
		1	-	-		1	-	-		1	-	-		1	-	-		1	-	-	
Wiring Sequence		A				A				A				B				B			
Conduit Entries		ST5 M405: Multi access entries for 23 mm Ø for PG16 or 29 mm Ø for PG21 and 15,5 mm Ø for PG9 or 21 mm Ø for PG 13,5 (see page 42).																			
Features		ST6 M108: Order blank entry plates separately (see page 43).																			
		Wired unit with time-lag relay, start-stop push buttons and reset unit.																			

Open Types IP 00

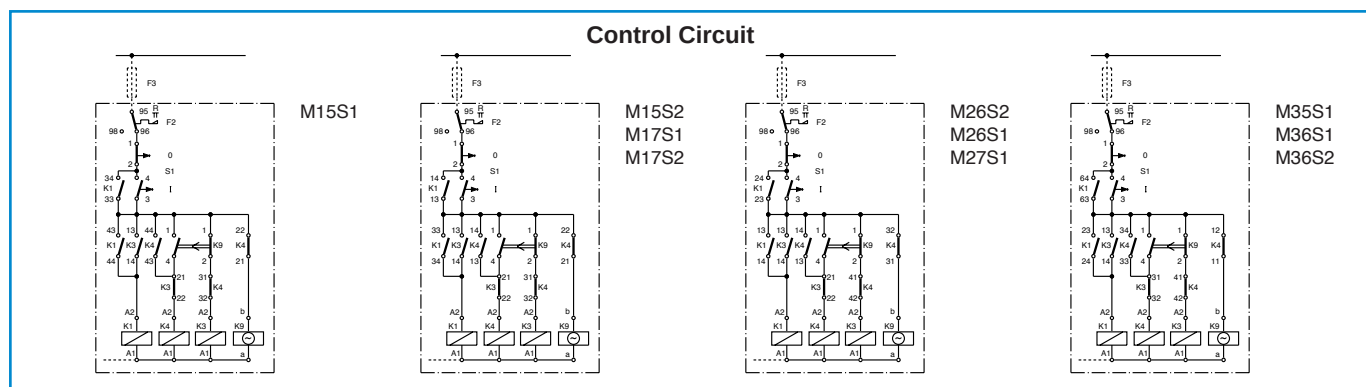
3 phase/3 pole Rated Values		M15S1		M15S2		M17S1		M17S2		M26S2	
Type	I _{MOT}	2,2 A	Code No.¹ /00130 E	4,8 A	Code No.¹ /00280 E	7,3 A	Code No.¹ /00420 E	10,5 A	Code No.¹ /00620 E	27 A	Code No.¹ /01600 E
		3,2 A	 /00190 E	7,3 A	 /00420 E	10,5 A	 /00620 E	16 A	 /00920 E	39 A	 /02300 E
		4,8 A	 /00280 E	10,5 A	 /00620 E	16 A	 /00920 E	20 A	 /01200 E	46 A	 /03200 E
		7,3 A	 /00420 E	16 A	 /00920 E	20 A	 /01200 E	27 A	 /01600 E		
		10,5 A	 /00620 E	20 A	 /01200 E	27 A	 /01600 E	34 A	 /02000 E		
		16 A	 /00920 E	22 A	 /01600 E	30 A	 /02000 E	39 A	 /02500 E		
Features		Pre-wired unit on EN 50022 track or base plate without start-stop bush buttons and reset unit.									

¹Coil frequency and voltage: A230, A = 50 Hz, (B = 60 Hz), 230 = 230 V

²M: Enclosure with opaque cover, P: Enclosure with transparent cover

Max. fuse size see T/O relays page 33. Overload relay set at 58 % of motor running current.

Motor Starters - Automatic Star-delta



Enclosed Types IP 54

3 phase/3 pole Rated Values	M26S1	M27S1	M35S1	M36S1	M36S2
Operational Voltage V	220 380 500 660 240 440 690	220 380 500 660 240 440 690	220 380 500 660 240 440 690	220 380 500 660 240 440 690	220 380 500 660 240 440 690
Max. Motor Capacity kW HP	15 25 18,5 15 20 34 25 20	18,5 30 22 18,5 25 40 30 25	22 37 30 22 30 50 40 30	25 45 35 25 34 60 47 34	30 55 37 27 40 75 50 36
Type I_{MOT}	27 A 39 A 52 A Code No. ¹ /01600 . ² /02300 /03200 .	27 A 39 A 55 A 65 A Code No. ¹ /01600 . ² /02300 /03200 /04500 .	27 A 39 A 55 A 75 A Code No. ¹ /01600 . ² /02300 /03200 /04500 .	39 A 55 A 77 A 85 A Code No. ¹ /02300 . ² /03200 /04500 /06300 .	39 A 55 A 77 A 105 A Code No. ¹ /02300 . ² /03200 /04500 /06300 .
Main Contactor Star Contactor Delta Contactor	R2630/3031 S1730/2011 R2630/3022	R2730/3031 S1730/2011 R2730/3022	R3560/3042 R2630/3022 R3560/3033	R3660/3042 R2630/3022 R3660/3033	R3660/3042 R2730/3022 R3660/3033
T/O Relay	T 26E4	T 26E4	T 35E4 ³	T 35E4	T 35E4
Enclosure	ST6 M108	ST6 M108	ST6 M109	ST6 M109	ST6 M109
Auxiliary Contacts NO available NC	Main Cont. Star Cont. Delta Cont. 1 1 1 1 - -	Main Cont. Star Cont. Delta Cont. 1 1 1 1 - -	Main Cont. Star Cont. Delta Cont. 2 1 2 2 1 1	Main Cont. Star Cont. Delta Cont. 2 1 2 2 1 1	Main Cont. Star Cont. Delta Cont. 2 1 2 2 1 1
Wiring Sequence	A	A	B	B	B
Conduit Entries	Order blank entry separately (see page 43).				
Features	Wired unit with time-lag relay, start-stop push buttons and reset unit.				

Open Types IP 00

3 phase/3 pole Rated Values	M26S1	M27S1	M35S1	M36S1	M36S2
Type I_{MOT}	27 A 39 A 52 A Code No. ¹ /01600 E /02300 E /03200 E	27 A 39 A 55 A 65 A Code No. ¹ /01600 E /02300 E /03200 E /04500 E	27 A 39 A 55 A 75 A Code No. ¹ /01600 E /02300 E /03200 E /04500 E	39 A 55 A 77 A 85 A Code No. ¹ /02300 E /03200 E /04500 E /06300 E	39 A 55 A 77 A 105 A Code No. ¹ /02300 E /03200 E /04500 E /06300 E
Features	Pre-wired unit on EN 50022 track or base plate without start-stop push buttons and reset unit.				

¹Coil frequency and voltage: A230, A = 50 Hz, (B = 60 Hz), 230 = 230 V

²M: Enclosure with opaque cover, P: Enclosure with transparent cover

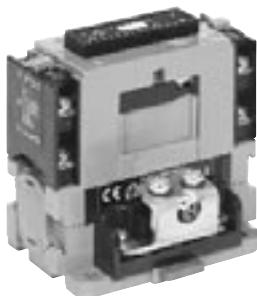
³...T 26E4 for $I_{MOT} = 27$ A

Max. fuse size see T/O relays page 33. Overload relay set at 58 % of motor running current.

Special Purpose Contactors



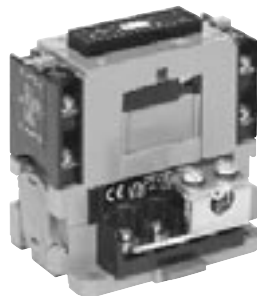
S1017, S1217



R2627



S1018, S1218



R2628

Contactors with Parallel Contacts for Use with High Resistive Loads

AC-1-Rating Output in kW

Contactor			I_u/I_{th} I_e A	AC-1							
				110 V 120 V	220 V	230 V 240 V	400 V	415 V 440 V	500 V		
Single Phase											
	S1017/	3000	open	36	4	7,8	8,3	13,6	15	18	
		3010	enclosed	30	3,3	6,6	7	11,4	12	15	
		3001									
	S1217/	3000	open	40	4,4	8,8	9,2	15,2	16,5	20	
		3010	enclosed	36	4	7,8	8,3	13,6	15	18	
		3001									
	R2627/	4000	open	75	8,2	16,5	17,2	28,5	31	37	
		4040	enclosed	63	7	14	14,5	23,5	26	31	
		4031									
		4022									
	S1018/	4000	open	50	5,5	11	11,5	19	20	25	
			enclosed	40	4,4	8,8	9,2	15,2	16,5	20	
	S1218/	4000	open	63	7	14	14,5	23,5	26	31	
			enclosed	50	5,5	11	11,5	19	20	25	
	R2628/	4000	open	100	11	22	23	38	40	50	
		4040	enclosed	80	8,8	17,6	18,4	30	33	40	
		4031									
	R2628/	4000	open	100	11	22	23	38	40	50	
		4040	enclosed	80	8,8	17,6	18,4	30	33	40	
		4031									
		4022									
	Triphase										
		S1017/	3000	open	36	7	13,5	14,3	23,5	26	30
3010			enclosed	30	5,7	11,4	12	19	20	25	
3001											
S1217/		3000	open	40	7,6	15,2	16	26	28	34	
		3010	enclosed	36	7	13,5	14,3	23,5	26	30	
		3001									
	R2627/	4000	open	75	14	28	30	49	53	64	
		4040	enclosed	63	12	24	25	40	45	53	
		4031									
		4022									
	S1018/	4000	open	50	9,5	19	20	32	34	43	
			enclosed	40	7,6	15,2	16	26	28	34	
	S1218/	4000	open	63	12	24	25	40	45	53	
			enclosed	50	9,5	19	20	32	34	43	
	R2628/	4000	open	100	19	38	40	60	68	85	
		4040	enclosed	80	15	30	31	50	56	68	
		4031									
4022											

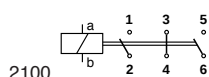
Contact: S1017/S1018, S1217/S1218 with cable lug and screw M6.
R2627/R2628 max. 35 mm².

Special Purpose Contactors

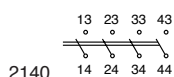
Contactors with NC Contacts for Heavy Duty

Type			R2630/								R2620/								R2620/					
			2100								3100								2200					
			2140								3140								2240					
			2131								3131								2231					
			2122								3122								2222					
Main Contacts																								
Rated output (1 phase)	V		230	400	415	440	500	690			230	400	415	440	500	690			230	400	415	440	500	690
AC-1 open	NO	kW	9	15	16,6	17,5	20	25			7	12	13,3	14	16	20			7	12	13,3	14	16	20
	NC	kW	9	15	16,6	17,5	-	-			7	12	13,3	14	-	-			7	12	13,3	14	16	20
AC-3	NO	kW	2,2	4	4	4	4	4			1,5	3,7	3,7	3,7	3,7	3,7			1,5	3,7	3,7	3,7	3,7	3,7
	NC	kW	2,2	-	-	-	-	-			1,5	-	-	-	-	-			1,5	3,7	3,7	3,7	3,7	3,7
HP-Rating (single-phase)	V		120	240	480	600					120	240	480	600					120	240	480	600		
UL, CSA	NO	HP	2	5	7,5	10					1,5	3	5	7,5					1,5	3	5	7,5		
	NC	HP	2	5	-	-					1,5	3	-	-					1,5	3	5	7,5		
Further information see			page 12						page 15						page 15									

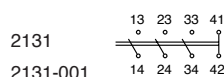
R26 Special Purpose Contactors



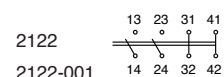
2100



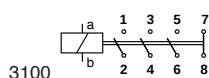
2140



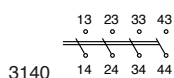
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2131-001



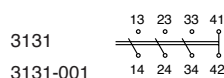
2122
2122-001



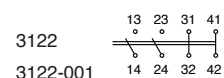
3100



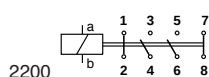
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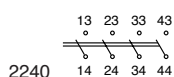
3131
3131-001



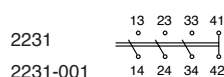
3122
3122-001



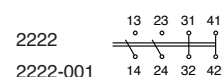
2200



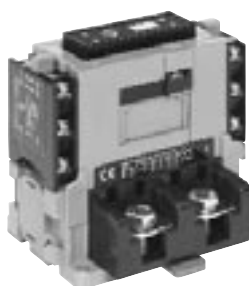
2240



2231
2231-001

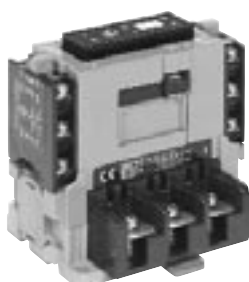


2222
2222-001



Contactors R3576 with Connection for Cable Lug

Technical data and contact configurations see R3570 (page 9).
Connecting screw M 8 x 16 mm.
Max. width cable lug: 25,4 mm.



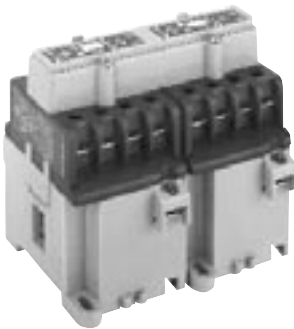
Contactors R3566/R3666 with Connection for Cable Lug

Technical data and contact configurations see R3560/R3660 (page 13).
Connection screw M 6 x 15 mm.
Max. width cable lug: 15 mm.

Optional Extras, Mounting Units

Mechanical Interlocks

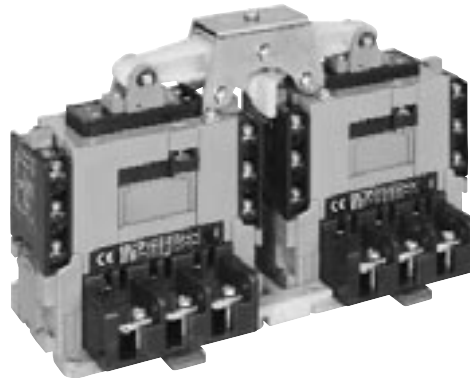
T0D V620: S10/S12 and S15/S17



Mechanical interlock prevents simultaneous contactor operation.

T2C V620: R2625, R2635, R2645, R2735

T3C V620: R35, R36



Sealed Cover EC

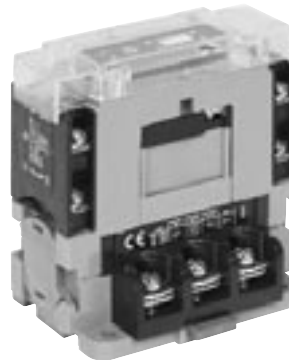
R26, R27



Sealed covers are suitable for use in 45 mm slot distribution systems.

Protective Cover EC2

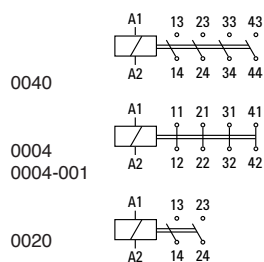
R26, R27



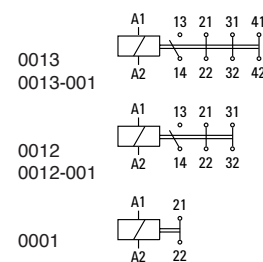
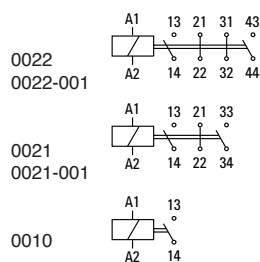
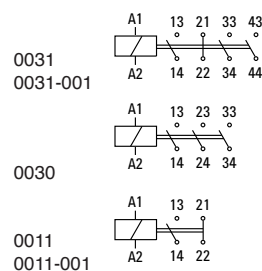
Transparent cover which prevents accidental operation of contactors R26 and R27.

Terminal Markings

S1000/S1200, S1002/S1202



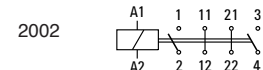
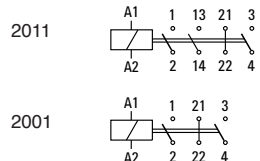
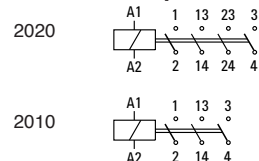
Multipole Relays



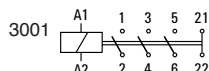
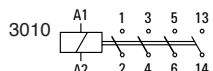
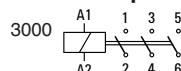
S1010/S1210



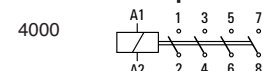
Contactors 2 pole



Contactors 3 pole

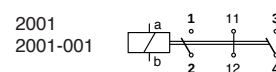
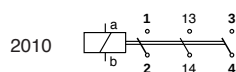
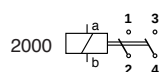


Contactors 4 pole



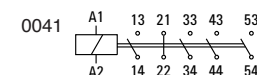
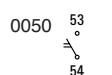
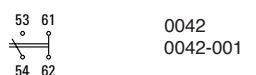
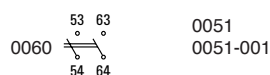
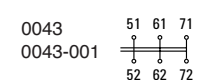
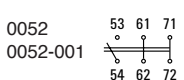
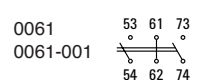
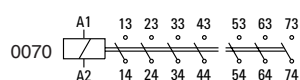
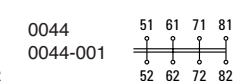
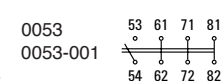
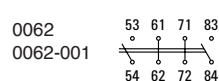
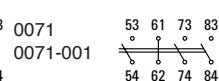
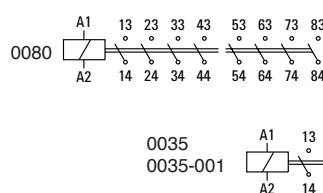
S1020

Contactors 2 pole



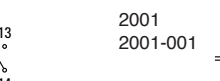
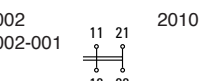
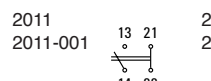
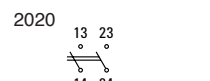
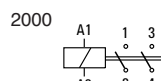
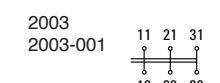
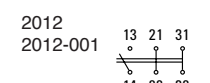
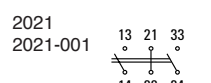
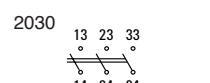
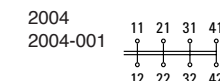
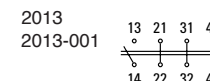
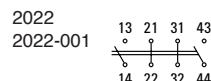
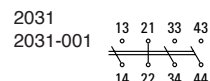
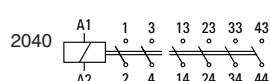
S1500/S1700, S1502/S1702

Multipole Relays



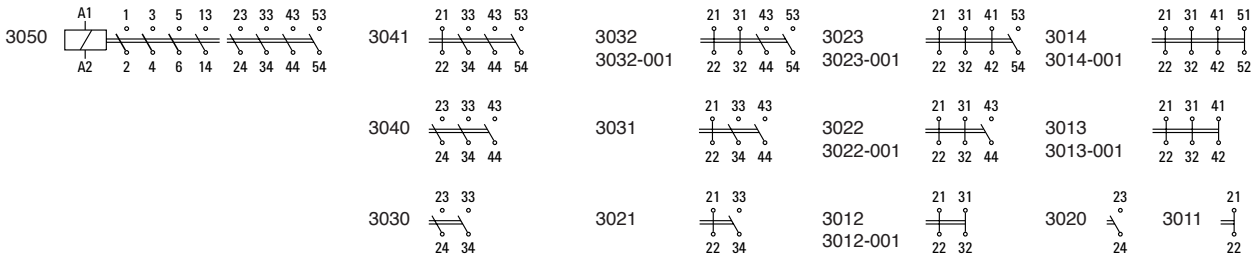
S1730

Contactors 2 pole

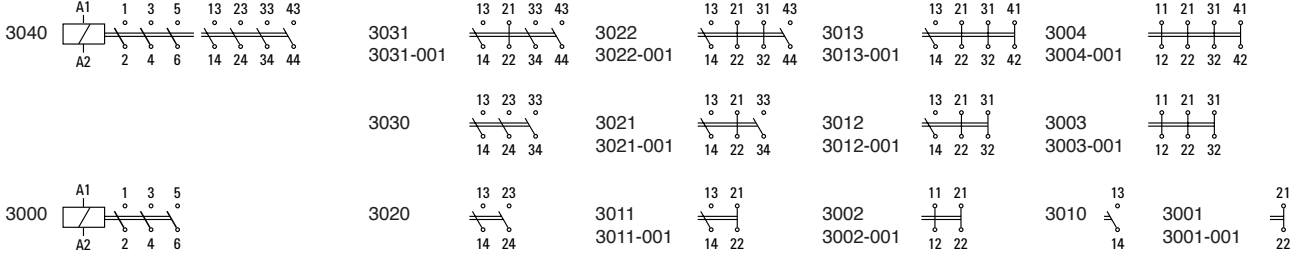


Terminal Markings

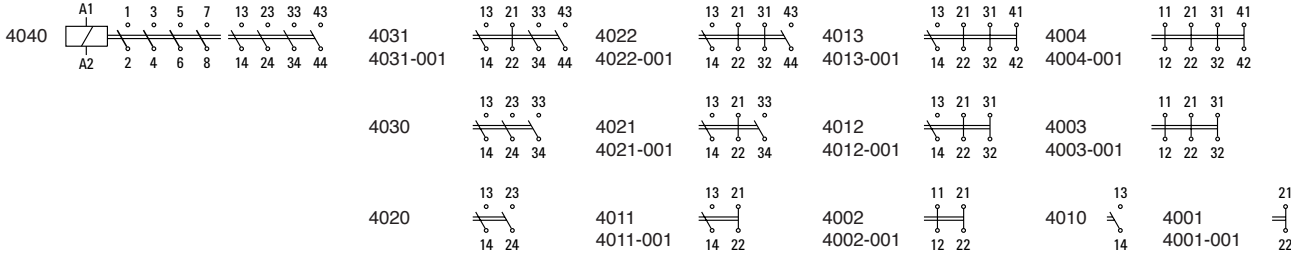
S1510/S1710 Contactors 3 pole



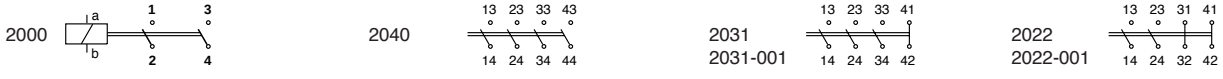
S1520/S1720 Contactors 3 pole



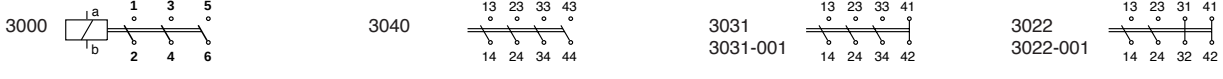
S1510/S1710 Contactors 4 pole



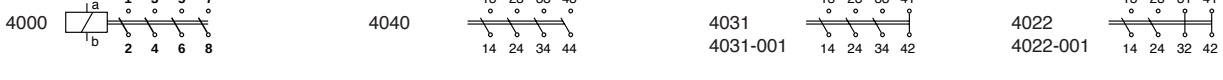
R2640 Contactors 2 pole



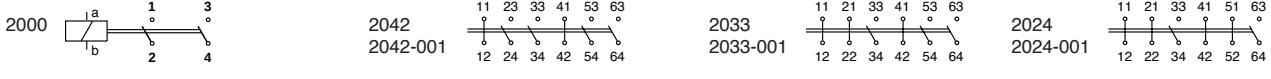
R2630/R2730 Contactors 3 pole



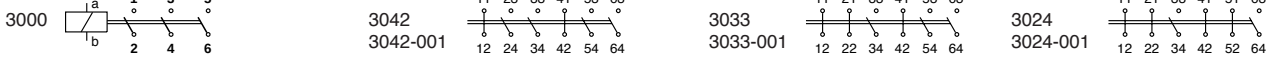
R2620 Contactors 4 pole



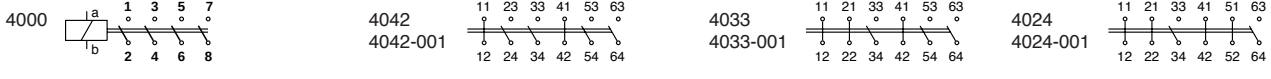
R3570 Contactors 2 pole



R3560/R3660 Contactors 3 pole



R3530 Contactors 4 pole



Coil Characteristics

Voltage Range						
			S10, S12	S15, S17	R26, R27	R35, R36
AC	50 Hz		24 V-550 V	24 V-550 V	24 V-550 V	24 V-550 V
	60 Hz		24 V-600 V	24 V-600 V	24 V-600 V	24 V-600 V
DC			24 V-240 V	24 V-240 V	24 V-240 V	24 V-240 V

Coil Power Consumption at 100 % U _C						
Coil for			S10, S12	S15, S17	R26, R27	R35, R36
AC 50 Hz	Pull in	VA	55	55	60	140
	Seal in	VA	8	8	10	14
		W	2,5	2,5	3	3,5
AC 60 Hz	Pull in	VA	70	70	75	170
	Seal in	VA	10	10	12	18
		W	3,3	3,3	4	4
DC (incl. economy resistor)	Pull in	W	100	100	100	200
	Seal in	W	11	11	14	17,5

Operational Limits S10-S17, R26-R36						
AC powered 50-60 Hz			DC powered			
Pull in			min. 0,75-0,85 U _C /max. 1,1 U _C		Pull in	
Drop out			0,4 U _C -0,6 U _C		Drop out	
					min. 0,7-0,8 U _C /max. 1,1 U _C	
					0,2 U _C -0,5 U _C	

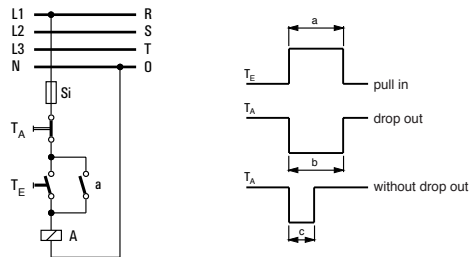
Response Time at 100 % U _C						
			S10, S12	S15, S17	R26, R27	R35, R36
Pull in			7 ms-13 ms	9 ms-16 ms	14 ms-25 ms	12 ms-22 ms
Drop out			6 ms-17 ms	6 ms-17 ms	8 ms-22 ms	8 ms-16 ms

Main Contact Bounce at 100 % U _C						
			S10, S12	S15, S17	R26	R35
			max. 4 ms	max. 4 ms	max. 5 ms	max. 4 ms

Max. Permissible Ambient Temperature						
S10-S17, R26-R36						
open		55 °C during 24 hours with peaks up to 60 °C		enclosed	35 °C during 24 hours with peaks up to 40 °C	

Coil Characteristics

Minimum Command Duration Trigger Circuit for Impulse Energizing

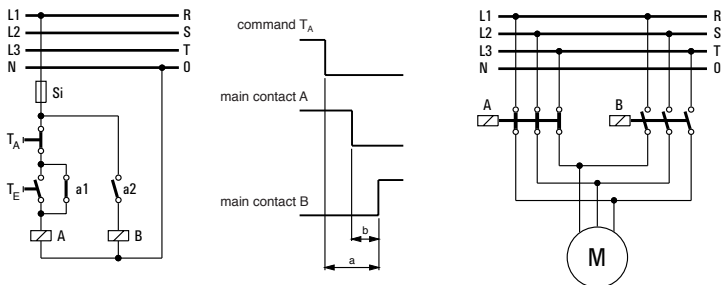


Commands for pull in and drop out require the following minimum duration in ms:

Type	Pull in a	Drop out b	Max. duration of triggering without drop out c
S10, S12 S15, S17 R26, R27 R35, R36	25-30	25-30	5

Change-over Time

De-energizing of contactor A causes energizing of contactor B (control switch).

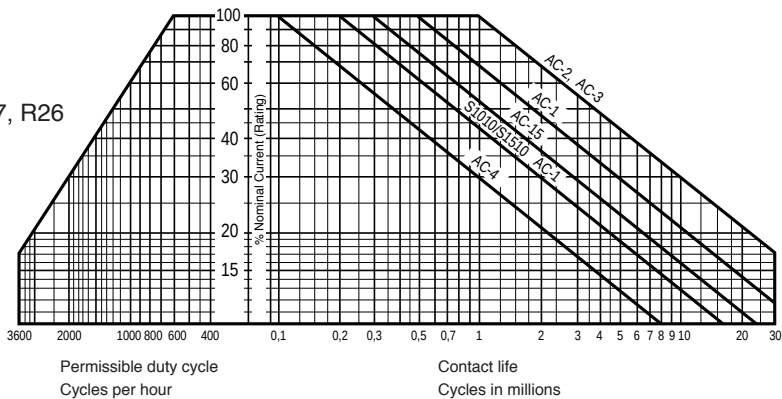


Type	Response time in ms	
	a	b
S10, S12	20-30	10-17
S15, S17	24-35	14-20
R26, R27	29-40	16-25
R35, R36	25-34	14-22

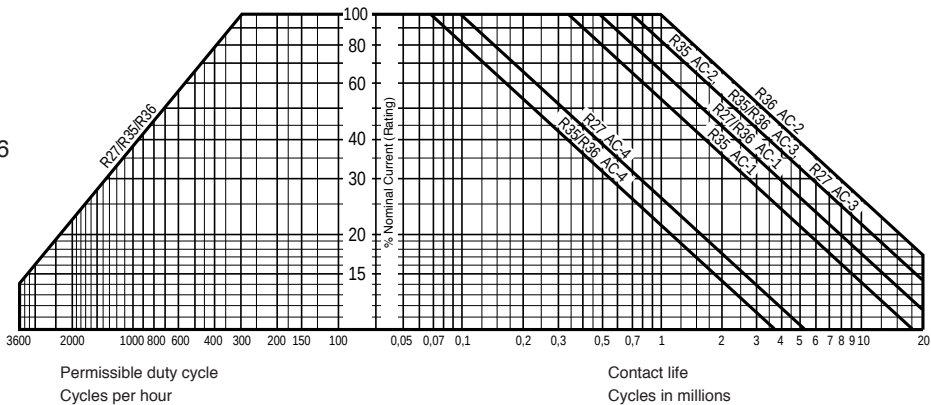
Heavy duty control may sustain arcs for up to 20 ms with the possible danger of cross short circuiting. Time delay relays must be employed for reversing applications.

Contact Life: Permissible Number of Operations

Contactors: S10-S17, R26



Contactors: R27-R36

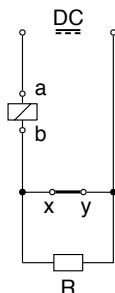


DC Control

DC Control

Contactors may be DC controlled if economy resistors are used. Contactors for DC are equipped with a delayed auxiliary contact.

Wiring of DC control circuit



Contactor

S1000, S1200
S1010, S1210
S1002, S1202
S1020
S1500, S1700
S1502, S1702
S1510, S1710 3pole
S1510, S1710 4pole
S1520, S1720
S1730
R26, R27
R35, R36

Terminal markings for delayed auxiliary contacts

X	Y
21	22
21	22
21	22
11	12
61	62
61	62
31	32
21	22
21	22
21	22
41	42
41	42

Details of required Economy Resistor

Required operational voltage	S10/S12 S15/S17		R26 R27		R35 R36	
DC U_c	Ω	W	Ω	W	Ω	W
24 V	56		39		33	
28 V	82		56		47	
30 V	82		-		-	
32 V	100		-		-	
36 V	120		82		82	
40 V	180		120		100	
42 V	180		120		100	
48 V-50 V	270		150		150	
60 V	390	10	270	12	220	17
74 V	560		390		330	
95 V-100 V	1000		680		560	
105 V	1200		-		-	
110 V-115 V	1200		820		680	
120 V-125 V	1500		1000		1000	
130 V-140 V	1800		1200		1200	
180 V	3900		2200		2200	
200 V	3900		-		2700	
220 V	4700		3300		3300	
240 V	5600		3900		3300	

Permissible tolerance of economy resistor $\pm 10\%$.

Switching Capacity

DC Switching Capacity - Rated operational current I_g in ampere

Permissible DC current/volts No. of series contacts					Contactor					
	1	2	3	4	S1010 S1510	S1210 S1710	S1020 S1520 S1720 R2620	S1730 R2630 R2730 R3530	R2640	R3560 R3660
Resistive loads	42	85	125	160	16	20	32	40	50	63
$T \leq 1 \text{ ms}$	60	120	180	240	8	10	15	17	20	26
	110	220	330	440	3,5	4	5	5,5	6,5	7
	220	440	660	-	1	1,2	1,4	1,5	-	-
	440	660	-	-	0,5	0,5	0,5	-	-	-
Inductive loads	24	48	72	96	16	20	32	40	50	63
$T = 50 \text{ ms}^1$	30	60	90	120	8,5	10	14	17	19	20
	42	85	125	160	4	5	5,5	6	7	8
	60	120	180	240	2,5	2,6	2,8	3	3,5	-
	110	220	330	440	0,7	0,8	1	1	-	-

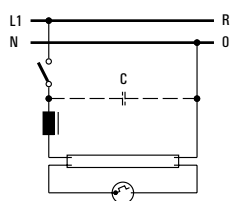
¹Details of other time constants available on request.

Fluorescent Light Control

Control	Wattage	Capacitor	S1010 S1510	S1210 S1710	S1020 S1520	S1730 R2630	R2640	R3560
Max. number of lamps per phase								
Single uncompensated	40 W	-	35	44	71	88	110	155
	65 W	-	21	26	42	53	66	93
	100 W	-	12	16	25	32	40	56
	120 W	-	11	14	22	28	35	50
Single compensated	40 W	4,5 μF	33	42	80	100	110	155
	65 W	6,5 μF	22	28	53	68	70	90
	100 W	18,0 μF	14	18	34	43	45	55
	120 W	18,5 μF	11	15	30	38	40	50
Max. number of lamps per phase								
Dual	2 x 40 W	-	26	33	53	66	83	116
	2 x 65 W	-	14	22	35	44	55	77
	2 x 100 W	-	12	15	24	30	38	53
	2 x 120 W	-	10	13	21	26	33	46
Tandem uncompensated	2 x 20 W	-	40	50	80	100	125	175
	2 x 40 W	-	18	23	37	47	58	82
Tandem compensated	2 x 20 W	3,6 μF	43	55	85	110	125	175
	2 x 40 W	10,0 μF	20	25	40	50	58	80

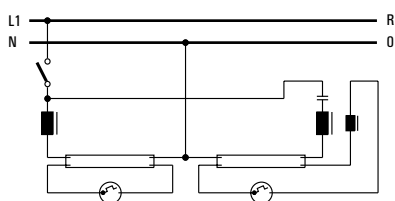
Values for "open type"

Single control

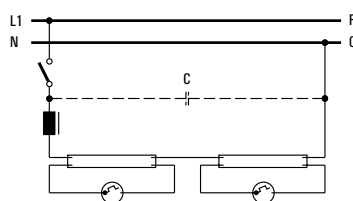


with C... compensated
without C... uncompensated

Dual control



Tandem control



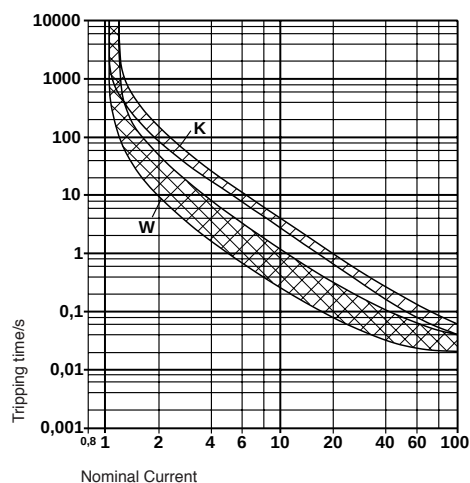
with C... compensated
without C... uncompensated

Thermal Overload Relays

Tripping Characteristics

T 9E1-T 35E4

W... from hot condition
K... from cold condition



Short Circuit Protection

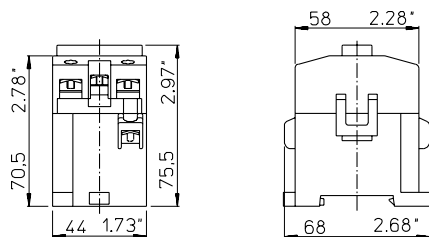
Relay	Setting range (A)	Max. fuse size (A)				UL
		quick ⁺		slow ⁺		
		"1"	"2"	"1"	"2"	
T 9E1- 004 A	0,13 -0,20	35	2	25	-	1
	0,19 -0,29	35	2	25	-	1
	0,27 -0,42	35	2	25	2	1
	0,40 -0,62	35	4	25	4	1
	0,60 -0,92	35	6	25	4	3
	0,85 -1,3	35	6	25	4	3
	1,2 -1,9	35	10	25	6	6
	1,8 -2,8	35	16	25	10	15
	2,7 -4,2	35	25	25	20	15
	4 -6,2	-	35	25	20	15
	6 -9,2	-	35	-	25	35
	8 -12	-	35	-	25	35
	11 -16	-	35	-	25	50
	15 -20	-	50	-	35	60
	19 -25	-	50	-	35	60
T 26E4	10 -16	125	50	100	35	-
	16 -23	160	80	125	63	-
	22 -32	160	80	125	63	-
	30 -45	160	100	125	80	-
T 35E4	22 -32	160	80	125	63	-
	30 -45	160	100	125	80	-
	42 -63	160	125	125	100	-

[†]According to IEC 60947-4-1 (assignment "1" = coordinating "a" and assignment "2" = coordinating "c" according to IEC 60292-1A).

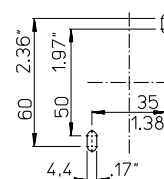
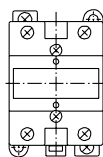
International Standards and Approvals

Country	Authority	Mark or Standard	S1000 S1002 S1010	S1200 S1202 S1210	S1020 S15/S1702 S1730	S1500 S1510 S1520	S1700 S1710 S1720	R2620 R2630 R2640	R2730 R3660	R3530 R3560 R3570
USA	Underwriters Laboratories		● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ●	● ● +
Canada	Underwriters Lab. Canadian Standards Association	 	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	● ● ●	+	● ● ●
Switzerland	Schweizerischer Elektrotechnischer Verein		+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
Denmark	Danmarks Elektriske Materielkontrol		+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
Norway	Norges Elektriske Materielkontrol		+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
Sweden	Svenska Elektriska Materielkontrollanstalten		+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
Federal Republic of Germany	Verband Deutscher Elektrotechniker	VDE 0660 ²	+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
Great Britain	British Standards Institution	BS EN 60947 ²	+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
International Electrical Commissions (IEC) Recommendation		IEC 60947 ³	+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
			+	+	+	+	+	+	+	+
Country	Authority	Mark or Standard	T 9E1	T26E4	T35E4					
USA	Underwriters Laboratories		●							
Canada	Underwriters Lab. Canadian Standards Association		+							
Switzerland	Schweizerischer Elektrotechnischer Verein		+	+	+					
Federal Republic of Germany	Verband Deutscher Elektrotechniker	VDE 0660 ²	+	+	+					
Great Britain	British Standards Institution	BS EN 60947 ²	+	+	+					
International Electrical Commissions (IEC) Recommendation		IEC 60947 ³	+	+	+					
● Product approved + Product conforms to requirements										
¹ Blue Line™ contactors and thermal overload relays are recognized by Underwriters Laboratories within the framework of the “Component Program” (UL-Recognized Industrial Component).										
² Industrial switchgear is not required to bear a symbol but must conform to requirements. By referring to the specific specification on the product the manufacturer implies that the requirements have been met.										
³ IEC does not operate an approval scheme.										

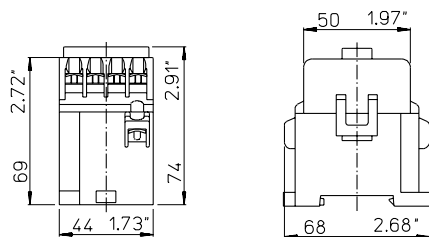
Dimensions S1020, S10, S12, T 9E1



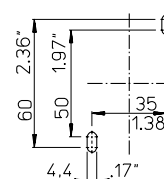
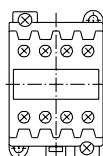
Contactor S1020 2 pole



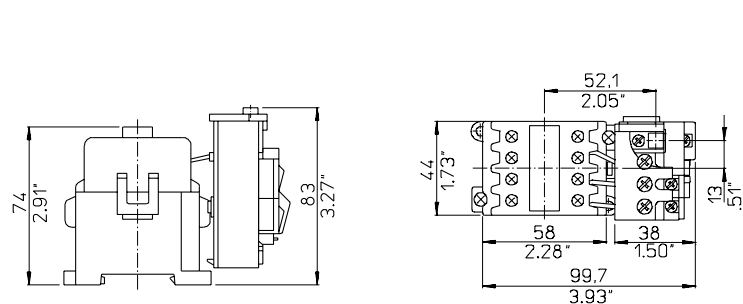
Drilling Plan



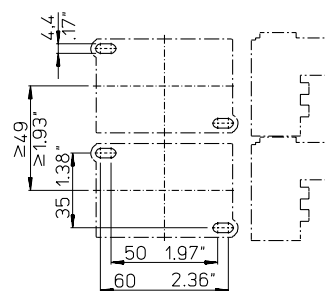
Contactor S10/S12



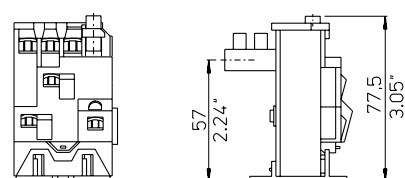
Drilling Plan



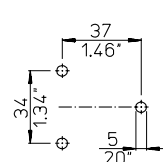
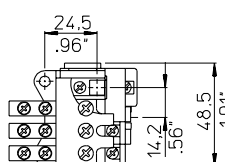
**Contactor S10/S12 with
T/O Relay T 9E1**



Drilling Plan



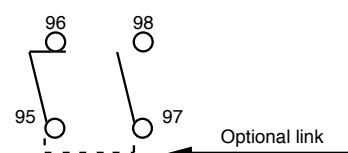
T/O Relay T 9E1



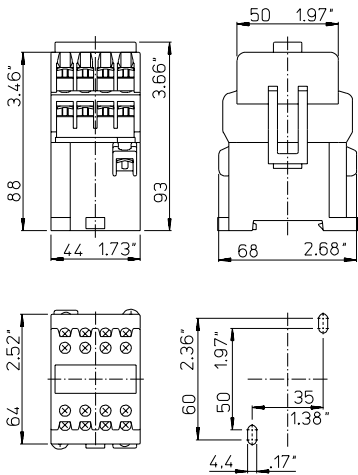
Drilling Plan

Changeover contact

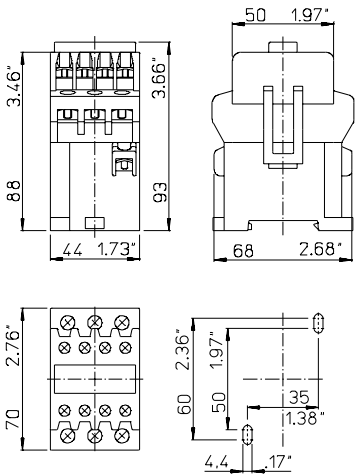
If a changeover contact is required then an external jumper must be connected between terminals 95 and 97.



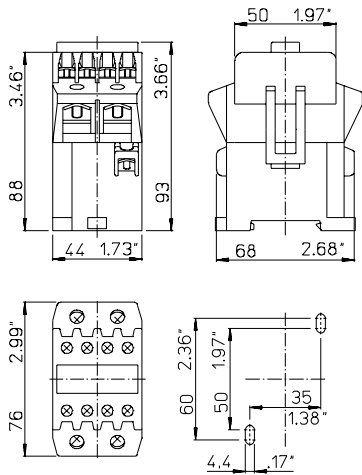
Dimensions S15, S17, T 9E1



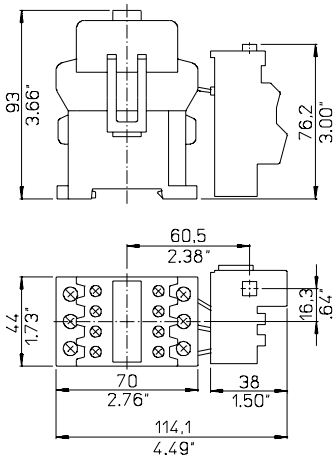
Contactor S15/S1700
Contactor S15/S1710 3 and 4 pole



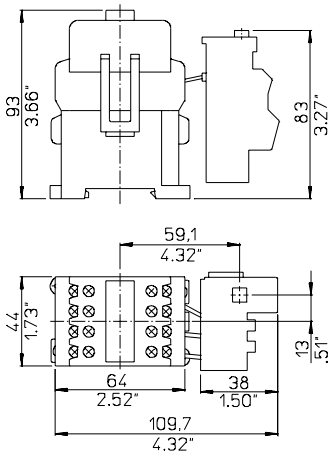
Contactor S15/S1720 3 pole



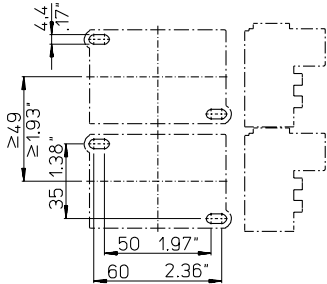
Contactor S1730 2 pole



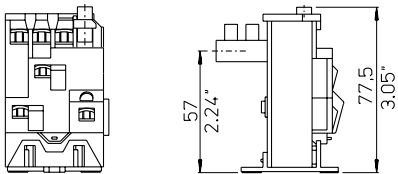
Contactor S15/S1720 with
T/O Relay T 9E1



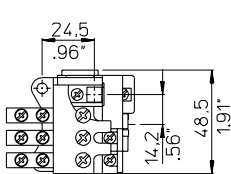
Contactor S15/S1710 with
T/O Relay T 9E1



Drilling Plan

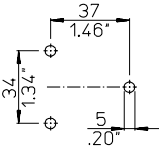


T/O Relay T 9E1

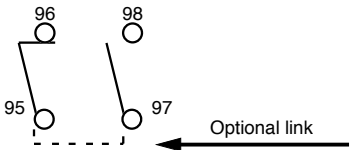


Changeover contact

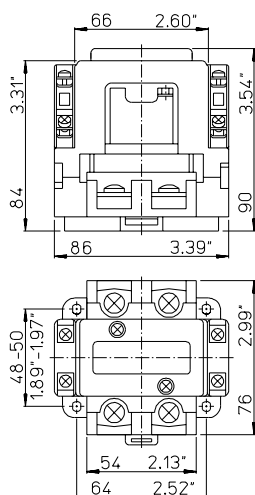
If a changeover contact is required then an external jumper must be connected between terminals 95 and 97.



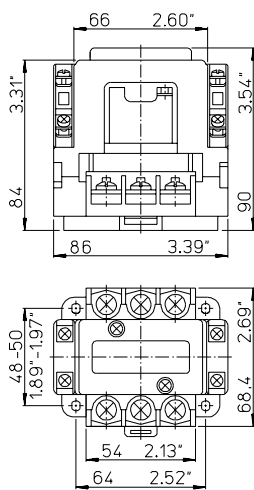
Drilling Plan



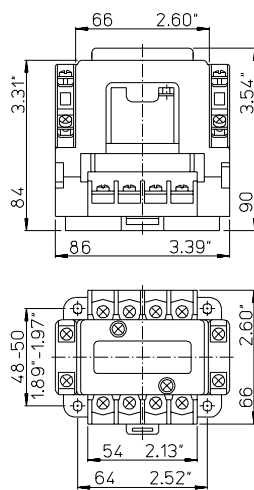
Dimensions R26, R27, T 26E4



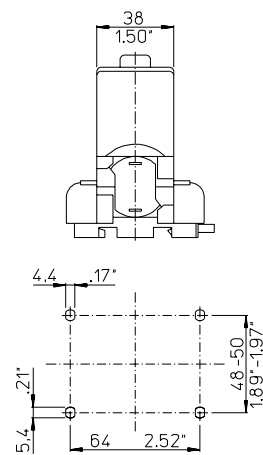
Contactor R26 2 pole



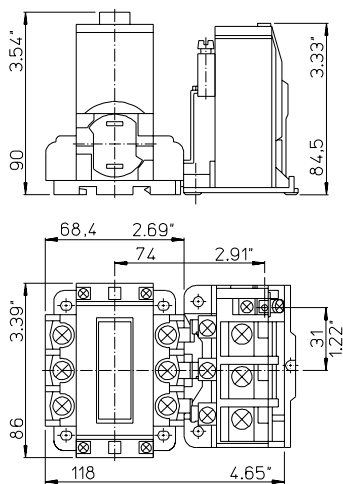
Contactor R26/R27 3 pole



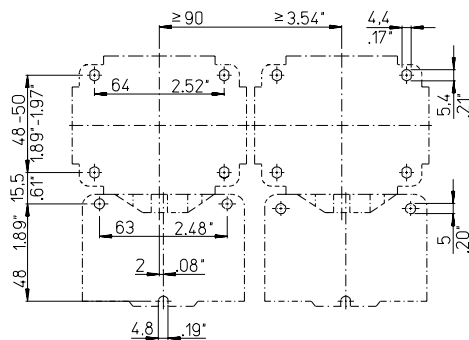
Contactor R26 4 pole



Drilling Plan

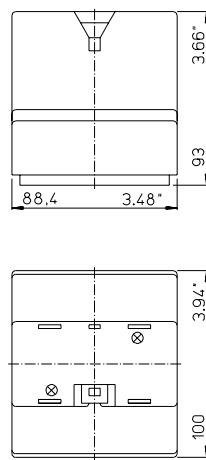
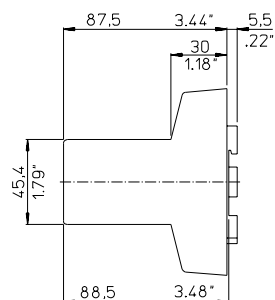


Contactor R26/27 with
T/O Relay T 26E4

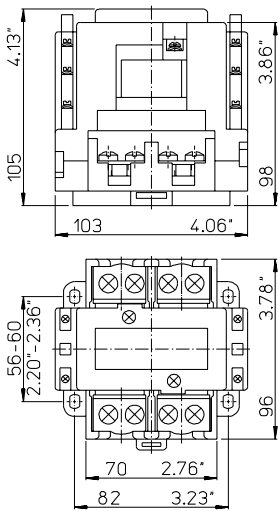


Drilling Plan

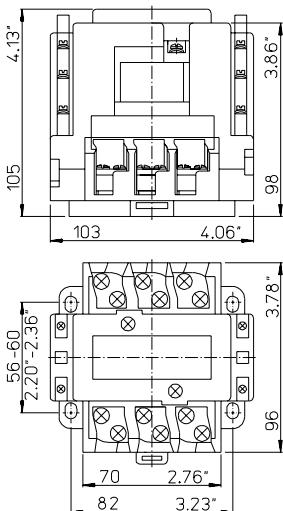
Protective Cover



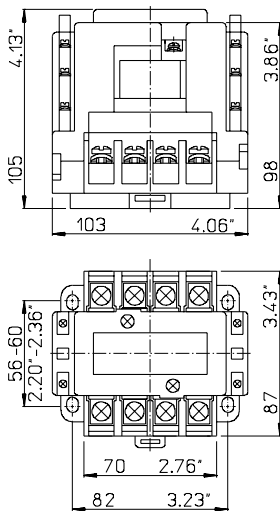
Dimensions R35, R36, T 35E4



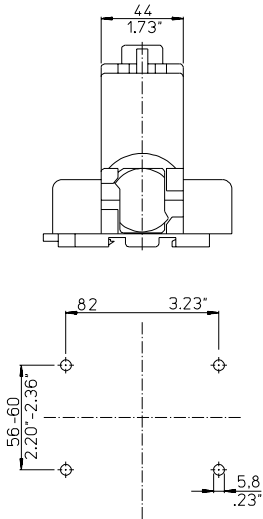
Contactor R35 2 pole



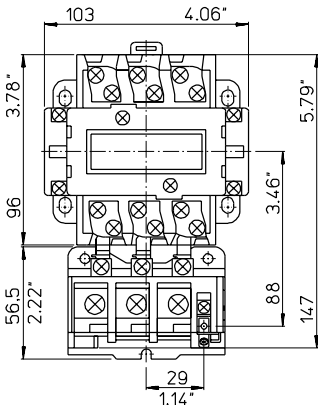
Contactor R35/R36 3 pole



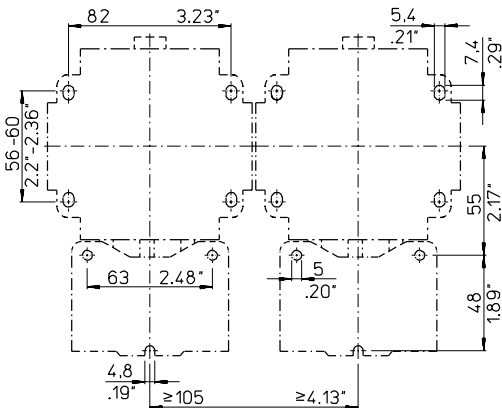
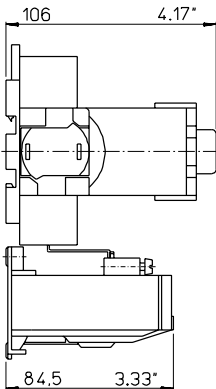
Contactor R35 4 pole



Drilling Plan



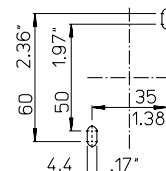
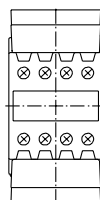
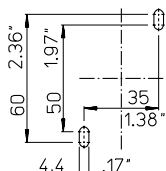
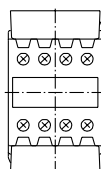
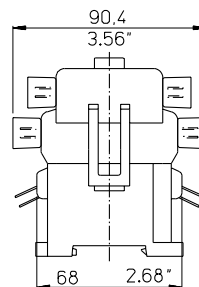
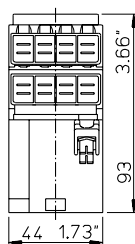
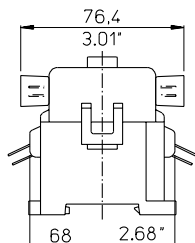
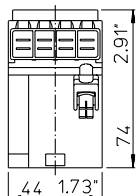
Contactor R35/R36 with
T/O Relay T 35E4



Drilling Plan

Special Terminals

Multipole Relays with “amp” Terminals



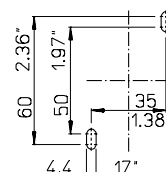
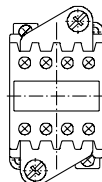
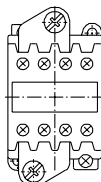
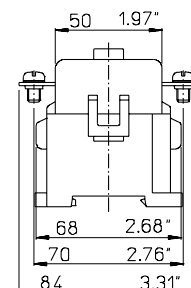
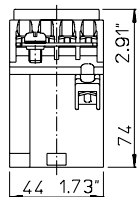
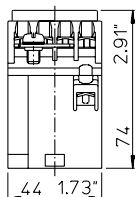
Contactor S1002/S1202

Drilling Plan

Contactor S1502/S1702

Drilling Plan

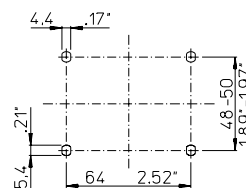
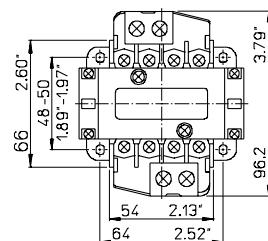
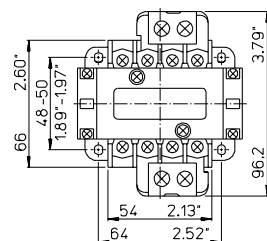
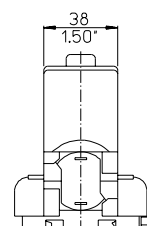
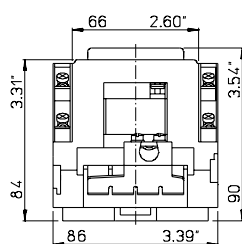
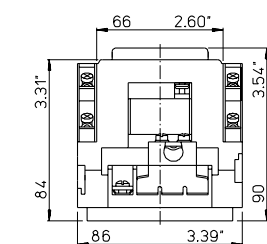
Special Purpose Contactors (Parallel Terminal Bars)



Contactor S10/S1217

Contactor S10/S1218

Drilling Plan



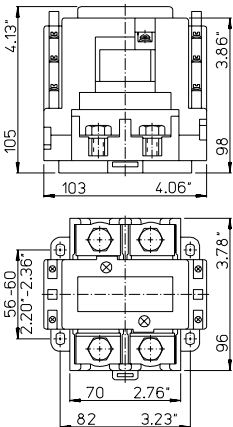
Contactor R2627

Contactor R2628

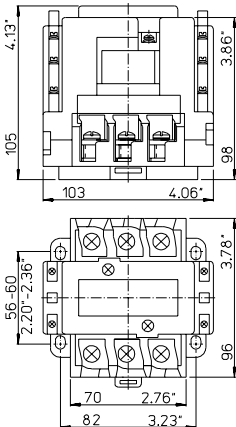
Drilling Plan

Special Terminals, Mounting Units

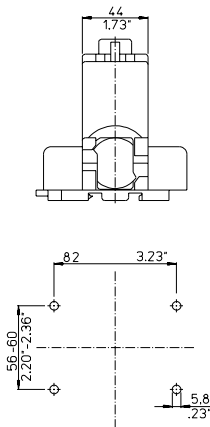
Cable Lug Connection



Contactor R35 2 pole

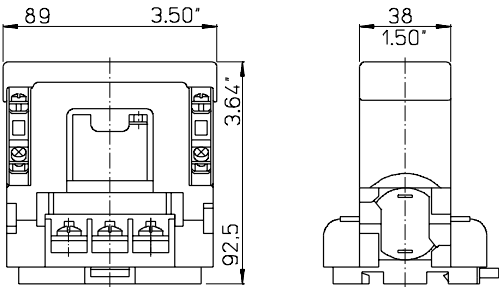


Contactor R35/R36 3 pole



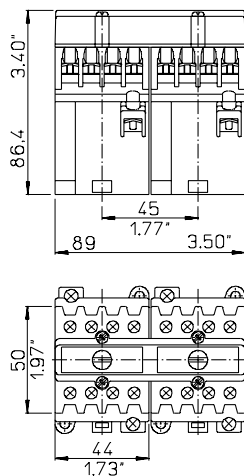
Drilling Plan

Protective Cover EC2 for R26, R27

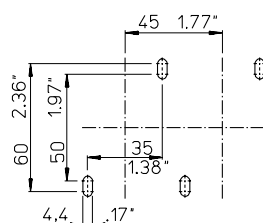


Optional Extras

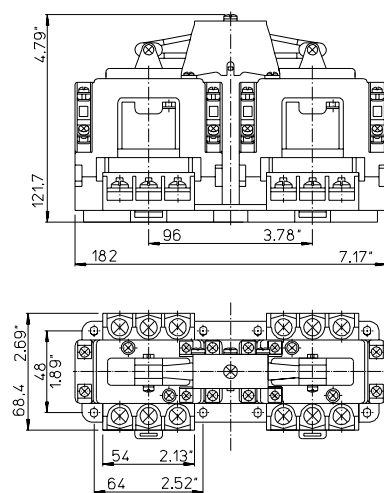
Mechanical Interlock S10, S12



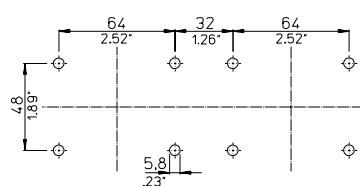
Drilling Plan



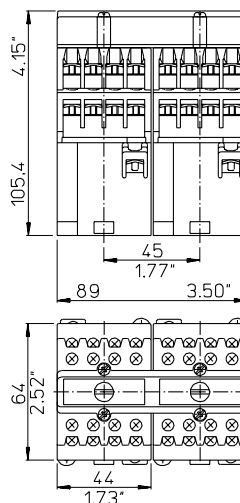
Mechanical Interlock R26, R27



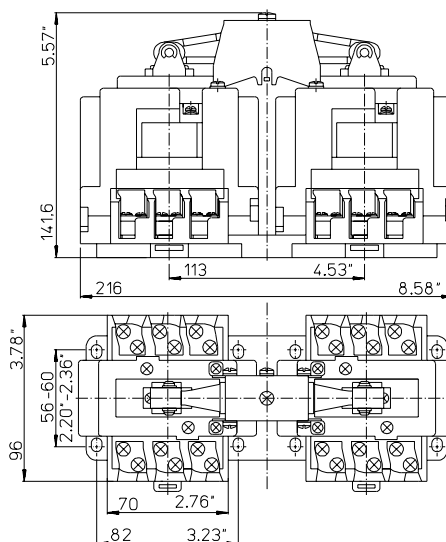
Drilling Plan



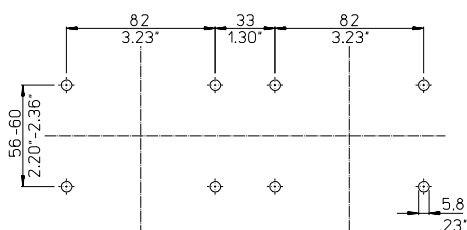
Mechanical Interlock S15, S17



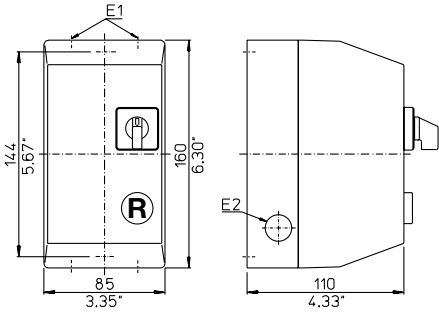
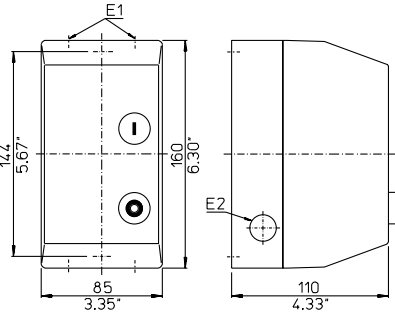
Mechanical Interlock R35, R36



Drilling Plan

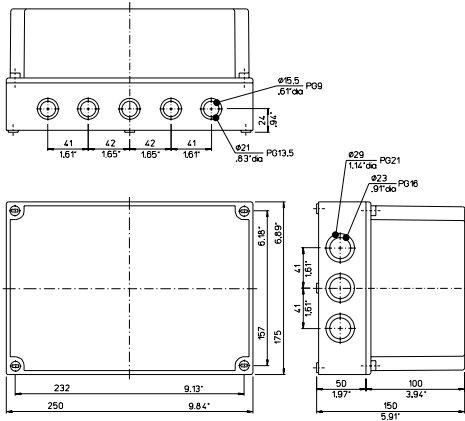
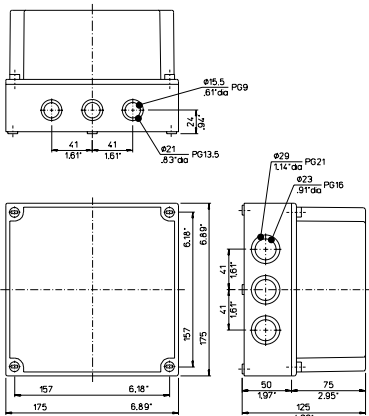
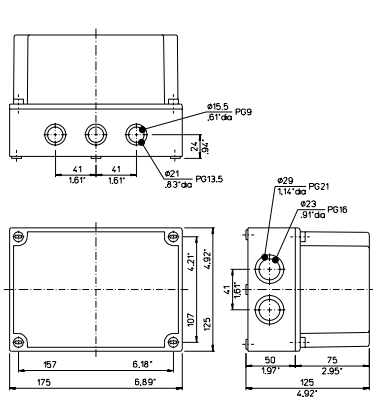


Enclosures for Motor Starters



E1: Ø 23 mm/.91 inch for PG16
E2: Ø 19 mm/.75 inch for PG11

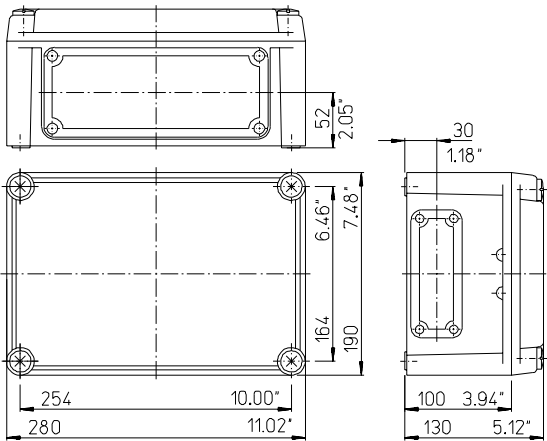
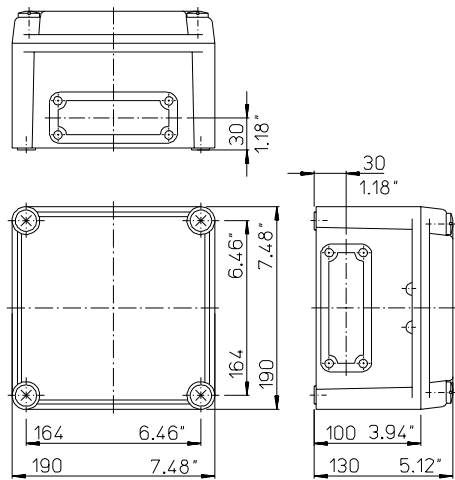
KL



ST5 M303

ST5 M304

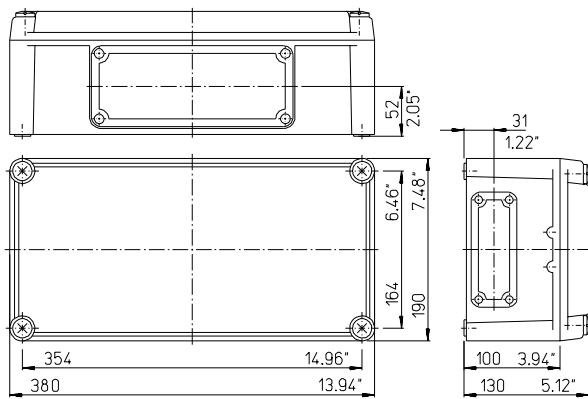
ST5 M405



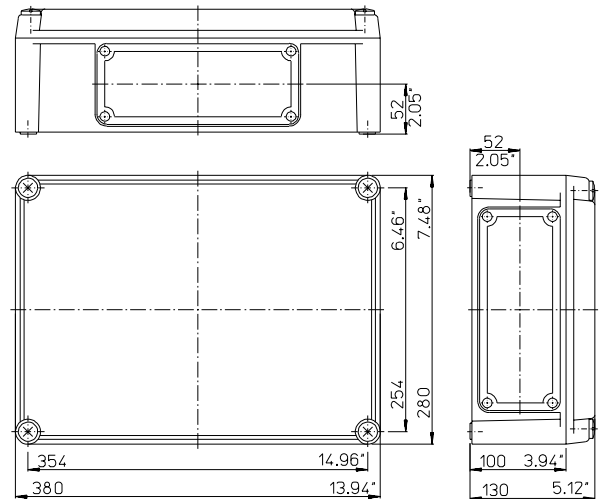
ST6 M105

ST6 M106

Enclosures and Conduit Entries for Motor Starters

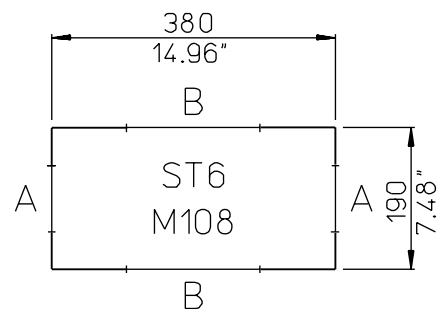
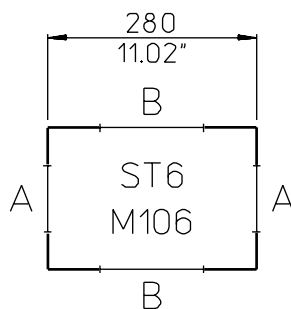
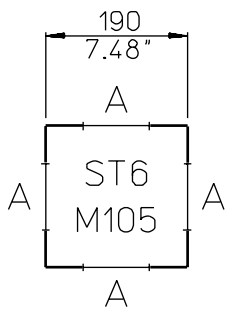


ST6 M108



ST6 M109

ST6 motor starter enclosures are complete with "knock-outs" on all 4 side walls. Blank entry plates complete with accessories are available for the following PG sizes:

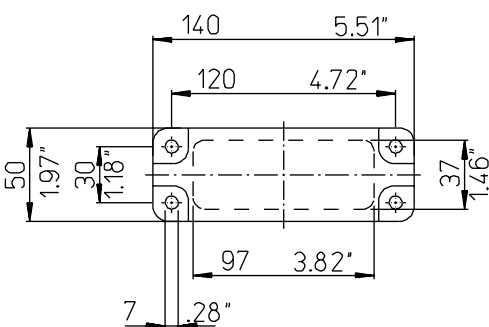
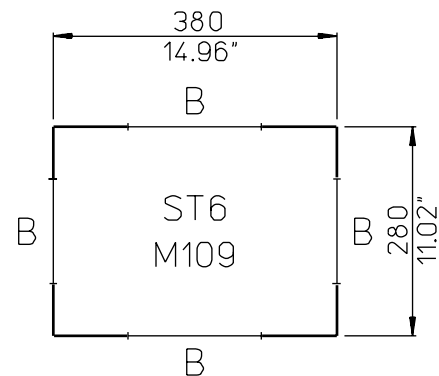


Conduit Entries A

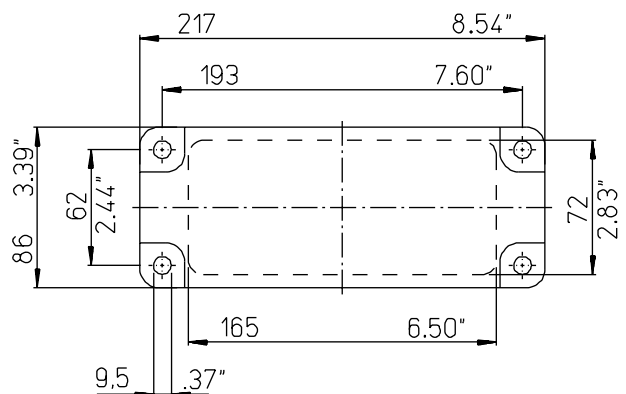
with 1 x PG29 ST6 M101 K
with 3 x PG21 ST6 M102 K
with 4 x PG16 ST6 M103 K
with 4 x PG13,5 ST6 M104 K

Conduit Entries B

with 2 x PG36 + 4 x PG16 ST6 M111 K
with 3 x PG29 + 4 x PG16 ST6 M112 K
with 4 x PG21 + 6 x PG16 ST6 M113 K
with 12 x PG16 ST6 M114 K
with 12 x PG13,5 ST6 M115 K



Cable Entries A



Cable Entries B

The Range of “Blue Line” Switchgear

Technical literature covering the following products is available on request.

	Catalog Number
Main Switches and Main Switches with Emergency Function 16 A-315 A Maintenance Switches 20 A-315 A Switch Disconnectors 20 A-315 A According to IEC 60947-3, EN 60947-3, VDE 0660 part 107, IEC 60204, EN 60204 and VDE 0113	500
CL Switches 10 A-20 A C, CA and CAD Switches 10 A-315 A and L Switches 350 A-2400 A C, CA and CAD switches are designed for universal application. They are recommended for instrument, isolator, double-throw and motor control. L switches are designed for load and off-load applications. They are used to switch resistive or low inductive loads.	100
Optional Extras and Enclosures The complete product line, a large number of optional extras is available, including door interlocks, push-pull devices, cylinder and padlock attachments, control and indicator devices, AC motor drives, as well as enclosures, both insulated and metal.	101
A and AD Switches 6 A-25 A A and AD switches have 4 contacts in each switching stage. These switches provide an extensive range of switch functions and require a minimum mounting depth. Up to 36 switching positions are possible, with availability of 48 contacts per 12 stage switch column.	110
CG, CH and CHR Switches 10 A-25 A Ultra compact CG, CH and CHR switches are ideally suited for control and instrumentation applications. Switch terminals are “finger-proof” and conveniently accessible for wiring and are delivered open. All CG4 switches offer specially designed gold plated contacts or H-bridges with “cross-wire” contact systems, which facilitates their use in electronic circuitry and chemically aggressive environments.	120
DH, DHR, DK and DKR Switches 6 A-16 A DH, DHR, DK and DKR switches incorporate unique corrosion resistant contacts that permit operation on system voltage as low as 1 V. They have fully enclosed and protected contacts which can be operated either by rotary and/or lateral handle movement. D switches are used in calibration and semiconductor circuits. They are also used for relay and contactor control.	130
X Switches 200 A-630 A X switches can be applied for load, tap and gang switching duties. They incorporate 6 contacts in each switching stage. Their compact design provides a minimum length dimension for mounting purposes.	140
KG Switches 20 A-315 A and KH and KHR Switches 16 A-80 A KG, KH and KHR switches are excellent circuit interruptors. They have high through fault and fault making capacities and are especially designed for use as isolators and safety switches for machine tools, distribution panels and switchboards. KG ON/OFF switches offer unusually high dimensioned air and creepage distances between terminals which are designed for time saving “straight-line” wiring. ON/OFF switches are available with up to 8 poles and double-throw switches are available with up to 4 poles.	150
Contactors 16 A-115 A and Motor Starters 1,1 kW-55 kW These include control relays, motor contactors, two and four pole output contactors, heating contactors, thermal overload relays.	200
Push Buttons and Pilot Lights, 22,5 mm Ø A complete range of state-of-the-art push buttons and pilot lights represent an ideal combination of functional security and economical efficiency in a modular design.	302

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