

Electrical sector solutions
E Line family

Industry leading design in a compact package

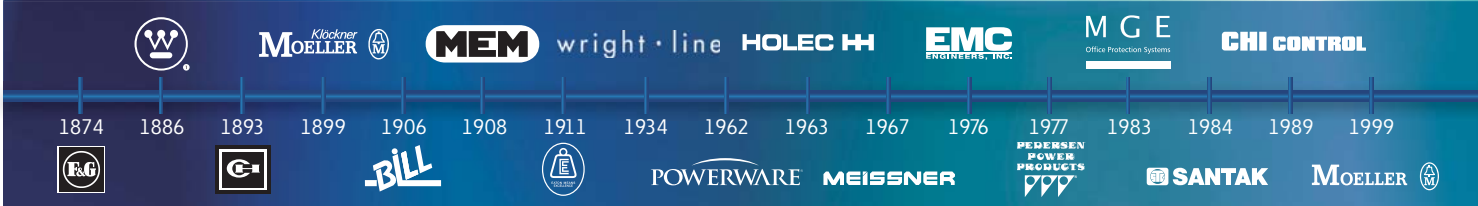


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Control relays XTRG



Control relays XTRG

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Contactors XTCCG



General overview

Eaton's new E Line contactor is powerful, yet compact and is a marvel of innovation incorporating Eaton's vast experience in motor controls. In 1900, Eaton developed the world's first automatic motor starter and over the years, Eaton continued this heritage of innovation launching many industry firsts including the first motor circuit protector and the first microprocessor based contactor. E Line is the world's smallest and most efficient IEC contactor, allowing OEMs and designers to reduce panel size and reduce the impact on the environment.

Bold new design

When Eaton developed the new E Line contactor family, we wanted to make a bold statement. The E Line is not just another contactor, it's a completely new design incorporating the latest principals of arc-science and technology. By starting fresh, our engineering team was able to focus on the things that matter to our customers while challenging design conventions.

Quenching the arc

Extinguishing switching arcs during the operation of a contactor or circuit breaker will extend it's life. Through years of research and advanced simulation techniques, Eaton has mastered this science and uses this knowledge to design reliable and innovative products. The E Line's arc-chamber structure is designed to reduce the impact of switching arcs on the power contacts, yielding a more reliable design.

Thermal overload relays XTOD



Control relays XTRG



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Control relays XTRG

Product description

Part of the E Line family of controls, the XTRG control relay offers space savings, enhanced reliability and more efficient use of materials. Rated to operate thermal currents up to 10A, AC voltages up to 660V or DC voltages up to 250V, the XTRG contactor relay offers optimum performance in a compact package.

Features

- 10A Control relay
- 690V Insulation rating
- 660VAC or 250VDC Operational voltage
- Up to 5 sets of normally open or normally closed contacts with add-on blocks
- All common AC control voltages
- DIN rail or panel mount options
- Unique 27mm design

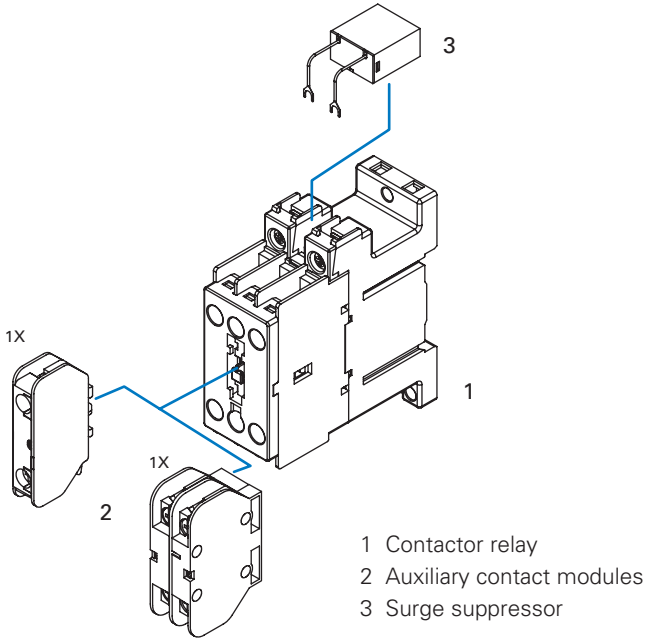
System overview

Control relays are used to remotely switch small loads or in complex control schemes. The XTRG relay can be integrated with contactors from the E Line family of motor controls to create compact, efficient control panels for a multitude of applications.

Standards and certifications

- GB 14048
- IEC/EN 60947
- CCC
- CE

Accessory overview



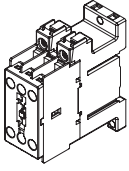
1.2

Control relays XTRG

Basic devices / Auxiliary contact modules, actuating voltages

1

XTRG



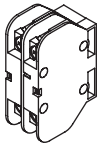
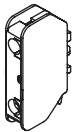
Control relays

Connection type	Contact N/O=Normally open N/C=Normally closed	Rated operational current AC-15 I _e (A)		Conventional thermal current, open, 40°C I _{th} (A)	Circuit symbol	Can be combined with auxiliary contact module	AC operation	Standard package
		220V	380 V				Part no. Article no.	
Screw terminals	3 N/O	-	4 1.9	10		XTCGXFAC10 XTCGXFAC..	Actuating voltage 220V 50HZ	1 piece
Screw terminals	2 N/O	1 N/C	4 1.9	10		XTCGXFAC10 XTCGXFAC..		1 piece
Screw terminals	1 N/O	2 N/C	4 1.9	10		XTCGXFAC10 XTCGXFAC..		1 piece
Screw terminals	-	3 N/C	4 1.9	10		XTCGXFAC10 XTCGXFAC..		1 piece

Alternate actuating voltages

Coil Voltage	3NO	2NO/1NC	1NO/2NC	3NC
24VAC 50Hz	XTRG10B30B5 168040	XTRG10B21B5 167923	XTRG10B12B5 167933	XTRG10B03B5 167974
36VAC 50Hz	XTRG10B30DS 168041	XTRG10B21DS 167924	XTRG10B12DS 167934	XTRG10B03DS 167975
48VAC 50Hz	XTRG10B30C5 168042	XTRG10B21C5 167925	XTRG10B12C5 167966	XTRG10B03C5 167976
110VAC 50Hz	XTRG10B30E5 168043	XTRG10B21E5 167926	XTRG10B12E5 167967	XTRG10B03E5 167977
220VAC 50Hz	XTRG10B30DT 168044	XTRG10B21DT 167927	XTRG10B12DT 167968	XTRG10B03DT 167978
380VAC 50Hz	XTRG10B30DU 168047	XTRG10B21DU 167930	XTRG10B12DU 167971	XTRG10B03DU 167936

Auxiliary contact, top mounting



Auxiliary contact modules

Connection type	Conventional thermal current open, 40°C	Contact N/O=Normally open N/C=Normal closed	Circuit symbol	Can be combined with control relay	Part no. Article no.	Standard package
Screw terminals	10	1 N/O		XTRG10B..	XTCGXFAC10 167939	1 piece
Screw terminals	10	1 N/C		XTRG10B..	XTCGXFAC01 167940	1 piece
Screw terminals	10	2 N/O		XTRG10B..	XTCGXFAC20 167941	1 piece
Screw terminals	10	1 N/O	1 N/C	XTRG10B..	XTCGXFAC11 168042	1 piece
Screw terminals	10	2 N/C		XTRG10B..	XTCGXFAC02 167943	1 piece

Coil surge suppressor

Coil voltage	RC	Varistor
24-48V	XTCGXRSCN2 167946	XTCGXVSCN2 167949
110-220V	XTCGXRSCDV 167947	XTCGXVSCDV 167950
380-440V	XTCGXRSCCM 167948	XTCGXVSCCM 167951

General

			XTRG10B..	XTCGXFAC..
Standards			IEC/EN 60947, GB 14048	
Mechanical lifespan				
AC operated	Operations	x 10 ⁶	10	10
Maximum operating frequency				
Maximum operating frequency	Operations/h		600	600
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30	
Ambient temperature				
Operation		°C	-5-40	-5-40
Storage		°C	-25-55	-25-55
Protection type			IP20	IP20
Weight approximate weight		kg	0.17	0.02

Contacts





			XTRG10B..	XTCGXFAC..
Rated impulse withstand voltage	U _{imp}	VAC	6000	6000
Overvoltage category/degree of pollution			III/3	III/3
Rated insulation voltage	U _i	VAC	690	690
Rated operational voltage	U _e	VAC	660	660
Rated operational current				
AC-15				
120V	I _e	A	6	6
240V	I _e	A	4	4
380V	I _e	A	1.9	1.9
480V	I _e	A	1.5	
500V	I _e	A	1.4	
600V	I _e	A	1.2	
DC-13				
125V	I _e	A	0.55	0.55
250V	I _e	A	0.27	0.27
Conventional thermal current	I _{th}	A	10	10
Electrical lifespan				
at U _e =230V, AC-15, 3A	Operations	x 10 ⁶	1	1

Magnet system


			XTRG10B..
Voltage tolerance			
AC operated	Pick-up	x U _c	0.85-1.1
Power consumption			
	Pick-up	VA	30
	Sealing	VA	6
	Sealing	W	2
Duty factor		% DF	40

Terminals

XTRG10B..

	mm ²	mm ²	Nm
			
	0.75-2.5	0.75-2.5	0.8
	0.75-2.5	0.75-2.5	
	0.75-2.5	0.75-2.5	

XTCGXFAC..

A1 / A2 / Aux	mm ²	Nm
	0.75-2.5	0.8
		

Contactors XTCG

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Contactors XTCG

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Contactors XTCG

Product description

The XTCG is the flagship of the E Line family of motor controls. The XTCG contactor offers space savings, enhanced reliability and more efficient use of materials. Boasting AC-3 ratings up to 32A @ 400V and with a maximum operating voltage of 660V, XTCG offers tremendous performance in a small package.

Features

- Technologically advanced contact design
- 690V insulation rating
- Operating voltage up to 660VAC
- Up to (3) add on auxiliary contact modules
- All common AC control voltages
- DIN rail or panel mount options
- Unique space saving design

System overview

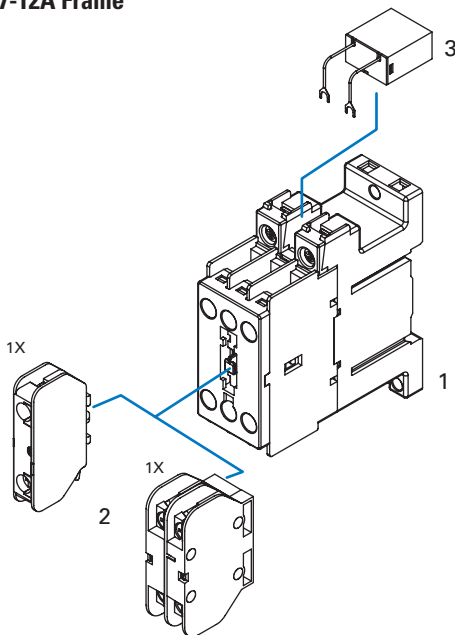
3 phase contactors are used to start motors or control industrial loads. The E Line family of contactors allows the starting of motors up to 15kW, and when combined with an XTOD overload relay or PKZC motor protective circuit breaker offers a complete package of protection and control for long life and reliable operation.

Standards and certifications

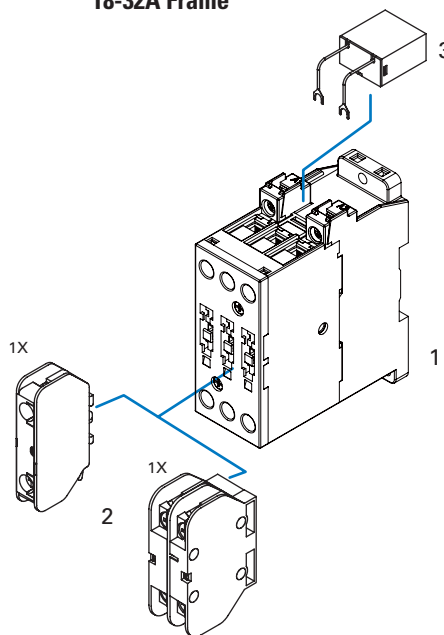
- GB 14048
- IEC/EN 60947
- CCC
- CE

Accessory overview

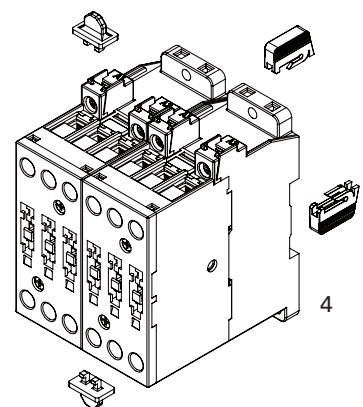
7-12A Frame



18-32A Frame



18-32A Frame with mechanical interlock



- 1 Contactor relay
- 2 Auxiliary contact modules
- 3 Surge suppressor
- 4 Interlocking kit

XTCG



3-pole contactors

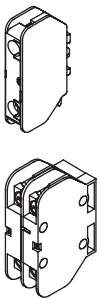
Connection type	Rated operational current AC-3 I _e (A) 380V	Max motor rating for 3-phase motors, 50-60Hz AC-3 P kW			Conventional thermal current, open, 40 °C I _{th} = I _e AC-1(A)	Circuit symbol	AC operation Part no. Article no. Actuating voltage 220V 50Hz
		220V	380V	660V			
Screw terminals	7	2.2	3	3.5	20		XTCG007B00DT 167984
Screw terminals	9	2.5	4	4.5	20		XTCG009B00DT 167994
Screw terminals	12	3.5	5.5	5.5	20		XTCG012B00DT 168004
Screw terminals	18	5	7.5	7.5	25		XTCG018C00DT 168014
Screw terminals	25	7.5	11	11	35		XTCG025C00DT 168024
Screw terminals	32	10	15	15	40		XTCG032C00DT 168034

Standard package: 1 piece

Alternate actuating voltages

Coil voltage	7A	9A	12A	18A	25A	32A
24VAC 50Hz	XTCG007B00B5 167980	XTCG009B00B5 167990	XTCG012B00B5 168000	XTCG018B00B5 168010	XTCG025B00B5 168020	XTCG032B00B5 168030
36VAC 50Hz	XTCG007B00DS 167981	XTCG009B00DS 167991	XTCG012B00DS 168001	XTCG018B00DS 168011	XTCG025B00DS 168021	XTCG032B00DS 168031
48VAC 50Hz	XTCG007B00C5 167982	XTCG009B00C6 167992	XTCG012B00C7 168002	XTCG018B00C8 168012	XTCG025B00C9 168022	XTCG032B00C10 168032
110VAC 50Hz	XTCG007B00E5 167983	XTCG009B00E6 167993	XTCG012B00E7 168003	XTCG018B00E8 168013	XTCG025B00E9 168023	XTCG032B00E10 168033
220VAC 50Hz	XTCG007B00DT 167984	XTCG009B00DT 167994	XTCG012B00DT 168004	XTCG018B00DT 168014	XTCG025B00DT 168024	XTCG032B00DT 168034
380VAC 50Hz	XTCG007B00DU 167987	XTCG009B00DU 167997	XTCG012B00DU 168007	XTCG018B00DU 168017	XTCG025B00DU 168027	XTCG032B00DU 168037

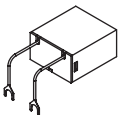
Auxiliary contact, top mounting



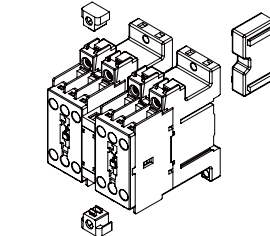
Auxiliary contact modules

Connection type		Conventional thermal current open, 40°C I _{th} = I _e AC-1 A	Contact N/O=Normally open N/C=Normal closed		Circuit symbol	Can be combined with control relay	Part no. Article no.	Standard package
Screw terminals	1 pole	10	1 N/O -			XTCG10B...	XTCGXFAC10 167939	1 piece
Screw terminals	1 pole	10	- 1 N/C			XTCG10B...	XTCGXFAC01 167940	1 piece
Screw terminals	2 pole	10	2 N/O -			XTCG10B...	XTCGXFAC20 167941	1 piece
Screw terminals	2 pole	10	1 N/O 1 N/C			XTCG10B...	XTCGXFAC11 168042	1 piece
Screw terminals	2 pole	10	- 2 N/C			XTCG10B...	XTCGXFAC02 167943	1 piece

Coil surge suppressor



Coil voltage	RC	Varistor
24-48V	XTCGXRSN2 167946	XTCGXVSN2 167949
110-220V	XTCGXRSCDV 167947	XTCGXVSCDV 167950
380-440V	XTCGXRS2CM 167948	XTCGXVSC2M 167951



Mechanical interlock

7-12A	18-32A
XTCGXMLB 167944	XTCGXMLC 167945

2.3

Contactors XTCG Technical data




General		XT Basic device	CG007	CG009	CG012	CG018	CG025	CG032	
Standards			IEC/EN 60947, GB 14048						
Lifespan, mechanical									
AC operated	Operations	x 10 ⁶	10	10	10	10	10	10	
Operating frequency									
AC operated	Operations/h		600	600	600	600	600	600	
Climatic Proofing			Damp heat, constant, to IEC60068-2-78 Damp heat, cyclic, to IEC60068-2-30						
Ambient temperature									
Operation	°C		-5~40	-5~40	-5~40	-5~40	-5~40	-5~40	
Storage	°C		-25~55	-25~55	-25~55	-25~55	-25~55	-25~55	
Protection type			IP20						
Weight	kg		0.17	0.17	0.17	0.35	0.35	0.35	
Terminal capacity of main cable									
Solid/stranded		AWG							
Terminal capacity of control circuit cable		mm ²	0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5	
Main cable connection screws / bolts			M3.5	M3.5	M3.5	M5	M5	M5	
Tightening torque		Nm	0.8	0.8	0.8	2	2	2	
Control circuit cable connection screws / bolts			M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	
Tightening torque		Nm	0.8	0.8	0.8	0.8	0.8	0.8	
Main contacts									
Rated impulse withstand voltage	U _{imp}	V AC	6000	6000	6000	6000	6000	6000	
Overvoltage category / pollution degree			III/3						
Rated insulation voltage	U _i	V AC	690	690	690	690	690	690	
Rated operational voltage	U _e	V AC	660	660	660	660	660	660	
Making capacity (cos φ to IEC/EN60947)	380V	A	70	90	120	180	250	320	
Breaking capacity (cos φ to IEC/EN60947)		380V	A	56	72	96	144	200	256
Electrical lifespan									
AC-3	Op.		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	
AC-4	Op.		100,000	100,000	100,000	100,000	100,000	100,000	
Magnet systems									
Voltage tolerance									
AC operated	Pick-up	x U _c	0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1	
Power consumption of coil in a cold state and 1.0 x U_c									
	Pick-up	VA	30	30	30	80	80	80	
	Sealing	VA	6	6	6	8.1	8.1	8.1	
	Sealing	W	2	2	2	2.4	2.4	2.4	

Auxiliary contact




		XTCGXFAC..		
Rated impulse withstand voltage	U _{imp}	VAC	6000	
Overvoltage category/degree of pollution			III/3	
Rated insulation voltage	U _i	VAC	690	
Rated operational voltage	U _e	VAC	660	
Rated operational current				
AC-15				
120V	I _e	A	6	
240V	I _e	A	4	
380V	I _e	A	1.9	
DC-13				
125V	I _e	A	0.55	
250V	I _e	A	0.27	
Conventional thermal current		I _{th}	A	10
Electrical lifespan				
at U _e =230V, AC-15, 3A		Operations	x 10 ⁶	1

Terminals

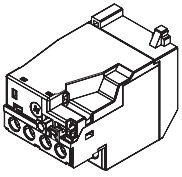
7-12A

	mm ²	mm ²	Nm	Aux Contact	Nm
					
	0.75-2.5	0.75-2.5	0.8	0.75-2.5	0.8
	0.75-2.5	0.75-2.5			

18-32A

	mm ²	mm ²	Nm	Aux Contact	Nm
					
	1 - 6 (1 - 10)*	1 - 6 (1 - 10)*	2	0.75-2.5	0.8
	1 - 4 (1 - 10)*	1 - 4 (1 - 10)*			

Thermal overload relays XTOD



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Thermal overload relays XTOD

Product description

XTOD thermal overload relays offer precision motor protection with phase loss protection and ambient temperature compensation. The separate mount design allows for flexibility and the units can be mounted on DIN rail or directly on the panel adjacent the motor contactor.

Features

- Precision motor protection up to 32A
- Integral 1NO/1NC contact for contactor control and alarm signal
- Phase loss protection
- Ambient temperature compensation
- DIN rail or panel mount options

System overview

Thermal overload relays provide protective features for 1 or 3 phase motors. The relay monitors the operating current of the motor and switched the contactor off in the event of an overload situation. It also protects the motor from damage during phase loss.

Standards and certifications

- GB 14048
- IEC/EN 60947
- CCC
- CE
















3.2 Thermal overload relays XTOD

Thermal overload relays

Thermal overload relays

3

XTOD..CC1S

For use with		Setting range of overload releases I_r (A)	Circuit symbol	Auxiliary contact	Part no. Article no.	Standard package
				N/O =Normally open N/C =Normally closed		
XTCG007	Seperate mounting	0.3~0.45		1 N/O 1 N/C	XTODP45CC1S 167952	1 piece
XTCG009	Seperate mounting	0.45 ~0.67		1 N/O 1 N/C	XTODP67CC1S 167953	1 piece
XTCG018	Seperate mounting	0.67~1.0		1 N/O 1 N/C	XTOD001CC1S 167954	1 piece
XTCG025	Seperate mounting	1.0 ~1.5		1 N/O 1 N/C	XTOD1P5CC1S 167955	1 piece
XTCG032	Seperate mounting	1.4 ~2.1		1 N/O 1 N/C	XTOD2P2CC1S 167956	1 piece
	Seperate mounting	1.8~2.7		1 N/O 1 N/C	XTOD2P7CC1S 167957	1 piece
	Seperate mounting	2.4~3.6		1 N/O 1 N/C	XTOD3P6CC1S 167958	1 piece
	Seperate mounting	3.5~5.0		1 N/O 1 N/C	XTOD005CC1S 167959	1 piece
	Seperate mounting	4.0~6.0		1 N/O 1 N/C	XTOD006CC1S 167960	1 piece
	Seperate mounting	5.5~8.5		1 N/O 1 N/C	XTOD8P5CC1S 167961	1 piece
	Seperate mounting	8.5~12.5		1 N/O 1 N/C	XTOD013CC1S 167962	1 piece
	Seperate mounting	12.5~18		1 N/O 1 N/C	XTOD018CC1S 167963	1 piece
	Seperate mounting	17~24		1 N/O 1 N/C	XTOD024CC1S 167964	1 piece
	Seperate mounting	22~30		1 N/O 1 N/C	XTOD030CC1S 167965	1 piece

General

XTOD..CC1S

Standards	IEC/EN 60947, GB 14048		
Climatic Proofing	Damp heat, constant, to IEC60068-2-78 Damp heat, cyclic, to IEC60068-2-30		

Ambient temperature

Open	°C	-25~55	
Enclosed	°C	-25~40	
Temperature compensation	°C	-5~40	
Weight	kg	0.15	
Protection type	IP20		

Main contacts

XTOD..CC1S

Rated impulse withstand voltage	U_{imp}	VAC	6000
Overvoltage category/pollution degree	III/3		

Rated insulation voltage

AC	U_i	VAC	690
Rated operational voltage	U_e	VAC	600
Overload release setting range	A		0.3-30

Terminal capacity

Solid	mm ²	1 x (1-6) 2 x (1-6)	
Flexible with ferrule	mm ²	1 x (1-6) 2 x (1-6)	
Solid/stranded	AWG		
Terminal screw	M4		
Tightening torque	Nm	1.2	

Auxiliary and control circuits

XTOD..CC1S

Rated impulse withstand voltage	U_{imp}	V	6000
Overvoltage category/pollution degree	III/3		

Terminal capacity

Solid	mm ²	1 x (1-6) 2 x (1-6)	
Flexible with ferrule	mm ²	1 x (1-6) 2 x (1-6)	
Solid/stranded	AWG		
Terminal screw	M3.5		
Tightening torque	Nm	0.8	

Rated insulation voltage	U_i	VAC	690
Rated operational voltage	U_e	VAC	600
Conventional thermal current	I_{th}	A	10
Rated operational current			

AC-15

120V	I_e	A	6
220/240V	I_e	A	3
380V	I_e	A	1.9
480V	I_e	A	1.5
500V	I_e	A	1.4
600V	I_e	A	1.2

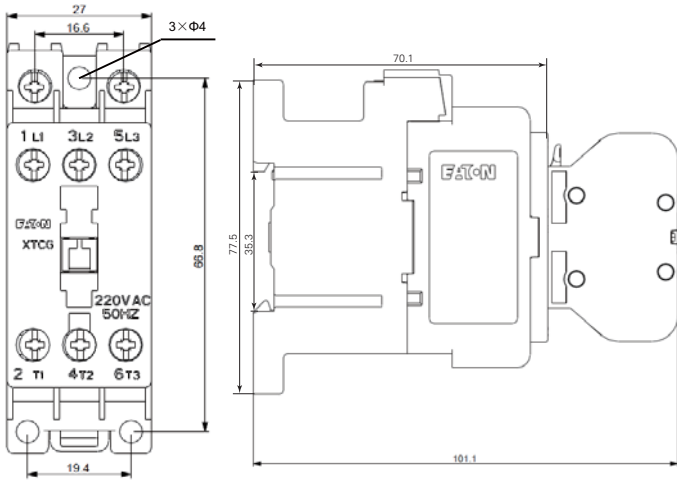
DC-13

125V	I_e	A	0.55
250V	I_e	A	0.27

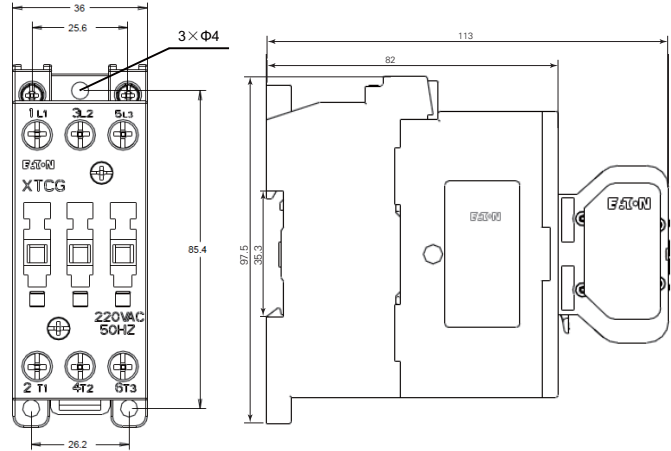
4.1 Dimensions

Contactor

7-12A Frame

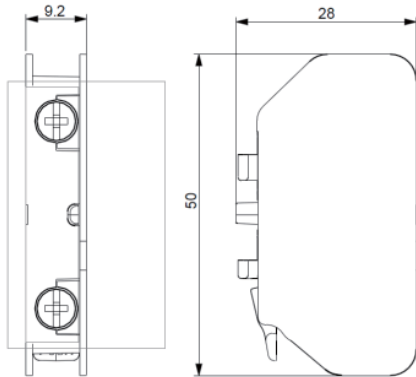


18-32A Frame

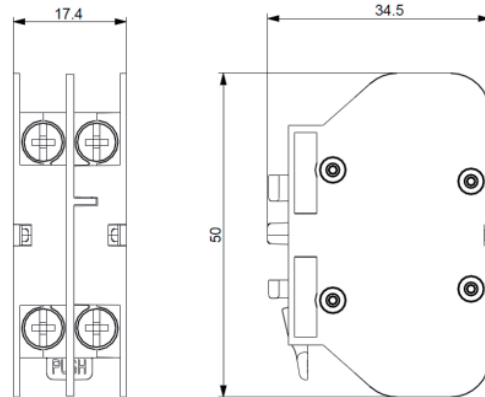


Auxiliary contact module

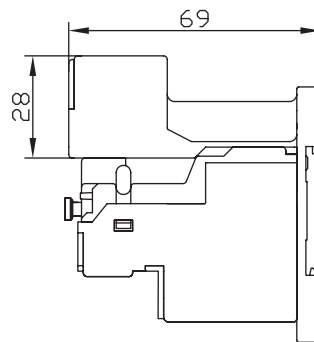
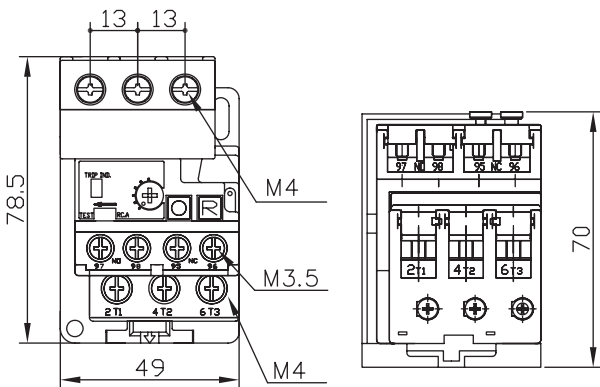
1 Pole



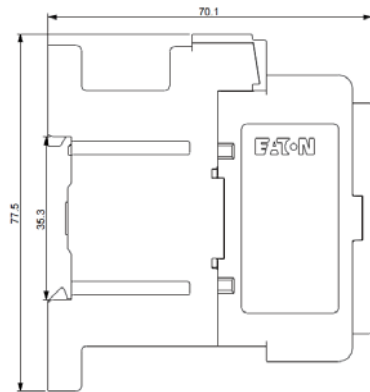
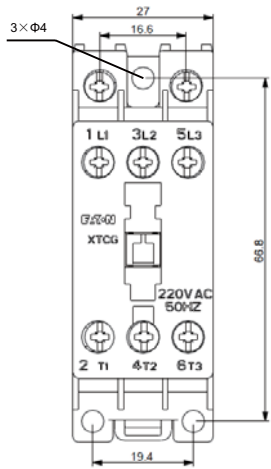
2 Pole



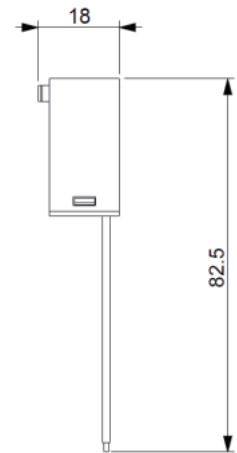
Thermal overload relay + mounting adapter XTOD..CC1S



Control Relay

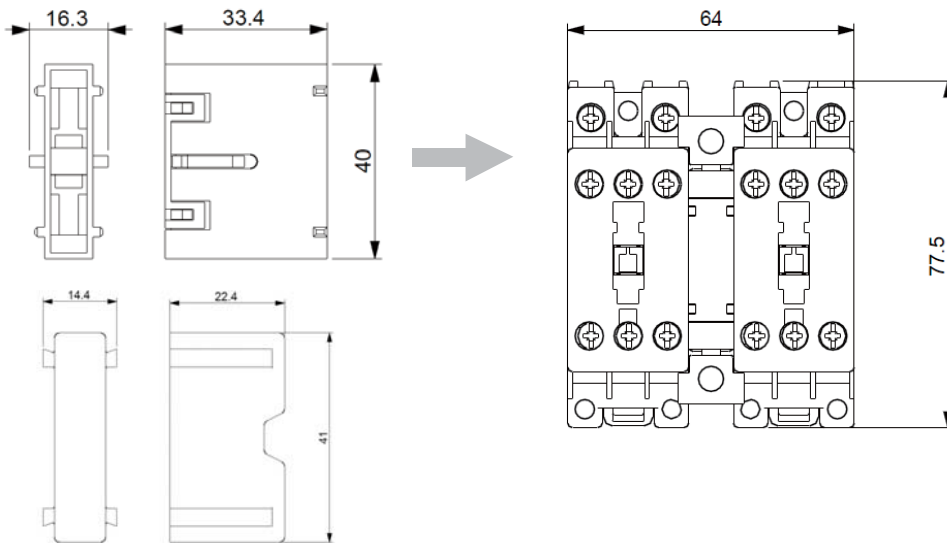


Surge suppressor

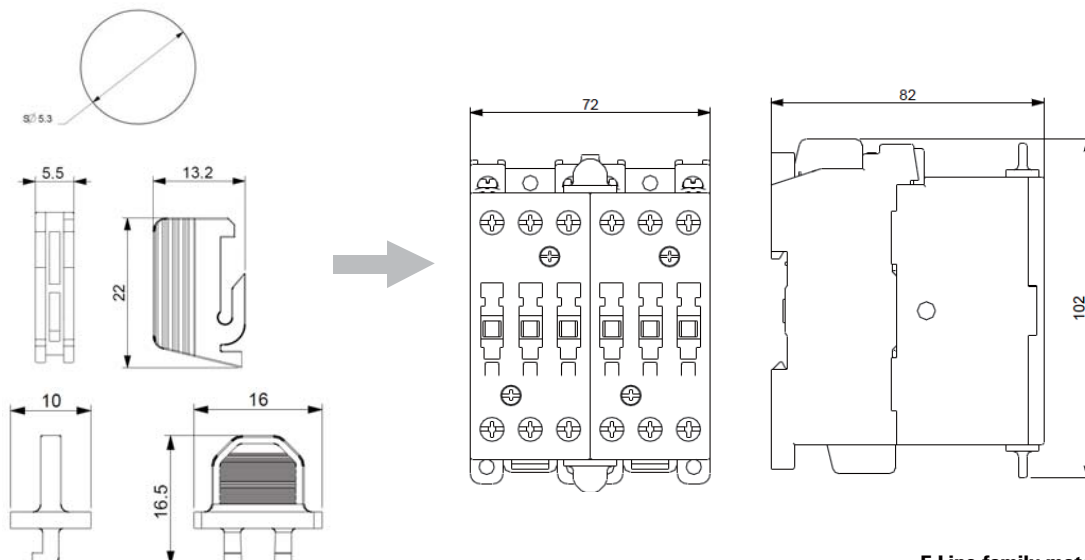


Mechanical interlock

7-12A Frame



18-32A Frame



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