Electrical sector solutions
E Line family

Industry leading design in a compact package

EATON
Powering Business Worldwide

ELLISCO

> +64 9 570 5267
> info@ellis.co.nz
> www.ellis.co.nz

Contents

E Line motor controls

Control relays XTRG

Contactors XTCG

Thermal overload relays XTOD

Thermal overload relays XTOG

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.

E Line motor controls

System overview

Designing reliable contactors

To design a reliable contactor, you not only need to study switching arcs, but you need to study contact behavior. Controlling the arc at the time of contact closure and ensuring that it doesn't restrike are all important design considerations. Eaton found that the most reliable contactors have limited contact bounce during actuation and high contact force during operation.

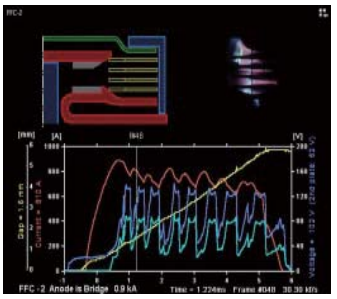
Controlled actuation

Contact bounce and high mechanical forces are exhibited when a contactor closes. During operation, the contacts crash together and reopen for a fraction of a second. Eaton's engineers have studied this critical point, because it has the most impact on a contactor's life. By reducing contact bounce and reducing the mechanical impact, a designer can extend the life of a contactor without adding additional material or increasing the size. When designing the E Line contactor, our designers focused on limiting contact bounce making it one of the most reliable contactors in the world.

Innovation reduces time to market

The development team for the E Line family used advanced simulation techniques before a regimen of extensive testing to reduce the time to market. While this helped reduced the engineering time required for this project, the simulation techniques helped Eaton deliver a more robust design with a solid foundation. Our engineers identified problems in the lab rather than the field, so you can be assured of trouble free operation.

High speed video of contact bounce



Arc simulation example

The ultimate contactor design

A contactor combining high contact force, with low contact bounce is the ultimate design for reliability and efficiency. The first two frames of the E Line contactor line, available today, are the first in a series aimed at doing just that, an optimized balance that combines advanced science, performance and efficiency in a compact package. Discover how E Line can help improve the reliability and efficiency of your machines today.

Control relays XTRG

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

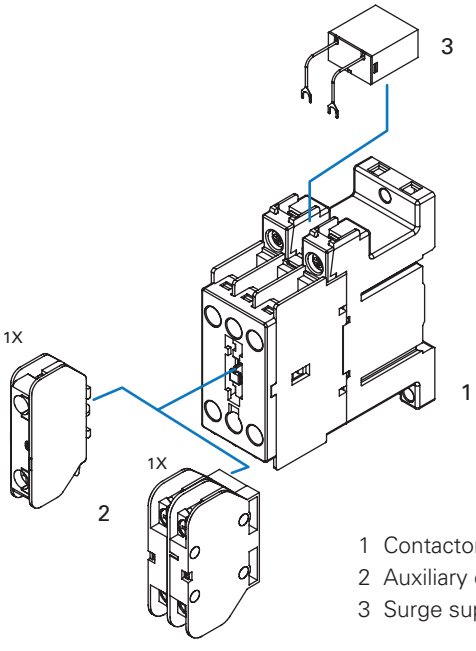
System overview

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 ramily of motor controls to create compact, efficient control panels for a multitude of applications.

Standards and certifications

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

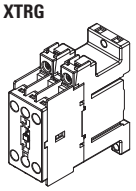
Accessory overview



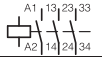
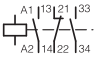
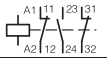
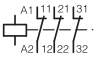
1 Contactor relay
2 Auxiliary contact modules
3 Surge suppressor

1

XTRG



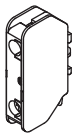
Control relays

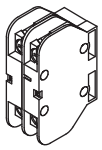
Connection type	Contact N/O=Normally open N/C=Normally closed		Rated operational current AC-15 I_e (A) 220V 230V 240V	380 V 400 V 415 V	Conventional thermal current, open, 40°C I_{th} (A)	Circuit symbol	Can be combined with auxiliary contact module	AC operation Part no. Article no. Actuating voltage 220V 50HZ	Standard package
Screw terminals	3 N/O	-	4	1.9	10		XTCGXFAC10 XTCGXFAC..	**XTRG10B30DT** 168044	1 piece
Screw terminals	2 N/O	1 N/C	4	1.9	10		XTCGXFAC10 XTCGXFAC..	**XTRG10B21DT** 167927	1 piece
Screw terminals	1 N/O	2 N/C	4	1.9	10		XTCGXFAC10 XTCGXFAC..	**XTRG10B12DT** 167968	1 piece
Screw terminals	-	3 N/C	4	1.9	10		XTCGXFAC10 XTCGXFAC..	**XTRG10B03DT** 167978	1 piece

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
24V 50/60Hz	**XTRG10B30B2** 177675	**XTRG10B21B2** 177687	**XTRG10B12B2** 177693	**XTRG10B03B2** 177681
36V 50/60Hz	**XTRG10B30DV** 177676	**XTRG10B21DV** 177688	**XTRG10B12DV** 177694	**XTRG10B03DV** 177682
48V 50/60Hz	**XTRG10B30C2** 177677	**XTRG10B21C2** 177689	**XTRG10B12C2** 177695	**XTRG10B03C2** 177683
110V 50/60Hz	**XTRG10B30E2** 177678	**XTRG10B21E2** 177690	**XTRG10B12E2** 177696	**XTRG10B03E2** 177684
220V 50/60Hz	**XTRG10B30AO** 177679	**XTRG10B21AO** 177691	**XTRG10B12AO** 177697	**XTRG10B03AO** 177685
380V 50/60Hz	**XTRG10B30AR** 177680	**XTRG10B21AR** 177692	**XTRG10B12AR** 177698	**XTRG10B03AR** 177686
24V DC	**XTRG10B30B0** 178153	**XTRG10B21B0** 178152	**XTRG10B12B0** 178154	**XTRG10B03B0** 178151

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	-		XTRG10B..	**XTCGXFAC10** 167939	1 piece
Screw terminals	1 pole	10	-	1 N/C		XTRG10B..	**XTCGXFAC01** 167940	1 piece
Screw terminals	2 pole	10	2 N/O	-		XTRG10B..	**XTCGXFAC20** 167941	1 piece
Screw terminals	2 pole	10	1 N/O	1 N/C		XTRG10B..	**XTCGXFAC11** 167942	1 piece
Screw terminals	2 pole	10	-	2 N/C		XTRG10B..	**XTCGXFAC02** 167943	1 piece

Coil surge supressor

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

1

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		3600	3600
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30	
Ambient temperature				
Operation		°C	-25~55	-25~55
Storage		°C	-40~80	-40~80
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	Pick-up	x U_c	0.85-1.1
Power consumption of coil in a cold state and 1.0 xUc (50Hz)	Pick-up	VA	30
	Sealing	VA	6
	Sealing	W	2
Power consumption of coil in a cold state and 1.0 xUc (50/60Hz)	50Hz Pick-up	VA	35
	50Hz Sealing	VA	6.5
	50Hz Sealing	W	2.3
Power consumption of coil in a cold state and 1.0 xUc (50/60Hz)	60Hz Pick-up	VA	30
	60Hz Sealing	VA	6
	60Hz Sealing	W	2.1
Power consumption of coil in a cold state and 1.0 xUc (24VDC)	Pick-up	VA	12
	Sealing	W	3

Terminals

XTRG10B..

	 mm²	 mm²	Nm
	0.75-2.5	0.75-2.5	0.8
	0.75-2.5	0.75-2.5	

XTCGXFAC..

A1 / A2 / Aux

	mm²	Nm
	0.75-2.5	0.8

Contents

Contactors XTCG

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 95A @ 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

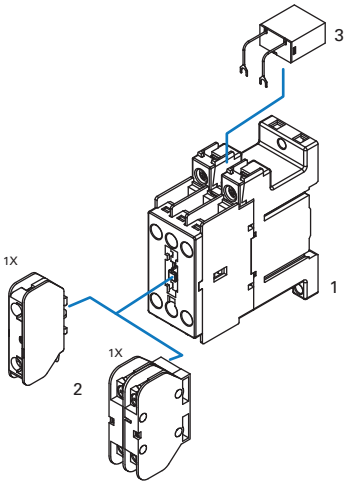
3 phase contactors are used to start motors or control industrial loads. The E Line family of contactors allows the starting of motors up to 45kW, and when combined with an XTOD overload relay or PKZC motor protective circuit breaker offers a complete package of protection and control for long life and reliable operation.

Standards and certifications

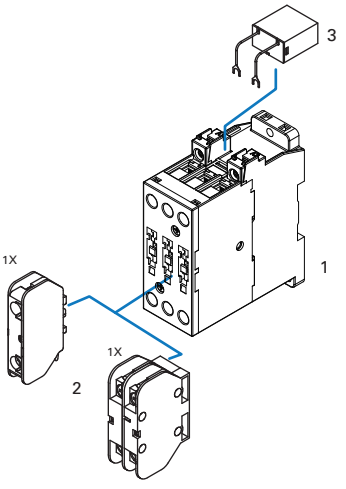
- GB 14048
- IEC/EN 60947
- CCC
- CE

Accessory overview

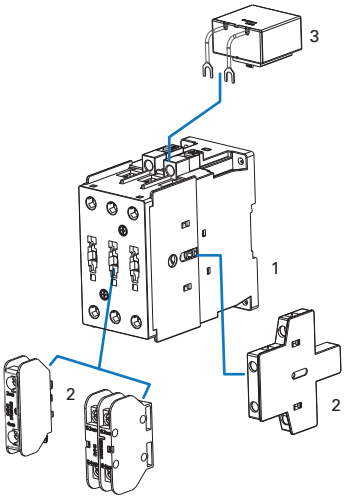
7-12A Frame



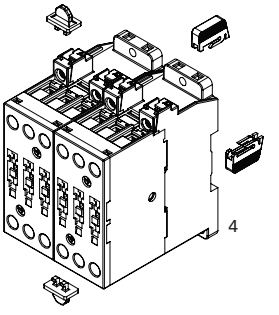
18-38A Frame



40-95A Frame



With mechanical interlock



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

XTCG

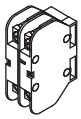
3-pole contactors

Connection type	Rated operational current AC-3 I_e (A) 380V	Max motor rating for 3-phase motors, 50-60Hz AC-3 P kW 220V	380V	660V*	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	Standard package
Screw terminals	7	2.2	3	3.5	20		**XTCG007B00DT** 167984	1 piece
Screw terminals	9	2.5	4	4.5	20		**XTCG009B00DT** 167994	1 piece
Screw terminals	12	3.5	5.5	5.5	20		**XTCG012B00DT** 168004	1 piece
Screw terminals	18	5	7.5	7.5	25		**XTCG018C00DT** 168014	1 piece
Screw terminals	25	7.5	11	11	35		**XTCG025C00DT** 168024	1 piece
Screw terminals	32	10	15	15	40		**XTCG032C00DT** 168034	1 piece
Screw terminals	38	11	18.5	22	40		**XTCG038C00DT** 174459	1 piece
Screw terminals	40	12.5	18.5	22	60		**XTCG040D00DT** 172214	1 piece
Screw terminals	50	15.5	22	30	70		**XTCG050D00DT** 172224	1 piece
Screw terminals	65	20	30	37	80		**XTCG065D00DT** 172234	1 piece
Bolts terminals	80	25	37	37	110		**XTCG080E00DT** 172244	1 piece
Bolts terminals	95	30	45	45	120		**XTCG095E00DT** 172254	1 piece

* 40~95A is 690V.

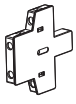
Auxiliary contact modules

Top mounting



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	-		XTCG007B00.. XTCG009B00.. XTCG012B00.. XTCG018C00.. XTCG025C00.. XTCG032C00.. XTCG038C00.. XTCG040D00.. XTCG050D00.. XTCG065D00.. XTCG080E00.. XTCG095E00..	**XTCGXFAC10** 167939	1 piece
Screw terminals	1 pole	10	-	1 N/C			**XTCGXFAC01** 167940	1 piece
Screw terminals	2 pole	10	2 N/O	-			**XTCGXFAC20** 167941	1 piece
Screw terminals	2 pole	10	1 N/O	1 N/C			**XTCGXFAC11** 167942	1 piece
Screw terminals	2 pole	10	-	2 N/C			**XTCGXFAC02** 167943	1 piece

Side mounting



Screw terminals	2 pole	10	1 N/O	1 N/C		XTCG040D00.. XTCG050D00.. XTCG065D00.. XTCG080E00.. XTCG095E00..	**XTCGXSAE11** 172260	1 piece

Actuating voltages

Coil voltage	7A	9A	12A	18A	25A	32A	38A
24VAC 50Hz	**XTCG007B00B5** 167980	**XTCG009B00B5** 167990	**XTCG012B00B5** 168000	**XTCG018C00B5** 168010	**XTCG025C00B5** 168020	**XTCG032C00B5** 168030	**XTCG038C00B5** 174455
36VAC 50Hz	**XTCG007B00DS** 167981	**XTCG009B00DS** 167991	**XTCG012B00DS** 168001	**XTCG018C00DS** 168011	**XTCG025C00DS** 168021	**XTCG032C00DS** 168031	**XTCG038C00DS** 174456
48VAC 50Hz	**XTCG007B00C5** 167982	**XTCG009B00C5** 167992	**XTCG012B00C5** 168002	**XTCG018C00C5** 168012	**XTCG025C00C5** 168022	**XTCG032C00C5** 168032	**XTCG038C00C5** 174457
110VAC 50Hz	**XTCG007B00E5** 167983	**XTCG009B00E5** 167993	**XTCG012B00E5** 168003	**XTCG018C00E5** 168013	**XTCG025C00E5** 168023	**XTCG032C00E5** 168033	**XTCG038C00E5** 174458
220VAC 50Hz	**XTCG007B00DT** 167984	**XTCG009B00DT** 167994	**XTCG012B00DT** 168004	**XTCG018C00DT** 168014	**XTCG025C00DT** 168024	**XTCG032C00DT** 168034	**XTCG038C00DT** 174459
380VAC 50Hz	**XTCG007B00DU** 167987	**XTCG009B00DU** 167997	**XTCG012B00DU** 168007	**XTCG018C00DU** 168017	**XTCG025C00DU** 168027	**XTCG032C00DU** 168037	**XTCG038C00DU** 174462
24VAC 50/60Hz	**XTCG007B00B2** 177208	**XTCG009B00B2** 177214	**XTCG012B00B2** 177220	**XTCG018C00B2** 177226	**XTCG025C00B2** 177232	**XTCG032C00B2** 177238	**XTCG038C00B2** 177639
36VAC 50/60Hz	**XTCG007B00DV** 177242	**XTCG009B00DV** 177243	**XTCG012B00DV** 177244	**XTCG018C00DV** 177245	**XTCG025C00DV** 177246	**XTCG032C00DV** 177247	**XTCG038C00DV** 177640
48VAC 50/60Hz	**XTCG007B00C2** 177209	**XTCG009B00C2** 177215	**XTCG012B00C2** 177221	**XTCG018C00C2** 177227	**XTCG025C00C2** 177233	**XTCG032C00C2** 177192	**XTCG038C00C2** 177641
110VAC 50/60Hz	**XTCG007B00E2** 177210	**XTCG009B00E2** 177216	**XTCG012B00E2** 177222	**XTCG018C00E2** 177228	**XTCG025C00E2** 177234	**XTCG032C00E2** 177193	**XTCG038C00E2** 177642
220VAC 50/60Hz	**XTCG007B00AO** 177205	**XTCG009B00AO** 177211	**XTCG012B00AO** 177217	**XTCG018C00AO** 177223	**XTCG025C00AO** 177229	**XTCG032C00AO** 177235	**XTCG038C00AO** 177643
380VAC 50/60Hz	**XTCG007B00AR** 177206	**XTCG009B00AR** 177212	**XTCG012B00AR** 177218	**XTCG018C00AR** 177224	**XTCG025C00AR** 177230	**XTCG032C00AR** 177236	**XTCG038C00AR** 177644
24VDC	**XTCG007B00B0** 177207	**XTCG009B00B0** 177213	**XTCG012B00B0** 177219	**XTCG018C00B0** 177225	**XTCG025C00B0** 177231	**XTCG032C00B0** 177237	**XTCG038C00B0** 177194

40A	50A	65A	80A	95A
XTCG040D00B5 172210	**XTCG050D00B5** 172220	**XTCG065D00B5** 172230	**XTCG080E00B5** 172240	**XTCG095E00B5** 172250
XTCG040D00DS 172211	**XTCG050D00DS** 172221	**XTCG065D00DS** 172231	**XTCG080E00DS** 172241	**XTCG095E00DS** 172251
XTCG040D00C5 172212	**XTCG050D00C5** 172222	**XTCG065D00C5** 172232	**XTCG080E00C5** 172242	**XTCG095E00C5** 172252
XTCG040D00E5 172213	**XTCG050D00E5** 172223	**XTCG065D00E5** 172233	**XTCG080E00E5** 172243	**XTCG095E00E5** 172253
XTCG040D00DT 172214	**XTCG050D00DT** 172224	**XTCG065D00DT** 172234	**XTCG080E00DT** 172244	**XTCG095E00DT** 172254
XTCG040D00DU 172217	**XTCG050D00DU** 172227	**XTCG065D00DU** 172237	**XTCG080E00DU** 172247	**XTCG095E00DU** 172257
XTCG040D00B2 177645	**XTCG050D00B2** 177651	**XTCG065D00B2** 177657	**XTCG080E00B2** 177663	**XTCG095E00B2** 177669
XTCG040D00DV 177646	**XTCG050D00DV** 177652	**XTCG065D00DV** 177658	**XTCG080E00DV** 177664	**XTCG095E00DV** 177670
XTCG040D00C2 177647	**XTCG050D00C2** 177653	**XTCG065D00C2** 177659	**XTCG080E00C2** 177665	**XTCG095E00C2** 177671
XTCG040D00E2 177648	**XTCG050D00E2** 177654	**XTCG065D00E2** 177660	**XTCG080E00E2** 177666	**XTCG095E00E2** 177672
XTCG040D00AO 177649	**XTCG050D00AO** 177655	**XTCG065D00AO** 177661	**XTCG080E00AO** 177667	**XTCG095E00AO** 177673
XTCG040D00AR 177650	**XTCG050D00AR** 177656	**XTCG065D00AR** 177662	**XTCG080E00AR** 177668	**XTCG095E00AR** 177674
XTCG040D00B0 177195	**XTCG050D00B0** 177196	**XTCG065D00B0** 177197	**XTCG080E00B0** 177198	**XTCG095E00B0** 177199

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		3600	3600	3600	3600	3600	3600
Climatic Proofing			Damp heat,constant,to IEC60068-2-78 Damp heat,cyclic,to IEC60068-2-30					
Ambient temperature								
Operation		°C	-25~55	-25~55	-25~55	-25~55	-25~55	-25~55
Storage		°C	-40~80	-40~80	-40~80	-40~80	-40~80	-40~80
Protection type			IP20	IP20	IP20	IP20	IP20	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			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	III/3	III/3	III/3	III/3	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.	1,500,000	1,500,000	1,500,000	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 xU_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
Power consumption of coil in a cold state and 1.0 xU_c (50/60Hz)	50Hz Pick-up	VA	35	35	35	85	85	85
	50Hz Sealing	VA	6.5	6.5	6.5	8.5	8.5	8.5
	50Hz Sealing	W	2.3	2.3	2.3	2.6	2.6	2.6
Power consumption of coil in a cold state and 1.0 xU_c (50/60Hz)	60Hz Pick-up	VA	30	30	30	80	80	80
	60Hz Sealing	VA	6	6	6	8.1	8.1	8.1
	60Hz Sealing	W	2.1	2.1	2.1	2.5	2.5	2.5
Power consumption of coil in a cold state and 1.0 xU_c (24VDC)	Pick-up	VA	12	12	12	12	12	12
	Sealing	W	3	3	3	3	3	3

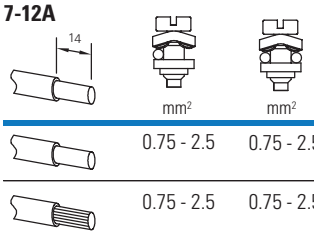
CG038	CG040	CG050	CG065	CG080	CG095
IEC/EN 60947, GB 14048					
10	5	5	5	5	5
3600	3600	3600	3600	3600	3600
Damp heat,constant,to IEC60068-2-78 Damp heat,cyclic,to IEC60068-2-30					
-25~55	-25~55	-25~55	-25~55	-25~55	-25~55
-40~80	-40~80	-40~80	-40~80	-40~80	-40~80
IP20	IP20	IP20	IP20	IP20	IP20
0.35	0.76	0.76	0.76	1.25	1.25
0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5	0.75-2.5
M5	M6	M6	M6	M8	M8
2	2.5	2.5	2.5	6	6
M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
0.8	0.8	0.8	0.8	0.8	0.8
6000	6000	6000	6000	6000	6000
III/3	III/3	III/3	III/3	III/3	III/3
690	690	690	690	690	690
660	690	690	690	690	690
320	400	500	650	800	950
256	320	400	520	640	760
1,000,000	900,000	900,000	900,000	900,000	900,000
100,000					
0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1	0.85-1.1
80	190	190	190	300	300
8.1	20	20	20	26	26
2.4	4	4	4	6	6
85	220	220	220	350	350
8.5	21	21	21	34	34
2.6	6	6	6	9	9
80	200	200	200	300	300
8.1	20	20	20	26	26
2.5	5	5	5	8	8
12	65	65	65	90	90
3	4	4	4	5	5

Auxiliary contact

			XTCGXFAC..	XTCGXSAE11
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	690
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
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

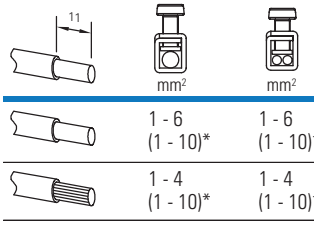
Terminals

7-12A



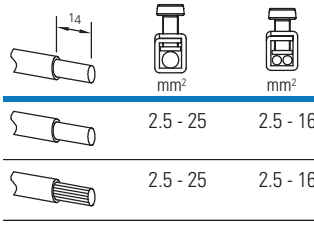
	mm²	mm²	Nm	Aux Contact mm²	Nm
	0.75 - 2.5	0.75 - 2.5	0.8	0.75 - 2.5	0.8
	0.75 - 2.5	0.75 - 2.5			

18-38A



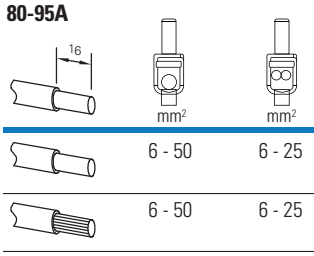
	mm²	mm²	Nm	Aux Contact mm²	Nm
	1 - 6 (1 - 10)*	1 - 6 (1 - 10)*	2	0.75 - 2.5	0.8
	1 - 4 (1 - 10)*	1 - 4 (1 - 10)*			

40-65A



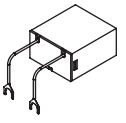
	mm²	mm²	Nm	Aux Contact mm²	Nm
	2.5 - 25	2.5 - 16	2.5	0.75 - 2.5	1.2
	2.5 - 25	2.5 - 16			

80-95A



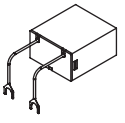
	mm²	mm²	Nm	Aux Contact mm²	Nm
	6 - 50	6 - 25	6	0.75 - 2.5	1.2
	6 - 50	6 - 25			

* Only for XTCG032...



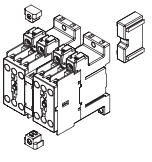
Coil surge supressor (7-38A)

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



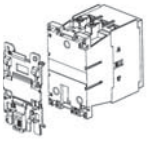
Coil surge supressor (40-95A)

Coil voltage	RC	Varistor
24V	**XTCGXRSEB5** 174132	**XTCGXVSEB5** 177204
36V	**XTCGXRSEDS** 174133	**XTCGXVSEDS** 177239
48V	**XTCGXRSEC5** 174134	**XTCGXVSEC5** 177201
110V	**XTCGXRSEE5** 174129	**XTCGXVSEE5** 177203
220V	**XTCGXRSEDT** 174135	**XTCGXVSEDT** 174142
380V	**XTCGXRSEDU** 174136	**XTCGXVSEDU** 174143



Mechanical interlock

7-12A	18-38A	40-65A	80-95A
XTCGXMLB 167944	**XTCGXMLC** 167945	**XTCGXMLD** 172261	**XTCGXMLE** 172262



Din rail plate

80-95A
XTCGXMPE 172908

Thermal overload relays XTOD/XTOG

Thermal overload relays XTOD/XTOG

Product description

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

XTOD... is for separate mounting; XTOG is for direct mounting.

Features

- Precision motor protection up to 97A
- 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

Thermal overload relays

	For use with		Setting range of overload releases I_r (A)	Circuit symbol	Auxiliary contact N/O =Normally open N/C =Normally closed		Part no. Article no.	Standard package
XTOD..CC1S 	XTCG007 XTCG009 XTCG012 XTCG018 XTCG025 XTCG032 XTCG038	Seperate mounting	0.3~0.45		1 N/O	1 N/C	**XTODP45CC1S** 167952	1 piece
		Seperate mounting	0.45 ~0.67		1 N/O	1 N/C	**XTODP67CC1S** 167953	1 piece
		Seperate mounting	0.67~1.0		1 N/O	1 N/C	**XTOD001CC1S** 167954	1 piece
		Seperate mounting	1.0 ~1.5		1 N/O	1 N/C	**XTOD1P5CC1S** 167955	1 piece
		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
XTOG... 	XTCG007 XTCG009 XTCG012 XTCG018 XTCG025 XTCG032 XTCG038	Direct mounting	0.1~0.16		1 N/O	1 N/C	**XTOGP16BC1** 173679	1 piece
		Direct mounting	0.16~0.24		1 N/O	1 N/C	**XTOGP24BC1** 173680	1 piece
		Direct mounting	0.24~0.4		1 N/O	1 N/C	**XTOGP40BC1** 173681	1 piece
		Direct mounting	0.4~0.6		1 N/O	1 N/C	**XTOGP60BC1** 173682	1 piece
		Direct mounting	0.6~1		1 N/O	1 N/C	**XTOG001BC1** 173683	1 piece
		Direct mounting	1~1.6		1 N/O	1 N/C	**XTOG1P6BC1** 173684	1 piece
		Direct mounting	1.6~2.4		1 N/O	1 N/C	**XTOG2P4BC1** 173685	1 piece
		Direct mounting	2.4~4		1 N/O	1 N/C	**XTOG004BC1** 173686	1 piece
		Direct mounting	4~6		1 N/O	1 N/C	**XTOG006BC1** 173687	1 piece
		Direct mounting	6~10		1 N/O	1 N/C	**XTOG010BC1** 173688	1 piece
		Direct mounting	9-12		1 N/O	1 N/C	**XTOG012BC1** 173689	1 piece
		Direct mounting	12~16		1 N/O	1 N/C	**XTOG016CC1** 173690	1 piece
		Direct mounting	16~24		1 N/O	1 N/C	**XTOG024CC1** 173691	1 piece
		Direct mounting	24~32		1 N/O	1 N/C	**XTOG032CC1** 173692	1 piece

Thermal overload relays

XTOG...

For use with		Setting range of overload releases I_r (A)	Circuit symbol	Auxiliary contact N/O =Normally open	N/C =Normally closed	Part no. Article no.	Standard package
XTCG040 XTCG050 XTCG065 XTCG080 XTCG095	Direct mounting	17~25		1 N/O	1 N/C	**XTOG025DC1** 173693	1 piece
	Direct mounting	23~32		1 N/O	1 N/C	**XTOG032DC1** 173694	1 piece
	Direct mounting	30~40		1 N/O	1 N/C	**XTOG040DC1** 173695	1 piece
	Direct mounting	37~50		1 N/O	1 N/C	**XTOG050DC1** 173696	1 piece
	Direct mounting	48~65		1 N/O	1 N/C	**XTOG065DC1** 173697	1 piece
	Direct mounting	37~50		1 N/O	1 N/C	**XTOG050EC1** 173698	1 piece
	Direct mounting	48~65		1 N/O	1 N/C	**XTOG065EC1** 173699	1 piece
	Direct mounting	63~80		1 N/O	1 N/C	**XTOG080EC1** 173700	1 piece
	Direct mounting	77~97		1 N/O	1 N/C	**XTOG097EC1** 173701	1 piece

3.3 Thermal overload relays XTOD/XTOG

Technical data

4

General

		XTOD/XTOG
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

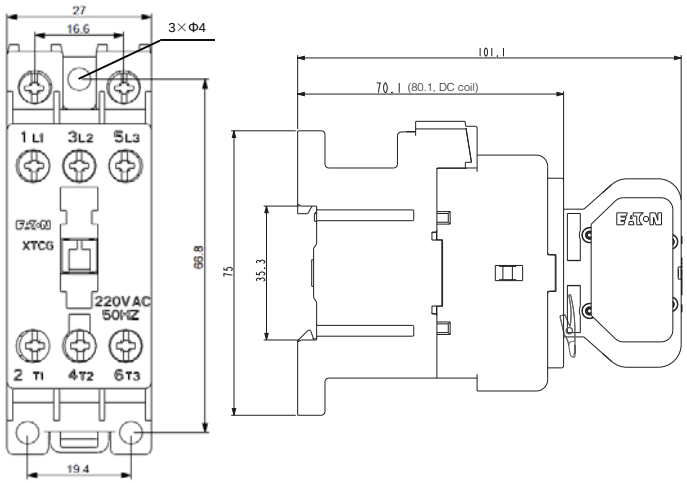
			XTOD/XTOG
Rated impulse withstand voltage	U_{imp}	VAC	6000
Overvoltage category/pollution degree			III/3
Rated insulation voltage			
AC	U_i	VAC	690
Rated operational voltage	U_e	VAC	690
Overload release setting range		A	0.1-97
Terminal capacity			
Solid		mm^2	1 x (1-6) 2 x (1-6)
Flexible with ferrule		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

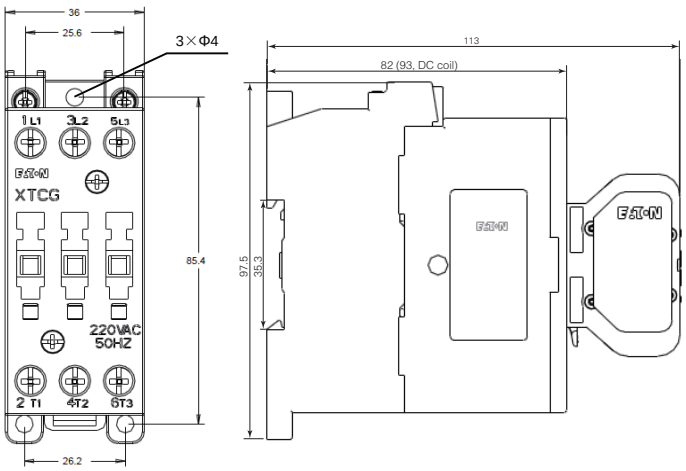
			XTOD/XTOG
Rated impulse withstand voltage	U_{imp}	V	6000
Overvoltage category/pollution degree			III/3
Terminal capacity			
Solid		mm^2	1 x (1-6) 2 x (1-6)
Flexible with ferrule		mm^2	1 x (1-6) 2 x (1-6)
Solid/stranded		AWG	
Terminal screw			M3.5
Tightening torque		Nm	0.8
Rated insulation voltage	U_i	VAC	690
Rated operational voltage	U_e	VAC	690
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

Contactors

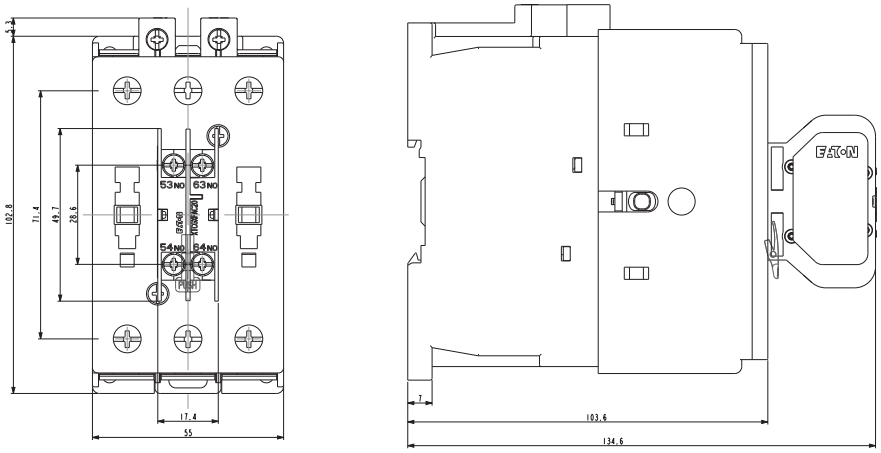
7-12A Frame



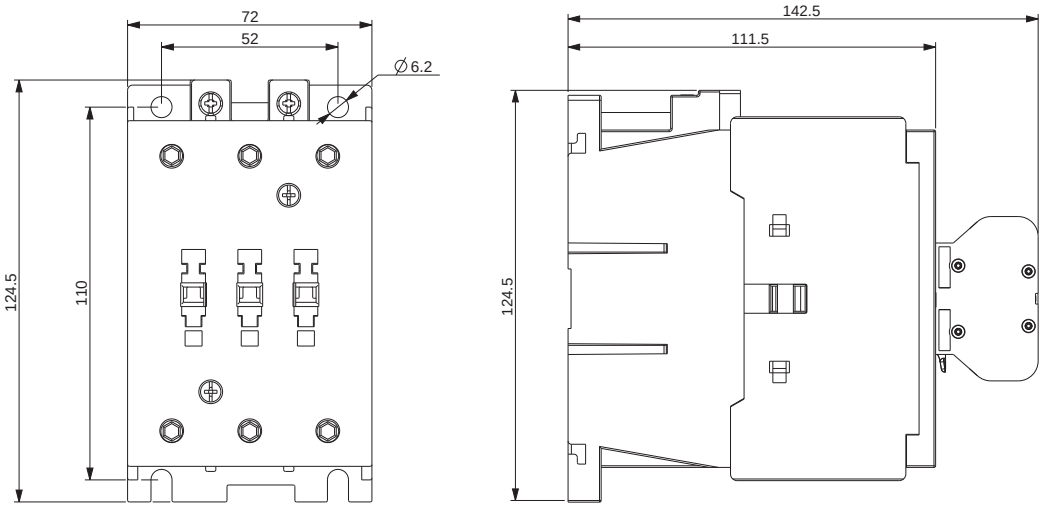
18-38A Frame



40-65A Frame



80-95A Frame

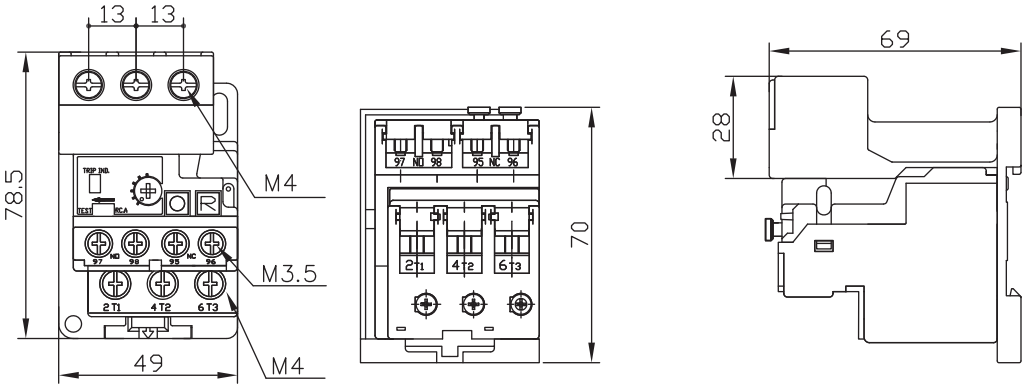


4.1 Dimensions

Thermal overload relay XTOD/XTOG

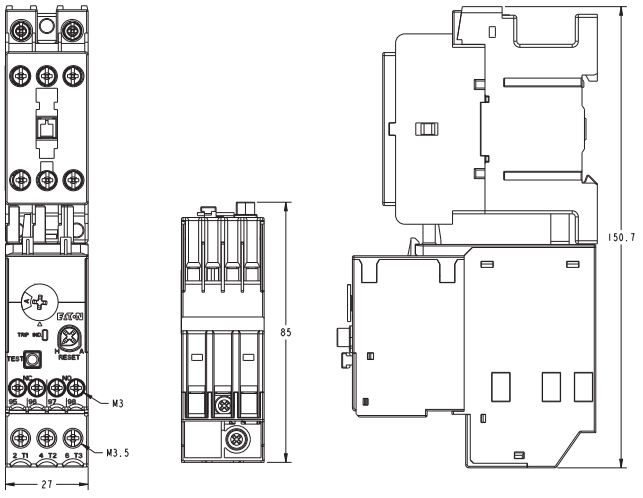
Thermal overload relay + mounting adapter

XTOD..CC1S

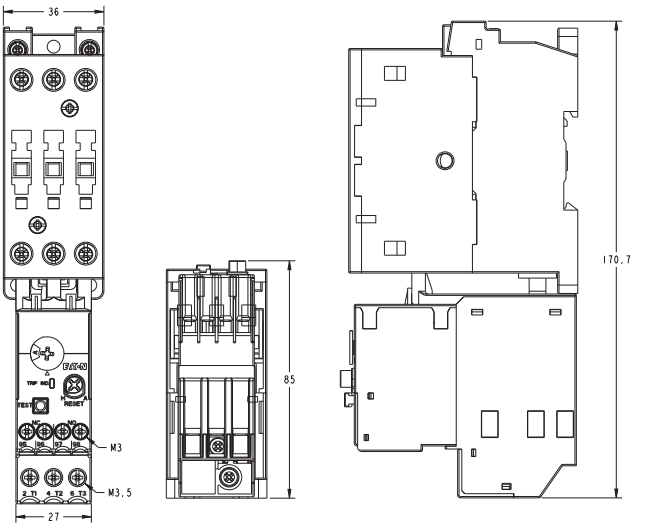


Thermal overload relays XTOG

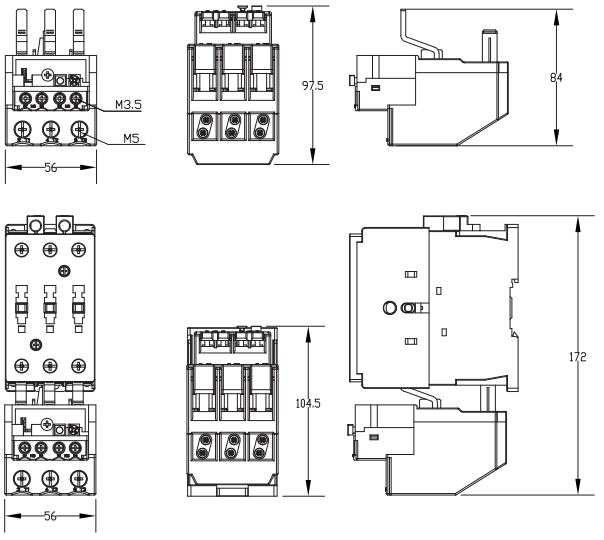
7-12A



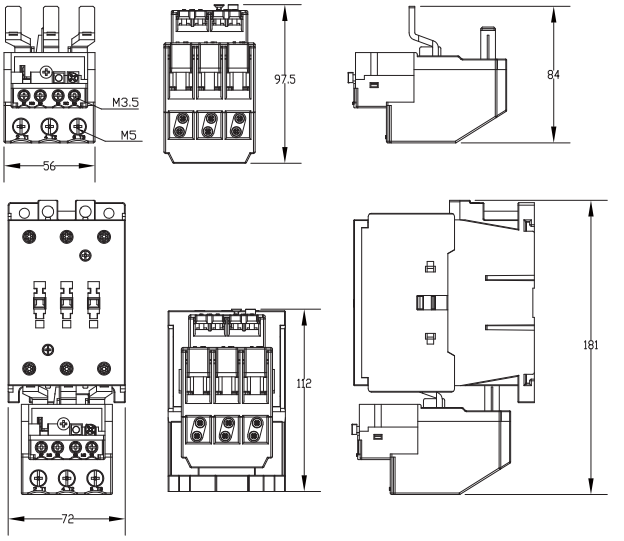
18-38A



17-65A

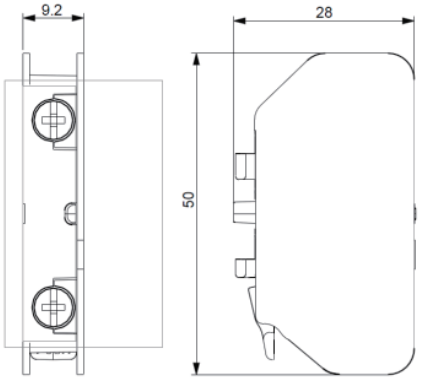


37-97A

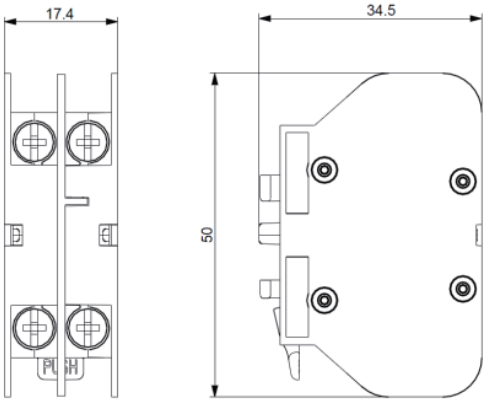


Auxiliary contact module

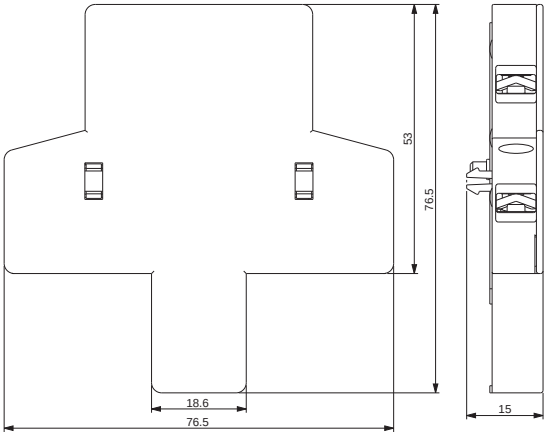
1 Pole



2 Pole



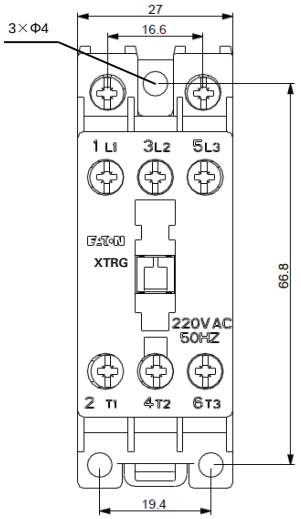
Side mounting contact module

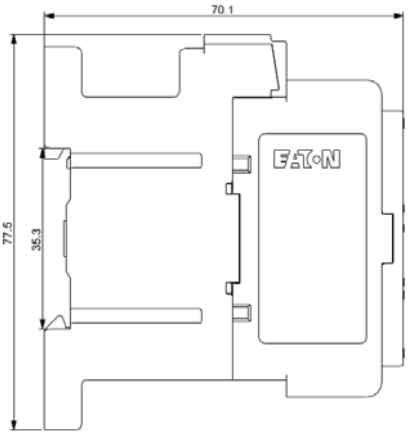


4.1 Dimensions

Control relay XTRG / Surge suppressor

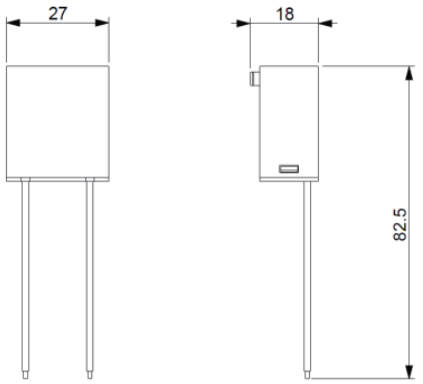
Control Relay



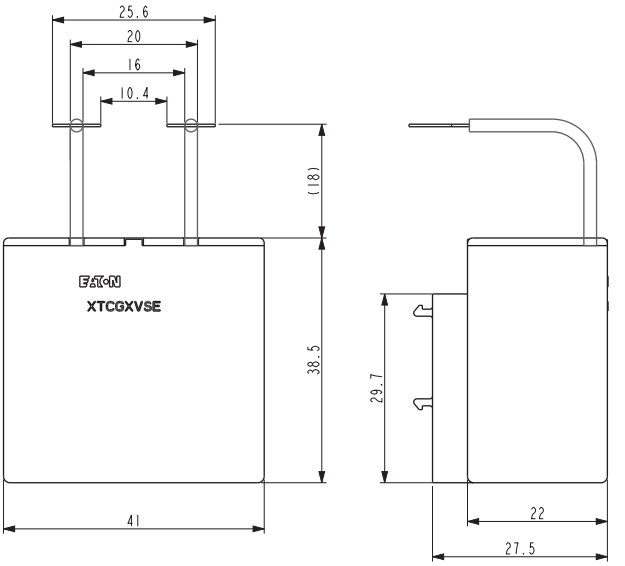


Surge suppressor

7-38A Surge suppressor

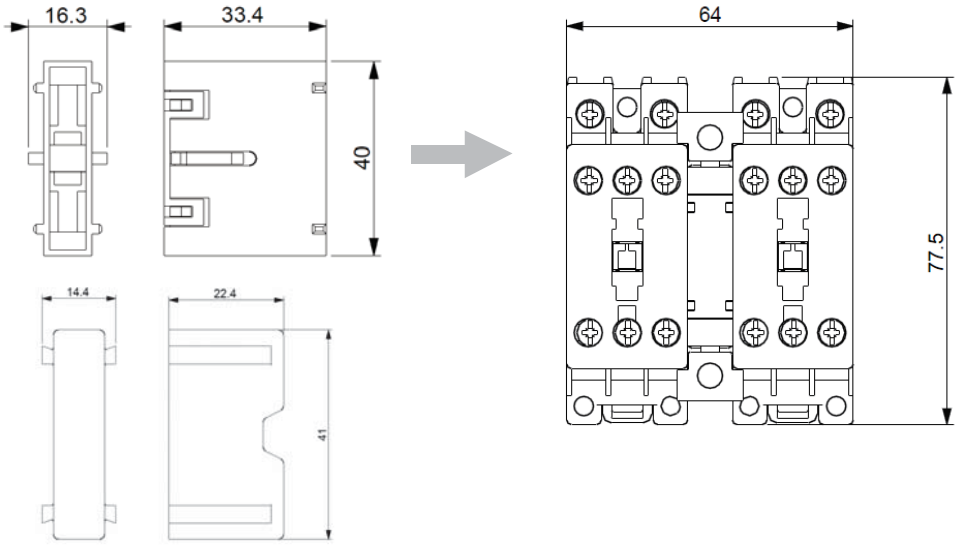


40-95A Surge suppressor

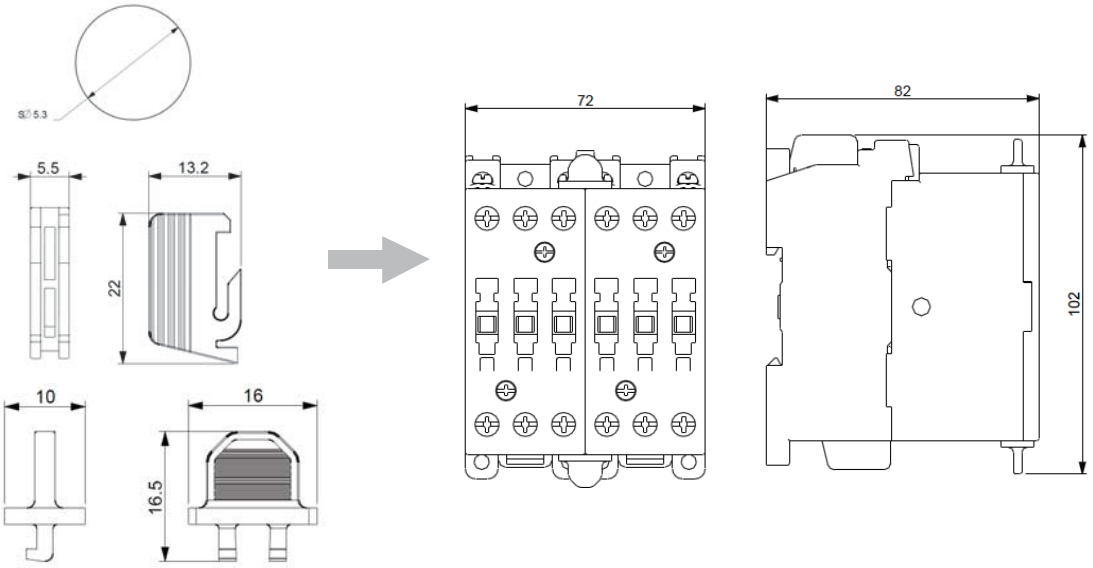


Mechanical interlock

7-12A Frame

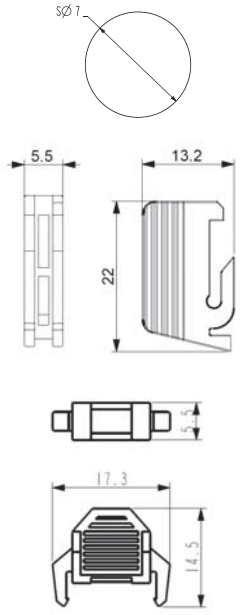


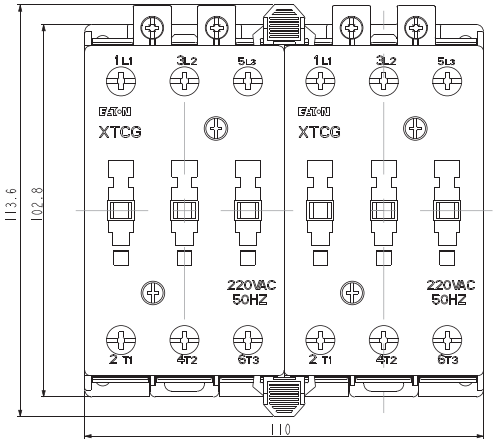
18-38A Frame



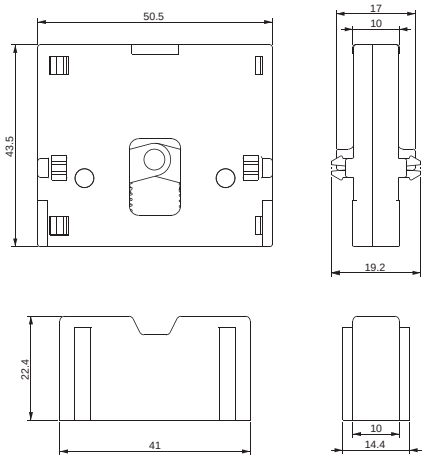
Mechanical interlock

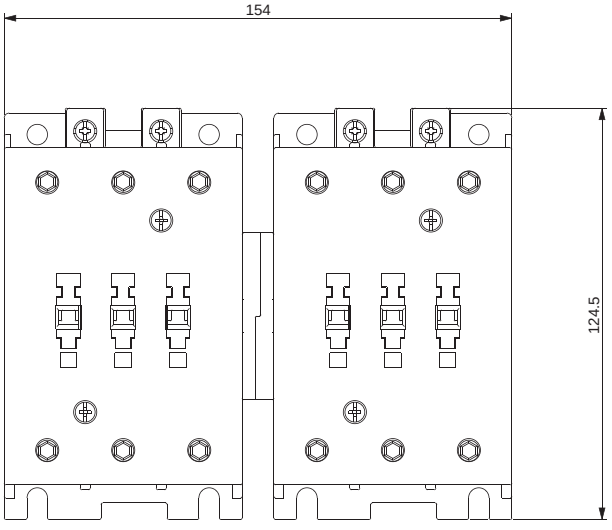
40-65A Frame





80-95A Frame





Eaton is a power management company with 2013 sales of $22.0 billion. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably. Eaton has approximately 100,000 employees and sells products to customers in more than 175 countries. For more information, visit **www.eaton.com**.

ELLISCO
> +64 9 570 5267
> info@ellis.co.nz
> www.ellis.co.nz

Electrical Sector Asia Pacific
No.3, Lane 280, Linhong Road,
Changning District, Shanghai

EATON
Powering Business Worldwide

Printed in China
Publication No. ENCA0103016
June 2014