Thermal overload relays

Thermal overload relays

Trip class 10	Setting range		Fuses			Box clamp terminals		
	Min. A	Max. A	AM A	gL-gG A	Use with	Cat. no.	Ref. no.	Pack
	0.16	0.26	2	2		ECRT1B10B	**268996**	5
	0.25	0.41	2	2		ECRT1B10C	**268997**	5
	0.40	0.65	2	2		ECRT1B10D	**268998**	5
	0.65	1.10	2	4		ECRT1B10F	**268999**	5
	1.00	1.50	4	6		ECRT1B10G	**269000**	5
	1.30	1.90	4	6	EC09	ECRT1B10H	**269001**	5
	1.80	2.70	6	10	EC12	ECRT1B10J	**269002**	5
	2.50	4.00	8	16	EC18	ECRT1B10K	**269003**	5
	4.00	6.30	12	20		ECRT1B10L	**269004**	5
	5.50	8.50	16	20		ECRT1B10M	**269005**	5
	8.00	12.00	20	25		ECRT1B10N	**269006**	5
	10.00	16.00	25	35		ECRT1B10P	**269007**	5
	14.50	18.00	32	50		ECRT1B10S	**269008**	5
	17.50	22.00	40	63		ECRT1B10T	**269009**	5
	8.00	12.00	20	25		ECRT2B10N	**268103**	5
	10.00	16.00	25	35		ECRT2B10P	**268104**	5
	14.50	18.00	32	50	EC25	ECRT2B10S	**268105**	5
	17.50	22.00	40	63	EC32	ECRT2B10T	**268106**	5
	21.00	26.00	40	63	EC40	ECRT2B10U	**268107**	5
	25.00	32.00	50	80		ECRT2B10V	**268108**	5
	30.00	40.00	63	100		ECRT2B10W	**268109**	5

Accessories

Use with	Description	Cat. no.	Ref. no.	Pack
Base for separate mounting				
ECRT1	DIN EN500022-35	ECRT1BS	**268963**	1
ECRT2	DIN EN500022-35	ECRT2BS	**268964**	1
Push-button with flexible cable				
ECRT1	0.5 m	RTXS	**113855**	1
	1 m	RTXSL	**113856**	1
	backside reset	RTXBS	**108864**	1
Remote electrical reset				
ECRT1 and ECRT2	12 VAC/DC	RTXRRB	**113661**	1
	24 VAC/DC	RTXRRD	**113662**	1
	48 VAC/DC	RTXRRG	**113663**	1
	110-240VAC/DC	RTXRRJ	**113664**	1
	220/415VAC/DC	RTXRRN	**113665**	1
	380/480VAC/DC	RTXRRU	**113666**	1

New

Conformity to standards

IEC/EN 60947-1
IEC/EN 60947-4-1
IEC/EN 60947-5-1
IEC/EN 60947-5-4
EN50011
EN50012
EN50005
GB14048.4
UL508
UL486E
CSA2.22-14
NF F16 101/102

Ambient conditions

Storage temperature	-55°C to +80°C
Operation temperature	-40°C to +55°C
	-40°C to +70°C (1)
Altitude	<2000m

(1) From 100% to 110% of rated control voltage, without additional auxiliary blocks

Approvals/Marking

(1) (1) (1) (1)

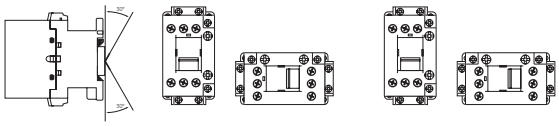
(1) In progress

Climatic resistance (IEC 68-2)

Continuous tests 40 / 125 / 56	
Cold (72h)	
Temperature	-40°C
Dry heat (96h)	
Temperature	+125°C
Relative humidity	< 50%
Humid heat (56h)	
Temperature	+40°C
Relative humidity	95%
Cyclic tests (6 cycles)	
Humid heat	
First half-cycle	
Low temperature	+25°C
Relative humidity	93%
Second half-cycle	
Low temperature	+55°C
Relative humidity	95°C

Mounting positions

Installation capabilities



With de-rating values

-10% connection voltage -10% disconnection voltage with same rated power, data compared to vertical mounting

+10% disconnection voltage +10% connection voltage with same rated power, data compared to vertical mounting

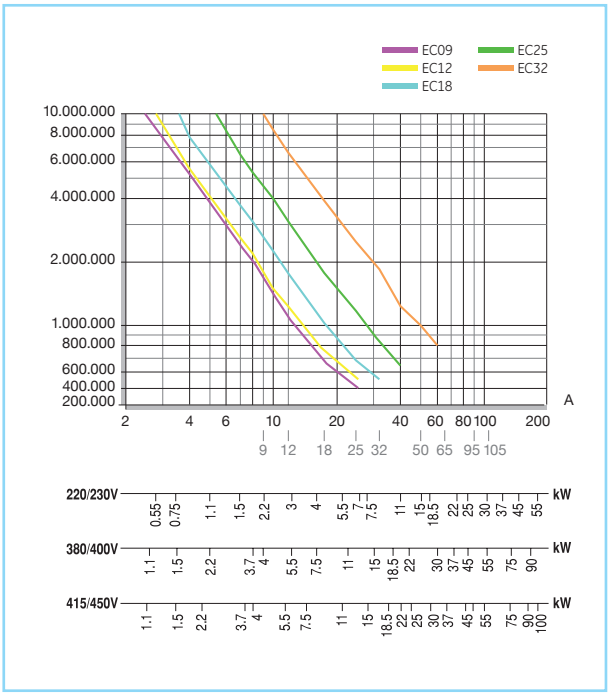
Terminal capacity and tightening torque

Conventional Thermal Current (Ith)	(A)	Head type	EC09 - EC18	EC25	EC32 - EC40
Box terminals			32	45	60
Solid, stranded and finely stranded w/o end sleeve	(mm^2)	Slot & PZ2	0.75...6	0.75...10	0.75...16
Finely stranded with end sleeve	(mm^2)	Slot & PZ2	0.75...6	0.75...10	0.75...16
Finely stranded w/o end sleeve	(mm^2)	Slot & PZ2	0.75...6	0.75...10	0.75...16
AWG wires			18...10	18...8	18...6
Tightening torque	(Nm) (Lb x in.)		2.2 / 20	2.2 / 20	2.2 / 20
Finely stranded w/o end sleeve	(mm^2)	Slot & PZ2	0.75...6	0.75...10	0.75...16
AWG wires			18...10	18...8	18...6
Tightening torque	(Nm) (Lb x in.)		2.2 / 20	2.2 / 20	2.2 / 20
Finely stranded with end sleeve	(mm^2)	Slot & PZ2	0.75...6	0.75...10	0.75...16
AWG wires			18...10	18...8	18...6
Tightening torque	(Nm) (Lb x in.)		2.2 / 20	2.2 / 20	2.2 / 20

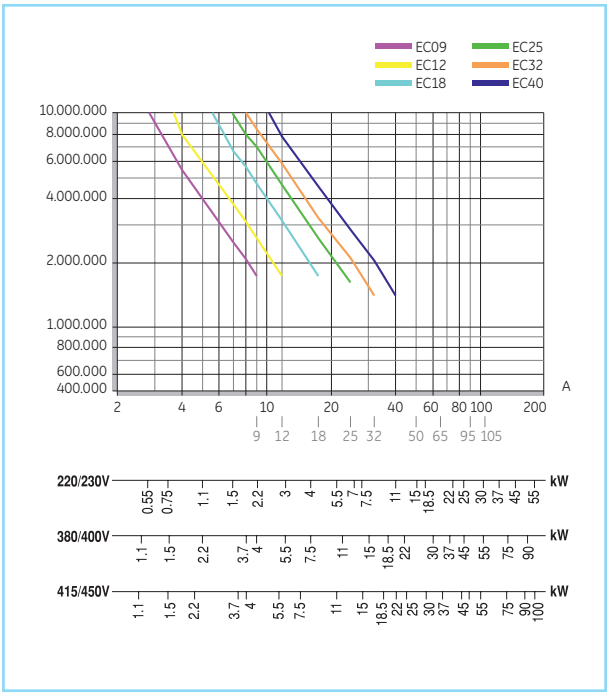
New

Electrical endurance

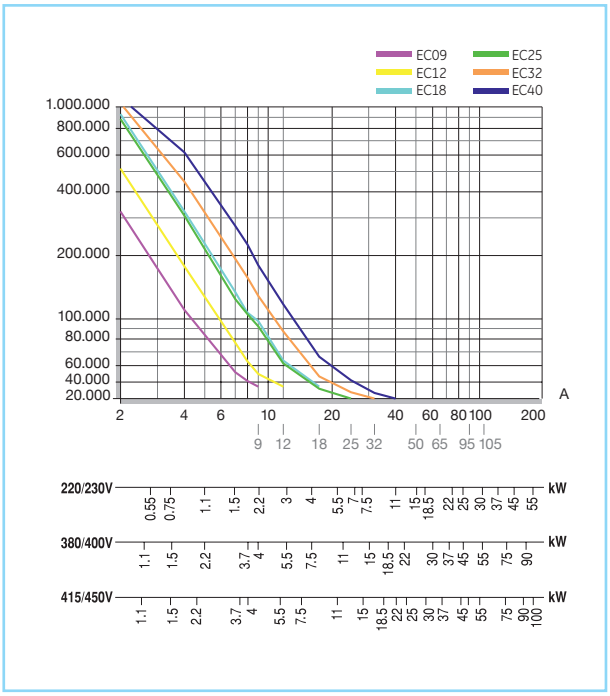
Category AC1 (3P & 4P contactors)



Category AC3 (3P contactors)



Category AC4 (3P contactors)



Power circuit

		EC 09	EC 12	EC18	EC 25	EC 32	EC 40
Three pole version							
Rated thermal current Ith at θ ≤ 55°C	(A)	25	25	32	45	60	60
Rated operational current Ie AC-3	(A)	9	12	18	25	32	40
Rated operational voltage Ue	(V)	690V acc. IEC 60947-4-1 / 600V acc. UL-CSA					
Four pole version							
Rated thermal current Ith at θ ≤ 55°C	(A)	-	25	32	45	60	-
Rated operational voltage Ue	(V)	690V acc. IEC 60947-4-1 / 600V acc. UL-CSA					
Three and four pole version							
Rated insulation voltage Ui	(V)	1000V acc. IEC 60947-4-1 / 600V acc. UL-CSA					
Maximum continuous current AC-1	(A)	25	25	32	45	60	60
Frequency limits	(Hz)	25...400	25...400	25...400	25...400	25...400	25...400
Making capacity (RMS) (IEC- 60947) U = 500V	(A)	220	220	220	315	520	520
Breaking capacity (RMS) (acc. IEC-60947)							
Ue = 500V	(A)	220	220	220	315	520	520
Ue = 690V	(A)	120	120	120	144	232	232
Short-time current from cold state							
1s	(A)	570	570	570	790	1265	1265
5s	(A)	254	254	254	355	565	565
10s	(A)	180	180	180	250	400	400
30s	(A)	104	104	104	145	231	231
1min	(A)	74	74	74	102	164	164
3min	(A)	42	42	42	60	95	95
Recovery time	(min)	10	10	10	10	10	10
Protection against short-circuit with fuses without thermal overload relay							
Coordination type 1							
gL-gG (U = 500V, 50kA or U = 415V, 80kA)	(A)	40	40	50	63	80	80
Coordination type 2							
gL-gG (U = 500V, 50kA or U = 415V, 80kA)	(A)	25	35	40	50	63	80
Average Impedance per pole	(mΩ)	2.25	2.25	2.25	1.6	1.2	1.2
Power dissipation per pole							
AC-1	(W)	1.41	1.41	2.30	3.24	4.32	4.32
AC-3	(W)	0.18	0.32	0.73	1.00	1.23	1.92
Insulation resistance							
Between adjacent poles	(MΩ)	>10	>10	>10	>10	>10	>10
Between poles and earth	(MΩ)	>10	>10	>10	>10	>10	>10
Between input and output	(MΩ)	>10	>10	>10	>10	>10	>10

Control circuit - Alternating current

		EC09 up to EC18	EC25 up to EC40
Rated insulation voltage Ui	(V)	1000	1000
Standard voltages Us 50Hz	(V)	12-600	12-600
Standard voltages Us 60Hz	(V)	12-600	12-600
Voltage operating limits 50/60Hz coils			
Operating 50Hz xUs		0.8 -1.1	0.8 -1.1
Operating 60Hz xUs		0.85-1.1	0.85-1.1
Pick-up 50Hz xUs		0.5...0.8	0.6...0.8
Pick-up 60Hz xUs		0.85-1.1	0.85-1.1
Drop out 50Hz xUs		0.35....0.55	0.30....0.55
Drop out 60Hz xUs		0.35....0.55	0.30....0.55
Maximum consumption bifrequency coils (cold state)			
Magnetic circuit closed (50Hz/60Hz)	(VA)	9.8 / 6.8	11.4 / 7.6
Magnetic circuit opened (50Hz/60Hz)	(VA)	70.1 / 68.2	144 / 138
Power factor			
Magnetic circuit closed cos φ		0.24	0.20
Magnetic circuit opened cos φ		0.85	0.70
Opening and closing times			
Values between +10% Us and –20% Us			
Making time on energisation (NO)	(ms)	10 - 25	10 - 25
Breaking time on de-energisation (NO)	(ms)	5 - 15	5 - 15
Values at Us			
Making time on energisation (NO)	(ms)	10 - 25	10 - 25
Making time on de-energisation (NO)	(ms)	5 - 15	5 - 15
Mechanical endurance			
Bifrequency coils (at 50Hz)	10^6 ops.	10	10
Maximum rate			
AC-1 at rated power	ops./h	1200	1200
AC-2 at rated power	ops./h	1200	1000
AC-3 at rated power	ops./h	1200	1000
AC-4 at rated power	ops./h	360	240
No load	ops./h	7200	7200

Control circuit - Direct current

		Coils with Wide voltage range		Coils with Low consumption	
		EC09 up to EC18	EC25 up to EC40	EC09 up to EC18	EC25 up to EC40
Rated insulation voltage Ui	(V)	1000	1000	1000	1000
Standard voltages Us DC	(V)	12 - 400	12 - 400	12 - 400	12 - 400
Operating Limits					
Operating xUs	(VDC)	0.70 - 1.25	0.70 - 1.25	0.80 - 1.1	0.80 - 1.1
Pick Up xUs	(VDC)	0.45 - 0.65	0.45 - 0.65	0.48 - 0.68	0.48 - 0.68
Drop Out xUs	(VDC)	0.12 - 0.30	0.12 - 0.30	0.12 - 0.30	0.12 - 0.30
Maximum consumption at Us					
Magnet circuit open and closed (cold state)	(W)	7.5	9.5	3.6	5.5
Opening and closing times					
Values between +10% Us and –20% Us					
Making time on energisation (NO)	(ms)	33 - 78	35 - 154	47 - 173	48 - 96
Breaking time on de-energisation (NO)	(ms)	14 - 18	15 - 26	12 - 15	8 - 26
Values at Us					
Making time on energisation (NO)	(ms)	33 - 78	35 - 66	44 - 83	33 - 75
Breaking time on de-energisation (NO)	(ms)	14 - 18	15 - 24	13 - 20	12 - 24
Mechanical endurance					
	10^6 ops.	10	10	10	10
Maximum rate					
AC-1 at rated power	ops./h	1200	1200	1200	1200
AC-2 at rated power	ops./h	1200	1000	1200	1000
AC-3 at rated power	ops./h	1200	1000	1200	1000
AC-4 at rated power	ops./h	360	240	360	240
No load	ops./h	7200	7200	7200	7200

(1) 4.4 for 230 Vdc version

New

Built-in auxiliary contacts

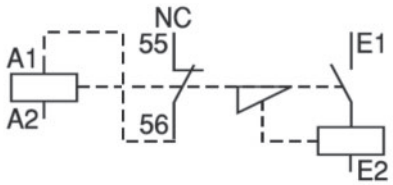
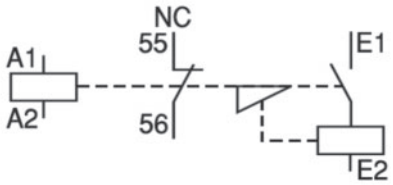
		EC09 up to EC25
Rated insulation voltage Ui according to IEC 60947	(V)	1000
Rated thermal current Ith a θ ≤ 55°C	(A)	10
Making capacity (r.m.s.) acc. to IEC 60947		
AC-15 Ue ≤ 400V, 50/60Hz	(A)	105
DC-13 Ue ≤ 220Vdc	(A)	105
Breaking capacity (r.m.s.) acc. to IEC 60947		
AC-15 Ue ≤ 400V, 50/60Hz	(A)	105
DC-13 Ue ≤ 220Vdc	(A)	2
AC-15 rated voltage and current Ue-Ie according to IEC	(V-A)	110/120-10 220/230-10 380/400-6 415/450-5 500-4 690/660-2
according to UL, CSA		A600
DC-13 rated voltage and current Ue-Ie according to IEC	(V-A)	24-6 48-4 110-2 220-0.7 440-0.35
according to UL, CSA		Q600
Electrical endurance	10^6 ops.	0.2
Minimum operational power (operational safety)		17 V - 5mA
Short-circuit protection Max. fuse class gl-gG without welding	(A)	10
Insulation resistance Between contacts Between contacts and earth	(MΩ) (MΩ)	>10
Guaranteed no overlap between NO and NC contacts		
Space		1.3mm
Impedance of the contacts	(MΩ)	2.7

Auxiliary contact blocks

		ECFA/ECLA
Rated insulation voltage Ui according to IEC 60947	(V)	1000
Rated thermal current Ith at θ ≤ 55°C	(A)	10
Making capacity (Ieff) according to IEC 60947		
AC-15 Ue ≤ 400V, 50/60Hz	(A)	60
DC-13 Ue ≤ 220Vdc	(A)	60
Breaking capacity (Ieff) according to IEC 60947		
AC-15 Ue ≤ 400V, 50/60Hz	(A)	60
DC-13 Ue ≤ 220V, DC	(A)	0.95
AC-15 rated voltage and current Ue-Ie according to IEC	(V-A)	110/120-6 220/230- 6 380/400-4 415/450-3.5 500-2.5 690/660-1.5
according to UL, CSA		A600
DC-13 rated voltage and current Ue-Ie according to IEC	(V-A)	24-4 48-2 110-0.7 220-0.3 440-0.15
according to UL, CSA		Q600
Electrical endurance	10^6 ops.	0.2
Mechanical endurance	10^6 ops.	10
Minimum operational current (operational safety)		17-5 V-mA
Short-circuit protection Max. fuse class gl-gG without welding	(A)	10
Insulation resistance Between contacts Between contacts and earth	(MΩ) (MΩ)	>10
Guaranteed no overlap between NO and NC contacts		
Space		1.6mm for ECFA / 2.2mm for ECLA
Impedance of the contacts	(MΩ)	2.7

New

Mechanical latch blocks

Rated insulation voltage Ui	(V)	1000
Standard voltages Us: 50 to 60Hz and DC	(V)	24-660 & 24-440
Operating limits		85% to 110%
Consumption for unlatching (auto cut-out)		
24 to 72V		30W / 25VA
110 to 440V		15W / 12VA
Electrical unlatching control		18
Minimum impulse	(ms)	15 – 25
Maintained		Auto cut by internal contact
Manual unlatching control		By manual push-button
Electrical making control		
Minimum pulse	(ms)	40 (auto cut)
Manual making control		By manual push-button
Auxiliary contact NC		
AC-15 utilisation according to IEC	(V-A)	110/120-6 220/230-6 380/400-4 415/450-3.5 500-2.5 690/660-1.5
according to UL/CSA		A600
DC-13 utilisation according to IEC	(V-A)	24-4 48-2 110-0.7 220-0.3 440-0.15
according to UL/CSA		Q600
Mechanical endurance	10^6 ops.	0.2
Wiring diagrams		
Alternating current		
Alternating current / Direct current		

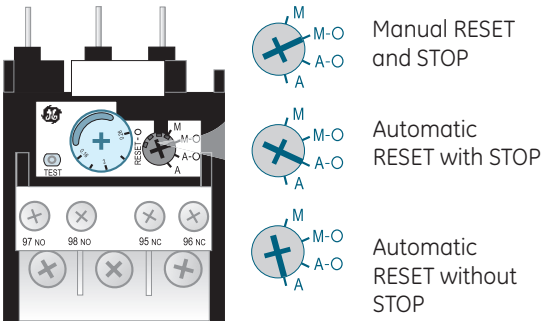
Terminal capacity

Terminal capacity		Screw plate ECMLSA,ECMLSD
Flexible wire	(mm^2)	2x0.5...2.5
AWG wire	(mm^2)	2x20...14
Standard gauge		A3
Tightening torque	(Nm/Lb·in)	1.1 / 10

New

Thermal mechanical overload relays for contactors from 0.16 to 40A

- Control circuit up to 690VAC
- Power circuit ECRT1, ECRT2: up to 690V
- Thermal protection against balanced overload.
- Three-pole differential (phase unbalance protection).
- Automatic ambient temperature compensation.
- Front mounted selector for choosing utilization current.
- Manual trip lever (tripping test).
- Tripping indicator (0-1).
- IP20 protection
- Reset button, 4 positions:
  - Manual RESET
  - Manual RESET and STOP
  - Automatic RESET with STOP
  - Automatic RESET without STOP



IEC/EN 60947-4-1
Ui=690V
Tripping current 120% of current setting

Standards

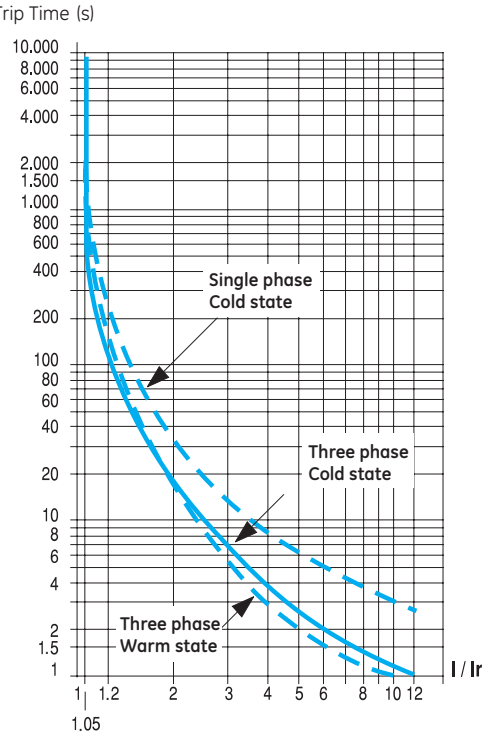
IEC 7 EN 60947-4-1
IEC EN 60947-5-1
GB14048.4
UL508
CSA22.2/14
VDE 0660

Approvals/Marking

(1) (1) (1) (1)

(1) In progress

Tripping curves



Multiples of setting current

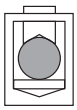
New

Thermal mechanical overload relays

Class		10A
Setting range	(A)	0.16...40
Suitable for		All Efficor contactors
Main circuit		
Rated insulation voltage	(V)	690
Frequency limits	(Hz)	0-400
Control circuit		
Rated insulation voltage (IEC60947-4) Ui	(V)	690
Rated thermal current Ith	(A)	10
Operation current		
AC-15 - rated voltage and current Ue-Ie	(V-A)	110/120-3 220/230-2 380/400-1 480/500-0.8 690/660-0.3
DC-13 - rated voltage and current Ue-Ie	(V-A)	24-2 48-1.4 110-0.6 220-0.3 440-0.1
Utilisation according UL and CSA		B600-Q600
Protective fuse type gL	(A)	10
Terminal capacity	(mm^2)	0.75..10
Tightening capacity	(Nm)	2.2 / 20

Terminal capacity

Clamp terminal - Flexible	(mm^2)	0.75..10
		18..8
Clamp terminal - Standard gauge		B6
		2.2 / 20



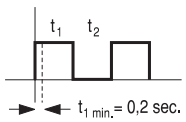
Ambient conditions

Storage temperature	-55°C to +80°C
Operation temperature (compensated)	-25°C to +60°C
Altitude <2000 m	without any changes in characteristics
Relative humidity	40°C, 95% no cond.
Protection treatment	Salt spary test

Remote electrical reset

Power consumption	
AC	100VA
DC	100W

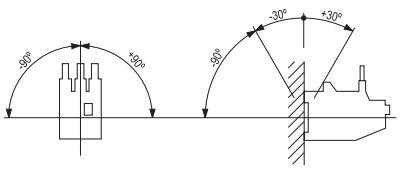
Coils not suitable for continuous operating duty



t_1 = 1 sec. ◆ t_2 = 30 sec.
t_1 = 5 sec. ◆ t_2 = 90 sec.
t_1 = 10 sec. ◆ t_2 = 180 sec.

(t_1 = ON time t_2 = OFF time)

Mounting positions



Inclination angle axis Y and Z: ±30°

New

Coordination table Type 2 with 50kA at 415V and 500V

Thermal Overload Relay	Current Setting range (Aac)	415VAC												500VAC							
						With MCCB as SCPD												With Fuse MMS as SCPD			
						SCPD		Contactor		SCPD (MCCB)		Contactor						SCPD		Contactor	
		Rated Power (kW)	Rated Current (A)	"r" Current (kA)	"q" Current (kA)	Type	Rat. (Aac)	Type	Rat. (Aac)	Type	Rat. (Aac)	Type	Rat. (Aac)	Rated Power (kW)	Rated Current (A)	"r" Current (kA)	"q" Current (kA)	Type	Rat. (Aac)	Type	Rat. (Aac)
ECRT1B10B	0.16 - 0.26	0.06	0.21	1	80	MMS	0.26	EC09A3	9	-	-	-	-	0.06	0.17	1	50	MMS	0.26	EC09A3	9
ECRT1B10C	0.25 - 0.41	0.09	0.31	1	80	Fuse	2	EC09A3	9	-	-	-	-	0.12	0.33	1	50	Fuse	2	EC09A3	9
ECRT1B10D	0.4 - 0.65	0.12	0.4	1	80	Fuse	4	EC09A3	9	-	-	-	-	0.18	0.48	1	50	Fuse	4	EC09A3	9
ECRT1B10F	0.65 - 1.1	0.25	0.8	1	80	Fuse	4	EC09A3	9	-	-	-	-	0.25	0.66	1	50	Fuse	4	EC09A3	9
ECRT1B10G	1.0 - 1.5	0.37	1.1	1	80	Fuse	6	EC09A3	9	-	-	-	-	0.55	1.2	1	50	Fuse	6	EC09A3	9
ECRT1B10H	1.3 - 1.9	0.55	1.5	1	80	Fuse	6	EC09A3	9	-	-	-	-	0.75	1.5	1	50	Fuse	6	EC09A3	9
ECRT1B10J	1.8 - 2.7	0.75	1.9	1	80	Fuse	6	EC09A3	9	-	-	-	-	1.1	2.1	1	50	Fuse	6	EC09A3	9
ECRT1B10K	2.5 - 4.0	1.5	3.4	1	80	Fuse	10	EC09A3	9	-	-	-	-	1.5	2.6	1	50	Fuse	10	EC09A3	9
ECRT1B10L	4.0 - 6.3	2.2	4.5	1	80	Fuse	16	EC09A3	9	-	-	-	-	3	5.3	1	50	Fuse	16	EC09A3	9
ECRT1B10M	5.5 - 8.5	3	6.5	1	80	Fuse	20	EC09A3	9	-	-	-	-	3.7	6	1	50	Fuse	20	EC09A3	9
ECRT1B10N/ ECRT2B10N	8.0 - 12	4	8	1	80	Fuse	25	EC09A3	9	MCCB	12.5	EC25A3	25	5.5	9	1	50	Fuse	25	EC09A3	9
ECRT1B10P/ ECRT2B10P	10.0 - 16.0	5.5	11	1	80	Fuse	35	EC012A3	12	MCCB	12.5	EC25A3	25	7.5	12	1	50	Fuse	35	EC12A3	12
ECRT1B10S/ ECRT2B10S	14.5 - 18.0	7.5	14.8	1	80	Fuse	40	EC018A3	18	MCCB	20	EC25A3	32	10	15.5	1	50	Fuse	40	EC18A3	18
ECRT1B10T/ ECRT2B10T	17.5 - 22	-	-	-	-	-	-	-	-		-	-	-	11	18.4	3	50	Fuse	40	EC18A3	18
ECRT2B10U	21.0 - 26	11	21	3	80	Fuse	50	EC025A3	25	MCCB	30	EC25A3	32	15	23	3	50	Fuse	50	EC25A3	25
ECRT2B10V	25.0 - 32.0	15	28	3	80	Fuse	63	EC032A3	32	MCCB	30	EC32A3	32	17.5	26.5	3	50	Fuse	63	EC32A3	32
ECRT2B10W	30.0 - 40	18.5	35	3	80	Fuse	80	EC040A3	40	MCCB	50	EC40A3	40	22	33	3	50	Fuse	80	EC40A3	40

Thermal overload relays, Trip Class: 10A
Rated operational voltage: 415Vac, 500Vac
Rated insulation voltage: 690Vac
Rated frequency: 50Hz.
Rated duty: Eight hour duty
Pollution degree: 3
Rated conditional short-circuit protection device current: 80kA at 415Vac; 50kA at 500Vac

Surion GPS high breaking capacity (Thermal Magnetic). Coordination Type 2 - 65kA at 380/400 & 415V

Motor[1]			Manual Motor Starter				Contactor	Box clamp		Links
Rated Power	Rated current (A)		Cat.No.	Rated current (In)	Thermal current	Magnetic current	Series	Smallest wire Cu (pvc)[2]	Minimum frontal electri-cal safety clearence	Cat.No.
kW	380/400V	415V		(A)	Setting range (A)	(A)		380/415V (mm^2)	(mm)	
0.06	0.23	0.21	GPS1BHAB	0.25	0.16-0.25	3.2	EC9A..	0.75	20	ECM1AL25
0.09	0.34	0.31	GPS1BHAC	0.4	0.25-0.4	5.2	EC9A..	0.75	20	ECM1AL25
0.12	0.44	0.4	GPS1BHAD	0.63	0.4-0.63	8.2	EC9A..	0.75	20	ECM1AL25
0.18	0.65	0.63	GPS1BHAE	1	0.63-1	13	EC9A..	0.75	20	ECM1AL25
0.25	0.9	0.8	GPS1BHAE	1	0.63-1	13	EC9A..	0.75	20	ECM1AL25
0.37	1.25	1.1	GPS1BHAF	1.6	1-1.6	20.5	EC9A..	0.75	20	ECM1AL25
0.55	1.6	1.5	GPS1BHAF	1.6	1-1.6	20.5	EC9A..	0.75	20	ECM1AL25
0.75	2	1.9	GPS1BHAG	2.5	1.6-2.5	32.5	EC9A..	0.75	20	ECM1AL25
1.1	2.6	2.5	GPS1BHAH	4	2.5-4	52	EC9A..	0.75	20	ECM1AL25
1.5	3.5	3.4	GPS1BHAH	4	2.5-4	52	EC9A..	0.75	20	ECM1AL25
2.2	5	4.5	GPS1BHAJ	6.3	4-6.3	82	EC9A..	0.75	20	ECM1AL25
3	7	6.5	GPS1BHAK	10	6.3-10	130	EC9A..	1.5	20	ECM1AL25
4	9	8	GPS1BHAK	10	6.3-10	130	EC9A..	1.5	20	ECM1AL25
5.5	12	11	GPS1BHAL	13	9-1.3	169	EC12A..	2.3	20	ECM1AL25
7.5	16	14	GPS1BHAM	16	11.0-16	208	EC18A..	4	20	ECM1AL25
11	22.5	21	GPS1BHAP	25	19-25	325	EC25A..	6	20	ECM1AL25
15	30	28	GPS1BHAR	32	24-32	416	EC32A..	6	20	ECM1AL32
18.5	37	35	GPS2BHAS	40	28-40	520	EC40A..	10	20	ECM1AL32

(1) Current are relevant to four pole motors not having special characteristics of torque. Inrush currents: ≤ 8 time rated current for ≤ 1s.
(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.

New

Record Plus Coordination Type 2 at 80kA at 380/400 & 415V

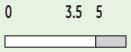
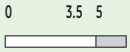
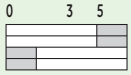
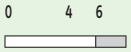
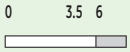
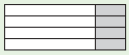
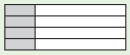
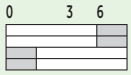
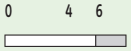
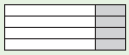
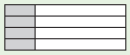
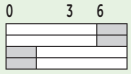
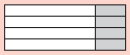
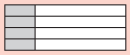
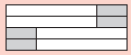
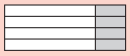
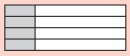
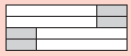
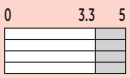
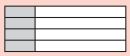
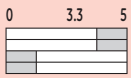
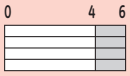
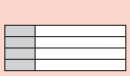
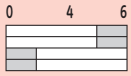
Motor[1]			MCCB				Contactor			Overload relay		Box clamp	Clearance
Rated Power	Rated current (A)		Cat.No.	Rated current (In)	Thermal Current	Magnetic Current		**Operating current**	**Admissible power**		Setting Range	Smallest wire Cu (pvc)[2]	Min. frontal electrical safety clearance
kW	380/400V	415V		(A)	Setting range (A)	(A)	Series	A	P(kW)	Series		380/415V (mm²)	mm
4	9	8	FD63	12.5	12.5	169	EC25A..	25	11	ECRT2	8-12	1.5	20
5.5	12	11	FD63	12.5	12.5	169	EC25A..	25	11	ECRT2	10-16	1.5	20
7.5	16	14.8	FD63	20	20	210	EC32A..	32	15	ECRT2	14.5-18	4	20
11	22.5	21	FD63	30	30	300	EC32A..	32	15	ECRT3	21-26	6	20
15	30	28	FD63	30	30	450	EC32A..	32	15	ECRT3	25-35	6	20
18.5	37	35	FD63	50	50	500	EC40A..	40	18.5	ECRT3	30-40	10	20

Record Plus Coordination Type 2 at 80kA at 500/525V

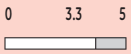
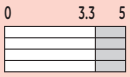
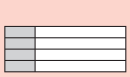
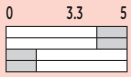
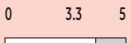
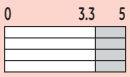
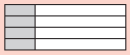
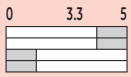
Motor[1]			MCCB				Contactor			Overload relay		Box clamp	Clearance
Rated Power	Rated current (A)		Cat.No.	Rated current (In)	Thermal Current	Magnetic Current		**Operating current**	**Admissible power**		Setting Range	Smallest wire Cu (pvc)[2]	Min. frontal electrical safety clearance
kW	380/400V	415V		(A)	Setting range (A)	(A)		A	P(kW)	Series		380/415V (mm²)	mm
7.5	12		FD63	12.5	12.5	-	EC32A..	32	15	ECRT2	10-19	4	20
11	18.4		FD63	20	20	-	EC32A..	32	18.5	ECRT3	17.5-25	6	20
15	23		FD63	30	30	-	EC40A..	40	18.5	ECRT3	21-29	6	20
18.5	29		FD63	30	30	-	EC40A..	40	18.5	ECRT3	25-35	10	20

(1) Current are relevant to four pole motors not having special characteristics of torque. Inrush currents: ≤ 8 time rated current for ≤ 1s.
(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature.

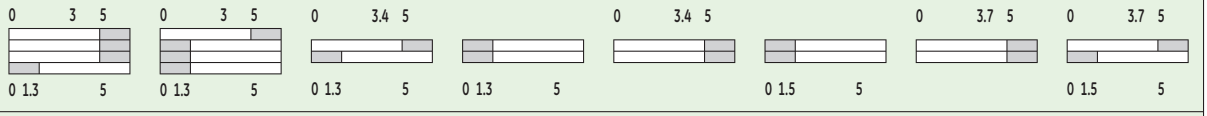
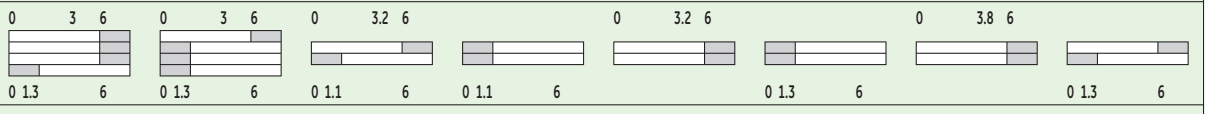
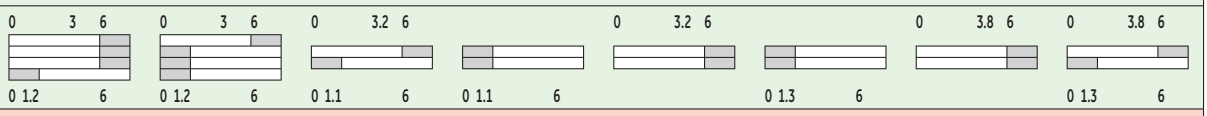
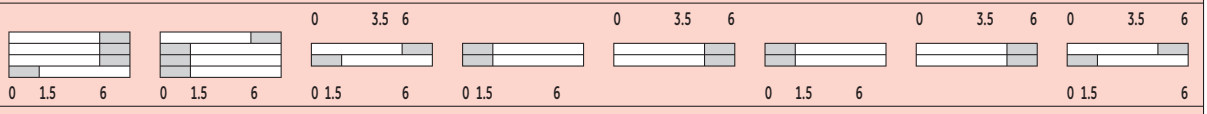
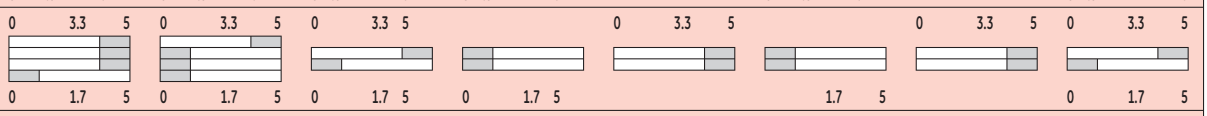
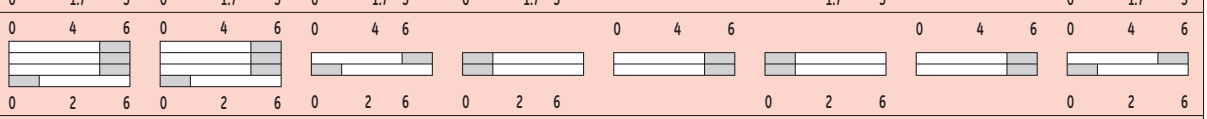
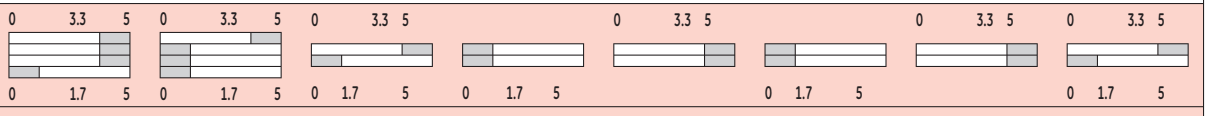
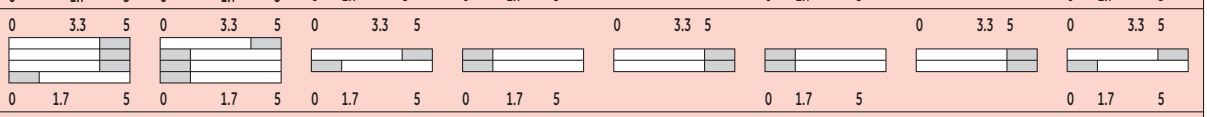
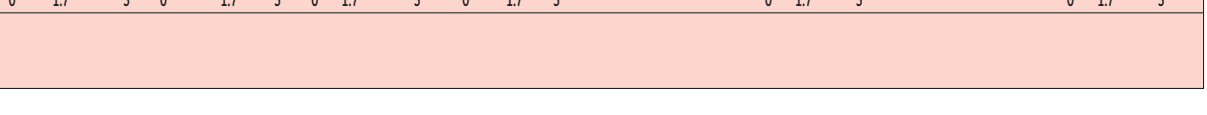
Contact sequence

Device	Rating	Basic contactor	Built-in auxiliary		Auxiliary contact blocks - Front mounted-4P		
			NO	NC	40	.04	22
3P contactors 3NO	EC09 EC12 EC18						
	EC25						
	EC32 EC40						
4P contactors 4NO	EC12 EC18						
							
4P contactors 2NO+2NC	EC09 EC12 EC18						
	EC25 EC32 EC40						

Contact sequence (auxiliary contactors)

4P contactors 4NO	ECAC09 ECAC12 ECAC18 ECAC25				
4P contactors 2NO+2NC	ECAC09 ECAC12 ECAC18 ECAC25				

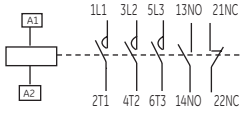
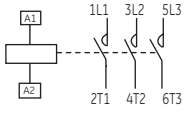
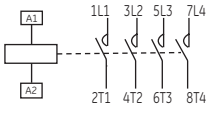
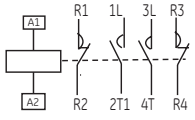
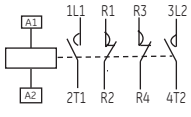
New

	Auxiliary contact blocks - Front mounted-2P				Auxiliary contact blocks - Front mounted-2P		
31	13	11	02	20	02	20	11
							
							
							
							
							
							
							
							
							
							

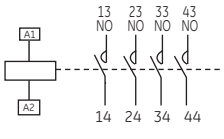
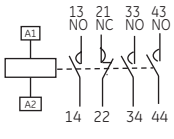
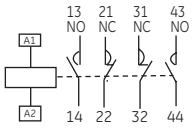
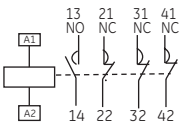
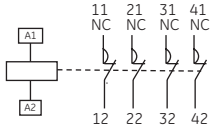
New

Terminal numbering

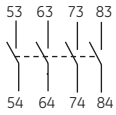
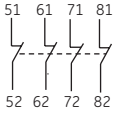
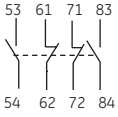
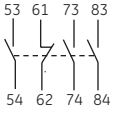
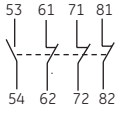
3P and 4P contactors

EC09A311..EC25A311 EC09D311..EC25D311	EC32A300..EC40A300 EC32D300..EC40D300	EC12A400..EC32A400 EC12D400..EC32D400	EC12AB00.....EC25AB00 EC12DB00.....EC25DB00	EC32AB00 EC32DB00
				

Auxiliary contactors

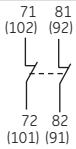
ECACA440 ECACD440	ECACA431 ECACD431	ECACA422 ECACD422	ECACA413 ECACD413	ECACA404 ECACD404
				

Auxiliary contact blocks - Front mounting

ECFA440	ECFA404	ECFA422	ECFA431	ECFA413
				

ECFA211	ECFA220	ECFA202
		

Auxiliary contact blocks - Lateral mounting

ECLA20	ECLA11	ECLA02
		

Mechanical and mechanical/electrical interlock

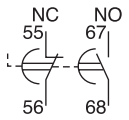
ECMI	ECMI02
	

New

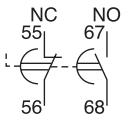
Terminal numbering (continued)

Pneumatic timer blocks

ECPTD

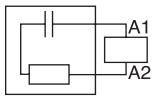


ECPTC

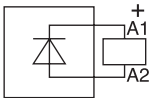


Voltage suppressor blocks

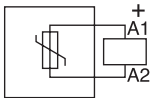
ECSURC



ECSUDI

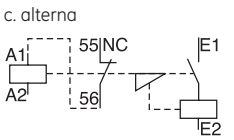


ECSUVI

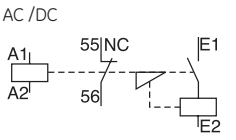


Mechanical latch block

ECMLA

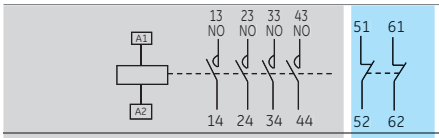
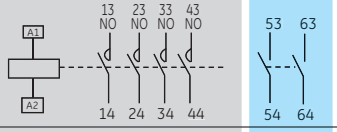
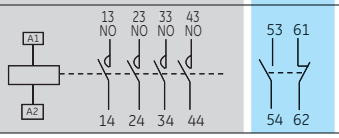
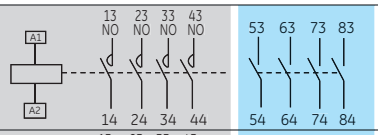
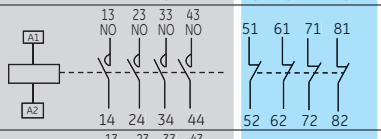
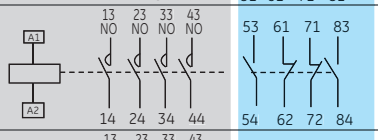
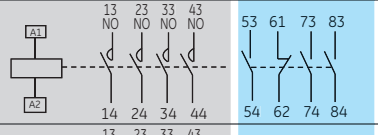
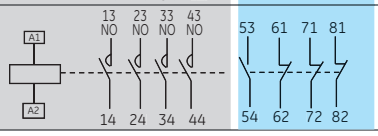
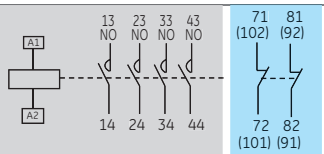
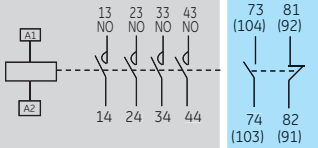
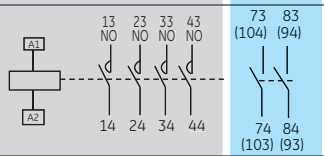


ECMLD

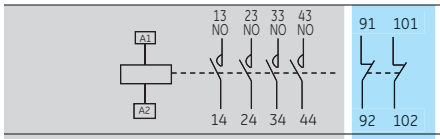
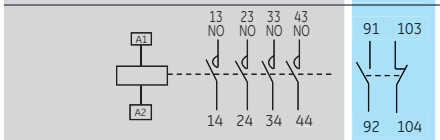
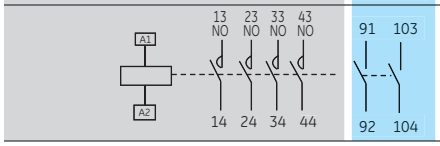
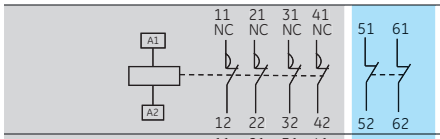
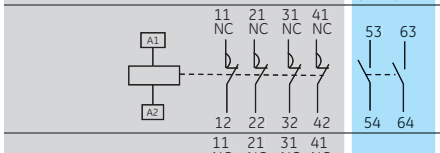
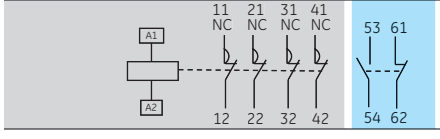
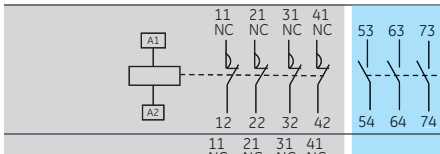
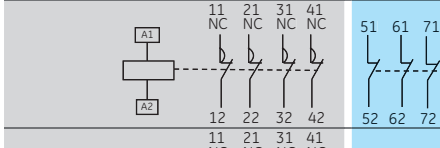
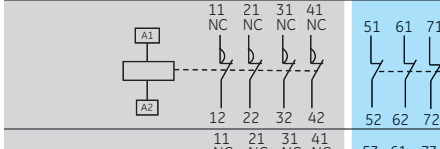
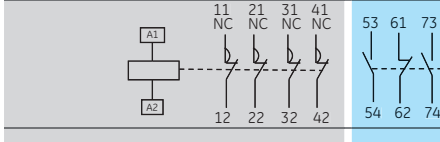
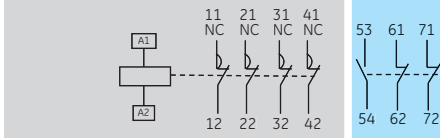


New

Terminal numbering according to EN 50011

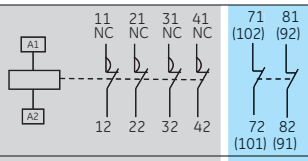
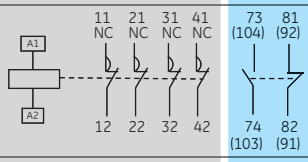
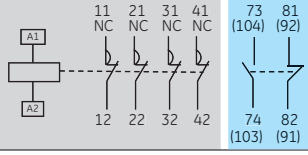
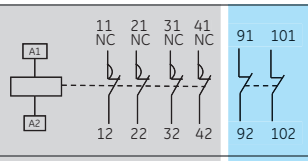
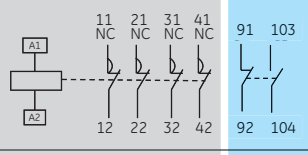
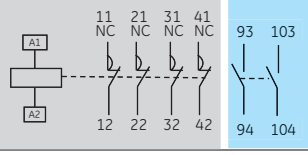
Auxiliary contacts	Description	NO	NC	*Possible basic auxiliary contactors + Auxiliary contacts blocks to be added*
4NO auxiliary contactor terminal combination with 2P FRONTAL block				
	42E	4	2	ECACA440 ECACD440 +ECFA202
	60E	6	0	ECACA440 ECACD440 +ECFA220
	51E	5	1	ECACA440 ECACD440 +ECFA211
4NO auxiliary contactor terminal combination with 4P FRONTAL block				
	80E	8	0	ECACA440 ECACD440 +ECFA440
	44E	4	4	ECACA440 ECACD440 +ECFA440
	62E	6	2	ECACA440 ECACD440 +ECFA422
	71E	7	1	ECACA440 ECACD440 +ECFA431
	53E	5	3	ECACA440 ECACD440 +ECLFA413
4NO auxiliary contactor terminal combination with LATERAL - block mounted on the RIGHT side of contactor				
	42	4	2	ECACA440 ECACD440 +ECLA202
	51	5	1	ECACA440 ECACD440 +ECLA211
	60	6	0	ECACA440 ECACD440 +ECLA220

Terminal numbering according to EN 50011 (continued 1)

Auxiliary contacts	Description	NO	NC	Possible basic auxiliary contactors + Auxiliary contacts blocks to be added
4NO auxiliary contactor terminal combination with LATERAL - block mounted on the LEFT side of contactor				
	42	4	2	**ECACA440** **ECACD440** **+ECLA202**
	51	5	1	**ECACA440** **ECACD440** **+ECLA211**
	6	6	0	**ECACA440** **ECACD440** **+ECLA220**
4NC auxiliary contactor terminal combination with 2P FRONTAL block				
	06E	6	0	**ECACA404** **ECACD404** **+ECFA202**
	24E	2	4	**ECACA404** **ECACD404** **+ECFA220**
	15E	5	1	**ECACD404** **ECACA404** **+ECFA211**
4NC auxiliary contactor terminal combination with 4P FRONTAL block				
	44E	4	4	**ECACA404** **ECACD404** **+ECFA440**
	08E	0	8	**ECACA404** **ECACD404** **+ECFA404**
	26E	2	6	**ECACA404** **ECACD404** **+ECFA422**
	35E	3	5	**ECACA404** **ECACD404** **+ECFA431**
	17E	1	7	**ECACA404** **ECACD404** **+ECLFA413**

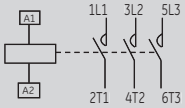
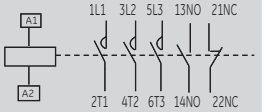
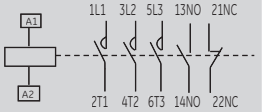
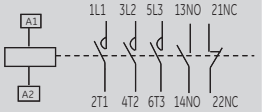
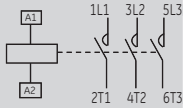
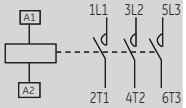
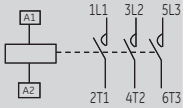
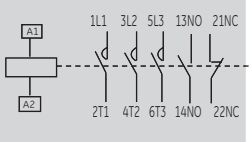
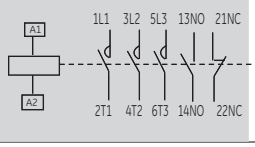
New

Terminal numbering according to EN 50011 (continued 2)

Auxiliary contacts	Description	NO	NC	Possible basic auxiliary contactors + Auxiliary contacts blocks to be added
4NC auxiliary contactor terminal combination with LATERAL - block mounted on the RIGHT side of contactor				
	42	0	6	**ECACA404** **ECACD404** **+ECLA202**
	15	1	5	**ECACA404** **ECACD404** **+ECLA211**
	24	2	4	**ECACA404** **ECACD404** **+ECLA220**
4NC auxiliary contactor terminal combination with LATERAL - block mounted on the LEFT side of contactor				
	42	4	2	**ECACA440** **ECACD440** **+ECLA202**
	51	5	1	**ECACA440** **ECACD440** **+ECLA211**
	6	6	0	**ECACA440** **ECACD440** **+ECLA220**

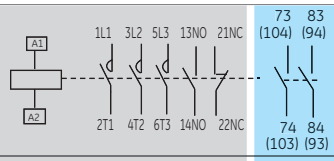
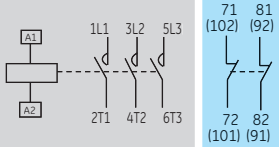
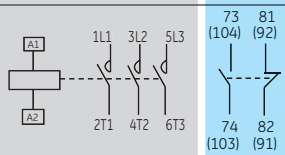
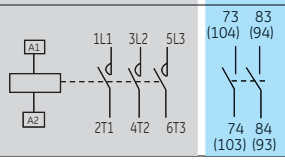
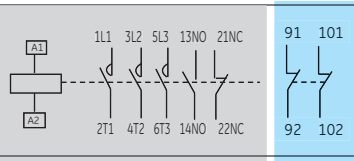
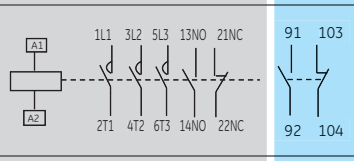
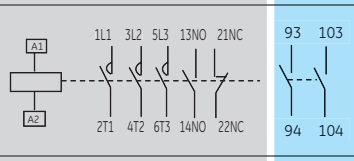
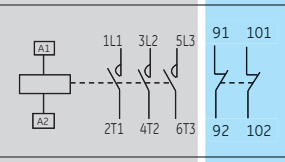
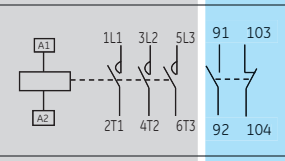
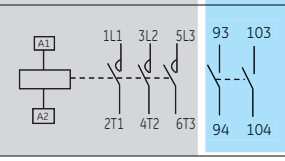
New

Terminal numbering according to EN 50012

Auxiliary contacts	Description	NO	NC	*Possible basic auxiliary contactors + Auxiliary contacts blocks to be added*
Terminal numbering according to EN 50012				
	11E	1	1	**EC09A311..EC25A311** **EC09D311..EC25D311**
	-	0	0	**EC32A300..EC40A300** **EC32D300..EC40D300**
***FRONT* mounted auxiliary contact blocks with 2 contacts each**				
	13	1	3	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA202**
	31	3	1	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA220**
	22	2	2	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA211**
	02	0	2	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECFA202**
	20	2	0	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECFA220**
	11	1	1	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECFA211**
***LATERAL* mounted auxiliary contact blocks with 2 contacts each - *RIGHT* side mounted**				
	13	1	3	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECLA220**
	22	2	2	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECLA211**

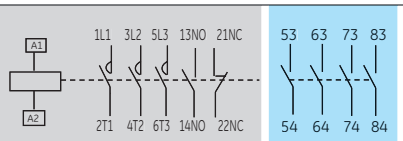
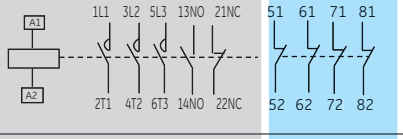
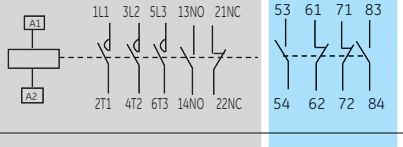
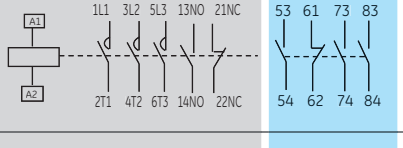
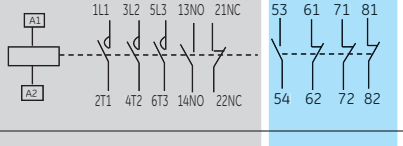
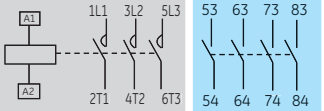
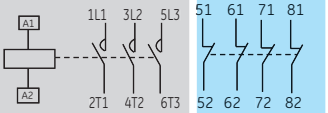
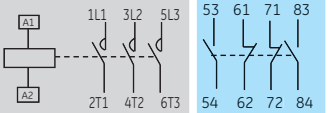
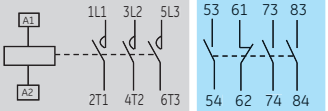
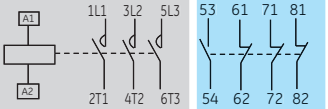
New

Terminal numbering according to EN 50012 (continued 1)

Auxiliary contacts	Description	NO	NC	Possible basic auxiliary contactors + Auxiliary contacts blocks to be added
***LATERAL** mounted auxiliary contact blocks with 2 contacts each - **RIGHT** side mounted (continued)*				
	31	3	1	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECLA220**
	02	0	2	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECLA202**
	11	1	1	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECLA211**
	20	2	0	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECLA220**
***LATERAL** mounted auxiliary contact blocks with 2 contacts each - **LEFT** side mounted*				
	13	1	3	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECLA202**
	22	2	2	**EC09D311..EC25D311** **EC09A311..EC25A311** **+ECLA211**
	31	3	1	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECLA220**
	02	0	2	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECLA202**
	11	1	1	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECLA211**
	20	2	0	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECLA220**

New

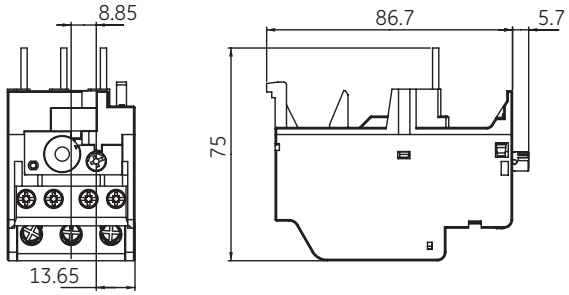
Terminal numbering according to EN 50012 (continued 2)

Auxiliary contacts	Description	NO	NC	*Possible basic auxiliary contactors + Auxiliary contacts blocks to be added*
***FRONT** mounted auxiliary contact blocks with 4 contacts each*				
	51	5	1	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA440**
	15	1	5	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA404**
	33	3	3	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA422**
	42	4	2	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA431**
	24	2	4	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA413**
	40	4	0	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA440**
	04	0	4	**EC09A311..EC25A311** **EC09D311..EC25D311** **+ECFA404**
	22	2	2	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECFA422**
	31	3	1	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECFA431**
	13	1	3	**EC32A300..EC40A300** **EC32D300..EC40D300** **+ECFA413**

Dimensions and weights

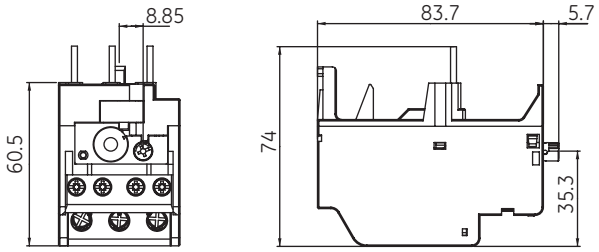
Thermal overload relay ECRT1

186 g



Thermal overload relay ECRT2

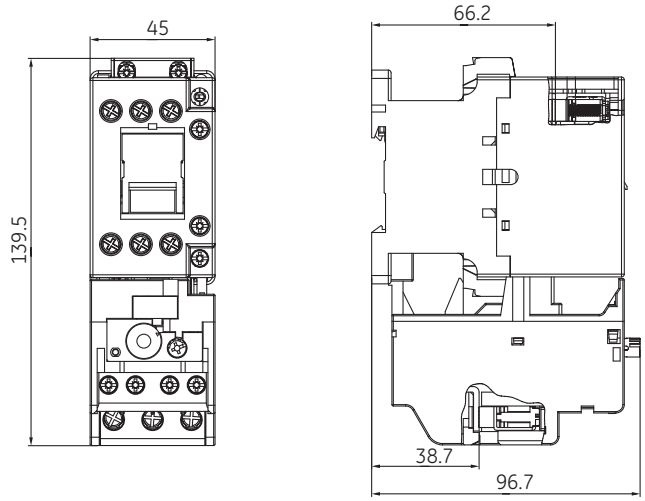
194 g



New

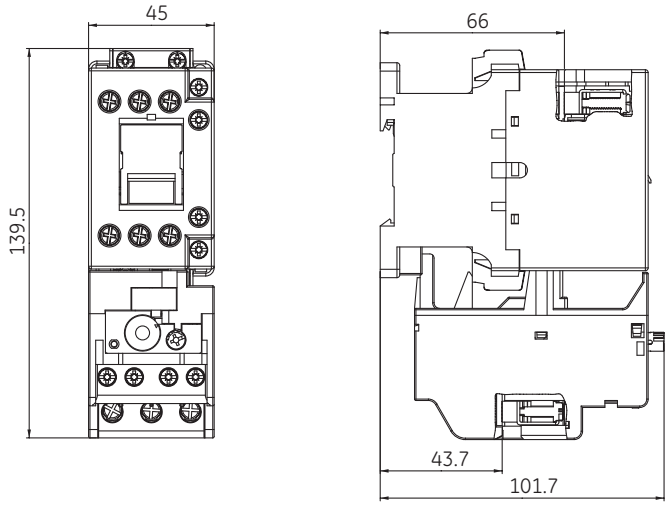
Combination of contactor EC09A-12A-18A and thermal overload relay ECRT1

536 g



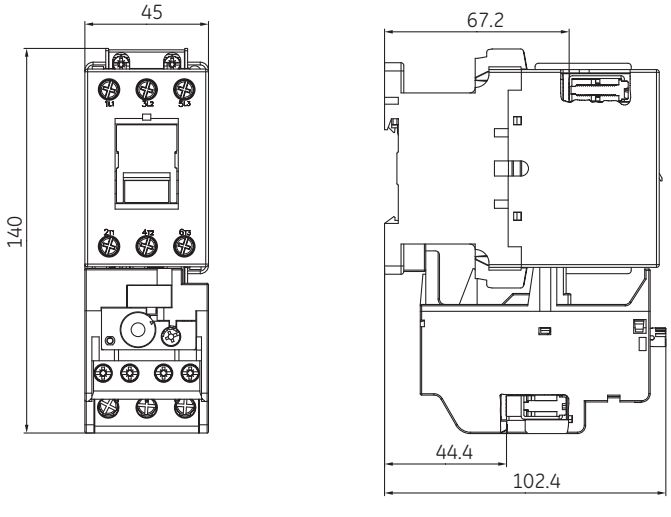
Combination of contactor EC25A and thermal overload relay ECRT2

680 g

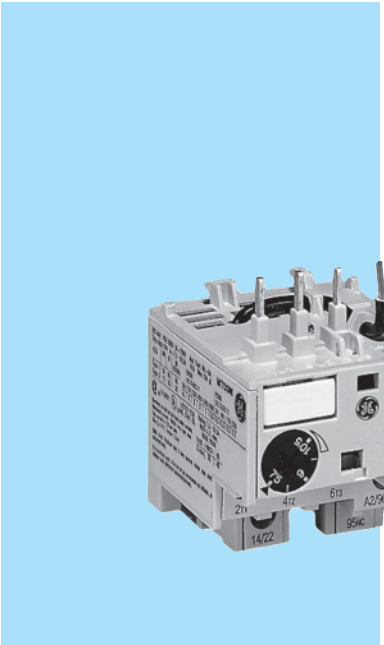


Combination of contactor EC32A-40A and thermal overload relay ECRT2

790 g



New



Thermal overload relays for contactors from 0.11 to 14A

- Control circuit up to 690V
- Power circuit up to 690V
- Three-pole differential (phase unbalance protection)
- Automatic ambient temperature compensation between – 25°C and + 60°C
- Choice of manual or automatic reset
- Direct connection to contactor or independent mounting using accessories.
- Screw and Ring terminal versions
- Terminals protected against accidental contact in accordance with VDE 0106 T.100 and VBG4.
- Terminal numbering in accordance with EN 50005
- Degree of protection IP20 (EN 60529)
- Additional auxiliary contact block 1NO (with manual reset only)

Standards

IEC/EN 60947-4-1	CSA 22.2/14
IEC/EN 60947-5-1	NI C 63-650
UNE 115	VDE 0660
NFC 63-650	UL 508

Approvals/Marking

cULus NEMKO CE

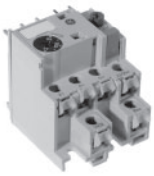
SEMKO SETI

General characteristics

- Thermal protection against balanced overload.
- Three-pole differential (phase unbalance protection).
- Automatic ambient temperature compensation.
- Front mounted selector for choosing utilisation current.
- Reset button, 2 positions : Manual(H) and Automatic(A) by turning the blue selector.
- Stop push button, independent of reset (red).
- Manual trip lever (tripping test).
- Tripping indicator (0-1).
- To facilitate wiring arrangements terminal 96 fits directly onto coil terminal (A2) and terminal 14/22 fits directly onto the feedback auxiliary contact.

Order codes ● pg. A.69
Technical data ● pg. A.120
Dimensions ● pg. A.121

Thermal overload relays for contactors



For use with:	Setting range (regulation)		Fuse				Terminal: screw		Terminal: ring terminal		Pack
			aM		gL						
	min. A	max. A	Type 2 A	Type 1 A	Type 2 A	Type 1 A	Cat. no.	Ref. no.	Cat. no.	Ref. no.	
MC0...	0.11	0.17	0.5	0.5	0.5	0.5	**MT03A**	101000	**MT03RA**	103540	10
MC1...	0.17	0.26	0.85	1	1	1	**MT03B**	101001	**MT03RB**	103541	10
MC2...	0.26	0.43	1	2	2	4	**MT03C**	101002	**MT03RC**	103542	10
	0.43	0.65	1	4	2	8	**MT03D**	101003	**MT03RD**	103543	10
	0.65	1	2	6	4	12	**MT03E**	101004	**MT03RE**	103544	10
	0.85	1,3	2	6	4	12	**MT03F**	101005	**MT03RF**	103545	10
	1.1	1.6	2	10	4	16	**MT03G**	101006	**MT03RG**	103546	10
	1.35	2	4	10	6	16	**MT03H**	101007	**MT03RH**	103547	10
	1.7	2.4	4	16	6	25	**MT03I**	101008	**MT03RI**	103548	10
	2.2	3.2	4	20	6	32	**MT03J**	101009	**MT03RJ**	103549	10
	2.5	4	4	20	6	32	**MT03R**	101015			10
	3	4.7	6	20	10	32	**MT03K**	101010	**MT03RK**	103550	10
	4	6.3	10	32	16	50	**MT03L**	101011	**MT03RL**	103551	10
	5.5	8	12	50	20	63	**MT03M**	101012	**MT03RM**	103552	10
	7.5	10.5	16	50	25	80	**MT03N**	101013	**MT03RN**	103553	10
	10	14	20	32	32	100	**MT03P**	101014	**MT03RP**	103554	10

Accessories

Input terminals

	Terminal	Cat. no.	Ref. no.	Pack
	Screw	**MVE0T**	101020	5
	Ring terminal	**MVE0R**	103562	5

Base

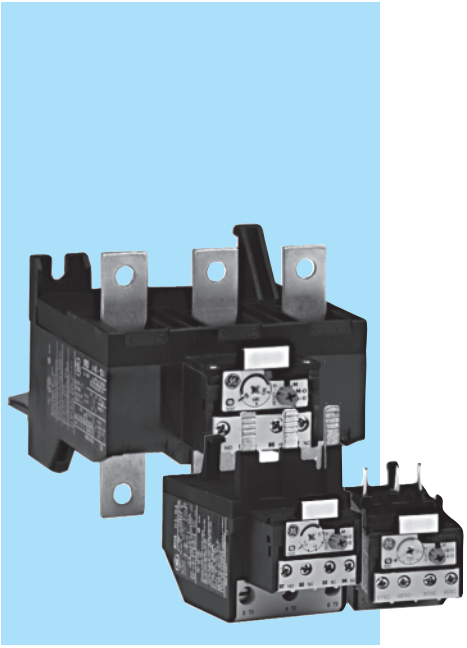
For separate mounting onto standard EN 50022-35 profile		**MVB0T**	101021	5

Auxiliary contact block

Frontal fixing to the relay With trip indicator (0-I) One block per relay and only for manual reset	Screw	**MATV10AT**	101022	10
	Ring terminal	**MATV10AR**	103563	10

Identification

Sheets of labels (sheets of 260 labels each)	**EAT 260**	100548	1
Labeling plate base (50 pieces in one pack)	**SPR**	100549	1



Thermal overload relays for contactors from 0.16 to 850A

- Control circuit up to 690V AC
- Power circuit:
  - RT1, RT12: up to 690V
  - RT2, RT22, RT3, RT32, RT4/4L, RT5/5L & RT6/6L: up to 1000V
- Thermal protection against normal overloads.
- Three pole differential (phase unbalance protection).
- Protection against long starting times.
- Automatic ambient temperature compensation between – 25°C + 60°C.
- Front mounted test button.
- Trip indication.
- Independent auxiliary contacts with double rupture (1NO + 1NC).
- Function selector:
  - Manual RESET
  - Manual RESET and STOP
  - Automatic RESET with STOP
  - Automatic RESET without STOP

Standards

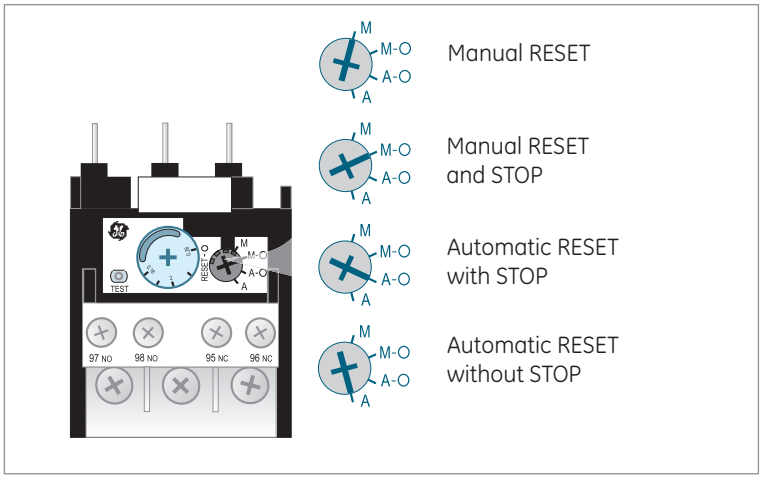
IEC/EN 60947-4-1	CSA 22.2/14
IEC/EN 60947-5-1	NI C 63-650
UNE 115	VDE 0660
NFC 63-650	UL 508
CEI 17-50	

Approvals/Marking

cULus CE

Lloyd's Register · Bureau Veritas · RINA

(Contact GE for details)



Order codes ● pg. A.71
Technical data ● pg. A.122
Dimensions ● pg. A.123

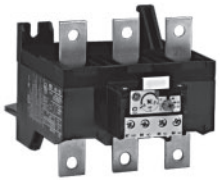
Thermal overload relays for contactors

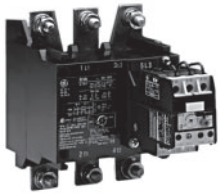
	For use with:	Setting range (regulation) min. A	Setting range (regulation) max. A	Fuses (1) aM A	Fuses (1) gL - gG A	Srew terminal Cat. no.	Srew terminal Ref. no.	Ring terminal Cat. no.	Ring terminal Ref. no.	Pack
Class 10A	CL00	0.16	0.26	2	2	**RT1B**	113700	**RT1RB**	114087	5
	CL01	0.25	0.41	2	2	**RT1C**	113701	**RT1RC**	114088	5
	CL02	0.4	0.65	2	2	**RT1D**	113702	**RT1RD**	114089	5
	CL25	0.65	1.1	2	4	**RT1F**	113703	**RT1RF**	114090	5
	CL03	1.0	1.5	4	6	**RT1G**	113704	**RT1RG**	114091	5
	CL04	1.3	1.9	4	6	**RT1H**	113705	**RT1RH**	114092	5
	CL45	1.8	2.7	6	10	**RT1J**	113706	**RT1RJ**	114093	5
		2.5	4.0	8	16	**RT1K**	113707	**RT1RK**	114094	5
		4.0	6.3	12	20	**RT1L**	113708	**RT1RL**	114095	5
		5.5	8.5	16	20	**RT1M**	113709	**RT1RM**	114096	5
		8.0	12.0	20	25	**RT1N**	113710	**RT1RN**	114097	5
		10.0	16.0	25	35	**RT1P**	113711	**RT1RP**	114098	5
		14.5	18.0	32	50	**RT1S**	113712	**RT1RS**	114099	5
		17.5	22.0	40	50	**RT1T**	113713	**RT1RT**	114100	5
		21.0	26.0	40	63	**RT1U**	113714	**RT1RU**	114101	5
		25.0	32.0	50	80	**RT1V**	113715	**RT1RV**	114102	5
		30.0	40.0	63	100	**RT1W**	113716	**RT1RW**	114103	5
Class 10	CL05	11.5	15.0	32	35	**RT2A**	113717	**RT2RA**	114104	1
	CL06	14.5	19.0	40	50	**RT2B**	113718	**RT2RB**	114132	1
	CL07	18.5	25.0	50	63	**RT2C**	113719	**RT2RC**	114106	1
	CL08	24.0	32.0	63	100	**RT2D**	113720	**RT2RD**	114133	1
	CL09	30.0	43.0	80	125	**RT2E**	113721	**RT2RE**	114134	1
	CL10	42.0	55.0	100	160	**RT2G**	113722	**RT2RG**	114109	1
		54.0	65.0	125	160	**RT2H**	113723	**RT2RH**	114146	1
		64.0	82.0	125	200	**RT2J**	113724	**RT2RJ**	114136	1
		78.0	97.0	125	200	**RT2L**	113725	**RT2RL**	114235	1
		90.0	110	160	250	**RT2M**	113726	**RT2RM**	114113	1
Class 20	CL00	0.4	0.65	2	2	**RT12D**	139138	**RT12RD**	114060	5
	CL01	0.65	1.1	2	4	**RT12F**	139139	**RT12RF**	114061	5
	CL02	1	1.5	4	6	**RT12G**	139140	**RT12RG**	114062	5
	CL25	1.3	1.9	4	6	**RT12H**	139141	**RT12RH**	114063	5
	CL03	1.8	2.7	8	10	**RT12J**	139142	**RT12RJ**	114159	5
	CL04	2.5	4.1	8	16	**RT12K**	113640	**RT12RK**	114114	5
	CL45	4	6.3	12	20	**RT12L**	113641	**RT12RL**	114115	5
		5.5	8.5	16	20	**RT12M**	113642	**RT12RM**	114116	5
		8	12	20	35	**RT12N**	113643	**RT12RN**	114117	5
		10	16	25	35	**RT12P**	113644	**RT12RP**	114118	5
		14.5	18	32	50	**RT12S**	113645	**RT12RS**	114119	5
		17.5	22	40	50	**RT12T**	113646	**RT12RT**	114120	5
		21	26	40	63	**RT12U**	113647	**RT12RU**	114121	5
		25	32	50	80	**RT12V**	113648	**RT12RV**	114122	5
		30	40	63	100	**RT12W**	113649	**RT12RW**	114123	5
	CL05	24	32	63	80	**RT22D**	113650	**RT22RD**	114124	1
	CL06	30	43	80	100	**RT22E**	113651	**RT22RE**	114141	1
	CL07	42	55	100	160	**RT22G**	113652	**RT22RG**	114126	1
	CL08	54	65	125	160	**RT22H**	113653	**RT22RH**	114127	1
	CL09	64	82	125	200	**RT22J**	113654	**RT22RJ**	114128	1
	CL10	78	97	125	200	**RT22L**	113655	**RT22RL**	114143	1
		90	110	160	250	**RT22M**	113656	**RT22RM**	114130	1

(1) Most suitable fuse in accordance with IEC 60947-4-1.

(continued on page A.72)

Thermal overload relays for contactors (continued)





	For use with:	Setting range (regulation) min. A	Setting range (regulation) max. A	Fuses [1] aM A	Fuses [1] gL - gG A	Cat.no. (Screw terminal)	Ref. no.	Pack
Class 10	CK75 CK08 Direct mounting	55	80	125	200	**RT3B**	113727	1
		63	90	125	200	**RT3C**	113728	1
		90	120	160	250	**RT3D**	113729	1
		110	140	200	315	**RT3E**	113730	1
		140	190	250	355	**RT3F**	113731	1
	CK85 CK09 CK95 [2]	120	190	250	315	**RT4N**	113732	1
		175	280	315	400	**RT4P**	113733	1
		200	310	400	500	**RT4R**	113734	1
	CK10 CK11 CK12 [3]	120	190	250	315	**RT5A**	113750	1
		175	280	315	400	**RT5B**	113751	1
		250	400	500	630	**RT5C**	113752	1
		315	500	630	800	**RT5D**	113753	1
		430	700	800	1000	**RT5E**	113754	1
	CK13 [4]	500	850	100	1250	**RT6A**	113760	1
Class 20	CK75 CK08 Direct ounting	63	90	125	200	**RT32C**	113657	1
		90	120	160	250	**RT32D**	113658	1
		110	140	200	315	**RT32E**	113659	1
		140	190	250	355	**RT32F**	113660	1
Class 30	CL... CK... Mounting with screws	2.5	4	10	16	**RT4LA**	113735	1
		4	6.5	12	20	**RT4LB**	113736	1
		5.5	8.5	16	25	**RT4LC**	113737	1
		7.5	11	20	32	**RT4LD**	113738	1
		10	16	25	40	**RT4LE**	113739	1
		12.5	20	32	50	**RT4LF**	113740	1
		17	27	50	80	**RT4LG**	113741	1
		26	40	80	125	**RT4LH**	113742	1
		32	52	100	160	**RT4LJ**	113743	1
		45	70	125	160	**RT4LK**	113744	1
		60	90	160	200	**RT4LL**	113745	1
		80	125	200	250	**RT4LM**	113746	1
	CK85	120	190	250	315	**RT4LN**	113747	1
	CK09	175	280	315	400	**RT4LP**	113748	1
	CK95 [2]	200	310	400	500	**RT4LR**	113749	1
	CK10 CK11 CK12 [3]	120	190	250	315	**RT5LA**	113755	1
		175	280	315	400	**RT5LB**	113756	1
		250	400	500	630	**RT5LC**	113757	1
		315	500	630	800	**RT5LD**	113758	1
		430	700	800	1000	**RT5LE**	113759	1
	CK13 [4]	500	850	1000	1250	**RT6LA**	113761	1

(1) Most suitable fuse in accordance with IEC 60947-4-1.
(2) Fitting direct to the contactor.
(3) Fitting direct to the contactor: by means of a coupling and connection set.
Separate mounting:with screws on DIN rail / with cable connection.
(4) RT6A = RT1 with right setting range plus RTXP, independent mounting base adaptor, to be utilisied with current transformer connected by passing cable chosen by customer. Current transformer data on request.

Accessories

Base for separate mounting

		Cat. no.	Ref. no.	Pack
DIN EN50022-35				
RT1		**RTXP**	105170	1
RT2		**RT2XP**	113764	1

Setting range cover protection

		Cat. no.	Ref. no.	Pack
RT...		**RTX3**	113762	1

Push-button with flexible cable

		Cat. no.	Ref. no.	Pack
for distance RESET				
RT1... - RT6.... (front)	0.5 meters	**RTXS**	113855	1
RT1... - RT6.... (front)	1 meters	**RTXSL**	113856	1
RT1..., RT2..., RT4..., RT5..., RT6... (back)		**RTXBS**	108864	1

Terminal protection

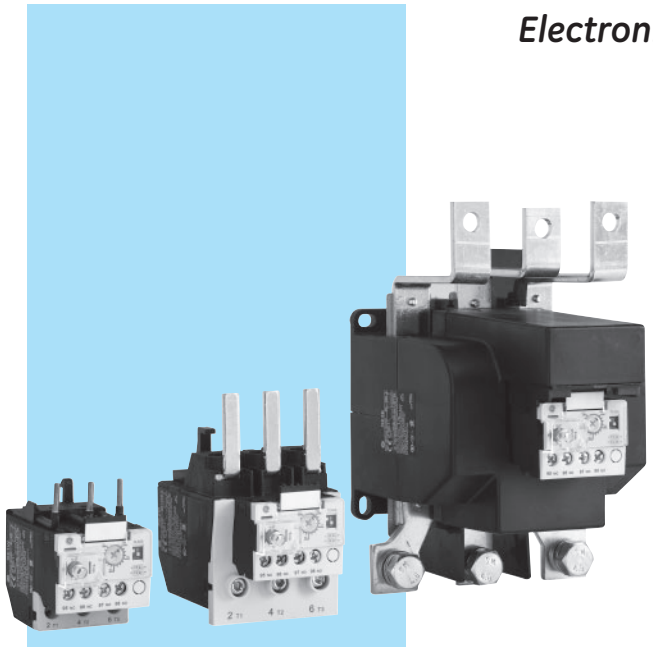
		Cat. no.	Ref. no.	Pack
for RT3 or CK75C/CK08C				
Thermal overload relay	1 pole IPxxB	**PTPCK75**	103747	1
Connection contactor-relay	3 poles	**RT3PXX3P**	110565	1

Remote electrical reset

		Cat. no.	Ref. no.	Pack
RT1... - RT6...		**RTXRR ◆**		1

Available coil voltages (V)

♦	B	D	G	J	N	U	X
AC/DC	12	24	48	110 240	220 415	380 480	440



Electronic overload relays

Approvals/Marking

cULus CE

Product features ➢ *Your benefits*

Lower power consumption	➢ Saving space into cabinet
Great accuracy	➢ Better motor protection
Full reliability	➢ Low risk to burn motor
Phase unbalance protection	➢ Better motor protection and current control
Direct fitting to contactors Series CL	➢ Compact starter
Interchangeable with thermal overload relay	➢ No need to redesign existing cabinet
Multiple trip class selection	➢ One device cover for start time motor
Manual / Auto reset	➢ One device for two solutions

Main characteristics

- Setting range from 0.1 up to 150A
- Self powered
- Thermal memory
- Phase loss protection
- Phase unbalance protection
- Direct fitting to contactors Series CL
- Interchangeable with thermal overload relay
- Multiple trip class selection
- Manual / Auto reset
- Increased flexibility, less order codes, less stock
- Tripp class: 5 - 10 - 20 - 30

Order codes ● pg. A.75
Technical data ● pg. A.128
Dimensions ● pg. A.130

Electronic overload relays for contactors

	Suitable for	Setting range (A) Min.	Setting range (A) Max.	Fuses (A) [1] gL - gG	Cat. no.	Ref. no.	Pack.
 Frame 1	CL00...CL45	0,1	0,5	2	**RE1D**	101866	5
		0,4	2	4	**RE1H**	101867	5
		1,0	5	10	**RE1K**	101868	5
		1,6	8	20	**RE1M**	101869	5
		6,4	32	63	**RE1S**	101870	5
		9,0	45	80	**RE1W**	101871	5
 Frame 2	CL05...CL10	15	75	125	**RE2H**	101872	1
		22	110	125	**RE2M**	101873	1
 Frame 3	CK75-CK08	30	150	250	**RE3E**	101874	1

Accessories

		Cat. no.	Ref. no.	Pack.
Transparent cover for pushbutton reset	For frames 1, 2 and 3	**RETC**	247795	10
 pendent mounting base adaptor	Frame 1	**RE1XP**	247302	1
pendent mounting base adaptor	Frame 2	**RE2XP**	247303	1

(1) Most suitable fuse in accordance with IEC 60947-4-1, see coordination table on pg. A.128.

Intelligent motor management relay EntelliPro ES3 / ES5

- Motor protection and motor control
- Pre-programmed motor typicals
- Communication Interface to Profibus-DP and Modbus RTU system
- Status information from motor and switchgear
- Maintenance information,
- Management of settings and configuration
- Predefined control logic
- Internal event recording with time stamping
- Local control and display devices

Protection
- Overload (Class 5 to 40)
- Earth fault (Residual current))
- Phase loss
- Thermistor (PTC)
- Start current
- Blocked rotor
- Under load
- Maximum starts per time
- Self monitoring
- External device monitoring

Diagnostic
- Time to overload trip, release
- Number of operations
- Number of motor starts
- Motor ON-time, OFF-time
- Number of overload trips
- Number of thermistor trips
- Maximum currents
- Trip currents

Drive typicals
- Direct-on-line
- Reverse
- Star delta
- Star delta reverse
- Softstarter
- Softstarter reverse
- Dahlander
- Pole changing starter
- Solenoid valve
- Actuator

Approvals/Marking

SIL certified

ATEX certified

CE

Order information (see page A.77)

EntelliPro ES3 DP 2 2

ES3 = Standard device
ES5 = Medium device

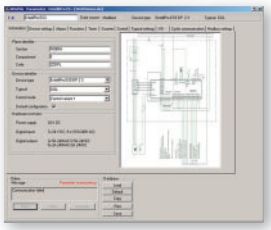
2 = Power supply and 7 digital inputs, voltage 24V DC
3 = Power supply and 7 digital inputs, voltage 110-240V AC

0 = no additional 9 digital inputs available
2 = additional 9 digital input, voltage 24V DC
3 = additional 9 digital input, voltage 110-240V AC

Order codes ● pg. A.77
Technical data ● pg. A.78
Dimensions ● pg. A.80

New

Intelligent motor management relay

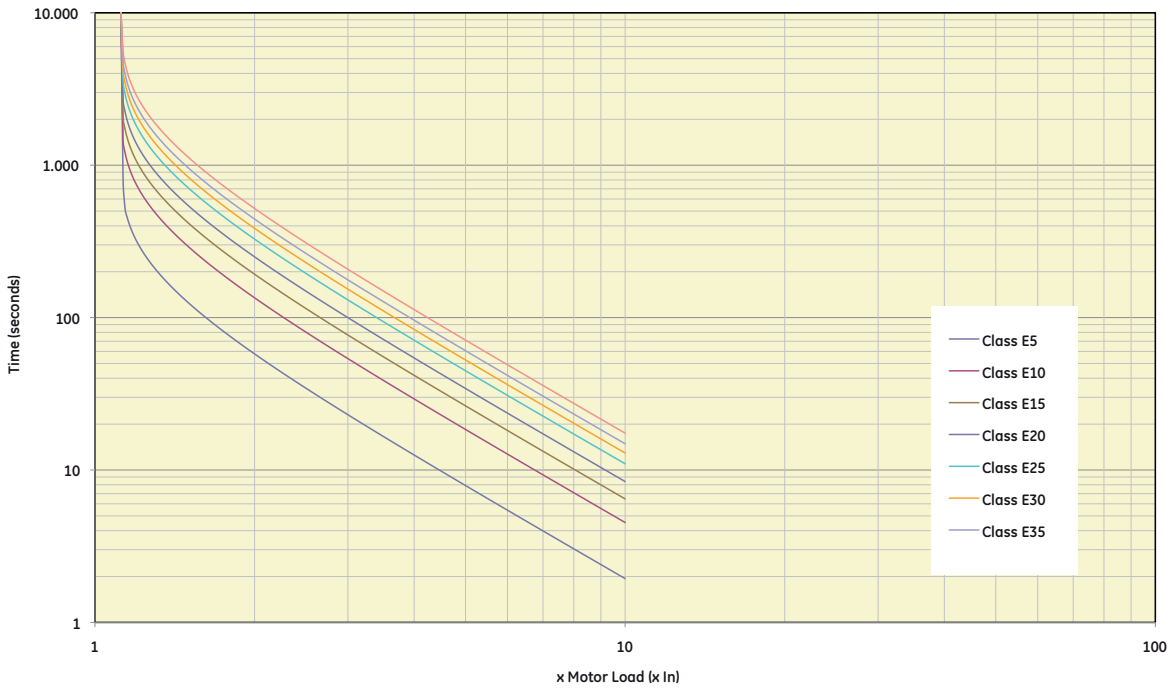


Type	Voltage	Ref. No.
Standard device (I/O 7 digital inputs / 3 digital outputs)		
EntelliPro ES3 DP 2 0	24V DC	**720003**
EntelliPro ES3 DP 3 0	240V AC	**720004**
Mid device (I/O 16 digital inputs / 8 digital outputs + 4–20 mA output)		
EntelliPro ES5 DP 2 2	24V DC / 24V DC	**720005**
EntelliPro ES5 DP 2 3	24V DC / 240V AC	**720006**
EntelliPro ES5 DP 3 3	240V AC / 240V AC	**720007**
Transformer		
EntelliPro CT8	1,4A – 8A	**720022**
EntelliPro CT32	5,4A - 32A	**720023**
EntelliPro CT64	10,7A – 64A	**720024**
EntelliPro CT630	105A - 630A	**720025**
HMI Control panel		
EntelliPro CP3	HMI 3,3" LCD	**720028**
EntelliPro CP5	HMI 7" color TFT-LCD	**720029**
Parameterizing user software		
WinESG V3	EntelliPro software tool for Windows	**720020**
Demonstration KIT		
Demo-case	Demonstration KIT for EntelliPro	**720030**

New

Intelligent motor management relay

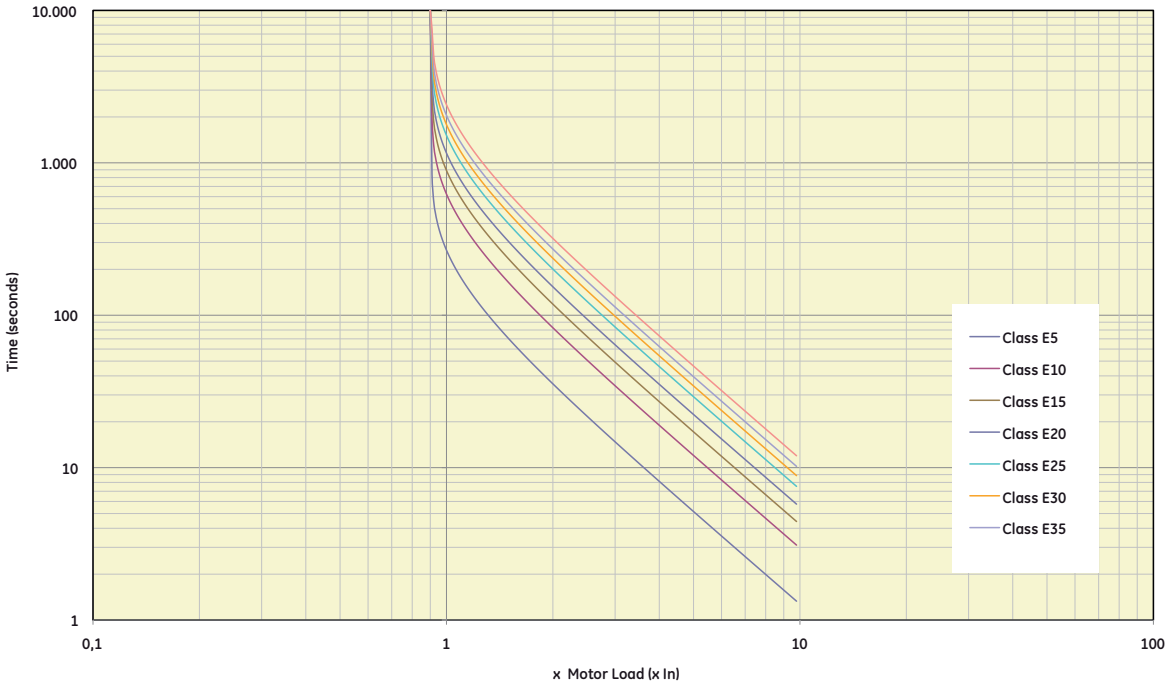
Overload tripping curves IEC 60947-4-1 (3-Pole / 3-Wire)



Current (x In)	Class E5 (sec)	Class E10 (sec)	Class E15 (sec)	Class E20 (sec)	Class E25 (sec)	Class E30 (sec)	Class E35 (sec)	Class E40 (sec)	Tolerance (%)
1.2	314.70	734.29	1048.99	1363.68	1783.28	2097.98	2412.67	2832.27	10
1.4	156.93	366.16	523.09	680.01	889.25	1046.17	1203.10	1412.83	10
1.6	103.43	241.33	344.75	448.18	586.08	689.50	792.93	930.83	10
1.8	75.21	175.49	250.70	325.91	426.19	501.40	576.61	676.90	10
2	57.80	134.86	192.66	250.46	327.53	385.33	443.12	520.19	10
2.5	34.41	80.29	114.70	149.11	194.99	229.40	263.81	309.69	10
3	23.26	54.10	77.85	101.91	133.65	155.70	178.76	209.50	10
3.5	16.79	39.02	56.31	73.91	97.03	112.62	129.22	151.34	10
4	12.74	29.56	42.80	56.34	74.06	85.60	98.14	114.86	10
4.5	10.02	23.22	33.74	44.56	58.66	67.48	77.30	90.40	10
5	8.11	18.75	27.36	36.26	47.81	54.71	62.62	73.16	10
5.5	6.71	15.48	22.68	30.19	39.86	45.37	51.87	60.55	10
6	5.65	13.01	19.10	24.31	31.97	37.52	43.16	50.43	10
6.5	4.83	11.10	16.43	20.76	27.33	32.06	36.89	43.06	10
7	4.18	9.59	13.40	17.96	23.67	27.76	31.94	37.25	10
7.2	3.90	9.08	12.78	17.00	22.42	26.28	30.25	35.26	10
8	3.20	7.39	10.40	13.88	18.33	21.47	24.71	28.76	20
9	2.60	5.89	8.40	11.09	14.68	17.18	18.90	22.98	20
10	2.30	5.20	7.40	9.10	12.19	14.13	16.27	18.85	20

New

Overload tripping curves IEC 60947-4-1 (2-Pole / 2-Wire)

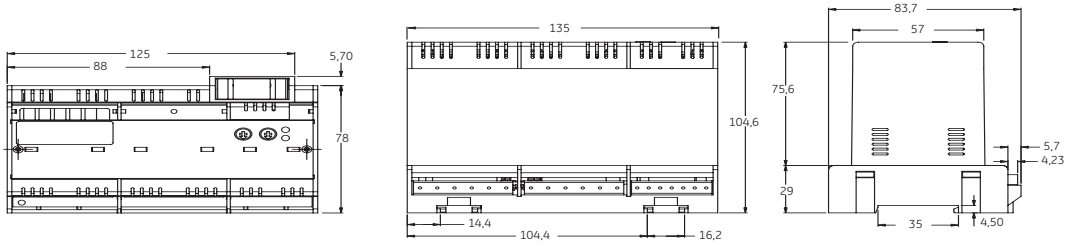


Current (x In)	Class E5 (sec)	Class E10 (sec)	Class E15 (sec)	Class E20 (sec)	Class E25 (sec)	Class E30 (sec)	Class E35 (sec)	Class E40 (sec)	Tolerance (%)
1	267.42	623.99	891.41	1158.83	1515.39	1782.81	2050.24	2406.80	10
1.2	130.59	304.72	435.31	565.91	740.03	870.63	1001.22	1175.35	10
1.4	83.87	195.69	279.56	263.43	475.25	559.12	642.98	754.81	10
1.6	59.72	139.35	199.07	258.79	338.42	398.14	457.88	537.48	10
1.8	45.12	105.27	150.39	195.51	255.67	300.78	345.90	406.06	10
2	35.46	82.75	118.21	153.67	200.96	236.42	271.88	319.17	10
2.5	21.73	50.71	72.45	94.18	123.16	144.90	166.63	195.61	10
3	14.76	34.44	49.20	63.97	83.65	98.41	113.17	132.85	10
3.5	10.70	24.98	35.68	46.39	60.66	71.36	82.07	96.34	10
4	8.13	18.97	27.09	35.22	46.06	54.19	62.32	73.15	10
4.5	6.39	14.90	21.29	27.67	36.19	42.57	48.96	57.48	10
5	5.15	12.02	17.17	22.33	29.20	34.35	39.50	46.37	10
5.5	4.25	9.91	14.15	18.40	24.06	28.30	32.55	38.21	10
6	3.56	8.31	11.86	15.42	20.17	23.73	27.29	32.04	10
6.5	3.03	7.06	10.09	13.12	17.16	20.18	23.21	27.25	10
7	2.80	6.30	8.79	11.70	15.47	17.88	20.94	24.36	10
7.2	2.60	6.05	8.42	11.09	14.66	16.92	19.83	23.07	10
8	2.20	4.90	6.80	9.14	12.09	13.78	16.22	19.04	20
9	1.75	3.80	5.66	7.21	9.61	10.98	13.00	15.05	20
10	1.66	3.50	5.30	6.39	7.87	8.98	12.19	14.01	20

New

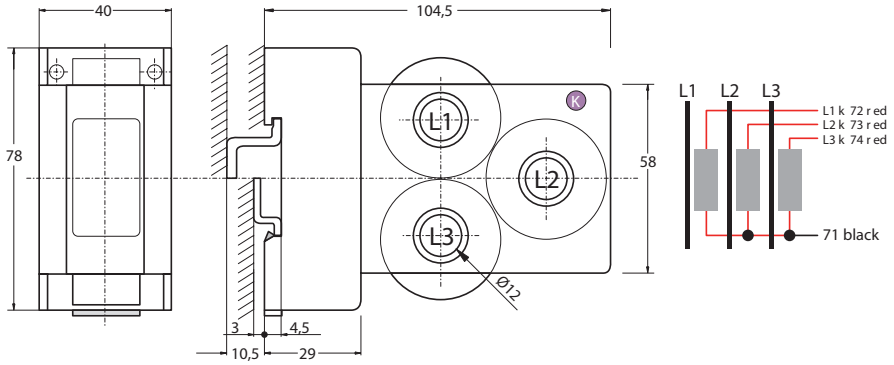
Dimensional drawings

EntelliPro ES3/ES5

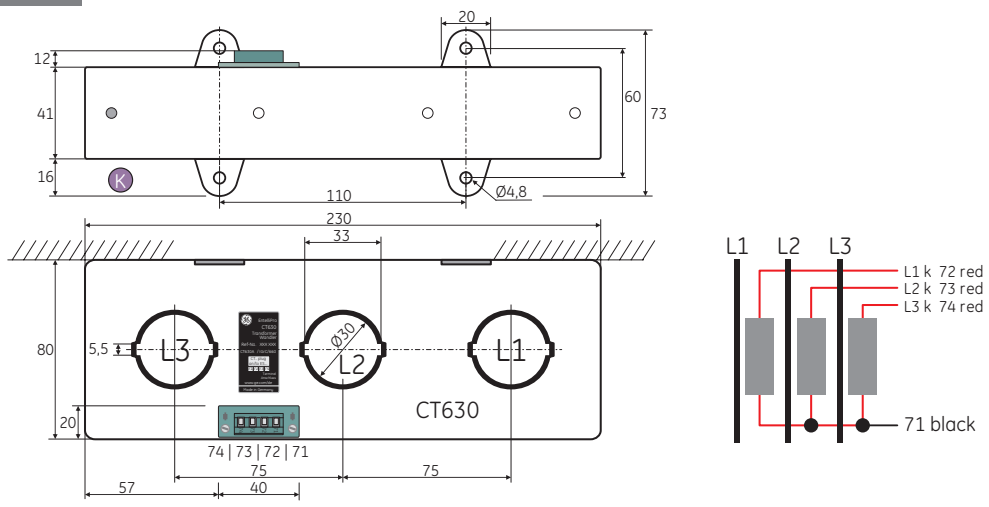


Transformers

CT 8 - CT 32 - CT 64



CT 630

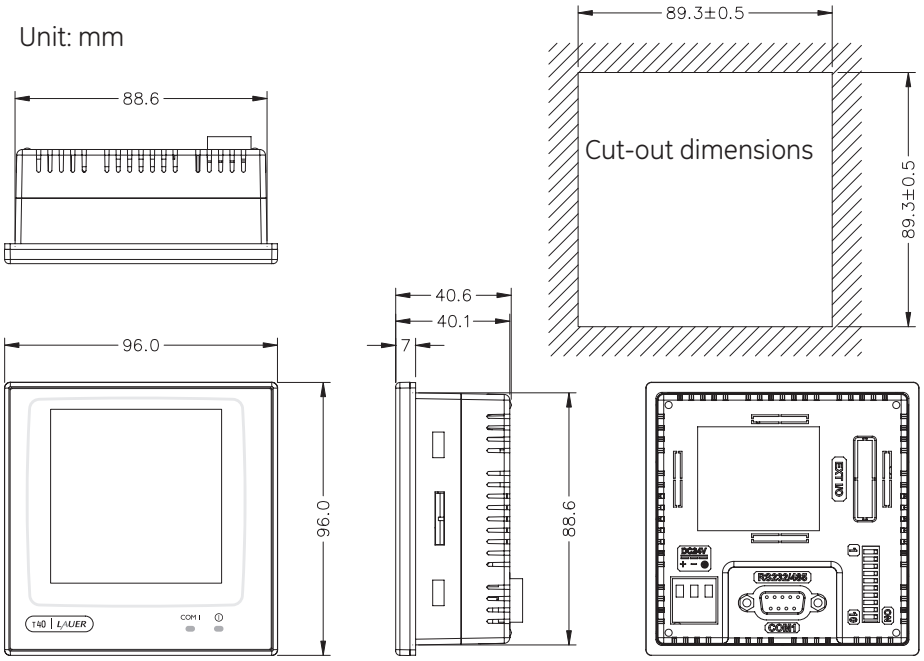


New

Control panel

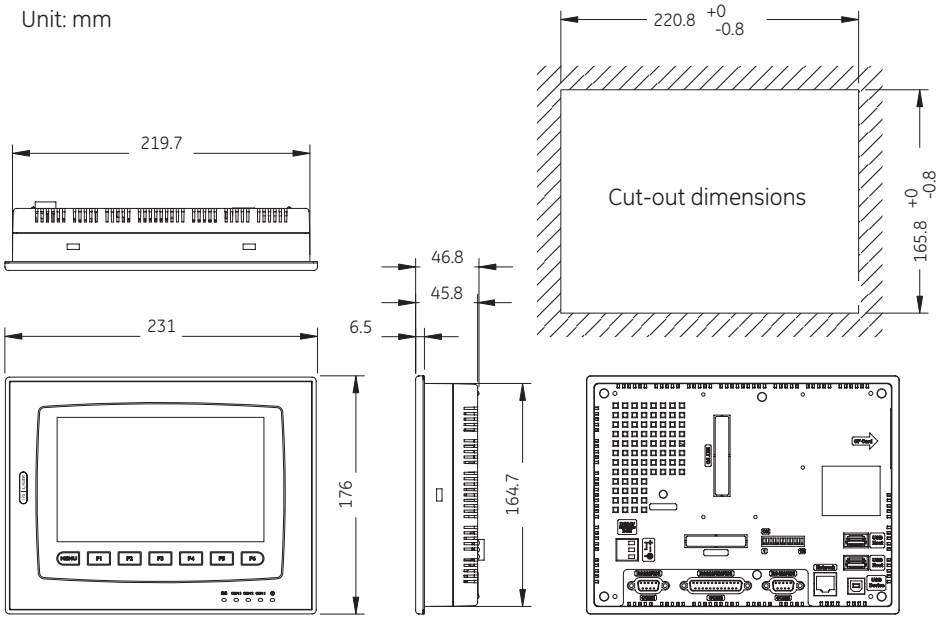
CP3

Unit: mm



CP5

Unit: mm



New

Technical data

General

- Thermal protection against balanced overload.
- Three-pole differential (phase unbalance protection).
- Automatic ambient temperature compensation.
- Front mounted selector for choosing utilisation current.
- Reset button, 2 positions :
  Manual(H) and Automatic(A) by turning the blue selector.
- Stop push button, independent of reset (red).
- Manual trip lever (tripping test).
- Tripping indicator (0-1).
- To facilitate wiring arragements terminal 96 fits directly onto coil terminal (A2) and terminal 14/22 fits directly onto the feedback auxiliary contact.

Conformity to standards

IEC 60947-4	CEI 17-50	VDE660
UNE 115	NI C63-650	UL508
NFC63-650		

Approvals

UL	CSA	SEMKO
SETI	NEMKO	CE

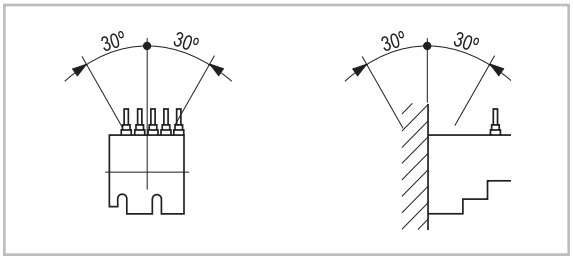
Ambient conditions

Storage temperature		-55°C to +80°C
Operation temperature		-25°C to +60°C
Altitude	up to 3000m	Nominal values
	from 3000 to 4000m	90%Ie 80%Ue
	from 4000 to 5000m	80%Ie 75%Ue
Degree of protection		IP20
Protection treatment		Tropical finish

Climatic resistance

Continuous tests 40 / 125 / 56		
Cold (72h)		
	Temperature	-40°C
Dry heat (96h)		
	Temperature	+125°C
	Relative humidity	< 50%
Humid heat (56 days)		
	Temperature	+40°C
	Relative humidity	95%
Cyclical tests		
First half-cycle (12h)		
	Low temperature	+25°C
	Relative humidity	93%
Second half-cycle (12h)		
	Low temperature	+55°C
	Relative humidity	95%
Number of consecutive cycles		6

Mounting positions

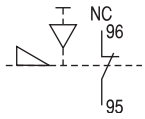


Main circuit *(poles)*

			MT0...
Rated insulation voltage (Ui) according to IEC 947		(V)	750
Frequency		(Hz)	0...400
Power dissipation per pole		(W)	min. 1 / max. 2.5
Terminal capacity			
Screw M 3.5 (pozidrive head) safety flange			
Maximum capacity :			
Solid		(Ø mm)	2 x 2 wires
Stranded without end sleeve		(mm^2)	2 wires Ø 2.5
Stranded with end sleeve			
pen (2 end sleeves)		(mm^2)	2 wires Ø 0.75
pen (1 end sleeve)		(mm^2)	2 wires Ø 1 1 wires Ø 2.5
Tightening torque		(Nm)	0.8

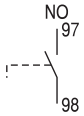
Control circuit *(incorporated auxiliary contact)*

			MT0...
Rated insulation voltage (Ui) according to IEC 947		(V)	750
Rated thermal current (Ith) θ ≤ 60°C		(A)	10
Tripping currents			
AC-15	Ue-Ie	(V-A)	223-3, 380-2, 500-1
DC-13	Ue-Ie	(V-A)	60-0.5, 110-0.2, 220-0.1
Short-circuit protection (max.glass gL fuse - w/h welding)		(A)	6
Number and type of contacts			

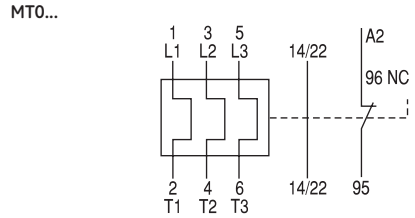


Control circuit *(auxiliary contact block)*

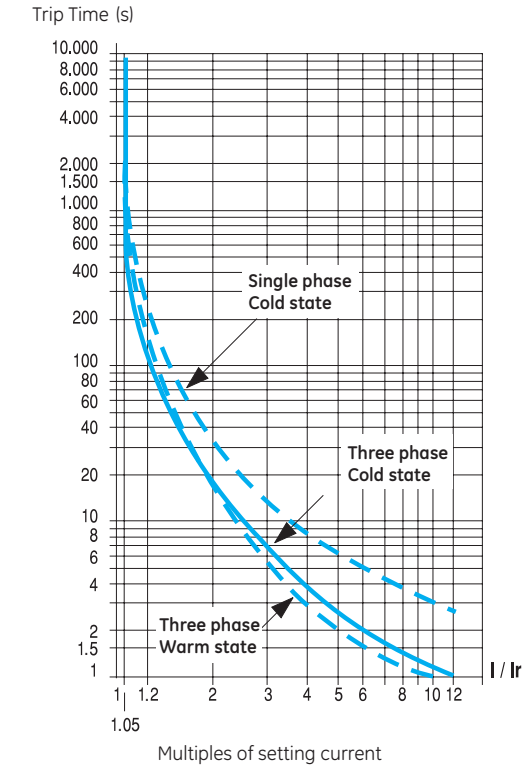
			MATV10AT
Rated insulation voltage (Ui) according to IEC 947		(V)	750
Rated thermal current (Ith) θ ≤ 60°C		(A)	10
Tripping currents			
AC-15	Ue-Ie	(V-A)	223-1, 380-0.5
DC-13	Ue-Ie	(V-A)	60-0.1, 110-0.5
Short-circuit protection (max.glass gL fuse - w/h welding)		(A)	6
Number and type of contacts			



Numbering of the terminals

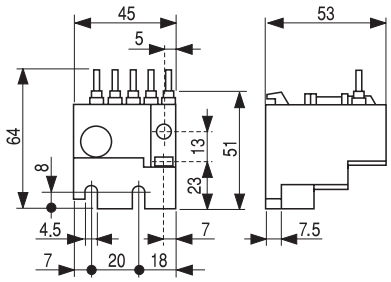


Tripping curves

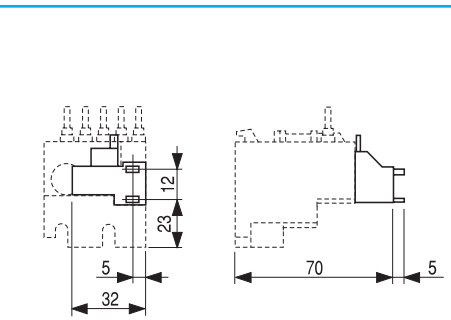


Dimensional drawings

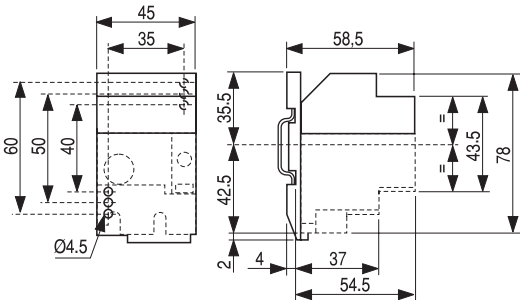
Thermal overload relay



Thermal overload relay + aux. contact block (front mounting)



Independent mounting of the thermal overload relay



Technical data

		RT1...	RT2...	RT3...	RT4.../ 4L...	RT5.../ 5L...	RT6.../ 6L...
General							
Class		10A / 20	10 / 20	10 / 20	10 / 30	10 / 30	10 / 30
Setting range	(A)	0.16 ... 40	11.5 ... 110	55 ... 190	2.5 ... 310	120 ... 700	500 ... 850
Suitable for		CL00...CL45	CL05...CL10	CK75...CK08	CL,CK	CK10...CK12	CK13
Main circuit							
Rated insulation voltage	(V)	690	1000	1000	1000	1000	1000
(IEC947-4) Ui							
Frequency limits	(Hz)	0...400	0...400	0...400	50...60	50...60	50...60
Terminal capacity							
Clamp terminal - solid	(mm^2)	16	50	120	-	-	-
Clamp terminal - flexible	(mm^2)	10	50	120	-	-	-
Flat terminal	(mm)	-	-	25 x 5	-	-	80 x 10
Passing by hole (wire) through C.T. core	(mm^2)	-	-	-	-	400	-
Passing by hole (bar) through C.T. core	(mm)	-	-	-	30 x 10	30 x 10	-
Tightening torque	(Nm)	2.5	4.5	6.5	23	31.5	-

Control circuit		
Rated insulation voltage	(V)	690
(IEC60947-4) Ui		
Rated thermal current Ith	(A)	10
Operation current		
AC-15 - Ue-Ie	(V - A)	110/120 - 3 ; 220/240 - 2 ; 380/415 - 1 ; 480/500 - 0,8 ; 660/690 - 0,3
DC-13 - Ue-Ie	(V - A)	24 - 2 ; 48 - 1.4 ; 110 - 0.6 ; 250 - 0.3 ; 440 - 0.1
Utilisation according UL and CSA		B600 - Q600
Protective fuse type gL	(A)	10
Terminal capacity	(mm^2)	2.5
Tightening capacity	(Nm)	0.8

Conformity to standards

IEC/EN 60947-4-1	NFC 63-650	NI C 63-650
IEC/EN 60947-5-1	CEI 17-50	VDE 0660
UNE 115	CSA 22.2/14	UL 508

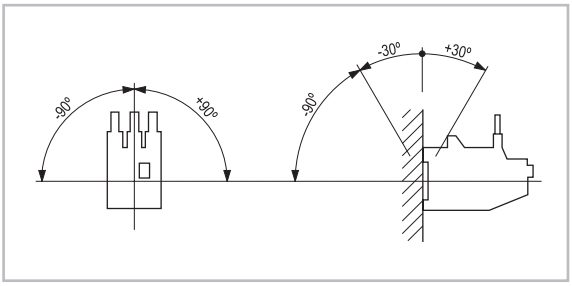
Approvals

cULus	RINA	CE
LLoyd's Register	Bureau Veritas	

Ambient conditions

Storage temperature		-40°C to +70°C
Operation temperature (compensated)		-25°C to +60°C
Altitude	up to 3000m	w/o any changes in characteristics
Relative humidity		98%
Protection treatment		Tropical finish

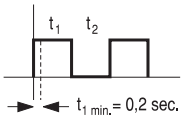
Mounting positions



Remote electrical reset

Power consumption		
AC	(VA)	100
DC	(W)	100

Coils not suitable for continuous operating duty

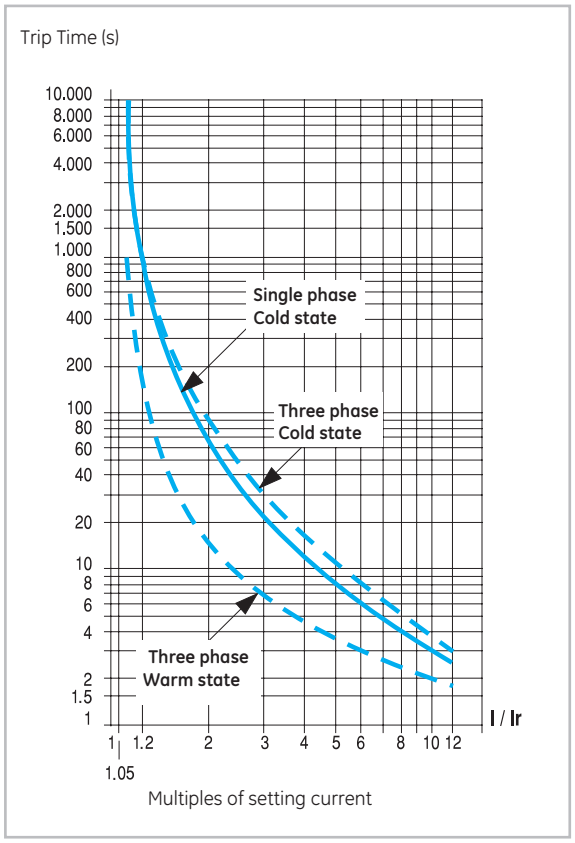


t_1 = 1 sec. ◆ t_2 = 30 sec.
t_1 = 5 sec. ◆ t_2 = 90 sec.
t_1 = 10 sec. ◆ t_2 = 180 sec.

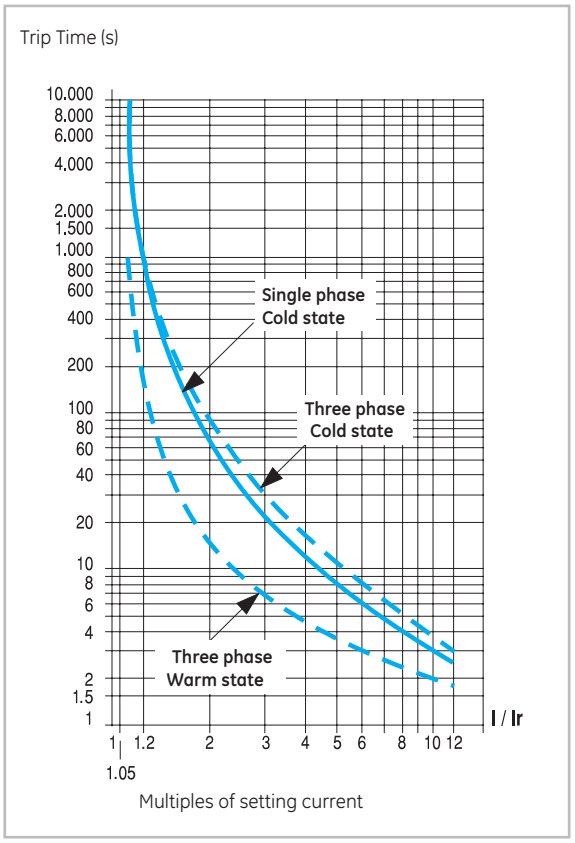
(t_1 = ON time t_2 = OFF time)

Tripping curves

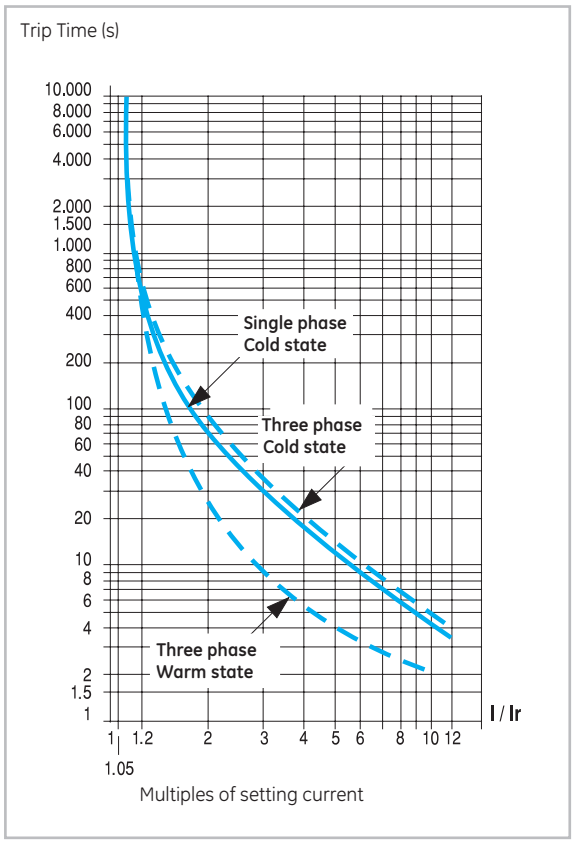
RT1 Class 10A



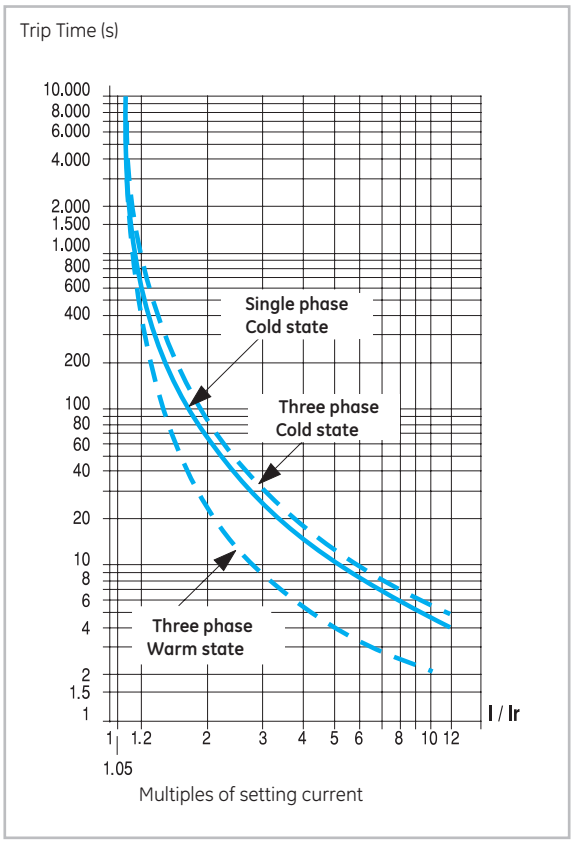
RT2 Class 10



RT12 Class 20

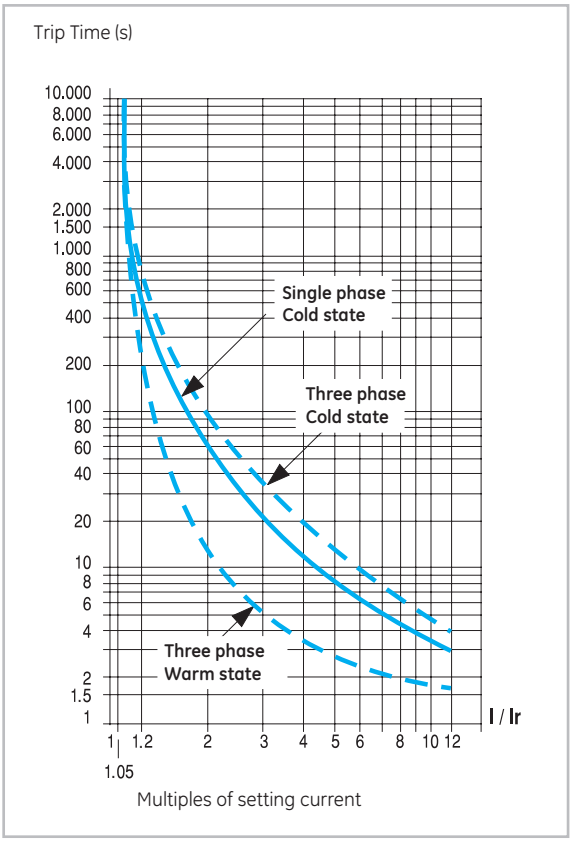


RT22 Class 20

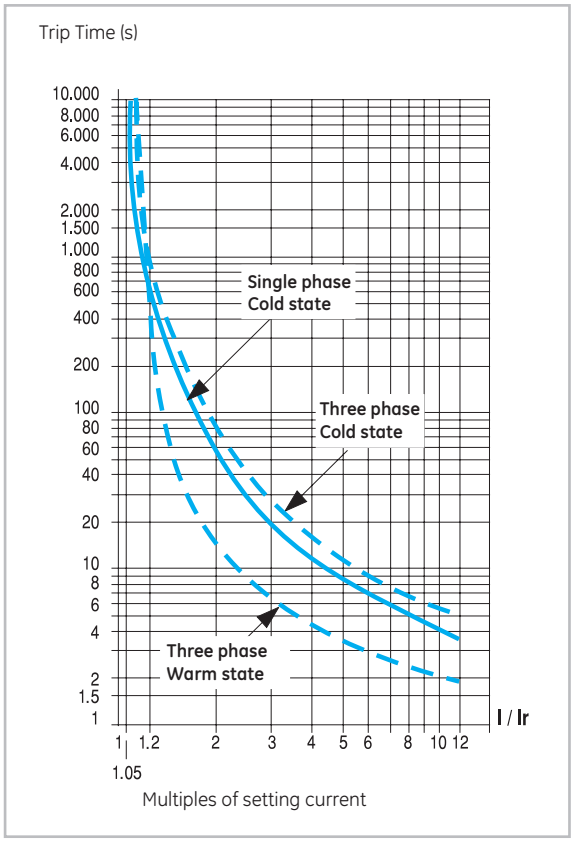


Tripping curves

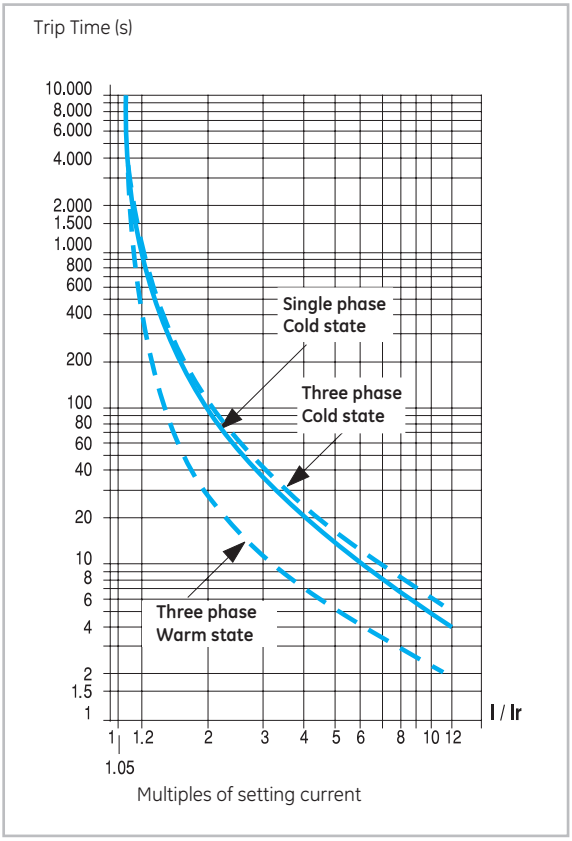
RT3 Class 10



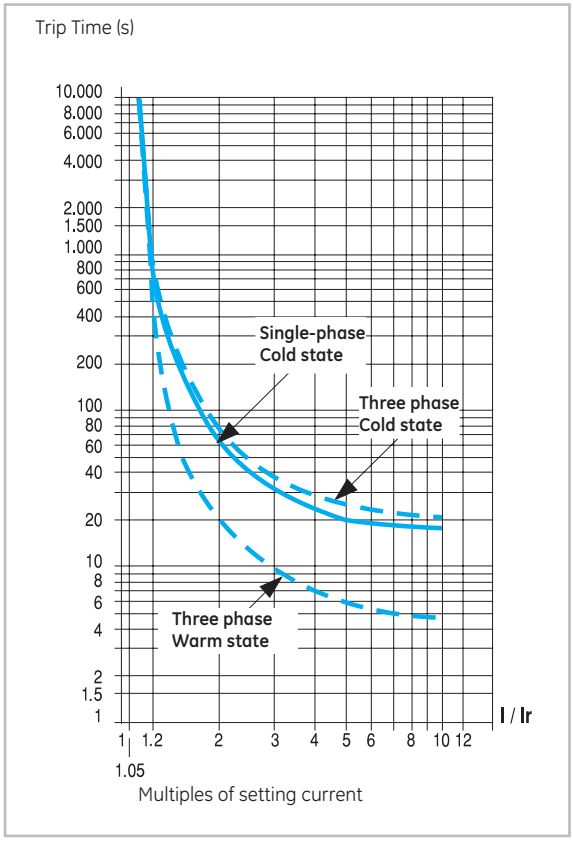
RT4 Class 10



RT32 Class 20

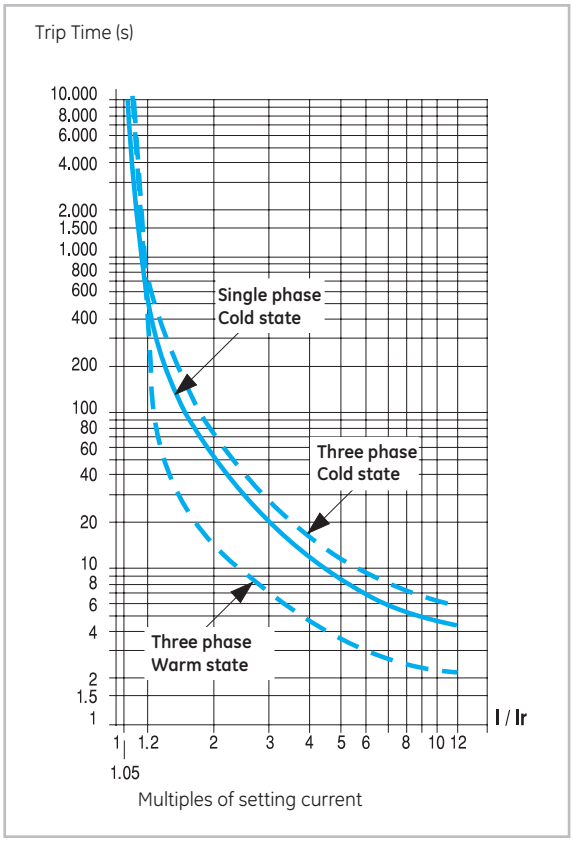


RT4L Class 30

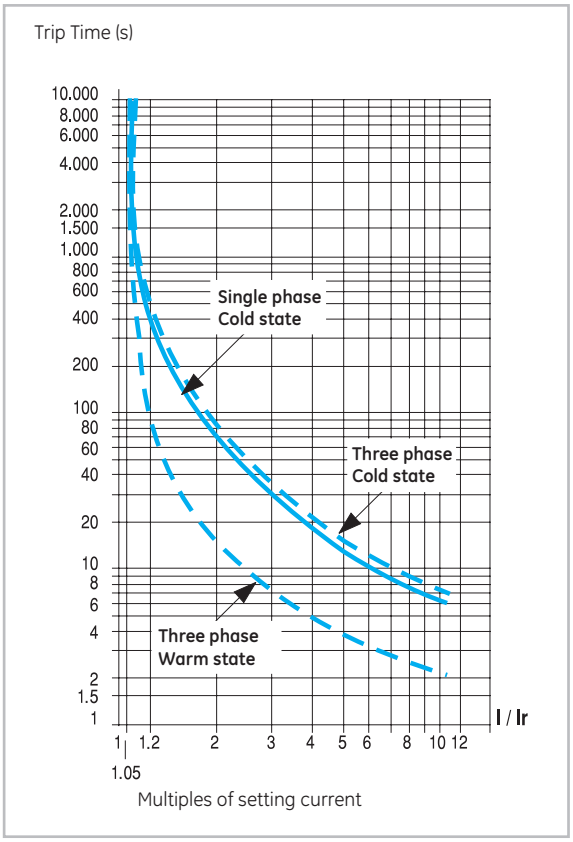


Tripping curves

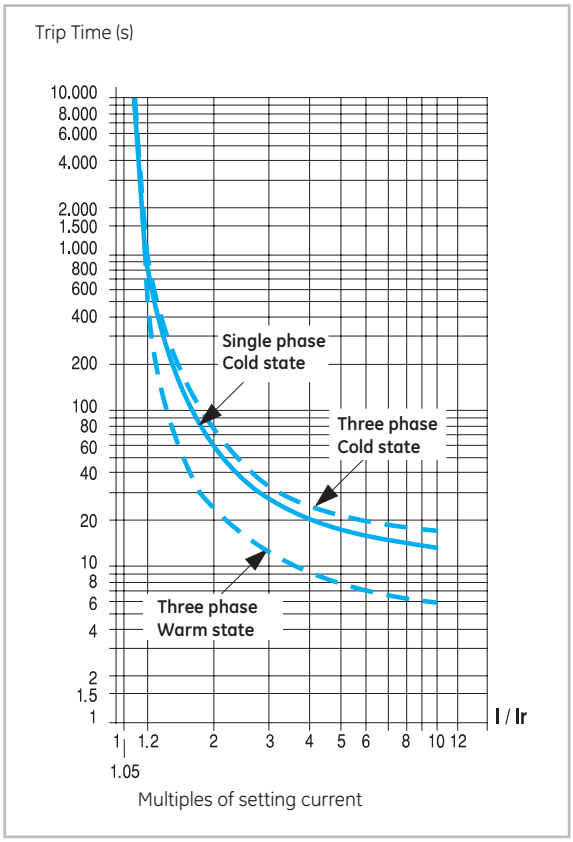
RT5 Class 10



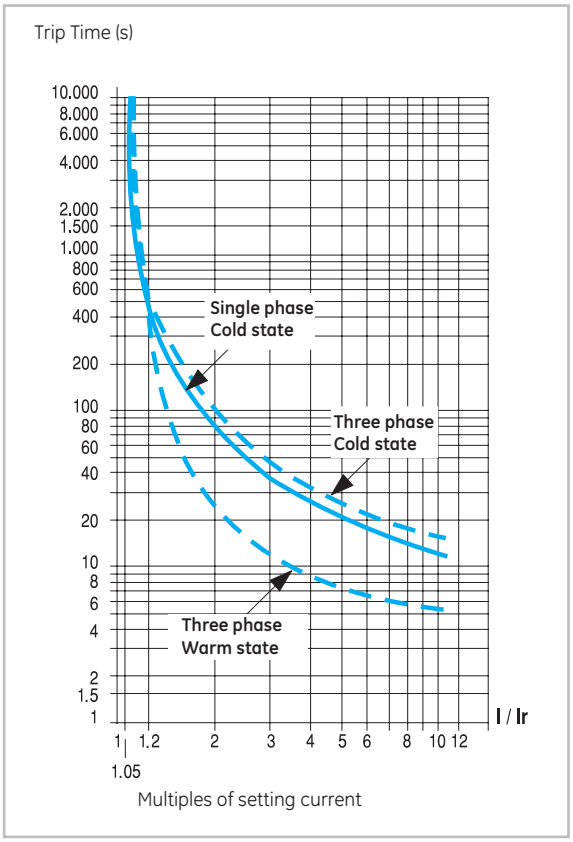
RT6 Class 10



RT5L Class 30



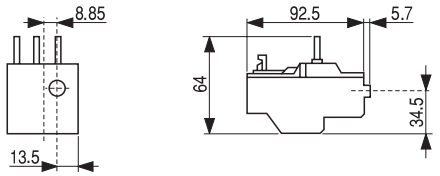
RT6L Class 30



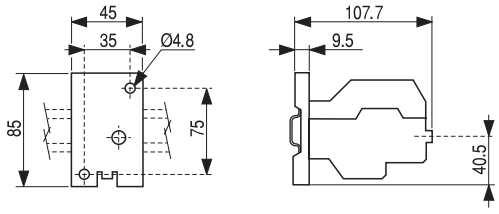
Dimensional drawings

Thermal overload relay for contactors

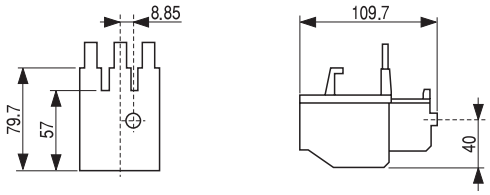
RT1 - RT12
0.190 kg



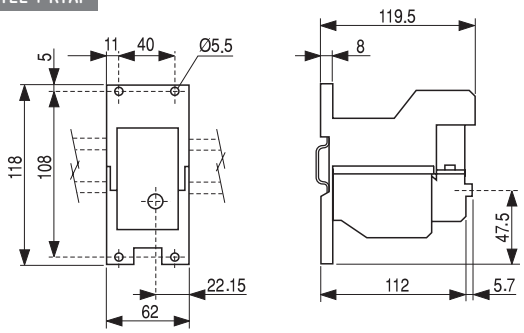
RT1 + RT XP
RT12 + RTXP



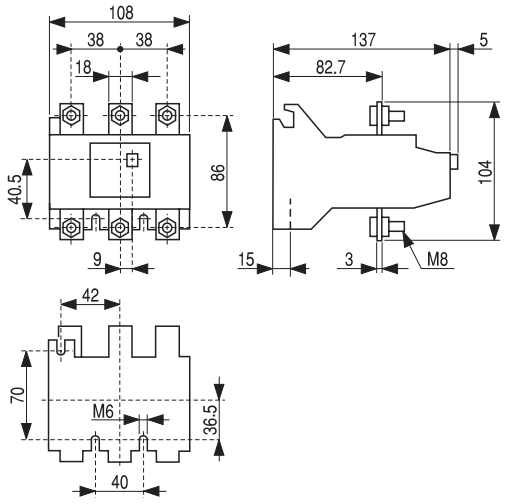
RT2 - RT22
0.400 kg



RT2 + RT XP
RT22 + RTXP

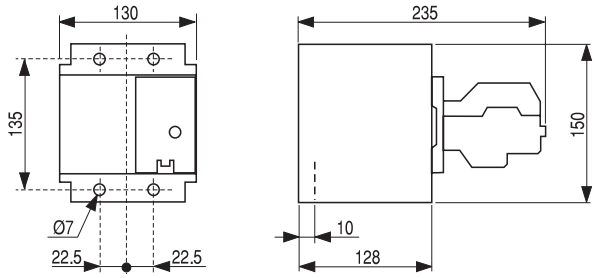


RT3 - RT32
0.900 kg

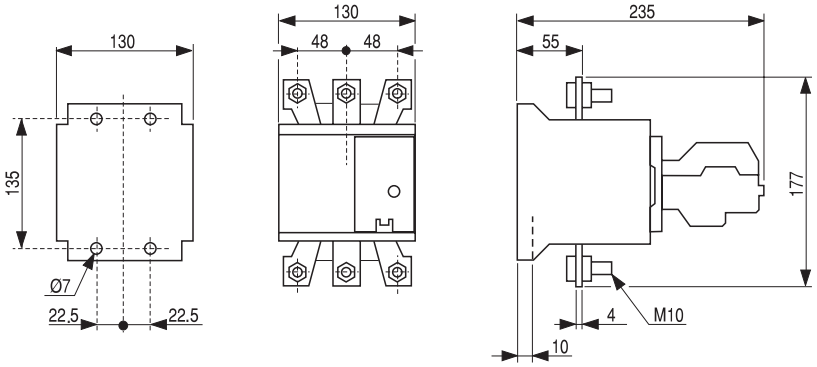


Thermal overload relay for contactors

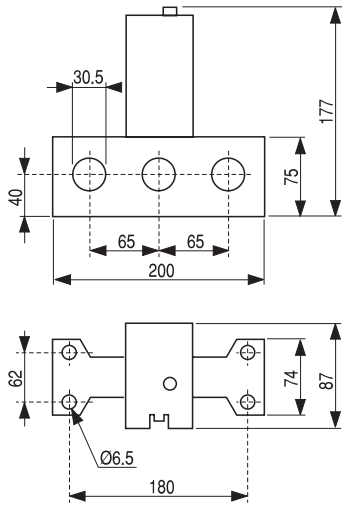
RT4LA...RT4LM
2.400 kg



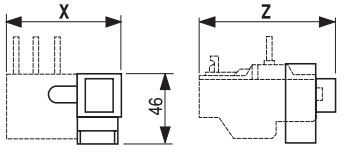
RT4/4LN...RT4/4LR
2.400 kg



RT5 / 5L
0.875 kg



Remote electrical reset



RTXRR + ...	X	Z
RT1	75	110
RT2	84	121
RT3	108	153
RT4	150	240
RT5	200	196

Coordination tables

Coordination Type 2 - 65kA at 380/400V and 415V - 50/60Hz

MOTOR[1]			BREAKER				CONTACTOR	OVERLOAD RELAY		WIRE	
Rated power	Rated current		Cat. no.	Rated current In	Magnetic setting 1m Pick-up ±20% Im	Magnetic current	Series	Series	Setting range	Smallest wire Cu (PVC)[2]	Min frontal safety
	380/400V	415V									
(kW)	(A)		#	(A)	(A)	(A)			(A)	(mm²)	(mm)
0.06	0.23	0.21	GPS1MHAB	0.25	-	3.3	CLOO	RE1D	0.1-0.5	1	20
0.09	0.34	0.31	GPS1MHAC	0.4	-	5.2	CLOO	RE1D	0.1-0.5	1	20
0.12	0.44	0.4	GPS1MHAD	0.63	-	8.2	CLOO	RE1D	0.1-0.5	1	20
0.18	0.65	0.63	GPS1MHAE	1	-	13	CLOO	RE1H	0.4-2.0	1	20
0.25	0.9	0.8	GPS1MHAE	1	-	13	CLOO	RE1H	0.4-2.0	1	20
0.37	1.25	1.1	GPS1MHAF	1.6	-	20.8	CLOO	RE1H	0.4-2.0	1	20
0.55	1.6	1.5	GPS1MHAF	1.6	-	20.8	CLOO	RE1H	0.4-2.0	1	20
0.75	2	1.9	GPS1MHAG	2.5	-	32.S	CLOO	RE1K	1.5-5.0	1	20
1.1	2.6	2.5	GPS1MHAH	4	-	52	CL25	RE1K	1.5-5.0	1	20
1.5	3.5	3.4	GPS1MHAH	4	-	52	CL25	RE1K	1.5-5.0	1	20
2.2	5	4.5	GPS1MHAJ	6.3	-	81.9	CL25	RE1K	1.5-5.0	1	20
3	7	6.5	GPS1MHAK	10	-	130	CL25	RE1M	1.6-8.0	1.5	20
4	9	8	GPS1MHAK	10	-	130	CL25	RE1S	6.4-32.0	1.5	20
5.5	12	11	GPS1MHAL	13	-	169	CL25	RE1S	6.4-32.0	2.5	20
7.5	-	14	GPS1MHAM	16	-	208	CL25	RE1S	6.4-32.0	2.5	20
8.8	16	-	GPS1MHAM	16	-	208	CL25	RE1S	6.4-32.0	2.5	20
11	22.5	21	GPS1MHAP	25	-	325	CL25	RE1S	6.4-32.0	4	20
15	30	28	GPS1MHAR	32	-	416	CL04	RE1S	6.4-32.0	6	20
11	22.5	21	GPS2MHAR	25	-	325	CL04	RE1S	6.4-32.0	4	20
15	30	28	GPS2MHAP	32	-	416	CL04	RE1S	6.4-32.0	6	20
18.5	37	35	GPS2MHAS	40	-	520	CL45	RE1W	9.0-45.0	10	20
22	-	40	GPS2MHAT	50	-	650	CL06	RE2H	15.0-75.0	10	25
	44	--	GPS2MHAT	50	-	650	CL06	RE2H	15.0-75.0	10	25
30	60	55	GPS2MHAU	63	-	819	CL07	RE2H	15.0-75.0	16	25
35	65	60	FDH36MC080GD	80	900-1300	1100	CL08	RE2H	15.0-75.0	25	25
45	85	80	FDH36MC1 OOGD	100	1000-1500	1400	CL09	RE2M	22.0-110.0	25	30
55	-	100	FDH36MC1 OOGD	100	1000-1500	1400	CL10	RE2M	22.0-110.0	25	30
55	105	-	FEH36MC125JF	125	1250-1875	1250	CL10	RE2M	22.0-110.0	25	30
75	138	135	FEH36MC200KF	200	2250-3350	2800	CK75	RE3E	30.0-150.0	50	40

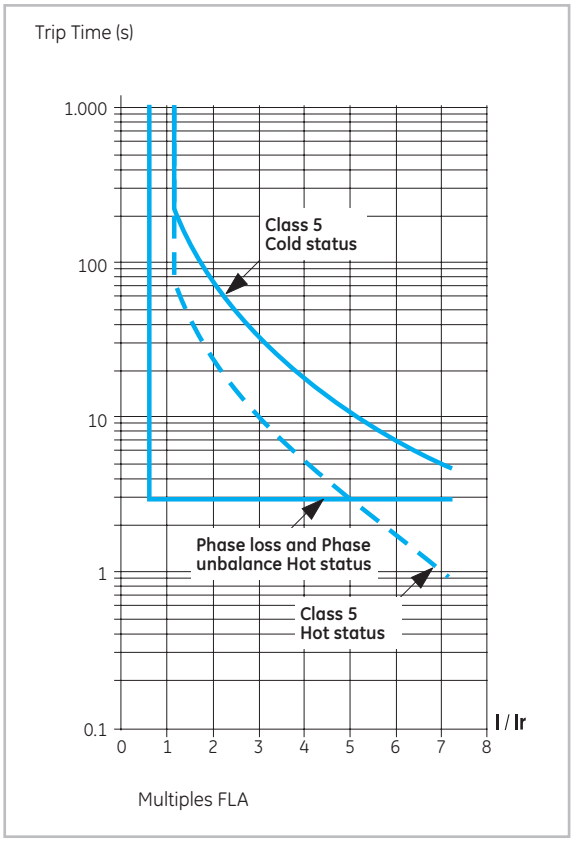
Coordination Type 2 - 100kA at 500 - 525V - 50/60Hz

MOTOR[1]			gL/gG Fuses		EOL			CONTACTOR		WIRE	
Rated power	Rated current			Size	Series	Type	Setting range	Series	PAC3	Seco min	Safety clearance
	500V	525V									
kW	(A)		In (A)				(A)		(kW)		(mm)
0.06	0.17	0.16	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.03	0.24	0.22	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.12	0.33	0.3	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.18	0.48	0.46	2	000	RE1	D	0.1-0.5	CLOO	5.5	1	20
0.25	0.66	0.64	2	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
0.37	0.3	0.85	4	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
0.55	1.2	1.15	4	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
0.75	1.5	1.45	4	000	RE1	H	0.4-2.0	CLOO	5.5	1	20
1.1	2.1	1.3	6	000	RE1	K	1.5-5.0	CLOO	5.5	1	20
1.5	2.8	2.6	10	000	RE1	K	1.5-5.0	CLOO	5.5	1	20
1.1	2.1	1.3	6	000	RE1	K	1.5-5.0	CL01	7.5	1	20
1.5	2.8	2.6	10	000	RE1	K	1.5-5.0	CL01	7.5	1	20
2.2	3.3	3.6	10	000	RE1	K	1.5-5.0	CL01	7.5	1	20
1.5	2.8	2.6	10	000	RE1	K	1.5-5.0	CL25	15	1	20
2.2	3.3	3.6	10	000	RE1	K	1.5-5.0	CL25	15	1	20
3	5.3	5	16	000	RE1	M	1.6-8.0	CL25	15	1	20
4	6.8	6.5	20	000	RE1	M	1.6-8.0	CL25	15	1	20
5.5	3.1	8.6	25	000	RE1	S	6.4-32.0	CL25	15	1.5	20
7.5	12	11.4	32	000	RE1	S	6.4-32.0	CL25	15	2.5	20
10	15.5	14.8	40	000	RE1	S	6.4-32.0	CL25	15	2.5	20
11	17.6	17	40	000	RE1	S	6.4-32.0	CL25	15	2.5	20
15	23	22	50	000	RE1	S	6.4-32.0	CL04	18.5	4	20
18.5	28.5	27	63	000	RE1	S	6.4-32.0	CL04	18.5	6	20
4	6.8	6.5	20	000	RE1	M	1.6-8.0	CL45	25	1.5	20
5.5	3.1	8.6	25	000	RE1	S	6.4-32.0	CL45	25	2.5	20
7.5	12	11.4	32	000	RE1	S	6.4-32.0	CL45	25	2.5	20
11	17.6	17	40	000	RE1	S	6.4-32.0	CL45	25	2.5	20
15	23	22	50	000	RE1	S	6.4-32.0	CL45	25	4	20
18.5	28.5	27	63	000	RE1	W	3.0-45.0	CL45	25	5	20
22	33	31.5	80	000	RE1	H	15.0-75.0	CL45	25	5	20
18.5	28.5	27	63	000	RE2	H	15.0-75.0	CL06	30	5	25
22	33	31.5	80	000	RE2	H	15.0-75.0	CL06	30	5	25
30	45	43	80	000	RE2	H	15.0-75.0	CL06	30	10	25
37	53	52	100	000	RE2	H	15.0-75.0	CL07	40	10	25
40	53	56	100	000	RE2	H	15.0-75.0	CL08	45	16	25
45	65	62	125	00	RE2	H	15.0-75.0	CL09	55	16	30
55	80	76	125	00	RE2	M	22.0-110.0	CL10	65	25	30
75	105	100	160	01/1	RE3	E	30.0-150.0	CK75	100	35/25	40
30	130	124	250	01/1	RE3	E	30.0-150.0	CK08	110	50	40

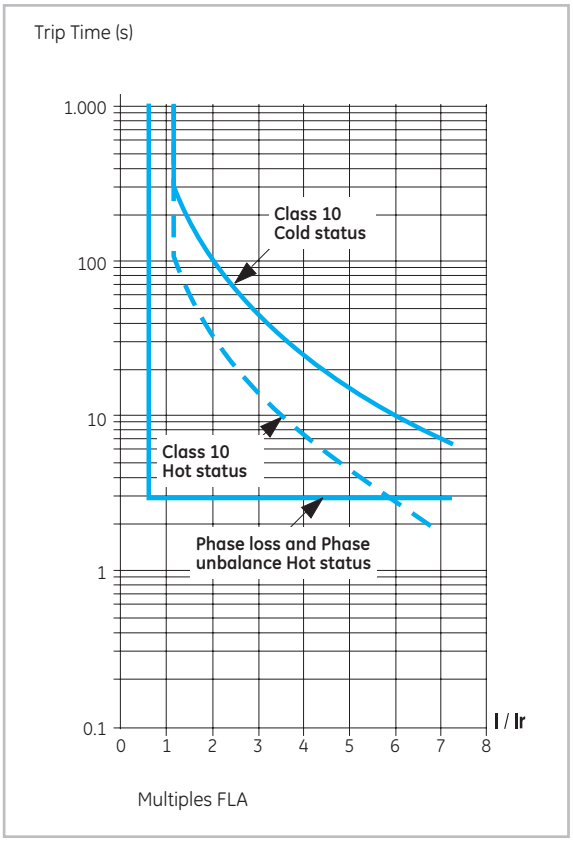
(1) Current are relevant to four pole motors not having special characteristics of torque.
(2) The minimum cycle cross-sections are referred to an ambient temperature of 30°C max. in free air and are selected to withstand the maximum let-through energy and the motor rated current. Besides the user has to consider the drop voltage, the type of laying and ambient temperature if it is different.

Tripping curves

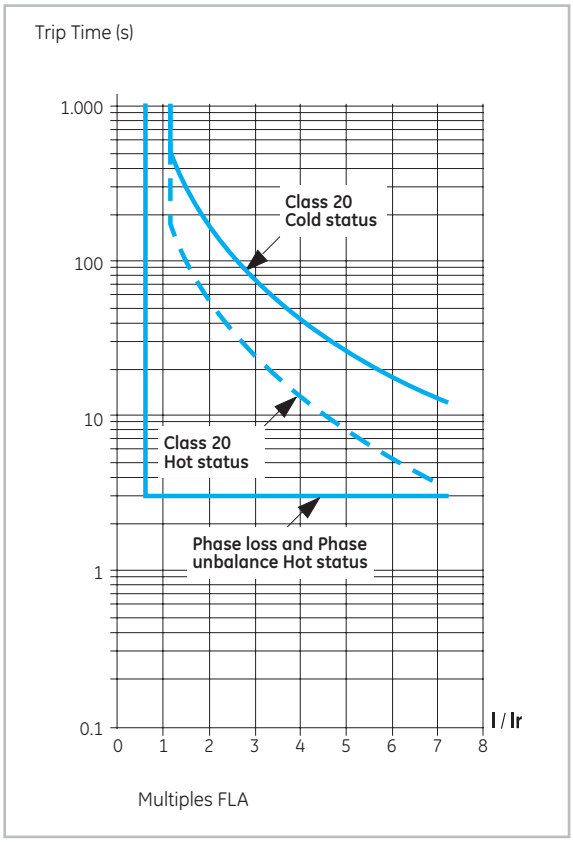
Class 5



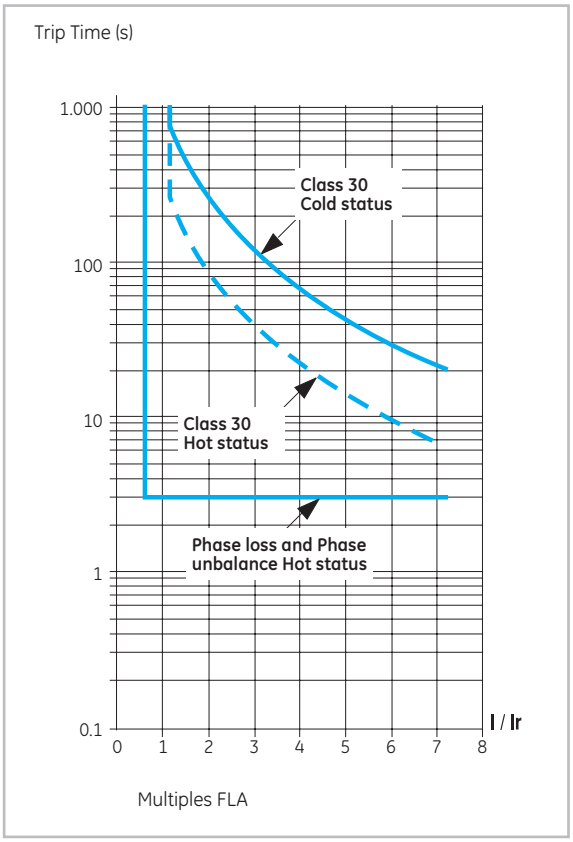
Class 10



Class 20

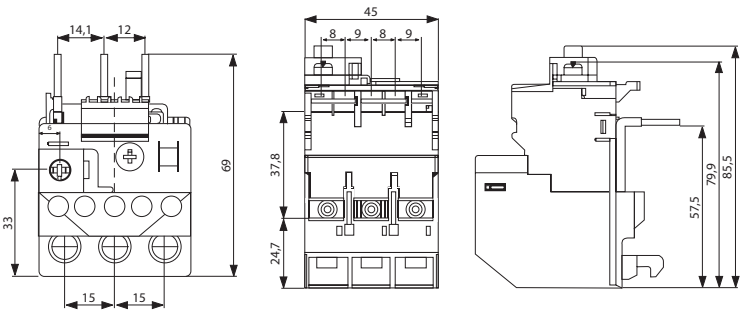


Class 30

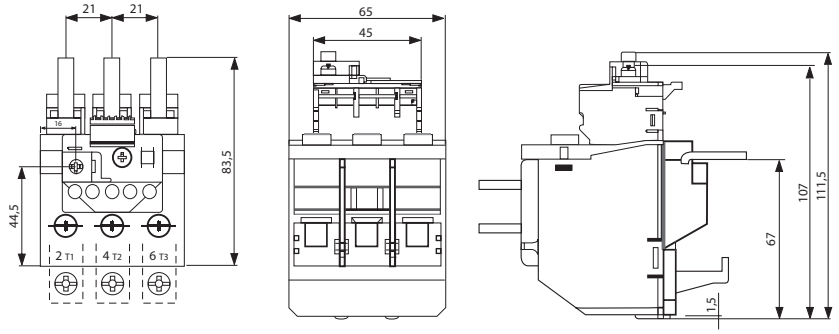


Dimensional drawings

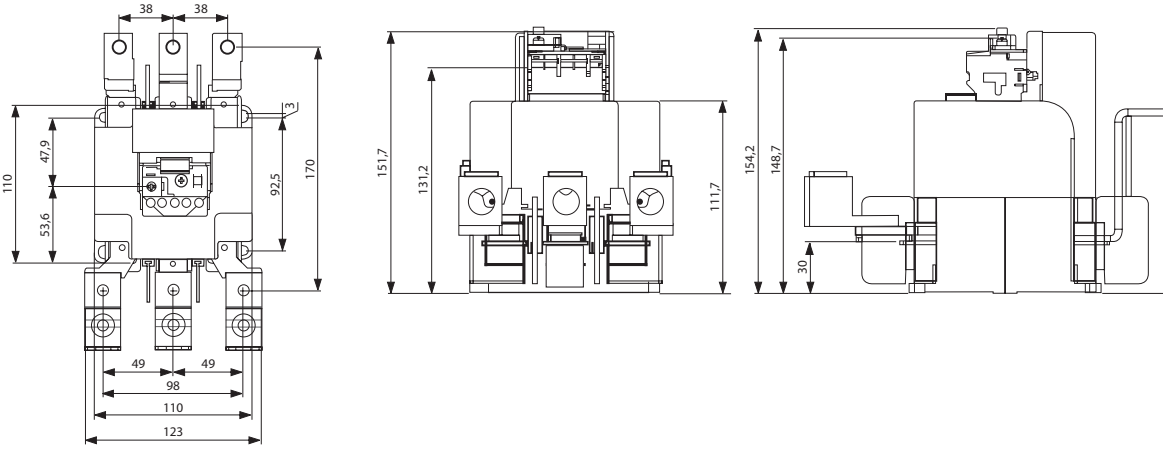
Frame 1



Frame 2



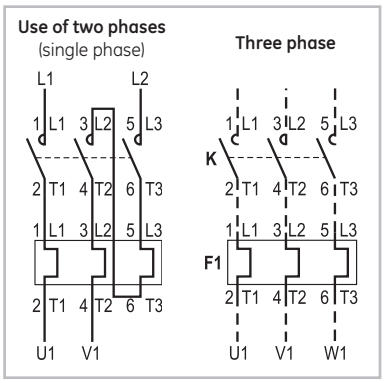
Frame 3



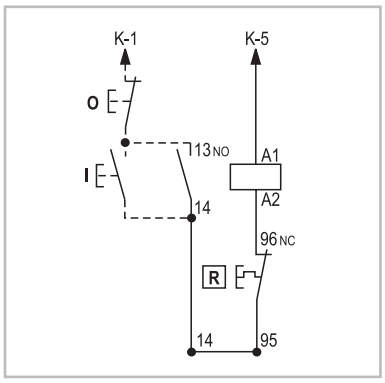
Wiring diagrams

Series M. Direct-on-line starter with reset

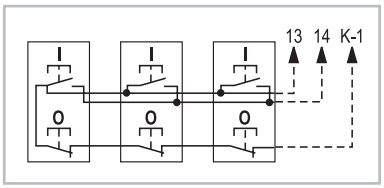
Power circuit



Control circuit

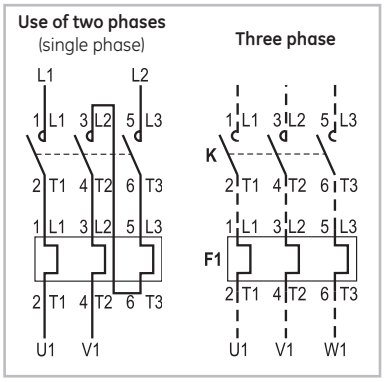


Control by two or more push-buttons

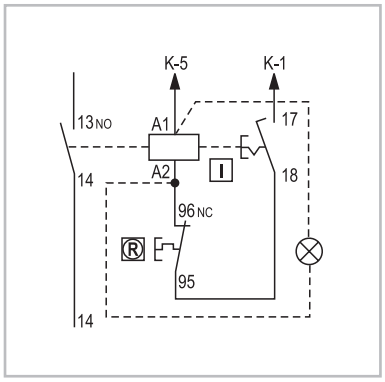


Series M. Direct-on-line starter with start/emergency stop push-button

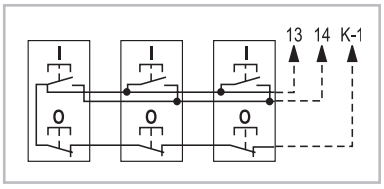
Power circuit



Control circuit



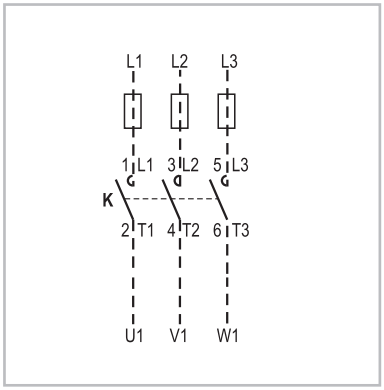
Control by two or more push-buttons



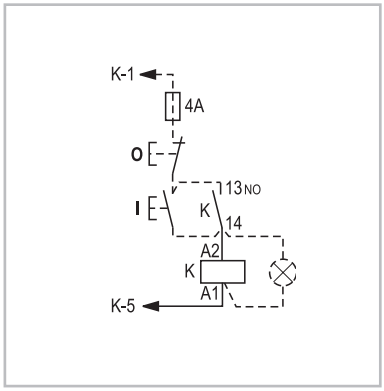
Wiring diagrams

Series CL. Direct-on-line starter

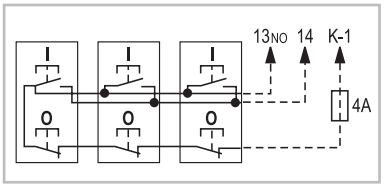
Power circuit



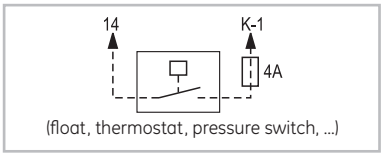
Control circuit



Control by two or more push-buttons

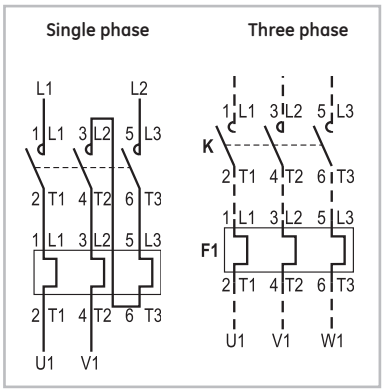


Control by permanent contact

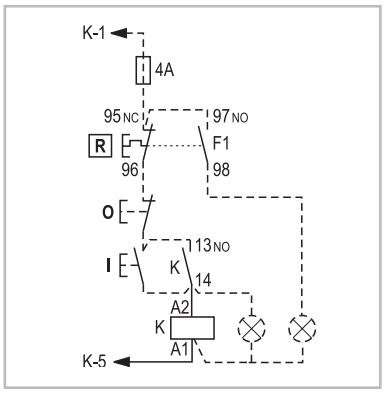


Series CL. Direct-on-line starter with reset push-button

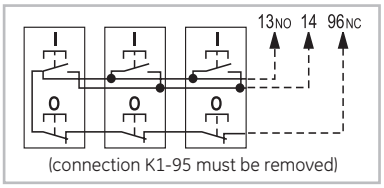
Power circuit



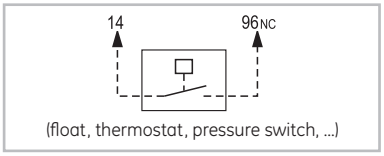
Control circuit



Control by two or more push-buttons

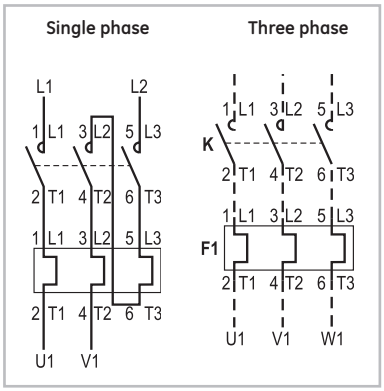


Control by permanent contact

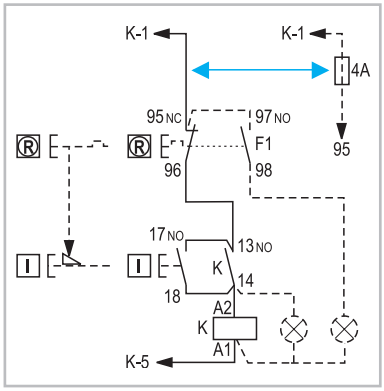


Series CL. Direct-on-line starter with start/stop/reset push-button

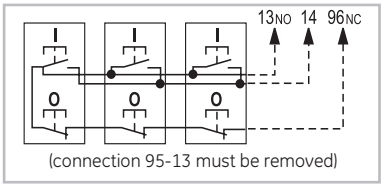
Power circuit



Control circuit



Control by two or more push-buttons



Control by permanent contact