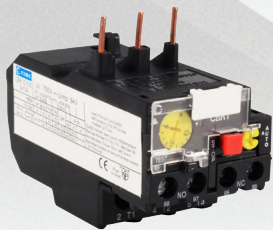


Thermal Overload Relays



Thermal overload relay (TOR)



TOR mounting bracket

Cat.no	Ref.No	Range	Pack./MOQ
FTC1 0.16	F101620	0.1-0.16	5
FTC1 0.25	F101621	0.16-0.25	5
FTC1 0.40	F101622	0.25-0.40	5
FTC1 0.63	F101623	0.40-0.63	5
FTC1 1.00	F101624	0.63-1.0	5
FTC1 1.6	F101625	1.0-1.6	5
FTC1 2.0	F101626	1.25-2.0	5
FTC1 2.5	F101627	1.60-2.50	5
FTC1 4.0	F101628	2.50-4.0	5
FTC 6.0	F101629	4.0-6.0	5
FTC1 8.0	F101630	5.5-8.0	5
FTC1 10.0	F101631	7.0-10.0	5
FTC1 13.0	F101632	9.0-13.0	5
FTC 18.0	F101633	12.0-18.0	5
FTC 25.0	F101634	17.0-25.0	5
FTC1 32.0	F101635	23-32	5
FTC 36.0	F101636	28-36	5
FTC 32.0	F101637	23-32	1
FTC1 40.0	F101638	30-40	1
FTC 50.0	F101639	37-50	1
FTC 65.0	F101640	48-65	1
FTC 70.0	F101641	55-70	1
FTC 80.0	F101642	63-80	1
FTC1	F101643	Relay bracket for 9A contactor	5
FTC2	F101644	Relay bracket for 35A contactor	5

Technical features

Relay settings and trip classes

Type	Ranges(A)	Trip class	Contactor frame
FTC1-25	0.1-0.16, 0.16-0.25, 0.25-0.40, 0.40-0.63, 0.63-1, 1-1.6, 1.25-2, 1.6-2.5, 2.5-4, 4-6, 5.5-8, 7-10, 9-13, 12-18, 17-25	Class 10	Frame 1
FTC2-36	23-32, 28-36	Class 10	Frame2
FTC3-80	23-32, 30-40, 37-50, 48-65, 55-70, 63-80	Class 10	Frame3

Built-in auxiliary contacts

Rated thermal current (1th at $\theta < 55^{\circ}\text{C}$)	5A
Rated insulation voltage (U_i)	690V
Utilisation AC15	
IEC 60947-5-1	120V-3A, 230V-1.5A, 400V-0.95A, 440V-0.75A, 500V-0.72A, 600V-0.6A
UL-CSA	B600
Utilisation DC13	
IEC 60947-5-1	120V-0.22A, 240V-0.1A
UL/cUL	R 300
Short -circuit protection (max fuse class gl./gG w/o welding)	6A

Thermal Overload Relays

Mechanical and electrical endurance

Parameters	Units	Thermal overload relay
Mechanical durability relayAuxiliary	Million cycles	0.5
Electrical durability	Million cycles	0.2

Product features

- Thermal protection against balanced overload.
- Three-pole differential (phase unbalance protection).
- Automatic ambient temperature compensation.
- Front mounted selector for choosing utilization current.
- Auto reset and manual reset.
- Manual trip lever (tripping test).
- Tripping indicator (0-1).
- IP2X confirming to VDE 0106 protection against direct finger contact.
- IEC 60947-4-1-IP10 for terminals.

Short-circuit

Short - circuit values, either for gL/gG fuse are:
Ir according the standard. Iq 50 kA at 400V

		Frame 1												Frame 2				Frame 3				
Coord. type 1	TOR rate (A)	0.10-0.16	0.16-0.25	0.25-0.4	0.4-0.63	0.63-1	1-1.6	1.6-2	2-2.5	2.5-4	4-6	6-8	8-10	10-13	13-18	18-25	25-32	32-36	36-40	40-50	50-65	65-80

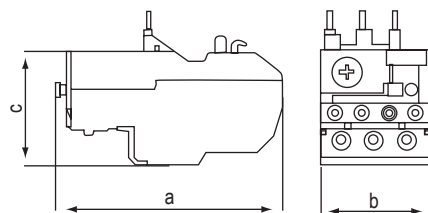
Protection against short-circuit

		Frame 1																Frame 2				Frame 3			
Fuse to be used with selected relay (gL/Gg)	A	2	2	2	2	4	4	6	6	10	16	20	20	25	35	50	63	80	63	100	100	100	125	125	
Fuse to be used with selected relay (aM)	A	0.25	0.5	1	1	2	2	4	4	6	8	12	12	16	20	25	40	40	40	40	63	63	80	80	

Coordinated with contactor

		Frame 1															Frame 2					Frame 3										
Tor ratings		0.10-0.16	0.16-0.25	0.25-0.4	0.4-0.63	0.63-1	1-1.6	1.6-2	2-2.5	2.5-4	4-6	6-8	8-10	10-13	13-18	18-25	25-32	32-36	36-40	40-50	50-65	65-80	80-100	100-125	125-160	160-200	200-250	250-320	320-400	400-500	500-630	630-800
Contactor ratings		kW	4	4	4	4	4	4	4	4	4	4	4	5.5	7.5	11	15	18.5	30	30	30	37	37	45								
TOR (g/L/gG fuse)		A	2	2	2	2	4	4	4	6	10	16	20	20	25	32	40	63	80	63	80	80	80	100	125							

Dimensions



Type	a	b	c
CBR 1-25	92	44	42
CBR 2-36	92	54	59
CBR 3-80	115	70	54

Thermal Overload Relays

Standards

IEC/EN 60947-1	General rules
IEC/EN 60947-4-1	Electromechanical contactors and starters
IEC/EN 60947-5-1	Electromechanical contactors circuit devices
EN 50012	Terminal marking and distinctive number for auxiliary contacts of particular contactors.
EN50005	Terminal marking and distinctive number General rules.
IEC 60068-2-6	Test FC and guidance : Vibration (sinusoidal)
IEC 60068-2-30	Test Db and guidance: Damp heat, cyclic(12+12 hour cycle)
IEC 60068-2-27	Test Ea: Shocks
VDE 0106	IP2X Protection against direct finger contact
IEC 60947-4-1/ IEC 60947-5-1	IP10
UL508	Industrial control equipment
LU486E	Equipment wiring terminal for use with aluminum or copper conductors
UL-94	Standard for safety test for flammability of plastic materials for parts in devices and appliances

IP Protection

IP20	As per VDE 0106
IP10	As per IEC 60947-4-1/ IEC 60947-5-1

Climatic conditions

	All frames
Ambient temperature	-5°C ÷ +40°C
Damp heat, steady state IEC 60068-2-30	12+12 hrs cycle, 66 cycle upper +40°C