

# TF42 thermal overload relays

## 0.10 ... 38.0 A



1SBC101328P0010

TF42-38



2CDC231001F0011

DB42

### Description

The TF42 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function - Trip indication on the front
- Suitable for three- and single-phase applications
- Sealable cover

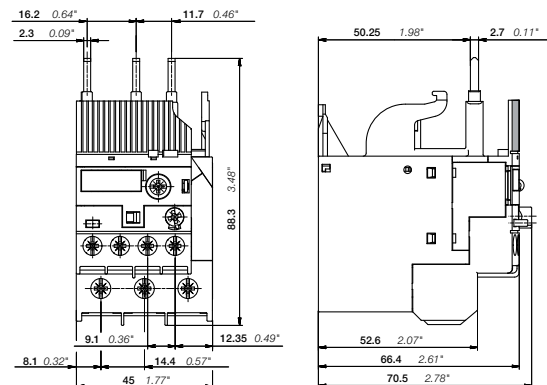
### Ordering details

Setting range	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
0.10 ... 0.13	0.5 A, Fuse type T	10	TF42-0.13	1SAZ721201R1005	0.130
0.13 ... 0.17	1.0 A, Fuse type T	10	TF42-0.17	1SAZ721201R1008	0.130
0.17 ... 0.23	1.0 A, Fuse type T	10	TF42-0.23	1SAZ721201R1009	0.130
0.23 ... 0.31	1.0 A, Fuse type T	10	TF42-0.31	1SAZ721201R1013	0.130
0.31 ... 0.41	2.0 A, Fuse type gG	10	TF42-0.41	1SAZ721201R1014	0.130
0.41 ... 0.55	2.0 A, Fuse type gG	10	TF42-0.55	1SAZ721201R1017	0.130
0.55 ... 0.74	4.0 A, Fuse type gG	10	TF42-0.74	1SAZ721201R1021	0.130
0.74 ... 1.00	6.0 A, Fuse type gG	10	TF42-1.0	1SAZ721201R1023	0.130
1.00 ... 1.30	6.0 A, Fuse type gG	10	TF42-1.3	1SAZ721201R1025	0.130
1.30 ... 1.70	10.0 A, Fuse type gG	10	TF42-1.7	1SAZ721201R1028	0.130
1.70 ... 2.30	10.0 A, Fuse type gG	10	TF42-2.3	1SAZ721201R1031	0.130
2.30 ... 3.10	10.0 A, Fuse type gG	10	TF42-3.1	1SAZ721201R1033	0.130
3.10 ... 4.20	20.0 A, Fuse type gG	10	TF42-4.2	1SAZ721201R1035	0.130
4.20 ... 5.70	20.0 A, Fuse type gG	10	TF42-5.7	1SAZ721201R1038	0.130
5.70 ... 7.60	35.0 A, Fuse type gG	10	TF42-7.6	1SAZ721201R1040	0.130
7.60 ... 10.0	35.0 A, Fuse type gG	10	TF42-10	1SAZ721201R1043	0.130
10.0 ... 13.0	40.0 A, Fuse type gG	10	TF42-13	1SAZ721201R1045	0.130
13.0 ... 16.0	40.0 A, Fuse type gG	10	TF42-16	1SAZ721201R1047	0.130
16.0 ... 20.0	63.0 A, Fuse type gG	10	TF42-20	1SAZ721201R1049	0.145
20.0 ... 24.0	63.0 A, Fuse type gG	10	TF42-24	1SAZ721201R1051	0.145
24.0 ... 29.0	63.0 A, Fuse type gG	10	TF42-29	1SAZ721201R1052	0.145
29.0 ... 35.0	80.0 A, Fuse type gG	10	TF42-35	1SAZ721201R1053	0.145
35.0 ... 38.0/40.0	80.0 A, Fuse type gG	10	TF42-38	1SAZ721201R1055	0.145

### Ordering details accessories

For thermal overload relays	Description	Type	Order code	Weight (1 pce) kg
TF42	Single mounting kit	DB42	1SAZ701902R0001	0.087

### Main dimensions mm, inches



TF42

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2CDC106046C0201

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## Technical data

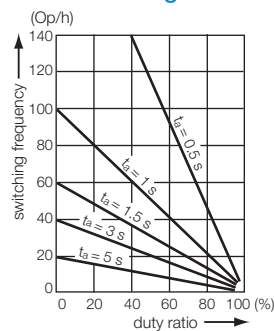
### Main circuit – Utilization characteristics according to IEC/EN

Type	TF42
Standards	IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 60947-1
Rated operational voltage $U_e$	690 V AC
Rated frequency	50/60 Hz
Trip class	10
Number of poles	3
Duty time	100 %
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"
Rated impulse withstand voltage $U_{imp}$	6 kV
Rated insulation voltage $U_i$	690 V AC

### Auxiliary circuit according to IEC/EN

Type	TF42
Rated operational voltage $U_e$	600 V
Conventional free air thermal current $I_{th}$	N.C., 95-96 6 A N.O., 97-98 4 A
Rated frequency	DC, 50/60 Hz
Number of poles	1 N.O. + 1 N.C.
$I_e$ / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category	
110-120 V	N.C., 95-96 3.00 A N.O., 97-98 0.75 A
220-230-240 V	N.C., 95-96 3.00 A N.O., 97-98 0.75 A
440 V	N.C., 95-96 0.75 A N.O., 97-98 0.75 A
480-500 V	N.C., 95-96 0.75 A N.O., 97-98 0.75 A
$I_e$ / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category	
24 V	N.C., 95-96 1.25 A N.O., 97-98 1.25 A
110-120-125 V	N.C., 95-96 0.55 A N.O., 97-98 0.55 A
250 V	N.C., 95-96 0.27 A N.O., 97-98 0.27 A
Minimum switching capacity	17 V / 3 mA
Short-circuit protective device	N.C., 95-96 6 A, Fuse type gG N.O., 97-98 4 A, Fuse type gG
Rated impulse withstand voltage $U_{imp}$	6 kV
Rated insulation voltage $U_i$	690 V

### Technical diagram – Intermittent periodic duty



$t_s$ : Motor starting time

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## Technical data

### Main circuit – Utilization characteristics according to UL/CSA

Type	TF42
Standards	UL 508, CSA 22.2 No. 14
Maximum operational voltage	600 V AC
Trip rating	125 % of FLA
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"
Short-circuit protective device	See table "Full load amps and short-circuit protective device"

### Auxiliary circuit according to UL/CSA

Type	TF42	
Contact rating	N.C., 95-96	B600, Q300
	N.O., 97-98	D300, Q300
Conventional thermal current	N.C., 95-96	5 A
	N.O., 97-98	2.5 A

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### Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device			
		480 / 600 V AC		480 / 600 V AC	
		Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Fuse type
TF42-0.13	0.13 A	18 kA	1 A, K5	100 kA	30 A, Class J
TF42-0.17	0.17 A	18 kA	1 A, K5	100 kA	30 A, Class J
TF42-0.23	0.23 A	18 kA	1 A, K5	100 kA	30 A, Class J
TF42-0.31	0.31 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-0.41	0.41 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-0.55	0.55 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-0.74	0.74 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-1.0	1.00 A	18 kA	6 A, K5	100 kA	30 A, Class J
TF42-1.3	1.30 A	18 kA	6 A, K5	100 kA	30 A, Class J
TF42-1.7	1.70 A	18 kA	6 A, K5	100 kA	30 A, Class J
TF42-2.3	2.30 A	18 kA	10 A, K5	100 kA	30 A, Class J
TF42-3.1	3.10 A	18 kA	10 A, K5	100 kA	30 A, Class J
TF42-4.2	4.20 A	18 kA	15 A, K5	100 kA	30 A, Class J
TF42-5.7	5.70 A	18 kA	20 A, K5	100 kA	30 A, Class J
TF42-7.6	7.60 A	18 kA	25 A, K5	100 kA	30 A, Class J
TF42-10	10.0 A	18 kA	35 A, K5	100 kA	45 A, Class J
TF42-13	13.0 A	18 kA	40 A, K5	100 kA	45 A, Class J
TF42-16	16.0 A	18 kA	60 A, K5	100 kA	45 A, Class J
TF42-20	20.0 A	18 kA	80 A, K5	100 kA	60 A, Class J
TF42-24	24.0 A	18 kA	80 A, K5	100 kA	60 A, Class J
TF42-29	29.0 A	18 kA	100 A, K5	100 kA	100 A, Class J
TF42-35	35.0 A	18 kA	150 A, K5	100 kA	175 A, Class J
TF42-38	38.0 A	18 kA	150 A, K5	100 kA	175 A, Class J

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## Technical data

### General technical data

Type	TF42	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +60 °C
Storage	Open	-25 ... +60 °C
Storage		-50 ... +80 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	25 g / 11 ms	
Resistance to vibrations acc. to IEC 60068-2-6	3 g / 3 ... 150 Hz	
Mounting position	Position 1-5	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)	
Degree of protection	IP20	





### Electrical connection

#### Main circuit

Type	TF42 (TF42-0.13 ... TF42-16)	TF42 (TF42-20 ... TF42-38)	
Connecting capacity			
 Rigid	1 x or 2 x	0.75 ... 4 mm <sup>2</sup>	1.5 ... 2.5 mm <sup>2</sup> or 2.5 ... 10 mm <sup>2</sup> <sup>1)</sup>
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 4 mm <sup>2</sup>	2.5 ... 4 mm <sup>2</sup> or 4 ... 6 mm <sup>2</sup>
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-10	AWG 14-6
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-10	AWG 14-6
Stripping length	12 mm		
Tightening torques	1.5 - 2.5 Nm / 13 ... 22 lb.in	2.5 - 2.7 Nm / 22 lb.in	
Connection screw	M4 (Pozidriv 2)		

<sup>1)</sup> Combination of different wires not possible

#### Auxiliary circuit

Type	TF42	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm <sup>2</sup>
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm <sup>2</sup>
 Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm <sup>2</sup>
	2 x	0.75 ... 1.5 mm <sup>2</sup>
 Flexible	1 x or 2 x	0.75 ... 1 mm <sup>2</sup> or 1 ... 2.5 mm <sup>2</sup>
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-12
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-12
Stripping length	9 mm	
Tightening torques	1.1 ... 1.5 Nm / 9 ... 13 lb.in	
Connection screw	M3 (Pozidriv 2)	