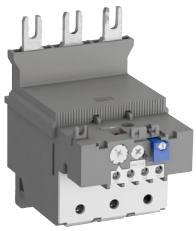


# TF140DU thermal overload relays

## 66 ... 142 A



2DC231012V0012

TF140DU-110

### Description

The TF140DU 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 10A.

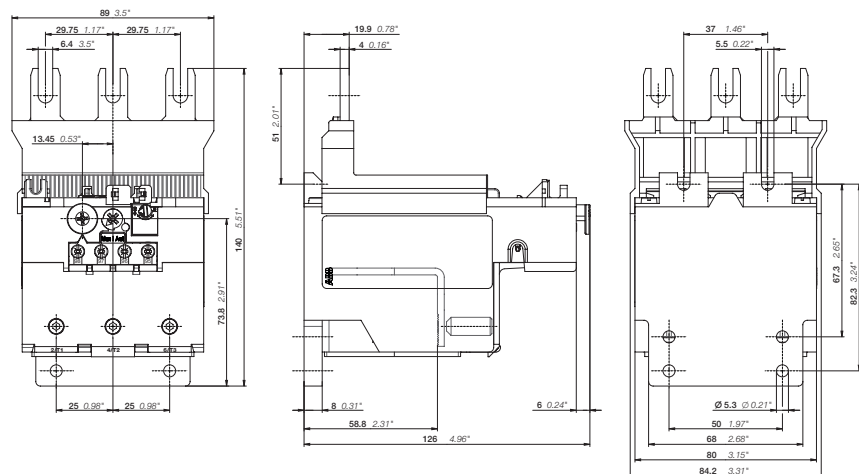
The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release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

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- Two electrically isolated auxiliary contacts – 1 N.O. + 1 N.C.
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications

### Ordering details

Setting range	Short-circuit protective device	Trip class	Type	Order code	Weight (1 pce) kg
A					
66 ... 90	200 A, Fuse type gG	10A	TF140DU-90	1SAZ431201R1001	0.820
80 ... 110	224 A, Fuse type gG	10A	TF140DU-110	1SAZ431201R1002	0.820
100 ... 135	224 A, Fuse type gG	10A	TF140DU-135	1SAZ431201R1003	0.820
110 ... 142	250 A, Fuse type gG	10A	TF140DU-142	1SAZ431201R1004	0.820

### Main dimensions mm, inches



TF140DU

2DC232008F0012

2DC2106054C0201

# TF140DU thermal overload relays

## Technical data

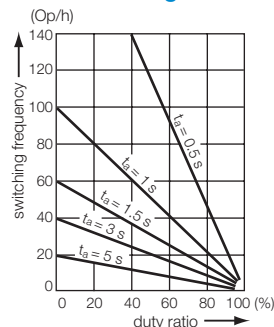
### Main circuit – Utilization characteristics according to IEC/EN

Type	TF140DU
Standards	IEC/EN 60947-1, IEC/EN 60947-4-1, IEC/EN 60947-5-1
Rated operational voltage $U_n$	690 V AC
Rated frequency	DC, 50/60 Hz
Frequency range	0 ... 400 Hz
Trip class	10A
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 $U_{imp}$	8 kV
Rated insulation voltage $U_i$	690 V

### Auxiliary circuit according to IEC/EN

Type	TF140DU
Rated operational voltage $U_n$	500 V AC, 440 V DC
Conventional free air thermal current $I_{th}$	N.C., 95-96 10 A N.O., 97-98 6 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 1.50 A
220-230-240 V	N.C., 95-96 1.50 A N.O., 97-98 1.50 A
440 V	N.C., 95-96 1.00 A N.O., 97-98 1.00 A
480-500 V	N.C., 95-96 1.00 A N.O., 97-98 1.00 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
60 V	N.C., 95-96 0.25 A N.O., 97-98 0.25 A
110-120-125 V	N.C., 95-96 0.25 A N.O., 97-98 0.25 A
250 V	N.C., 95-96 0.12 A N.O., 97-98 0.04 A
Minimum switching capacity	17 V / 3 mA
Short-circuit protective device	N.C., 95-96 10 A, Fuse type gG N.O., 97-98 6 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

2CDC32005F0211

2CDC106054C0201

# TF140DU thermal overload relays

## Technical data

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

Type	TF140DU
Standards	UL 508, CSA 22.2 No. 14, UL 60947-4-1A
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	TF140DU	
Contact rating	N.C., 95-96	B600
	N.O., 97-98	C300
Conventional thermal current	N.C./N.O.	10 A / 6 A

### 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		480 / 600 V AC	
		Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Listed circuit breaker
TF140DU-90	90 A	10 kA	250 A, K5 / RK5	100 kA	250 A, Class J	100 kA	250 A
TF140DU-110	110 A	10 kA	250 A, K5 / RK5	100 kA	250 A, Class J	100 kA	250 A
TF140DU-135	135 A	10 kA	250 A, K5 / RK5	100 kA	250 A, Class J	100 kA	250 A
TF140DU-142	142 A	10 kA	250 A, K5 / RK5	100 kA	250 A, Class J	100 kA	250 A

# TF140DU thermal overload relays



## Technical data

### General technical data





Type	TF140DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated acc. IEC/EN 60947-4-1	-25 ... +55 °C
Open		-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Acc. to IEC/EN 60947-4-1	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 11 ms	
Mounting position	Position 1-5	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals	
Degree of protection	housing	IP20
	main circuit terminals	IP00

### Electrical connection

#### Main circuit

Type	TF140DU	
Connecting capacity		
 Rigid	1 x	16 ... 70 mm <sup>2</sup>
	2 x	-
 Flexible	1 x	16 ... 70 mm <sup>2</sup>
	2 x	-
	Stranded acc. to UL/CSA	1 x or 2 x AWG 6-2/0
	Flexible acc. to UL/CSA	1 x or 2 x AWG 6-2/0
Stripping length	25 mm	
Tightening torques	8 ... 10 Nm / 77 ... 88 lb.in	
Connection screw	M8 (Hexagon)	

#### Auxiliary circuit

Type	TF140DU	
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 or 2 x	0.75 ... 2.5 mm <sup>2</sup>
 Flexible	1 x or 2 x	0.75 ... 2.5 mm <sup>2</sup>
	Stranded acc. to UL/CSA	1 x or 2 x AWG 18-14
	Flexible acc. to UL/CSA	1 x or 2 x AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	