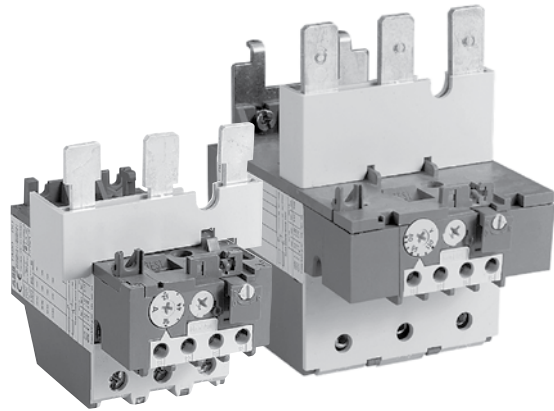


Thermal Overload relays



Thermal overload relays

Type TA
Class 10
Class 20



Description

- Available for starter construction with A Line contactors and separate panel mounting
- Designed for close couple mounting
- Separate base mounting available for all overload relays
- Class 10 adjustable overload relays are standard with all ABB Line starters
- Reset can also be adjusted to function as a stop button
- Screwdriver guide holes
- All terminal screws are available from the front
- UL File No: E48139
- CSA File No: LR98336
- Trip indication
- Remote trip and reset option available
- Single phase and phase unbalance protection
- Isolated alarm circuit (N.O.) contact
- Ambient compensation: -25°C to +55°C (-13°F to +131°F)
- Manual test
- Manual or automatic reset
- Factory calibrated and tested
- Wide adjustment range

Tripping classes of the thermal overload relays

Standard classes in IEC 947-4-1 are classes: 10 A, 10, 20, 30. The tripping class indicates according to IEC 947-4-1 the maximum tripping time in seconds under specified conditions of test at 7.2 times the setting current and specifies tripping and non tripping times for 1.5 and 7.2 times the setting current. Mostly used class is 10 A.

Abstract from IEC 947-4-1

Tripping class	10 A	10	20	30
Max. tripping time at 1.5 x setting current (warm state) (s)	120	240	480	720
Tripping time at 7.2 x setting current (cold state) (s)	2 – 10	4 – 10	6 – 20	9 – 30
At 1.05 x setting current	no tripping			

TA thermal overload relays are used with A Line contactors for the protection of motors having a nominal voltage of up to 600VAC max per UL/CSA (690VAC and 800VDC per IEC).

Product range

• Standard relays:

Types: TA25DU, TA42DU, TA75DU, TA80DU, TA110DU, TA200DU and TA450DU

- TA25 to TA110 and TA200 are directly connected in the motor circuit.
- TA450DU relays are fed through a linear type transformer

• Special construction

Thermal overload relays with different certifications and approvals. Relays for protection EEx e motors.

Construction and function

• General

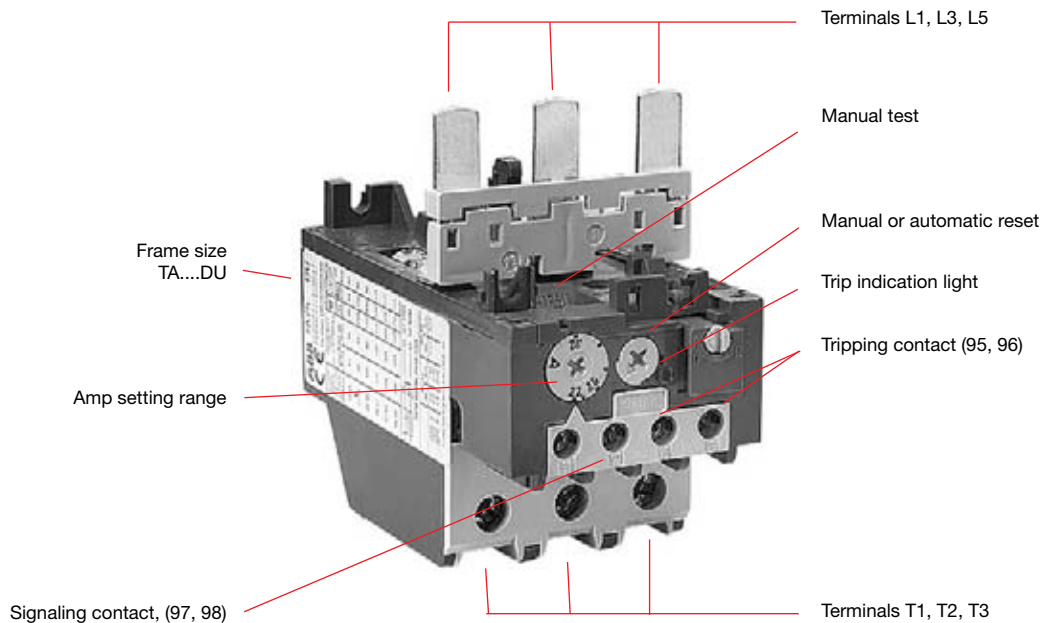
Thermal O/L relays and their accessories meet UL, CSA and most other important international standards (IEC), European standards (EN) and the most important national standards (DIN-VDE, NFC-UTE, BS, etc.). They meet the certification and approval directives required throughout the world.

Thermal overload relays are 3 pole. The motor current flows through their bimetals (1 per phase) which are indirectly heated. Under the effect of the heating, the bimetals bend, cause the relay to trip and the position of the auxiliary contacts to change.

The relay setting range is graduated in amps. In compliance with international and national standards, the setting current is the motor nominal current and not the tripping current (no tripping at 1.05 x setting current, tripping at 1.2 times setting current).

The tripping curves (cold or warm starting, 3 phases and 2 phases) are shown on page 2.14.

The relays are built to be self protecting in the event of an overload until the short circuit protection device is activated.





TA25DU

Application

Technical data

• **All the relays have:**

- Free tripping: the resetting button, even if held in, does not prevent tripping of the thermal overload relay in the event of a fault.
- Temperature compensation
- Phase failure protection according to IEC 947-4-1: Within the limits of the setting range, a reduced tripping time, and thus improved motor protection, is obtained in case of a phase failure.
- Tripping class: 10A, for TA relays
- Test functions and resetting: see table below.

• **Auxiliary contacts**

The relays have two built in auxiliary contacts: NC marked 95-96; NO marked 97-98. Both contacts are physically separate and can thus be used for 2 different circuits (control circuit and indication circuit).

Function of TA25DU – TA450DU thermal O/L relays

	Resetting Contacts	Relay tripped		Relay not tripped
		Manual	Automatic	
Effect of blue button indexed on R (RESET ONLY)	Resetting	Yes	No	No
	95-96	Closed when the button is pressed	No effect	No effect
	97-98	Open when the button is pressed		
Effect of blue button indexed on R/O (RESET/OFF)	Resetting	Yes	No	No
	95-96	Closed when the button is released	No effect	Open when the button is pressed Closed when the button is released
	97-98	Open when the button is pressed		No effect

Selection guide TA25DU – TA80DU

2



TA25DU



TA42DU



TA75DU



TA80DU

Types

Main characteristics

Construction	3 pole with ambient temperature variation compensation. Protection against single phase operation. Built in auxiliary contacts: 1N.O. + 1N.C.			
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Resetting	Convertible: Manual to Automatic			
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Setting ranges	Number	18	3	6	4
	from to	0.1 – 0.16A 24 – 32A	18 – 25A 29 – 42A	18 – 25A 60 – 80A	29 – 42A 60 – 80A

Mounted with contactors

Mounting kit	No kit is required for mounting thermal O/L relays below contactors			
Types of contactors for combined mounting	A/AE/AL9 A/AE/AL12 A/AE/AL16			
	A/AE/AL26 A/AE/AL30 A/AE/AL40	A/AE30 A/AE40		
			A/AE/AF50 A/AE/AF63 A/AE/AF75	A/AE/AF95 A/AE/AF110

Mounted separately (i.e. separate from contactor)

Separate mounting kit	DB25	DB80
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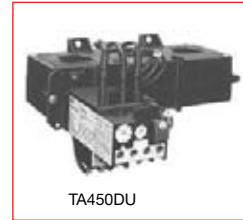
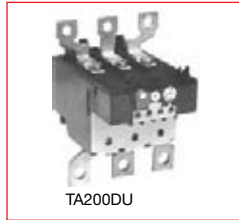
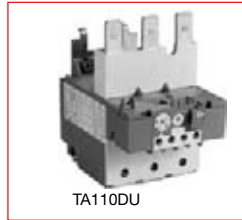
Accessories

Tripping coil	DS25-A	
Resetting coil	DR25-A	
Terminal shroud	Terminals protected against direct contact (without the addition of terminal shrouds)	
Function markers	BA5-50	

Selection guide TA110DU – TA450DU

Thermal
Overload
relays

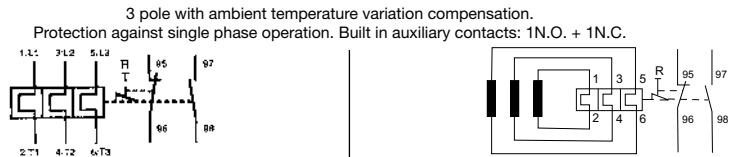
2



Types

Main characteristics

Construction



Resetting

Convertible: manual to automatic

Setting ranges

Number	2	6	3
from A	65 – 90	65 – 90	130 – 185
to A	80 – 110	150 – 200	220 – 310

Mounted with contactors

Mounting kit

No kit is required for mounting thermal O/L relays

See page 2.7.

Types of contactors
for combined mounting

A/AE/AF95
A/AE/AF110

A/AF145
A/AF185

A/AF210 + DT450/A300
A/AF260 + DT450/A300
A/AF300 + DT450/A300

Mounted separately (i.e. separate from contactor)

Separate mounting kit

DB200

No kit required for separate mounting of thermal O/L relays

Accessories

Tripping coil

Resetting coil

Terminal shroud

Function markers

⓪

LT200 –

LT450 –

BA5-50

⓪ Terminals protected against direct contact (without the addition of terminal shrouds)

TA25 - TA450

Class 10

for Contactors A9 – A/AF300

2



TA25DU



TA42DU



TA75DU



TA80DU



TA110DU

For Contactor	Setting Range A	Suffix Code	Catalog Number	List Price
A/AE/AL9 – A/AE/AL40	0.1 - 0.16	A	TA25DU0.16	\$ 63
	0.16 - 0.25	B	TA25DU0.25	
	0.25 - 0.4	C	TA25DU0.4	
	0.4 - 0.63	D	TA25DU0.63	
	0.63 - 1.0	E	TA25DU1.0	
	1.0 - 1.4	F	TA25DU1.4	
	1.3 - 1.8	G	TA25DU1.8	
	1.7 - 2.4	H	TA25DU2.4	
	2.2 - 3.1	J	TA25DU3.1	
	2.8 - 4.0	K	TA25DU4.0	
	3.5 - 5.0	L	TA25DU5.0	
	4.5 - 6.5	M	TA25DU6.5	
	6.0 - 8.5	N	TA25DU8.5	
	7.5 - 11	P	TA25DU11	
10 - 14	Q	TA25DU14		
13 - 19	R	TA25DU19		
18 - 25	S	TA25DU25		
24 - 32	T	TA25DU32		
A/AE30 - A/AE/40	18 - 25	A	TA42DU25	78
	22 - 32	B	TA42DU32	
	29 - 42	C	TA42DU42	
A/AE/AF50 - A/AE/AF75	18 - 25	A	TA75DU25	102
	22 - 32	B	TA75DU32	
	29 - 42	C	TA75DU42	
	36 - 52	D	TA75DU52	
	45 - 63	E	TA75DU63	
	60 - 80	F	TA75DU80	
A/AE/AF95 - A/AE/AF110	29 - 42	C	TA80DU42	135
	36 - 52	D	TA80DU52	
	45 - 63	E	TA80DU63	
	60 - 80	F	TA80DU80	
	65 - 90	A	TA110DU90	
	80 - 110	B	TA110DU110	
A/AF145 - A/AF185	65 - 90	A	TA200DU90	225
	80 - 110	B	TA200DU110	
	100 - 135	C	TA200DU135	
	110 - 150	D	TA200DU150	
	130 - 175	E	TA200DU175	
	150 - 200	F	TA200DU200	
A/AF210 - A/AF300	130 - 185	A	TA450DU185 ①	488
	165 - 235	B	TA450DU235	
	220 - 310	C	TA450DU310	
AF400 - AF750	See electronic overloads, pages 2.21			

① TA450 overloads require mounting kits for installation.

TA25 - TA80

Class 20

for Contactors A9 - A80



TA25DU



TA42DU



TA75DU



TA80DU

Setting range A ... A	Suffix	Packing unit piece	Reference code	Catalog number	List price
TA25DU trip class 20 for contactors A9 ... A40 and (T) AL9 ... (T) AL30					
1.3 ... 1.8	GZ	1	1SAZ211401R1025	TA25DU1.8-20	\$ 63
1.7 ... 2.4	HZ	1	1SAZ211401R1028	TA25DU2.4-20	
2.2 ... 3.1	JZ	1	1SAZ211401R1031	TA25DU3.1-20	
2.8 ... 4.0	KZ	1	1SAZ211401R1033	TA25DU4.0-20	
3.5 ... 5.0	LZ	1	1SAZ211401R1035	TA25DU5.0-20	
4.5 ... 6.5	MZ	1	1SAZ211401R1038	TA25DU6.5-20	
6.0 ... 8.5	NZ	1	1SAZ211401R1040	TA25DU8.5-20	
7.5 ... 11	PZ	1	1SAZ211401R1043	TA25DU11-20	
10 ... 14	QZ	1	1SAZ211401R1045	TA25DU14-20	
13 ... 19	RZ	1	1SAZ211401R1047	TA25DU19-20	
18 ... 25	SZ	1	1SAZ211401R1051	TA25DU25-20	
24 ... 32 ⁽¹⁾	TZ	1	1SAZ211401R1053	TA25DU32-20 ⁽¹⁾	

⁽¹⁾ with terminal block DX25: 1x16mm²

TA42DU trip class 20 for contactors A30, A40 and (T) AL30, (T) AL40					
18 ... 25	AZ	1	1SAZ311401R1001	TA42DU25-20	\$ 78
22 ... 32	BZ	1	1SAZ311401R1002	TA42DU32-20	
29 ... 42	CZ	1	1SAZ311401R1003	TA42DU42-20	

TA75DU trip class 20 for contactors A50 ... A75 and AE50 ... AE75					
18 ... 25	AZ	1	1SAZ321401R1001	TA75DU25-20	\$ 102
22 ... 32	BZ	1	1SAZ321401R1002	TA75DU32-20	
29 ... 42	CZ	1	1SAZ321401R1003	TA75DU42-20	
36 ... 52	DZ	1	1SAZ321401R1004	TA75DU52-20	
45 ... 63	EZ	1	1SAZ321401R1005	TA75DU63-20	
60 ... 80	FZ	1	1SAZ321401R1006	TA75DU80-20	

TA80DU trip class 20 for contactors A95, A110, AE 95 and AE110					
29 ... 42	AZ	1	1SAZ331401R1003	TA80DU42-20	\$ 135
36 ... 52	BZ	1	1SAZ331401R1004	TA80DU52-20	
45 ... 63	CZ	1	1SAZ331401R1005	TA80DU63-20	
60 ... 80	DZ	1	1SAZ331401R1006	TA80DU80-20	

