

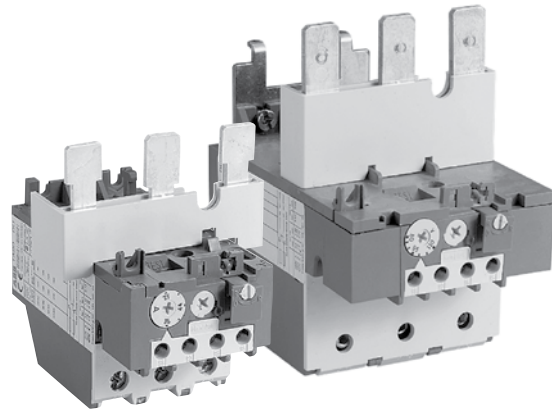
Thermal Overload relays



Thermal overload relays

Type TA
Class 10
Class 20

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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

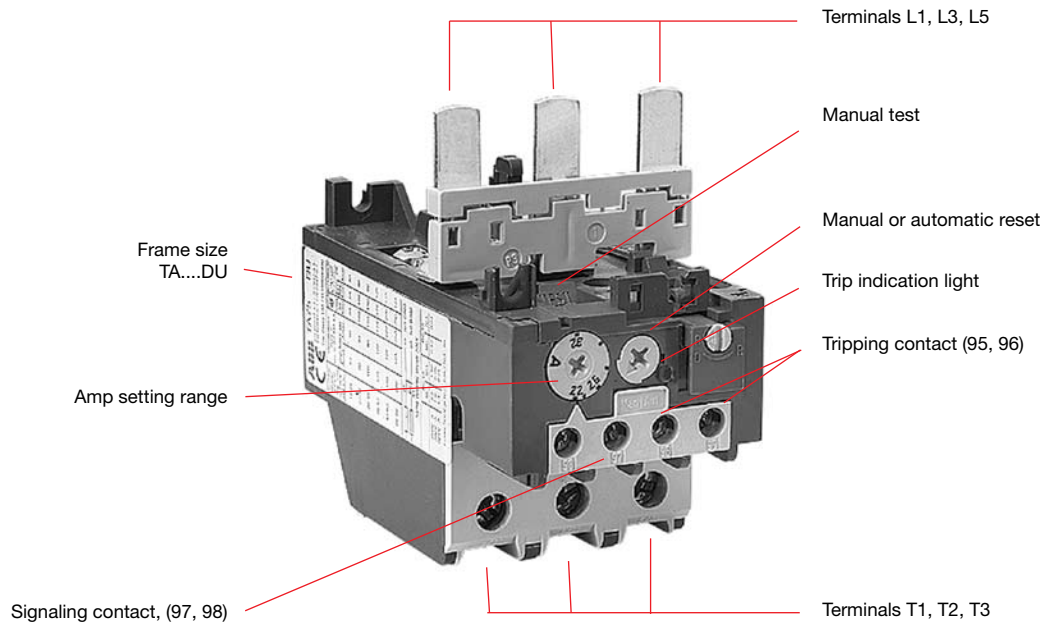
Thermal O/L relays and their accessories meet UL, CSA and most other important international standards (IEC), European standards (EN) and the most important national standards (DIN-VDE, NFC-UTE, BS, etc.). They meet the certification and approval directives required throughout the world.

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

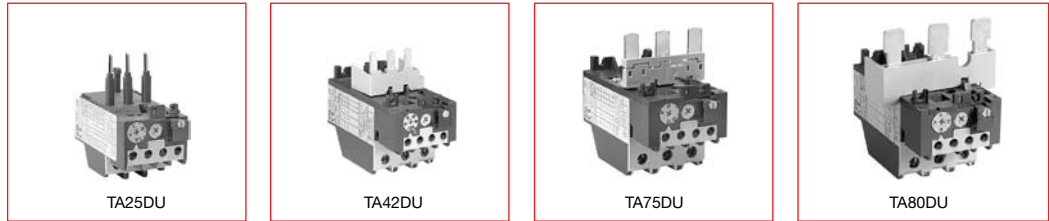
The relays have two built in auxiliary contacts: NC marked 95-96; NO marked 97-98. Both contacts are physically separate and can thus be used for 2 different circuits (control circuit and indication circuit).

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

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Types

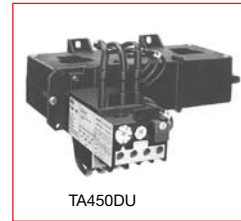
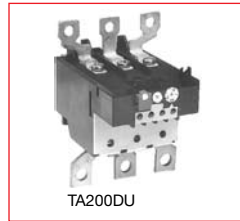
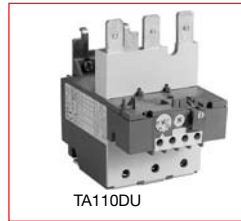
Main characteristics

Construction		3 pole with ambient temperature variation compensation. Protection against single phase operation. Built in auxiliary contacts: 1N.O. + 1N.C.			
Resetting		Convertible: Manual to Automatic			
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		No kit is required for mounting thermal O/L relays below contactors			
Mounting kit 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)		DB25		DB80	
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

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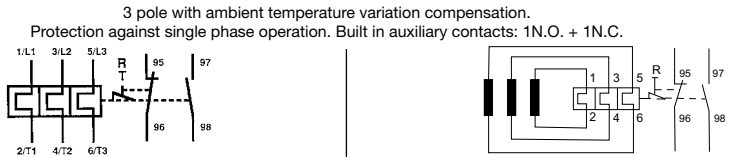
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Types

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

①

LT200 –

BA5-50

LT450 –

Function markers

① Terminals protected against direct contact (without the addition of terminal shrouds)

TA25 - TA450
Class 10
for Contactors A9 – A/AF300



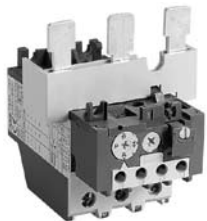
TA25DU



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	
A/AE30 - A/AE/40	7.5 - 11	P	TA25DU11	78
	10 - 14	Q	TA25DU14	
	13 - 19	R	TA25DU19	
A/AE/AF50 - A/AE/AF75	18 - 25	S	TA25DU25	102
	24 - 32	T	TA25DU32	
	18 - 25	A	TA42DU25	
	22 - 32	B	TA42DU32	
	29 - 42	C	TA42DU42	
	29 - 42	C	TA80DU42	
A/AE/AF95 - A/AE/AF110	36 - 52	D	TA80DU52	135
	45 - 63	E	TA80DU63	
	60 - 80	F	TA80DU80	
	65 - 90	A	TA110DU90	
	80 - 110	B	TA110DU110	
	65 - 90	A	TA200DU90	
A/AF145 - A/AF185	80 - 110	B	TA200DU110	165
	100 - 135	C	TA200DU135	
	110 - 150	D	TA200DU150	
	130 - 175	E	TA200DU175	
	150 - 200	F	TA200DU200	
	80 - 110	B	TA200DU110	
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

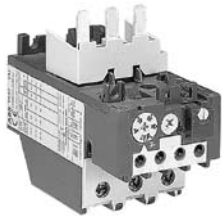
for Contactors A9 - A80

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TA25DU



TA42DU



TA75DU



TA80DU

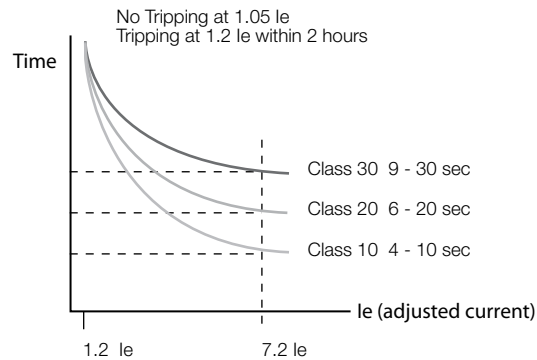
Setting range A ... A	Suffix	Packing unit piece	Reference code	Catalog number	List price
TA25DU trip class 20 for contactors A9 ... A40 and (T) AL9 ... (T) AL30					
1.3 ... 1.8	GZ	1	1SAZ211401R1025	TA25DU1.8-20	\$ 63
1.7 ... 2.4	HZ	1	1SAZ211401R1028	TA25DU2.4-20	
2.2 ... 3.1	JZ	1	1SAZ211401R1031	TA25DU3.1-20	
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	





DB25/25A



DB80



DB200

Separate mounting kits

For O/L relays	Amps	Catalog number	List price
TA25DU	0.1 – 25	DB25/25A	\$ 30
TA25DU	24 – 32	DB25/32A	\$ 38
TA42DU, TA75DU, TA80DU	18 – 80	DB80	\$ 45
TA110DU, TA200DU	100 – 200	DB200	\$ 60

Terminal block – AWG #8 cable

Mounting on:	Catalog number	List price
TA25DU (25A or less) or DB25/25A	DX25	\$ 15

LC terminal blocks can be used to convert standard connections into Faston connections: 2 x 6.3mm or 4 x 2.8mm per pole. The connections are protected against accidental contact.

The LC30-T has a terminal block for the 3 power terminals and a second for the 4 auxiliary terminals of a TA25DU thermal O/L relay.

The LC26-B1 has two identical terminal blocks each for 3 power terminals. This block allows the power terminals to be mounted with two DB25 kits or a TA25DU thermal O/L relay and DB25 kit assembly.

NOTE: According to DIN 46429 part 1 and NFC 20-120 the max. capacity of a Faston connection is 25 A.

Mounting kit – for TA450 overload relay

For contactor	Catalog number	List price
A145 – A185 A210 – A300	DT450/A185 DT450/A300	\$ 225

Terminal shrouds – for contactors and overload relays

Contactor	Overload relay	Catalog number	List price
A9 – A16 A26 – A40	TA25DU	Included	–
A30 – A40	TA42DU	Included	–
A50 – A75	TA75DU	Included	–
A95 – A110	TA80DU TA110DU	Included	–
A145 – A185	TA200DU	LT185-AY	\$ 10
A145 – A185	Load side of TA200DU	LT200A185	\$ 50

Terminal lug kits

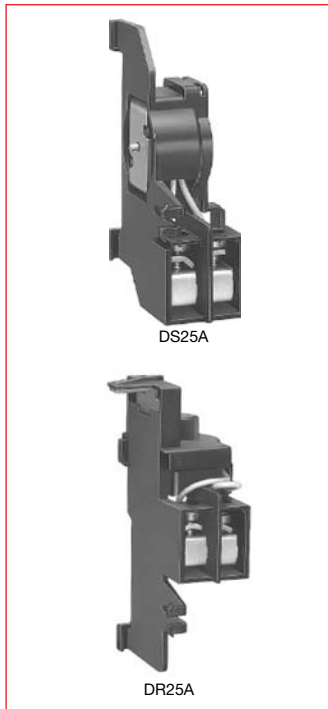
Wire range	For overloads	Catalog number	List price
6 – 250MCM	TA110DU, TA200DU	EHTK210	\$ 45
4 – 400MCM	TA450DU185	ATK300HK	\$ 78
(2) 4 – 500MCM	TA450DU310	ATK300/2HK	\$ 120

Discount schedule ABA [OF] – A-contactor accessories

Discount schedule TAA [OW] – TA25

Discount schedule TBA [OX] – TA42, TA75

Discount schedule TCA [OY] – TA80, TA110, TA200, TA450



Remote tripping coils

	U voltage at 50/60 Hz	Catalog number ①	List price
DS25-A remote tripping coil	24V	DS25-A-24 DS25-A-48 DS25-A-110 DS25-A-220/380 DS25-A-500	\$ 60
	48V		
	110V		
	220/380V		
	500V		
DS25-A remote resetting coil	24V	DR25-A-24 DR25-A-48 DR25-A-110 DR25-A-220/380 DR25-A-500	\$ 60
	48V		
	110V		
	220/380V		
	500V		

Application

• The DS25-A coil is used for remote electrical tripping of the TA25 DU thermal O/L relay and is connected to the relay's normally closed 95-96 auxiliary contact.

• The DR 25-A coil is used for remote electrical resetting of the TA25DU thermal O/L relay which is adjusted for "Manual resetting;" it is connected to the relay's normally open 97-98 auxiliary contact.

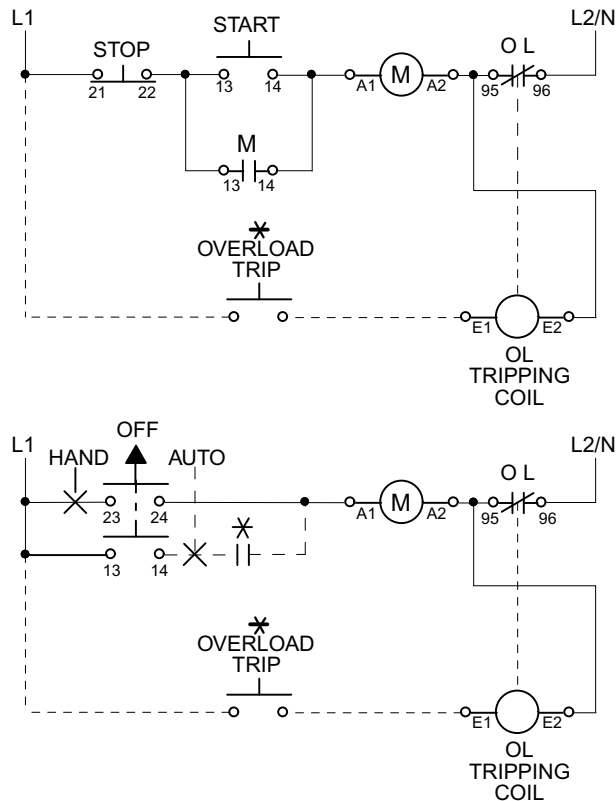
The coils are not designed for continuous duty. Impulse duration: 0.2 to 0.35 s.

Set the button to "Man" (Manual resetting).

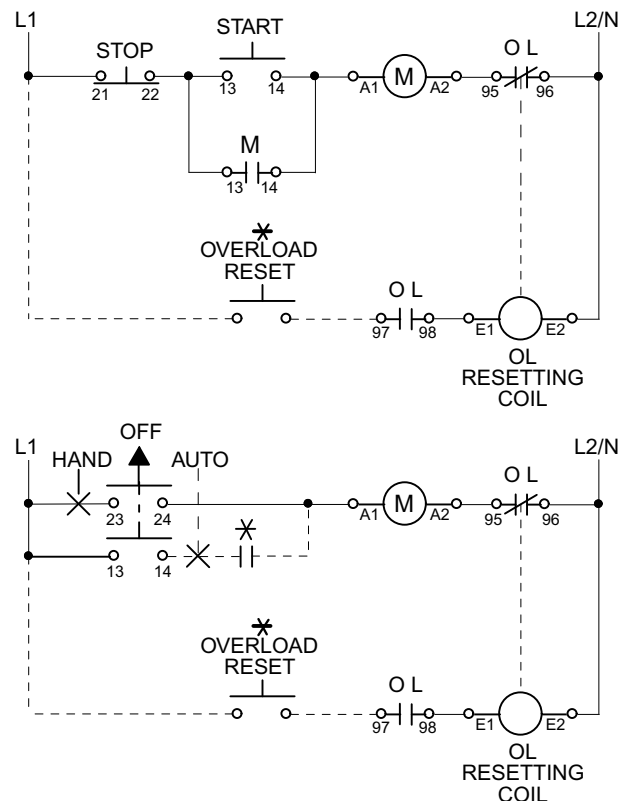
Mounting: clipped on to TA25DU thermal O/L relay.

Installation diagrams

For connection of DS25-A to TA25DU relay



For connection of DR25-A to TA25DU relay



① Cannot be used with TA42, TA75, or TA200 overload relays.