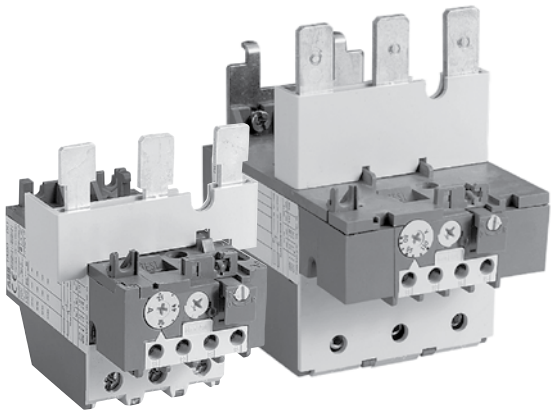
Thermal overload relays
Type TA
Class 10
Class 20



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			

Description

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**

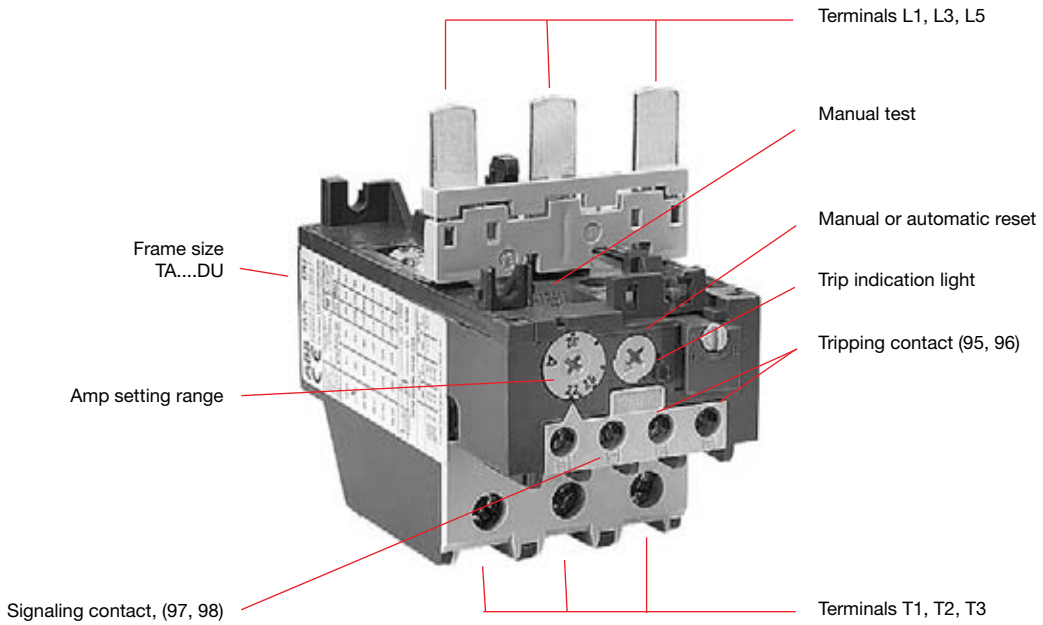
Thermal O/L relays and their accessories meet UL, CSA and most other important international standards (IEC), European standards (EN) and the most important national standards (DIN-VDE, NFC-UTE, BS, etc.). They meet the certification and approval directives required throughout the world.

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

Types


TA25DU


TA42DU


TA75DU


TA80DU

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	0.1 – 0.16A	18 – 25A	18 – 25A	29 – 42A
	to	24 – 32A	29 – 42A	60 – 80A	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		

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

Types


TA110DU


TA200DU


TA450DU

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	2	6	3	
	from A to A	65 – 90 80 – 110	65 – 90 150 – 200	130 – 185 220 – 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 –	LT450 –	
Function markers	BA5-50			

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	
A/AE/AL9 – A/AE/AL40	0.1 - 0.16	A	TA25DU0.16	
	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	
	22 - 32	B	TA42DU32	
	29 - 42	C	TA42DU42	
A/AE/AF50 - A/AE/AF75	18 - 25	A	TA75DU25	
	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	
	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	
	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	
	165 - 235	B	TA450DU235	
	220 - 310	C	TA450DU310	
AF400 - AF750	See electronic overloads, pages 2.21			

① TA450 overloads require mounting kits for installation.