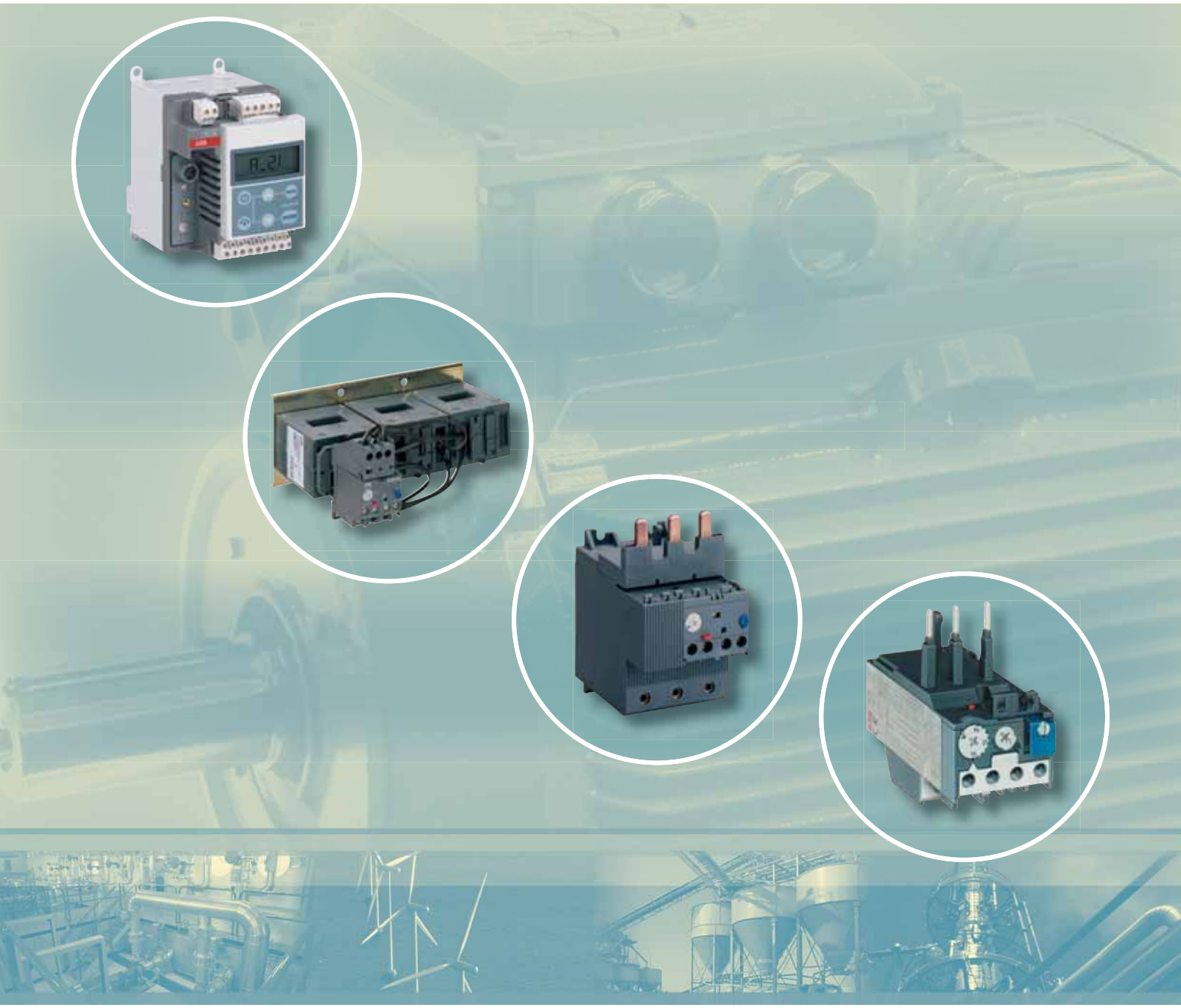
Technical Catalogue

Thermal Overload Relays
Electronic Overload Relays



ABB

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Electronic overload relays E...

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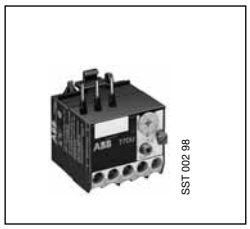
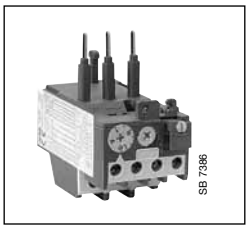
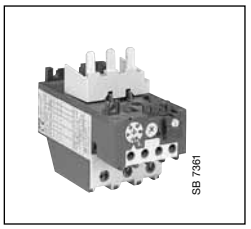
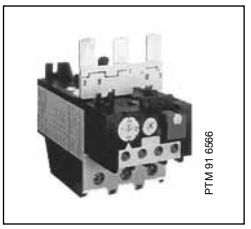
Overview

Thermal overload relays



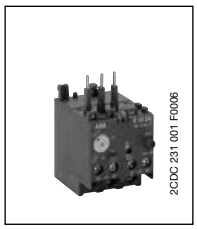


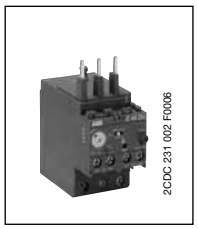


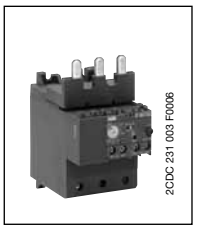


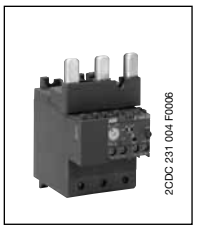
Type		T7DU	TA25DU	TA42DU	TA75DU
Setting ranges	number	11	18	3	6
	from to	0.1 ... 0.16 A 9.0 ... 12.0 A	0.1 … 0.16 A 24 ... 32 A	18 ... 25 A 29 ... 42 A	18 … 25 A 60 … 80 A
Mounting possibilities onto contactor					
	Mounting onto	B6, VB6, VB6A, BC6, VBC6, VBC6A, B7, VB7, VB7A, BC7, VBC7, VBC7A	A9 ... A40 (T)AL9 ... (T)AL40	A30, A40 (T)AL30 ... (T)AL40	A50 ... A75 AF50 ... AF75 AE50 ... AE75 TAE50 ... TAE75
	Mounting kit	no mounting kit required, direct mounting			
Accessories					
Remote tripping coil		–	DS25-A	–	–
Remote reset coil		–	DR25-A	–	–
Main terminal shroud		terminal shroud integrated			
Function markers		BA5-50			
Wall mounting kit		–	DB25	DB80	
Thermal overload relays for special applications					
For motors with heavy starting		–	–	–	–
For EEx e motor protection			TA25DU … V1000	TA42DU ... V1000	TA75DU … V1000

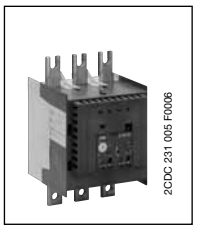
Electronic overload relays





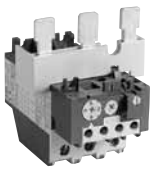
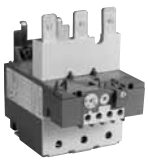
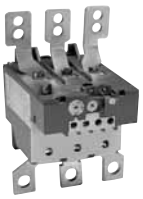






Type		E16DU	E45DU	E80DU	E140DU	E200DU
Setting ranges	number	5	2	1	1	1
	from to	0,1 ... 0,32 A 5,7 ... 18,9 A	9 A 45 A	27 A 80 A	50 A 140 A	60 A 200 A
Mounting possibilities onto contactor						
	Mounting onto	B6, VB6, VB6A, BC6, VBC6, VBC6A, B7, VB7, VB7A, BC7, VBC7, VBC7A (T)AL9 ... (T)AL16 A9, A12, A16	A26, A30, A40 (T)AL26, (T)AL30, (T)AL40	A50, A63, A75 AF50, AF63, AF75 AE50, AE63, AE75	A95, A110 AF95, AF110 AE95, AE110	A145, A185 AF145, AF185
	Mounting kit	no mounting kit required, direct mounting				
Accessories						
Main terminal shroud		terminal shroud integrated				LT200E
Separate mounting kit		DB16E	–	–	–	–
Electronic overload relays for special applications						
For motors with heavy starting		class 10, 20, 30 adjustable				
EEx e motor protection		EEx e/ATEX				

Thermal overload relays TA...
Electronic overload relays E...
Overview

 SB 7399	 SB 7398	 1SFT91199-05	 PTM 91 6570	
TA80DU	**TA110DU**	**TA200DU**	**TA450DU/SU**	
4	2	5	3	7
29 ... 42 A 60 ... 80 A	65 ... 90 A 80 … 110 A	80 … 110 A 150 … 200 A	**DU** 130 ... 185 A 220 ... 315 A	**SU** 40 ... 60 A 220 ... 310 A
A95, A110 AF95, AF110 AE95, AE110 TAE95, TAE110		A145, A185 AF145, AF185	A210 ... A300 AF210 ... AF300	
no mounting kit required, direct mounting			DT450/A	
–	–	–	DS25-A	
–	–	–	DR25-A	
terminal shroud integrated		LT200 A	–	
BA5-50				
DB80	DB200		–	
–	–	–	TA450SU	
TA80DU ... V1000	TA110DU … V1000	TA200DU … V1000	TA450DU/SU … V1000	

 2CDC 231 006 F0006	 2CDC 231 007 F0006	 2CDC 231 008 F0008	 1SFC 101 025 F0201	
E320DU	**E500DU**	**E800DU**	**E1250DU**	
1	1	1	1	
100 A 320 A	150 A 500 A	250 A 800 A	375 A 1250 A	
A210, A260, A300 AF210, AF260, AF300	AF400, AF460	AF580, AF750	AF1350 AF1650	
no mounting kit required, direct mounting	DT500 / AF460	DT800 / AF750	–	
LT320E	LT500E	LT800E	–	
–	–	–	–	
class 10, 20, 30 adjustable				
EEx e/ATEX			–	

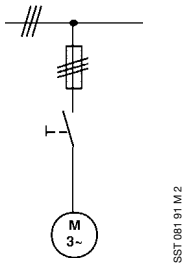
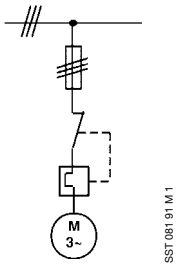
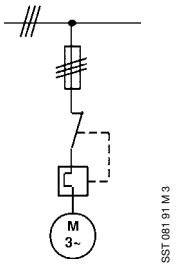
Motor protection
Selection of the protection device

Motor protection - General aspects

Selection of an adequate motor protection is of great importance with regard to the operational reliability and service life of a motor.

The effectiveness of the available motor protection devices depends on the range of application.
The following shows a summary which facilitates the correct choice. Since no general rules exist, we will gladly give you further advice in special cases such as heavy starting.

Protection against:
- overload
- phase failure imbalance
- phase loss

Efficiency	**Protection device current-dependent: Fuses**	**Overload relays with protection device in case of phase failure**	**Protection device, temperature-dependent: Thermistor machine protection CUSTORAPID®**
Reasons for unwanted overloading of the motor winding			
1 Current overloading	☐		
2 Rated duty types S1-S8 to IEC 34-I	☐	■	●
3 Operation when starting, braking, reversing	☐	■	●
4 Operation at starting rates OOperating cycles 15 ops./h	☐	■	●
5 Locked motor	■	●	■ In the case of motors with thermally critical rotor
6 Overload at phase failure	☐	●	●
7 Over-/undervoltage in supply mains	☐	●	●
8 Variation of frequency in supply mains	☐	●	●
9 Increased ambient temperature	☐	●	●
10 External heating of the motor (e.g.: bearing heating)	☐	☐	●
11 Obstruction to motor cooling	☐	☐	●

Efficiency of protection device:
- ☐ not effective
- ■ partly effective
- ● fully effective

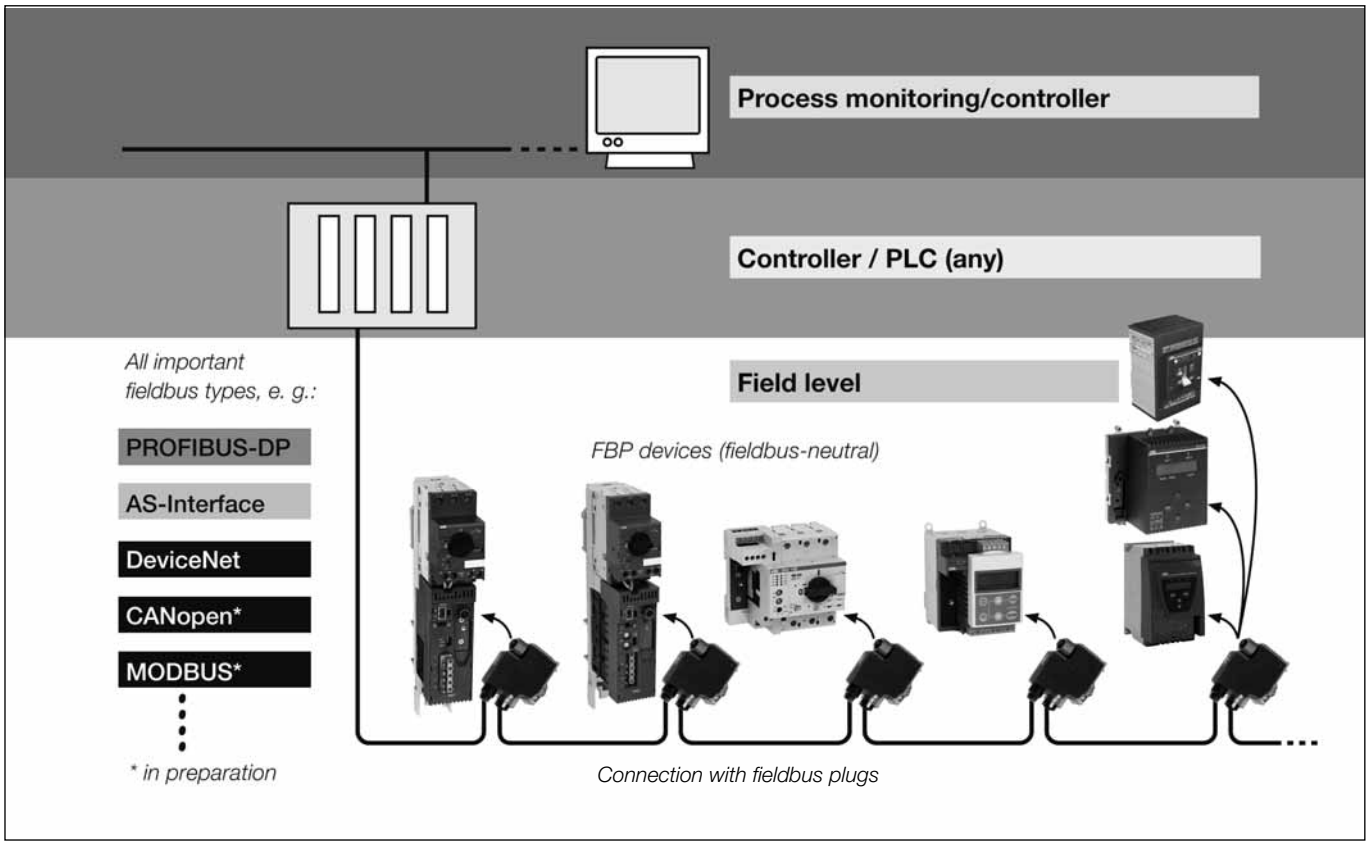
Note on fuses

Fuses do not protect a motor against overload. They serve only as short-circuit protection of switchgear and cables.
For direct starting, fuses of around 1.5 to 2.5 times the rated current should be used. A fuse must withstand 1.3 times its rated current for a sustained period. This would entail thermal overload of the motor. In order to protect motors against short-circuits, it is advisable to use fuses aM in conjunction with the thermal overload relay. The specifications in relation to short-circuit protection for contactors and overload relays must be noted when selecting the rating of fuses or circuit-breakers.

Motor protection
with FieldBusPlug devices

The FieldBusPlug concept

This new ABB product family is a communication device range with switching and automation components which can be combined easily with standard fieldbus systems.

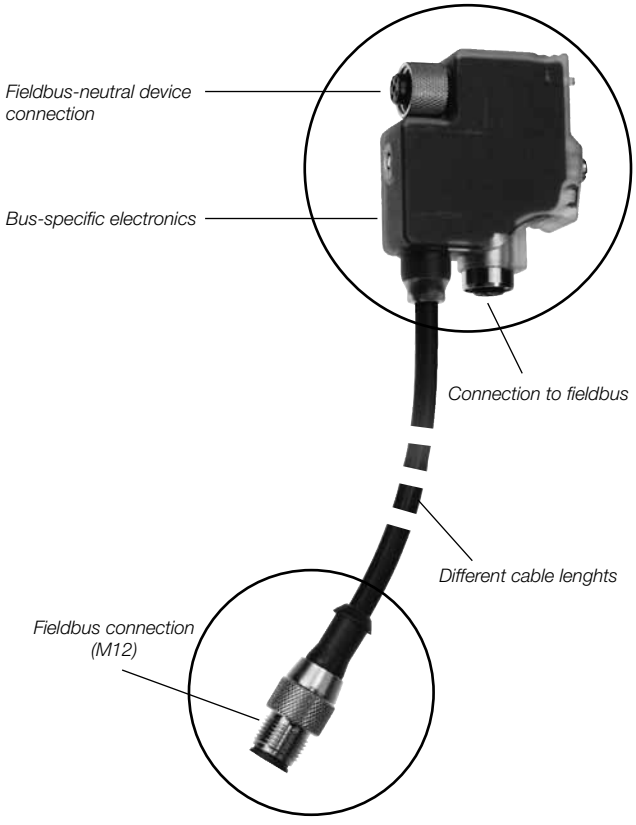


One device for all fieldbus types

Each complete device, and each function module within the product family, has a fieldbus-neutral interface. A specially prefabricated connection cable establishes the communications connection with its bus-specific plug interface. In this way, flexibility, transparency and reliability in the process are achieved. The connecting, operating and diagnostic elements are placed at the front of all devices providing increased ease of installation.

The components

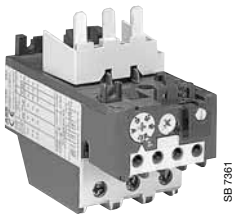
The fieldbus plug (FieldBusPlug) is the central communications element of the new product family. It connects devices and device combinations of different functions and characteristics as well as simple sensors with automation devices.
A great variety of switching and automation modules belong to the product family separated into similar performance characteristics, e.g. devices for motor protection, motor control and standard sensors.



Thermal overload relays
T7DU, TA25DU, TA42DU
Ordering details

T7DU

TA25DU



TA42DU

Type	Order code	Setting range A ... A	Max.fuse See page 20 aM A	Max.fuse See page 20 L/gG A	Price / piece gL/gG	Packing unit piece	Weight per piece kg
T7DU Thermal overload relays for mini contactors							
T7DU 0.16	**1SAZ 111 301 R0001**	0.1 ... **0.16**		0.5		1	0.070
T7DU 0.24	**1SAZ 111 301 R0002**	0.16 ... **0.24**		1		1	0.070
T7DU 0.4	**1SAZ 111 301 R0003**	0.24 ... **0.4**		2		1	0.070
T7DU 0.6	**1SAZ 111 301 R0004**	0.4 ... **0.6**		2		1	0.070
T7DU 1.0	**1SAZ 111 301 R0005**	0.6 ... **1.0**		4		1	0.070
T7DU 1.6	**1SAZ 111 301 R0006**	1.0 ... **1.6**		6		1	0.070
T7DU 2.4	**1SAZ 111 301 R0007**	1.6 ... **2.4**		6		1	0.070
T7DU 4.0	**1SAZ 111 301 R0008**	2.4 ... **4.0**		10		1	0.070
T7DU 6.0	**1SAZ 111 301 R0009**	4.0 ... **6.0**		10		1	0.070
T7DU 9.0	**1SAZ 111 301 R0010**	6.0 ... **9.0**		10		1	0.070
T7DU12.0	**1SAZ 111 301 R0011**	9.0 ... **12.0**		25		1	0.070
TA25DU for contactors A9 ... A40 and (T)AL9 ... (T)AL30							
TA25DU 0.16	**1SAZ 211 201 R1005**	0.1 ... **0.16**	–	0.5		1	0.150
TA25DU 0.25	**1SAZ 211 201 R1009**	0.16 ... **0.25**	–	0.63		1	0.150
TA25DU 0.4	**1SAZ 211 201 R1013**	0.25 ... **0.4**	–	1.25		1	0.150
TA25DU 0.63	**1SAZ 211 201 R1017**	0.4 ... **0.63**	–	2		1	0.150
TA25DU 1.0	**1SAZ 211 201 R1021**	0.63 ... **1.0**	2	4		1	0.150
TA25DU 1.4	**1SAZ 211 201 R1023**	1.0 ... **1.4**	2	4		1	0.150
TA25DU 1.8	**1SAZ 211 201 R1025**	1.3 ... **1.8**	4	6		1	0.150
TA25DU 2.4	**1SAZ 211 201 R1028**	1.7 ... **2.4**	4	6		1	0.150
TA25DU 3.1	**1SAZ 211 201 R1031**	2.2 ... **3.1**	6	10		1	0.150
TA25DU 4.0	**1SAZ 211 201 R1033**	2.8 ... **4.0**	6	10		1	0.150
TA25DU 5.0	**1SAZ 211 201 R1035**	3.5 ... **5.0**	10	16		1	0.150
TA25DU 6.5	**1SAZ 211 201 R1038**	4.5 ... **6.5**	16	20		1	0.150
TA25DU 8.5	**1SAZ 211 201 R1040**	6.0 ... **8.5**	20	25		1	0.150
TA25DU 11	**1SAZ 211 201 R1043**	7.5 ... **11.0**	25	35		1	0.150
TA25DU 14	**1SAZ 211 201 R1045**	10.0 ... **14.0**	25	35		1	0.150
TA25DU 19	**1SAZ 211 201 R1047**	13.0 ... **19.0**	35	50		1	0.150
TA25DU 25	**1SAZ 211 201 R1051**	18.0 ... **25.0**	50	63		1	0.150
TA25DU 32	**1SAZ 211 201 R1053**	24.0 ... **32.0** (1)	63	80		1	0.170

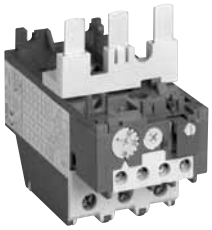
(1) With terminal block DX25: 1 x 16 mm²

TA25DU ... V1000 (EEx e) for contactors A9 ... A40, (T)AL 9 ... (T)AL30							
TA25DU 0.16 V1000	**1SAZ 211 301 R1005**	0.1 **0.16**	–	0.50		1	0.150
TA25DU 0.25 V1000	**1SAZ 211 301 R1009**	0.16 **0.25**	–	0.63		1	0.150
TA25DU 0.4 V1000	**1SAZ 211 301 R1013**	0.25 ... **0.4**	–	1.25		1	0.150
TA25DU 0.63 V1000	**1SAZ 211 301 R1017**	0.4 ... **0.63**	–	2		1	0.150
TA25DU 1.0 V1000	**1SAZ 211 301 R1021**	0.63 ... **1.0**	2	4		1	0.150
TA25DU 1.4 V1000	**1SAZ 211 301 R1023**	1.0 ... **1.4**	2	4		1	0.150
TA25DU 1.8 V1000	**1SAZ 211 301 R1025**	1.3 ... **1.8**	4	6		1	0.150
TA25DU 2.4 V1000	**1SAZ 211 301 R1028**	1.7 ... **2.4**	4	6		1	0.150
TA25DU 3.1 V1000	**1SAZ 211 301 R1031**	2.2 ... **3.1**	6	10		1	0.150
TA25DU 4.0 V1000	**1SAZ 211 301 R1033**	2.8 ... **4.0**	6	10		1	0.150
TA25DU 5.0 V1000	**1SAZ 211 301 R1035**	3.5 ... **5.0**	10	16		1	0.150
TA25DU 6.5 V1000	**1SAZ 211 301 R1038**	4.5 ... **6.5**	16	20		1	0.150
TA25DU 8.5 V1000	**1SAZ 211 301 R1040**	6.0 ... **8.5**	20	25		1	0.150
TA25DU 11 V1000	**1SAZ 211 301 R1043**	7.5 ... **11.0**	25	35		1	0.150
TA25DU 14 V1000	**1SAZ 211 301 R1045**	10.0 ... **14.,0**	25	35		1	0.150
TA25DU 19 V1000	**1SAZ 211 301 R1047**	13.0 ... **19.0**	35	50		1	0.150
TA25DU 25 V1000	**1SAZ 211 301 R1051**	18.0 ... **25.0**	50	63		1	0.150
TA25DU 32 V1000	**1SAZ 211 301 R1053**	24.0 ... **32.0** (1)	63	80		1	0.170

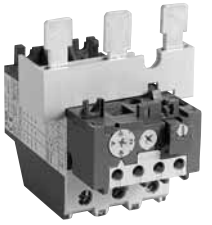
(1) With terminal block DX25: 1 x 16 mm²

TA42DU for contactors A30, A40 and BC30							
TA42DU 25	**1SAZ 311 201 R1001**	18.0 ... **25.0**	50	63		1	0.330
TA42DU 32	**1SAZ 311 201 R1002**	22.0 ... **32.0**	63	80		1	0.330
TA42DU 42	**1SAZ 311 201 R1003**	29.0 ... **42.0**	80	100		1	0.330
TA42DU ... V1000 (EEx e) for contactors A30, A40 and BC30							
TA42DU 25 V1000	**1SAZ 311 301 R1001**	18.0 ... **25.0**	50	63		1	0.330
TA42DU 32 V1000	**1SAZ 311 301 R1002**	22.0 ... **32.0**	63	80		1	0.330
TA42DU 42 V1000	**1SAZ 311 301 R1003**	29.0 ... **42.0**	80	100		1	0.330

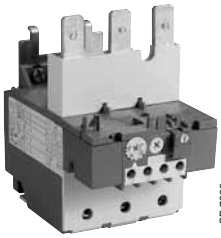
Thermal overload relays
TA75DU, TA80DU, TA110DU
Ordering details



TA75DU



TA80DU



TA110DU

DX25

DB25

DB80

Type	Order code	Setting range A ... A	Max.fuse See page 21 aM A	Max.fuse See page 21 L/gG A	Price / piece gL/gG	Packing unit piece	Weight per piece kg
TA75DU for contactors A50 ... A75 and AE50 ... AE75							
TA75DU 25	**1SAZ 321 201 R1001**	18 ... **25**	50	63		1	0.330
TA75DU 32	**1SAZ 321 201 R1002**	22 ... **32**	63	80		1	0.330
TA75DU 42	**1SAZ 321 201 R1003**	29 ... **42**	80	100		1	0.330
TA75DU 52	**1SAZ 321 201 R1004**	36 ... **52**	100	125		1	0.330
TA75DU 63	**1SAZ 321 201 R1005**	45 ... **63**	125	160		1	0.330
TA75DU 80	**1SAZ 321 201 R1006**	60 ... **80**	160	200		1	0.330
TA75DU ... V1000 (EEx e) for contactors A50 ... A75 and AE50 ... AE75							
TA75DU 25 V1000	**1SAZ 321 301 R1001**	18 ... **25**	50	63		1	0.330
TA75DU 32 V1000	**1SAZ 321 301 R1002**	22 ... **32**	63	80		1	0.330
TA75DU 42 V1000	**1SAZ 321 301 R1003**	29 ... **42**	80	100		1	0.330
TA75DU 52 V1000	**1SAZ 321 301 R1004**	36 ... **52**	100	125		1	0.330
TA75DU 63 V1000	**1SAZ 321 301 R1005**	45 ... **63**	125	160		1	0.330
TA75DU 80 V1000	**1SAZ 321 301 R1006**	60 ... **80**	160	200		1	0.330
TA80DU for contactors A95, A110, AE95 and AE110							
TA80DU 42	**1SAZ 331 201 R1003**	29 ... **42**	80	100		1	0.360
TA80DU 52	**1SAZ 331 201 R1004**	36 ... **52**	100	125		1	0.360
TA80DU 63	**1SAZ 331 201 R1005**	45 ... **63**	125	160		1	0.360
TA80DU 80	**1SAZ 331 201 R1006**	60 ... **80**	160	200		1	0.360
TA80DU ... V1000 (EEx e) for contactors A95, A110, AE95 and AE110							
TA80DU 42 V1000	**1SAZ 331 301 R1003**	29 ... **42**	80	100		1	0.360
TA80DU 52 V1000	**1SAZ 331 301 R1004**	36 ... **52**	100	125		1	0.360
TA80DU 63 V1000	**1SAZ 331 301 R1005**	45 ... **63**	125	160		1	0.360
TA80DU 80 V1000	**1SAZ 331 301 R1006**	60 ... **80**	160	200		1	0.360
TA110DU for contactors A95, A110, AE95 and AE110							
TA110DU 90	**1SAZ 411 201 R1001**	66 ... **90**	160	200		1	0.750
TA110DU 110	**1SAZ 411 201 R1002**	80 ... **110**	200	224		1	0.750
TA110DU ... V1000 (EEx e) for contactors A95, A110, AE95 and AE110							
TA110DU 90 V1000	**1SAZ 411 301 R1001**	66 ... **90**	160	200		1	0.750
TA110DU 110 V1000	**1SAZ 411 301 R1002**	80 ... **110**	200	224		1	0.750

Terminal block 10 mm²

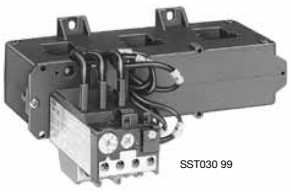
Type	Order code	for thermal overload relay	Price / piece	Packing unit piece	Weight/ piece kg
DX25	**1SAZ 201 307 R0002**	TA25DU 25 and DB25/25 A		1	0.030

Mounting kits for single set-ups

Type	Order code	for thermal overload relay	Mounting	Price / piece	Packing unit piece	Weight/ piece kg
DB25/25 A	**1SAZ 201 108 R0001**	TA25DU ≤ 25	snapping onto		1	0.050
DB25/32 A	**1SAZ 201 108 R0002**	TA25DU 32			1	0.075
DB80	**1SAZ 301 110 R0001**	TA42DU TA75DU TA80DU	35 mm		1	0.170

Thermal overload relays
TA200DU, TA450DU
Ordering details

TA200DU



TA450DU

DB200

TA450DU

Type	Order code A ... **A**	Setting range	Max.fuse See page 21 aM A | L/gG A	Price / piece gL/gG	Packing unit piece	Weight per piece kg
Normal starting time class 10						
TA200DU 90	**1SAZ 421 201 R1001**	66 ... 90	A 145, 185			0.750
TA200DU 110	**1SAZ 421 201 R1002**	80 ... 110	A 145, 185			0.750
TA200DU 135	**1SAZ 421 201 R1003**	100 ... 135	A 145, 185			0.750
TA200DU 150	**1SAZ 421 201 R1004**	110 ... 150	A 145, 185			0.750
TA200DU 175	**1SAZ 421 201 R1005**	130 ... 175	A 145, 185			0.750
TA200DU 200	**1SAZ 421 201 R1006**	150 ... 200	A 145, 185			0.750
Normal starting time class 10, V1000 (EExe)						
TA200DU 110 V1000	**1SAZ 421 301 R1002**	80 ... 110	A 145, 185			0.750
TA200DU 135 V1000	**1SAZ 421 301 R1003**	100 ... 135	A 145, 185			0.750
TA200DU 150 V1000	**1SAZ 421 301 R1004**	110 ... 150	A 145, 185			0.750
TA200DU 175 V1000	**1SAZ 421 301 R1005**	130 ... 175	A 145, 185			0.750
TA200DU 200 V1000	**1SAZ 421 301 R1006**	150 ... 200	A 145, 185			0.750
Terminal shroud for TA200						
LT200/A	**1SAZ 401 901 R1001**					0.070
Normal starting time class 10						
TA450DU 185	**1SAZ 511 201 R1001**	130 ... 185	A 210, 260, 300			1.500
TA450DU 235	**1SAZ 511 201 R1002**	165 ... 235	A 210, 260, 300			1.500
TA450DU 310	**1SAZ 511 201 R1003**	220 ... 310	A 210, 260, 300			1.500
Normal starting time class 10 A, V1000 (EExe)						
TA450DU 185 V1000	**1SAZ 511 301 R1001**	130 ... 185	A 210, 260, 300			1.500
TA450DU 235 V1000	**1SAZ 511 301 R1002**	165 ... 235	A 210, 260, 300			1.500
TA450DU 310 V1000	**1SAZ 511 301 R1003**	220 ... 310	A 210, 260, 300			1.500

Mounting kits for single set-ups

Type	Order code	for thermal overload relay	Mounting	Price / piece	Packing unit piece	Weight/ piece kg
DB 200 *)	**1SAZ 401 110 R0001**	TA110DU TA200DU	Screw mounting		1	0.230

*) kein Berührungsschutz für DB 200 lieferbar

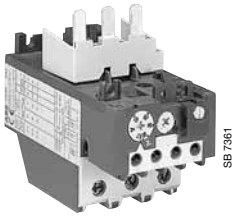
Thermal overload relays for heavy start / long starting time class 30

Type	Order code	Setting range A ... A	For contactor	Price / piece	Packing unit piece	Weight per piece kg
Long starting time class 30						
TA450SU 60	**1SAZ 611 201 R1005**	40 ... 60	A 145 ... 300			1.500
TA450SU 80	**1SAZ 611 201 R1006**	55 ... 80	A 145 ... 300			1.500
TA450SU 105	**1SAZ 611 201 R1007**	70 ... 105	A 145 ... 300			1.500
TA450SU 140	**1SAZ 611 201 R1008**	95 ... 140	A 145 ... 300			1.500
TA450SU 185	**1SAZ 611 201 R1001**	130 ... 185	A 145 ... 300			1.500
TA450SU 235	**1SAZ 611 201 R1002**	165 ... 235	A 145 ... 300			1.500
TA450SU 310	**1SAZ 611 201 R1003**	220 ... 310	A 145 ... 300			1.500
Long starting time class 30, V1000 (EExe)						
TA450SU 60 V1000	**1SAZ 611 301 R1005**	40 ... 60	A 145 ... 300			1.500
TA450SU 80 V1000	**1SAZ 611 301 R1006**	55 ... 80	A 145 ... 300			1.500
TA450SU 105 V1000	**1SAZ 611 301 R1007**	70 ... 105	A 145 ... 300			1.500
TA450SU 140 V1000	**1SAZ 611 301 R1008**	95 ... 140	A 145 ... 300			1.500
TA450SU 185 V1000	**1SAZ 611 301 R1001**	130 ... 185	A 145 ... 300			1.500
TA450SU 235 V1000	**1SAZ 611 301 R1002**	165 ... 235	A 145 ... 300			1.500
TA450SU 310 V1000	**1SAZ 611 301 R1003**	220 ... 310	A 145 ... 300			1.500
Mounting kits for TA450 overload relays						
DT450 / A 185	**1SAZ 501 901 R1001**		A 145 ... 185		1	0.500
DT450 / A 300	**1SAZ 501 902 R1001**		A 260 ... 300		1	0.750

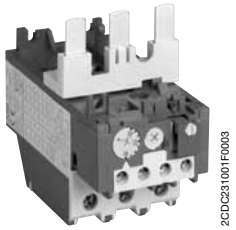
Thermal overload relays with trip class 20

Ordering data for the „New additional Assortment“

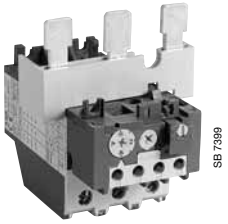
TA25DU



TA42DU



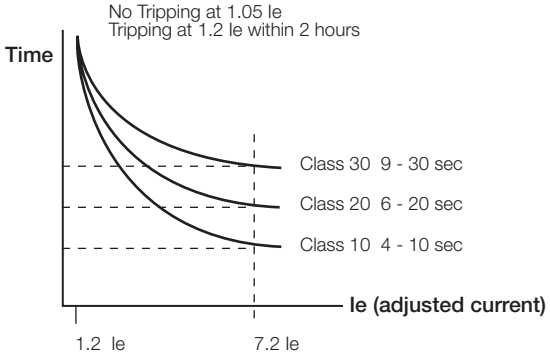
TA75DU



TA80DU

Ordering Details **Type**	**Order code**	Setting range A ... A	Max.fuse gL/gG A	Packing unit piece	Weight/ piece kg
TA25DU trip class 20 for contactors A9 … A40 and (T) AL9 … (T) AL30					
TA25DU-1.8-20	**1SAZ 211 401 R1025**	1.3 ... 1.8	10	1	0.170
TA25DU-2.4-20	**1SAZ 211 401 R1028**	1.7 ... 2.4	16	1	0.170
TA25DU-3.1-20	**1SAZ 211 401 R1031**	2.2 ... 3.1	16	1	0.170
TA25DU-4.0-20	**1SAZ 211 401 R1033**	2.8 ... 4.0	20	1	0.170
TA25DU-5.0-20	**1SAZ 211 401 R1035**	3.5 ... 5.0	25	1	0.170
TA25DU-6.5-20	**1SAZ 211 401 R1038**	4.5 ... 6.5	25	1	0.170
TA25DU-8.5-20	**1SAZ 211 401 R1040**	6.0 ... 8.5	32	1	0.170
TA25DU-11-20	**1SAZ 211 401 R1043**	7.5 ... 11	40	1	0.170
TA25DU-14-20	**1SAZ 211 401 R1045**	10 ... 14	50	1	0.170
TA25DU-19-20	**1SAZ 211 401 R1047**	13 ... 19	63	1	0.170
TA25DU-25-20	**1SAZ 211 401 R1051**	18 ... 25	80	1	0.170
TA25DU-32-20 (1)	**1SAZ 211 401 R1053**	24 ... 32 (1)	100	1	0.190
TA42DU trip class 20 for contactors A30, A40 and (T) AL30, (T) AL40					
TA42DU-25-20	**1SAZ 311 401 R1001**	18 ... 25	100	1	0.370
TA42DU-32-20	**1SAZ 311 401 R1002**	22 ... 32	125	1	0.370
TA42DU-42-20	**1SAZ 311 401 R1003**	29 ... 42	160	1	0.370
TA75DU trip class 20 for contactors A50 … A75 and AE50 … AE75					
TA75DU-25-20	**1SAZ 321 401 R1001**	18 ... 25	100	1	0.370
TA75DU-32-20	**1SAZ 321 401 R1002**	22 ... 32	125	1	0.370
TA75DU-42-20	**1SAZ 321 401 R1003**	29 ... 42	160	1	0.370
TA75DU-52-20	**1SAZ 321 401 R1004**	36 ... 52	200	1	0.370
TA75DU-63-20	**1SAZ 321 401 R1005**	45 ... 63	200	1	0.370
TA75DU-80-20	**1SAZ 321 401 R1006**	60 ... 80	250	1	0.370
TA80DU trip class 20 for contactors A95, A110, AE 95 and AE110					
TA80DU-42-20	**1SAZ 331 401 R1003**	29 ... 42	160	1	0.400
TA80DU-52-20	**1SAZ 331 401 R1004**	36 ... 52	200	1	0.400
TA80DU-63-20	**1SAZ 331 401 R1005**	45 ... 63	200	1	0.400
TA80DU-80-20	**1SAZ 331 401 R1006**	60 ... 80	250	1	0.400

(1) with terminal block DX25: 1x16mm²



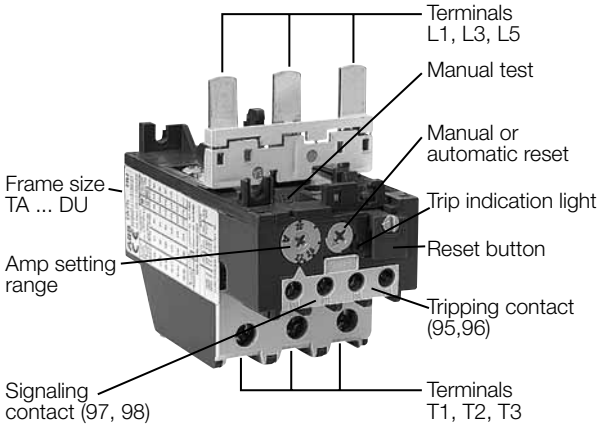
Thermal overload relays T...
Technical data

TA25DU

Load rating of auxiliary contacts

Type		T7DU		TA25DU ...TA450DU/SU	
Auxiliary switch		NC 95 - 96	NO 97-98	NC 95 - 96	NO 97 - 98
Rated operating voltage U_e	V	500	500	500	
Rated thermal current I_{th}	A	6	6	10	6
Rated operating current Ie					
at AC 15 to 240 V	A	1.5	1.5	3	1.5
at AC 15 to 440 V	A	0.7	0.5	1.9	0.95
at AC 15 to 500 V	A	0.5	0.3	1	0.75
at DC 13 to 24 V	A	-	-	1.25	0.42
to 60 V	A	-	-	0.50	0.17
to 120 V	A	-	-	0.25	0.08
to 250 V	A	0.2	0.02	0.12	0.04
Maximum potential difference	AC V	500		500	
between the NO and NC contacts	DC V	440		440	
Short-circuit protection	gL/gG A	4	4	10	6
STOTZ circuit-breaker type:					
S271	A	K1	K1	K3	K1
S281	A	K1	K1	K3	K1

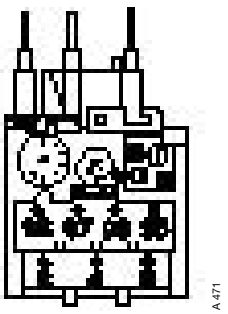
Function of the thermal overload relays



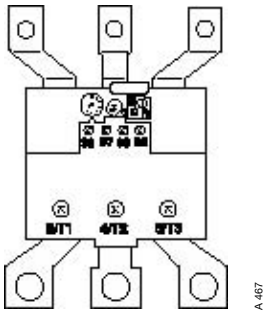
Press blue button	Contacts	Relay tripped		Relay not tripped	
		Manual	Automatic	Manual	Automatic
	NC 95-96 NO 97-98	open closed	open closed	closed open	closed open
Button R		Reset	–	–	–
	NC 95-96	closes when Button's pressed	–	–	–
	NO 97-98	opens when Button's pressed	–	–	–
Button R/O		Reset	–	–	–
	NC 95-96	closes when Button's released	–	opens when Button's pressed closes when Button's released	opens when Button's pressed closes when Button's released
	NO 97-98	opens when Button's pressed	–	–	–

Position of the connection terminals

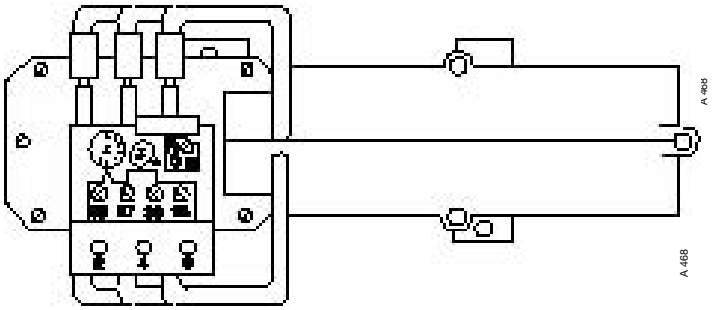
TA25DU, TA42DU, TA75DU, TA80DU



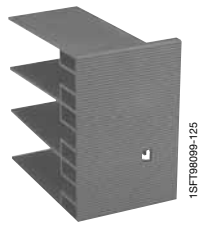
TA200DU



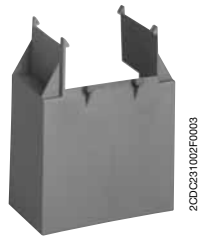
TA450DU/SU



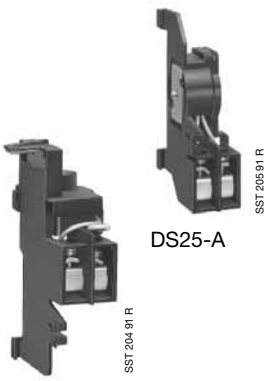
Thermal overload relays
Accessories
Ordering details



LTA185-AY



LT200/A



DS25-A

DR25-A

Type	Order code	Mounting onto:	Price / piece	Packing unit piece	Weight per piece kg
Terminal shroud for TA200					
LTA185-AY between A145/185 and TA200DU	**1SFN 124 704 R1000**	A 145, A 185		1	1.000
LT200/A Load Side TA200DU	**1SAZ 401 901 R1001**	A 145, A 185		1	0.070

Type	Order code	For relay/description	Price / piece	Packing unit piece	Weight per piece kg
Remote tripping control					
The coil serves to remotely trip the thermal overload relays TA25DU, T450/900DU/SU. **The coil is not approved for continuous operation. Pulse duration 0.2 ... 0.35 s.**					
DS25-A-24	**1SAZ 201 501 R0001**	24 V		1	0.100
DS25-A-48	**1SAZ 201 501 R0002**	48 V		1	0.100
DS25-A-110	**1SAZ 201 501 R0003**	110 V		1	0.100
DS25-A-220/380	**1SAZ 201 501 R0005**	220/380 V		1	0.100
DS25-A-500	**1SAZ 201 501 R0006**	500 V		1	0.100
Remote reset coil					
The coil serves to reset the thermal overload relays TA25DU, TA450DU/SU. The overload relay must be set to „manual reset“ for this purpose. **The coil is not approved for continuous operation. Pulse duration 0.2 ... 0.35 s.**					
DR25-A-24	**1SAZ 201 504 R0001**	24 V		1	0.100
DR25-A-48	**1SAZ 201 504 R0002**	48 V		1	0.100
DR25-A-110	**1SAZ 201 504 R0003**	110 V		1	0.100
DR25-A-220/380	**1SAZ 201 504 R0005**	220/380 V		1	0.100
DR25-A-500	**1SAZ 201 504 R0006**	500 V		1	0.100

Operating-voltage U_c at 50/60 Hz

Circuit diagrams

TA25DU with DS25-A

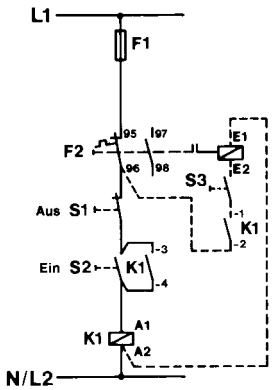


ABB 86 6679/1S

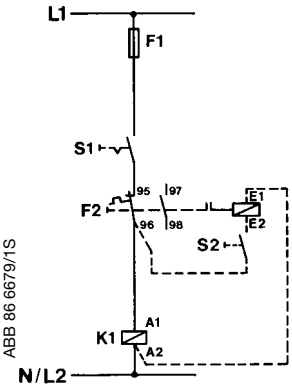
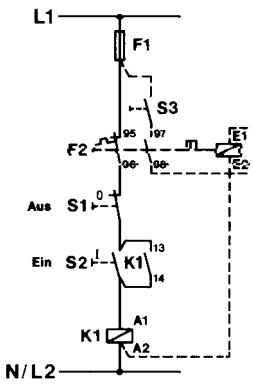


ABB 86 6679/2S

TA25DU with DR25-A



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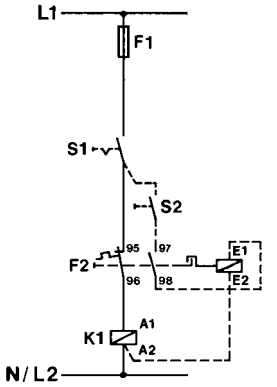


ABB 86 6680/2S

Electronic overload relays class 10, 20, 30

E16DU

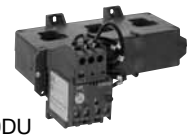
E45DU

E80DU

E140DU

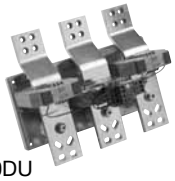
E200DU

E320DU



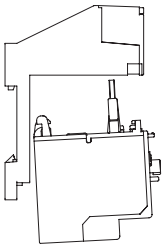
E500DU

E800DU



E1250DU

Type	Setting range	Order Code	Contactor Designation
Trip class 10, 20, 30 selectable			
E16DU 0.32	0.1 - 0.32A	**1SAX 111 001 R1101**	B…6-B…7 / A…9…A…16…
E16DU 1.0	0.3 - 1.0A	**1SAX 111 001 R1102**	B…6-B…7 / A…9…A…16…
E16DU 2.7	0.8 - 2.7A	**1SAX 111 001 R1103**	B…6-B…7 / A…9…A…16…
E16DU 6.3	1.9 - 6.3A	**1SAX 111 001 R1104**	B…6-B…7 / A…9…A…16…
E16DU 18.9	5.7 - 18.9A	**1SAX 111 001 R1105**	B…6-B…7 / A…9…A…16…
E45DU 30	9 - 30A	**1SAX 211 001 R1101**	A…26 … A…40
E45DU 45	15 - 45A	**1SAX 211 001 R1102**	A…26 … A…40
E80DU 80	27 - 80A	**1SAX 311 001 R1101**	A…50 … A…75
E140DU 140	50 - 140A	**1SAX 321 001 R1101**	A…95 … A…110
E200DU 200	60 - 200A	**1SAX 511 001 R1101**	A…145 … A…185
E320DU 320	100 - 320A	**1SAX 521 001 R1101**	A…210 … A…300
E500DU 500	150 - 500A	**1SAX 711 001 R1101**	A…400 … A…460
E800DU 800	250 - 800A	**1SAX 811 001 R1101**	A…580 … A…750
E1250DU	375 - 1250A	**1SFA 739 001 R1000**	A…1350 … A…1630

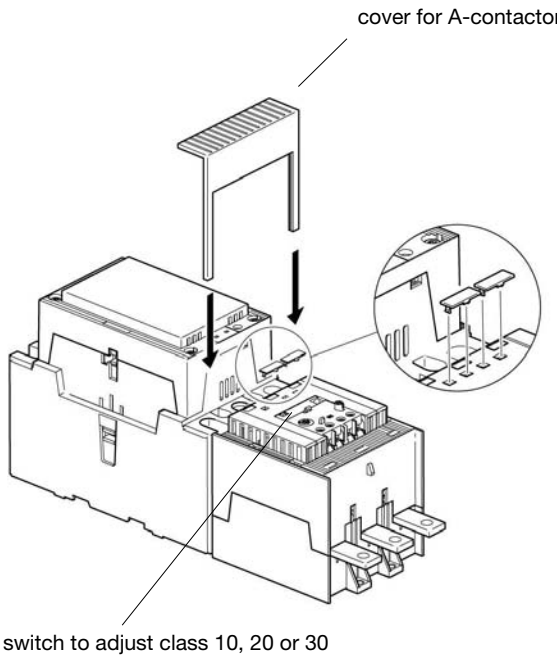


DB16E

Type		Order Code	Designation
Accessories			
DB16E		**1SAX 101 110 R0001**	for separate mounting
DB45E		**1SAX 201 110 R1001**	for separate mounting
DB80E		**1SAX 301 110 R1001**	for separate mounting
DB140E		**1SAX 301 110 R1002**	for separate mounting
DT500/AF460 L		**1SAX 701 902 R1001**	Busbar Kit for AF 400, 460 YD,revers.
DT500/AF460 S		**1SAX 701 902 R1011**	Busbar Kit for AF 400, 460 DOL
DT800/AF750 L		**1SAX 801 902 R1001**	Busbar Kit for AF 580, 750 YD,revers.
DT800/AF750 S		**1SAX 801 902 R1011**	Busbar Kit for AF 580, 750 DOL
LT200E		**1SAX 501 904 R0001**	Terminal shrouds for E200DU
LT320E		**1SAX 601 904 R0001**	Terminal shrouds for E320DU
LT500E		**1SAX 701 904 R0001**	Terminal shrouds for E500DU
LT800 E		**1SAX 801 904 R0001**	Terminal shrouds for E800DU

2CDC 235 011 F0006

Contactor A300 with E320



2CDC 341 081 F0006

UMC22-FBP

Type	Setting range	Order Code	Designation
Universal Motor Controller UMC22-FBP, 0.2…63 A			
UMC22-FBP	0.2 … 63	**1SAJ 510 000 R0400**	Standard version
UMC22-FBP	0.2 … 63	**1SAJ 510 000 R0500**	ATEX version

Integrated motor control functions – direct, reverse-start, star-delta starting, servo-drive functions
6 digital inputs, 3 relay outputs
Diagnostic functions – overload, phase failure, trip – trip categories 10, 20, 30
Integrated storage of parameters and motor data

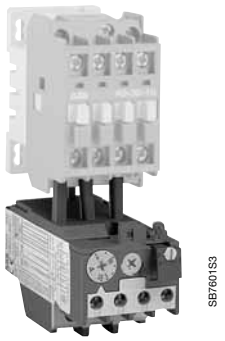
2CDC 341 082 F0006

ACS100-PAN

Operating Panel ACS100-PAN for diagnostic and parameterizing			
ACS100-PAN		**1SAJ 510 001 R0001**	for UMC22-FBP

Thermal overload relays T...

Description



Application

Thermal overload relays are economic electromechanical protection devices against current overload, phase failure and phase loss. They are used mainly for motors, also in combination with pumps. Starter combinations are formed with contactors.
For a better protection with higher accuracy and stable tripping curves as well as stable temperature behaviour ABB offers a complete range of „Electronic Overload Relays“

Product range

Standard relays

Types: T7DU, TA25DU, TA42DU, TA75DU, TA80DU, TA110DU, T/TA200DU, T/TA450DU/SU

- Relays **T7** to **T/TA200** are connected directly into the motor circuit and the motor current flows through them.
- Relay **TA450DU** is powered via converters with a linear characteristic.
- Relay **TA450SU** is powered via converters with saturation characteristic and therefore have longer tripping times.

Design and function

General

The relays and the accessories comply with the major international (IEC), European (EN) and national standards (DIN-VDE, NFC-UTE, BS, etc...) and meet the approval and licensing regulations necessary worldwide.

The thermal overload relays are three-pole relays
They have bimetallic releases (1 per phase) through which the motor current flows and are indirectly heated. The bimetallic releases bend subject to the influence of heating and this results in tripping of the relay. The auxiliary contacts change their switch position.

The relays feature a setting scale in Amperes. In compliance with international and national standards, the setting current is the rated motor current and not the tripping current (no tripping at 1.05 x I setting current, tripping at 1.2 x I setting current).

The relays are constructed so that they protect themselves in the event of overload until the series-connected short-circuit protection trips, as shown in the tables.

Technical data

All relays feature:

- **Trip-free mechanism:**
  Tripping in the event of a fault is not prevented even if the Reset button is pressed.

- **Temperature compensation:**
  TA-Relays are temperature compensated between -25 … +55 °C
  Electronic overload relays offer a compensation between -25 … +70 °C ambient temperature

- **Phase failure protection in accordance with IEC 947-4-1:**
  This device shortens the tripping times in the event of phase failure and thus improves the motor protection within the limits of the setting range.

- **Tripping category:**
  Class 10 - Standard TA-Relays T7, TA25… T450, current range: 0,1 … 310 A
  - Electronic Overload Relays E16… E1250DU, current range: 0,1 … 1250 A

  Class 20 - Standard TA-Relays, TA25… TA80, current range: 0,1 … 80 A
  - Electronic Overload Relays E16… E1250DU, current range: 0,1 … 1250 A

  Class 30 - Standard TA-Relays, current range: 40 … 310 A
  - Electronic Overload Relays, current range: 0,1 … 1250 A

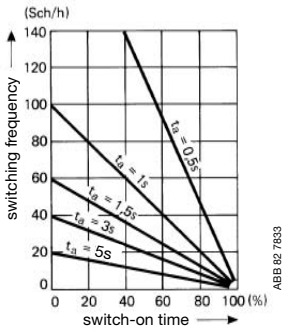
Auxiliary contacts

The relays feature two integrated auxiliary contacts

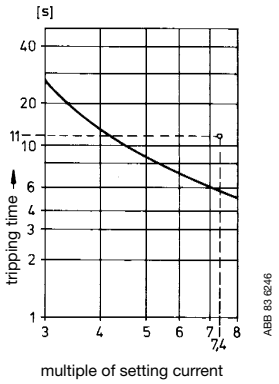
- one NC contact, marked by 95 - 96
- one NO contact, marked by 97 - 98

The two contacts are electrically isolated and are thus suitable for use in two different circuits (control circuit and signalling circuit).

Intermittent periodic duty



Switching frequency depending on duty ratio ED in %,
ta: Motor starting time



Tripping curve of overload relay T .. starting from cold state

- **Switching frequency**
  Thermal overload relays T cannot be operated at any arbitrary switching frequency in order to avid tripping. Applications involving up to 15 operations per hour are acceptable. Higher switching frequencies are permitted if the duty ratio and the motor starting time are allowed for and if the motor‘s making current does not appreciably exceed 6 times the rated operating current. Please refer to the adjacent diagram for guideline values for the permitted switching frequency.

  Example: Starting time of the motor: 1 second
  Duty ratio: 40 %
  means a permitted switching frequency of max. 60 operations per hour

  Use of the CUSTORAPID® motor protection is recommended for higher switching frequencies and alternating loading, e.g. for frequent starting and braking. Use of a combination of thermal overload relays and CUSTORAPID® is recommended in the case of locked rotors on motors with thermally critical rotors.

- **Protection with heavy starting**
  Relays **T450SU** can be used for particularly severe starting conditions. The setting ranges specified on Pages 41 and 42 apply to non-recurrent looping through of the cables. The relay may also be used for lower motor rated currents. This is achieved by looping the cables through several times. The setting range specified on the rating plate is inversely proportional to the number of cables looped through.
  For instance: T450TU/SU with a setting range of 130 ... **185 A** is also suitable for currents of 65 ... **92.5 A** if the cables are looped through twice; the figures are 43.3 ... **61.6 A** for looping the cables through three times.

- **Special version for EEx e motors**
  Relays T7DM, TA25DU ... TA450DU/SU are suitable for protection of EEx e motors. They have been tested and approved by the **„German National Standards Laboratory“ (PTB**) in Braunschweig, Germany.

  When selecting the overload relay, check suitability on the basis of the tripping curves. The values for the ratio of pick-up current $\mathbf{I_a}$ to rated current $\mathbf{I_n}$ and the shortest $\mathbf{t_E}$ time are crucial, and these must be specified on the PTB Approval Certificate and on the motor‘s rating plate. The relay must trip within the $\mathbf{t_E}$ time, i.e. the tripping curve, starting from cold state, must run below the coordinate point $\mathbf{I_a/I_n}$ and the tE time.

- **Example for suitability of an overload relay T/TA:**
  The motor with increased safety has the following data:
  Output = 7.5 kW, Ia/In = 7.4 tE time = 11 seconds.
  In accordance with the adjacent tripping curve, the tripping time lies below the tE time of the motor.
  The special relay version for EEx e motors differs from the normal version as follows:

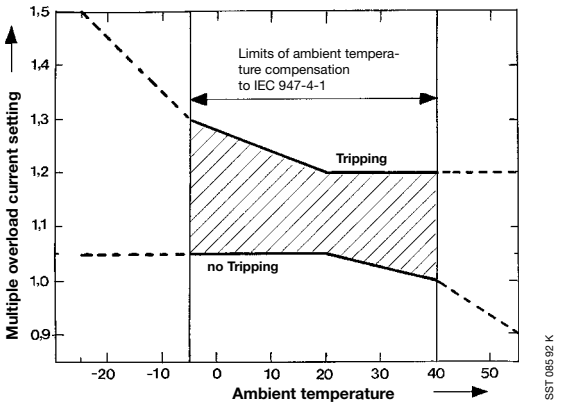
- **Special test of the tripping times at the works**

- **Special order code**
  Tripping curves for the individual setting ranges and the PTB Approvals Certificates may be ordered.

- **Reference numbers of the PTB:**

Type	Reference No.
TA25... TA450	PTB 02 ATEX 3045
TA42, TA75, TA80	PTB Ex 02-32056
TA110, TA200	PTB Ex 02-32057
TA450	PTB Ex 02-32017

Limit values for tripping at ambient temperatures other than 20 °C



- **Ambient temperature compensation :**
  The overload relays are protected against influences of ambient temperature by a bimetallic compensation element which detects the ambient temperature.
  This design means that tripping occurs between -5 °C and +40 °C within the ranges defined by IEC 947-4-1. See the adjacent curve for the extended range of -25 °C resp. +55 °C.

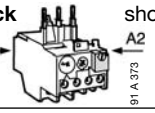
- **Example :**
  Tripping at -25 °C. Tripping occurs at ≤1.5 times the setting current.

- **Reset :**
  Types E16DU, T7DU, TA25DU ... TA450DU/SU feature a convertible Manual/ Automatic reset.

- **Condition as delivered :**
  Manual reset.

Thermal overload relays T
Technical data

General technical data

Type		T7DU	TA25DU	TA42DU	TA75DU
Standards: (major international European and national standards)		IEC 947–4–1, VDE 0660, NFC 63 650, BS 4941, EN 60947–4–1			
Approvals, certificates		see page 24			
Rated insulation voltage Ui to IEC 158–1, IEC 947–4–1	**V**	690	660/690		
Impulse withstand voltage Uimp to IEC 947–4–1	**kV**	6	6		
Permissible ambient temperature					
– Storage temperature	**°C**	– 40 to +70			
– for operation (compensated)	**°C**	– 25 to +55			
Climatic resistance to DIN 50017		Resistant to changeable climate KFW, 30 cycles			
Mounting position		any, but please avoid vertical mounting position wherever possible			
Resistance to shock at rated current I_e • critical shock direction A1, A2 	shock duration **ms**	10	15		
	multiple of g	10	12		
Resistance to vibration: (±1 mm, 50 Hz)	multiple of g	4	8		
Mounting – onto contactor – with AB.. mounting kit		hooking beneath the contactor, screwing on its main terminals by screws: 2 x M4 or ⊓ 35 mm EN 50022			
Connection terminals and attachment type **Main conductors** (motor side)			TA25DU setting ranges: 0.1…0.16 A24…32 A to 18…25 A		
• Screw terminals					
– Screw terminal		M3.5	M4	–	M6
– with terminal block		–	–	M5	–
– with busbars or cable lugs		–	–	–	–
• Connection cross-sections					
– single-core or stranded	**mm²**	2 x 0.75 ... 2.5			1 x 2.5 ... 25 or 2 x 2.5 ... 16
– flexible with wire end ferrule	**mm²**	2 x 0.5 ... 1.5			1 x 2.5 ... 25 or 2 x 2.5 ... 10
– busbars	**mm²**	–	–	–	–
Connections and auxiliary connectors					
• Screw terminal (screw size) – with self-disengaging clamping piece		M 3.5			
• Connection cross-section					
– single-core or stranded	**mm²**	2 x 0.75 ... 2.5	2 x 0.75 … 4		
– flexible with wire end ferrule	**mm²**	2 x 0.5 ... 1.5	2 x 0.75 … 2.5		
Enclosure to IEC 144, IEC 529		All terminals are safe from finger-touch and safe from touch by the back of the hand to VDE 0106, Part 100 (no extra terminal shrouds are required up to and including TA110DU)			

Technical data of the conducting paths

Type	T7DU	TA25DU	TA42DU	TA75DU	TA80DU	TA110DU	TA200DU	TA450DU	TA450SU
Number of paths	3								
Setting ranges	see Ordering detais								
Tripping class to IEC 947–4-1 / VDE 0660, Part 1021	10								30
Frequency range **Hz**	0 … 400							50/60	
Switching frequency without early tripping	up to 15 ops./h or 60 ops./h with 40 % if the breaking current does not exceed 6 x In and the starting time does not exceed 1 s								
Resistance per phase in mΩ and heat dissipation per phase in W at maximum setting current	see page 20 and 21								
Required fuses for short-circuit protection	see page 20 and 21								

General technical data (cont.)

	TA80DU	TA110DU	TA200DU	TA450DU/SU
	IEC 947–4–1, VDE 0660, NFC 63 650, BS 4941, EN 60947-4-1			
	see page 24			
V	660/690			1000
kV	6			8
°C **°C**	- 40 to +70 - 25 to +55			
	Resistant to changeable climate KFW; 30 cycles			
	any, but please avoid vertical mounting position wherever possible			
ms	15			
x g	12			
x g	8			
	M6 –	4 screws M5		
	M6 – –	HC, M8 – –	– – M10	– – M10
mm² **mm²** **mm²**	1 x 2.5 ... 25 or 2 x 2.5 ... 16 1 x 2.5 ... 25 or 2 x 2.5 ... 10 –	16 … 35 16 … 35 –	25 … 120 25 … 95 20 x 4	2 x 240 2 x 240 25 x 5
	M 3.5			
mm² **mm²**	2 x 0.75 … 4 2 x 0.75 … 2.5			
	All terminals are safe from finger-touch and safe from touch by the back of the hand to VDE 0106, part 100.		All terminals are safe from finger-touch and safe from touch by the back of the hand to VDE 0106, part 100, only with additional terminal shrouds.	

Resistances and power losses per phase
Short-circuit protection

Setting range			Short-circuit protection (fuses, circuit-breakers)					Resistance	Power loss
			Assignment class 2 (1)			Assignment class 1 (1)		per phase	per phase
					S223K		S223K		at upper
from	…	to	gG	aM	S203K	gG	S203K		current setting
A		**A**	A	A	A	A	A	Ω	W
Thermal overload relay T7DU									
0.1	...	**0.16**	0,5			20	K 6	62.3	1.6
0.16	...	**0.24**	1			20		27	1.6
0.24	...	**0.4**	2			20		11.7	1.9
0.4	...	**0.6**	2			20		4.61	1.7
0.6	...	**1.0**	4			20		1.66	1.7
1.0	...	**1.6**	6			20		0.63	1.6
1.6	...	**2.4**	6			20	K 10	0.27	1.6
2.4	...	**4.0**	10			20		0.107	1.7
4.0	...	**6.0**	10			20		0.049	1.8
6.0	...	**9.0**	10			20	K 25	0.021	1.7
9.0	...	**12.0**	25			25		0.010	1.4

Setting range			Short-circuit protection (fuses, circuit-breakers)					Resistance	Power loss
			Assignment class 2 (1)			Assignment class 1 (1)		per phase	per phase
					S223K		S223K		at upper
from	…	to	gG	aM	S203K	gG	S203 K		current setting
A		A	A	A	A	A	A	mΩ	W
Thermal overload relay TA25DU									
0.1	…	**0.16**	0.5	–	–	25	K6	85850	2.2
0.16	…	**0.25**	0.63	–	–	25		35150	2.2
0.25	…	**0.4**	1.25	–	0,5	25		13750	2.2
0.4	…	**0.63**	2	–	1,0	25		5370	2.2
0.63	…	**1.0**	4	2	1,0	25		2190	2.2
1.0	…	**1.4**	4	2	1,6	25		1120	2.2
1.3	…	**1.8**	6	4	2	25		670	2.2
1.7	…	**2.4**	6	4	3	25	K10	383	2.2
2.2	…	**3.1**	10	6	3	25		229	2.2
2.8	…	**4.0**	10	6	4	25		137	2.2
3.5	…	**5.0**	16	10	6	25		87,5	2.2
4.5	…	**6.5**	20	16	8	25	K25	51	2.2
6.0	…	**8.5**	25	20	10	25		30.4	2.2
7.5	…	**11**	35	25	16	35		18.2	2.2
10	…	**14**	35	25	16	35		11.2	2.2
13	…	**19**	50	35	20	50	K40	6.3	2.3
18	…	**25**	63	50	25	63		4.7	2.9
24	…	**32**	80	63	32	80		3.2	3.3

(1) Assignment class 1 to IEC/EN 60947-4-1: A short-circuit may cause damage to the relay necessitating exchange. (Corresponds to class a to IEC 292-1)
Assignment class 2 to IEC/EN 60947-4-1: No damage or changes to the response values occur in the event of a short-circuit (corresponds to class c to IEC 292-1).

Resistances and power losses per phase
Short-circuit protection

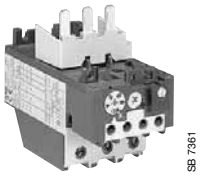
Setting range			Short-circuit protection (fuses, circuit-breakers)					Resistance	Power loss	
			Assignment class 2 (1)				Assignment class 1 (1)		per phase	per phase at upper
from	...	to	gG	aM	S203K	S703	gG			current setting
A		**A**	A	A	A	A	A		mΩ	W
Thermal overload relay TA42DU										
18	...	**25**	63	50	50	50	160		5.5	3.43
22	...	**32**	80	63	50	50	160		2.89	2.91
29	...	**42**	100	80	63	63	160		1.84	3.24
Thermal overload relay TA75DU										
18	...	**25**	63	50	50	50	160		5.5	3.43
22	...	**32**	80	63	50	50	160		2.89	2.91
29	...	**42**	100	80	63	63	160		1.84	3.24
36	...	**52**	125	100	63	80	160		1.3	3.51
45	...	**63**	160	125	–	100	250		0.936	3.72
60	...	**80**	200	160	–	100	250		0.615	3.94
Thermal overload relay TA80DU										
29	...	**42**	100	80	63	63	160		1.84	3.24
36	...	**52**	125	100	63	80	160		1.3	3.51
45	...	**63**	160	125	–	100	250		0.936	3.72
60	...	**80**	200	160	–	100	250		0.615	3.94

Setting range			Short-circuit protection (fuses, circuit-breakers)			Resistance	Power loss
			Assignment class 2 (1)		Assignment class 1 (1)	per phase	per phase at upper
from	...	to	gG	aM	gG		current setting
A		**A**	A	A	A	mΩ	W
Thermal overload relay TA110DU							
66	...	**90**	200	160	250	0.540	4.37
80	...	**110**	224	200	315	0.378	4.57
Thermal overload relay TA200DU							
66	...	**90**	200	160	250	0.540	4.37
80	...	**110**	224	200	315	0.378	4.57
100	...	**135**	224	200	315	0.318	5.79
110	...	**150**	250	224	355	0.255	5.74
130	...	**175**	315	250	400	0.214	6.55
150	...	**200**	315	250	500	0.182	7.28
Thermal overload relay TA450SU							
40	...	**60**	125	100	not applicable to	–	2.2
55	...	**80**	160	125	overload relays with	–	2.2
70	...	**105**	200	160	current transformer	–	2.2
95	...	**140**	315	250		–	2.2
Thermal overload relay TA450DU/SU							
130	...	**185**	355	250	not applicable to	–	2.2
165	...	**235**	400	315	overload relays with	–	2.2
220	...	**310**	500	400	current transformer	–	2.2
220	...	**400**	630	500		–	2.2

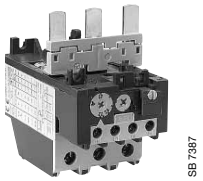
((1) Assignment class 1 to IEC 947-4-13: A short-circuit may cause damage to the relay necessitating exchange. (Corresponds to class a to IEC 292-1)
Assignment class 2 to IEC 947-4-12: No damage or changes to the response values occur in the event of a short-circuit (corresponds to class c to IEC 292-1).

Thermal overload relays
T7DU, TA25DU ... T200DU, TA450DU
Tripping curves

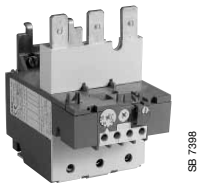
TA25DU



TA42DU



TA75DU



TA110DU

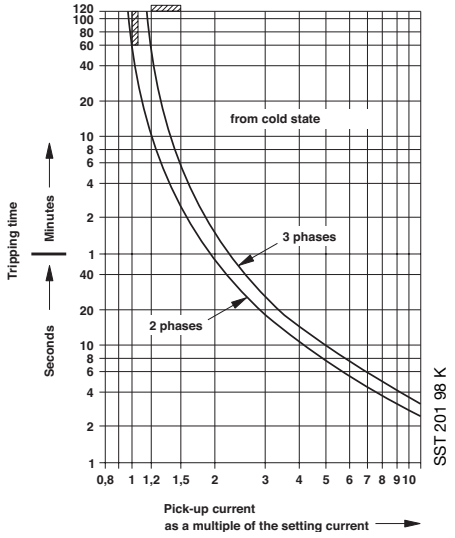
Thermal overload relays **T ... DU** are three-pole relays which can be converted from manual to automatic reset. The Reset button can also be used for disconnection.

The built-in auxiliary contacts are electrically isolated and are therefore suitable for two different circuits (control circuit and signalling circuit).

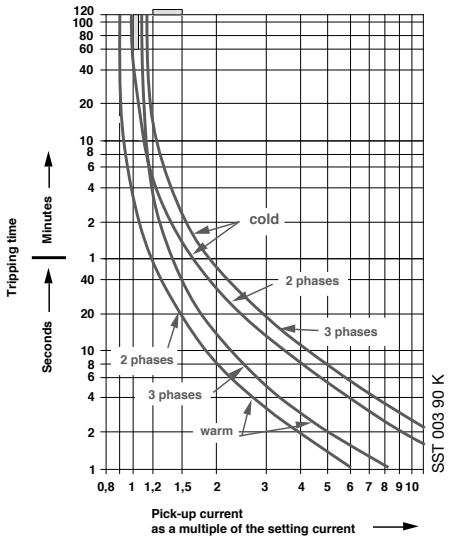
All relays feature a facility for temperature compensation and phase failure protection.
The overload relays up to size TA110DU are safe from finger-touch and safe from touch by the back of the hand.

Tripping curves of the thermal overload relays (group curves)

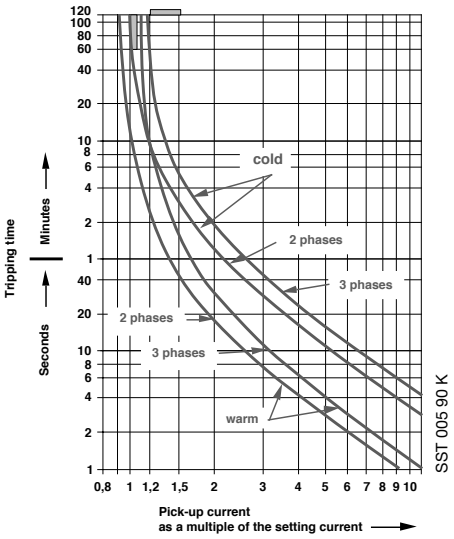
T7DU



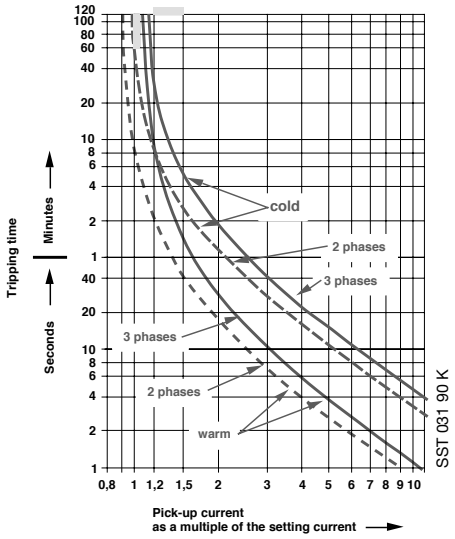
TA25DU



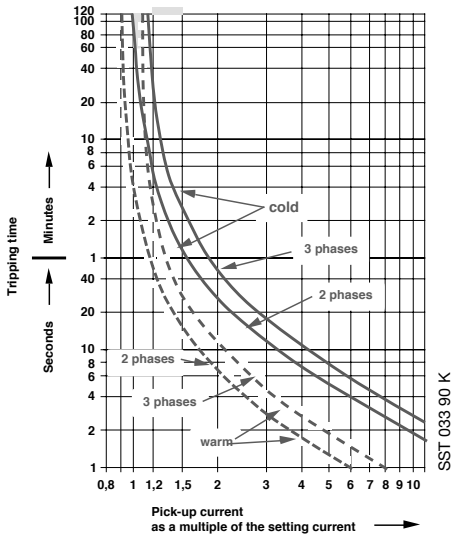
TA42DU / TA75DU / TA80DU



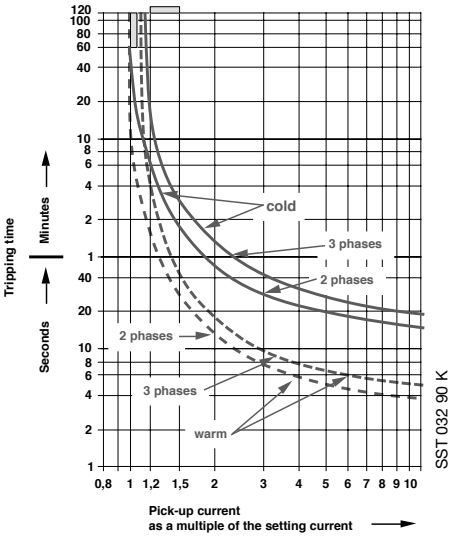
TA200DU



TA450DU



TA450SU



Thermal overload relays TA..., V1000
for EEx e motors
Selection table

Selection table for suitability of overload relays for EEx e motors.
Tripping times of thermal overload relays as a function of a multiple of the setting current cold state (tolerance ± 20 of the tripping time); PTB approvals, see Page 24

Setting range of thermal overload relays from … to A	Tripping times of thermal overload relays at multiple of setting current: 3 s	4 s	5 s	6 s	7.2 s	8 s
Thermal overload relays TA25DU … V1000						
0.1 … **0.16**	17.3	10	7	5.6	4.5	4
0.16 … **0.25**	16.8	10	7.2	6	4.7	4.3
0.25 … **0.4**	16.3	10	7	5.6	4.4	3.9
0.4 … **0.63**	17.3	10.3	7.1	5.7	4.5	4
0.63 … **1.0**	20	12.6	8.4	6.7	5.3	4.5
1.0 … **1.4**	18.3	11.2	8	6.3	5	4.6
1.3 … **1.8**	18.8	11.1	7.5	6	4.7	4.2
1.7 … **2.4**	19.6	11.5	8	6	4.9	4.5
2.2 … **3.1**	18.3	10.5	7.6	6	4.7	4.2
2.8 … **4.0**	18.8	11.2	8	6.1	4.7	4.2
3.5 … **5.0**	17.8	10.9	7.7	6	4.5	4.1
4.5 … **6.5**	17.8	10.5	7.5	5.6	4.6	4
6.0 … **8.5**	17.8	10.9	7.7	6.1	5	4.5
7.5 … **11**	18.8	11.5	8.3	6.5	5.1	4.5
10 … **14**	17.8	10.9	7.7	6	4.7	4.2
13 … **19**	20.5	11.9	8.8	6	4.7	4
18 … **25**	22.4	13.3	8	6.8	5	4.5
24 … **32**	23.7	14	10	7.7	6	5.3
Thermal overload relays TA42DU, TA75DU, TA80DU ... V1000						
18 ... **25**	41	23.2	16	11.8	9	7.5
22 ... **32**	37	21	13.8	10.6	8	6.8
29 ... **42**	34	18.5	12.6	9.5	6.8	6
36 ... **52**	43	23.9	16.1	11.8	9	7.3
45 ... **63**	37.4	21.3	15.2	10.6	7.6	6.6
60 ... **80**	46.7	23	15.7	11.5	7.9	6.7
Thermal overload relays TA110DU … V1000						
66 … **90**	32	16.7	11.5	8.5	6.3	5.4
80 … **110**	34.5	18.2	12.2	8.8	6.7	5.1
Thermal overload relays TA200DU … V1000						
66 … **90**	27.7	15.8	10.6	7.9	5.6	4.9
80 … **110**	25.1	14.1	9.7	7.1	5.2	4.5
100 … **135**	24.4	13.3	8.9	6.3	4.6	4
110 … **150**	30	15.8	10.6	7.5	5.6	4.6
130 … **175**	30.1	15.8	11.0	7.5	5.6	5.0
150 … **200**	42.2	21.8	14.5	10.3	7.3	6
Thermal overload relays TA450DU … V1000						
130 … **185**	14.9	8.9	7.1	5.6	4.5	4.2
165 … **235**	18	10	7.1	5.5	4	3.8
220 … **310**	16.8	10	7.1	5.7	4.7	4
285 … **400**	17	10	7.5	5.5	4.3	4

Cross-sections of cables for test
in accordance with VDE 0660, Part 100
(IEC 947-1) German version EN 60 947-1

Table 1). Copper test conductor for test currents up to 400 A.

Test current range[1] (A)		Conductor cross-section[2), 3), 4)] (mm²)	AWG / MCM
0	8	1,0	18
8	12	1,5	16
12	15	2,5	14
15	20	2,5	12
20	25	4,0	10
25	32	6,0	10
32	50	10	8
50	65	16	6
65	85	25	4
85	100	35	3
100	115	35	2
115	130	50	1
130	150	50	0
150	175	70	00
175	200	95	000
200	225	95	0000
225	250	120	250
250	275	150	300
275	300	185	350
300	350	185	400
350	400	240	500

Table 2). Copper test conductor for test currents over 400 A to 800 A.

Test current range[1] (A)		Conductor cross-section[2), 3), 4)] metric Number	metric Cross-section (mm²)	MCM Number	MCM Cross-section (mm²)
400	500	2	150	2	250
500	630	2	185	2	350
630	800	2	240	3	300

Table 3). Copper test buses for test currents over 400 A to 3150 A.

Test current range[1] (A)		Copper buses[2), 3), 4), 5), 6)] Number	Cross-section (mm²)	Dimensions (inches)
400	500	2	30 x 5	1 x 0,250
500	630	2	40 x 5	1,25 x 0,250
630	800	2	50 x 5	1,5 x 0,250
800	1000	2	60 x 5	2 x 0,250
1000	1250	2	80 x 5	2,5 x 0,250
1250	1600	2	100 x 5	3 x 0,250
1600	2000	3	100 x 5	3 x 0,250
2000	2500	4	100 x 5	3 x 0,250
2500	3150	3	100 x 10	6 x 0,250

Footnotes to Tables 1, 2 and 3:

1) The test current must be higher than the first value in the first column and must be lower than or the same as the second value in this column.
2) To simplify the testing procedure and with the consent of the manufacturer, conductors with a smaller cross-section than the one determined for the test current may be used.
3) The table shows cross-sections of conductors alternatively in the metric system and in the AWG/MCM system and buses in mm and inches. A comparison of the AWG/MCM system and metric cross-sections is given in Table 1.
4) Optionally, either one of the two conductors given for the test current range may be used.
5) It is assumed that buses with the larger surface area are arranged vertically. Buses may be arranged horizontally if so directed by the manufacturer.
6) If 4 buses are used, they must be arranged in two pairs with a mean clearance of at most 100 mm.

General technical data

Approvals and certificates

Explanation of symbols:

- ■ Normal version approved: Rating plates bear the test mark if mandatory.
- ● Special design approved
- □ Submitted for approval, delivery time on request
- ○ No approval required except in special cases
- △ Submission for approval intended
- ▲ Approved with restrictions

Unit type	Approvals				Ships' classification societies						
Test mark				Phys.-Technische Bundes-anstalt							
Abbreviation valid for	CSA Canada	UL USA	UL USA	PTB Germany	BV France	GL Germany	LRS Great Britain	DNV Norway	PRS Poland	RINa Italy	MRS Russia
Thermal overload relays											
T7DU	■		■	■	■	□	□				
TA25DU	■		■	■	■	■	■	■	△	■	△
TA42DU	■		■	■	■	■	■	■	△	■	△
TA75DU	■		■	■	■	■	■	■	△	■	△
TA80DU	■		■	■	□	■	□	□	△	△	△
TA110DU	■		■	■	□	■	□	□	△	△	△
TA200DU	■		■	■	■	■	■	■	■	■	■
TA450DU/SU	■		■	■	■	■	■	■ (2)	■	■	■

(2) except Types SU.

Thermal overload relays with trip class 20

Technical data

Short-circuit ratings

Voltage	Type	Setting range	5 kA		10 kA		18 kA	
480 V		A … A	Fuse K5	CB	Fuse K5	CB	Fuse K5	CB
TA25DU	TA25DU-1.8-20	1.3 … 1.8	6	-	6	-	6	-
	TA25DU-2.4-20	1.7 … 2.4	10	-	10	-	10	-
	TA25DU-3.1-20	2.2 … 3.1	10	-	10	-	10	-
	TA25DU-4.0-20	2.8 … 4.0	15	-	15	-	15	-
	TA25DU-5.0-20	3.5 … 5.0	20	-	20	-	20	-
	TA25DU-6.5-20	4.5 … 6.5	25	-	25	-	25	-
	TA25DU-8.5-20	6.0 … 8.5	35	-	35	-	35	-
	TA25DU-11-20	7.5 … 11	45	-	45	-	45	-
	TA25DU-14-20	10 … 14	60	-	60	-	60	-
	TA25DU-19-20	13 … 19	60	-	60	-	60	-
	TA25DU-25-20	18 … 25	70	-	70	-	70	-
	TA25DU-32-20	24 … 32	100	-	100	-	100	-
TA42DU	TA42DU-25-20	18 … 25	80	80	80	80	150	-
	TA42DU-32-20	22 …32	100	80	100	80	150	-
	TA42DU-42-20	29 … 42	150	80	150	80	200	-
TA75DU	TA75DU-25-20	18 … 25	80	80	80	80	150	-
	TA75DU-32-20	22 … 32	100	80	100	80	150	-
	TA75DU-42-20	29 … 42	150	80	150	80	200	-
	TA75DU-52-20	36 … 52	175	125	175	125	250	-
	TA75DU-63-20	45 … 63	200	125	200	125	250	-
	TA75DU-80-20	60 … 80	250	125	250	125	250	-
TA80DU	TA80DU-42-20	29 … 42	150	80	150	125	150	-
	TA80DU-52-20	36 … 52	175	125	175	125	175	-
	TA80DU-63-20	45 … 63	200	125	200	125	250	-
	TA80DU-80-20	60 … 80	250	150	250	150	250	-

Voltage	Type	Setting range	5 kA		10 kA		18 kA	
600 V		A … A	Fuse K5	CB	Fuse K5	CB	Fuse K5	CB
TA25DU	TA25DU-1.8-20	1.3 … 1.8	6	-	6	-	6	-
	TA25DU-2.4-20	1.7 … 2.4	10	-	10	-	10	-
	TA25DU-3.1-20	2.2 … 3.1	10	-	10	-	10	-
	TA25DU-4.0-20	2.8 … 4.0	15	-	15	-	15	-
	TA25DU-5.0-20	3.5 … 5.0	20	-	20	-	20	-
	TA25DU-6.5-20	4.5 … 6.5	25	-	25	-	25	-
	TA25DU-8.5-20	6.0 … 8.5	35	-	35	-	35	-
	TA25DU-11-20	7.5 … 11	45	-	45	-	45	-
	TA25DU-14-20	10 … 14	60	-	60	-	60	-
	TA25DU-19-20	13 … 19	60	-	60	-	60	-
	TA25DU-25-20	18 … 25	70	-	70	-	70	-
	TA25DU-32-20	24 … 32	100	-	100	-	100	-
TA42DU	TA42DU-25-20	18 … 25	80	80	80	80	150	-
	TA42DU-32-20	22 …32	100	80	100	80	150	-
	TA42DU-42-20	29 … 42	150	80	150	80	200	-
TA75DU	TA75DU-25-20	18 … 25	80	80	80	80	150	-
	TA75DU-32-20	22 … 32	100	80	100	80	150	-
	TA75DU-42-20	29 … 42	150	80	150	80	150	-
	TA75DU-52-20	36 … 52	175	125	175	125	175	-
	TA75DU-63-20	45 … 63	200	125	200	125	250	-
	TA75DU-80-20	60 … 80	250	125	250	125	250	-
TA80DU	TA80DU-42-20	29 … 42	150	80	150	125	150	-
	TA80DU-52-20	36 … 52	175	125	175	125	175	-
	TA80DU-63-20	45 … 63	200	125	200	125	250	-
	TA80DU-80-20	60 … 80	250	150	250	150	250	-

Thermal overload relays with trip class 20
Resistances and power losses per phase
Short-circuit protection

Setting range	Short-circuit protection (fuses)		UL	UL	Resistance per phase	Power loss per phase
	Type „2“ co-ordination	Type „1“ co-ordination	Fuse/600V	600V		at upper
from … to	gL/gG	gL/gG	K5	CB		current setting
A A	A	A	A	A	mOhm	W
Thermal overload relay TA25DU trip class 20						
1.3 … 1.8	10	25	6	-	670.3	2.2
1.7 … 2.4	16	25	10	-	381	2.2
2.2 … 3.1	16	25	10	-	235.3	2.3
2.8 … 4.0	20	25	15	-	140.7	2.3
3.5 … 5.0	25	25	20	-	91.2	2.3
4.5 … 6.5	25	25	25	-	54.5	2.3
6.0 … 8.5	32	32	35	-	32.1	2.3
7.5 … 11	40	40	45	-	15.5	1.9
10 … 14	50	50	60	-	12	2.4
13 … 19	63	63	60	-	6.3	2.3
18 … 25	80	80	70	-	4.7	3.0
24 … 32	100	100	100	-	3.2	3.3
Thermal overload relay TA42DU trip class 20						
18 … 25	100	160	80	80	5.5	3.43
22 … 32	125	160	100	80	2.89	2.91
29 … 42	160	160	150	80	1.84	3.24
Thermal overload relay TA75DU trip class 20						
18 …25	100	160	80	80	5.5	3.43
22 … 32	125	160	100	80	2.89	2.91
29 …42	160	160	150	80	1.84	3.24
36 … 52	200	200	175	125	1.3	3.51
45 … 63	200	250	200	125	0.936	3.72
60 … 80	250	250	250	125	0.615	3.94
Thermal overload relay TA80DU trip class 20						
29 … 42	160	160	150	80	1.84	3.24
36 … 52	200	200	175	125	1.3	3.51
45 … 63	200	250	200	125	0.936	3.72
60 … 80	250	250	250	150	0.615	3.94

Type „1“ co-ordination according to IEC 60947-4-1: Under short-circuit conditions, the starter shall cause no danger to persons or installation and may not be suitable for further service without repair and replacement of parts.

Type „2“ co-ordination according to IEC 60947-4-1: Under short-circuit conditions, the contactor or starter shall cause no danger to persons or installation and shall be suitable for further use. The risk of contact welding is recognized, in which case the manufacturer shall indicate the measures to be taken as regards the maintenance of the equipment

Thermal overload relays with trip class 20
Table for tripping time

Tripping times of thermal overload relays as a function of a multiple of the setting current from cold state (tolerance +/- 20% of the tripping time).

Setting range	Tripping times of thermal overload relays: at multiple of setting current					
	3	4	5	6	7.2	8
from … to A A	Tripping times in sec					
Thermal overload relays TA25DU trip class 20						
1.3 … 1.8	47.1	27	20.3	15.8	12.7	11.5
1.7 … 2.4	43.3	25	18.9	14.4	11.9	10.4
2.2 … 3.1	47.5	28	20.8	16	13.1	11.8
2.8 … 4.0	45.6	27	19.8	15.3	12.5	11
3.5 … 5.0	47.8	29	21.2	16	13.2	11.8
4.5 … 6.5	47.4	28	20.3	15.5	12.5	11
6.0 … 8.5	46.1	27	20	15	11.7	10
7.5 … 11	42.3	25	17.8	14.1	10.9	10.5
10 … 14	39.4	25	16.8	13	9.9	8.5
13 … 19	38.1	21	13.6	10	7.4	6.2
18 … 25	44.4	25	16.1	11	9	8
24 … 32	44.4	27	17.7	13	9.8	8.5
Thermal overload relays TA42DU, TA75DU, TA80DU trip class 20						
18 … 25	51.6	29	20.3	15	11.7	10
22 … 32	67.9	38	26.9	20	14.8	12.5
29 … 42	58.8	33	22.5	16	12.2	10.3
36 ... 52	59.9	34	22.7	16	12.3	10.5
45 ... 63	65.8	34	22.4	16	12.4	10.5
60 ... 80	71.9	35	23.4	17	13.9	12

Electronic overload relay E16/E45/E80/E140DU
Technical data

General technical data

Type	E16DU	E45DU30	E45DU45	E80DU80	E140DU140
Standards:	IEC/EN 60 947-4-1 / IEC/EN 60 947-5-1				
Approvals and certificates	UL, CSA				
Rated insulation voltage U_i **V**	690			1000	
Rated operating voltage U_e **V**	690			1000	
Impulse withstand voltage U_{imp} **kV**	6				
Permissible ambient temperature					
– Storage **°C**	– 25 to + 70				
– Operation **°C**	– 25 to + 70				
Climatic resistance according to	on request				
Mounting position					
Resistance to shock Shock duration ms / multiple of g	on request (1)				
Resistance to vibrations to EN 61373	on requst				
Mounting – by screws:	separate mounting with Kit for single set up by screws 4xM5				
– onto contactor:	or direct mounting onto condactor - no kit neccessary				
Connection terminals and attachment type					
Main contuctors (load side)					
• Screw terminal – with self-disengaging clamping piece	M5/2,3 ... 2,6 Nm			M8/6 ... 6,5 Nm	
• Connection cross-sections – single-core or stranded **mm²**	1 x 2,5 ... 16 2 x 2,5 ... 16			1 x 10 ... 95 2 x 6 ... 35	
– flexible with wire end ferrule **mm²**	1 x 2,5 ... 10 2 x 2,5 ... 10			1 x 10 ... 70 2 x 6 ... 35	
Connection to aux.-contacts terminals					
• Screw terminal – with self-disengaging clamping piece	M3,5/0,8 ... 1,0 Nm				
• Connection cross-sections – single-core or stranded **mm²**	1 x 1 ... 4 2 x 1 ... 4				
– flexible with wire end ferrule **mm²**	1 x 0,75 ... 2,5 2 x 0,75 ... 2,5				
Protection degree to IEC/EN 60 947-1	IP 20			IP 10	
	All terminals are safe from finger-touch and safe from touch by the back of the hand to EN 50274				

Technical data of the conducting paths

Type	E16DU	E45DU30	E45DU45	E80DU80	E140DU140
Number of conducting paths	3				
Setting ranges **A ... A**	0,1 ... 18,9	9 … 30	15 ... 45	27 ... 80	50 ... 140
Tripping classes to IEC/EN 60 947-4-1	10 or selectabe 10, 20, 30				
Frequency range Hz	50 and 60 (only for a.c.operating 3 phase)				
Switching frequency without early tripping	80 ops./h with 40% if the making current does not exceed 6 x in and starting time does not exceed 1s.				

Load rating of auxiliary contacts

Contact	NC (95-96)	NO (97-98)
Rated operating voltage U_e **V**	600	600
Rated thermal continuous current **A**	6	6
Rated operating current I_e at AC-15 230 V **A**	3	3
at AC-15 400 V **A**	1,1	1,1
at AC-15 500 V **A**	0,7	0,7
at DC-13 24 V **A**	1,5	1,5
at DC-13 60 V **A**	0,5	0,5
at DC-13 110 V **A**	0,4	0,4
at DC-13 220 V **A**	0,2	0,2
Short-circuit protection fuse gG **A**	6	6
STOTZ safety circuit-breaker: S271, S281	(2)	(2)

General technical data

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Standards:	IEC/EN 60 947-4-1 / IEC/EN 60 947-5-1				
Approvals and certificates	UL, CSA				
Rated insulation voltage U_i **V**	690				
Rated operating voltage U_e **V**	690				
Impulse withstand voltage U_{imp} **kV**	6				
Permissible ambient temperature					
– Storage **°C**	– 25 to + 70				
– Operation **°C**	– 25 to + 70				
Climatic resistance according to	IEC 68-2-1, IEC 68-2-2 IEC 68-2-14, IEC 68-2-30		IEC 68-2-1, IEC 68-2-2, IEC 68-2-30		
Mounting position	any				
Resistance to shock Shock duration ms	30				
multiple of g	5				
Resistance to vibrations to EN 61373	category 1 class B				
Mounting – by screws:	by screws 4 x M5	by screws 4 x M5	by screws 4 x M5	by screws 4 x M6	by screws 4 x M6
– onto contactor:	direct mounting to contactor		with DT ... mounting kit	with DT ... mounting kit	with DT ... mounting kit
Connection terminals and attachment type **Main contuctors** (load side) • Screw terminals – with busbar or cable lugs	M8	M10	M10 (rail order separately)	M12 (rail order separately)	M12
Connection terminals and attachment type **Auxiliary contacts** • Screw terminal – with self-disengaging clamping piece	M3,5				
– tigtening torque **Nm**	1,0				
• Connection cross-sections – single-core or stranded **mm²**					
– flexible with wire end ferrule **mm²**	2 x 0,75 ... 4 2 x 0,75 ... 2,5				
Protection degree to IEC/EN 60 947-1	All terminals are safe from finger-touch and safe from touch by the back of the hand to EN 50274				IP 00

Technical data of the conducting paths

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Number of conducting paths	3				
Setting ranges **A ... A**	60 ... 200	100 ... 320	150 ... 500	250 ... 800	375 ... 1250
Tripping classes to IEC/EN 60 947-4-1	10, 20, 30 selectable				
Frequency range Hz	50 and 60 (only for a.c.operating 3 phase)				
Switching frequency without early tripping	80 ops./h with 40% if the making current does not exceed 6 x in and starting time does not exceed 1s.				

Load rating of auxiliary contacts

Type			E200DU, E320DU, E500DU, E800DU, E1250DU	
Contact			NC (95-96)	NO (97-98)
Rated operating voltage U_e		**V**	600	600
Rated thermal continuous current		**A**	6	6
Rated operating current I_e	at AC-15 230 V	**A**	3	3
	at AC-15 400 V	**A**	1,1	1,1
	at AC-15 500 V	**A**	0,7	0,7
	at DC-13 24 V	**A**	1,5	1,5
	at DC-13 60 V	**A**	0,5	0,5
	at DC-13 110 V	**A**	0,4	0,4
	at DC-13 220 V	**A**	0,2	0,2
Short-circuit protection fuse	gG	**A**	6	6
STOTZ safety circuit-breaker: S271, S281			(1)	(1)

(1) on request

UMC22-FBP
Technical data

General technical data

Type		UMC22-FBP
Rated operating voltage Ue (three-phase system) **V AC/Hz**		max. 690/50
Rated operating current range **A**		0.24 ... 63
Trip classes		5, 10, 20, 30
Short-circuit-protection		separate fuses on power line side
Supply voltage **V DC**		19.2 ... 31.2, including ripple
Supply current **mA**		max. 130 (at 18 ... 30 V DC)
Total device power dissipation W		max. 3.1 (at 24 V DC)
LEDs on front		LED 1, green: device ready for operation LED 2, yellow: motor current > 33 % of Is LED 3, red: fault (trip, device fault, etc.)
Mechanical relay contact lifetime		500 000 switching cycles
Electrical lifetime	250 V AC / 0.5 A	100 000 switching cycles
	250 V AC / 1.5 A	50 000 switching cycles
Terminal conductor cross section	mm^2	max. 2.5, max. 2 x 1.5
Current transformer bushing holes		11 mm Ø (25 mm“)
Internal clearance and creepage distances	mm	> 5.5 (safety insulation up to 250 V AC)
Mounting		on DIN rail (EN 50022-35) or wall mounting with 4 screws M4
Dimensions (W x H x D)	mm	70 x 105 x 110 (incl. FieldBusPlug and Control Panel)
Net weight	kg	0.39 (current transf. + control unit)
Degree of protection		IP 20
Storage temperature range	°C	-25...+70
Operating temperature range	°C	0...+55
Technical description Order Code		2CDC 135 004 D02xx
FieldBusPlug connection		see FBP catalogue

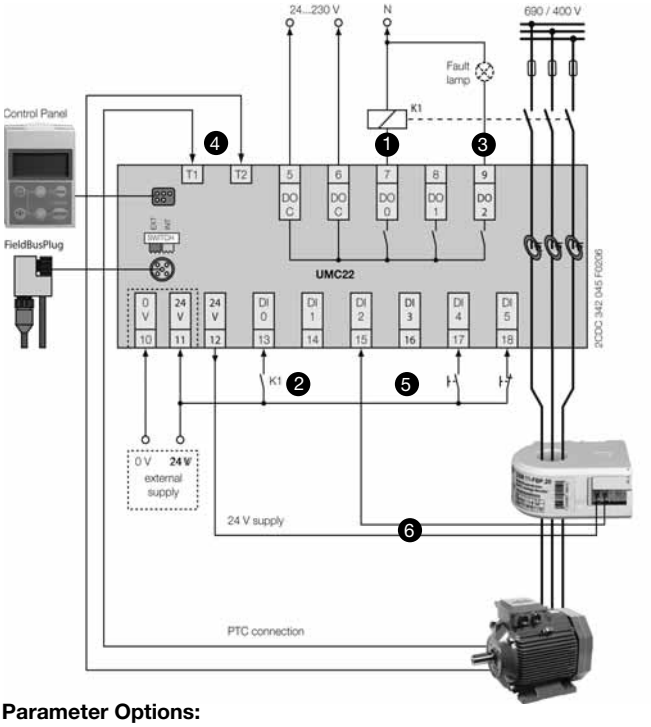
Digital inputs

Number of digital inputs	6 (DI0 ... DI5)
Power supply for digital inputs	18 … 30V, 70 mA
1-Signal (range including ripple)	+13 V ... +31,2 V
0-Signal (range including ripple)	-31,2 V ... +13 V
Input current per channel	(24 V DC) typ. 6.0 mA
Input resistor to 0 V	3.9 kOhm
Line length unshielded	max. 600 m
Line length shielded	max. 1000 m

Digital outputs

Number of digital relay outputs	3 (DO0...DO2)
Grouping of contacts	3 contacts with 1 common
Switching capacity per relay contact	
AC15:	120 V AC, max. 3 A 240 V AC, max. 1.5 A
DC13:	24 V DC, max. 0.1 A 125 V DC, max. 0.22 A 250 V DC, max. 0.11 A
max. load for all contacts	4 A (terminal 5 or 6)
min load for switching signals	12 V, 1 W or 1 VA
PTC Input - direct connection of PTC sensors from the motor	

Conductor holes through the current transformers max. 25 mm^2 (max. diameter incl. insulation 11 mm)



Parameter Options:
1 = Control function
2 = check back via aux.-contact
3 = Fault output, e.g. to lamp
4 = PTC Input
5 = digital inputs for control signals
6 = Connections for earth fault monitor

Electronic overload relays E16DU
for contactors and mini contactors
Technical data

Resistances and power losses

Setting range	Short-circuit protection (fuses, miniature circuit-breakers)					Resistance per phase at upper setting current	Power loss per phase
A ... A	gL/gG A					Ω	W
Electronic overload relay E16DU							
0.1 ... 0.32	1					0.97	0.1
0.3 ... 1.00	4					0.113	0.11
0.9 ... 2.70	10					0.014	0.1
2.0 ... 6.30	20					0.0024	0.1
5.7 ... 18.90	50					0.0008	0.29

Approvals and certificates

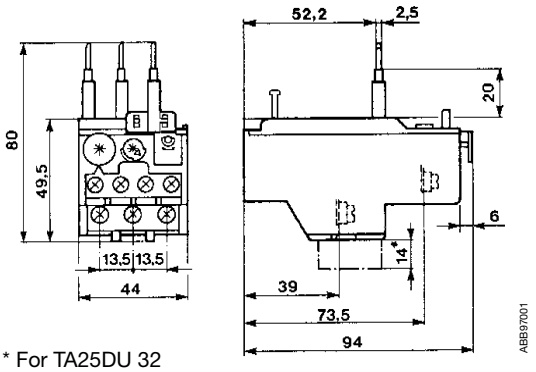
Approvals				Ships' classification societies			
UL USA	CSA Canada	ATEX Germany		GL Germany	LRS Great Britain	BV France	DNV Norway
■	■	□		■	■	■	■
■	■	□		■	■	■	■
■	■	□		■	■	■	■
■	■	□		■	■	■	■
■	■	□		■	■	■	■

■ Normal version approved;
rating plates bear the test mark if mandatory

□ Submitted for approval

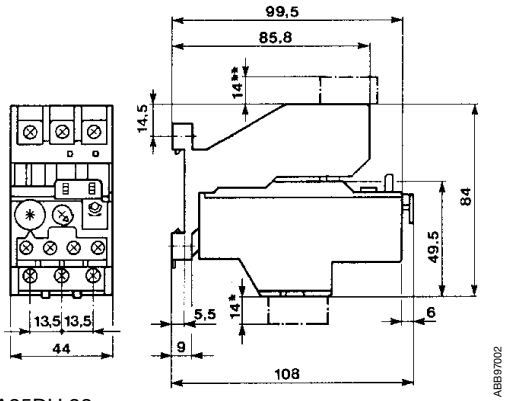
* Protection of intrinsically safe motors (EN 50019) class Ex "e" to DIN VDE 0165/02.91
(= Protection of intrinsically safe motors (EN 50019) of enclosure increased safety "e" in accordance
with the provisions for "Installation of electrical systems in explosion-hazard areas" to DIN VDE 0165/02.91.)

TA25DU



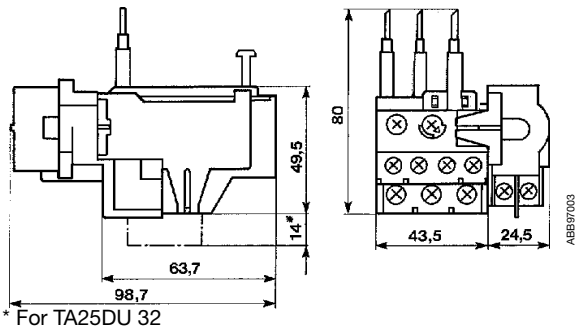
* For TA25DU 32

TA25DU + DB25



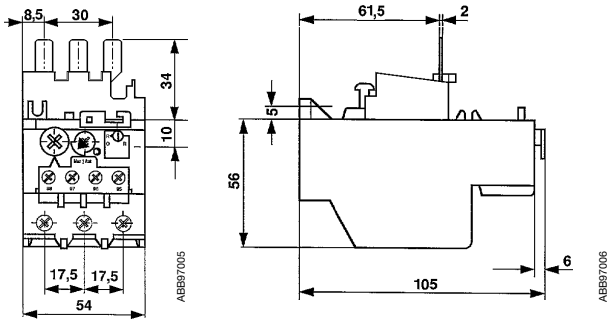
* For TA25DU 32
** For DB25/32 A mounting kit for single set-up

TA25DU + DS25-A

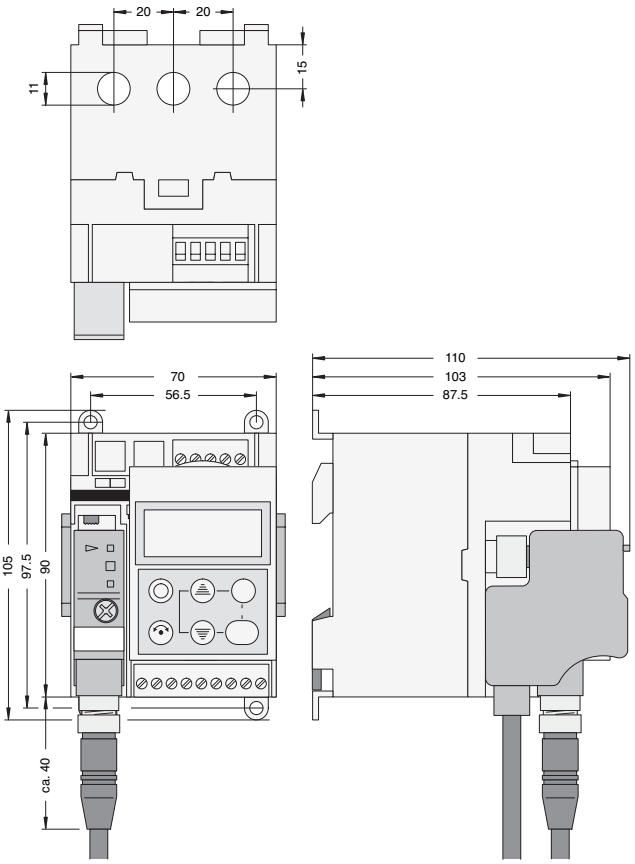


* For TA25DU 32

TA42DU

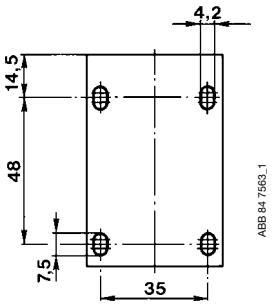


UMC22-FBP

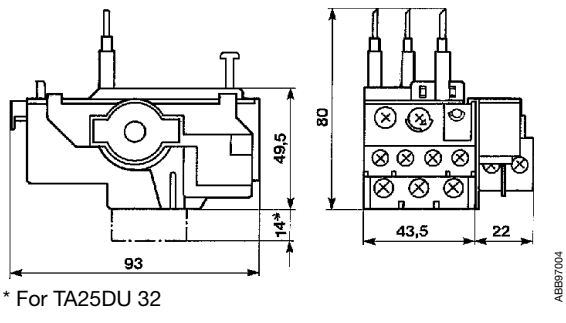


Drilling plan

(TA25DU + DB25/25 A oder DB25/32 A
for single set-ups)



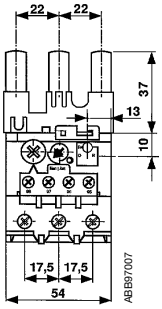
TA25DU + DR25-A

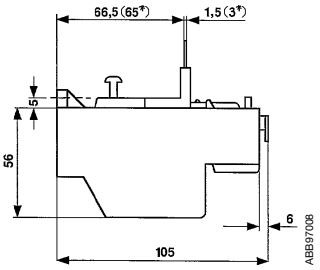


* For TA25DU 32

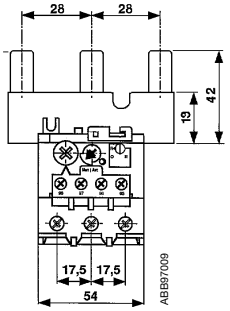
Thermal overload relays
Accessories
Dimensions

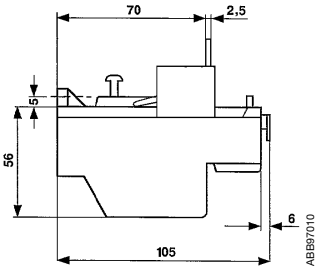
TA75DU





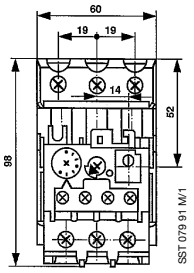
TA80DU

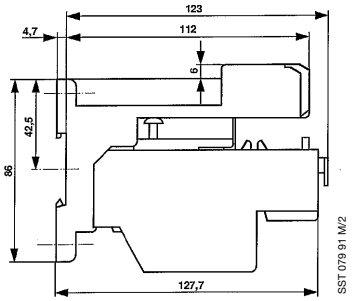




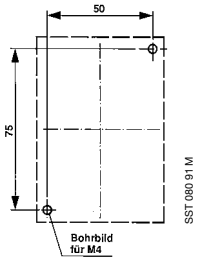
* For TA75DU 80

TA42DU, TA75DU, TA80DU + DB80

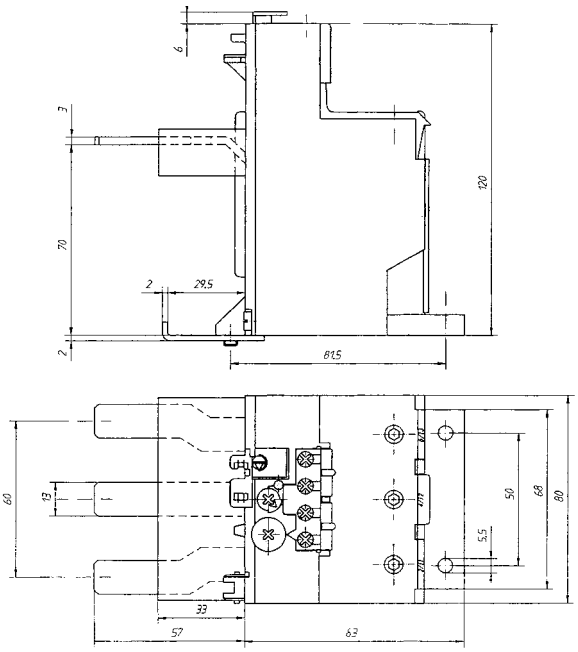


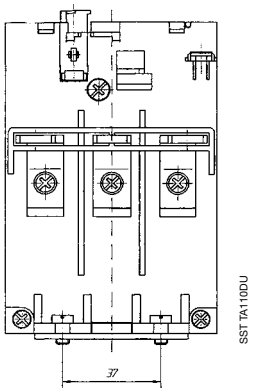


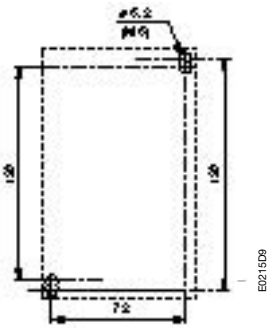
Drilling plan
(TA42DU, TA75DU und TA80DU + DB80
for single set-up)



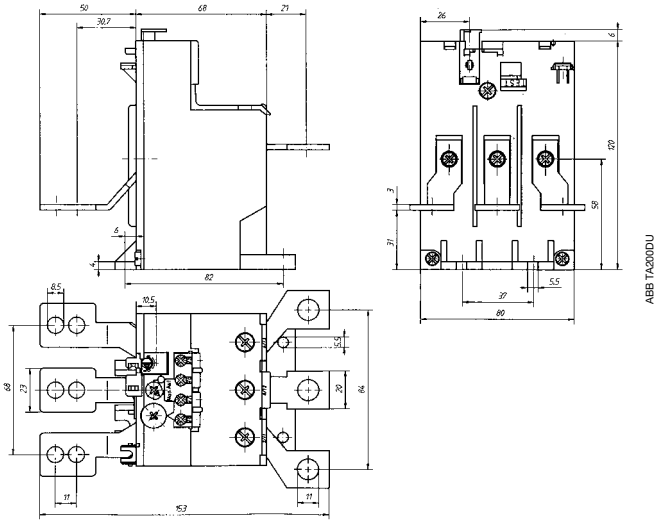
TA110DU

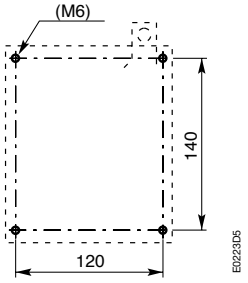




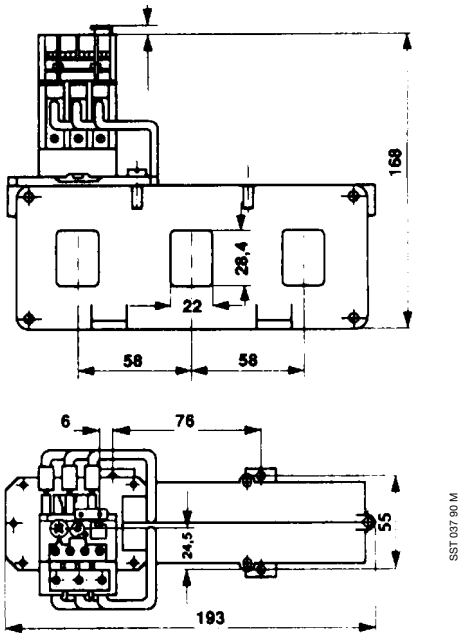


TA200DU





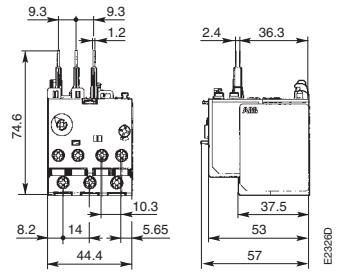
TA450DU/SU



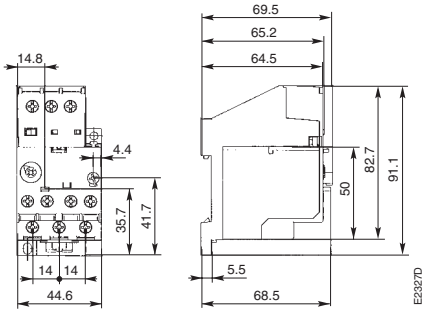
(dimensions in mm)

Electronic overload relays
Dimensions

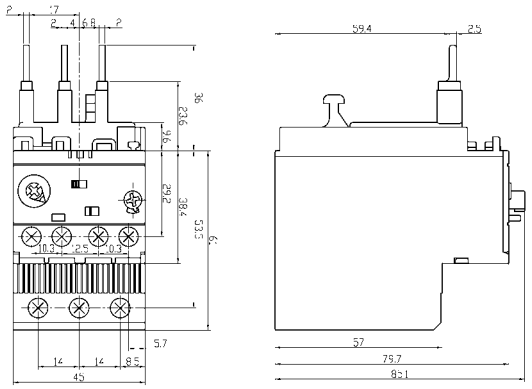
E16DU



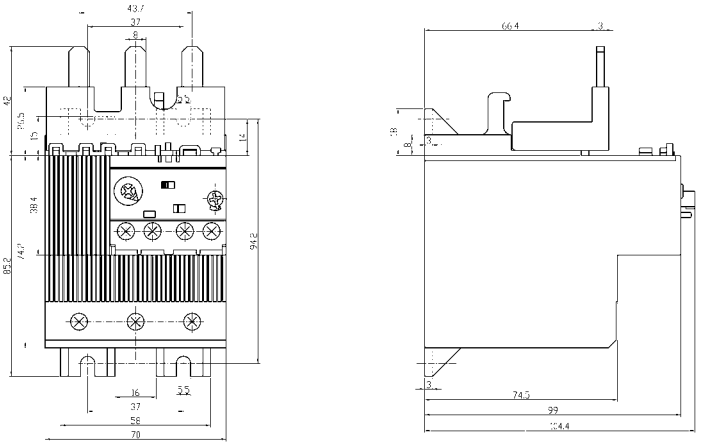
E16DU + DB16E



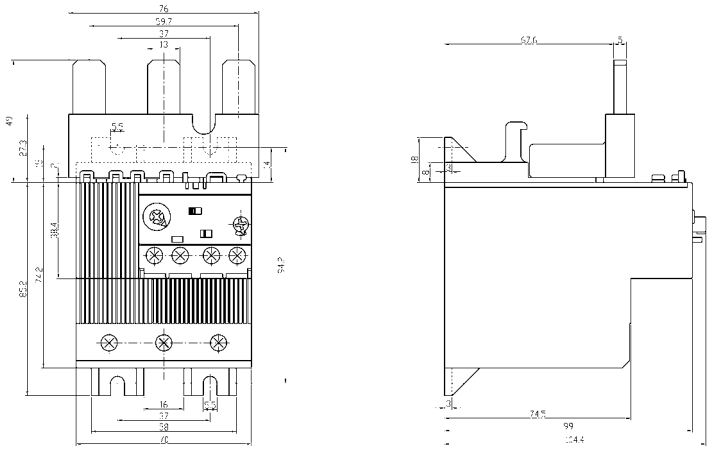
E45DU



E80DU



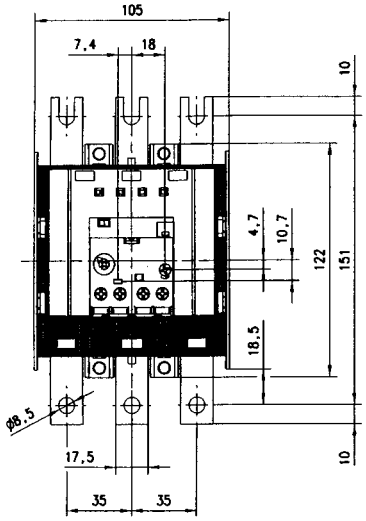
E140DU

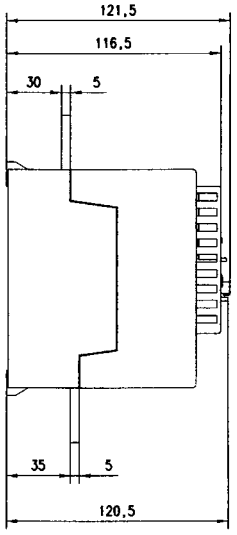


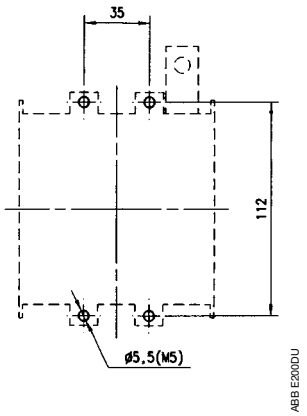
(dimensions in mm)

Electronic overload relays
Dimensions
Overload relays mounted onto contactors

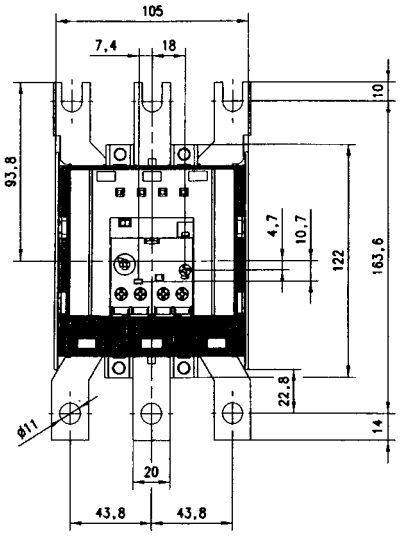
E200DU

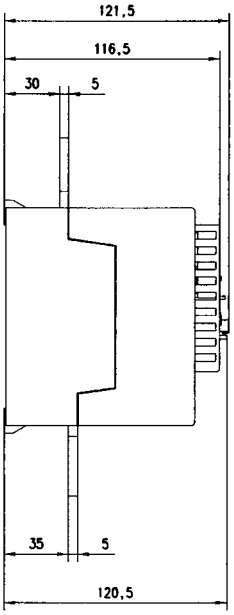


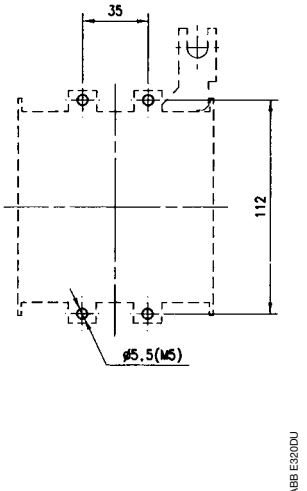




E320DU



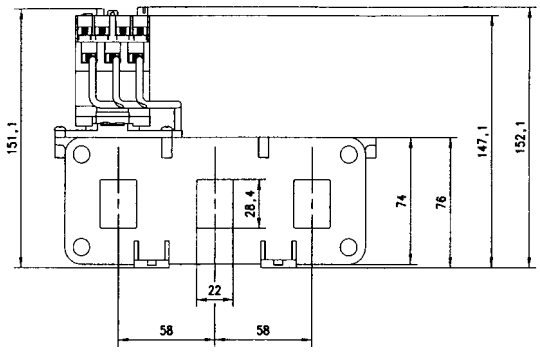


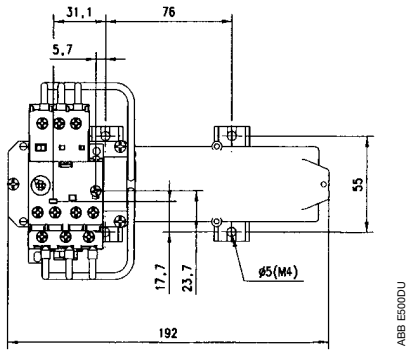


(dimensions in mm)

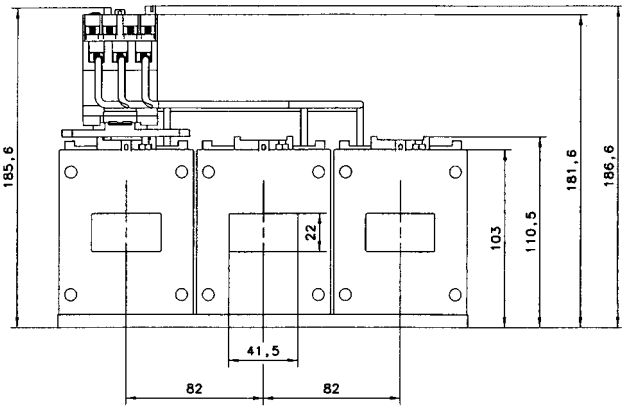
Electronic overload relays
Dimensions

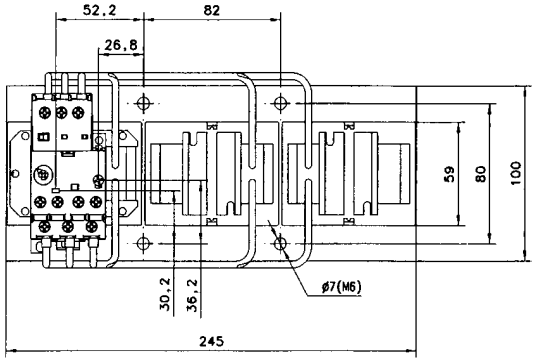
E500DU



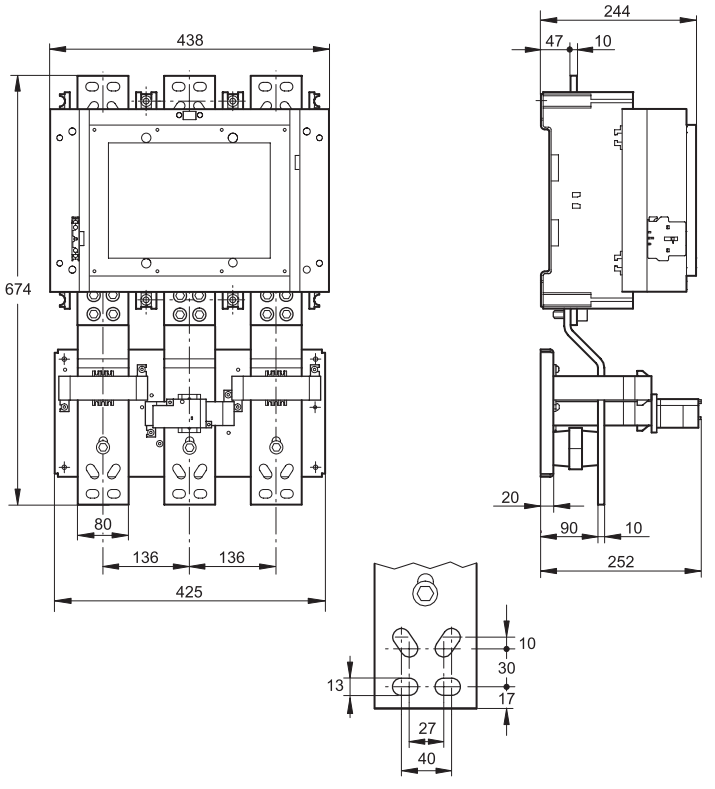


E800DU

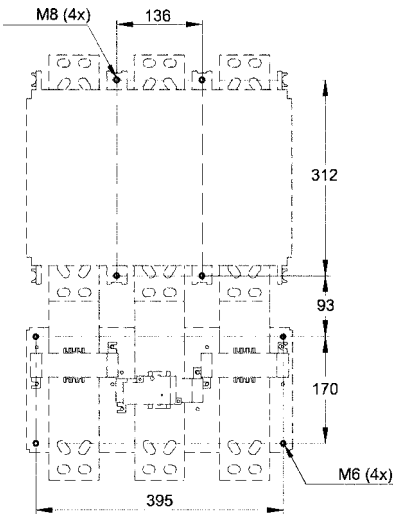




AF1350 / AF1650 + E1250DU



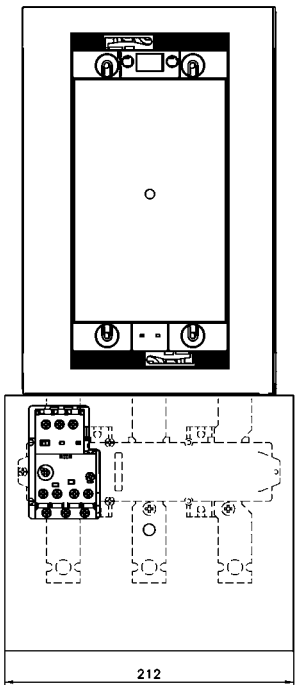
Drilling plan

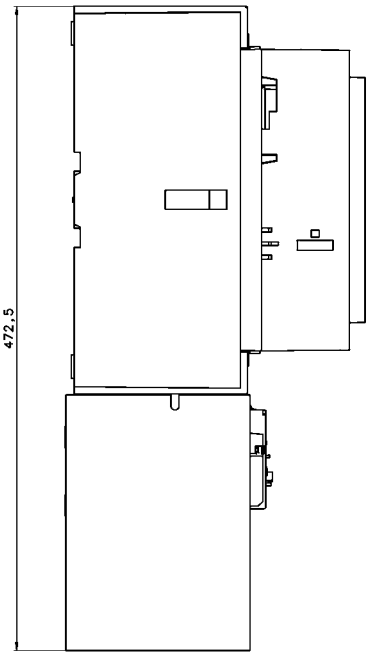


(dimensions in mm)

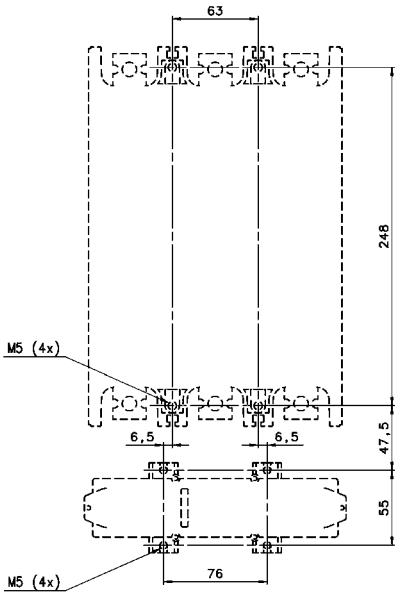
Electronic overload relays
Dimensions
Starter combination with contactor and terminal shroud

AF400 / AF460 + E500DU + DT500 / AF460S + LT500

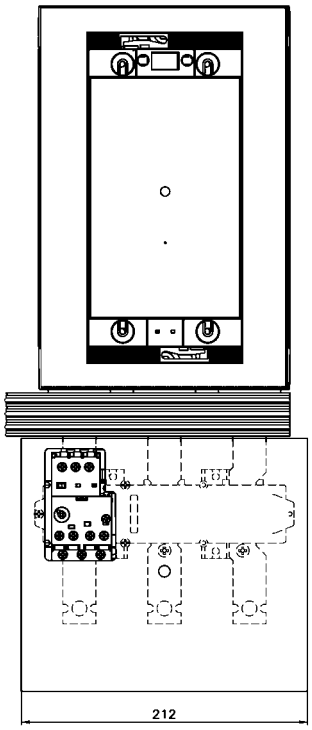


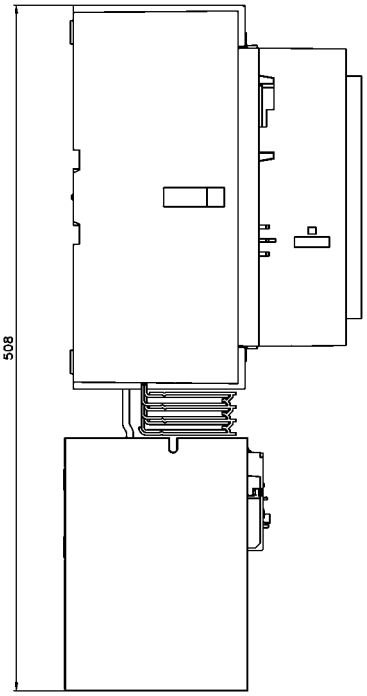


Drilling plan

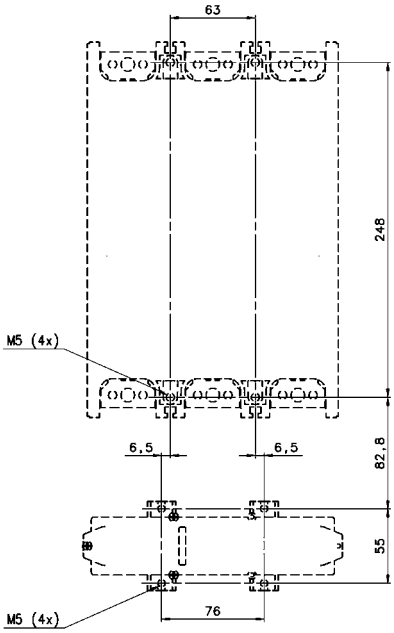


AF400 / AF460 + E500DU + DT500 / AF460L





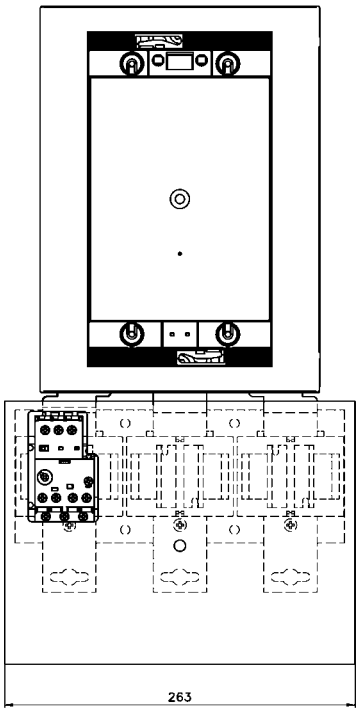
Drilling plan

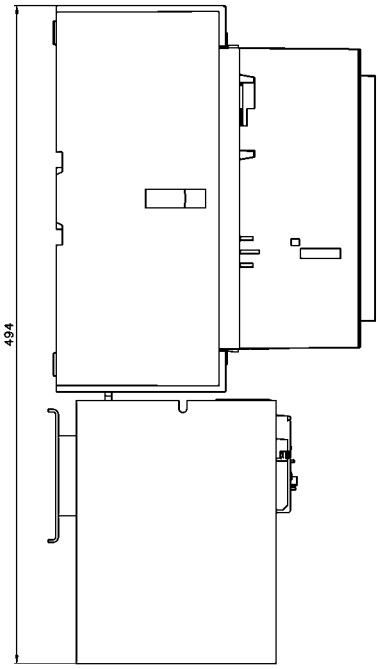


(dimensions in mm)

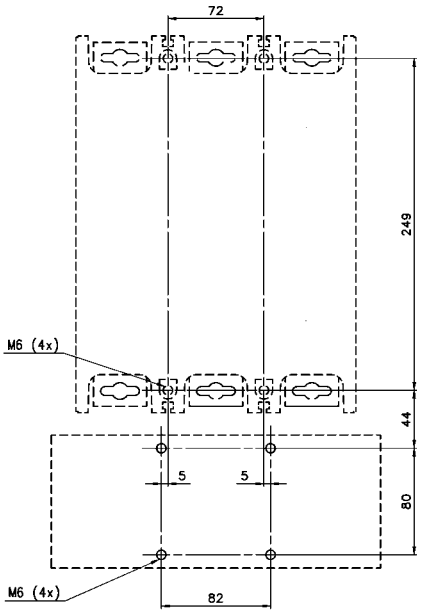
Electronic overload relays
Dimensions
Starter combination with contactor and terminal shroud

AF580 / AF750 + E800DU + DT800 / AF750S + LT800

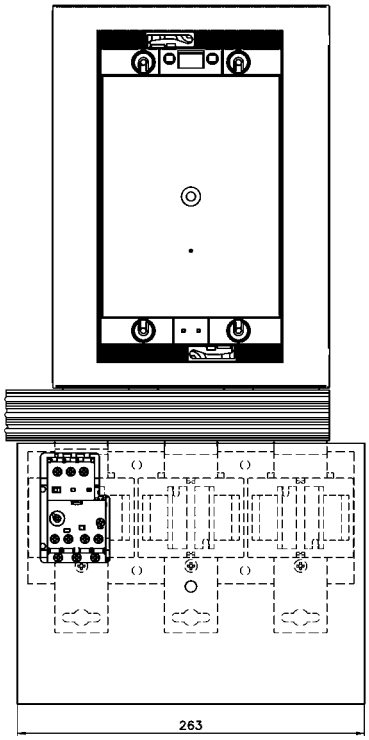


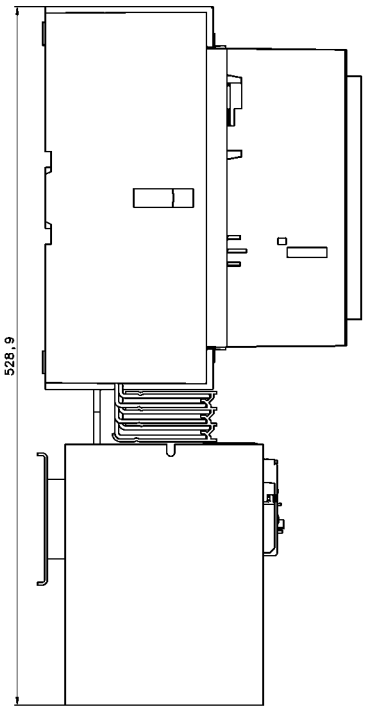


Drilling plan

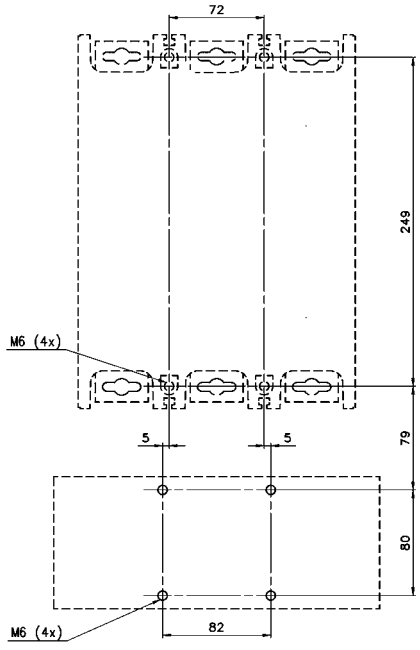


AF580 / AF750 + E800DU + DT800 / AF750L





Drilling plan



(dimensions in mm)

Motor Protection from ABB

Thermal overload relays
between 0.1 – 310A
Tripping classes 10, 20, 30

Electronic overload relays
between 0.1 – 1250A
Tripping classes 10, 20, 30

Manual Motor Starters
between 0.1 – 100A
Tripping classes 10, 20
Integrated short circuit protection

Universal motor controller
between 0.16 – 850A
Tripping classes 5, 10, 20, 30
Integrated inputs/outputs
Motor control and diagnostic functions
Field bus connection

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