

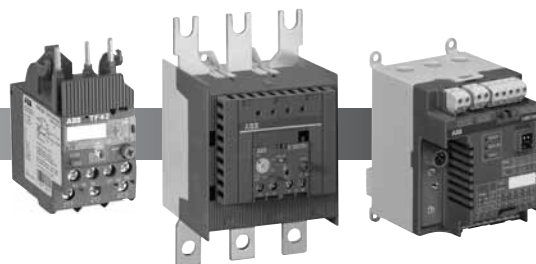


Motor overload protection Index

2

2 - Motor overload protection

Features and benefits	2.1
General information	
Panorama	2.2 - 2.3
Motor ratings	2.4
Pilot duty ratings and overload trip classes	2.5
Thermal overload relays	2.6
Electronic overload relays	2.7
Actuation tables & connection diagrams	2.8
Universal motor controllers	2.9
Ordering details	
Thermal & electronic overload relays	2.10 - 2.14
Electronic overload relays	2.15
Universal motor controllers	2.16 - 2.17
Panel adaptors, coupling units, shrouds & lug kits	2.18
Remote function coils	2.19
FSB FieldBusPlug	2.20 - 2.23
Technical data	2.24 - 2.49
Approximate dimensions	2.50 - 2.58



Motor overload
protection

Notes

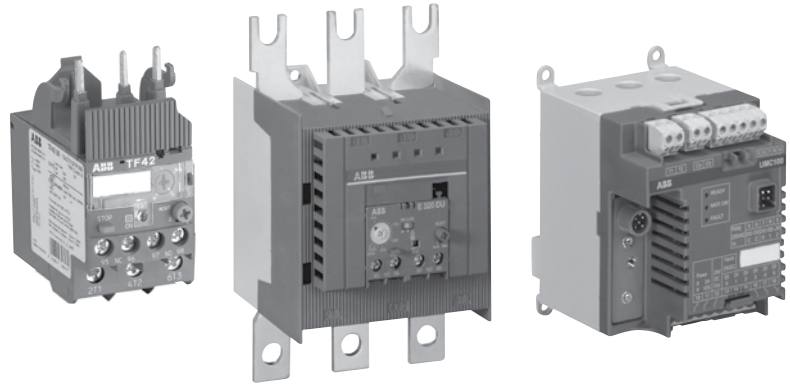
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Motor overload protection & Universal motor controller

2

Motor overload protection



Thermal overload relays

- Economic overload protection
- Motor applications up to 310 A
- For single and three phase motors
- Automatic and manual reset
- RESET, TEST, and STOP functions
- Direct contactor mounting up to 200 A
- Classes 10A, 10, and 20 available

Electronic overload relays

- Flexible overload protection
- Motor applications up to 1250 A
- For three phase motors
- Automatic and manual reset
- RESET, TEST, and STOP functions
- Direct contactor mounting up to 320 A
- Class 10E, 20E, 30E selectable

Universal motor controllers

- For control, protection, and diagnostics
- Up to 63 A w/o accessories
- Digital & analog input/output
- Direct PLC control
- FieldBusPlug communication
- Programmable via key pad or software
- Expansion modules and monitors available

Motor overload protection & universal motor controllers

Standards & approvals	T16 TF42	TA25DU TA42DU TA75DU TA80DU	TA110DU TA200DU TA450DU	EF19 EF45	E16DU E45DU E80DU E140DU	E200DU E320DU E500DU	E1250DU	UMC100
	E48139	E48139	E48139	E48139	E48139	E48139	E76003	E48139
	c	c	c	c	c	c	c	c
	✓	✓	✓	✓	✓	✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓	✓

General information

Panorama

2

3-pole contactors

Chapter 1

Mini contactors



Contactors for all industrial applications and motor starting



IEC	AC-3 Rated operational power	$\theta \leq 55^\circ\text{C}^*$, 400 V	kW	4	5.5	4	5.5	7.5	4	5.5	7.5	11	15	18.5
UL/CSA	3-phase motor rating	480 V	hp	3	5	5	7.5	10	5	7.5	10	15	20	—
AC Control supply		Type		B6	B7	AS09	AS12	AS16	AF09	AF12	AF16	AF26	AF30	AF38
						AF09Z	AF12Z	AF16Z	AF26Z	AF30Z	AF38Z			
DC Control supply		Type		BC6	BC7	ASL09	ASL12	ASL16	AF09	AF12	AF16	AF26	AF30	AF38
									AF09Z	AF12Z	AF16Z	AF26Z	AF30Z	AF38Z
AC / DC Control supply		Type		—	—	—	—	—	AF09	AF12	AF16	AF26	AF30	AF38
									AF09Z	AF12Z	AF16Z	AF26Z	AF30Z	AF38Z
IEC	AC-3 Rated operational current	$\theta \leq 55^\circ\text{C}^*$, 400 V	A	9	12	9	12	15.5	9	12	18	26	32	38
	AC-1 Rated operational current	$\theta \leq 40^\circ\text{C}$, 690 V	A	16	20	22	24	24	25	28	30	45	50	50
UL/CSA	General use rating	600 V	A	12 (300 V)	16	20	20	20	25	28	30	45	50	50
NEMA	NEMA Size			—	—	—	—	—	00	0	—	1	—	—

* $\theta \leq 60^\circ\text{C}$ for AS(L)09 ... AS(L)16 and AF09 ... AF38 contactors

Overload relays



See page 2.18

Thermal relays	Class 10 (10A for TA42DU to TA80DU)
Electronic relays	Class 10E, 20E, 30E
Accessories for overload relays	Wall/separate mounting kit



See page 2.10

T16
(0.10...16 A)



See page 2.10

T16
(0.10...16 A)



See page 2.11

TF42
(0.10...38 A)

EF19
(0.10...18.9 A)

EF19 (0.10...18.9 A),
EF45 (9...45 A)

DB42
(TF42 only)

Universal motor controllers

Motor protection, control & diagnostics

See pages 2.16 - 2.17

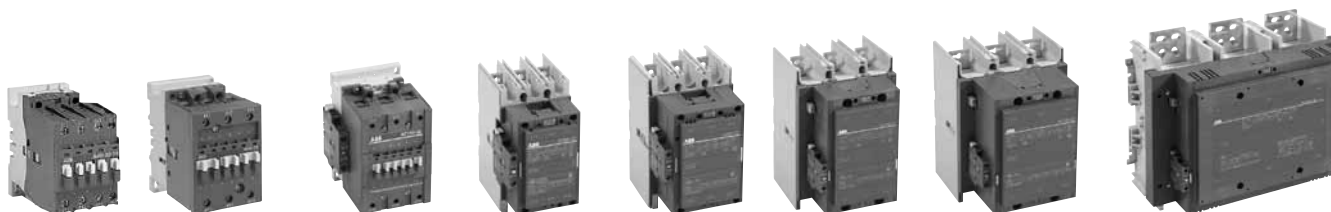


Universal motor controllers	Expansion modules	Operating panel	Ground fault monitors	FieldBusPlugs & accessories
UMC100 (0.24...63 A)	I/O & voltage	UMC100-PAN	CEM11	See pages 2.20...2.23

General information

Panorama

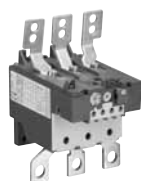
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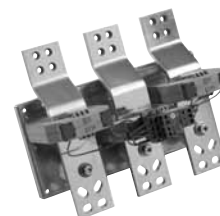
	18.5	22	30	37	45	55	75	90	110	140	160	200	250	315	400	—	475	560	—
	30	40	60	60	60	75	100	125	150	200	250	350	400	500	600	—	800	900	—
	A40	A50	A63	A75	A95	A110	A145	A185	A210	A260	A300	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050
	AL40	AE50	AE63	AE75	AF95	AF110	AF145	AF185	AF210	AF260	AF300	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050
	—	AF50	AF63	AF75	AF95	AF110	AF145	AF185	AF210	AF260	AF300	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050
	37	50	65	75	96	110	145	185	210	260	305	400	460	580	750	—	860	1050	—
	60	100	115	125	145	160	250	275	350	400	500	600	700	800	1050	1260	1350	1650	2050
	60	80	90	105	125	140	230	250	300	350	400	550	650	750	900	1210	1350	1650	2100
	—	2	—	3	—	—	4	—	—	5	—	—	6	—	7	—	—	8	—



See page 2.13

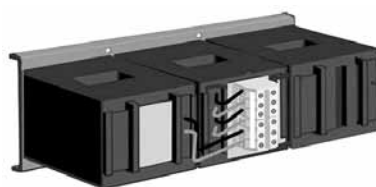


See page 2.14



See page 2.15

See page 2.12	TA42DU (18...42 A)	TA75DU (18...80 A)	TA80DU (29...80 A) TA110DU (65...110 A)	TA200DU (66...200 A)	TA450DU/SU (130...310 A) class 30 for SU			
	E45DU (9...45 A)	E80DU (27...80 A)	E140DU (50...140 A)	E200D-U (60...200 A)	E320DU (100...320 A)	E500DU (150...500 A)	E800DU (250...800 A)	E1250DU (375...1250 A)
	DB80, DB45E, DB80E		DB80, DB200, D140E	DB200	DT450/A			

KORC current transformers
(60...850A)

See pages 2.17

General information
Motor ratings

2

Horsepower to full-load Amperes for AC induction motors

Horsepower (hp)	Full Load Amperes (FLA)													
	110...120 v ac		200 v ac		208 v ac		220...240 v ac		380...415 v ac		440...480 v ac		550...600 v ac	
	Single phase	Three phase	Single phase	Three phase	Single phase	Three phase	Single phase	Three phase	Single phase	Three phase	Single phase	Three phase	Single phase	Three phase
1/10	3.0	-	-	-	-	-	1.5	-	1.0	-	-	-	-	-
1/8	3.8	-	-	-	-	-	1.9	-	1.2	-	-	-	-	-
1/6	4.4	-	2.5	-	2.4	-	2.2	-	1.4	-	-	-	-	-
1/4	5.8	-	3.3	-	3.2	-	2.9	-	1.8	-	-	-	-	-
1/3	7.2	-	4.1	-	4.0	-	3.6	-	2.3	-	-	-	-	-
1/2	9.8	4.4	5.6	2.5	5.4	2.4	4.9	2.2	3.2	1.3	2.5	1.1	2.0	0.9
3/4	13.8	6.4	7.9	3.7	7.6	3.5	6.9	3.2	4.5	1.8	3.5	1.6	2.8	1.3
1	16.0	8.4	9.2	4.8	8.8	4.6	8.0	4.2	5.1	2.3	4.0	2.1	3.2	1.7
1-1/2	20.0	12.0	11.5	6.9	11.0	6.6	10.0	6.0	6.4	3.3	5.0	3.0	4.0	2.4
2	24.0	13.6	13.8	7.8	13.2	7.5	12.0	6.8	7.7	4.3	6.0	3.4	4.8	2.7
3	34.0	19.2	19.6	11.0	18.7	10.6	17.0	9.6	10.9	6.1	8.5	4.8	6.8	3.9
5	56.0	30.4	32.2	17.5	30.8	16.7	28.0	15.2	17.9	9.7	14.0	7.6	11.2	6.1
7-1/2	80.0	44.0	45.0	25.3	44.0	24.2	40.0	22.0	27.0	14.0	21.0	11.0	16.0	9.0
10	100.0	56.0	57.5	32.2	55.0	30.8	50.0	28.0	33.0	18.0	26.0	14.0	20.0	11.0
15	135.0	84.0	-	48.3	-	46.2	68.0	42.0	44.0	27.0	34.0	21.0	27.0	17.0
20	-	108.0	-	62.1	-	59.4	88.0	54.0	56.0	34.0	44.0	27.0	35.0	22.0
25	-	136.0	-	78.2	-	74.8	110.0	68.0	70.0	44.0	55.0	34.0	44.0	27.0
30	-	160.0	-	92.0	-	88.0	136.0	80.0	87.0	51.0	68.0	40.0	54.0	32.0
40	-	208.0	-	120.0	-	114.0	176.0	104.0	112.0	66.0	88.0	52.0	70.0	41.0
50	-	260.0	-	150.0	-	143.0	216.0	130.0	139.0	83.0	108.0	65.0	86.0	52.0
60	-	-	-	177.0	-	169.0	-	154.0	-	103.0	-	77.0	-	62.0
75	-	-	-	221.0	-	211.0	-	192.0	-	128.0	-	96.0	-	77.0
100	-	-	-	285.0	-	273.0	-	248.0	-	165.0	-	124.0	-	99.0
125	-	-	-	359.0	-	343.0	-	312.0	-	208.0	-	156.0	-	125.0
150	-	-	-	414.0	-	396.0	-	360.0	-	240.0	-	180.0	-	144.0
200	-	-	-	552.0	-	528.0	-	480.0	-	320.0	-	240.0	-	192.0
250	-	-	-	-	-	-	-	604.0	-	403.0	-	302.0	-	242.0
300	-	-	-	-	-	-	-	722.0	-	482.0	-	361.0	-	289.0
350	-	-	-	-	-	-	-	828.0	-	560.0	-	414.0	-	336.0
400	-	-	-	-	-	-	-	954.0	-	636.0	-	477.0	-	382.0
450	-	-	-	-	-	-	-	1030.0	-	-	-	515.0	-	412.0
500	-	-	-	-	-	-	-	1180.0	-	786.0	-	590.0	-	472.0

Full-load motor-running currents in Amperes corresponding to various AC horsepower ratings as published in Table 50.1 of UL 508.

General information

Pilot duty ratings and overload trip classes

2

Pilot duty ratings for AC control circuit contacts

Contact rating designation	Continuous thermal, test current (A)	Maximum current, 50/60 Hz (A)									
		120 v ac		240 v ac		480 v ac		600 v ac		Volt-amperes	
		Make	Break	Make	Break	Make	Break	Make	Break	Make	Break
A150	10	60	6.00	-	-	-	-	-	-	7200	720
A300	10	60	6.00	30	3.00	-	-	-	-	7200	720
A600	10	60	6.00	30	3.00	15	1.50	12	1.20	7200	720
B150	5	30	3.00	-	-	-	-	-	-	3600	360
B300	5	30	3.00	15	1.50	-	-	-	-	3600	360
B600	5	30	3.00	15	1.50	7.5	0.75	6	0.60	3600	360
C150	2.5	15	1.5	-	-	-	-	-	-	1800	180
C300	2.5	15	1.5	7.5	0.75	-	-	-	-	1800	180
C600	2.5	15	1.5	7.5	0.75	3.75	0.375	3.00	0.30	1800	180
D150	1.0	3.60	0.60	-	-	-	-	-	-	432	72
D300	1.0	3.60	0.60	1.80	0.30	-	-	-	-	432	72
E150	0.5	1.80	0.30	-	-	-	-	-	-	216	36

Mechanical switching ratings and test values as published in Table 1-4-1 of NEMA ICS 5-2000 (R2005, R2010)

Pilot duty ratings for DC control circuit contacts

Contact rating designation	Continuous thermal, test current (A)	Maximum current, 50/60 Hz (A)			
		120 v dc	250 v dc	301 to 600 v dc	Volt-amperes
		Make / Break	Make / Break	Make / Break	Make / Break
N150	10	2.2	-	-	275
N300	10	2.2	1.1	-	275
N600	10	2.2	1.1	0.40	275
P150	5.0	1.1	-	-	138
P300	5.0	1.1	0.55	-	138
P600	5.0	1.1	0.55	0.20	138
Q150	2.5	0.55	-	-	69
Q300	2.5	0.55	0.27	-	69
Q600	2.5	0.55	0.27	0.10	69
R150	1.0	0.22	-	-	28
R300	1.0	0.22	0.11	-	28

Mechanical switching ratings and test values as published in Table 1-4-1 of NEMA ICS 5-2000 (R2005, R2010)

Overload trip classes

Trip class	Tripping time T_p (seconds)
10A	$2 < T_p \leq 10$
10	$4 < T_p \leq 10$
20	$6 < T_p \leq 20$
30	$9 < T_p \leq 30$

Trip classes as published in Table 2 of UL 60947-4-1A.

Pilot duty rating explanation

A - 600

Max. thermal
current

Max. voltage

General information

Thermal overload relays

Types T, TF & TA

2

Description

Thermal overload relays are electromechanical protection devices for the power circuit. They offer reliable protection for motors in the event of overload or phase failure. The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bend as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

Application

Three pole devices for single and three phase motor overload protection. These devices are either directly connected in the motor circuit, or are fed through a linear type (current) transformer.

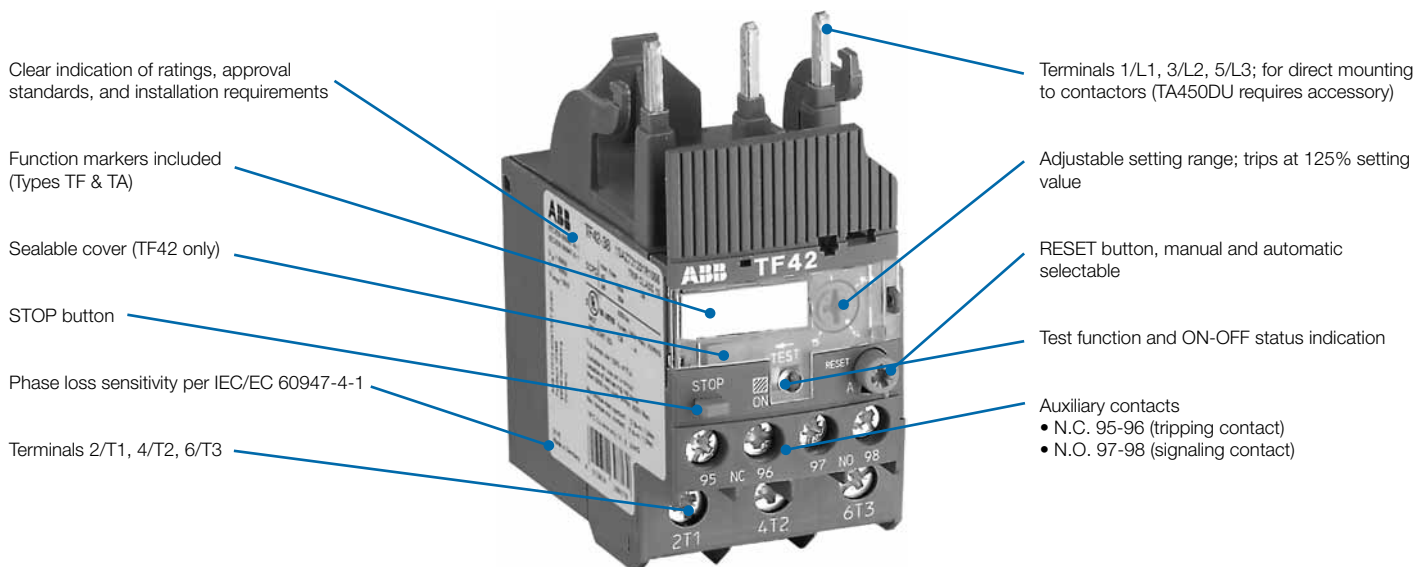
Thermal overload relay types

Directly connected to circuit:

T16, TF42, TA25DU, TA42DU,
TA75DU, TA80DU, TA110DU,
TA200DU

Linear transformer-fed:

TA450DU



Catalog number explanation

TF42 - 20

Overload relay type

Current setting range
Upper limit

General information

Electronic overload relays

Types E & EF

Description

An alternative to conventional bimetallic overload protection, electronic overload relays offer magnetic trip functionality for reliable protection for motors in the event of overload or phase failure. Simple to use and apply, the electronic overload relay is valued for its wide setting range, high accuracy, high operational temperature range and selectable trip classes (10E, 20E, 30E)

Application

Three pole devices for single and three phase motor overload protection. These devices are either directly connected in the motor circuit, or are fed through a linear type (current) transformer.

Electronic overload relay types

Directly connected to circuit:

EF19, EF45, E16DU, E45DU,
E80DU, E140DU, E200DU,
E320DU

Linear transformer-fed:

E500DU, E800DU, E1250DU

Clear indication of ratings, approval standards, and installation requirements
* Label on reverse side of photo shown

Function markers included
(Types TF & TA)

Adjustable trip class
(10E, 20E, 30E)

Adjustable setting range;
Trips at 125% setting value

STOP button

Phase loss sensitivity per IEC/EC 60947-4-1

Terminals 2/T1, 4/T2, 6/T3

Terminals 1/L1, 3/L2, 5/L3; for direct mounting to contactors (E500DU, E800DU, E1250DU require accessory)

Sealable cover
(EF19, EF45 only)

RESET button, manual and automatic selectable

Test function and ON-OFF status indication

Auxiliary contacts
• N.C. 95-96 (tripping contact)
• N.O. 97-98 (signaling contact)

Catalog number explanation

EF45 - 45

Overload relay type

Current setting range
Upper limit

General information

Actuation tables & connection diagrams

Thermal & electronic overload relays

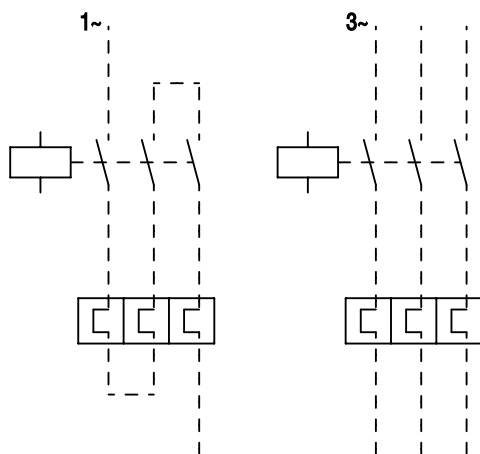
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Actuation table for auxiliary contacts

Condition	N.C. contact 95-96	N.O. contact 95-96	Status indication	Comment
ON / normal conditions	X	O	ON	–
Trip state / motor overload conditions	O	X	–	–
TEST (manual reset mode)	O	X	–	–
TEST (automatic reset mode)	O	X	–	while TEST is actuated
RESET while device is ON	O	X	–	while RESET button is actuated
RESET while device is in trip state	X	O	–	Return to ON state
STOP while device is ON	O	O	–	while STOP button is actuated
STOP while device is in trip state	O	X	–	STOP button has no effect

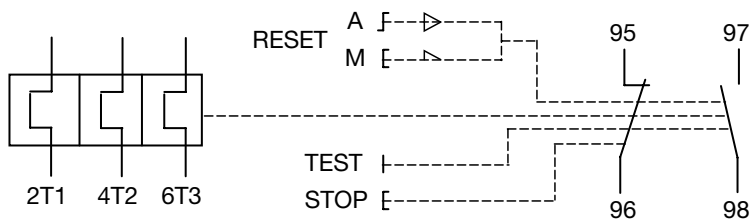
Note: Global and NAM standards require that a control circuits incorporating an overload relay be wired such that power is not automatically introduced to the power circuit following RESET.

Wiring diagram for the power circuit



Note: Single phase configuration not applicable for electronic overload relays.

Wiring diagram for the control circuit



General information

Universal motor controllers

UMC100-FBP

UMC100-FBP is a flexible, modular and expandable motor management system for constant-speed low-voltage range motors.

It's most important tasks include motor protection, prevention of plant standstills and the reduction of down time. This is made possible by early information relating to possible motor problems which avoids unplanned plant standstills. Even if a motor trips, quick diagnosis of the cause of the fault serves to reduce downtime.

UMC100-FBP combines multiple functions in a very compact unit:



Motor protection

- Overload, underload
- Overvoltage, undervoltage
- Blocked rotor, low / high current
- Phase failure, imbalance, phase sequence
- Earth leakage
- Thermistor protection
- Limitation of starts per time
- One single version with integrated measuring system covers the rated
- Motor current from 0,24 to 63 A

Motor control

- Integrated motor starter functions like direct, reverse, star-delta, etc. with easy to set parameters
- Additional free programmable logic for application specific control functions
- Expansion modules DX111, DX122 for more I/Os
- Expansion modules VI150, VI155 for 3-phase voltage measuring
- Custom programming possible with ABB DTM software

Motor diagnostics

- Quick and comprehensive access to all relevant data via fieldbus and/or operator panel
- Current, thermal load
- Phase voltages
- Power factor
- Energy

Further information

UMC & FBP Catalogue 2CDC 190 022 D0204

UMC & FBP Brochure 2CDC 135 011 B0202

Communication platforms

- Communication-independent basic device
- Freely selectable fieldbus protocol with FieldBusPlug
- Profibus DP
- DeviceNet
- Modbus
- CANopen

Typical application segments

- Oil & gas
- Cement
- Paper
- Mining
- Steel
- Chemical industry

Thermal & electronic overload relays

For use with B/C6...B/C7, AS/L09...AS/L16
Types T16 & E16DU

Ordering details

T16 thermal overload relays

For contactors	Setting range (A)	Trip class	Catalog number
B/C6...B/C7, AS/L09...AS/L16 VAS/L09... VAS/L16	0.10...0.13	10	T16-0.13
	0.13...0.17	10	T16-0.17
	0.17...0.23	10	T16-0.23
	0.23...0.31	10	T16-0.31
	0.31...0.41	10	T16-0.41
	0.41...0.55	10	T16-0.55
	0.55...0.74	10	T16-0.74
	0.74...1.00	10	T16-1.0
	1.00...1.30	10	T16-1.3
	1.30...1.70	10	T16-1.7
	1.70...2.30	10	T16-2.3
	2.30...3.10	10	T16-3.1
	3.10...4.20	10	T16-4.2
	4.20...5.70	10	T16-5.7
	5.70...7.60	10	T16-7.6
	7.60...10.0	10	T16-10
	10.0...13.0	10	T16-13
	13.0...16.0	10	T16-16

E16DU electronic overload relays

B/C6...B/C7	0.10...0.32	10E, 20E, 30E	E16DU0.32
	0.30...1.00	10E, 20E, 30E	E16DU1.0
	0.80...2.70	10E, 20E, 30E	E16DU2.7
	1.90...6.30	10E, 20E, 30E	E16DU6.3
	5.70...18.9	10E, 20E, 30E	E16DU18.9



T16



E16DU

Thermal & electronic overload relays

For use with AF09(Z)...AF38(Z); AF09N00(Z)...AF26N1(Z)
Types TF42, EF19 & EF45



TF42



EF19



EF45

Ordering details

For contactors	Setting range (A)	Trip class	Catalog number
TF42 thermal overload relays			
AF09(Z)...AF38(Z), AF09N00(Z)... AF26N1(Z)	0.10...0.13	10	TF42-0.13
	0.13...0.17	10	TF42-0.17
	0.17...0.23	10	TF42-0.23
	0.23...0.31	10	TF42-0.31
	0.31...0.41	10	TF42-0.41
	0.41...0.55	10	TF42-0.55
	0.55...0.74	10	TF42-0.74
	0.74...1.00	10	TF42-1.0
	1.00...1.30	10	TF42-1.3
	1.30...1.70	10	TF42-1.7
	1.70...2.30	10	TF42-2.3
	2.30...3.10	10	TF42-3.1
	3.10...4.20	10	TF42-4.2
	4.20...5.70	10	TF42-5.7
	5.70...7.60	10	TF42-7.6
	7.60...10.0	10	TF42-10
	10.0...13.0	10	TF42-13
	13.0...16.0	10	TF42-16
	16.0...20.0	10	TF42-20
	20.0...24.0	10	TF42-24
	24.0...29.0	10	TF42-29
	29.0...35.0	10	TF42-35
	35.0...38.0	10	TF42-38
EF19 electronic overload relays			
AF09(Z)...AF38(Z), AF09N00(Z)... AF26N1(Z)	0.10...0.32	10E, 20E, 30E	EF19-0.32
	0.30...1.00	10E, 20E, 30E	EF19-1.0
	0.80...2.70	10E, 20E, 30E	EF19-2.7
	1.90...6.30	10E, 20E, 30E	EF19-6.3
	5.70...18.9	10E, 20E, 30E	EF19-18.9
EF45 electronic overload relays			
AF26(Z)...AF38(Z), AF26N1(Z)	9.00...30.0	10E, 20E, 30E	EF45-30
	15.0...45.0	10E, 20E, 30E	EF45-45

Motor
overload
protection

2

Thermal & electronic overload relays

For use with A/E/L9...A/E/L40, A/E/L9N00...A/E/L26N1

Types TA25DU, TA42DU, E16DU & E45DU

Ordering details

For contactors	Setting range (A)	Trip class	Catalog number (Class 10A)
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TA25DU thermal overload relays

A/E/L9...A/E/L40, A/E/L9N00... A/E/L26N1	0.10...0.16	10A	TA25DU0.16
	0.16...0.25	10A	TA25DU0.25
	0.25...0.40	10A	TA25DU0.4
	0.40...0.63	10A	TA25DU0.63
	0.63...1.00	10A	TA25DU1.0
	1.00...1.40	10A	TA25DU1.4
	1.30...1.80	10A	TA25DU1.8
	1.70...2.40	10A	TA25DU2.4
	2.20...3.10	10A	TA25DU3.1
	2.80...4.00	10A	TA25DU4.0
	3.50...5.00	10A	TA25DU5.0
	4.50...6.50	10A	TA25DU6.5
	6.00...8.50	10A	TA25DU8.5
	7.50...11.00	10A	TA25DU11
	10.00...14.00	10A	TA25DU14
	13.00...19.00	10A	TA25DU19
	18.00...25.00	10A	TA25DU25
	24.00...32.00	10A	TA25DU32

TA42DU thermal overload relays

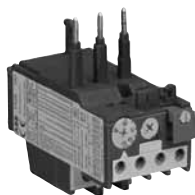
A/E/L30...A/E/L40	18.0...25.0	10A	TA42DU25
	22.0...32.0	10A	TA42DU32
	29.0...42.0	10A	TA42DU42

E16DU electronic overload relays

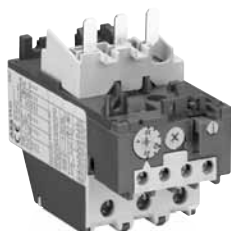
A/E/L9...A/E/L16, A/E/L9N00... A/E/L16N0	0.10...0.32	10E, 20E, 30E	E16DU0.32
	0.30...1.00	10E, 20E, 30E	E16DU1.0
	0.80...2.70	10E, 20E, 30E	E16DU2.7
	1.90...6.30	10E, 20E, 30E	E16DU6.3
	5.70...18.9	10E, 20E, 30E	E16DU18.9

E45DU electronic overload relays

A/E/L26...A/E/L40, A/E/L26N1	9.00...30.0	10E, 20E, 30E	E45DU30
	15.0...45.0	10E, 20E, 30E	E45DU45



TA25DU



TA42DU



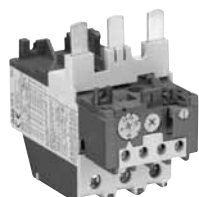
E16DU



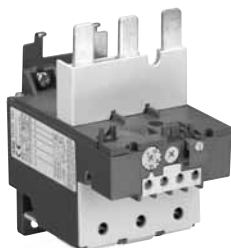
E45DU

Thermal & electronic overload relays

For use with A/E/F50...A/F110, A/E/F50N2...A/E/F75N3
Types TA75DU, TA80DU, TA110DU, E80DU & E140DU



TA75DU



TA110DU



E80DU



E140DU

Ordering details

For contactors	Setting range (A)	Trip class	Catalog number (Class 10A)
TA75DU thermal overload relays			
A/E/F50...A/E/F75, A/E/F50N2... A/E/F75N3	18...25	10A	TA75DU25
	22...32	10A	TA75DU32
	29...42	10A	TA75DU42
	36...52	10A	TA75DU52
	45...63	10A	TA75DU63
	30...80	10A	TA75DU80
TA80DU thermal overload relays			
A/F95...A/F110	29...42	10A	TA80DU42
	36...52	10A	TA80DU52
	45...63	10A	TA80DU63
	60...80	10A	TA80DU80
TA110DU thermal overload relays			
A/F95...A/F110	66...90	10A	TA110DU90
	80...110	10A	TA110DU110
E80DU electronic overload relays			
A/E/F50...A/E/F75, Sz. 2...3	27...80	10E, 20E, 30E	E80DU80
E140DU electronic overload relays			
A/F95...A/F110	50...140	10E, 20E, 30E	E140DU140

Motor
overload
protection

2

Thermal & electronic overload relays

For use with A/F145...A/F300, A/F145N4...A/F260N5
Types TA200DU, TA450DU, E200DU & E320DU

Ordering details

For contactors	Setting range (A)	Trip class	Catalog number
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TA200DU thermal overload relays

A/F145...A/F185, A/F145N4	66...90	10A	TA200DU90
	80...110	10A	TA200DU110
	100...135	10A	TA200DU135
	110...150	10A	TA200DU150
	130...175	10A	TA200DU175
	150...200	10A	TA200DU200

TA450DU thermal overload relays

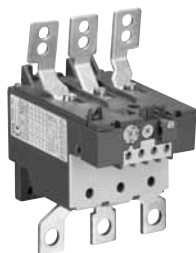
A/F210...A/F300, A/F260N5	130...185	10A	TA450DU185
	165...235	10A	TA450DU235
	220...310	10A	TA450DU310

E200DU electronic overload relays

A/F145...A/F185, Sz. 4	60...200	10E, 20E, 30E	E200DU200
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E320DU electronic overload relays

A/F210...A/F300, Sz. 5	100...320	10E, 20E, 30E	E320DU320
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TA200DU-200



TA450DU



E200DU



E320DU

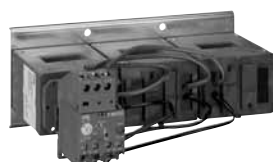
Electronic overload relays

For use with AF400...AF1650, AF460N6...AF1650N8

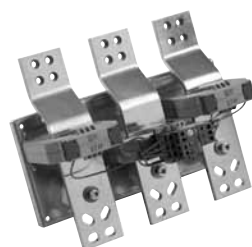
Types E500DU, E800DU & E1250DU



E500DU



E800DU



E1250DU

Ordering details

For contactors	Setting range (A)	Trip class	Catalog number
E500DU electronic overload relays			
AF400...AF460, Sz. 6	150...500	10E, 20E, 30E	E500DU500
E800DU electronic overload relays			
AF580...AF750, Sz. 7	250...800	10E, 20E, 30E	E800DU800
E1250DU electronic overload relays			
AF1350...AF1650, Sz. 8	375...1250	10E, 20E, 30E	E1250DU1250

Terminal shrouds for E500DU and E800DU electronic overload relay

For electronic overload relays	Description	Catalog number
E500DU	LT500E Terminal shroud for E500DU	LT500E
E800DU	LT800E Terminal shroud for E800DU	LT800E

Universal motor controllers

Motor protection, control & diagnostics

UMC100-FBP & accessories



UMC100-FBP

The UMC100-FBP is a flexible, modular and expandable motor management system for constant-speed, low-voltage range motors. Functions include motor protection, control, and diagnostics. Simple, text-based, multilingual diagnosis of motor fault conditions can reduce downtime and improve efficiency.

For more detailed information, please see Publication no. 2CDC135011B0202

Universal motor controller – 0.24...63 A

Type	Description	Catalog number
UMC100-FBP.0	Universal Motor Controller	1SAJ520000R0101
UMC100-FBP.2	Universal Motor Controller, ATEX	1SAJ520000R0201

Note: For applications larger than 63 A, please contact Technical Support regarding the use of current transformers. For power supplies, see Chapter 11.

The UMC100-FBP can be expanded to include one (1) I/O expansion module DX111 or DX122 and one (1) voltage module VI150 or VI155. Expansion modules are connected via 2-wire bus. The maximum distance allowed between the UMC100-FBP and the expansion modules is 3 m.

Voltage expansion modules

Type	Description	Catalog number
VI150-FBP.0	3 analog inputs 150...690V AC, 1 relay output, for 3-phase networks (grounded)	1SAJ650000R0100
VI155-FBP.0	3 analog inputs 150...690V AC, 1 relay output, for 3-phase networks (all)	1SAJ655000R0100

Voltage modules for determining phase voltages, power factor ($\cos \phi$), active power, apparent power, energy, harmonic content (THD)



DX111-FBP.0

Operating panel

Type	Description	Catalog number
UMC100-PAN	Operating, diagnostics and parameter setting panel; direct UMC mounting	1SAJ590000R0102
UMCPAN-CAB.070	0.7 m ext. cable with door mounting set	1SAJ510003R0001
UMCPAN-CAB.150	1.5 m ext. cable with door mounting set	1SAJ510004R0001
UMCPAN-CAB.30	3 m ext. cable with door mounting set	1SAJ510002R0001
DTM software	Advanced programming, parameter assignment	1SAJ924012R0004

- For direct installation on UMC100-FBP or panel door (accessory required)
- Graphics-enabled, backlit display, 3 LEDs for status indication
- Configurable error messages, simple programming using key pad
- Multilingual: English, German, French, Italian, Portuguese, Spanish, and Russian



VI155-FBP.0



UMC100-PAN

Universal motor controllers

Motor protection, control & diagnostics

Accessories for UMC100-FBP

Ground fault monitors

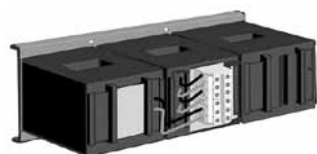


CEM11-FBP

Type	Ground fault currents (mA)	Through-hole diameter	Catalog number
CEM11-FBP.20	80, 300, 550, 750, 1000, 1200, 1500, 1700	20 mm	1SAJ929200R0020
CEM11-FBP.35	100, 500, 1000, 1400, 2000, 2400, 3000, 3400	35 mm	1SAJ929200R0035
CEM11-FBP.60	120, 1000, 2000, 2500, 4000, 4800, 6000, 6800	60 mm	1SAJ929200R0060
CEM11-FBP.120	300, 2000, 4000, 5900, 8000, 9600, 12000, 13600	120 mm	1SAJ929200R0120

Note: lower values have higher inaccuracy

Current transformers KORC



KORC 5L

Type	Designation	Recommended current range	Catalog number
KORC 4L 185 R/4	Current transformer	60...185 A	1SCA022193R7830
KORC 4L 310 R/4	Current transformer	180...310 A	1SCA022181R0760
KORC 5L 500 R/4	Current transformer	300...500 A	1SCA022208R1010
KORC 5L 850 R/4	Current transformer	500...850 A	1SCA022208R1440

KORC connection kit for contactors

Type	Designation	For contactors	Catalog number
DT 450 / A185	Connection kit	A/F145...A/F185	1SAZ501901R1001
DT 450 / A300	Connection kit	A/F210...A/F300	1SAZ501902R1001
DT 500 / AF460L	Connection kit, wye-delta starter	AF400...AF460	1SAX701902R1001
DT 800 / AF750L	Connection kit, wye-delta starter	AF580...AF750	1SAX801902R1001

Panel adaptors, coupling units, shrouds & lug kits

For thermal & electronic OLRs



DB16



DB42



ATK185



ATK750/3

Panel mounting adaptors

For overload relays	Catalog number
T16	DB16
TF42	DB42
TA25DU0.16...25	DB25/25A
TA25DU32	DB25/32A
TA42DU, TA75DU, TA80DU	DB80
TA110DU, TA200DU	DB200
E16DU	DB16E
E45DU	DB45E
E80DU	DB80E
E140DU	DB140E

Note: TA450DU, E200DU...E1250DU are panel-mount standard.

Panel mounting adaptors

For overload relays	To contactors	Catalog number
TA450DU	A/F145...A/F185	DT450/A185
	A/F210...A/F300	DT450/A300
E500DU	AF400...AF460	DT500/AF460S
	AF400...AF460 w/ reversing bus	DT500/AF460L
E800DU	AF580...AF750	DT800/AF750S
	AF580...AF750 w/ reversing bus	DT800/AF750L

Note: T16, TF42, EF19/45, and E16DU...E320DU couple directly to contactors w/o accessory.

Terminal shrouds

For overload relays	Catalog number
TA200DU (load side)	LT200A185
E200DU200	LT200E
E320DU320	LT300E
E500DU500	LT500E
E800DU800	LT800E

Panel mounting adaptors

For overload relays	Wire		Catalog number
	Range	Capacity	
TA110DU, TA200DU	6 AWG...250 MCM	1	EHTK210
TA450DU185...235	4 AWG...400 MCM	1	ATK300HK
TA450DU310	4 AWG...500 MCM	2	ATK300/2HK
E200DU200	4 AWG...300 MCM	1	ATK185
E320DU320	4 AWG...400 MCM	1	ATK300
	4 AWG...500 MCM	2	ATK300/2
E500DU500	2/0 AWG...500 MCM	2	ATK580/2HK
E800DU800	2/0 AWG...500 MCM	3	ATK750/3HK
E1250DU1250	4/0 AWG...500 MCM	4	ATK1350/4

Remote function coils

For Type TA25DU overload relays



DS25A



DR25A

Remote tripping coils

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

Application

- The DS25-A coil is used for remote electrical tripping of the TA25 DU thermal O/L relay and is connected to the relay's normally closed 95-96 auxiliary contact.
- The DR 25-A coil is used for remote electrical resetting of the TA25DU thermal O/L relay which is adjusted for "Manual resetting;" it is connected to the relay's normally open 97-98 auxiliary contact.

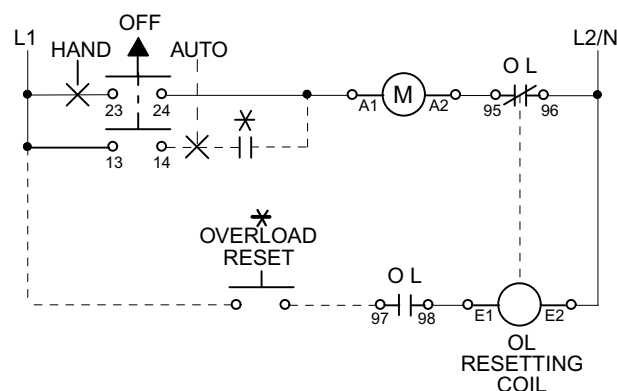
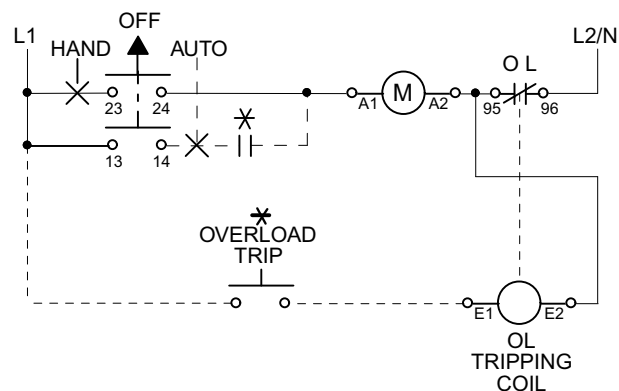
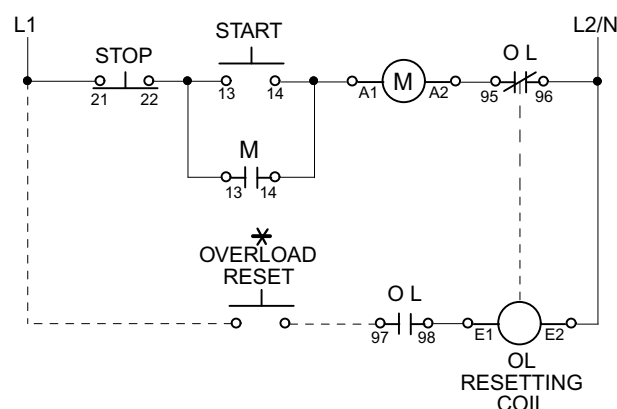
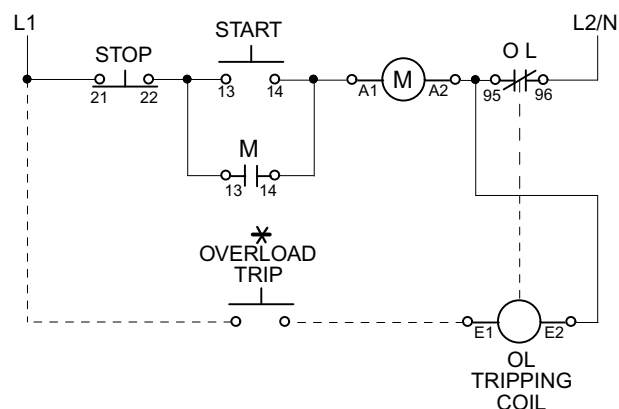
The coils are not designed for continuous duty. Impulse duration: 0.2 to 0.35 s.

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

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

Installation diagrams

For connection of DS25-A to TA25DU relay For connection of DR25-A to TA25DU relay



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

FBP FieldBusPlug

DeviceNet, MODBUS-RTU and CANopen, ordering details

For use with UMC100

DeviceNet FieldBusPlug

Ready-made DeviceNet fieldbus interface with various cable lengths.

- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
DeviceNet-FBP	0.25 m (0.82 ft)	DNP21-FBP.025	1	0.09 (0.198)	1SAJ230000R1003
DeviceNet-FBP	0.50 m (1.64 ft)	DNP21-FBP.050	1	0.10 (0.220)	1SAJ230000R1005
DeviceNet-FBP	1.00 m (3.28 ft)	DNP21-FBP.100	1	0.13 (0.287)	1SAJ230000R1010
DeviceNet-FBP	5.00 m (16.40 ft)	DNP21-FBP.500	1	0.36 (0.794)	1SAJ230000R1050



DNP21-FBP
MRP21-FBP
COP21-FBP

MODBUS-RTU FieldBusPlug

Ready-made MODBUS-RTU fieldbus interface with various cable lengths.

- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
MODBUS-RTU-FBP	0.25 m (0.82 ft)	MRP21-FBP.025	1	0.09 (0.198)	1SAJ250000R0003
MODBUS-RTU-FBP	0.50 m (1.64 ft)	MRP21-FBP.050	1	0.10 (0.220)	1SAJ250000R0005
MODBUS-RTU-FBP	1.00 m (3.28 ft)	MRP21-FBP.100	1	0.13 (0.287)	1SAJ250000R0010
MODBUS-RTU-FBP	5.00 m (16.40 ft)	MRP21-FBP.500	1	0.36 (0.794)	1SAJ250000R0050

CANopen FieldBusPlug

Ready-made CANopen fieldbus interface with various cable lengths.

- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
CANopen-FBP	0.25 m (0.82 ft)	COP21-FBP.025	1	0.09 (0.198)	1SAJ230100R1003
CANopen-FBP	0.50 m (1.64 ft)	COP21-FBP.050	1	0.10 (0.220)	1SAJ230100R1005
CANopen-FBP	1.00 m (3.28 ft)	COP21-FBP.100	1	0.13 (0.794)	1SAJ230100R1010

FBP FieldBusPlug

DeviceNet, MODBUS-RTU and CANopen accessories,
For use with UMC100

Accessories for the DeviceNet, MODBUS-RTU and CANopen bus connector



DNF11-FBP.050



DNM11-FBP.050

DeviceNet, MODBUS-RTU and CANopen round cable for bus junctions

Ready-made bus cable with an M12 connector and an open cable end.

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Round cable with female connector	0.50 m (1.64 ft)	DNF11-FBP.050	1	0.04 (0.088)	1SAJ923002R0005
Round cable with male connector	0.50 m (1.64 ft)	DNM11-FBP.050	1	0.04 (0.088)	1SAJ923003R0005



DNX11-FDP



DNM11-FBP.0

DNF11-FBP.0



DNR11-FBP.120

DeviceNet, MODBUS-RTU and CANopen round cable for bus extension

Ready-made bus cable with M12 male and female connectors

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Extension cable	1.00 m (3.28 ft)	DNX11-FBP.100	1	0.08 (0.176)	1SAJ923001R0010
Extension cable	3.00 m (9.84 ft)	DNX11-FBP.300	1	0.20 (0.441)	1SAJ923001R0030
Extension cable	5.00 m (16.40 ft)	DNX11-FBP.500	1	0.31 (0.683)	1SAJ923001R0050
Round cable	100.00 m (328 ft)	DNC11-FBP.999	1	5.60 (12.346)	1SAJ923004R1000

DeviceNet, MODBUS-RTU and CANopen round cable connectors

Bus cable and coupling accessories

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Male connector for round cable	DNM11-FBP.0	5	0.15 (0.331)	1SAJ923005R0001
Female connector for round cable	DNF11-FBP.0	5	0.15 (0.331)	1SAJ923006R0001

DeviceNet, MODBUS-RTU and CANopen termination resistor

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Termination Resistor, 120 Ohm	DNR11-FBP.120	1	0.02 (0.044)	1SAJ923007R0001

Motor
overload
protection

2

FBP FieldBusPlug

Profibus DP

For use with UMC100

Profibus DP FieldBusPlug

Ready-made Profibus DP fieldbus interface with various cable lengths.

- Supports PROFIBUS DP V0 and V1
- Applicable on all FBP motor starters and other devices
- Degree of protection IP65, diagnostic LED



PDP22-FBP

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Profibus DP FBP	0.25 m (0.82 ft)	PDP22-FBP.025	1	0.09 (0.198)	1SAJ240100R1003
Profibus DP FBP	0.50 m (1.64 ft)	PDP22-FBP.050	1	0.10 (0.220)	1SAJ240100R1005
Profibus DP FBP	1.00 m (3.28 ft)	PDP22-FBP.100	1	0.13 (0.287)	1SAJ240100R1010
Profibus DP FBP	2.00 m (6.56 ft)	PDP22-FBP.200	1	0.20 (0.441)	1SAJ240100R1020
Profibus DP FBP	5.00 m (16.40 ft)	PDP22-FBP.500	1	0.36 (0.794)	1SAJ240100R1050



PDQ22-FBP

Profibus DP FieldBusPlug for 4 devices

PDQ22 is a member of the ABB FieldBusPlug family of bus connectors. It allows the connection of up to four devices to Profibus DP by just using one Profibus node access. This allows a cost efficient device integration for devices that are located physically nearby. PDQ22 supports DP-V0 and DP-V1. The degree of protection is IP66. There are separate diagnosis LEDs for bus and device status.

Note that the accessory PDQ22-FBP only works with the PSR and PSE and not with the PST(B) softstarter.

Designation	Type	Packing piece		Catalog number
Quadruple bus connector	PDQ22-FBP	1		1SAJ240200R0050
DINrail adapter for PDQ22-FBP	CDA11-FBP. 0	1		1SAJ929300R0001
Fixing bracket for passive plug of connection cable	CDP11-FBP.0	1		1SAJ929100R0001



Configuration software

This cable and software can be used for set-up and commissioning of the softstarter as well as to keep back-up of the parameter settings.

Designation	Type	Packing piece		Catalog number
USB to FBP interface cable	UTF21-FBP	1		1SAJ929400R0002
PDP22/PDQ22 Device Type Manager (DTM) incl. FDT/DTM frame application	PBDTM-FBP	1		1SAJ924012R0003

FBP FieldBusPlug

Profibus DP accessories

For use with UMC100

Accessories for the Profibus DP Bus Connector

Profibus DP Round Cable for Bus Junctions

Ready-made bus cable with an M12 connector and an open cable end.

- Application on bus junctions such as e.g. Profibus DB couplers or devices with an integrated Profibus DB interface



PDF11-FBP.50



PDM11-FBP.50

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Round Cable with female connector	0.50 m (1.64 ft)	PDF11-FBP.050	1	0.04 (0.088)	1SAJ924002R0005
Round Cable with male connector	0.50 m (1.64 ft)	PDM11-FBP.050	1	0.04 (0.088)	1SAJ924003R0005

Profibus DP Round Cable for Bus Extension

Ready-made bus cable with M12 male and female connectors

Round cable on coil



PDX11-FBP



PDM11-FBP



PDF11-FBP



PDR11-FBP.150

PDV11-FBP,
PDV12-FBP

PDA11-FBP.050



PDA12-FBP.050

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Extension Cable	0.50 m (1.64 ft)	PDX11-FBP.050	1	0.04 (0.088)	1SAJ924001R0005
Extension Cable	1.00 m (3.28 ft)	PDX11-FBP.100	1	0.08 (0.176)	1SAJ924001R0010
Extension Cable	3.00 m (9.84 ft)	PDX11-FBP.300	1	0.20 (0.441)	1SAJ924001R0030
Extension Cable	5.00 m (16.40 ft)	PDX11-FBP.500	1	0.31 (0.683)	1SAJ924001R0050
Round Cable	100.00 m (328 ft)	PDC11-FBP.999	1	5.60 (12.346)	1SAJ924004R1000

Profibus DP Accessories for Bus Extension

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Male Connector for round cable	PDM11-FBP.0	5	0.03 (0.066)	1SAJ924005R0001
Female Connector for round cable	PDF11-FBP.0	5	0.03 (0.066)	1SAJ924006R0001

Profibus DP Termination Resistor, Miscellaneous Accessories

Designation	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Termination Resistor, 150 Ohm	PDR11-FBP.150	1	0.03 (0.066)	1SAJ924007R0001
Feeding connector 24V DC, Code B-A	PDV11-FBP.0	1	0.04 (0.088)	1SAJ924008R0001
Feeding connector 24V DC, Code A-A	PDV12-FBP.0	1	0.04 (0.088)	1SAJ924011R0001
Adaptor M12-Dsub9-M12 Cable length 0.50m	PDA11-FBP.050	1	0.04 (0.088)	1SAJ924009R0005
Adaptor M12-Dsub9-M12 Cable length 2 x 0.50m	PDA12-FBP.050	1	0.04 (0.088)	1SAJ924010R0005

Extension cable

Designation	Cable length	Type	Packing piece	Weight kg (lb) 1 piece	Catalog number
Extension cable (female/male), shielded	0.3 m (0.98 ft)	CDP15-FBP.030	1		1SAJ929140R0003
Extension cable (female/male), shielded	0.6 m (1.97 ft)	CDP15-FBP.060	1		1SAJ929140R0006
Extension cable (female/male), shielded	1.5 m (4.92 ft)	CDP15-FBP.150	1	0.20 (0.441)	1SAJ929140R0015
Extension cable (male/open), shielded	1.5 m (4.92 ft)	CDP16-FBP.150	1	0.20 (0.441)	1SAJ929150R0015

Motor
overload
protection

IEC technical data

T16 & TF42 thermal OLRs

Utilization & auxiliary characteristics

2

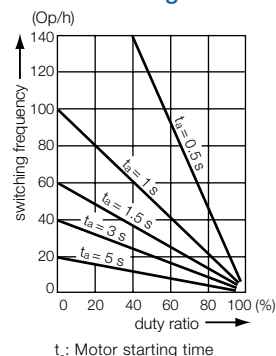
Main circuit – Utilization characteristics according to IEC/EN

Type	T16 & TF42
Standards	IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 60947-1
Rated operational voltage U_n	690 V AC
Rated frequency	50/60 Hz
Trip class	10
Number of poles	3
Duty time	100 %
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"
Rated impulse withstand voltage U_{imp}	6 kV
Rated insulation voltage U_i	690 V AC

Auxiliary circuit according to IEC/EN

Type	T16
Rated operational voltage U_n	600 V
Conventional free air thermal current I_n	N.C., 95-96 N.O., 97-98
	6 A 4 A
Rated frequency	DC, 50/60 Hz
Number of poles	1 N.O. + 1 N.C.
I_g / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category	
110-120 V	N.C., 95-96 N.O., 97-98
	3.00 A 0.75 A
220-230-240 V	N.C., 95-96 N.O., 97-98
	3.00 A 0.75 A
440 V	N.C., 95-96 N.O., 97-98
	0.75 A 0.75 A
480-500 V	N.C., 95-96 N.O., 97-98
	0.75 A 0.75 A
I_g / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category	
24 V	N.C., 95-96 N.O., 97-98
	1.25 A 1.25 A
60 V	N.C., 95-96 N.O., 97-98
	0.55 A 0.55 A
110-120-125 V	N.C., 95-96 N.O., 97-98
	0.55 A 0.55 A
250 V	N.C., 95-96 N.O., 97-98
	0.27 A 0.27 A
Minimum switching capacity	17 V / 3 mA
Short-circuit protective device	N.C., 95-96 N.O., 97-98
	6 A, Fuse type gG 4 A, Fuse type gG
Rated impulse withstand voltage U_{imp}	6 kV
Rated insulation voltage U_i	690 V

Technical diagram – Intermittent periodic duty



UL / CSA technical data

T16 thermal OLRs

Utilization & auxiliary characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	T16
Standards	UL 508, CSA 22.2 No. 14
Maximum operational voltage	600 V AC
Trip rating	125 % of FLA
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"
Short-circuit protective device	See table "Full load amps and short-circuit protective device"

Auxiliary circuit according to UL/CSA

Type	T16
Contact rating	N.C., 95-96 B600, Q300
	N.O., 97-98 D300, Q300
Conventional thermal current	N.C., 95-96 5 A
	N.O., 97-98 2.5 A

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device			
		480 / 600 V AC		480 / 600 V AC	
		Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Fuse type
T16-0.13	0.13 A	18 kA	1 A, K5	100 kA	30 A, Class J
T16-0.17	0.17 A	18 kA	1 A, K5	100 kA	30 A, Class J
T16-0.23	0.23 A	18 kA	1 A, K5	100 kA	30 A, Class J
T16-0.31	0.31 A	18 kA	3 A, K5	100 kA	30 A, Class J
T16-0.41	0.41 A	18 kA	3 A, K5	100 kA	30 A, Class J
T16-0.55	0.55 A	18 kA	3 A, K5	100 kA	30 A, Class J
T16-0.74	0.74 A	18 kA	3 A, K5	100 kA	30 A, Class J
T16-1.0	1.00 A	18 kA	6 A, K5	100 kA	30 A, Class J
T16-1.3	1.30 A	18 kA	6 A, K5	100 kA	30 A, Class J
T16-1.7	1.70 A	18 kA	6 A, K5	100 kA	30 A, Class J
T16-2.3	2.30 A	18 kA	10 A, K5	100 kA	30 A, Class J
T16-3.1	3.10 A	18 kA	10 A, K5	100 kA	30 A, Class J
T16-4.2	4.20 A	18 kA	15 A, K5	100 kA	30 A, Class J
T16-5.7	5.70 A	18 kA	20 A, K5	100 kA	30 A, Class J
T16-7.6	7.60 A	18 kA	25 A, K5	100 kA	30 A, Class J
T16-10	10.0 A	18 kA	35 A, K5	100 kA	45 A, Class J
T16-13	13.0 A	18 kA	40 A, K5	100 kA	45 A, Class J
T16-16	16.0 A	18 kA	60 A, K5	100 kA	45 A, Class J

UL / CSA technical data

TF42 thermal OLRs

Utilization & auxiliary characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	TF42
Standards	UL 508, CSA 22.2 No. 14
Maximum operational voltage	600 V AC
Trip rating	125 % of FLA
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"
Short-circuit protective device	See table "Full load amps and short-circuit protective device"

Auxiliary circuit according to UL/CSA

Type	TF42
Contact rating	N.C., 95-96 B600, Q300
	N.O., 97-98 D300, Q300
Conventional thermal current	N.C., 95-96 5 A
	N.O., 97-98 2.5 A

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device			
		480 / 600 V AC		480 / 600 V AC	
		Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Fuse type
TF42-0.13	0.13 A	18 kA	1 A, K5	100 kA	30 A, Class J
TF42-0.17	0.17 A	18 kA	1 A, K5	100 kA	30 A, Class J
TF42-0.23	0.23 A	18 kA	1 A, K5	100 kA	30 A, Class J
TF42-0.31	0.31 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-0.41	0.41 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-0.55	0.55 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-0.74	0.74 A	18 kA	3 A, K5	100 kA	30 A, Class J
TF42-1.0	1.00 A	18 kA	6 A, K5	100 kA	30 A, Class J
TF42-1.3	1.30 A	18 kA	6 A, K5	100 kA	30 A, Class J
TF42-1.7	1.70 A	18 kA	6 A, K5	100 kA	30 A, Class J
TF42-2.3	2.30 A	18 kA	10 A, K5	100 kA	30 A, Class J
TF42-3.1	3.10 A	18 kA	10 A, K5	100 kA	30 A, Class J
TF42-4.2	4.20 A	18 kA	15 A, K5	100 kA	30 A, Class J
TF42-5.7	5.70 A	18 kA	20 A, K5	100 kA	30 A, Class J
TF42-7.6	7.60 A	18 kA	25 A, K5	100 kA	30 A, Class J
TF42-10	10.0 A	18 kA	35 A, K5	100 kA	45 A, Class J
TF42-13	13.0 A	18 kA	40 A, K5	100 kA	45 A, Class J
TF42-16	16.0 A	18 kA	60 A, K5	100 kA	45 A, Class J
TF42-20	20.0 A	18 kA	80 A, K5	100 kA	60 A, Class J
TF42-24	24.0 A	18 kA	80 A, K5	100 kA	60 A, Class J
TF42-29	29.0 A	18 kA	100 A, K5	100 kA	100 A, Class J
TF42-35	35.0 A	18 kA	150 A, K5	100 kA	175 A, Class J
TF42-38	38.0 A	18 kA	150 A, K5	100 kA	175 A, Class J

General technical data

T16 thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	T16	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +60 °C
Open	Open	-25 ... +60 °C
Storage		-50 ... +80 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	25 g / 11 ms	
Resistance to vibrations acc. to IEC 60068-2-6	3 g / 3 ... 150 Hz	
Mounting position	Position 1-5	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	T16	
Connecting capacity		
 Rigid	1 x 2 x	0.75 ... 4 mm ² 0.75 ... 1.5 mm ² or 1.5 ... 4 mm ² ¹⁾
 Flexible	1 x or 2 x	0.75 ... 4 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-10
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-10
Stripping length	12 mm	
Tightening torques	1.1 ... 1.5 Nm / 9 ... 13 lb.in	
Connection screw	M4 (Pozidriv 2)	

¹⁾ Combination of different wires not possible

Auxiliary circuit

Type	T16	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x 2 x	0.75 ... 2.5 mm ² 0.75 ... 1.5 mm ²
 Flexible	1 x or 2 x	0.75 ... 1 mm ² or 1 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-12
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-12
Stripping length	9 mm	
Tightening torques	1.1 ... 1.5 Nm / 9 ... 13 lb.in	
Connection screw	M3 (Pozidriv 2)	

Motor
overload
protection

General technical data

TF42 thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TF42
Pollution degree	3
Phase loss sensitive	Yes
Ambient air temperature	
Operation	Open - compensated without derating
Open	-25 ... +60 °C
Storage	-25 ... +60 °C
Storage	-50 ... +80 °C
Ambient air temperature compensation	Continuous
Maximum operating altitude permissible	2000 m
Resistance to shock acc. to IEC 60068-2-27	25 g / 11 ms
Resistance to vibrations acc. to IEC 60068-2-6	3 g / 3 ... 150 Hz
Mounting position	Position 1-5
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)
Degree of protection	IP20

Electrical connection

Main circuit

Type	TF42 (TF42-0.13 ... TF42-16)	TF42 (TF42-20 ... TF42-38)
Connecting capacity		
 Rigid	1 x or 2 x 0.75 ... 4 mm ²	1.5 ... 2.5 mm ² or 2.5 ... 10 mm ² ¹⁾
 Flexible with insulated ferrule	1 x or 2 x 0.75 ... 4 mm ²	2.5 ... 4 mm ² or 4 ... 6 mm ²
Stranded acc. to UL/CSA	1 x or 2 x AWG 18-10	AWG 14-6
Flexible acc. to UL/CSA	1 x or 2 x AWG 18-10	AWG 14-6
Stripping length	12 mm	
Tightening torques	1.5 - 2.5 Nm / 13 ... 22 lb.in	2.5 - 2.7 Nm / 22 lb.in
Connection screw	M4 (Pozidriv 2)	

¹⁾ Combination of different wires not possible

Auxiliary circuit

Type	TF42
Connecting capacity	
 Rigid	1 x or 2 x 0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x 0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x 0.75 ... 2.5 mm ²
	2 x 0.75 ... 1.5 mm ²
 Flexible	1 x or 2 x 0.75 ... 1 mm ² or 1 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x AWG 18-12
Flexible acc. to UL/CSA	1 x or 2 x AWG 18-12
Stripping length	9 mm
Tightening torques	1.1 ... 1.5 Nm / 9 ... 13 lb.in
Connection screw	M3 (Pozidriv 2)

IEC technical data

EF19 & EF45 electronic OLRs

Utilization & auxiliary characteristics

2

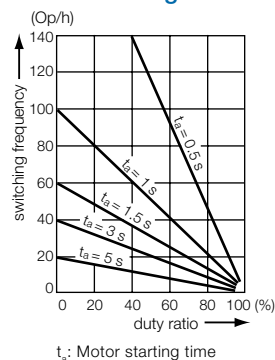
Main circuit – Utilization characteristics according to IEC/EN

Type	EF19	EF45
Standards	IEC 60947-1 / 60947-4-1 / 60947-5-1 and EN 60947-1 / 60947-4-1 / 60947-5-1	
Rated operational voltage U_e	690 V AC	
Rated frequency	50/60 Hz	
Trip class	10E, 20E, 30E, selectable	
Number of poles	3	
Duty time	100 %	
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"	
Rated impulse withstand voltage U_{imp}	6 kV	
Rated insulation voltage U_i	690 V AC	

Auxiliary circuit according to IEC/EN

Type	EF19	EF45
Rated operational voltage U_e	600 V AC / DC	
Conventional free air thermal current I_{th}	6 A	
Rated frequency	DC, 50/60 Hz	
Number of poles	1 N.C. + 1 N.O.	
I_e / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category		
110-120 V	50/60 Hz	3.00 A
220-230-240 V	50/60 Hz	3.00 A
440 V	50/60 Hz	1.10 A
480-500 V	50/60 Hz	0.75 A
I_e / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category		
24 V		1.50 A
60 V		0.55 A
110-120-125 V		0.55 A
250 V		0.27 A
Minimum switching capacity	12 V / 3 mA	
Short-circuit protective device	6 A, Fuse type gG	
Rated impulse withstand voltage U_{imp}	6 kV	
Rated insulation voltage U_i	690 V	

Technical diagram – Intermittent periodic duty



UL / CSA technical data

EF19 & EF45 electronic OLRs

Utilization & auxiliary characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	EF19	EF45
Standards	UL 508, CSA 22.2 No. 14	
Maximum operational voltage	600 V AC	
Trip rating	125 % of FLA	
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"	
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"	
Short-circuit protective device	See table "Full load amps and short-circuit protective device"	

Auxiliary circuit according to UL/CSA

Type	EF19	EF45
Contact rating	N.C., 95-96	B600, Q600
	N.O., 97-98	B600, Q600
Conventional thermal current	5 A	

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device					
		480 V AC		600 V AC			
		SCCR	Fuse type	SCCR	Fuse type	SCCR	Fuse type
EF19-0.32	0.32 A	50 kA	2 A, Class J	5 kA	2 A, K5 / RK5	100 kA	2 A, Class J
EF19-1.0	1.00 A	50 kA	2 A, K5 / RK5	5 kA	2 A, K5 / RK5	100 kA	2 A, Class J
EF19-2.7	2.70 A	50 kA	4 A, K5 / RK5	5 kA	4 A, K5 / RK5	100 kA	4 A, Class J
EF19-6.3	6.30 A	50 kA	15 A, K5 / RK5	5 kA	15 A, K5 / RK5	100 kA	15 A, Class J
EF19-18.9	18.90 A	50 kA	30 A, K5 / RK5	5 kA	30 A, K5 / RK5	100 kA	30 A, Class J

Type	Full load amps (FLA)	Short-circuit protective device					
		480 V AC		600 V AC			
		SCCR	Fuse type	SCCR	Fuse type	SCCR	Fuse type
EF45-30	30 kA	18 kA	150 A, K5 / RK5	18 kA	150 A, K5 / RK5	100 kA	150 A, Class J
EF45-45	45 kA	18 kA	200 A, K5 / RK5	18 kA	200 A, K5 / RK5	100 kA	200 A, Class J

General technical data

EF19 & EF45 electronic OLRs

Terminal & operating characteristics

2

General data

Type	EF19	EF45
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	
Storage	-25 ... +70 °C	
Ambient air temperature compensation	-50 ... +85 °C	
Maximum operating altitude permissible	Continuous	
Resistance to shock acc. to IEC 60068-2-27	2000 m	
Resistance to vibrations acc. to IEC 60068-2-6	15 g / 11 ms	
Mounting position	1 g / 3 ... 150 Hz	
Mounting	Position 1-6	
Degree of protection	Mount on the contactor and tighten the screws of the main circuit terminals	
	IP20	

Electrical connection

Main circuit

Type	EF19	EF45
Connecting capacity		
 Rigid	1 or 2 x	1 ... 4 mm ²
 Flexible with insulated ferrule	1 or 2 x	2.5 ... 16 mm ²
Stranded acc. to UL/CSA	1 or 2 x	2.5 ... 10 mm ²
Flexible acc. to UL/CSA	1 or 2 x	AWG 14-6
Stripping length	9 mm	
Tightening torques	0.75 ... 2.5 mm ²	
Connection screw	0.8 ... 1.5 Nm / 7 ... 13 lb.in	
	2.3 ... 2.6 Nm / 20 ... 22 lb.in	
	M3.5 (Pozidriv 2)	

Auxiliary circuit

Type	EF19	EF45
Connecting capacity		
 Rigid	1 or 2 x	1 ... 4 mm ²
 Flexible with ferrule	1 or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 or 2 x	0.75 ... 2.5 mm ²
 Flexible	1 or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 or 2 x	AWG 18-10
Flexible acc. to UL/CSA	1 or 2 x	AWG 18-10
Stripping length	9 mm	
Tightening torques	0.8 ... 1.2 Nm / 7 ... 11 lb.in	
Connection screw	M3 (Pozidriv 2)	

Motor
overload
protection

IEC technical data

TA25DU, TA42DU, TA75DU, TA80DU & TA110DU thermal OLRs

Utilization & auxiliary characteristics

2

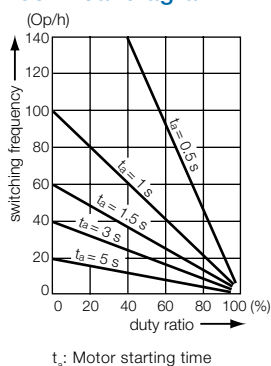
Main circuit – Utilization characteristics according to IEC/EN

Type	TA25DU	TA42DU	TA75DU	TA80DU	TA110DU
Standards	IEC/EN 60947-4-1, IEC/EN 60947-5-1, IEC/EN 60947-1				
Rated operational voltage U_n	690 V AC				
Rated frequency	DC, 50/60 Hz				
Frequency range	0 ... 400 Hz				
Trip class	10A				
Number of poles	3				
Duty time	100 %				
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"				
Rated impulse withstand voltage U_{imp}	6 kV				
Rated insulation voltage U_i	690 V AC				

Auxiliary circuit according to IEC/EN

Type		TA25DU	TA42DU	TA75DU	TA80DU	TA110DU
Rated operational voltage U _n		500 V AC, 440 V DC				
Conventional free air thermal current I _{th}		N.C., 95-96				
		N.O., 97-98				
Rated frequency		DC, 50/60 Hz				
Number of poles		1 N.O. + 1 N.C.				
I _g / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category						
110-120 V		N.C., 95-96				
		N.O., 97-98				
220-230-240 V		N.C., 95-96				
		N.O., 97-98				
440 V		N.C., 95-96				
		N.O., 97-98				
480-500 V		N.C., 95-96				
		N.O., 97-98				
I _g / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category						
24 V		N.C., 95-96				
		N.O., 97-98				
60 V		N.C., 95-96				
		N.O., 97-98				
110-120-125 V		N.C., 95-96				
		N.O., 97-98				
250 V		N.C., 95-96				
		N.O., 97-98				
Minimum switching capacity		17 V / 3 mA				
Short-circuit protective device		N.C., 95-96				
		N.O., 97-98				
Rated impulse withstand voltage U _{imp}		6 A, Fuse type gG				
Rated insulation voltage U _i		6 kV				
		690 V				

Technical diagram – Intermittent periodic duty



UL / CSA technical data

TA25DU & TA42DU thermal OLRs

Utilization & auxiliary characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	TA25DU	TA42DU
Standards	UL 508, CSA 22.2 No. 14	
Maximum operational voltage	600 V AC	
Trip rating	125 % of FLA	
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"	
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"	
Short-circuit protective device	See table "Full load amps and short-circuit protective device"	

Auxiliary circuit according to UL/CSA

Type	TA25DU	TA42DU
Contact rating	N.C., 95-96	C600
	N.O., 97-98	B600
Conventional thermal current	5 A	

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device						
		480 / 600 V AC			480 / 600 V AC		480 / 600 V AC	Fuse type
		Short circuit rating RMS symmetrical	Fuse type	Listed circuit breaker	Short circuit rating RMS symmetrical	Listed circuit breaker	Short circuit rating RMS symmetrical	
TA25DU OLRs								
TA25DU-0.16	0.16 A	5 kA	1.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-0.25	0.25 A	5 kA	1.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-0.4	0.40 A	5 kA	3.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-0.63	0.63 A	5 kA	3.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-1.0	1.0 A	5 kA	6.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-1.4	1.4 A	5 kA	6.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-1.8	1.8 A	5 kA	6.0 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-2.4	2.4 A	5 kA	10 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-3.1	3.1 A	5 kA	10 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-4.0	4.0 A	5 kA	15 A, K5 / RK5	15 A	35 / 18 kA	15 A	50 kA	30 A, Class J
TA25DU-5.0	5.0 A	5 kA	20 A, K5 / RK5	20 A	35 / 18 kA	20 A	50 kA	30 A, Class J
TA25DU-6.5	6.5 A	5 kA	25 A, K5 / RK5	20 A	35 / 18 kA	20 A	50 kA	30 A, Class J
TA25DU-8.5	8.5 A	5 kA	35 A, K5 / RK5	20 A	35 / 18 kA	20 A	50 kA	30 A, Class J
TA25DU-11	11 A	5 kA	45 A, K5 / RK5	50 A	35 / 18 kA	50 A	50 kA	35 A, Class J
TA25DU-14	14 A	5 kA	60 A, K5 / RK5	50 A	35 / 18 kA	50 A	50 kA	60 A, Class J
TA25DU-19	19 A	5 kA	60 A, K5 / RK5	50 A	35 / 18 kA	50 A	50 kA	60 A, Class J
TA25DU-25	25 A	5 kA	70 A, K5 / RK5	70 A	35 / 18 kA	70 A	50 kA	100 A, Class J
TA25DU-32	32 A	5 kA	100 A, K5 / RK5	100 A	35 / 18 kA	100 A	50 kA	100 A, Class J
TA42DU OLRs								
TA42DU-25	25 A	5 kA	80 A, K5 / RK5	80 A	35 / 18 kA	80 A	50 kA	100 A, Class J
TA42DU-32	32 A	5 kA	100 A, K5 / RK5	80 A	35 / 18 kA	80 A	50 kA	100 A, Class J
TA42DU-42	42 A	5 kA	150 A, K5 / RK5	80 A	35 / 18 kA	80 A	50 kA	200 A, Class J

Motor
overload
protection

UL / CSA technical data

TA75DU, TA80DU & TA110DU thermal OLRs

Utilization & auxiliary characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	TA75DU	TA80DU	TA110DU
Standards	UL 508, CSA 22.2 No. 14		
Maximum operational voltage	600 V AC		
Trip rating	125 % of FLA		
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"		
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"		
Short-circuit protective device	See table "Full load amps and short-circuit protective device"		

Auxiliary circuit according to UL/CSA

Type	TA75DU	TA80DU	TA110DU
Contact rating	N.C., 95-96	C600	
	N.O., 97-98	B600	
Conventional thermal current	5 A		

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device						
		480 / 600 V AC						
		Short circuit rating RMS symmetrical	Fuse type	Listed circuit breaker	Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Listed circuit breaker
TA75DU OLRs								
TA75DU-25	25 A	5 kA	80 A, K5 / RK5	80 A	–	–	–	–
TA75DU-32	32 A	5 kA	100 A, K5 / RK5	80 A	–	–	–	–
TA75DU-42	42 A	5 kA	150 A, K5 / RK5	80 A	–	–	–	–
TA75DU-52	52 A	5 kA	175 A, K5 / RK5	125 A	–	–	–	–
TA75DU-63	63 A	10 kA	200 A, K5 / RK5	125 A	–	–	–	–
TA75DU-80	80 A	10 kA	250 A, K5 / RK5	125 A	–	–	–	–
TA80DU OLRs								
TA80DU-42	42 A	5 kA	150 A, K5 / RK5	80 A	–	–	–	–
TA80DU-52	52 A	5 kA	175 A, K5 / RK5	125 A	–	–	–	–
TA80DU-63	63 A	10 kA	200 A, K5 / RK5	125 A	–	–	–	–
TA80DU-80	80 A	10 kA	250 A, K5 / RK5	125 A	–	–	–	–
TA110DU OLRs								
TA110DU-90	90 A	10 kA	250 A, K5 / RK5	150 A	65 kA	200 A, Class J	65 / 25 kA	150 A
TA110DU-110	110 A	10 kA	250 A, K5 / RK5	250 A	65 kA	200 A, Class J	65 / 25 kA	150 A

General technical data

TA25DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA25DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Storage	Open	-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)	
Degree of protection	IP20	

Electrical connection

Main circuit

Type		TA25DU (0.16-11 A)	TA25DU (14-25 A)	TA25DU (32 A)
Connecting capacity				
 Rigid	1 x	0.75 ... 4 mm ²	1.5 ... 6 mm ²	1.5 ... 10 mm ²
	2 x	0.75 ... 4 mm ²	1.5 ... 6 mm ²	-
 Flexible with insulated ferrule	1 x or 2 x ¹⁾	0.75 ... 4 mm ²	1.5 ... 4 mm ²	1.5 ... 6 mm ²
Stranded acc. to UL/CSA	1 x	AWG 16-8	AWG 16-8	AWG 10-8
	2 x	AWG 16-8	AWG 16-8	-
Flexible acc. to UL/CSA	1 x	AWG 16-8	AWG 16-8	AWG 10-8
	2 x	AWG 16-8	AWG 16-8	-
Stripping length		12 mm	12 mm	15 mm
Tightening torques		1.4 - 2.0 Nm / 12 lb.in	1.4 - 2.0 Nm / 12 lb.in	2.5 - 3.2 Nm / 20 lb.in
Connection screw		M4 (Pozidriv 2)	M4 (Pozidriv 2)	M5 (Pozidriv 2)

¹⁾ Combination of different wires not possible

Auxiliary circuit

Type	TA25DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

Motor
overload
protection

General technical data

TA42DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA42DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Storage	Open	-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	TA42DU	
Connecting capacity		
 Rigid	1 x	2.5 ... 25 mm ²
	2 x	2.5 ... 16 mm ²
 Flexible with insulated ferrule	1 x	2.5 ... 25 mm ²
	2 x	2.5 ... 10 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 8-1
Flexible acc. to UL/CSA	1 x or 2 x	AWG 8-1
Stripping length	14 mm	
Tightening torques	4.5 Nm / 40 lb.in	
Connection screw	M6 (Pozidriv 2)	

Auxiliary circuit

Type	TA42DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

General technical data

TA75DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA75DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Storage	Open	-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	TA75DU	
Connecting capacity		
 Rigid	1 x	2.5 ... 25 mm ²
	2 x	2.5 ... 16 mm ²
 Flexible with insulated ferrule	1 x	2.5 ... 25 mm ²
	2 x	2.5 ... 10 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 8-1
Flexible acc. to UL/CSA	1 x or 2 x	AWG 8-1
Stripping length	14 mm	
Tightening torques	4.5 Nm / 40 lb.in	
Connection screw	M6 (Pozidriv 2)	

Auxiliary circuit

Type	TA75DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

Motor
overload
protection

General technical data

TA80DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA80DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Storage	Open	-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit on DIN rail (35 mm)	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	TA80DU	
Connecting capacity		
 Rigid	1 x	2.5 ... 25 mm ²
	2 x	2.5 ... 16 mm ²
 Flexible with insulated ferrule	1 x	2.5 ... 25 mm ²
	2 x	2.5 ... 10 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 8-1
Flexible acc. to UL/CSA	1 x or 2 x	AWG 8-1
Stripping length	14 mm	
Tightening torques	4.5 Nm / 40 lb.in	
Connection screw	M6 (Pozidriv 2)	

Auxiliary circuit

Type	TA80DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

General technical data

TA110DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA110DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Storage	Open	-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	TA110DU	
Connecting capacity		
 Rigid	1 x	16 ... 35 mm²
	2 x	-
 Flexible	1 x	16 ... 35 mm²
	2 x	-
Stranded acc. to UL/CSA	1 x or 2 x	AWG 6-2/0
Flexible acc. to UL/CSA	1 x or 2 x	AWG 6-2/0
Stripping length	25 mm	
Tightening torques	7.2 ... 9.6 Nm / 40 lb.in	
Connection screw	M8 (Hexagon)	

Auxiliary circuit

Type	TA110DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm²
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 2.5 mm²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

Motor
overload
protection

IEC technical data

E16DU, E45DU, E80DU electronic OLRs

Utilization & auxiliary characteristics

2

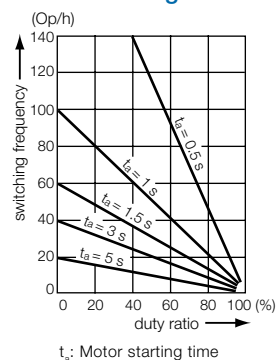
Main circuit – Utilization characteristics according to IEC/EN

Type	E16DU	E45DU	E80DU	E140DU
Standards	IEC 60947-1 / 60947-4-1 / 60947-5-1 and EN 60947-1 / 60947-4-1 / 60947-5-1			
Rated operational voltage U _n	690 V AC		1000 V AC	
Rated frequency	50/60 Hz			
Trip class	10E, 20E, 30E, selectable			
Number of poles	3			
Duty time	100 %			
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"			
Rated impulse withstand voltage U _{imp}	6 kV			
Rated insulation voltage U _i	690 V AC		1000 V AC	

Auxiliary circuit according to IEC/EN

Type	E16DU	E45DU	E80DU	E140DU
Rated operational voltage U_n	600 V AC / DC			
Conventional free air thermal current I_{th}	6 A			
Rated frequency	DC, 50/60 Hz			
Number of poles	1 N.C. + 1 N.O.			
I_n / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category				
110-120 V	50/60 Hz	3.00 A		
220-230-240 V	50/60 Hz	3.00 A		
440 V	50/60 Hz	1.10 A		
480-500 V	50/60 Hz	0.72 A		
I_n / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category				
24 V	1.50 A			
60 V	0.55 A			
110-120-125 V	0.55 A			
250 V	0.27 A			
Minimum switching capacity	12 V / 3 mA			
Short-circuit protective device	6 A, Fuse type gG			
Rated impulse withstand voltage U_{imp}	6 kV			
Rated insulation voltage U_i	690 V			

Technical diagram – Intermittent periodic duty



UL / CSA technical data**E16DU, E45DU, E80DU, E140DU electronic OLRs**
Technical data

2

Main circuit – Utilization characteristics according to UL/CSA

Type	E16DU	E45DU	E80DU	E140DU
Standards	UL 508, CSA 22.2, No. 14			
Maximum operational voltage	600 V AC			
Trip rating	125 % of FLA			
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"			
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"			
Short-circuit protective device	See table "Full load amps and short-circuit protective device"			

Auxiliary circuit according to UL/CSA

Type	E16DU	E45DU	E80DU	E140DU
Contact rating	B600, Q300			
Conventional thermal current	5 A			

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device					
		480 V AC		600 V AC			
		SCCR	Fuse type	SCCR	Fuse type	SCCR	Fuse type
E16DU-0.32	0.32 A	50 kA	2 A, Class J	5 kA	2 A, K5 / RK5	100 kA	2 A, Class J
E16DU-1.0	1.00 A	50 kA	2 A, K5 / RK5	5 kA	2 A, K5 / RK5	100 kA	2 A, Class J
E16DU-2.7	2.70 A	50 kA	4 A, K5 / RK5	5 kA	4 A, K5 / RK5	100 kA	4 A, Class J
E16DU-6.3	6.30 A	50 kA	15 A, K5 / RK5	5 kA	15 A, K5 / RK5	100 kA	15 A, Class J
E16DU-18.9	18.90 A	50 kA	30 A, K5 / RK5	5 kA	30 A, K5 / RK5	100 kA	30 A, Class J

Type	Full load amps (FLA)	Short-circuit protective device			
		600 V AC			
		SCCR	Fuse type	SCCR	Fuse type
E45DU-30	30 A	18 kA	150 A, K5 / RK5	100 kA	150 A, Class J
E45DU-45	45 A	18 kA	200 A, K5 / RK5	100 kA	200 A, Class J

Type	Full load amps (FLA)	Short-circuit protective device	
		600 V AC	
		SCCR	Fuse type
E80DU-80	80 A	18 kA	300 A, K5 / RK5

Type	Full load amps (FLA)	Short-circuit protective device	
		600 V AC	
		SCCR	Fuse type
E140DU-140	140 A	18 kA	400 A, K5 / RK5

Motor
overload
protection

General technical data

E16DU, E45DU, E80DU, E140DU electronic OLRs

Technical data

2

General data

Type	E16DU	E45DU	E80DU	E140DU
Pollution degree	3			
Phase loss sensitive	Yes			
Ambient air temperature				
Operation	Open - compensated without derating			
Storage	-25 ... +70 °C			
Ambient air temperature compensation	Continuous			
Maximum operating altitude permissible	2000 m			
Resistance to shock acc. to IEC 60068-2-27	15 g / 11 ms			
Resistance to vibrations acc. to IEC 60068-2-6	5 g / 3 ... 150 Hz			
Mounting position	Position 1-6			
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit			
Degree of protection	IP20			

Electrical connection

Main circuit

Type	E16DU	E45DU	E80DU	E140DU
Connecting capacity				
 Rigid	1 x 1 ... 4 mm ² 2 x 1 ... 4 mm ²	2.5 ... 16 mm ² 2.5 ... 16 mm ²	6 ... 95 mm ² 6 ... 35 mm ²	6 ... 95 mm ² 6 ... 35 mm ²
 Flexible with insulated ferrule	1 x 0.75 ... 2.5 mm ² 2 x 0.75 ... 2.5 mm ²	2.5 ... 10 mm ² 2.5 ... 10 mm ²	6 ... 70 mm ² 6 ... 35 mm ²	6 ... 70 mm ² 6 ... 35 mm ²
Stranded acc. to UL/CSA	1 x AWG 16-10 2 x AWG 16-10	AWG 14-6 AWG 14-6	AWG 10-0 -	AWG 8-0 -
Flexible acc. to UL/CSA	1 x AWG 16-10 2 x AWG 16-10	AWG 14-6 AWG 14-6	AWG 10-0 -	AWG 8-0 -
Stripping length	9 mm	13 mm	-	-
Tightening torques	0.8 - 1.5 Nm / 7 lb.in	2.3 - 2.6 Nm / 22 lb.in	6 - 6.5 Nm / 53 lb.in	6 - 6.5 Nm / 53 lb.in
Connection screw	M3.5 (Pozidriv 2)	M5 (Pozidriv 2)	M8 (inbus 4)	M8 (inbus 4)

Auxiliary circuit

Type	E16DU	E45DU	E80DU	E140DU
Connecting capacity				
 Rigid	1 or 2 x	1 ... 4 mm ²		
 Flexible with ferrule	1 or 2 x	0.75 ... 2.5 mm ²		
 Flexible with insulated ferrule	1 or 2 x	0.75 ... 2.5 mm ²		
 Flexible	1 or 2 x	0.75 ... 2.5 mm ²		
Stranded acc. to UL/CSA	1 or 2 x	AWG 16-10		
Flexible acc. to UL/CSA	1 or 2 x	AWG 16-10		
Stripping length		9 mm		
Tightening torques		0.8 ... 1.2 Nm / 7 lb.in		
Connection screw		M3.5 (Pozidriv 2)		

IEC technical data

TA200DU & TA450DU thermal OLRs

Utilization & auxiliary characteristics

2

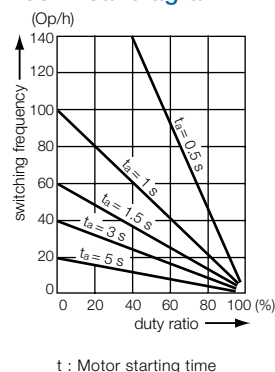
Main circuit – Utilization characteristics according to IEC/EN

Type	TA200DU TA450DU
Standards	IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1
Rated operational voltage U_n	690 V AC
Rated frequency	DC, 50/60 Hz
Frequency range	0 ... 400 Hz
Trip class	10A
Number of poles	3
Duty time	100 %
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"
Rated impulse withstand voltage U_{imp}	6 kV
Rated insulation voltage U_i	690 V AC

Auxiliary circuit according to IEC/EN

Type	TA200DU TA450DU
Rated operational voltage U_n	500 V AC, 440 V DC
Conventional free air thermal current I_{th}	N.C., 95-96 10 A N.O., 97-98 6 A
Rated frequency	DC, 50/60 Hz
Number of poles	1 N.O. + 1 N.C.
I_g / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category	
110-120 V	N.C., 95-96 3.00 A N.O., 97-98 3.00 A
220-230-240 V	N.C., 95-96 3.00 A N.O., 97-98 3.00 A
440 V	N.C., 95-96 1.90 A N.O., 97-98 1.00 A
480-500 V	N.C., 95-96 1.00 A N.O., 97-98 1.00 A
I_g / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category	
24 V	N.C., 95-96 1.25 A N.O., 97-98 1.25 A
60 V	N.C., 95-96 0.25 A N.O., 97-98 0.25 A
110-120-125 V	N.C., 95-96 0.25 A N.O., 97-98 0.25 A
250 V	N.C., 95-96 0.12 A N.O., 97-98 0.04 A
Minimum switching capacity	17 V / 3 mA
Short-circuit protective device	N.C., 95-96 10 A, Fuse type gG N.O., 97-98 6 A, Fuse type gG
Rated impulse withstand voltage U_{imp}	6 kV
Rated insulation voltage U_i	690 V

Technical diagram – Intermittent periodic duty



Motor
overload
protection

UL / CSA technical data

TA200DU & TA450DU thermal OLRs

Utilization & auxiliary characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	TA200DU TA450DU
Standards	UL 508, CSA 22.2 No. 14
Maximum operational voltage	600 V AC
Trip rating	125 % of FLA
Full load amps (FLA)	See table "Full load amps and short-circuit protective device"
Short-circuit rating RMS symmetrical	See table "Full load amps and short-circuit protective device"
Short-circuit protective device	See table "Full load amps and short-circuit protective device"

Auxiliary circuit according to UL/CSA

Type	TA200DU TA450DU
Contact rating	N.C., 95-96 C600
	N.O., 97-98 B600
Conventional thermal current	5 A

Full load amps and short-circuit protective device

Type	Full load amps (FLA)	Short-circuit protective device 480 / 600 V AC						
		Short circuit rating RMS symmetrical	Fuse type	Listed circuit breaker	Short circuit rating RMS symmetrical	Fuse type	Short circuit rating RMS symmetrical	Listed circuit breaker
TA200DU OLRs								
TA200DU-90	90 A	10 kA	250 A, K5 / RK5	225 A	-	-	-	-
TA200DU-110	110 A	10 kA	250 A, K5 / RK5	225 A	-	-	18 kA	125 A
TA200DU-135	135 A	10 kA	300 A, K5 / RK5	225 A	50 kA	400 A, Class J	35 / 18 kA	225 A
TA200DU-150	150 A	10 kA	300 A, K5 / RK5	225 A	65 kA	400 A, Class J	35 / 18 kA	225 A
TA200DU-175	175 A	10 kA	300 A, K5 / RK5	225 A	65 kA	400 A, Class J	35 / 18 kA	225 A
TA200DU-200	200 A	10 kA	400 A, K5 / RK5	400 A	65 kA	400 A, Class J	35 / 18 kA	225 A
TA450DU OLRs								
TA450DU-185	185 A	10 kA	na	na	-	-	-	-
TA450DU-235	235 A	10 kA	na	na	-	-	-	-
TA450DU-310	310 A	18 kA	na	na	-	-	-	-

General technical data

TA200DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA200DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Storage	Open	-25 ... +55 °C
Storage		-40 ... +70 °C
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Mounting	Mount on the contactor and tighten the screws of the main circuit terminals or with single mounting kit	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	TA200DU	
Connecting capacity		
 Rigid	1 x	25 ... 120 mm ²
 Flexible	1 x	16 ... 35 mm ²
 Lugs		L ≤ 12 mm / l > 6 mm
Tightening torques	4 Nm	
Connection screw	M6	

Auxiliary circuit

Type	TA200DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

Motor
overload
protection

General technical data

TA450 DU thermal OLRs

Terminal & operating characteristics

2

General technical data

Type	TA450DU	
Pollution degree	3	
Phase loss sensitive	Yes	
Ambient air temperature		
Operation	Open - compensated without derating	-25 ... +55 °C
Open	Open	-25 ... +55 °C
Storage	-40 ... +70 °C	
Ambient air temperature compensation	Continuous	
Maximum operating altitude permissible	2000 m	
Resistance to shock acc. to IEC 60068-2-27	12 g / 15 ms	
Mounting position	Position 1-6	
Degree of protection	IP20	

Electrical connection

Main circuit

Type	TA450DU	
Connecting capacity		
Bar	Max. 21 x 28.4 mm	

Auxiliary circuit

Type	TA450DU	
Connecting capacity		
 Rigid	1 x or 2 x	0.75 ... 4 mm ²
 Flexible with ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x or 2 x	0.75 ... 2.5 mm ²
 Flexible	1 x or 2 x	0.75 ... 2.5 mm ²
Stranded acc. to UL/CSA	1 x or 2 x	AWG 18-14
Flexible acc. to UL/CSA	1 x or 2 x	AWG 18-14
Stripping length	9 mm	
Tightening torques	0.8 ... 1.3 Nm / 12 lb.in	
Connection screw	M3.5 (Pozidriv 2)	

IEC technical data

E200DU, E320DU, E500DU, E800DU & E1250DU electronic OLRs
Utilization & auxiliary characteristics

2

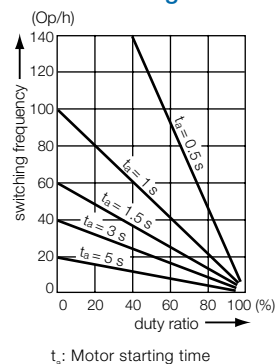
Main circuit – Utilization characteristics according to IEC/EN

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Standards	IEC 60947-1 / 60947-4-1 / 60947-5-1 and EN 60947-1 / 60947-4-1 / 60947-5-1				
Rated operational voltage U_n	1000 V AC				
Rated frequency	50/60 Hz				
Trip class	10E, 20E, 30E, selectable				
Number of poles	3				
Duty time	100 %				
Operating frequency without early tripping	Up to 15 operations/h, see "Technical diagram – Intermittent periodic duty"				
Rated impulse withstand voltage U_{imp}	8 kV				
Rated insulation voltage U_i	1000 V AC				

Auxiliary circuit according to IEC/EN

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Rated operational voltage U_n	600 V AC / DC				
Conventional free air thermal current I_n	6 A				
Rated frequency	DC, 50/60 Hz				
Number of poles	1 N.C. + 1 N.O.				
I_o / Rated operational current AC-15 acc. to IEC/EN 60947-5-1 for utilization category					
110-120 V	50/60 Hz				
220-230-240 V	50/60 Hz				
440 V	50/60 Hz				
480-500 V	50/60 Hz				
I_o / Rated operational current DC-13 acc. to IEC/EN 60947-5-1 for utilization category					
24 V	1.50 A				
60 V	0.55 A				
110-120-125 V	0.55 A				
250 V	0.27 A				
Minimum switching capacity	12 V / 3 mA				
Short-circuit protective device	6 A, Fuse type gG				
Rated impulse withstand voltage U_{imp}	8 kV				
Rated insulation voltage U_i	690 V				

Technical diagram – Intermittent periodic duty



Motor
overload
protection

UL / CSA technical data

E200DU, E320DU, E500DU, E800DU & E1250DU electronic OLRs

Utilization, auxiliary, operating & terminal characteristics

2

Main circuit – Utilization characteristics according to UL/CSA

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Standards	UL 508, CSA 22.2 No. 14				
Maximum operational voltage	600 V AC				
Trip rating	125 % of FLA				

Auxiliary circuit according to UL/CSA

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Contact rating	N.C., 95-96		B600, Q300		
	N.O., 97-98		B600, Q300		
Conventional thermal current	5 A				

General data

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Pollution degree	3				
Phase loss sensitive	Yes				
Ambient air temperature					
Operation	Open - compensated without derating				
Storage	-25 ... +70 °C				
Ambient air temperature compensation	-50 ... +85 °C				
Maximum operating altitude permissible	Continuous				
Resistance to shock acc. to IEC 60068-2-27	2000 m				
Resistance to vibrations acc. to IEC 60068-2-6	15 g / 11 ms				
Mounting position	5 g / 3 ... 150 Hz				
Mounting	Position 1-6 (E200/320 only)				
Degree of protection	Mount on the contactor and tighten the screws of the main circuit terminals (E200/320 only)				
	IP20				

Electrical connection

Auxiliary circuit

Type	E200DU	E320DU	E500DU	E800DU	E1250DU
Connecting capacity					
 Rigid	1 or 2 x				
 Flexible with ferrule	1 or 2 x				
 Flexible with insulated ferrule	1 or 2 x				
 Flexible	1 or 2 x				
Stranded acc. to UL/CSA	1 or 2 x				
Flexible acc. to UL/CSA	1 or 2 x				
Stripping length	1 ... 4 mm²				
Tightening torques	0.75 ... 2.5 mm²				
Connection screw	0.75 ... 2.5 mm²				
	AWG 16-10				
	AWG 16-10				
	9 mm				
	0.8 ... 1.2 Nm / 7 lb.in				
	M3.5 (Pozidriv 2)				

IEC / UL / CSA technical data

UMC100-FBP & accessories

2

Basic devices UMC100-FBP

Main power

Voltage	max. 1000 V AC
Frequency	45...65 Hz
Rated motor current	0.24...63 A, without accessories Greater currents with external transformer
Tripping classes	5E, 10E, 20E, 30E, 40E in acc. With IEC/EN 60947-4-1
Short-circuit protection	Separate fuse on network side

Control unit

Supply voltage	24 V DC
Inputs	6 digital inputs 24 V DC 1 PTC input
Outputs	3 digital relay outputs 1 digital transistor output
Interfaces	1 for ABB FieldBusPlug 1 for UMC100-PAN control station 1 for expansion module

Expansion modules

The UMC100-FBP can be expanded to include one (1) I/O expansion module DX111 or DX122 and one (1) voltage module VI150 or VI155. Expansion modules are connected via 2-wire bus. The maximum distance allowed between the UMC100-FBP and the expansion modules is 3 m.

Digital expansion modules DX111 / DX122

Expands the UMC100 to include additional digital inputs and outputs and an analog output

Supply voltage	24 V DC
Inputs	DX111 8 digital inputs 24 V DC DX122 8 digital inputs 110/230V DC
Outputs	4 digital relay outputs 1 analog output, 0/4...20 mA or 0...10V configurable

Voltage modules VI150 / VI155

Voltage modules for determining phase voltages, power factor (cos θ), active power, apparent power, energy, harmonic content (THD)

Application	VI150 for use in grounded networks VI155 for use in grounded and ungrounded networks
Supply voltage	24 V DC
Voltage inputs	L1, L2, L3
Rated voltage range	150...690 V AC
Outputs	1 digital relay output

UMC100-PAN control panel

For direct installation on UMC100-FBP or panel door (accessory required)

Graphics-enabled, backlit display, 3 LEDs for status indication

Configurable error messages

Multilingual: English, German, French, Italian, Portuguese, Spanish, and Russian

UMC100-PAN control panel

Only required for rated motor currents > 63 A

Linear transformer, 3-phase with terminal block, designed for connecting leads Cu 2.5 mm² / 14 AWG

UMC100-PAN control panel

Summation current transformer for connecting to a digital input

Mounting with bracket on DIN busbar

Models

CEM11-FBP.20	80...1,700mA	20mm Ø
CEM11-FBP.35	100...3,400mA	35mm Ø
CEM11-FBP.60	120...6,800mA	60mm Ø
CEM11-FBP.120	300...13,600mA	120mm Ø

Fieldbus connector FBP

For communication with fieldbus systems, supply with 24 V DC via fieldbus cable

Installation won the UMC100; for plug-in systems, the fieldbus connector is mounted externally

Assembled connectors with various cable lengths, M12 connection technology for reliable contacting

Extensive range of accessories available

Models

PDP22-FBP	Profibus DP V0/V1
DNP21-FBP	Devicenet
MRP21-FBP	Modbus RTU
COP21-FBP	CANopen
PDQ22-FBP	Profibus DP V0/V1 (for the connection of 1 to 4 UMC100s)

Motor
overload
protection

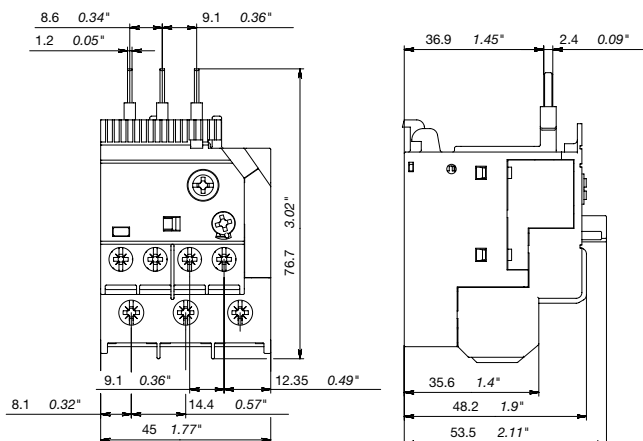
Approximate dimensions

Thermal overload relays

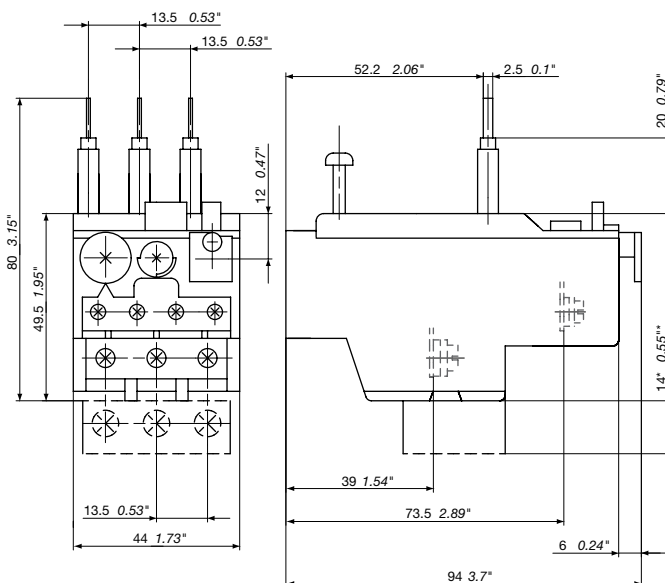
T16...T42DU

2

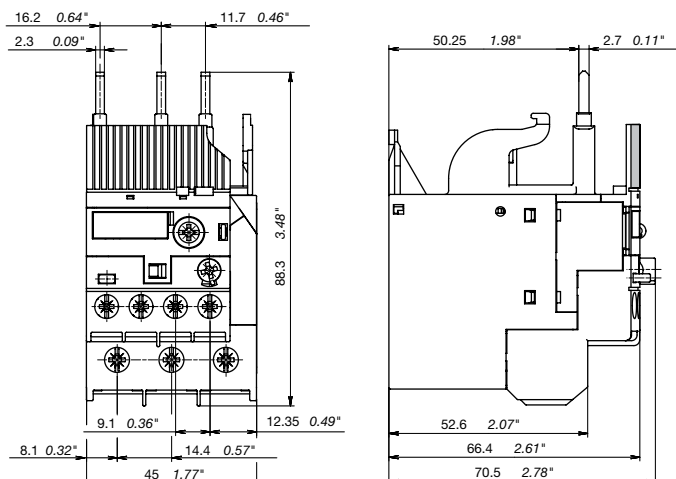
T16DU



TA25DU



TF42DU



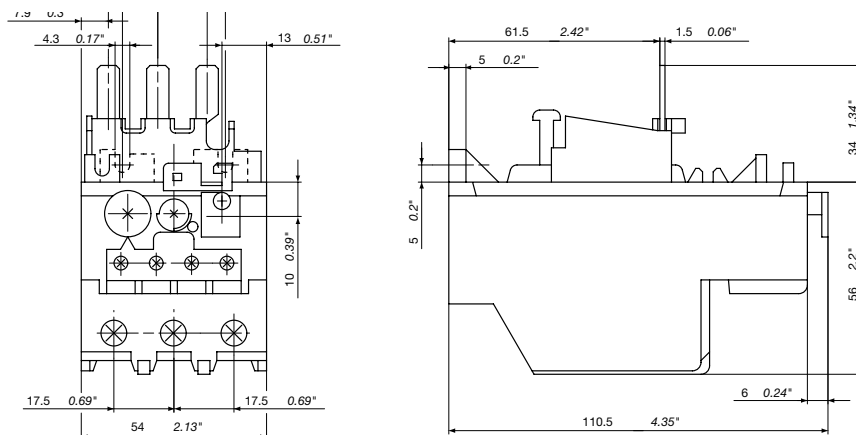
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Thermal overload relays

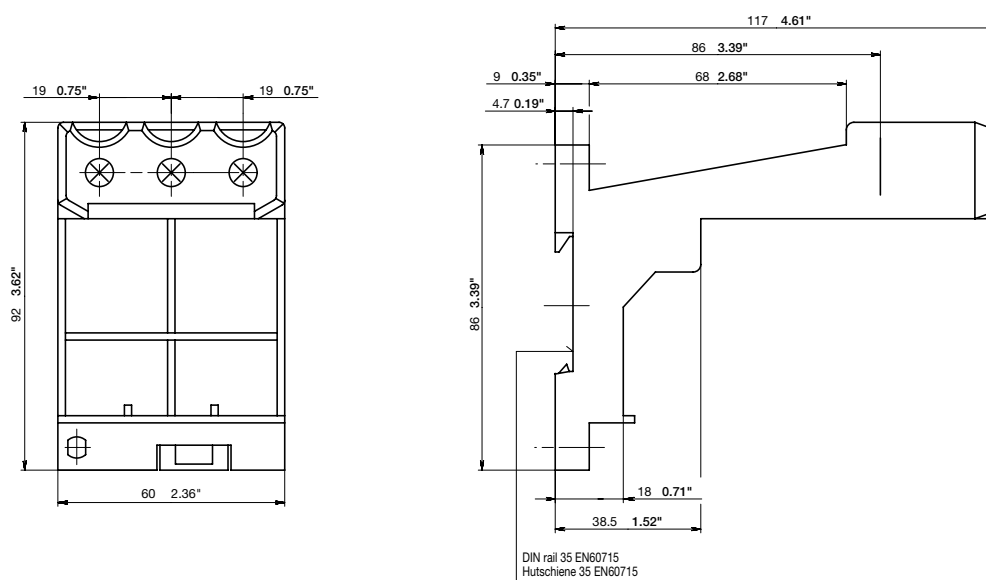
TA42DU...TA80DU

2

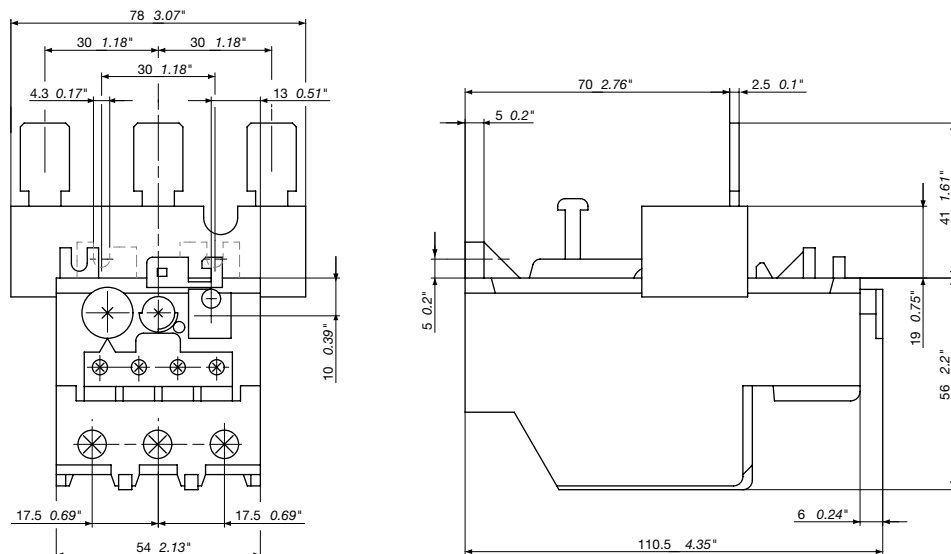
TA42DU



TA75DU



TA80DU



Motor
overload
protection

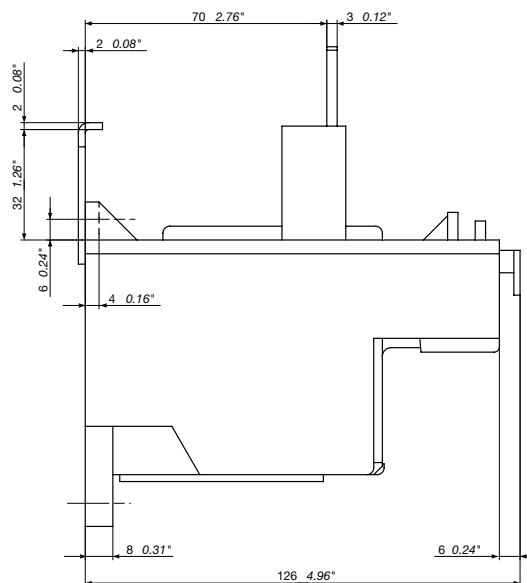
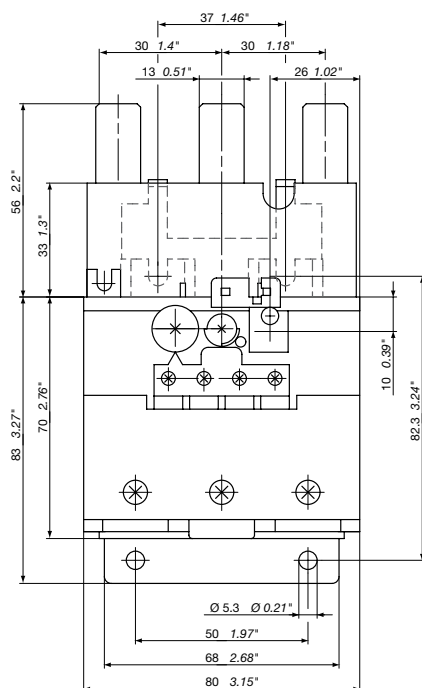
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Thermal overload relays

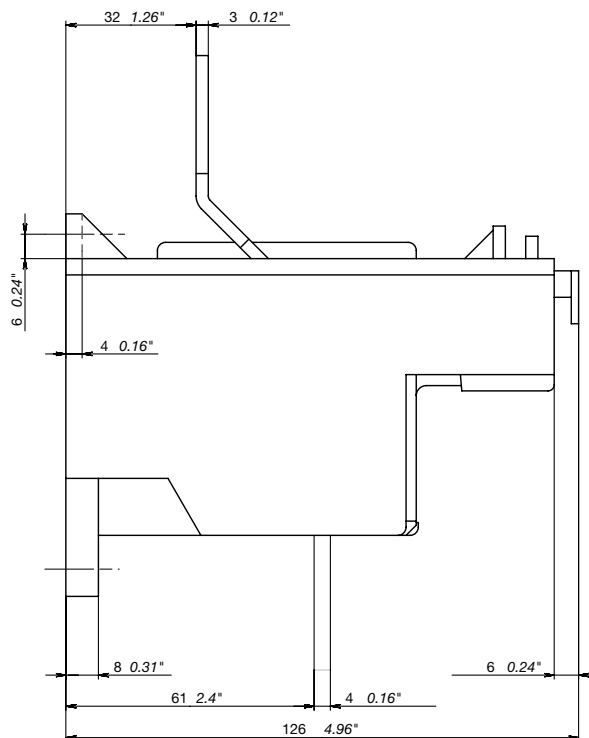
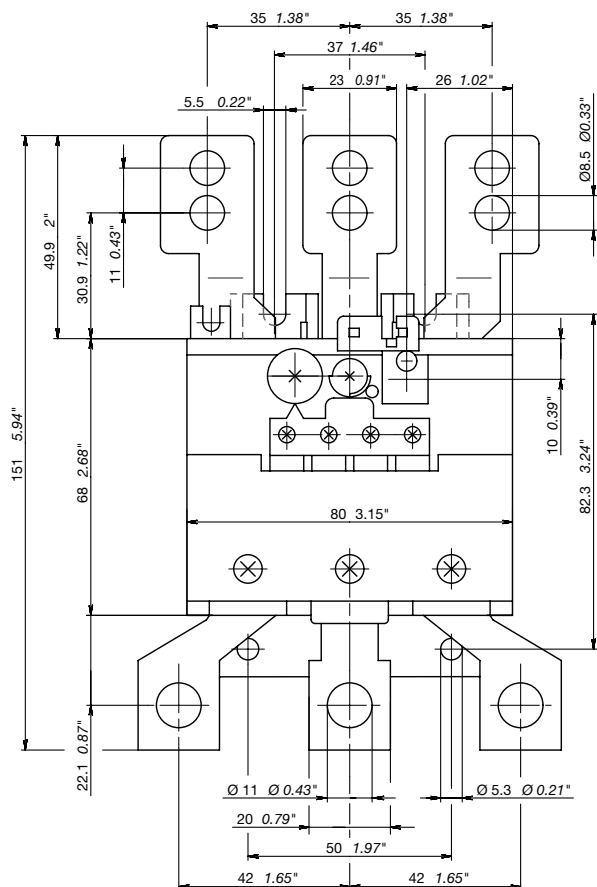
TA110DU & TA200DU

2

TA110DU



TA200DU

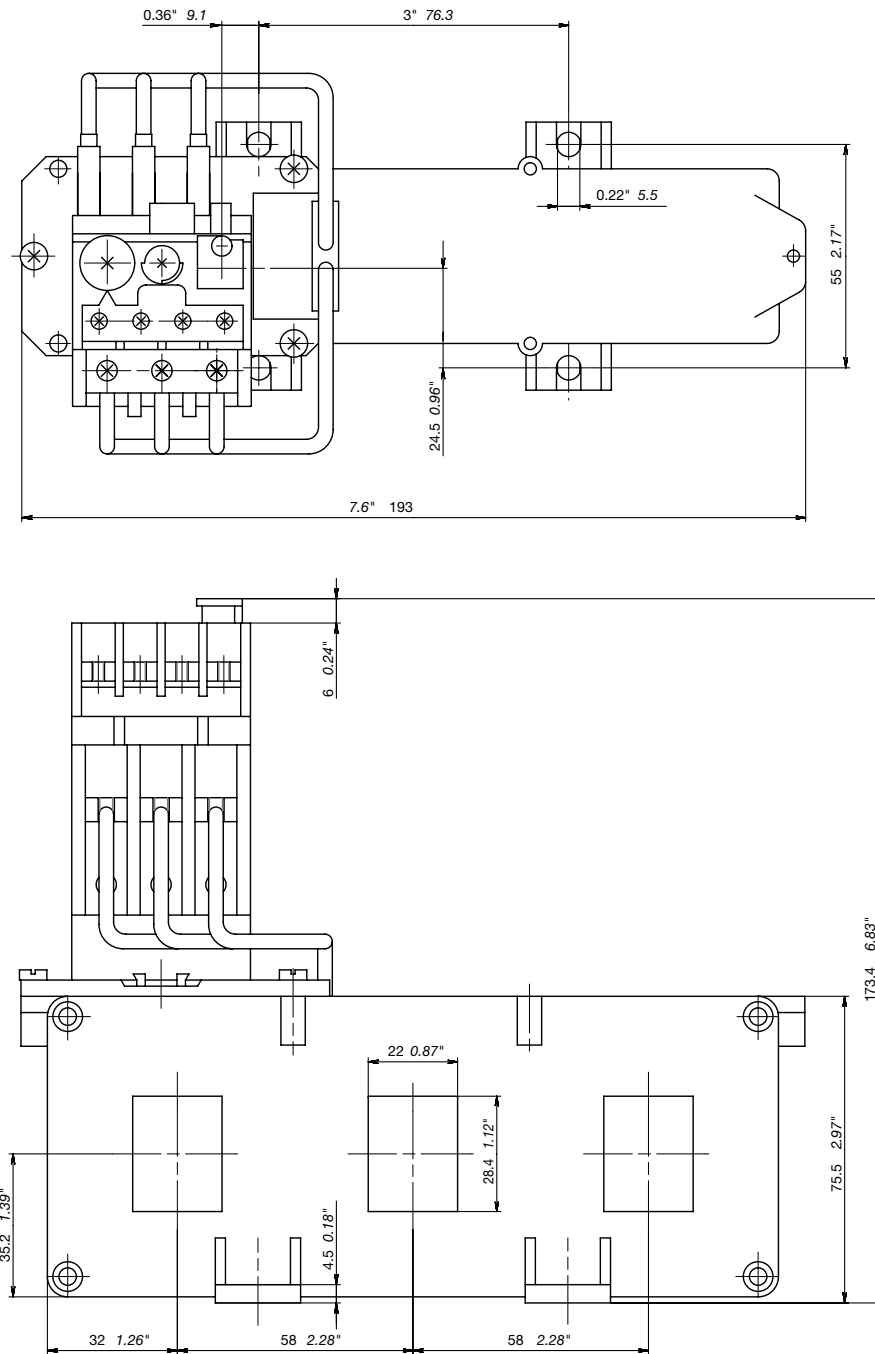


Approximate dimensions

Thermal overload relays
TA110DU & TA200DU

2

TA450DU



Motor
overload
protection

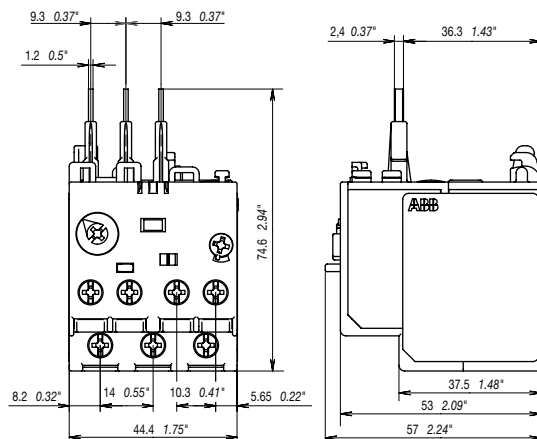
Approximate dimensions

Electronic overload relays

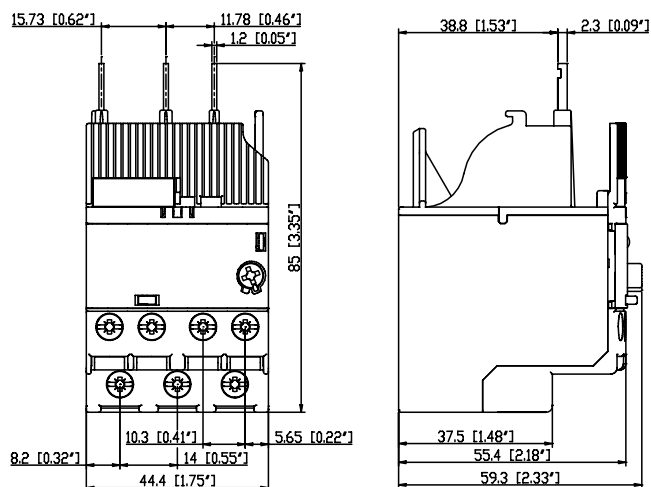
E16DU...EF45DU

2

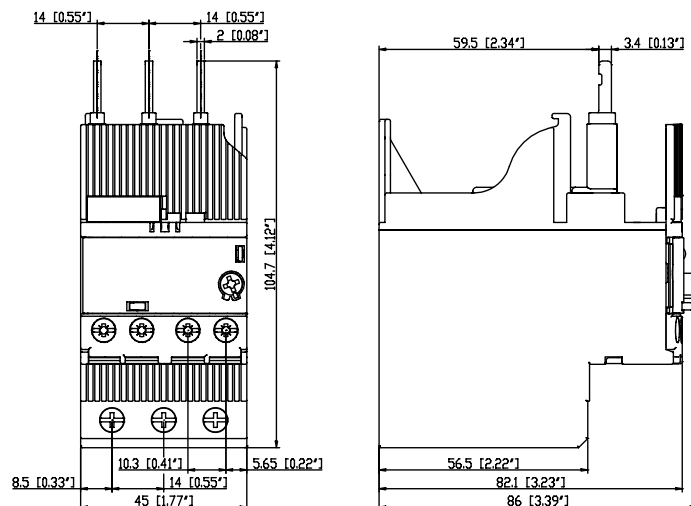
E16DU



EF19DU



EF45DU



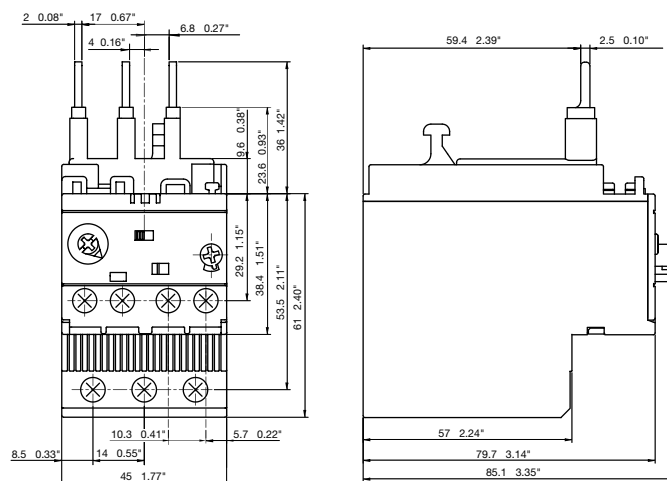
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Electronic overload relays

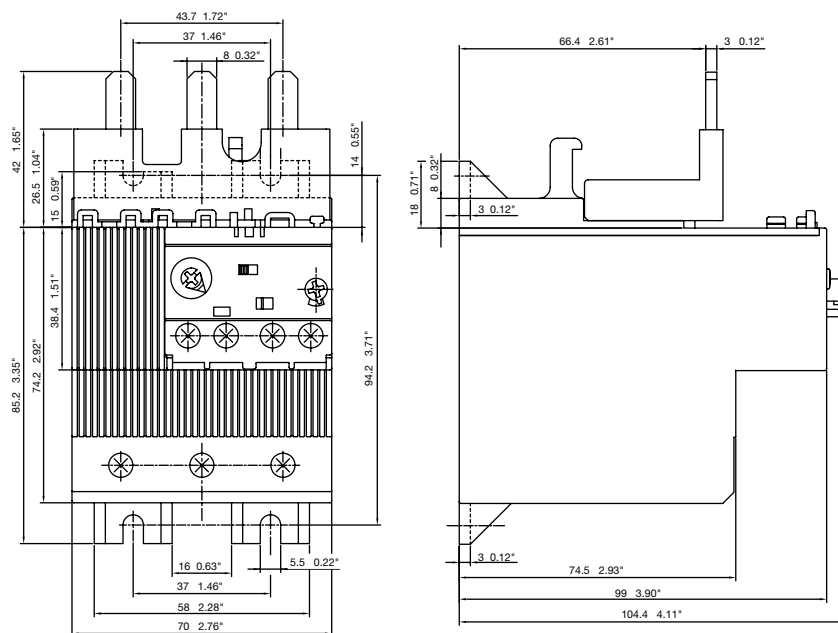
E45DU...E80DU

2

E45DU



E80DU



Motor
overload
protection

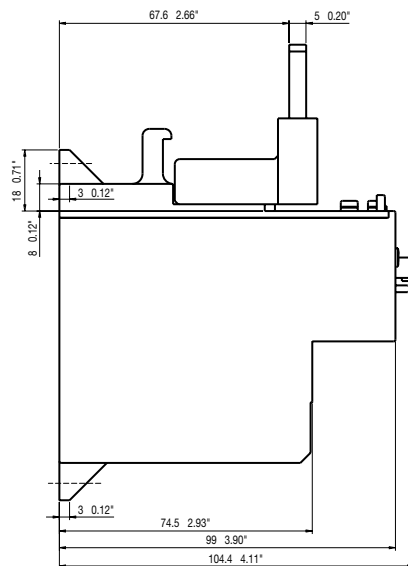
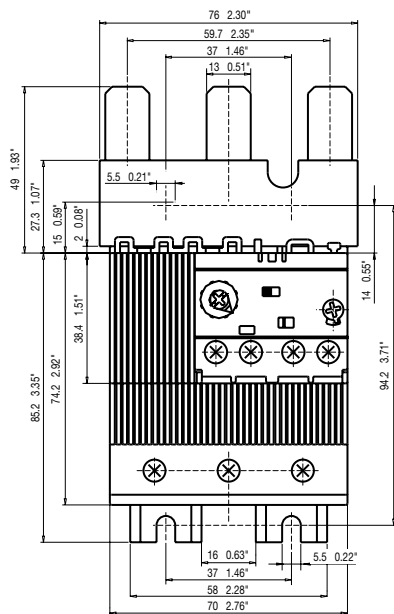
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Electronic overload relays

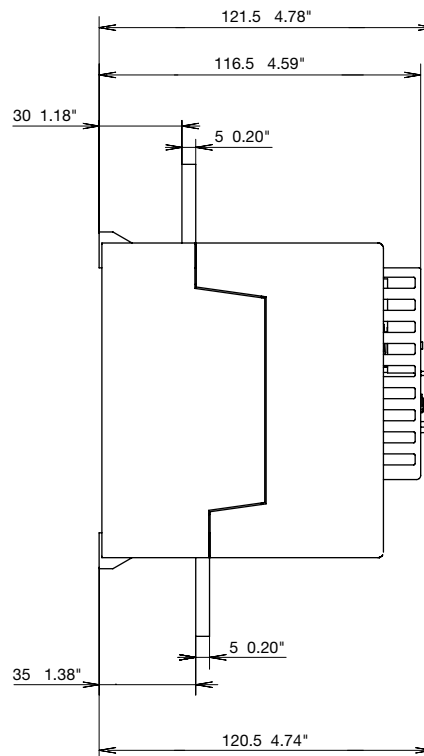
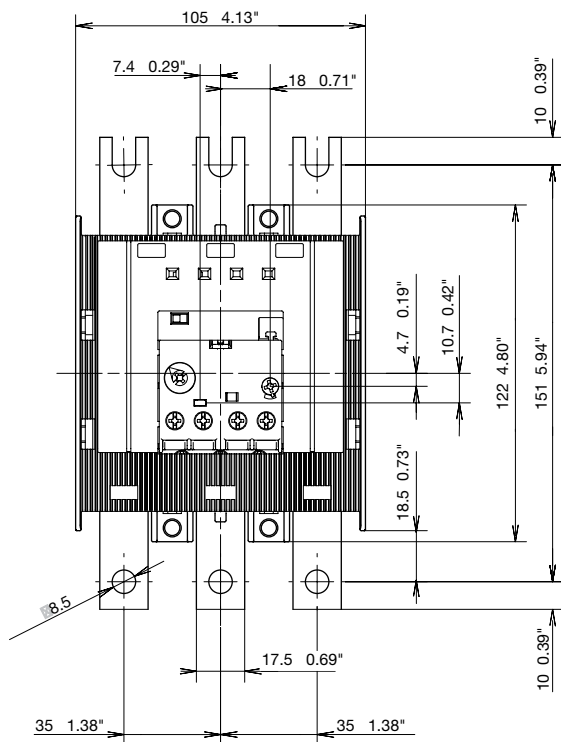
E140DU...E200DU

2

E140DU



E200DU



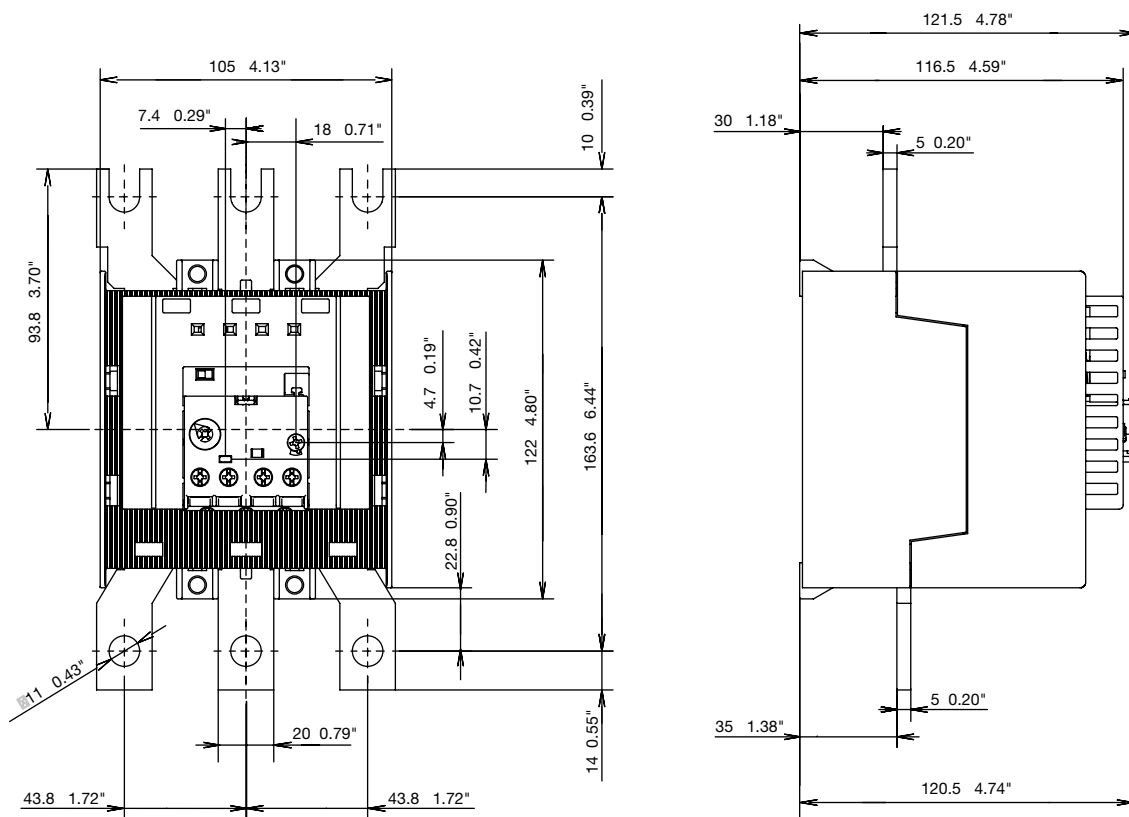
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Electronic overload relays

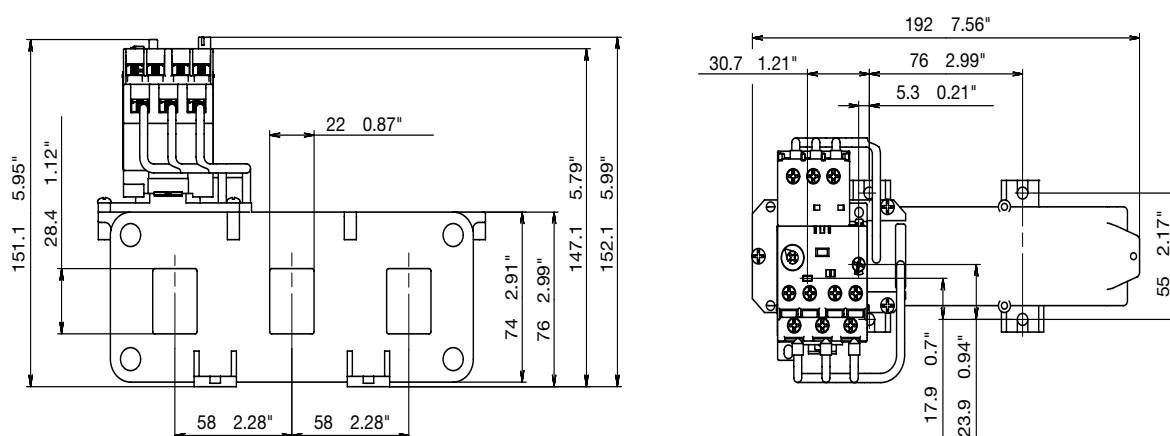
E320DU...E500DU

2

E320DU



E500DU

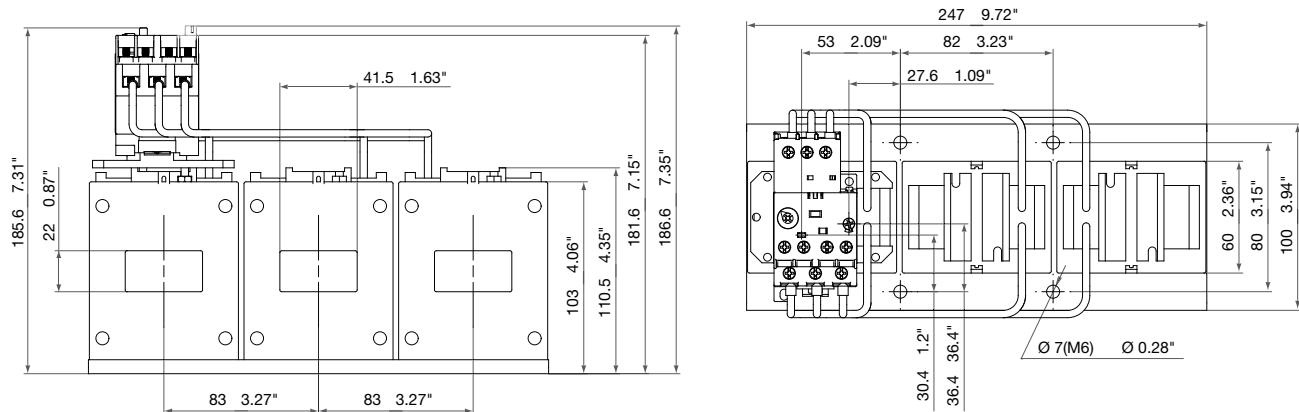


Motor
overload
protection

Approximate dimensions

2

E800DU



AF1350 / AF1650 + E1250DU

