The thermomagnetic automatic breakers TM 2-Exx series are devices designed for control and protection of induction motors from overload, overheat or short circuit. The overload motor protection is carried out by the built in the breaker thermal elements, and the short circuit protection is carried out by the magnetic elements. These magnetic elements allow the adjustment of the current leakage which is 13 times the maximum current of the thermal protection. The overload protection elements include automatic compensation for the ambient temperature changes. In combination with under voltage release the thermomagnetic breaker TM 2-Exx also provides protection of the motors from fall out of a phase from the power supply. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.

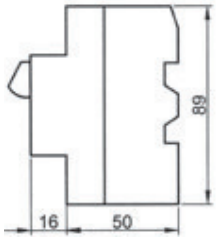
Functions:

- switching off alternating current consumers at current overload
- switching off the electrical circuit to the consumer at inlet short circuit
- protects the motor at lack/lowering of the phase voltage (if there is under voltage release)
- used as a protective operating element in control panels of induction motors
- remarkable with high reliability of current characteristics
- possibility for change/choice of the protection current (according to the operating current of the motor)
- automatic compensation of the ambient temperature

Technical data:

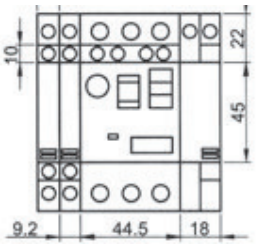
* Rated operating voltage: up to 690V AC; 50/60 Hz
* Rated operating current range: from 0.1 to 80A according to the type in table 1
* insulation voltage: 690V
* Surge voltage wear resistance:≥6000V
* Joining terminal: screw terminal
* Connecting:
- flexible or rigid conductors with or without cable terminal for joining to the consumer
- to the contactor through the relay terminals
- the connecting terminals with the consumer can be adjusted according to the type of the contactor
* Electrical wear resistance (number of cycles):≥1000000
* Mechanical wear resistance (number of cycles):≥10000000
* Indication for protection activating
* Switching on of the breaker manually with button "I" and switching off with button "O" manually or automatically at
failure or after activating of the protection
* Possibility for range adjustment of the protection activating
* Possibility for operation at higher frequency
* Possibility for independent operation or as an element of an automation system
* Mounting:
- mounting to DIN-rail
- mounting position: vertical gradient – maximum± 5°
* Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
* Ambient temperature: -10°C + 60°C
* Altitude: up to 2000m

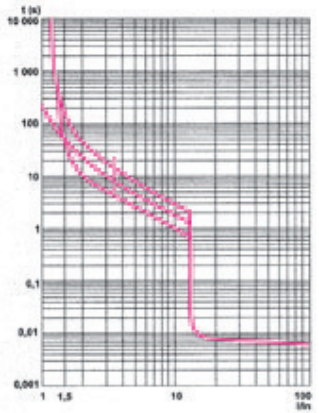
Dimensions

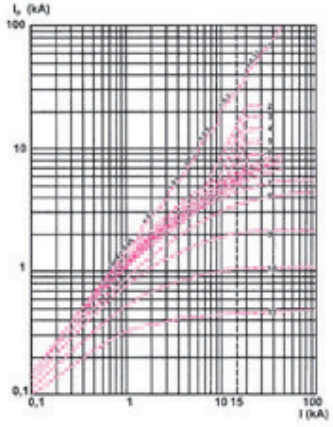


Auxiliary contact

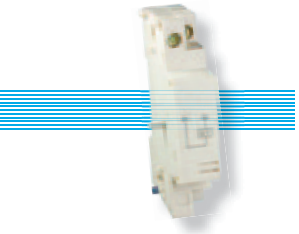
UVR



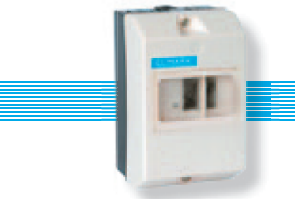




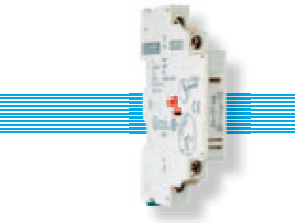
Type number	Rated capacity of three-phase motor in AC-3 category 220V 230V	400V 410V	440V	500V	690V	Magnetic segment current (A)	Thermal protection adjustment range (A)	Thermal current Ithe TM2-E (A)	Packing/Box (pcs)	Catalogue number
TM2-E01	-	-	-	-	-	1.5	0.1 - 0.16	0.16	1 / 50	48001
TM2-E02	-	0.06	0.06	-	-	2.4	0.16 - 0.25	0.25	1 / 50	48002
TM2-E03	0.06	0.09	0.09	-	-	5.0	0.25 - 0.40	0.40	1 / 50	48003
TM2-E04	-	0.12	0.18	-	0.37	8.0	0.40 - 0.63	0.63	1 / 50	48004
TM2-E05	0.09	0.25	0.25	0.37	0.55	13.0	0.63 - 1.00	1	1 / 50	48005
TM2-E06	0.18	0.37	0.37	0.37	0.75	22.5	1 - 1.60	1.6	1 / 50	48006
TM2-E07	0.37	0.75	0.75	1.10	1.50	33.5	1.6 - 2.50	2.5	1 / 50	48007
TM2-E08	0.55	1.10	1.50	1.50	2.20	51.0	2.5 - 4.00	4	1 / 50	48008
TM2-E10	1.10	2.20	2.20	3.00	4.00	78.0	4 - 6.30	6.3	1 / 50	48010
TM2-E14	1.50	3.00	4.00	4.00	5.50	138	6 - 10.0	9	1 / 50	48014
TM2-E16	2.20	5.50	5.50	7.50	9.00	170	9 - 14.0	13	1 / 50	48016
TM2-E20	4.00	7.50	7.50	9.00	15.0	223	13 - 18.0	17	1 / 50	48020
TM2-E21	5.50	9.00	11.0	11.0	18.5	327	17 - 23.0	21	1 / 50	48021
TM2-E22	5.50	11.0	11.0	15.0	22.0	327	20 - 25.0	23	1 / 50	48022
TM2-E32	7.50	15.0	15.0	18.5	22.0	416	24 - 32.0	24	1 / 50	48032
TM3-E40	11.0	18.5	22.0	25.0	33.0	480	25 - 40.0	32	1 / 15	48040
TM3-E63	15.0	30.0	33.0	40.0	55.0	550	40 - 63.0	50	1 / 15	48063
TM3-E80	22.0	40.0	45.0	55.0	63.0	665.5	56 - 80.0	64	1 / 15	48080



Documents corresponding to the product:
Standard EN 60947-1
EN 60 947-2; EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 73/23 EEC" and "Electromagnetic Compatibility Directives (EMC) no. 89/336 EEC".



Documents corresponding to the product:
Standard EN 60529



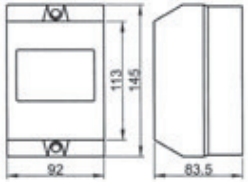
For increasing the effectiveness of the thermomagnetic breakers TM 2-Exx operation, they can be supplied with auxiliary devices, designed for widening the practice range and improving the technical characteristics of the breakers.

Voltage release (VR) for TM 2
The release is designed to switch off the thermomagnetic breaker when the controlling voltage falls under breaking level 0.55 to 0.7 UN and does not allow switching on of the breaker unless the voltage is over 0.85 Un.
Functions:
- switching off the breaker at power supply voltage fall under 0.55 – 0.7 Un
- does not allow switching on of the breaker when the power supply voltage is under 0.85 Un
- prevents unwarranted secondary start of the breaker at falling off and restoring of the power supply voltage
- protects the motor at lack/lowering of the phase voltage
- used as a protective operating element in control panels of induction motors
- remarkable with high reliability of current characteristics

Mounting:
* laterally to a breaker
* At the side of the breaker through special openings

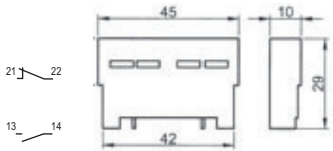
Type	Voltage (V)	Catalogue number
TM2 AU225	230	48099
TM3 AU385	400	48098

Watertight box for TM 2-E
Specially designed plastic box with silicon screen for increasing the IP code from dust and moisture to IP 65. Designed for thermal-magnetic circuit breakers of up to 32A
* Mounting:
- mounting position: vertical gradient – maximum± 5°
- mounted to horizontal surfaces (walls) with bolts
- the breaker TM2 Exx is fixed inside of it on rail
* Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)



Type	Catalogue number
TM2 E	8083

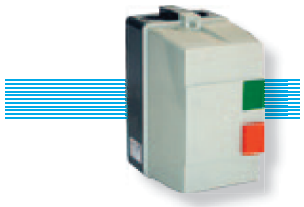
Auxiliary contact block TM2 AE11
It is designed to switch on operational systems or signalization. Designed with one NO and one NC contact. It changes the position of its contacts according to the position of the breaker (switched on/off) to which it is mounted.
* Mounting:
- laterally to a breaker TM2-Exx
* Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
* Ambient temperature: -10°C + 60°C
* Altitude: up to 2000m



Type	Catalogue number
TM2 AE11	48912

Auxiliary contact block TM2 AN11
It is designed to switch on operational circuits or signalization. It is designed with one NO and one NC contact. It changes the position of its contacts according to the position of the breaker (switched on/off) to which it is mounted.
* Mounting:
- laterally to a breaker TM2-Exx
- more than 5 auxiliary contact blocks can be mounted
* Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
* Ambient temperature: -10°C + 60°C
* Altitude: up to 2000m

Type	Catalogue number
TM2 AN11	48911
TM3 AN11	48913



Documents corresponding to the product:
Standard EN 60947-1
EN 60947-4-1
The products are in accordance with the directives of EC "Low voltage directives (LVD) no 73/23 EEC" and "Electromagnetic Compatibility Directives (EMC) no. 89/336 EEC".

The electromagnetic starters LT 5 Dxx series are devices designed for remote control, direct control and protection of induction motors or other electrical consumers. They are a combination of contactors LT 1 Dxx series and thermal protection LT 2 Exx fabric cabled. The starters are offered on the market in metal or plastic boxes with the corresponding IP code from dust and moisture. At mounting there should be provided protection of the device from short circuit through breakers or disconnectors. If necessary, at client's order the fabric mounted thermal protection in the pneumatic starter can be substituted. The choice of a suitable protection prevents motor's operation at unusual temperature conditions and guarantees maximum constant operation, increases the effectiveness and prolongs the term of exploitation.
Functions:
- switching on/off alternating current consumers
- does not allow secondary unwarranted switching on of the starter at transitory lowering of the voltage
- protects the motor from overload in the range of the corresponding thermal protection
- remarkable with high reliability of current characteristics

Technical data:
* Rated voltage of the controlling voltage: 230/400V AC; 50/60 Hz
Note: In case you need different controlling coils voltage of the starters you can turn to our regional representatives.
* Rated operating voltage: 690V
* Rated operating current range: from 7 to 93 A AC
* insulation voltage: 690V
* Surge voltage wear resistance:≥6000V
* Joining terminal: screw terminal
* Little power consumption and small dimensions
* Connecting:
- flexible or rigid conductors with or without cable terminal for joining to the consumer and section according to the motor power
- two by two inlets/outlets supplied with orifices for the cables
* Possibility for range adjustment of the protection activating
* IP code: IP 44
* Possibility for operation at higher frequency
* Mounting:
- mounting to a flat surface (wall) with bolts/screws
- mounting position: vertical gradient – maximum± 5°
* Plastic: wear resistance of UV rays and non-flammable (self-extinguishing material)
* Metal corpus: corrosion-proof coating
* Ambient temperature: -10°C + 60°C
* Altitude: up to 2000m