

THREE PHASE Motor Protector

3/4 inch size , “3T” type

- The motor protector consists of a moulded phenolic base containing three heaters and a snap-acting bimetal disc with three contacts. The motor protector must be connected to the three phase electric motor so that the bimetal disc is the neutral point of the motor. Each contact and each heater is in series with one of the phase windings of the motor. When the bimetal disc opens because of overheating, the neutral point is open, thereby shutting down the motor.
- The 3T motor protectors are designed to protect three phase induction motors with rated power up to 2.2 kW (3.0 HP) against overload and locked rotor conditions up to 37A for each phase.
- **AUTOMATIC RESET:** Main application is protection of three phase induction motors where reset is required after the natural cooling down of the motor without man supervision. Models with cover can be used on devices in contact with flammable gases.
- **MANUAL RESET:** Main application is protection of electric motor where automatic reset would be dangerous or otherwise undesirable (Food Mixers, Chain saws, etc.). Trip-free to assure contact break independent of manual action.

GENERAL CHARACTERISTICS

| | |
|---|--|
| • CONTACT CONFIGURATION: | Three poles - Single throw - N.C. |
| • CONTACT RATING: | Low Capacity: max 24A at 230Vac, max 18A at 460Vac High Capacity: max 37A at 230Vac, max 28A at 460Vac Above ratings are locked-rotor inductive currents (LRA) |
| • MAX OPERATING TEMPERATURE: | 150°C |
| • NOM OPENING TEMPERATURE: | from 95°C up to 150°C (±5°C) |
| • NOM CLOSING TEMPERATURE: | from 43°C up to 102°C (±9°C) |
| • DIFFERENTIAL Nom opening minus Nom closing temp | Minimum 25°C |
| • FIRST CYCLE TRIP CURRENT (at 25°C in 6-16 seconds) | from 3A to 37A |
| • ULTIMATE TRIP CURRENT At protector ambient temperature | from 0.6A to 15A from 40°C to 100°C |
| • BIMETAL DISC | Different physical sizes, broad range of material resistivity |
| • AUXILIARY HEATERS | selection of flat or coiled heaters |
| • MIN NUMBER OF CYCLES | 3000 cycles for models with Automatic Reset 500 cycles for models with Manual Reset |
| • TERMINAL CONFIGURATION: | Quick-Connect tab Solder terminal Cable leads (AWG 14 or AWG 16) |
| • APPROVALS : | UL , file E51822 , volume 1 , section 7 ENEC planned |

Code structure

STANDARD CODE 3TA2LM70701

Basic model – 3/4" size
Three phase motorprotector

| Reset and base shape | | |
|----------------------|-------|-------|
| | Round | Eared |
| Automatic | B | A |
| Manual | N | M |

Disc shape and size
Diameter and thickness

| |
|--------------------------|
| 1=∅19.00x0.26 |
| 2=∅16.00x0.18 |
| 3=∅19.00x0.26 perforated |

| Disc resistivity (ohms x C.M./FT) | | | |
|-----------------------------------|-------|-----------------------|-------|
| High capacity contacts | | Low capacity contacts | |
| A=15 | G=50 | N=150 | U=400 |
| B=20 | H=60 | P=200 | V=475 |
| C=25 | J=70 | R=250 | W=560 |
| D=30 | K=90 | S=300 | X=650 |
| E=35 | L=100 | T=350 | Y=850 |
| F=40 | M=125 | | |

| Temperature | | | | | |
|-------------|----------------|--------|-----------------|-----|--------|
| | Open (±5°C) | | Close (±9°C) | | |
| G | 90 | Manual | D | 135 | Manual |
| J | 90 | 57 | W | 135 | 61 |
| F | 105 | Manual | U | 135 | 69 |
| K | 105 | 61 | M | 135 | 78 |
| L | 105 | 69 | R | 135 | 92 |
| V | 105 | 78 | S | 135 | 102 |
| B | 120 | Manual | E | 150 | Manual |
| Z | 120 | 61 | H | 150 | 78 |
| N | 120 | 69 | T | 150 | 92 |
| X | 120 | 78 | O | 150 | 102 |
| Y | 120 | 92 | P | 150 | 115 |

Terminals configuration
From 00 to ZZ many different terminal options are available

| Flat Type | | | | | |
|-----------|-------|------|------|-------|------|
| Code | Diam. | Mat. | Code | Diam. | Mat. |
| 110 | 1.10 | NiCr | 120 | 1.20 | NiCr |
| 130 | 1.30 | NiCr | 140 | 1.40 | NiCr |
| 150 | 1.50 | NiCr | 160 | 1.60 | NiCr |
| 170 | 1.70 | NiCr | 180 | 1.80 | NiCr |

| Coiled Type | | | | | |
|-------------|-------|------------|------|-------|------|
| Code | Diam. | Turns num. | Code | Diam. | Mat. |
| From | To | 0.20 | Min. | Max | NiCr |
| 207 | 220 | 0.20 | 007 | 020 | NiCr |
| 257 | 268 | 0.25 | 007 | 018 | NiCr |
| 307 | 316 | 0.30 | 007 | 016 | NiCr |
| 357 | 366 | 0.35 | 007 | 016 | NiCr |
| 406 | 414 | 0.40 | 006 | 014 | NiCr |
| 456 | 464 | 0.45 | 006 | 014 | NiCr |
| 505 | 512 | 0.50 | 005 | 012 | NiCr |
| 555 | 562 | 0.55 | 005 | 012 | NiCr |
| 605 | 611 | 0.60 | 005 | 011 | NiCr |
| 655 | 661 | 0.65 | 005 | 011 | NiCr |
| 703 | 710 | 0.70 | 003 | 010 | NiCr |
| 753 | 760 | 0.75 | 003 | 010 | NiCr |
| 803 | 809 | 0.80 | 003 | 009 | NiCr |
| 853 | 859 | 0.85 | 003 | 009 | NiCr |
| 903 | 908 | 0.90 | 003 | 008 | NiCr |
| 953 | 958 | 0.95 | 003 | 008 | NiCr |
| 103 | 107 | 1.00 | 003 | 007 | NiCr |

| Coiled Special Type | | | | | |
|---------------------|-----|-------|------------|------|------|
| Code | To | Diam. | Turns num. | Code | Mat. |
| From | To | 1.00 | Min. | Max | |
| A03 | A07 | 1.00 | 003 | 007 | CuNi |
| B03 | B08 | 0.95 | 003 | 008 | CuNi |
| C03 | C08 | 0.90 | 003 | 008 | CuNi |
| D03 | D09 | 0.85 | 003 | 009 | CuNi |
| E03 | E09 | 0.80 | 003 | 009 | CuNi |
| W03 | W10 | 0.70 | 003 | 010 | CuSn |
| X03 | X10 | 0.70 | 003 | 010 | CuZn |
| Y03 | Y07 | 1.00 | 003 | 007 | CuZn |

CODE EXAMPLE
∅0.70 mm. 700 +
7 turns 007 =
707

SPECIAL CODE 3TA0002/01

Basic model – 3/4" size
Three phase motorprotector

| Reset and base shape | | |
|----------------------|-------|-------|
| | Round | Eared |
| Automatic | B | A |
| Manual | N | M |

Terminals configuration
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Progressive number

DATE CODE 825

Year of manufacturer – Es: 8=2018

Week of the year

Customer part number is marking on request

CONTACTS RATING

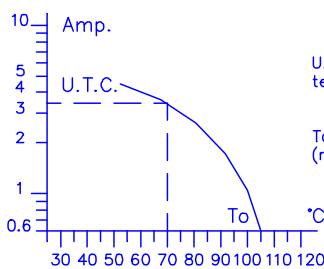
| High capacity contacts | | Low capacity contacts | |
|------------------------|-------------|-----------------------|-------------|
| Voltage a.c. | Max amperes | Voltage a.c. | Max amperes |
| 230 | 37 | 230 | 24 |
| 460 | 28 | 460 | 18 |

2 of 4

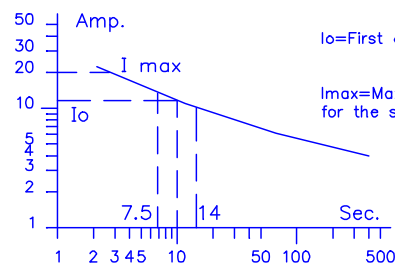
Physical configurations



Example of performance curves

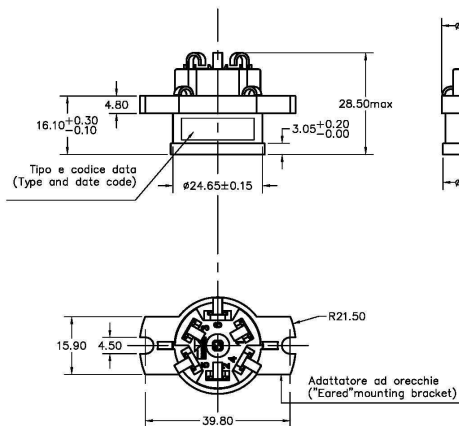


U.T.C.=Ultimate trip current at a given temperature (usually 70°C)
To=Disc opening temperature (no current)



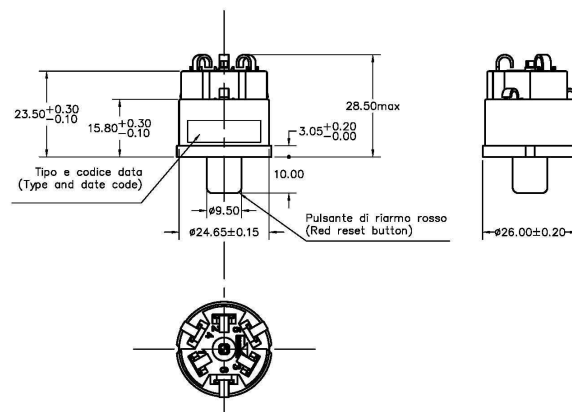
Io=First cycle trip current at 25°C
Imax=Maximum permissible current for the stated life

OUTLINE DRAWINGS



Automatic Reset

Eared mounting available on request



Manual Reset

Eared mounting available on request
Red or green button option

Please consult factory for details of individual approval or particular configuration not shown in this catalogue.

Mounting on the application

The Overload protector should be mounted in the motor shell or in the motor end frame, so that it will receive the maximum amount of heating from the motor windings, in running and in locked rotor conditions. The best location depends on the construction of the motor.

Dual Voltage motors

Dual voltage three phase induction motors can be protected in both configurations with the same Motor Protector.

In high voltage configuration each motor winding must be connected to one heater.

In low voltage configuration each motor phase is split in 2 half windings: half winding must be connected to one heater of the protector, and the other half winding must be connected to the corresponding contact of the protector.

