

## DIN Rail Mount 22.5 mm ETM22 Part number 84874034



### Version ETM :

- Controls temperature of machines using built-in PTC probes
- Line break or probe short-circuit detection

### Version ETM2 / ETM22 :

- Fault latching function
- Pushbutton for local reset
- Remote reset via external contact
- Pushbutton test facility
- 2 LEDs to indicate relay and power supply status

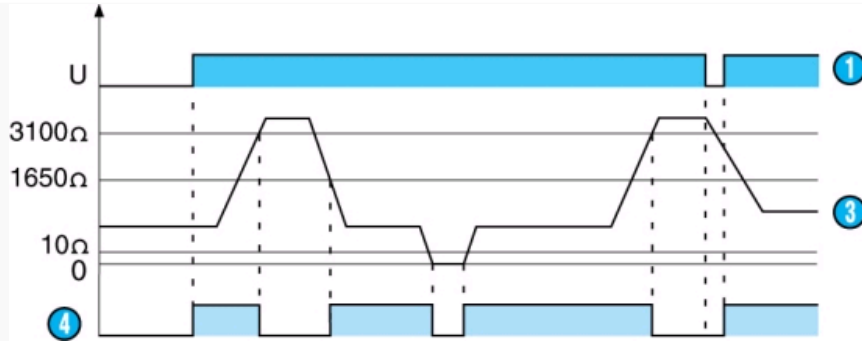
## Part numbers

| Type             | Output        | Supply voltage |
|------------------|---------------|----------------|
| 84 874 034 ETM22 | 2 changeovers | 230 V AC       |

## Specifications

|  |  |
|--|--|
| Supply voltage Un                                | 230, 120 and 24 VAC 50 / 60 Hz<br>Galvanic isolation by transformer<br>24 VDC no galvanic isolation                          |
| Operating range                                  | 0.85 to 1.10 Un  |
| Nominal power                                    | 3 VA   |
| Maximal power                                    | 5 VA   |
| Immunity from micro power cuts                   | 10 ms  |
| Delay on pick-up                                 | 500 ms   |
| Insulation coordination                          | Category III, degree of pollution 2 conforming to IEC/EN 60664-1 / VDE 0110 : 4 KV/2   |
| Max. resistance of cold probes                   | 1500 Ω   |
| Trip threshold                                   | 3100 Ω± 10 %   |
| Reset threshold                                  | 1650 Ω± 10 %   |
| Short-circuit detection                          | 0 - 10 Ω   |
| Measurement voltage as per IEC/EN 60034-11       | ≤ 2,5 V  |
| Repetition accuracy with constant parameters     | ± 0.5 %  |
| Temperature drift                                | ± 0.05 % / °C  |
| Voltage-dependent drift                          | -2 %   |
| Output   | AgNi 90/10   |
| Breaking capacity                                | 2000 VA / 80 W   |
| Max. breaking current                            | 8 A AC   |
| Max. breaking voltage                            | 440 V AC   |
| Min. breaking current                            | 100 mA   |
| Maximum rate                                     | 360 operations / hour at full load   |
| Mechanical life (operations)                     | 5 x 10 <sup>6</sup>  |
| Electrical life                                  | AC12 : 2000 VA - 10 <sup>5</sup> operations<br>AC15 : Cos φ = 0,3 - 6000 operations<br>DC13 : L/R = 300 ms - 6000 operations |
| Reset time                                       | ≤ 500 ms   |
| Response time                                    | ≤ 500 ms   |
| Display on ETM2/ETM22 - power supply             | green LED  |
| Display on ETM2/ETM22 - Relay                    | yellow LED   |
| Class of protection (IEC EN/60529) - Term. block | IP 20  |
| Protection class (IEC EN/60529) - Casing         | IP 50  |
| Housing material                                 | Self-extinguishing   |
| Weight (g)                                       | 145  |
| Terminal capacity                                | 2 x 1.5 mm <sup>2</sup> with ferrule<br>2 x 2.5 mm <sup>2</sup> without ferrule  |
| Temperature limit operation (IEC 68.1.14) (°C)   | -20 → +60 °C   |
| Temperature limits stored (IEC 68.1.1/2) (°C)    | -30 → +70 °C   |
| Relative humidity (no condensation)              | 95 % (+2 % ; -3 %)   |

## Principles



**Operating principle**

Control relay is used in combination with PTC thermistor probes (not supplied) for thermal protection of machines (motors, alternators, transformers, etc). The probes are placed at critical points on the equipment to be protected (normally inserted into the stator windings of motors). The resistance of the PTC probe has a positive temperature coefficient. As soon as the nominal trip temperature of the probe is exceeded, the resistance of the probe increases rapidly. Protection relay detects this and opens the power supply circuit of the protected equipment (eg motor) and the yellow fault indicator LED lights up (version ETM2/ETM22).

**Test button**

The ETM2/ETM22 has a TEST button which can be used to simulate a thermal overload in order to test the service condition of the relay.

**Tripping**

The relay drops out as soon as the protected equipment is subjected to a thermal overload, short-circuit or break in the probe measuring circuit.

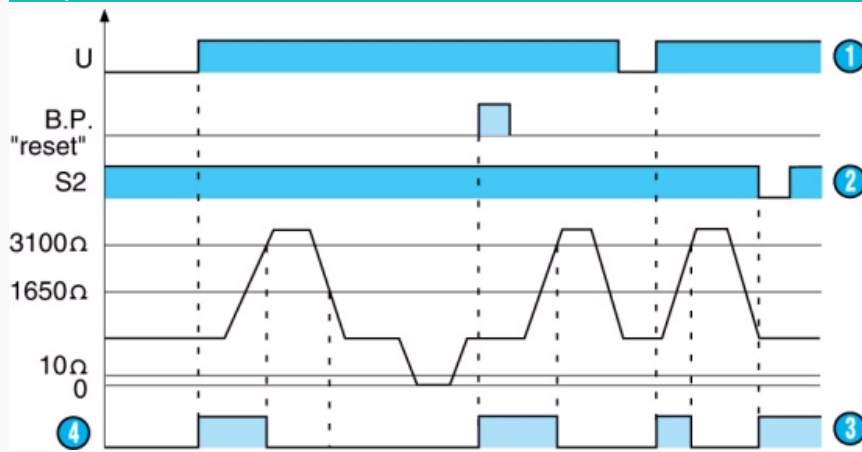
**Early warning of tripping**

If the equipment being protected has another PTC probe with a lower nominal trip temperature, a second ETM/ETM2/ETM22 relay can be used to give early warning of tripping and thus prevent breaks in operation.

Control relay ETM/ETM2/ETM22 is automatically reset as soon as the temperature drops below the trip threshod (the yellow fault indicator LED goes out).

| N° | Legend                                 |
|----|--|
| 1  | Unit power-up                          |
| 2  | Resistance between terminals T1 and T2 |
| 3  | Output relay                           |

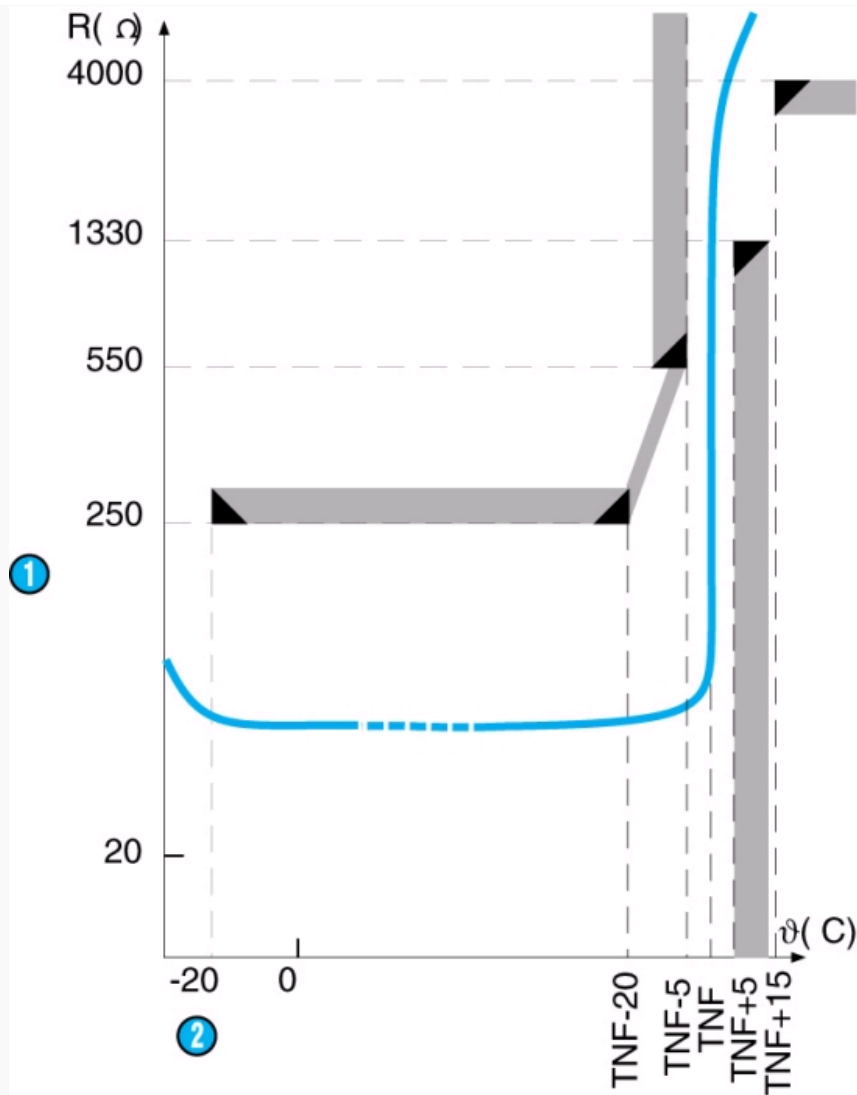
**Principles**



The relay is reset either using the RESET pushbutton on the front face or by opening the external contact S2 (remote reset), or by cutting the auxiliary power supply (terminals A1 - A2). If the auxiliary power is cut for a period of time greater than the reset time (500 ms), the relay is reactivated if the probe detects a normal temperature when the power supply voltage is restored.

| N° | Legend                                 |
|----|--|
| 1  | Unit power-up                          |
| 2  | Latching contact                       |
| 3  | Resistance between terminals T1 and T2 |
| 4  | Output relay                           |

**Principles**

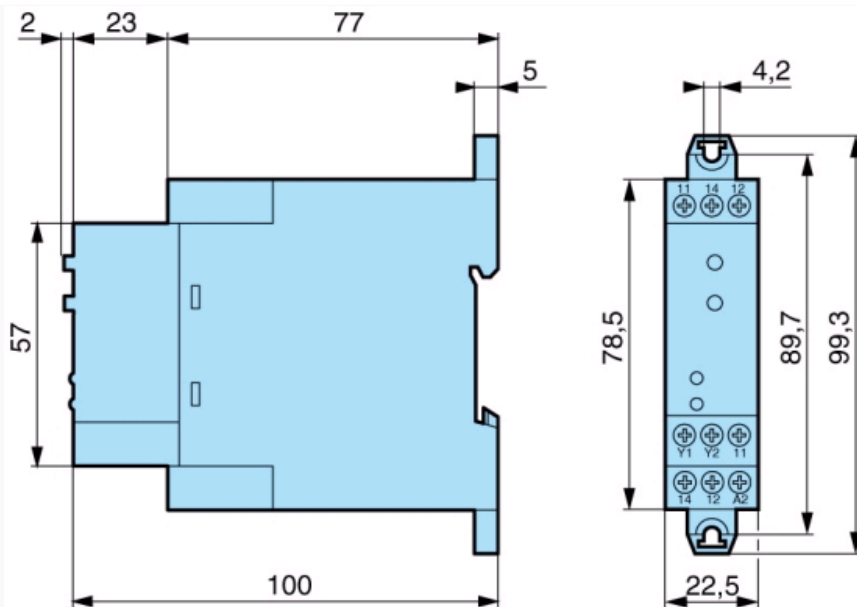


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| N° | Legend   |
|----|--|
| ①  | Resistance R ( $\Omega$ )                              |
| ②  | Nominal temperature<br>Tripping ( $^{\circ}\text{C}$ ) |

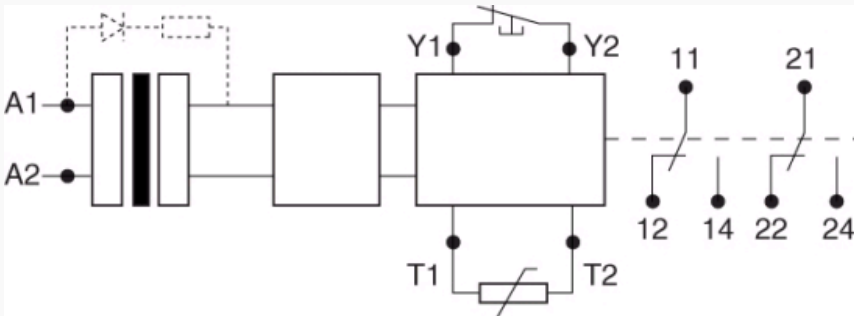
#### Dimensions (mm)

ETM / ETM2 / ETM22



**Connections**

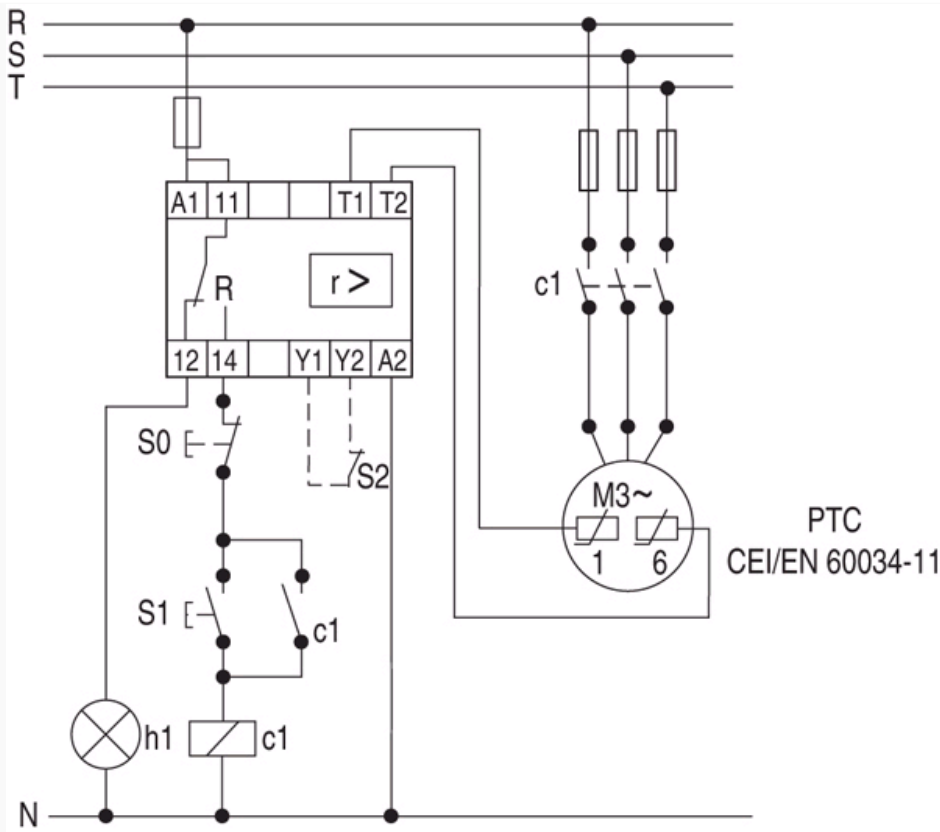
ETM22



| Legend  |
|---|
| A1 - A2 : supply voltage                      |
| 11 - 12 -14 : low treshold output relay (R1)  |
| 21 - 22 -24 : high treshold output relay (R2) |
| T1 -T2 : external PTC probe                   |
| Y1 - Y2 : remote reset contact                |

**Connections**

ETM



| Legend                       |
|------------------------------|
| *** TRADUCTION MANQUANTE *** |
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**Connections**

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