

**ETM / ETM2 / ETM22 motor thermal protection ETM2 Part number 84874024**


- Controls temperature of machines using built-in PTC probes
- Line break or probe short-circuit detection
- Fault latching function
- Pushbutton for local reset
- Remote reset via external contact
- Pushbutton test facility
- 2 LEDs to indicate relay and power supply status

	Type	Output	Supply voltage
84874015	ETM	1 N/O contact	24 V ACDC
84874013	ETM	1 N/O contact	120 V AC
84874014	ETM	1 N/O contact	230 V AC
84874025	ETM2	1 changeover	24 V ACDC
84874023	ETM2	1 changeover	120 V AC
84874024	ETM2	1 changeover	230 V AC
84874035	ETM22	2 changeovers	24 V AC/DC
84874033	ETM22	2 changeovers	120 V AC
84874034	ETM22	2 changeovers	230 V AC

**Supply voltage Un**

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 664.1 / VDE 0110: 4 KV/2

**Max. resistance of cold probes**

Trip threshold	3100 $\Omega$ $\pm$ 10%
Reset threshold	1650 $\Omega$ $\pm$ 10%
Short-circuit detection	0 - 10 $\Omega$
Measurement voltage as per IEC 34-11	$\leq$ 2,5 V
Repetition accuracy with constant parameters	$\pm$ 0.5%
Temperature drift	$\pm$ 0.05% / °C
Voltage-dependent drift	-2%

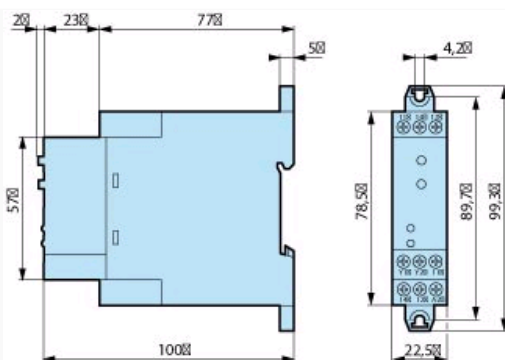
**Output**

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 AC15: Cos $\varphi$ = 0,3 - 6000 operations DC13: L/R = 300 ms - 6000 operations

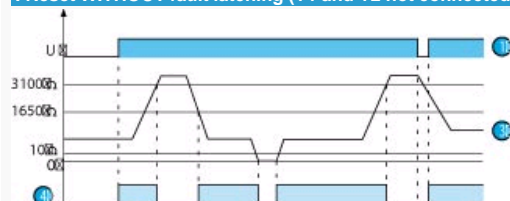
**Reset time**

Response time	$\leq$ 500 ms
Display on ETM2/ETM22 - power supply	green LED
Display on ETM2/ETM22 - Relay	yellow LED
Class of protection (529) - Term. block	IP 20
Protection class (IEC 60529) - Casing	IP 50
Housing material	Self-extinguishing
Weight (g)	145
Terminal capacity	2 x 1.5 mm <sup>2</sup> with ferrule 2 x 2.5 mm <sup>2</sup> without ferrule
Temperature limit operation (IEC 68.1.14) (°C)	-20 $\rightarrow$ +60 °C
Temperature limits stored (IEC 68.1.1/2) (°C)	-30 $\rightarrow$ +70 °C
Relative humidity (no condensation)	95% (+2%; -3%)

**Dimension Diagram : ETM / ETM2 / ETM22**



#### : Reset WITHOUT fault latching (Y1 and Y2 not connected for ETM2/ETM22)



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).

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.

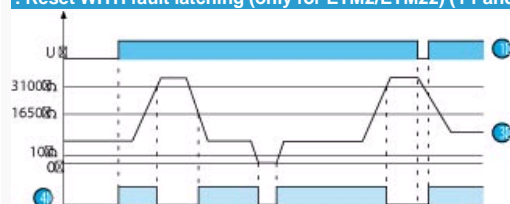
The relay drops out as soon as the protected equipment is subjected to a thermal overload, short-circuit or break in the probe measuring circuit.

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 threshold (the yellow fault indicator LED goes out).

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

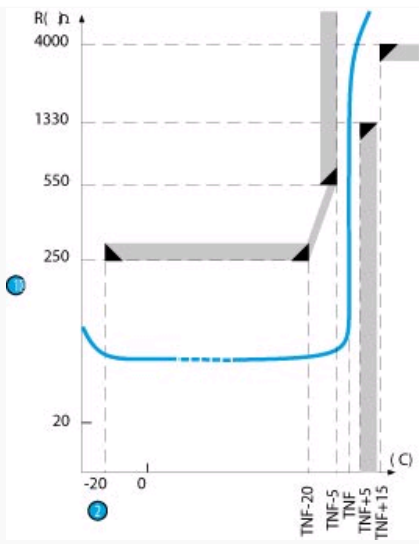
#### : Reset WITH fault latching (only for ETM2/ETM22) (Y1 and Y2 connected)



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.

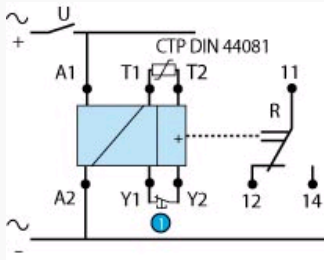
N°	Legend
1	Unit power-up
2	Latching contact
3	Resistance between terminals T1 and T2
4	Output relay

#### : PTC probe specification According to standard DIN 44081 (or IEC 34-11)



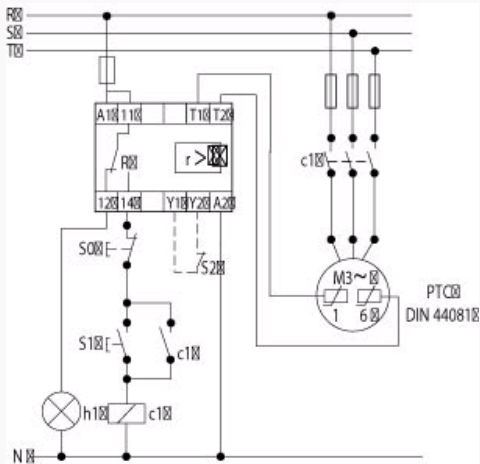
N°	Legend
1	Resistance R (Ω)
2	Nominal temperature Tripping (°C)

**: ETM2**



N°	Legend
1	S2: fault memory A1 - A2: supply voltage 11 - 12 - 14: output relay T1 - T2: external PTC probe Y1 - Y2: remote reset contact

**: ETM**



**Legend**