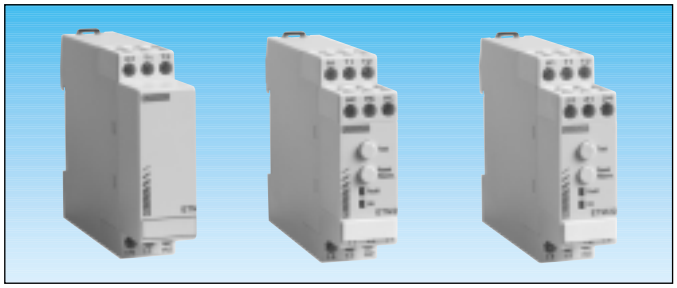
- **Controls temperature of machines using built-in PTC probes**
- **Line break or probe short-circuit detection**

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**



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

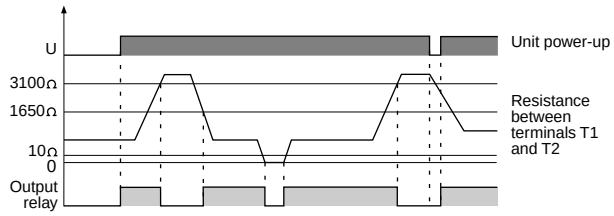
The ETM2/ETM22 has a TEST button which can be used to simulate a thermal overload in order to test the service condition of the relay.

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.

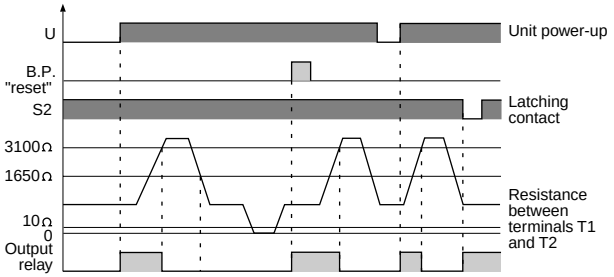
Reset WITHOUT fault latching (Y1 and Y2 not connected for ETM2/ETM22)

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).



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.



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.

Type		ETM	ETM2	ETM22
		1N/O contact	1 changeover	2 changeovers
Part numbers (and voltages)				
24 V ⎓		84 874 015	84 874 025	84 874 035
120 V ∼		84 874 013	84 874 023	84 874 033
230 V ∼		84 874 014	84 874 024	84 874 034
Power supply characteristics				
Supply voltage Un		230, 120 and 24 VAC 50/60 Hz Galvanic isolation by transformer 24 VDC no galvanic isolation		
Supply tolerance		0,85 to 1,10 Un		
Power	nominal	3 VA		
	maximum	5 VA		
Immunity to micro power cuts		10 ms		
Delay on pick-up		500 ms		
Insulation Coordination		Cat. III, degree of pollution 2 acc. to CEI 664.1 / VDE 0110 : 4KV/2		
Input circuit characteristics				
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		≤ 2,5 V (acc. to CEI 34.11)		
Repetition accuracy		± 0,5 % with constant parameters		
Temperature-dependent drift		± 0,05 % / °C		
Voltage-dependent drift		- 2 %		
Output circuit characteristics				
Output		AgNi 90/101		
Breaking capacity		2000 VA		
Max. breaking current		8 A ∼		
Max. breaking voltage		440 V ∼		
Min. breaking current		100 mA		
Maximum rate.		360 operations / hour at full load		
Mechanical life		30 x 10^6 operations		
Electrical life		AC1 : 1500 VA 10^5 operations		
		AC15 : Cos φ = 0,3 6500 operations		
		DC13 : L/R =300 ms➞1,5A/24V=L/R 80ms 100 000 operations		
General characteristics				
Reset time		≤ 500 ms		
Response time		≤ 50 ms		
Display on ETM2/ETM22	Power supply	Green LED		
	Relay	Yellow LED		
Protection class		CEI 529, Terminal block IP20, Casing IP50		
Casing material		Auto extinguible		
Weight		120 g (Vuc), 150 g (Vac)		
Terminal capacity		2 x 1,5 mm^2 with ferrule		
		2 x 2,5 mm^2 without ferrule		
Temperature limits	use	- 20 °C to + 60 °C (acc. to CEI 68.1.14)		
	Stored	- 30 °C to +70 °C (acc. to CEI 68.1.1/2)		
Relative humidity		95 % (+2% ; -3%) no condensation		

Other information

For connections, see page 3/34
For conformity, common characteristics, see page 3/35
For dimensions, see page 3/36
Probe specification see page 3/34.

To order, specify :

Standard products

Standard products, non stocked

1 Part number
Example : ETM motor thermal protection relay - 84 874 001

Crouzet