



Miniature temperature controllers

48 x 48 DIN

Series M

B.T. 01.01.84E



- **Accuracy:** 0.5...1.5%
- **Setting:** analog or digital
- **Input types:** J and K type thermocouples and Pt100 RTDs
- **Control modes:** On/Off and PD time proportioning
- **Indication:** a red led indicates the output state
- **Output:** 5 A/250 Vac relay or logic voltage to drive solid state relays
- **Installation:** panel mounted
- **Connection:** plug-in to an octal socket

Good performance, small size and plug-in connection make this instrument particularly suitable for applications where, apart from control requirements, there are problems of size and space for installation.



Technical data

INPUT

for J and K thermocouples

- Calibration to DIN 43710.
- Incorporated cold junction compensation.
- Line resistance: 150 Ω max.
- Drift:
 - < 1°C/10°C variation of ambient temp.
 - < 1°C/10 Ω variation of line resistance
 - < 0.1%/10% variation of supply voltage.

for Pt100 Ω RTD's

- Calibration to DIN 43760.
- Connection: two-wire.
- Line resistance influence: 1°C/0.4 Ω.
- Drift:
 - < 1°C/10°C variation of ambient temp.
 - < 0.1%/10% variation of supply voltage.

SET POINT

Digital setting (D version)

- Digit height: 3 mm.
- Accuracy:
 - ± 0.5% for RTD input
 - ± 1.0% for thermocouple inputs.

Analog setting (A version)

- Scale length: 80 mm
- Accuracy:
 - ± 1.5% for RDT input
 - ± 2.0% for thermocouple inputs.

CONTROL MODES

Time proportioning with PD action

- Proportional band Xp:
 - from 1 to 12% for the digital version
 - fixed at 3% for the analog version.
- Cycle time:
 - fixed at 22 seconds (t on = t off)

On/Off with hysteresis

- Switching hysteresis:
 - from 0.2 to 2% for the digital version
 - fixed at 0.4% for the analog version.

To obtain an Off/Off control with hysteresis a jumper should be connected across terminals 5 and 6 of the octal socket.

OUTPUT

Relay (R version)

- Isolated changeover contact rated 5A/250 Vac max.
- Number of operations on resistive load at 220 Vac
 - 0.5 A: 10,000,000
 - 2 A : 1,000,000
 - 5 A : 300,000

Logic voltage (L version)

- 0/24 Vdc + 20%, 20 mA max non isolated, suitable for driving solid state relays.

Operation:

The output is "Off" (relay de-energized

temperature exceeds the set value.

A led on the front of the controller lights-up when the output is "On" (relay energized or logic output at 24 Vdc).

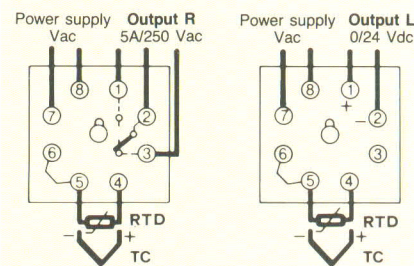
Safety

The failure of a temperature probe is equivalent to "a measured temperature too high" situation (full-scale burn-out i.e. output Off).

GENERAL CHARACTERISTICS

- Power supply: 24, 110, 220 V, +10 -15%, 50/60 Hz, 2 VA max
- Isolation class: C to VDE 0110
- Climatic group: KVF to DIN 40040
- Ambient temperature: 0...55°C max
- Protection to DIN 40050
 - Front: IP41
 - Casing: IP20
 - Material: self-extinguishing 94V1
- Weight: 0.35 kg approx.
- Dimensions: 48 x 48 DIN, 82 mm deep

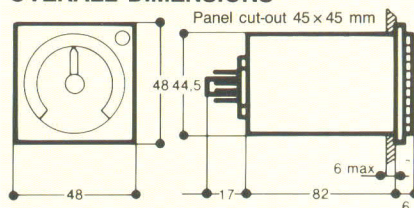
CONNECTIONS



Note:

With a jumper across terminals 5 and 6 the control is On/Off with hysteresis. Without the jumper the control becomes time proportioning with PD action.

OVERALL DIMENSIONS



MODEL CODE:

Input

Thermocouple (J, K)
RTD (Pt100)

Setting

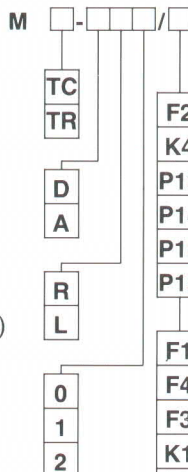
Digital
Analog

Output

Relay (5A/250 Vac)
Logic voltage (0/24 Vdc)

Power supply

24 V, 50/60 Hz
110 V, 50/60 Hz
220 V, 50/60 Hz



Range scale code

for digital setting

F2 Iron-Const 0...399°C
K4 NiCr-NiAl 0...999°C
P13 Pt100 -99...+99°C
P14 Pt100 0...99.9°C
P12 Pt100 0...199°C
P15 Pt100 0...399°C

for analog setting (*)

F1 Iron-Const 0...250°C
F4 Iron-Const 0...450°C
F3 Iron-Const 0...600°C
K1 NiCr-NiAl 0...800°C
K2 NiCr-NiAl 0...1200°C
P11 Pt100 -100...0°C
P17 Pt100 -50...+30°C
P18 Pt100 0...40°C
P3 Pt100 0...80°C
P6 Pt100 0...120°C
P12 Pt100 0...200°C
P15 Pt100 0...400°C

Example: model MTC-DR2/F2

Serie M controller, with thermocouple input, digital setting, relay output, power supply 220 V, 50/60 Hz and Iron-Const 0...399°C scale.

Note:

(*) With the analog setting models it is possible to request that the instrument be supplied set at a fixed value. In this case the scale has a central zero (-10 0 +10) to give the possibility to