

Temperature controller

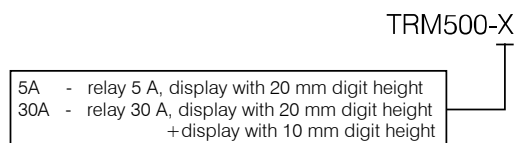
1 Functional description

The TRM500 is a versatile temperature controller with switching current up to 30 A. The device has a universal input for a wide range of resistance thermometers and thermocouples as well as a digital input. It is provided with a relay output, an alarm output, a DC logic output. The outputs can be configured for different tasks (see Appendix A). The controller can be quickly configured by using three keys.

Functions:

- On-Off or PID control (see Fig. 1)
- Manual control
- 20 mm, 4 digit display, 2nd display optional
- Digital input filter with an adjustable time constant
- Custom 2-point linearization
- Digital input (remote start/stop or setpoint change) (see Appendix D)
- Temperature range alarm
- Auxiliary alarm output
- Additional logic output (SSR)
- Configurable outputs (see Appendix A)
- Autotuning function (see Appendix C)
- Cold junction compensation
- Input calibration (see Appendix E)
- 9 status LEDs

Ordering key:



2 Safety precautions

- WARNING** Make sure that the device is fully disconnected from auxiliary power before starting any commissioning or repair work.
- CAUTION** Connect the power supply only after the wiring has been completed.
- DANGER** Do not use the device where it is subjected to flammable or explosive gas.

3 Specifications

Table 1. General data

Power supply	230 (96...264) V AC; 50 (47...63) Hz
Power consumption, max.	5 VA
Resistance thermometer	Pt50, Pt100, Pt500, Pt1000, Ni100, Ni500, Ni1000
Accuracy	0.25%
Connection circuit	2-, 3-, 4-wire
Sampling time for 3-wire	0.3 s
Sampling time for 2- / 4-wire	0.2 s
Lead resistance, max.	15 ohm
Reference junction	internal
Thermocouple	B, J, K, L, N, R, S, T
Accuracy	0.50%
Sampling time	0.2 s
Lead resistance, max.	100 ohm
Digital input	potential free contact
ON, resistance max.	70 ohm
OFF, resistance max.	1000 ohm
Relay outputs	
OUT1	5A / 250 V AC (resistive), 3A / 30 V DC optional 30A / 250 V AC (resistive), 20A / 30 V DC
OUT2	5A / 250 V AC, 3A / 30 V DC (resistive)
Solid state relay OUT3	0/5 V, 25-40 mA
Dimensions	96 x 48 x 100 mm
IP Code	front IP54, rear IP20
Ambient temperature	-20...+50 °C
Humidity	up to 80% (non-condensing)
Weight	approx. 160 g

Table 2. Sensor types

Sensor	Parameter	Measuring range, °C
Pt50	P50	-100...+850
Pt100	P100	-100...+850
Pt500	P500	-100...+850
Pt1000	P1000	-100...+850
Ni100	n100	-60...+180
Ni500	n500	-60...+180
Ni1000	n1000	-60...+180
K	tP.K	-100...+1300
J	tP.J	-100...+1200
L	tP.L	-100...+800
N	tP.N	-100...+1300
T	tP.T	-100...+400
S	tP.S	0...+1750
R	tP.R	0...+1750
B	tP.B	+200...+1800

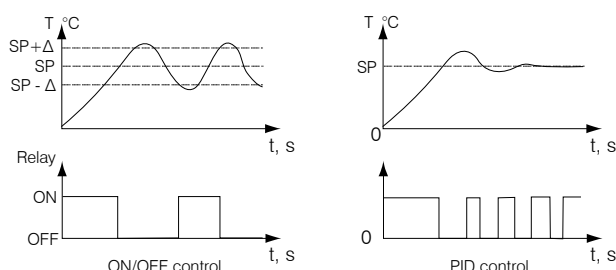


Fig. 1 Control

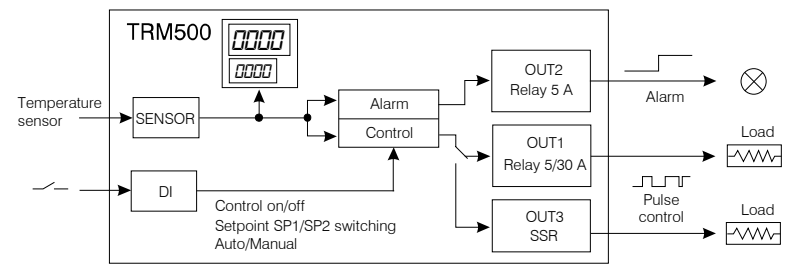


Fig. 2 Block diagram

4 Installation and electrical wiring

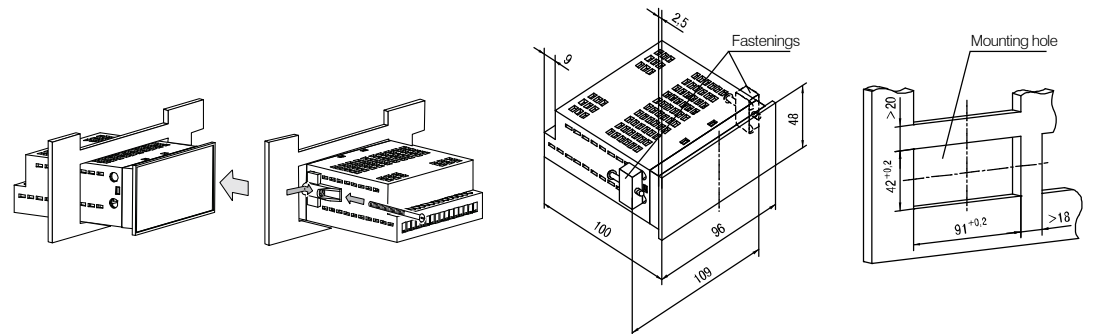


Fig. 3 Mounting and dimensions

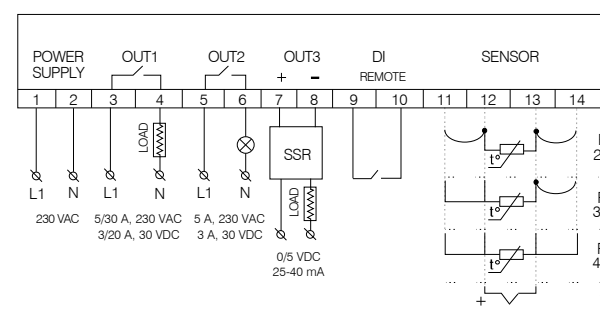


Fig. 4 Electrical wiring

The maximum wire size is 0,75 mm<sup>2</sup>.

5 Maintenance

Technical maintenance should be performed on the device at least every six months by maintenance personnel and comprising the following tasks:

- Removing dust, dirt and foreign matter from the housing.
- Checking mounting of device
- Checking connections

The safety guidelines in Section 2 must be observed when performing maintenance.

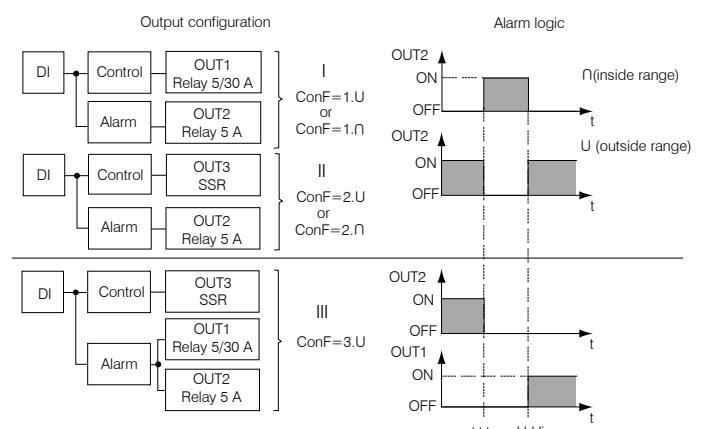
6 Transportation and storage

The device must be transported in closed transport boxes. Protective measures against shocks, vibrations and humidity must be observed. Storage temperature range -30...+60 °C. There may be no chemically active substances in the air.

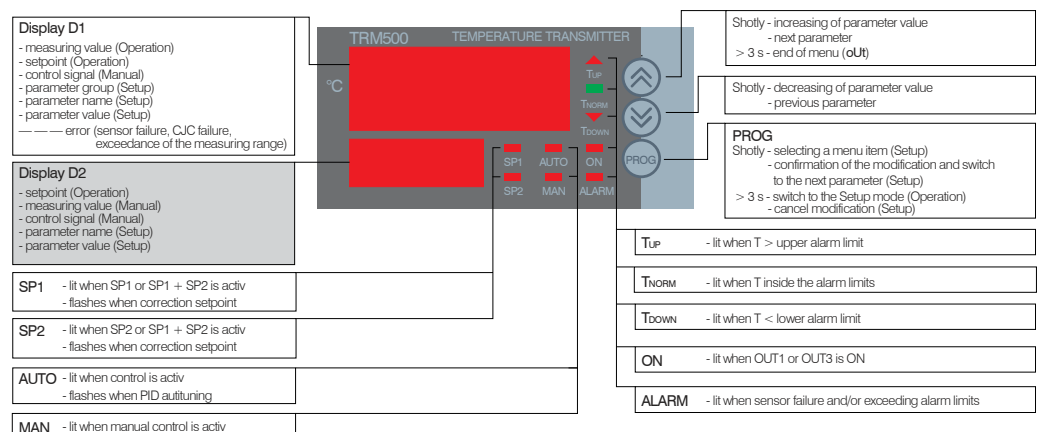
7 Package content

- Temperature controller TRM500 1
- User manual 1

Appendix A. Output configuration



Appendix B. Displays and control elements



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