Zertifiziertes QM-System
DIN EN ISO 9001
Zertifikat-Nr. 01017

Thermostats for Industrial Applications

measuring • monitoring • analysing

TER

- Switching range:
  -20 ... +30 °C to +80 ... +130 °C
- Housing material: aluminium
- Capillary tube: copper

Model: TER-TX490 with thermo well

T1

KOBOLD companies worldwide:
AUSTRALIA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHINA, CZECHIA, EGYPT, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, ROMANIA, RUSSIA, SPAIN, SWITZERLAND, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

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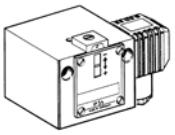
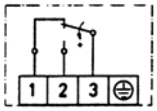
Technical Details

Switching devices	**Normal version** 
Switch housing	Aluminium die-cast GD Al Si 12
Switching function and connection drawing (applies only for version with micro-switch)	Floating change-over contact. With rising temperature switching over single-pole from 3-1 to 3-2 
Switch capacity (applies only for version with micro-switch)	8 A at 250 V_{AC} 5 A at 250 V_{AC} inductive 8 A at 24 V_{DC}
Installation position	Vertical or horizontal, preferably vertical
Protection IP 54	in vertical position
Electrical connection	Plug connection to DIN EN 175301
Cable entry	Pg 11
Ambient temperature	-15 ... +70 °C
Switch point	Adjustable on the spindle
Switching difference	Adjustable or not adjustable (see type overview)
Medium temperature	Max. 70 °C, short time 85 °C
Vibration strength	Up to 4 g no noteworth deviations At higher vibrations, the switching difference reduces. Usage above 25 g is not permitted.
Insulation values	Overvoltage category III, contamination class 3, reference surge voltage 4000 V. The confirmity to DIN VDE 0110 (01.89) is confirmed.

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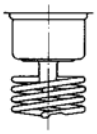
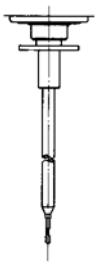
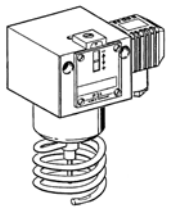
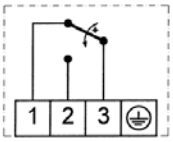
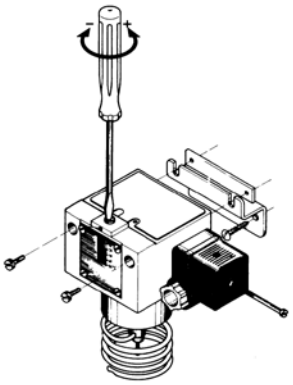
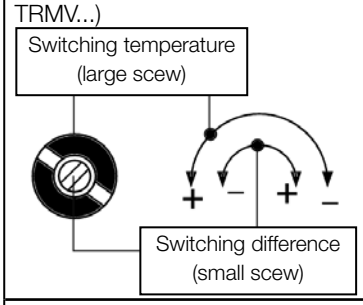
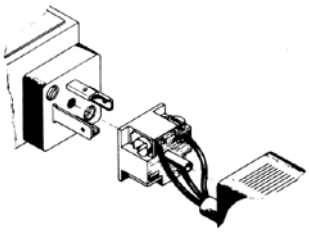
Sensor systems

Room sensor	Rod sensor	Frost-protection sensor
		
TER-TRMV	TER-TX + TER-R10/xx	TER-TX

Switch units / additional functions / connection diagrams

Plug connection	Description	Connection diagram
	**Normal version** Microswitch, single pole changeover	

General technical information

Adjustment of the thermostats	**Adjustment to the lower switching point** The desired value x_s corresponds to the lower switching point (on falling temperature), the upper switching point x_o (on rising temperature) is higher by the switching difference x_d.
Setting the switching temperature (desired value setting) 	The grub screw located above the scale is to be slackened off approx. 2 turns before making an adjustment and tightened up again after setting. The switching temperature is set by the spindle. The set switching temperature can be read off on the scale. Slight variations between the set value and the switching point are inevitable due to the tolerances and spreads in the characteristics of the sensors and springs, also to friction in the moving parts of the switch. The thermostats are as a rule set in such a way the desired value setting and the actual switching temperature coincide best in the middle range. Any possible divergences are uniformly distributed to either side. **Turning to right:** **low switching temperature** **Turning to left:** **high switching temperature**
Changing the switching difference (only on switching units TRMV...) 	The switching difference is changed by turning the threaded rod inside the setting spindle. The lower switching point is not changed by adjusting the difference, only the upper switching point is shifted by the amount of the difference. One revolution of the difference screw varies the switching difference by approximately ¼ of the total differential range. **Bear in mind when making the adjustment:** **Switching temperature:** Turning to right: lower switching point Turning to left: higher switching point **Switching difference:** Turning to right: larger difference Turning to left: smaller difference
Electrical connection 	Plug connection according to DIN EN 175 301. Cable entry Pg 11, max. cable diameter 10 mm. Cable outlet possible in 4 directions - spaced 90° apart.
Mounting position	Preference is to be given, if possible, to the vertical mounting position. **Protection IP 54** is guaranteed in accordance with the conditions of DIN 40050 for **vertical mounting**. The type of protection may be changed by a different mounting position.
Outdoor installation of the instruments	The thermostats can also be installed outdoor, if they are mounted in a vertical position. On temperatures below 0 °C take care that there can form no condensation at the sensor and inside the housing.

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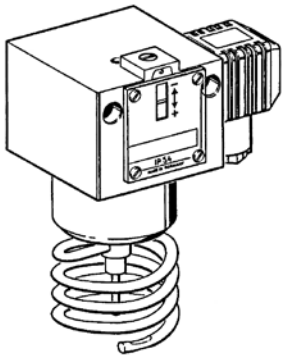
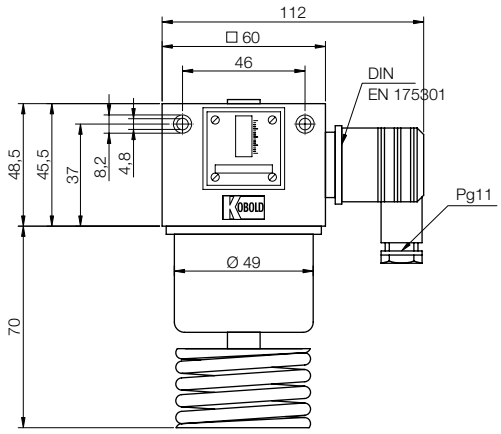


Description

KOBOLD room thermostats are suitable for industrial plant, for greenhouses, cowsheeds and warehouses, also for monitoring the maximum temperature in switchgear cabinets and relay stations. Room thermostats are supplied with TER-H 1 wall bracket.

Dimensions [mm]



Technical Details

Housing:	Aluminium die-cast GD Al Si 12 to DIN1725, resistant to ammonian steam and seawater
Mounting position:	Optional
Max. ambient temperature:	70 °C
Max. temperature at the sensor:	70 °C
Contact:	Single-pole changeover
Protection:	IP 54 to DIN EN 40050 (in the case of vertical mounting)
Installation:	With TER-H 1 support bracket or with 2 screws (Ø 4 mm) bulk-head mounting
Adjustment:	Scale value corresponds with the lower switching point (with falling temperature), the upper switching point is higher by the switching differential
Plug connection:	By means of obliquely angled plug to DIN EN 175301 (3-pole + earth contact), cable entry Pg 11, max. cable diameter 10 mm. Cable outlet possible in 4 directions (spaced 90 ° apart)
Switching temperature:	Adjustable from outside with screw-driver
Switching difference:	Adjustable on TER-TRMV for values

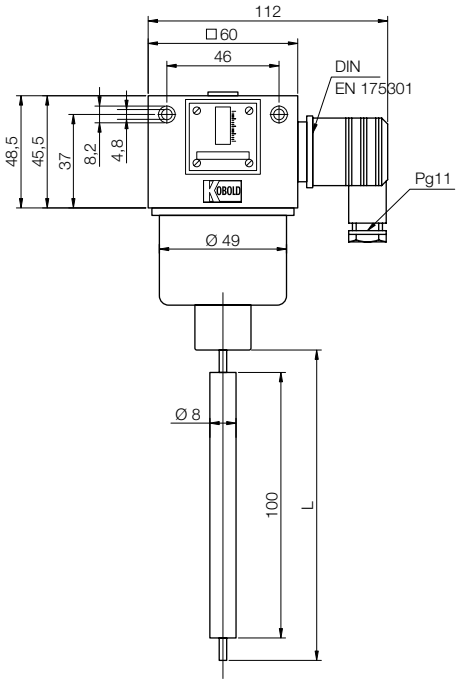
Order Details:

Model	Range of adjustment	Switching difference (mean value)
TER-TRMV 150	+10 ... +50 °C	3 - 10 K (adjustable)

Description

The KOBOLD rod thermostats can be installed as immersion thermostats in pipelines and containers and for monitoring temperature in air ducts. The suitable immersion tube has to be chosen according to the application. (Immersion tubes see page 11).

Dimensions [mm]



Technical Details

Housing:	Aluminium die-cast GD Al Si 12 to DIN1725,
Mounting position:	Arbitrary, preferably vertical
Max. ambient temperature at the switching device:	70 °C
Max. temperature at the sensor:	See table
Contact:	Single-pole changeover
Protection:	IP 54 nach DIN EN 60529 (in the case of vertical mounting)
Adjustment:	Scale value corresponds with the lower switching point (with falling temperature), the upper switching point is higher by the switching differential
Plug connection:	By means of obliquely angled plug to DIN EN 175301 (3-pole + earth contact), cable entry Pg 11, max. cable diameter 10 mm. Cable outlet possible in 4 directions (spaced 90° apart); Plug is included
Switching temperature:	Adjustable from outside with screw-driver
Switching difference:	Not adjustable for values see summary of types
Immersion tubes:	See accessories (page 11)

Order Details: (Example: **TER-TRM 023**)

Model	Range of adjustment	Immersion depth	Switching difference (mean value)	Max. permissible temperature at sensor
TER-TX 023	-20 ... +30 °C	135 mm	1.5 K	110 °C
TER-TX 150	+10 ... +50 °C	135 mm	1.5 K	110 °C
TER-TX 490	+40 ... +90 °C	135 mm	2.5 K	125 °C
TER-TXB 023	-20 ... +30 °C	220 mm	1.5 K	110 °C

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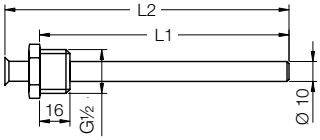
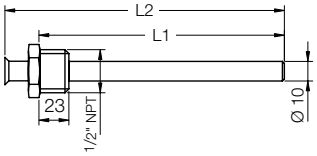
Thermowells

Thermowells G ½,
internal Ø 8 mm

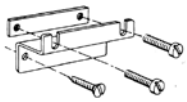


Thermowells ½" NPT,
internal Ø 8 mm

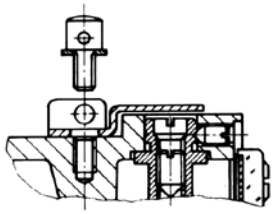


Model	Immersion depth L_1 [mm]	Overall length L_2 [mm]	Suitable for
Nickel-plated brass type, G ½, max. permissible pressure: 25 bar			
TER-R 10 / Ms	135	-	TER-TX...
TER-R 20 / Ms	220	-	
Nickel-plated brass type, ½" NPT, max. permissible pressure: 25 bar			
TER-RN 10 / Ms	135	151	TER-TX...
TER-RN 20 / Ms	220	236	

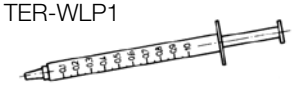
TER-H1



TER-P2



TER-WLP1



Wall bracket model TER-H 1
including fixing screws and plugs (Ø 6 mm).
Included as standard with model TRM thermostats.

Sealing, model TER-P 2
consisting of cover plate and screw for covering and adjusting screws.

Heat conducting compound model TER-WLP 1
to improve the transfer of heat, e. g. in the case of contact thermostats.
Approx. 0.5 cm^3 in handy dispenser.