

Instruction manual for Thermometers

Thermo-Standard	TS
Hit	TH
Modul	TM
Kontakt	TK
Flexible	TF

Verifying, setting and readjusting Rüeger Thermometers

All these thermometers, designed to meet the most demanding requirements, are provided with one or several adjustment devices. These devices allow the following groups of instruments:

- setting to a given working temperature, for accurate indication and the compensation of errors due to the measuring point
- readjustment, for example after long use under severe vibrations or frequent shocks
- resetting after rotating the dial (types TMV... and TMI...), for example to orient the stem in a different direction
- alignment of a thermometer mounted in a row
- setting switchpoints of electrical switching thermometers from the outside; types TM (H, V, I) K, TG (H, V, I)K, TF (H, V, I) K
- external resetting of thermometers with pierced glass; types TH (H,V, I)
- rotation of the dial (type TMH).

Verifying the temperature indication

To ensure that the results of the adjustment operations described below are reliable, the **following minimum immersion** depths should be maintained:

- **60 mm** for bimetallic thermometers-types **TS, TH, TM, TK**
- **50, 100 or 200 mm** – according to bulb type – for gas pressure thermometers (**types TF, TG**)
These lengths are indicated by a welding seam around the bulb.

The reference temperature

If the temperature of the medium (liquid, gas) in which the stem or the bulb is immersed is not known, and neither a correctly calibrated reference thermometer is placed nearby, or a calibration bath (filled with oil or water and stirred) is available, the instrument can be verified by either of the following two simple methods:

- Immerse the thermometer stem or the bulb in **melting ice** (ratio ice: water approx. 2:1) and stir it around. After about 5 minutes – the time to allow the measuring system to stabilize – the thermometer should indicate 0°C.
- Immerse the thermometer stem or the bulb in **boiling water**. After about 5 minutes – the time to allow the measuring system to stabilize – the thermometer should indicate:
100 °C at 0 m (sea level)
99 °C at 327 m
98 °C at 654 m

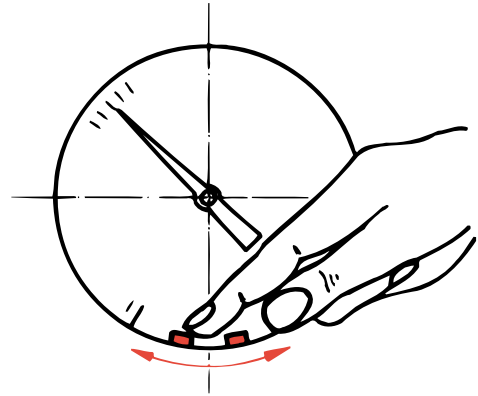
The temperature of boiling water at other altitudes can be found by assuming a drop of 1°C per 327 m height increase. In this approximate but often useful method, temporary atmospheric pressure variations can be neglected.

Important! Verification and adjustment at ambient temperature are not recommended.

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A. ADJUSTMENT BY DIAL ROTATION, 360° for thermometers in: thermo-MODUL Group, types TMH, TMV, TMI

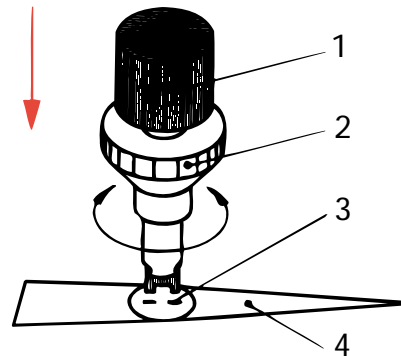
- Twist the bezel counter clockwise to release, and remove the glass
- With the fingertip, and without pressing inwards, turn the dial gently until the graduation corresponding to the true or reference temperature is opposite the pointer
- Fit the sealing gasket against the dial, replace the glass, and twist-lock the bezel hold the assembly



B. ADJUSTMENT BY POINTER REPOSITIONING, 360° for thermometers in: thermo-STANDARD Group, types THH, THV, THI pierced glass

- Remove the plug from the glass
- Insert the setting tool
- Turn the grey ring (2) to bring the dogs onto the faces of the pointer (4)
- Turn the black knob (1) to engage the blade in the slots (3) in the pointer (4)
- Holding the black knob (1) stationary, turn the grey ring (2) until the pointer indicates the temperature required
- Take the tool out, replace the plug in the glass

Setting tool no code 225-002

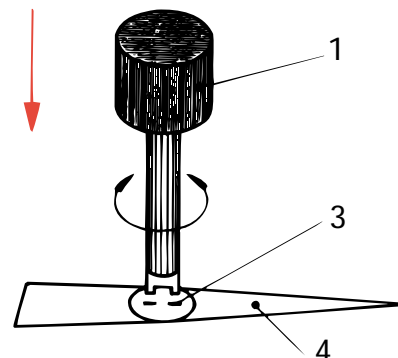


- 1) Black knob with 2-tooth blade, for engaging in the slots (3) of the pointer (4)
- 2) Grey ring with 2 dogs, for engaging in the faces of the pointer (4)

C. ADJUSTMENT BY POINTER REPOSITIONING, 360° for thermometers in: thermo-MODUL, types TM (V, I), and TG (H, V, I) thermo-FLEXIBLE, types TF (H, V) thermo-KONTAKT, types TM (H, V, I), TG (H, V, I) and TF (H, V) K

- Unscrew the bezel, remove glass as shown in A above
- Engage black knob (1) in slots (3) of the pointer
- Hold pointer (4) stationary with two fingers on sides
- Turn knob (1) to set pointer
- Refit the glass and bezel, not forgetting the dial/glass seal

Setting tool no code 225-003



- 1) Black knob with 2-tooth blade, for engaging in the slots (3) of the pointer (4)

- The tool N° 225-002 may also be used for this adjustment. The grey ring (2) can be taken off if desired, to simplify operations
- On thermometers of group **TK**, take care not to lift the pointer, as this could cause the drive pin to disengage from the plate.

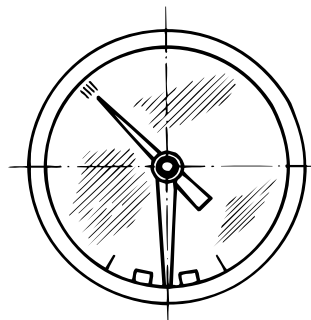
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D. ADJUSTMENT BY DIAL ROTATION WITH EXTERNAL DEVICE FIXED TO GLASS (device supplied on request, at extra charge)

Rotation of dial types TM

- Unscrew the plug on the fixed device. Important: this plug is a seal, so the **O-ring** with it must not be lost!
- By means of the setting key supplied, turn the adjustment screw to the left or right, until the dial graduation corresponding to the true or required temperature is opposite the pointer
- Screw the plug back in, not forgetting to fit the O-ring



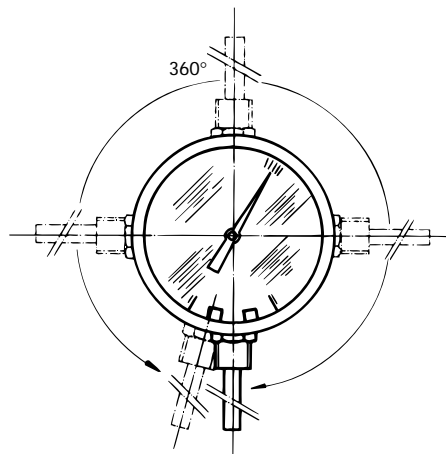
E. ADJUSTING THE SWITCHPOINTS ON ELECTRICAL SWITCHING THERMOMETERS, Group Thermo-MODUL, types TM (H,V,I) K and TG (H, V, I,)K Group Thermo-FLEXIBLE, types TF (H, V) K

- Unscrew the plug on the fixed device (see above)
- By means of the setting key supplied (see above), turn the adjustment screw to the left or right, to bring the metal driver near to the red switchpoint indicator
- While pressing the adjustment screw in, turn it to bring the metal driver into contact with the switchpoint temperature required
- Turn the driver to a position where it does not hinder reading the temperature (e.g. on one of the dial tabs)
- Replace the plug, not forgetting the O-ring

N.B. If the thermometer is not provided with the adjustment device on the glass, the switchpoint may also be set as described in method **A** above.

F. BOTTOM-CONNECTED BIMETALLIC THERMOMETERS, types TMV

On these thermometers, types **TMV** (data sheet TM 1), the position of the dial relative to the stem may be rotated **to any angle**. Rotate the dial as described in method **A** above. To readjust, proceed as in method **B** above.



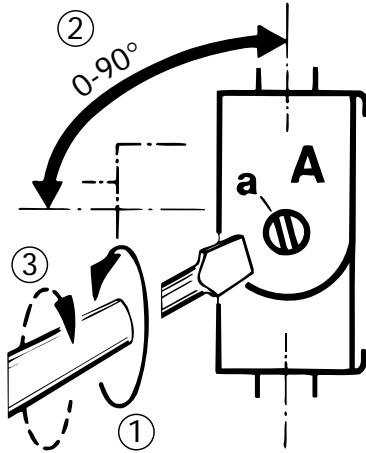
ADJUSTMENT METHODS

Groups Setting	Types	Rotation 360°	Indicator 360°	Setting tool		With external device fixed to glass	Setting key supplied
				N° 225-002	N° 225-003		
Thermo-STANDARD	TH, (H,V,I)		•	•		pierced glass + plug	
Thermo-KONTAKT	TM, (H,V,I) K TG, (H,V,I) K TF, (H,V) K		•	•	•	• for setting • target • values only	• • •
Thermo-MODUL	TMH TMV TMI TG (H, V, I)	• • •	• •	• •	• •	• allows • rotation • of dial	• • •
Thermo-FLEXIBLE	TF (H,V) A, E, B, F, T, U		•	•	•		

Tilting and rotating

Groupe	TH 2	Types	THI
Gruppen	TM 1	Typen	TMI
Groups	TKG 1	Types	TGI
	TK 2		

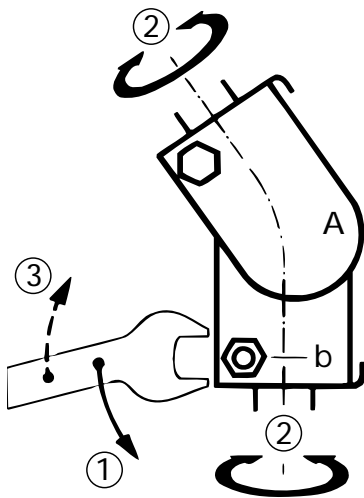
Tilting



Tilting the head (0-90°)

- 1 Slacken screws (a) on both sides.
- 2 Press the two parts of the bracket (A) together and tilt to required angle.
- 3 Retighten screws (a) on both sides.

Rotating



Rotating the head (360°)

- 1 Slacken locknut (b) at top **and** bottom.
- 2 Hold bracket (A) with one hand, and turn head with the other.
- 3 Retighten locknut (b) at top **and** bottom.

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