

## Instruction manual for adjustment and recalibration of thermometers

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

## 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 :

- 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
- rotation of the dial (type TMH).
- 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) K
- external resetting of thermometers with pierced case; types TH (H, I)

## 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**
- **70, 120, 220 mm (ls+20)** – 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:

- a. 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.
- b. 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

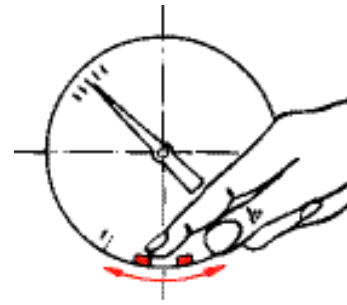
The temperature of boiling water at other altitudes can be found by assuming a drop of 1°C per 327 m height increase. In this approximate but often useful method, temporary atmospheric pressure variations can be neglected.

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

## Instruction manual for adjustment and recalibration of thermometers

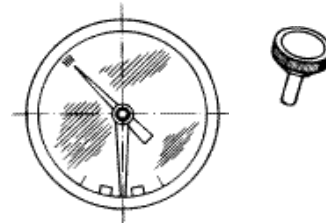
### A. ADJUSTMENT BY DIAL ROTATION, 360° for thermometers in: thermo-MODUL Group, type TMH

- 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



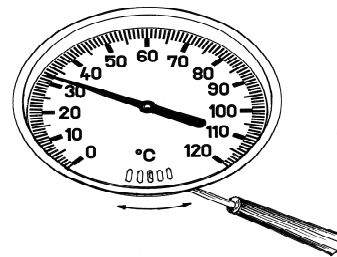
#### External adjustment (pierced glass), ± 360° available for TMH group

- 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 set-value
- Screw the plug back in, not forgetting the **O-ring**



#### External adjustment, ± 10°, available for TH (H, I)

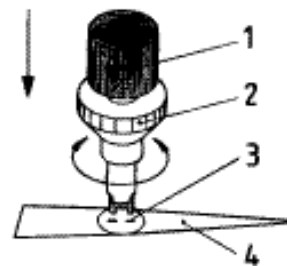
- Remove plug from the back of the housing
- Insert a small screw driver into the dial holes
- Adjust dial until indicated temperature corresponds to set-value
- Refit the plug firmly in the case



### 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 (225-002)
- 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) of 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

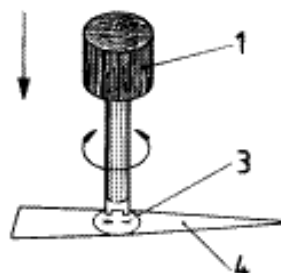


- 1) Black knob with 2-tooth blade, for engaging in the slots (3) of the pointer (4)
- 2) Grey ring with 2 dogs, for engaging in the faces of the pointer (4)

### 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

- Twist the bezel counter clockwise to release, and remove the glass
- 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)

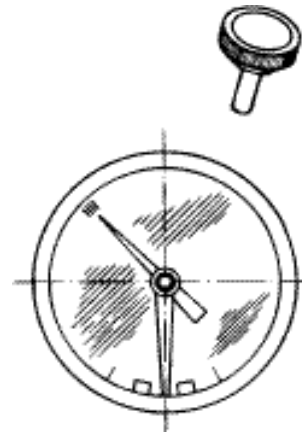
- The tool N° 225-002 may also be used for this adjustment. The grey ring (2) can be taken off if desired, to simplify operations
- On thermometers of group **TK**, take care not to lift the pointer, as this could cause the drive pin to disengage from the plate.

## Instruction manual for adjustment and recalibration of thermometers

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

#### Rotation of dial types TMH

- 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
- While pressing the adjustment screw in, turn it to bring the metal driver into dial with the switchpoint temperature required
- Screw the plug back in, not forgetting to fit the **O-ring**



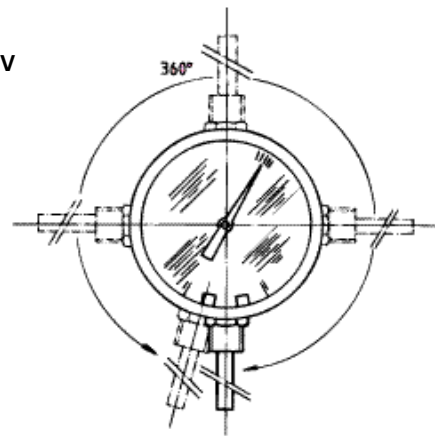
### E. ADJUSTING THE SWITCHPOINTS ON ELECTRICAL SWITCHING THERMOMETERS, Group Thermo-MODUL, types TM (H,V,I) K and TG (H, V, I,) K Group Thermo-FLEXIBLE, types TF (H, V) K

- Unscrew the plug on the fixed device. 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, 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**.

### 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**. To readjust, proceed as in method **B**.



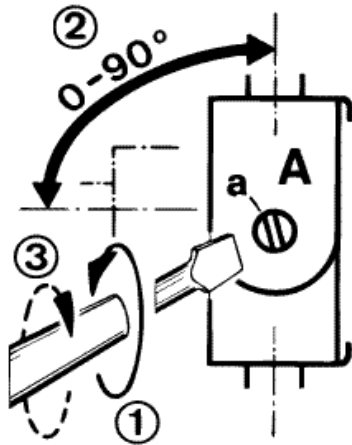
## ADJUSTMENT METHODS

Groups Setting	Types	Rotation 360°	Indicator 360°	Setting tool		With external device fixed to glass	Setting key supplied	External adjustment $\pm 10^\circ$ TH (I, H)
				N° 225-002	N° 225-00			
Thermo-STANDARD	TH, (H,V,I)		•	•		pierced glass + plug		• (I, H)
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

Groups	TH 1	Types	THI
	TM 1, TMK		TMI
	TG 1, TGK		TGI

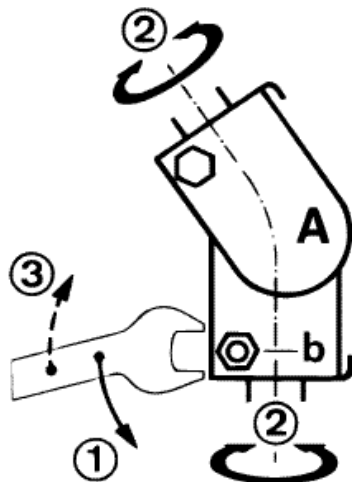
### Tilting



#### 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.

#### Storage of thermometers

Rüeger thermometers should remain in their original packaging until installation. They should not be exposed to any mechanical shocks or vibrations and be protected against dust and humidity

Storage temperature should not exceed -20°C or +60°C, unless specified otherwise.

Modifications reserved

# RUEGER



[www.rueger.com](http://www.rueger.com) [www.instrugate.com](http://www.instrugate.com)

### Manufacturers of Sensors and Gauges for Temperature & Pressure

**RÜEGER SA**  
Ch. de Mongevon 9  
Case postale 98  
1023 CRISSIER 1  
SWITZERLAND

Tel + 41 (0)21 637 32 32  
Fax + 41 (0)21 637 32 00  
E-mail [info@rueger.ch](mailto:info@rueger.ch)

**RÜEGER GmbH**  
Plieninger Strasse 58  
70567 STUTTGART  
GERMANY

Tel + 49 (0)711 16-163-0  
Fax + 49 (0)711 16-16333  
E-mail [rgmbh@rueger.com](mailto:rgmbh@rueger.com)

**RÜEGER Sdn Bhd**  
No 22-5, Jalan Wangsa Delima 10  
D' Wangsa, Wangsa Maju  
53300 Kuala Lumpur  
MALAYSIA

Tel + 603 - 4142 3808  
Fax + 603 - 4142 3909  
E-mail [sales@rueger.com.my](mailto:sales@rueger.com.my)

**BEIJING RÜEGER PRECISION INSTRUMENT CO., LTD**  
No. A135 Chengshousi Road Nansanhuan,  
Chaoyang District  
100164 Beijing P.R. CHINA

Tel + 86 10 8767 7502 / 3379  
Fax + 86 10 8761 3727  
E-mail [sales@bjrueger.com](mailto:sales@bjrueger.com)