

# Operating Manual for Digital Precision Thermometer

## GTH 175 / Pt



### Specification:

<b>Range:</b>	-199.9 ... +199.9°C
<b>Resolution:</b>	0.1°C
<b>Accuracy:</b> (at nom. temperature)	±0.1% of m.v. ± 2 digit (within range of -70 ... +199.9°C, other range p.r.t. correction table at next page)
<b>Sensor:</b> <b>GTH 175/Pt:</b>	Immersion probe: Pt1000 sensor, electrically insulated and mounted in stainless steel tube of 3mm dia and approx. 100mm length; plastic handle approx. 135mm long. Feeler permanently connected to device via approx. 1m of highly flexible silicon cable.
<b>GTH 175/Pt-E:</b>	Insertion probe Pt1000 sensor, electrically insulated and mounted in stainless steel tube of 3mm dia and approx. 100mm length; prod, plastic handle approx. 135mm long. Feeler permanently connected to device via approx. 1m of highly flexible silicon cable .
<b>GTH 175/Pt-K:</b>	Core temperature- insertion probe Pt1000 sensor, electrically insulated and mounted in stainless steel tube of 3mm dia and approx. 100mm length; prod, small teflon handle approx. 75mm long. Feeler permanently connected to device via approx. 1m of highly flexible silicon cable. Sensor has to remain in media; it must not be heated up to temperatures exceeding 200°C. Permissible temperatures for sensor handle and sensor cable up to 250°C.
<b>Display:</b>	approx. 13mm high, 3½ digit LCD
<b>Nominal temperature:</b>	25°C (accuracy specified at this temperature)
<b>Working temperature:</b>	-30 to +45°C (ambient temperature for device)
<b>Atmospheric humidity:</b>	0 to 80 % (not condensing)
<b>Storage temperature:</b>	-30 to +70°C
<b>Power supply:</b>	9V-battery type IEC 6F22 (included)
<b>Battery service time:</b>	approx. 200 operating hours
<b>Low battery warning:</b>	"BAT" displayed automatically in case of low battery
<b>Dimensions of case:</b>	approx. 106 x 67 x 30 mm (W x H x D) (sensor not included)
<b>Weight:</b>	approx. 190g (cpl. device with sensor and battery)
<b>EMC:</b>	The GTH175/Pt corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (2004/108/EG). Additional error: <1%

## Safety Advices:

This device has been designed, assembled and tested in accordance with the safety regulations for electronic measurement devices. However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advices will be adhered to when using the device.

1. Trouble-free operation and reliability of the device can only be guaranteed if the device is not subjected to any other climatic conditions than those stated under "Specification".
2. Moving the device from a cold to a warm environment may lead to malfunctions due to condensation. In such a case we recommend waiting to allow device temperature to adjust to the ambient temperature before re-starting.
3. Please note that the sensor must not be heated up to temperatures exceeding 200°C.
4. If there is any risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting.

Operator safety may be a risk, if :

- there is visible damage done to the device.
- the device is not working as specified.
- the device has been stored under unsuitable conditions for a longer time .

In case of doubt, please return device to manufacturer for repair and/or maintenance.

## Points to be observed during operation

1. In case of low battery voltage "BAT" is displayed; make sure to exchange battery immediately as too low an operation voltage may lead to incorrect measuring results. To exchange battery, please proceed as follows:
  - push battery cover located at the back side of the device downwards (see arrow)
  - take out battery and replace by a new one
  - close battery cover

We recommend to take out battery if device will not be operated for some time.

The battery has to be taken out, when storing device above 50°C.

Please note: If the battery voltage falls even lower the voltage may not be sufficient for "BAT" to be displayed so that there will be no "BAT" indication although the battery has been used up. We recommend to make it a rule to always check the battery if the values indicated seem to be completely out of range.

2. Make sure to maintain device properly and to operate it in accordance with the specification listed (do not throw, knock etc.).
3. Sensor must not be heated up to temperatures exceeding 200°C as otherwise the soldering point of the connection wires may open up, in which case the display will show 1 plus decimal point.  
Both, sensor handle and sensor cable are resistant to temperatures up to 100°C (GTH 175/Pt-K : up to 250°C).

## Recalibration

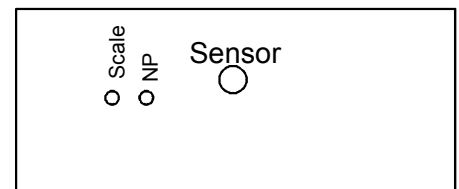
The measuring device will be calibrated before leaving our works. A recalibration is, therefore, not necessary . If you want to calibrate the device for an existing sensor, please proceed as follows (calibrate 0°C before scale as otherwise correct adjustment cannot be guaranteed):

**Calibration point 0°C :** Put ice cubes in a glass and pour cold water till ice cubes are almost covered. Put sensor into glass, wait approx. 15 minutes, then stirr water with a spoonhandle. Wait for stable value to be displayed, then turn zero point potentiometer (NP, Potentiometer next to cable outlet) by means of a screw driver till display shows "0.00".

**Calibration point scale :** Set display to a reference temperature value (e.g. clinical thermometer) using the extreme left potentiometer on the front side of the device (Scale).

Please note that boiling water should not be used as a temperature reference as the boiling temperature is dependent on the atmospheric pressure.

View of front plate



## Correction table : (typ. value)

temperature	display	temperature	display	temperature	display	temperature	display
-200	-201.9	-165	-165.9	-130	-130.3	-95	-95.1
-195	-196.7	-160	-160.8	-125	-125.3	-90	-90.0
-190	-191.6	-155	-155.7	-120	-120.2	-85	-85.0
-185	-186.4	-150	-150.6	-115	-115.2	-80	-80.0
-180	-181.2	-145	-145.5	-110	-110.1	-75	-75.0
-175	-176.1	-140	-140.4	-105	-105.1	-70	-70.0
-170	-171.0	-135	-135.4	-100	-100.1		

RE : ISO 9000 and following  
Manufacturer's certificate of calibration for GTH175/Pt available against upcharge: Price upon request.  
(In case of order, please specify testing values desired: e.g. -20°C, 0°C, +70°C)