

## Digital-Precision-Thermometer

Operating Manual

# GMH 175



WEEE-Reg.-Nr. DE93889386

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## 1 General Note

Read this document carefully and get used to the operation of the device before you use it. Keep this document within easy reach near the device for consulting in case of doubt.

The manufacturer is not liable for misprints.

## 2 Safety

### 2.1 Intended Use

The GMH 175 is a precision thermometer for the measurement of the temperature with exchangeable 2-wire Pt1000 temperature sensors.

The safety requirements (see below) have to be observed.

The device is to be protected against wetness and soiling and has to be stored and operated only within the permissible environmental conditions and connection data (see "Specification").

The device must be used only according to its intended purpose.

## 2.2 Safety signs and symbols

Warnings are labelled in this document with the followings signs:



**Caution!** This symbol warns of imminent danger, death, serious injuries and significant damage to property at non-observance.



**Attention!** This symbol warns of possible dangers or dangerous situations which can provoke damage to the device or environment at non-observance.



**Note!** This symbol point out processes which can indirectly influence operation or provoke unforeseen reactions at non-observance.


## 2.3 Safety guidelines

This device has been designed and tested in accordance with the safety regulations for electronic devices.


However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual 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".

If the device is transported from a cold to a warm environment condensation may cause in a failure of the function. In such a case make sure the device temperature has adjusted to the ambient temperature before trying a new start-up.

2.  If there is a 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 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 or maintenance.

3. When connecting the device to other devices the connection has to be designed most thoroughly as internal connections in third-party devices (e.g. connection GND with protective earth) may lead to undesired voltage potentials that can lead to malfunctions or destroying of the device and the connected devices

4.  Do not use these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury or material damage.  
Failure to comply with these instructions could result in death or serious injury and material damage.

## 3 Product Specification

### 3.1 Scope of supply

The scope of supply includes:

- Device GMH 175, incl. 9V battery block
- Operation manual

### 3.2 Operation and maintenance advice

- Battery operation  
If 'bAt' is shown in the lower display the battery has been used up and needs to be replaced. However, the device will operate correctly for a certain time. If 'bAt' is shown in the upper display the voltage is too low to operate the device; the battery has been completely used up.

**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.



**The battery has to be taken out, when storing device above 50 °C. We recommend taking out battery if device is not used for a longer period of time. After recommissioning the real-time clock has to be set again.**

- Mains operation with power supply



When using a power supply please note that operating voltage has to be 10 to 12 V DC. Do not apply overvoltage!! Cheap 12V-power supplies often have excessive no-load voltage. We, therefore, recommend using regulated voltage power supplies.

Trouble-free operation is guaranteed by our power supply GNG10/3000.

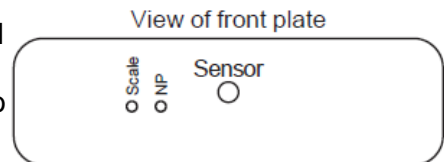
Prior to connecting the power supply to the mains makes sure that the operating voltage stated at the power supply is identical to the mains voltage.

- Treat device and sensor carefully. Use only in accordance with above specification. (do not throw, hit against etc.). Protect plug and socket from soiling.

## 4 Recalibration

The measuring device was 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 stir 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 show "00.0".



**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.

### 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		

**Accessories:** Suitable plug-in temperature probes:  
 (-70.0 ... +199.9°C, DIN Class B – Probes interchangeable without recalibration)

**GTF 175:** immersion probe for liquids and aggressive gases

**GES 175:** insertion probe for soft media

**GOF 175:** surface probe for any solid surface

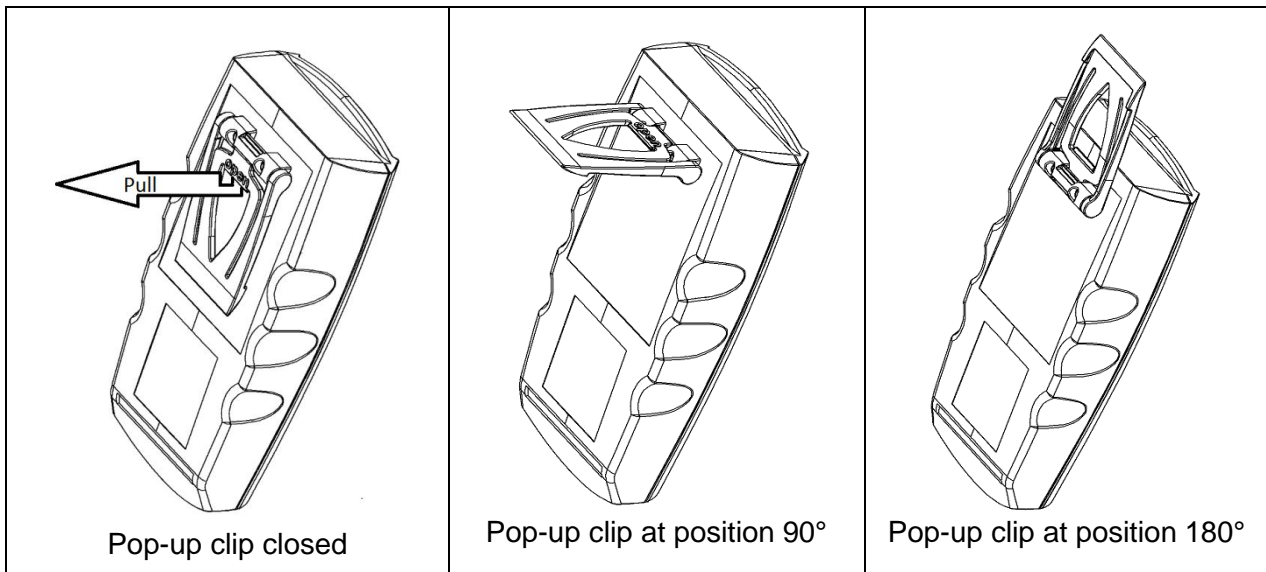
**GLF 175:** air/gas probe for clean media

For more details please take a look in our catalog.

## 5 Pop-up clip

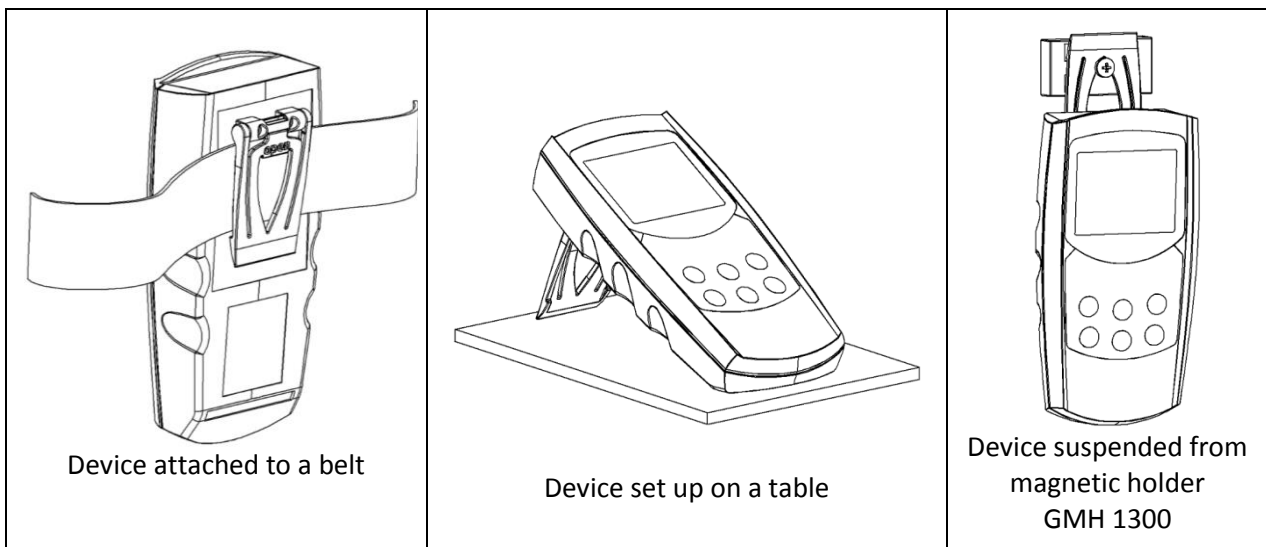
### Handling:

- Pull at label “open” in order to swing open the pop-up clip.
- Pull at label “open” again to swing open the pop-up clip further.



### Function:

- The device with a closed pop-up clip can be plainly laid onto a table or attached to a belt, etc.
- The device with pop-up clip at position 90° can be set up on a table, etc.
- The device with pop-up clip at position 180° can be suspended from a screw or the magnetic holder GMH 1300.



## 6 Specification

<b>Resolution:</b>	0.1°C
<b>Range:</b>	-70.0 ... +199.9°C (± 199.9°C)
<b>Accuracy:</b>	Device: ±0.1°C ± 1 Digit (within range of -70.0 ... +199.9°C – other range p.r.t. correction table Probe: depending on connected sensor
<b>Sensor:</b>	Pt1000-Sensor, 2-wire, Connection via 3.5mm Ø jack connector
<b>Nominal temperature:</b>	25°C (accuracy specified at this temperature)
<b>Working temperature:</b>	-30 ... +45°C (ambient temperature for device)
<b>Atmospheric humidity:</b>	0 to 80%/r.h. (non condensing)
<b>Storage temperature:</b>	-30 ... +70°C
<b>Display:</b>	approx. 13mm high, 3 ½- Digit LCD
<b>Power supply:</b>	9V-Battery, type IEC 6F22 (included) as well as additional d.c. connector (internal pin Ø 1.9mm) for external 10-12V direct voltage supply.(suitable power supply: GNG10/3000)
<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>	142 x 71 x 26 mm (H x W x D), impact-resistant ABS plastic housing, front side IP65
<b>Weight:</b>	approx. 160g (incl. battery)
<b>EMC:</b>	The device 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%

## 7 Reshipment and Disposal

### 7.1 Reshipment



All devices returned to the manufacturer have to be free of any residual of measuring media and other hazardous substances. Measuring residuals at housing or sensor may be a risk for persons or environment



Use an adequate transport package for reshipment, especially for fully functional devices. Please make sure that the device is protected in the package by enough packing materials.

### 7.2 Disposal instructions



Batteries must not be disposed in the regular domestic waste but at the designated collecting points.

The device must not be disposed in the unsorted municipal waste! Send the device directly to us (sufficiently stamped), if it should be disposed. We will dispose the device appropriate and environmentally sound.