

# OPERATION MANUAL



## Temperature probe with transducer Series TF-GLT

### Description



**Typ INT**  
for duct mounting,  
probe installed



**Typ EXT**  
with cable,  
probe sold



**Typ AF**  
for wall mounting,  
probe sold

### Characteristic features

- Standard signal 0...10 V or 4...20 mA
- 3 point calibrated and linearised output
- High long term stability, innovative technique
- Sensor in stainless steel protection tube
- High quality housing enclosure IP 65
- Model 0...10 V with AC/DC-voltage
- Optional with extended probe (-EXT)

### Areas of application

- Building instrumentation
- Industrial measurement and control systems
- Temperature logging

### Attention

Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.

### Technical data

| Temperature measurement                                |  |
|--|--|
| Measuring range  | -30 ... +70 °C   |
| Sensor element   | Platinum resistance Pt1000                                   |
| Accuracy   | ±0.3 K (from 0...50 °C)                                      |
| Output scaling   | -30...+70 °C   |
| General  |  |
| CE-conformance   | 2014/30/EU   |
| EMV-Noise emission                                     | EN 61000-6-3:2011  |
| EMV-Noise withstanding                                 | EN 61000-6-1:2007  |
| Protection tube housing                                | Stainless steel 1.4571                                       |
| Electronics housing                                    | Plastic  |
| Connection   | Screw terminals 0.75 mm <sup>2</sup>                         |
| Connection cable                                       | Type -EXT 1500 mm  |
| Operating voltage                                      | Type -10V: 12 ... 24 V AC / DC<br>Type -20MA: 12 ... 24 V DC |
| Over voltage protection                                | Varistor and RC-Filter                                       |
| Other scaling and signal voltage available on enquiry! |  |
| Rights reserved for change in technical data!          |  |

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### Application range

In the area of building instrumentation, there is a requirement for reasonably priced temperature probes which are suitable for continuous operation and protected against over voltage and transients. Further aspects are AC/DC supply, high long term stability as well as a good measuring accuracy in the application. The B+B temperature probes of -GLT series are developed for these requirements and are specially suitable for application in this area due to the modern sensor technology and innovative construction with an ASIC.

The measurement of temperature is done with a precise and long term stable platinum resistance with industrial suitability. The processing of resistance curve is linearised over a second order polynomial as per DIN 47115. With electronic signal processing, the temperature values are converted into a standard signal of 0 ... 10 V or 4 ... 20mA. The voltage supply for the 0 ... 10 V model can be done alternatively with AC or DC supply. The 4 ... 20 mA model is meant for only DC supply.

The sensor is mounted in a protection tube of high grade stainless steel 1.4571 and is also suitable for measurement in liquid media or for mounting in ventilation ducts. Because of the extended probe and thermally insulated electronics, self heating is avoided and hence a higher precision level is achieved in temperature measurement.

### Supply

For 4 ... 20 mA model, only DC supply is possible. The 0 ... 10 V model can be alternatively fed with either DC or AC voltage and also with unfiltered rectified voltage.

In case of AC supply, the neutral point of the transformer must be connected to signal ground and the connection of further probes must be absolutely done with phase balance. In case of supply with rectified unfiltered voltage, the minus must be connected to reference ground and plus to be connected to +DC / AC 24 V. Wrong connection leads to malfunctioning or can cause damage to the electronics!

### Calibration

The measuring probes are calibrated by a precision resistance decade with reproducibility of PTB National standard. Calibration certificate as per ISO 9000 standard is also available with some extra charges.

### Setting

Because of the high grade platinum sensor element, the probe is long term stable and maintenance free. Hence, a re-calibration is not required as per practice.

The calibration connector is preserved only for factory purpose and must not be connected.

### Measurement of signal voltage

In order to avoid measuring error in the 0 ... 10 V model due to line resistance and current flow through the grounding wire, a separate grounding wire is to be used for the signal voltage. The voltage measurement should be with a four wire system.

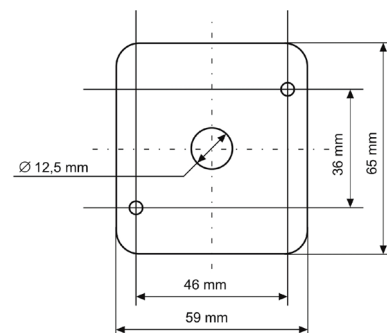
### Connection

Preferably shielded connection cable should be used for the connection. First of all, it is to be noted that in EMI disturbed environment, the shielding should be grounded. Check before connection, whether the supply voltage is as per operating voltage specification mentioned in the data sheet.

### Mounting of measuring probes

For mounting of external measuring probes, commercially available bayonet connectors or mounting flanges can be used. Please ask for our accessories overview. Because of the protection tube, the probe is liquid proof and pressure tight. The projected measuring probe type -INT can be directly mounted on the ventilation ducts. Drill holes for the probe and two mounting screws with the help of enclosed drilling template. Directly mount the probe on the ventilation duct with a gasket in between. Alternatively, a mounting flange is available with clamping ring / clamping screws.

### Drilling template for measuring amplifier



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### Product variants

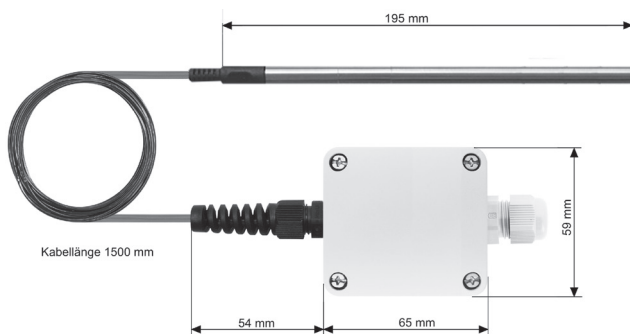
#### Type INT:

The protection tube with the temperature sensor is solidly attached to the evaluation electronics. Other protection tube lengths (max. 500 mm) are available on inquiry.



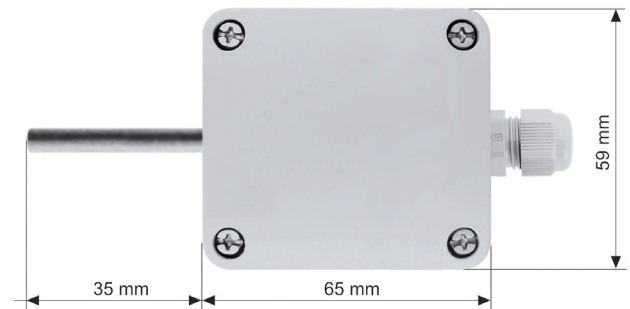
#### Type EXT:

The measuring probe is connected to the evaluation electronics through a solidly mounted cable (approx. 1.5 m). The cable length is compensated. Other cable lengths (max. 5 m) and protection tubes are available on enquiry.



#### Type AF:

Model for wall mounting, for example, as external probe. In this type, the measuring probe is horizontally flanged (at the front side) to the evaluation electronics. The protection tube length is around 35 mm.



### Order

| Temperature probe with transducer                         | Order No.          |
|---|--------------------|
| Typ INT - 0 ... 10V                                       | TF-GLT-10V-INT-T1  |
| Typ INT - 4 ... 20mA                                      | TF-GLT-20MA-INT-T1 |
| Typ EXT - 0 ... 10V                                       | TF-GLT-10V-EXT-T1  |
| Typ EXT - 4 ... 20mA                                      | TF-GLT-20MA-EXT-T1 |
| Typ AF - 0 ... 10V  | TF-GLT-10V-AF-T1   |
| Typ AF - 4 ... 20mA                                       | TF-GLT-20MA-AF-T1  |
| Accessories   |                    |
| Mounting flange for 6 mm sensor, stainless steel Aisi 304 | 0554 0359          |
| Mounting flange 73 mm, Inner Ø6,2 mm                      | 0170 0680-20       |

### Guarantee

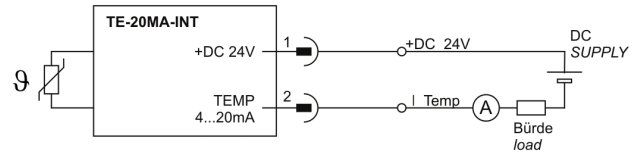
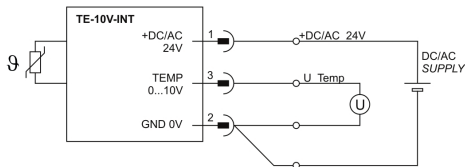
On our high quality measuring probes, you get a guarantee of 24 months. Mechanically damaged sensors or tampering into electronics makes the sensors devoid of guarantee claims. Calibration services are not covered in the guarantee.

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## Temperature probe with transducer Series TF-GLT

### Plug configuration



| Pin | Function      | Description         |
|-----|---------------|---------------------|
| 1   | +DC / AC 24 V | Operating voltage   |
| 2   | GND 0 V       | Reference potential |
| 3   |               |                     |



| Pin | Function         | Description                  |
|-----|------------------|------------------------------|
| 1   | +DC 24V          | Operating voltage            |
| 2   | TEMP 4 ... 20 mA | Temperature signal 4...20 mA |



The measurement of the output signal should be done with separate signal ground, in order to avoid measuring error due to voltage drop at the supply ground.

The shielding (SHIELD) is to be optionally covered. Connection through shielded lines is recommended.