

Temperature sensor

Platinum resistance thermometer

Pt100 / Pt1000

GEL 2161

Technical information

Version 2024-02-12

General information

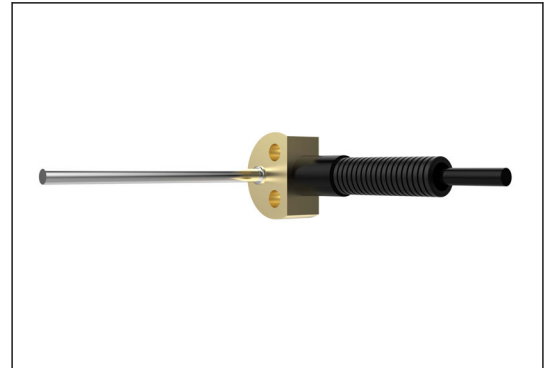
- Compact and robust sensor for use in harsh and close applications
- Brass flange available with customer-specific designs
- Measuring tube lengths from 30 mm to 140 mm
- Connection with 2-, 3- or 4-wire technology
- Custom configuration and packaging

Advantages

- Compact design with simple flange mounting
- Assembly in combination with a speed sensor reduces the amount of wiring
- Optimal adaptation to individual installation situations by custom flange designs and field-attachable measuring tube lengths

Fields of application

- Rail vehicle industry
- Automation



Right to technical changes and errors reserved.

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Technical data

| Measuring element | C | M |
|--------------------------------------|--|---|
| Temperature sensor data | | |
| Measuring element | as per DIN EN 60751: 2009-05 Pt100 Pt1000 | |
| Measuring range | -40 °C to +250 °C | |
| Tolerance class | F 0,3 (DIN EN 60751: 2009-05) | |
| Measuring current | 0.3 to 1 mA ⁽¹⁾ | |
| Mechanical data | | |
| Flange material | Brass | |
| Measuring tube material | Stainless steel | |
| Measuring tube diameter | 5 mm | |
| Measuring head active length | 10 mm | |
| Measuring tube length L _M | 30 to 140 mm | |
| Earth incl. 2 m cable | approx. 100 g | |
| Environmental testing | | |
| Storage temperature | -40 °C to +120 °C | |
| Degree of protection | IP 68 | |
| Dielectric strength | 500 V AC / 750 V DC | |
| Vibration resistance | EN 61373:2011-04 cat. 3 | |
| Shock resistance | EN 61373:2011-04 cat. 3 | |
| Applicable standards | | |
| Railroad applications | DIN EN 50155:2022-06 | |

| Cable type | A | B | C |
|--------------------|---|---|--------------------------|
| Cable data | | | |
| Temperature range | -40 °C to +150 °C | -40 °C to +120 °C ⁽²⁾ | |
| Cable | screened, ⁽³⁾ PTFE halogen-free | | |
| Cable diameter | 3.8 mm | 4.8 mm | 5.7 mm |
| Core cross section | 4 x 0.22 mm ² | 4 x 0.14 mm ² | 4 x 0.34 mm ² |
| Bending radius | static/dynamic 10 x cable diameter | | |
| Flammability | - | DIN EN 45545-2:2013 for hazard level HL1-3, R15 (EL1A) | |

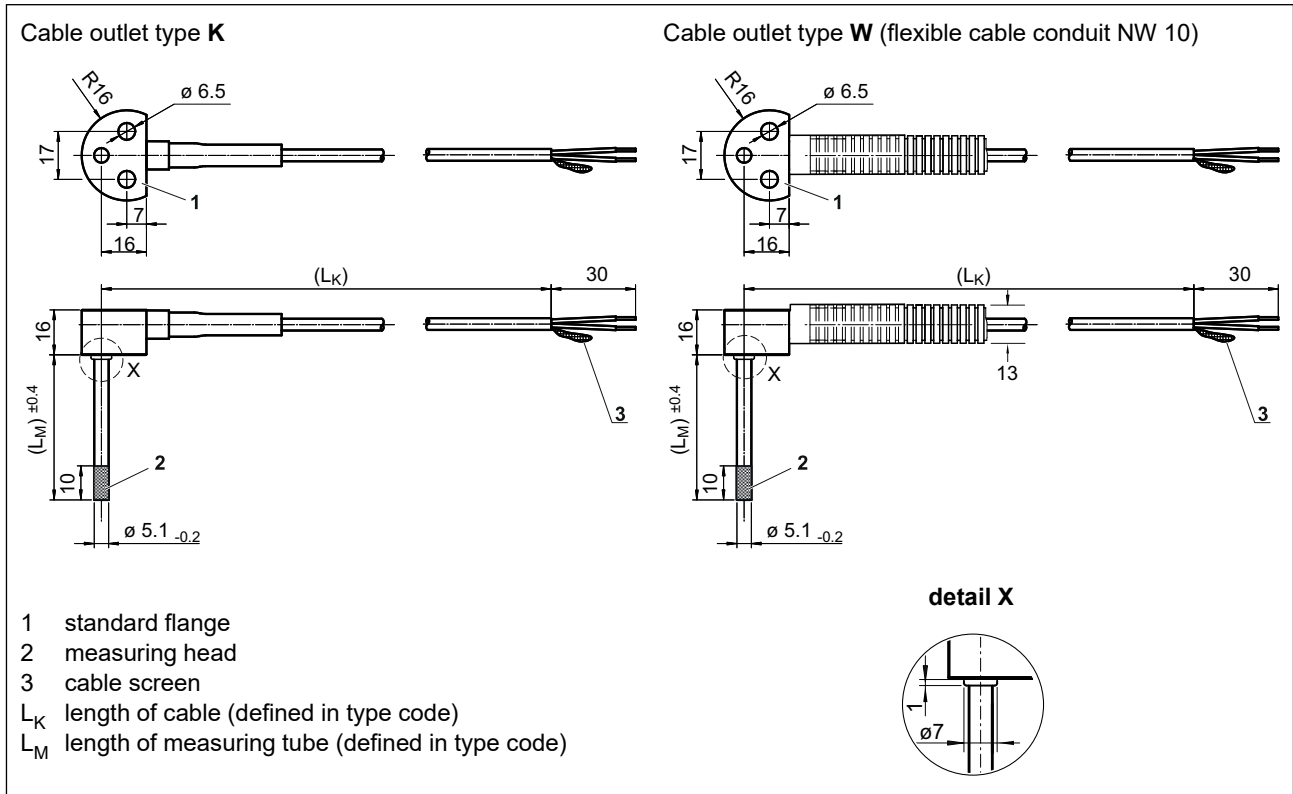
⁽¹⁾ A higher measuring current can lead to measurement inaccuracies due to self-warming, max. 3 mA possible with Pt1000 and 10 mA with Pt100.

⁽²⁾ Extended temperature range for non-moving, protected routing -50 °C to +120 °C

⁽³⁾ Specification upon request

Dimensional drawing, Connection assignment

Dimensional drawing of temperature sensor with standard flange



Connection assignment

| Wiring ⁽¹⁾ | Scheme | Cable type ⁽¹⁾ A colour | Cable type ⁽¹⁾ B / C numbered |
|-----------------------|--------|--|---|
| Type 12 | | white red | 1 2 |
| Type 13 | | white red blue / red | 1 2 3 |
| Type 14 | | white blue / white red blue / red | 1 2 3 4 |
| Type 22 | | white blue / white red blue / red | 1 2 3 4 |

⁽¹⁾ see type code

Type code, Installation example

Type code

| | | |
|---|--|----------------------------------|
| 2161 | Measuring element | |
| | C | Pt100 |
| | M | Pt1000 |
| | Connection Technology | |
| | 12 | 1 Pt100/Pt1000 in 2-wire circuit |
| | 13 | 1 Pt100/Pt1000 in 3-wire circuit |
| | 14 | 1 Pt100/Pt1000 in 4-wire circuit |
| | 22 | 2 Pt100/Pt1000 in 2-wire circuit |
| Cable screen | | |
| L | Connected to the sensor housing | |
| P | Not connected to the sensor housing | |
| Measuring tube length L_M | | |
| 000 | Length in mm (minimum length 30 mm, maximum length 140 mm) | |
| Cable type | | |
| A | PTFE cable, 4 x 0.22 mm ² | |
| B | Halogen-free cable, 4 x 0.14 mm ² | |
| C | Halogen-free cable, 4 x 0.34 mm ² | |
| Cable outlet | | |
| K | Cable | |
| W | Flexible conduit NW10 | |
| Cable length L_K | | |
| 00000 | Length in mm (minimum length 20 mm, maximum length 20 mm) | |

Note: The type code is used to define a customized product. The Lenord+Bauer drawings are general outline drawings. Customized special designs receive a Y-number, eg GEL 2161Yxxx and are created by technical drawing or application description.

Installation examples GEL 2161 with speed sensor GEL 247

