

# Temperature sensor

Platinum resistance thermometer  
Pt100 / Pt1000

**GEL 2161**

## Technical information

Version 2021-04

### 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



# Technical data

Type	C	M
<b>Electrical data</b>		
Measuring element	according to 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 <sup>(1)</sup>	
Insulation	500 V AC / 750 V DC	
<b>Mechanical data</b>		
Storage temperature	-40 °C to +120 °C	
Degree of protection	IP X8	
Vibration resistance	EN 61373:2011-04 cat. 3	
Shock resistance	EN 61373:2011-04 cat. 3	
Material of flange	brass	
Material of measuring tube	stainless steel	
Diameter of measuring tube	5 mm	
Active length of measuring head	10 mm	
Length of measuring tube L <sub>M</sub>	30 to 140 mm	
Weight incl. 2 m cable	approx. 100 g	
<b>Applicable standards</b>		
Railway applications	DIN EN 50155:2018-05	

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

<b>Flexible conduit data</b>	
Temperature range	-40 °C to +95 °C continuous, short-term +150 °C
Outer diameter	13 mm
Bending radius static / dynamic	20 mm / 50 mm
Fire behaviour	DIN EN 45545-2:2013 for hazard level HL2 (R22 & R23)

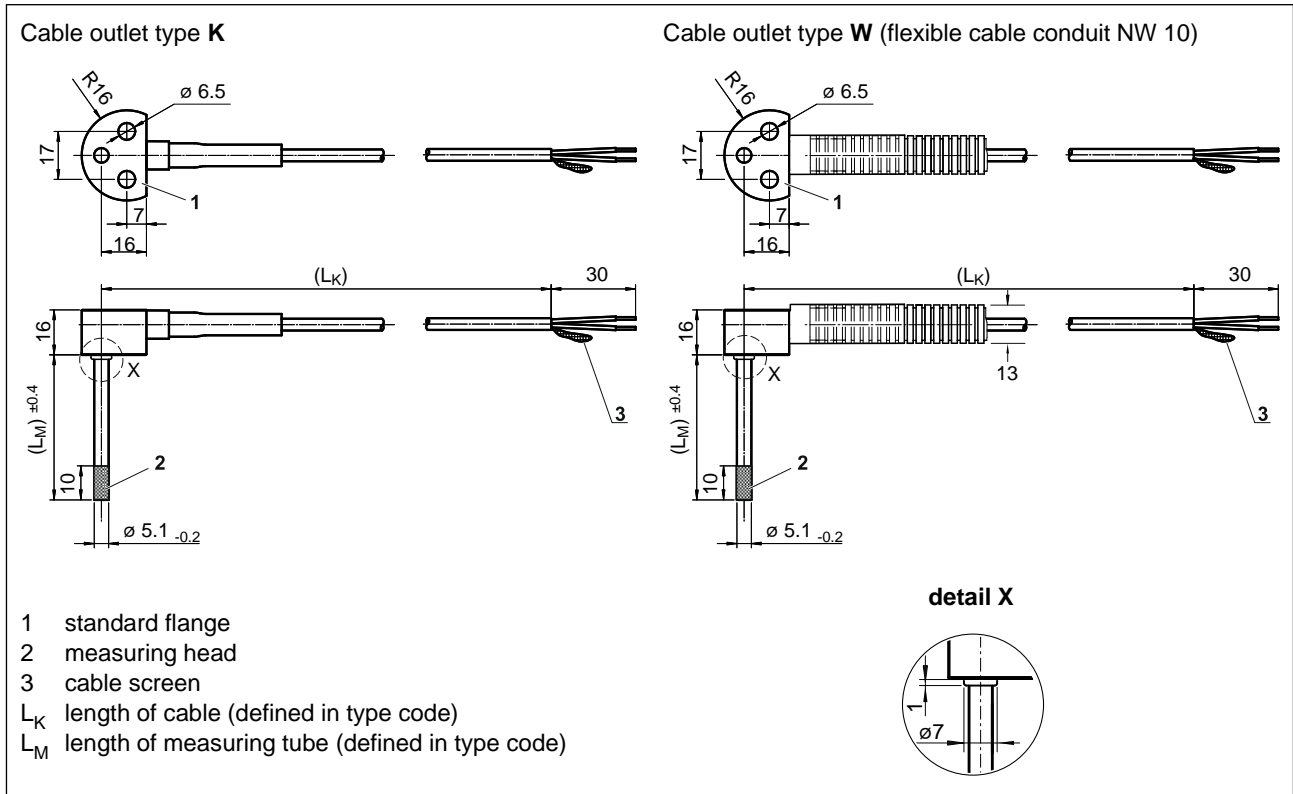
<sup>(1)</sup> A higher measuring current may lead to inaccuracies in measurement due to internal heat dissipation, up to 3 mA for Pt1000 and 10 mA for Pt100 is possible.

<sup>(2)</sup> Extended temperature range with fixed and protected installation: -50°C to +120°C

<sup>(3)</sup> specification upon request

# Dimensional drawing, Connection assignment

## Dimensional drawing of temperature sensor with standard flange



## Connection assignment

Wiring <sup>(1)</sup>	Scheme	Cable type <sup>(1)</sup> A colour	Cable type <sup>(1)</sup> 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

<sup>(1)</sup> see type code

# Type code, Installation example

## Type code

<b>2161</b>	<b>Measuring element</b>		
	<b>C</b>	Pt100	
	<b>M</b>	Pt1000	
	<b>Connection</b>		
	<b>12</b>	1 Pt100 / Pt1000 in 2-wire	
	<b>13</b>	1 Pt100 / Pt1000 in 3-wire	
	<b>14</b>	1 Pt100 / Pt1000 in 4-wire	
<b>22</b>	2 Pt100 / Pt1000 in 2-wire		
<b>Cable screen</b>			
<b>L</b>	connected to sensor housing		
<b>P</b>	not connected to sensor housing		
<b>Measuring tube length (L<sub>M</sub>)</b>			
<b>000</b>	Length in mm (minimum 30 mm, maximum 140 mm)		
<b>Cable type</b>			
<b>A</b>	PTFE cable, 4 x 0.22 mm <sup>2</sup>		
<b>B</b>	non-halogen cable, 4 x 0.14 mm <sup>2</sup>		
<b>C</b>	non-halogen cable, 4 x 0.34 mm <sup>2</sup>		
<b>Cable outlet</b>			
<b>K</b>	cable		
<b>W</b>	flexible conduit NW 10		
<b>Cable length (L<sub>K</sub>)</b>			
<b>00000</b>	Cable length in mm (minimum 20 mm, maximum 20 m)		

**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

