

- → For machinery and plant engineering
- → For marine applications and shipbuilding
- → For HVAC applications
- → Temperature Transmitters



# TEMPERATURE SENSORS AND TRANSMITTERS

# Special applications are our strength

### From conceptual design to series production

As your dependable, able partner for special applications, SIKA assists you in finding an individual solution for your measuring task, and develops temperature sensors that are tailored to your application. The focus here is on small and medium series.



### "Made in Germany" seal of quality

Customers are impressed by the durability, robustness and precision of our products. To ensure all quality requirements are met, SIKA develops and manufactures its product range exclusively in Germany. In this way, we guarantee smooth coengineering between us and our clients, superior branded goods and excellent delivery reliability.

#### Individual advice from the experts

We work closely with you right from the development stage to create cost-effective special solutions with optimized technology.

On site, our field sales staff are at your side to offer you sound, professional advice. Through collaboration with our internal product specialists and engineering department, the end result is a temperature sensor that fits your application perfectly. And in this development process, you get to benefit from our 20-plus years of engineering expertise.





### Durable and reliable

Temperature sensors have very distinct fields of operation and the conditions they are subject to are often harsh. A variety of requirements must be considered when developing the sensors:

- Special installation locations
- Special environmental conditions
- Vibration resistance
- Short response times
- Long service life

The advantage for you is that our experienced engineers are aware of these requirements and factor them into the product design, providing a reliable and targeted solution to the problem.

### Use of protection tubes

An additional protection tube should be used when the immersion tube is exposed to high stress, such as may result from high static or dynamic pressures, high temperatures, aggressive media, high flow rates, or particles or foreign objects in the media stream. Protection tubes provide an additional benefit: they allow the sensor to be exchanged without interrupting the process, since the protection tube is sealed and remains in the process equipment.

For more information, see chapter "Protection tubes".

### Tailor-made, time-tested solutions

Resistance thermometers for temperatures up to 1000 °C, and sensors with modern bus systems, are testament to our technological leadership in a wide variety of applications.

- Combustion engines
- Railway engineering
- Construction equipment
- Wind turbines
- Air conditioning systems
- Industrial dishwashers
- Coffee dispensers

### Modern production and testing technologies

Extensive in-house manufacturing with modern production facilities enables the production of the most unique temperature sensors. To comply with the strict product requirements, SIKA performs numerous tests during development and manufacture, such as:

- Detection of curve errors
- Response time check
- High-voltage and insulation testing
- Helium leak tests
- Tensile strength test
- Fatigue tests
- Vibration test
- Climate test
- EMC test

Furthermore, the products are also subject to certification by classification societies for the maritime and energy industry, and to ATEX type examinations by independent testing labs and certification bodies.



# For machinery and plant engineering

# Type WBC

Temperature sensor with protection tube form 2 and compression-type fitting. This sensor is used in industrial applications for measuring liquid and gaseous media.

#### **Technical features**

- Variable fitting length and simple alignment of the connection head using sliding compression-type fitting
- Also available with clamping flange
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class A and B
- Thermocouple class 1

#### **Measuring insert**

According to DIN 43735, interchangeable, Ø 6 mm Measuring insert no. 61

#### Diameter

- 9 mm
- 11 mm
- 12 mm

### Degree of protection

IP54

### Max. Temperature

- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

#### **Process connection**

- Plain immersion tube
- Clamp coupling

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200  $^{\circ}\mathrm{C}$ 









Order example		WB	В	С	P31	0277	<b>B</b> 0	0
Туре								
Resistance thermometer		WB						
Thermocouple		TB						
Diameter F1								
9 mm			В					
11 mm			D					
12 mm			С					
Material								
Stainless steel 1.4571				С				
Sensor element								
1 x Pt100 3-wire / class B					P31			
2 x Pt100 3-wire / class B					P32			
1 x Pt100 4-wire / class B					P41			
					111			
1 x Fe-CUNI (type J)					J      10			
2 x Fe-Cuivi (type J)					JIZ K11			
2 x NiCr-Ni (type K)					K12			
					1112			
Resistance thermometer / clas	s A				AXX			
Length L1*	Measuring insert L5*							
277 mm	315 mm					0277		
367 mm	405 mm					0367		
517 mm	555 mm					0517		
Electrical connection								
Head form B with ceramic sock	ket						BO	
Head form B with transmitter*	*						BT	
Process connection d1								
Without								0
G1/2 A								J
G¾ A steel, galvanized								А
G¾ A stainless steel								В
Clamp flange DIN 43734								С

\* Other specifications available on request \*\* For more information, see our product range "temperature transmitters"

# Type W06

Temperature sensor with protection tube form 2 and fixed connecting thread. This sensor is used in industrial applications for measuring liquid and gaseous media.

### **Technical features**

- Excellent price-performance ratio
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class A and B

#### **Measuring insert**

Interchangeable only for Ø 8 mm

#### Diameter

- 6 mm
- 8 mm

### **Degree of protection**

IP54

### Max. Temperature

200 °C resistance thermometer

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200 °C







Order example	W	06	1	P32	050	0	B0	6
Туре								
Resistance thermometer	W							
Diameter F1*								
6 mm		06						
8 mm		08						
Material*								
Brass 2.0401			1					
Stainless steel 1.4571			3					
Sensor element								
1 x Pt100 3-wire / class B				P31	1			
2 x Pt100 3-wire / class B				P32				
1 x Pt100 4-wire / class B				P41				
Resistance thermometer / class A				AXX				
Immersion tube length L1*								
50 mm					050			
100 mm					100			
150 mm					150			
200 mm					200			
Measuring insert								
Not interchangeable						0		
Interchangeable (only for Ø 8 mm)						2		
Electrical connection								
Head form B with ceramic socket							BO	
Head form B with transmitter**							MO	
Process connection d1								
M14 x 1.5								G
M18 x 1.5								6
G1/4 A								L
G1/2 A								2

\* Other specifications available on request \*\* For more information, see our product range "temperature transmitters"

# Type WBF

Temperature sensor with protection tube form 2 G / 2F and neck pipe. This sensor is used in industrial applications for measuring liquid and gaseous media.

#### **Technical features**

- Neck pipe 125 mm or 25 mm
- Flange DN 25 and DN 40 available
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

### Sensor element

- Resistance thermometer class A and B
- Thermocouple class 1

#### **Measuring insert**

According to DIN 43735, interchangeable, Ø 6 mm or 8 mm Measuring insert no. 61 or 81  $\,$ 

### Diameter

- 9 mm
- 11 mm
- 14 mm

#### **Degree of protection**

IP54

#### Max. Temperature

- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

#### **Process connection**

- Plain immersion tube
- Fix connecting thread

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200 °C





ød1	K1	SW
M20x1,5 G1/2A	15	27
G1A	30	41



TypeWBNResistance thermometerWBBDiameter F1B9 mmB11 mmD14 mmD14 mmCStainless steet 1.4571CSense element1 x P100 3-wire / class BP312 x P100 3-wire / class BP311 x Fe-CuNi (type J)J112 x P100 4-wire / class ANZ1 x Fe-CuNi (type J)J121 x Fe-CuNi (type J)J122 x NiCr-Ni (type K)J112 x NiCr-Ni (type K)X12AuxNorm100 mm255 mm100 mm555 mm000m605260 mm405 mm250 mm0000160 mm555 mm0000025260 mm555 mm0000025100 mm555 mm0000025260 mm616161 mm155 mm06 had form B with transmitter**B0NithoutO055 mm0000160 mm555 mm0000025160 mm616170 mm555 mm06 had form B with transmitter**0180 mm155180 mm55180 mm55180 mm55190 mm55 <th>Order example</th> <th></th> <th>WB</th> <th>В</th> <th>С</th> <th>P31</th> <th>0100</th> <th><b>B</b>0</th> <th>0</th> <th>00</th>	Order example		WB	В	С	P31	0100	<b>B</b> 0	0	00
Resistance thermometer   WB   The maccupie   The maccupie     Diameter F1   F     9 mm   B     11 mm   D     14 mm   F     Stainless steel 1.4571   C     Sensor element   F31     1 x Pt100 3-wire / class B   P31     2 x Pt100 3-wire / class B   P41     1 x Fe-CuNi ltype J]   J11     2 x Fe-CuNi ltype J]   J12     1 x NiCr-Ni ltype K)   K11     2 x NiCr-Ni ltype K)   K12     Resistance thermometer / class A   AXX     Resistance thermometer / class A   AXX     Potent Lt*   Measuring insert L5*     100 mm   255 mm   0100     160 mm   315 mm   0100     100 mm   255 mm   0160     250 mm   405 mm   0250     406 mm   555 mm   0160     250 mm   405 mm   0160     250 mm   405 mm   0160     250 mm   405 mm   0160     405 m   BT   BT     Head form B with ceramic socket   B0 <	Туре									
Thermacouple TB   Diameter F1   9 mm B   9 mm D   11 mm D   14 mm F   Material C   Stainless steet 1.4571 C   5 Sensor element P31   1 x Pt100 3-wire / class B P32   2 x Pt100 3-wire / class B P32   2 x Pt00 3-wire / class B P32   2 x Fe-CuNi (type J) J12   2 x Fe-CuNi (type K) K11   2 x NCr-Ni (type K) K12   2 x NCr-Ni (type K) K12   2 x NCr-Ni (type K) 0160   250 mm 405 mm   0100 mm 255 mm   100 mm 255 mm   01040 0250   250 mm 405 mm   0250 0400   Head form B with crasmic socket B0   Head form B with transmitter** B0   Forces connection G1* K   Without G   60/x A K   60/x A K   60/x A K   60/x A <td>Resistance thermometer</td> <td></td> <td>WB</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Resistance thermometer		WB							
Diameter F1 B   9 mm B   11 mm D   14 mm F   Stainess steel 1.4571 C   Sensor element   1 x Pt100 3-wire / class B P31   2 x Pt100 3-wire / class B P32   1 x Fet-CuNi (type J) J11   2 x Fe-CuNi (type J) J11   2 x Fe-CuNi (type J) J12   1 x Fet-CuNi (type K) K11   2 x NiCr-Ni (type K) K12   Resistance thermometer / class A AXX   Length L1* Masuring insert L5*   100 mm 255 mm   100 mm 255 mm   0100 100   160 mm 315 mm   0100 0250   400 mm 555 mm   0100 0100   160 mm 315 mm   0100 0250   Head form B with ceramic socket B0   Head form B with ceramic socket B0   Head form B with ceramic socket B0   Head form B with ceramic socket C   G'X A K   M20 x 1.5 (no DIN) K   G'X A K   M20 x 1.5 (no DIN) F   G1A F   Flange DN 25 F25 </td <td>Thermocouple</td> <td></td> <td>TB</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Thermocouple		TB							
9 mm   B   D     11 mm   D     14 mm   F     Stainless steel 1.4571   C     Sensor element     1 x Pt100 3-wire / class B   P31     2 x Pt100 3-wire / class B   P41     1 x Fe-CuNi (type J]   J12     2 X Fe-CuNi (type J]   J12     1 x Nicr-Ni (type K)   K11     2 X Fe-CuNi (type K)   K12     Resistance thermometer / class A   AXX     Path of the sensor and the s	Diameter F1									
11 mm   D   F   I     14 mm   F   I     Material   C     Stainless steel 1.4571   C     Sensor element   P31     1 x Pt100 3-wire / class B   P31     2 x Pt100 3-wire / class B   P31     1 x Pt100 4-wire / class B   P31     1 x Fe-CuNi (type J)   J11     2 x Fe-CuNi (type J)   J112     1 x NiCr-Ni (type K)   K11     2 x NiCr-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*   AXX     100 mm   255 mm   0100     160 mm   315 m   0400     250 mm   405 mm   0400     26 form B with ceramic socket   B0     Head form B with ceramic socket   B0     Head form B with ceramic socket   B1     G'/A   K   G     Head form B with ceramic socket   C     G'/A   F	9 mm			В						
14 mm   F	11 mm			D						
Material     C       Stainless steel 1.4571     C       Sensor element     P31       1 x Pt100 3-wire / class B     P32       2 x Pt100 3-wire / class B     P32       1 x Pt100 4-wire / class B     P32       1 x NCr-Ni (type J]     J11       2 x Fe-CuNi (type J]     J12       1 x NiCr-Ni (type K)     K12       Resistance thermometer / class A     AXX       Length L1*     Measuring insert L5*       100 mm     255 mm       0100     0100       160 mm     315 mm       0250     0400 mm       405 mm     0400       Electrical connection     B0       Electrical connection 01*     B0       Frecess connection 1*     B0       Frecess connection 1*     K       Without     G       6/¼ A     K       M20 x 1.5 (no DIN)     K       6/¼ A     L	14 mm			F						
Stainless steel 1.4571   C     Sensor element   P31     1 x Pt100 3-wire / class B   P32     2 x Pt100 3-wire / class B   P32     1 x Pt100 4-wire / class B   P41     1 x Fe-CuNi (type J)   J11     2 x Fe-CuNi (type J)   J12     1 x NiCr-Ni (type K)   K11     2 x NiCr-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm     100 mm   315 mm     0100   0160     250 mm   405 mm     0250   0400     Electrical connection   BT     Head form B with caramic socket   BT     Head form B with transmitter**   BT     Without   G     6/3 A   K     M20 x 1.5 [no DIN]   L     6/1 A   L     Flange DN 25   F25     Flange DN 40   F25	Material									
Sensor element   P31     1 x Pr100 3-wire / class B   P31     2 x Pr100 3-wire / class B   P32     1 x Fe-CuNi (type J)   J11     2 x Fe-CuNi (type J)   J12     1 x Fe-CuNi (type J)   J12     1 x NiCr-Ni (type K)   K11     2 x NiCr-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm   0100     160 mm   315 mm   0160     250 mm   0400   0250     250 mm   0400   0250     400 mm   555 mm   0400     Feactrical connection   BT   BT     Head form B with ceramic socket   B0   BT     Head form B with ceramic socket   B0   G     G'2A   K   K     M20 x 1.5 (no DIN)   G   G     G 1A   L   L   F     Flange DN 25   F25   F25     Flange DN 25   F25   F25     Flange DN 40   L   K     M20 x 1.5 (no DIN)   L	Stainless steel 1.4571				С		-			
1 x Pt100 3-wire / class B   P31   P31     2 x Pt100 3-wire / class B   P32   P32     1 x Fe-CuNi (type J)   J11   J11     2 x Fe-CuNi (type J)   J12   J12     1 x NiCr-Ni (type K)   K11   K11     2 x NiCr-Ni (type K)   K12   K12     Norther / class A     AXX     Resistance thermometer / class A     100 mm   255 mm   0100     160 mm   315 mm   0160     250 mm   405 mm   0250     Head form B with ceramic socket     Head form B with ceramic socket   B0     Head form B with ceramic socket   C     Mithout   0     G'z A   K     M20 x 1.5 (no DIN)   G     G1 A   L     Flange DN 25   F25     Flange DN 25   F25     Flange DN 26   F25	Sensor element									
2 x Pt100 3-wire / class B   P32   P32     1 x Pt100 4-wire / class B   P41     1 x Fe-CuNi (type J)   J11     2 x Fe-CuNi (type J)   J12     1 x NiCr-Ni (type K)   K11     2 x NiCr-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm   0100     160 mm   315 mm   0160     250 mm   405 mm   0250     400 mm   555 mm   0400     Process connection     Head form B with ceramic socket   B0     Head form B with transmitter**   B0     Process connection d1*   K     Without   0   K     G1A   C   K     Flange DN 25   55   F25     Flange DN 25   575     Flange DN 25   575     Flange DN 40   F25     Flange DN 40   F25     Flange DN 40   F25	1 x Pt100 3-wire / class B					P31				
1 x Pt100 4-wire / class B   P41     1 x Fe-CuNi (type J)   J11     2 x Fe-CuNi (type J)   J12     1 x NiCr-Ni (type K)   K11     2 x NiCr-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm     100 mm   255 mm     100 mm   315 mm     0160 mm   0150     250 mm   405 mm     0250   0400     Electrical connection   B0     Head form B with ceramic socket   B0     Head form B with transmitter**   B0     Process connection d1*   K     Without   0     G'2 A   K     M20 x 1.5 (no DIN)   G     G 1 A   L     Flange DN 25   F25     Flange DN 40   F25     Flange DN 40   F25     Flange DN 40   F25     Flange DN 40   F25	2 x Pt100 3-wire / class B					P32				
1 x Fe-CuNi (type J)   J1   J1   J1     2 x Fe-CuNi (type J)   J12   K11   J12     1 x NiCr-Ni (type K)   K11   K11   K11     2 x NiCr-Ni (type K)   K12   K11   K12     Resistance thermometer / class A   AXX   K11   K12     100 mm   255 mm   0100   0100     160 mm   315 mm   0160   0400     250 mm   405 mm   0400   0400     Bot mettion     Head form B with ceramic sockt   B0     Head form B with ceramic sockt   B0   B1     Mithout   0     6½ A   K   K     M20 x 1.5 (no DIN)   G   K     6 1 A   L   F25   F25     Flange DN 25   F25   F25   F25     Fettor     Fettor     Proces     Colspan="4">F25     F25     F25     F25     F25     F25	1 x Pt100 4-wire / class B					P41				
1 × 100 cutil (type J)   J12   J12     1 × NiCr-Ni (type K)   K11   K11     2 × NiCr-Ni (type K)   K12   K12     Resistance thermometer / class A     Length L1*   Measuring insert L5*   AXX     100 mm   255 mm   0100     160 mm   315 mm   0160     250 mm   405 mm   0250     400 mm   555 mm   0400     Process connection d1*     Head form B with ceramic socket   B0     Head form B with transmitter**   B0     Process connection d1*   K     Without   0   K     6½ A   K   K     M20 x 1.5 (no DIN)   G   G     G 1 A   L   Flange DN 25   F25     Flange DN 25   F25   F25     Flange DN 40   F25   F25     Colsion   F25   F25     Flange DN 40   F25   F25     Colsion   F25   F25	1 x Fe-CuNi (type I)					111				
1 x NiCi-Ni (type K)   K11     2 x NiCi-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm     100 mm   315 mm     250 mm   405 mm     400 mm   555 mm     000 mm   555 mm     100 mm   60 mm     100 mm   10 mm     100 mm   10 mm     100 mm   555 mm     100 mm   10 mm     100 mm   10 mm     100 mm   10 mm     100 mm   10 mm     100 m	2 x Fe-CuNi (type J)					112				
2 x NiCr-Ni (type K)   K12     Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm     100 mm   315 mm     250 mm   405 mm     250 mm   405 mm     255 mm   0400     Electrical connection   0250     Head form B with ceramic socket   B0     Head form B with ceramic socket   B0     Head form B with transmitter**   B1     Process connection d1*   K1     Without   0     6½ A   K     M20 x 1.5 (no DIN)   G     61 A   L     Flange DN 25   F25     Flange DN 25   F25     Flange DN 26   F25     Full   D2     Attact   L     Flange DN 25   F25     F25   F25	1 x NiCr-Ni (type S)					K11				
Resistance thermometer / class AAXXLength L1*Measuring insert L5*100 mm255 mm100 mm315 mm100 mm315 mm250 mm405 mm400 mm555 mm00 mm555 mmB0Precess connection d1*Nithout $G'_{2} A$ $M20 x 1.5 (no DIN)$ $G$ $G 1A$ $L$ Flange DN 25 $Faore DN$ $Flange DN 25$ $Faore DN$ Filange DN 25Faore DNColspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2">Colspan="2"Precess connection d1*DColspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"Colspan="2"<	2 x NiCr-Ni (type K)					K12				
Resistance thermometer / class A   AXX     Length L1*   Measuring insert L5*     100 mm   255 mm   0100     160 mm   315 mm   0160     250 mm   405 mm   0250     400 mm   555 mm   0400     Electrical connection   B0     Head form B with ceramic socker   B0     Head form B with transmitter**   B1     Process connection d1*   I     Without   0   K     G½ A   0   G     M20 x 1.5 (no DIN)   G   G     G1A   L   E     Flange DN 25   F25   F25     Flange DN 40   F25   F40										
Length L1*Measuring insert L5*0100100 mm255 mm0100160 mm315 mm0100250 mm405 mm0250400 mm55 mm0400Electrical connectionHead form B with ceramic socketB0Head form B with transmitter**B1Process connection d1*Vithout0G <sup>1</sup> / <sub>2</sub> AKM20 x 1.5 (no DIN)6G 1 ALF25Flange DN 25F25F40F40	Resistance thermometer / clas	ss A				AXX				
100 mm   255 mm   0100   Image: Sign of the second	Length L1*	Measuring insert L5*								
160 mm   315 mm   0160   Image: Second seco	100 mm	255 mm					0100			
250 mm   405 mm   0250   0400     400 mm   555 mm   0400   600     Electrical connection     Head form B with ceramic socket   B0     Head form B with transmitter**   B0     Process connection d1*   B1     Without   0     G½A   K     M20 x 1.5 (no DIN)   G     G 1 A   L     Flange DN 25   F25     Flange DN 40   F40	160 mm	315 mm					0160			
400 mm555 mm0400Electrical connectionB0Head form B with ceramic socketB0Head form B with transmitter**BTProcess connection d1*0Without0G½AKM20 x 1.5 (no DIN)GG 1 ALFlange DN 25F25Flange DN 40F40	250 mm	405 mm					0250			
Electrical connection   B0     Head form B with ceramic socket   B0     Head form B with transmitter**   BT     Process connection d1*   0     Without   0     G½ A   K     M20 x 1.5 [no DIN]   G     G 1 A   L     Flange DN 25   F25     Flange DN 40   F40	400 mm	555 mm					0400		-	
Head form B with ceramic socketB0B0Head form B with transmitter**BTBTProcess connection d1*0Without0G½ AKM20 x 1.5 (no DIN)GG 1 ALFlange DN 25F25Flange DN 40F40	Electrical connection									
Head form B with transmitter** BT   Process connection d1* 0   Without 0   G½ A K   M20 x 1.5 (no DIN) G   G 1 A L   Flange DN 25 F25   Flange DN 40 F40	Head form B with ceramic soc	ket						BO		
Process connection d1*     0       Without     0       G½ A     K       M20 x 1.5 (no DIN)     G       G 1 A     L       Flange DN 25     F25       Flange DN 40     F40	Head form B with transmitter*	*						BT		
Without     0       G½ A     K       M20 x 1.5 (no DIN)     G       G 1 A     L       Flange DN 25     F25       Flange DN 40     F40	Process connection d1*									
G½ A K   M20 x 1.5 (no DIN) G   G 1 A L   Flange DN 25 F25   Flange DN 40 F40	Without								0	
M2U x 1.5 [no DIN] G   G 1 A L   Flange DN 25 F25   Flange DN 40 F40	G <sup>1</sup> / <sub>2</sub> A								K	
Flange DN 25 F25   Flange DN 40 F40	M20 x 1.5 (no DIN)								G	
Flange DN 25 F25   Flange DN 40 F40	GIA								L	
	Flange DN 20								FZ5	
									F40	

Neck tube 25 mm

\* Other specifications available on request
\*\* For more information, see our product range "temperature transmitters"

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# Type WMM

Temperature sensor with light plastic-sheathed cable. This sensor is used in industrial applications for measuring liquid and gaseous media.

Thanks to the flexible light plastic-sheathed cable, even measurement points that are difficult to access can be reached. It is also extremely resistant to external influences.

### **Technical features**

- Short response time
- High vibration resistance
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class A and B
- Thermocouple class 1

#### **Measuring insert**

According to DIN 43735, interchangeable, Ø 6 mm Measuring insert no. 61

#### Diameter

6 mm

#### **Degree of protection**

IP54

#### Max. Temperature

- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

#### **Process connection**

- Plain immersion tube
- Clamp coupling

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200 °C







Order example	WM	М	М	P21	0250	BO	00
Туре							
Resistance thermometer	WM						
Thermocouple	ТМ						
Diameter							
6 mm		М					
Material							
Stainless steel 1.4541 / 1.4571			М				
Sensor element							
1 x Pt100 3-wire / class B				P31			
2 x Pt100 3-wire / class B				P32			
1 x Pt100 4-wire / class B				P41			
1 x Fe-CuNi (type J)				J11			
2 x Fe-CuNi (type J)				J12			
1 x NiCr-Ni (type K)				K11			
2 x NiCr-Ni (type K)				K12			
Resistance thermometer / class A				AXX			
Length NL*							
250 mm					0250		
290 mm					0290		
350 mm					0350		
380 mm					0380		
410 mm					0410		
530 mm					0530		
630 mm					0630		
710 mm					0710		
800 mm					0800		
Electrical connection							
Head form B with ceramic socket						B0	
Head form B with transmitter** (only for 1 x Pt100 3-wire / class B)						BT	
Process connection							
Without							00
G¼ A steel, galvanized							18
G1⁄2 A steel, galvanized							78
G¼ A stainless steel							13
G½ A stainless steel							J3

\* Other specifications available on request \*\* For more information, see our product range "temperature transmitters"

# Type WD0

Temperature sensor with protection tube form 4 and form DS. This sensor is supplied with a one-piece protection tube for welding and is designed for measuring liquid and gaseous media in industrial applications that are subject to high loads.

#### **Technical features**

- Numerous different protection tube materials available
- Test certificate in accordance with EN 10204 for the protection tube available
- Available with optional instrument transformer

#### Sensor element

- Resistance thermometer class A and B
- Thermocouple class 1

#### **Measuring insert**

According to DIN 43735, interchangeable, Ø 3 mm or 6 mm Measuring insert no. 31 or 61

### Diameter

- 24 mm conical
- 18 mm conical

#### **Degree of protection**

IP54

#### Max. Temperature

- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

#### **Process connection**

With welding tube

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200  $^{\circ}\mathrm{C}$ 



Form 4









Order example		W	DO	С	P31	07	D1	B00
Туре								
Resistance thermometer		W	1					
Thermocouple		Т						
Diameter								
24 mm, immersion tube form 4	4		DO					
18 mm, immersion tube form l	DS		SO					
Material				-				
Stainless steel 1.4571				С	1			
Stainless steel 1.7380				D				
Stainless steel 1.5415				Е				
Stainless steel 1.7335				F				
Sensor element								
1 x Pt100 3-wire / class B					P31			
2 x Pt100 3-wire / class B					P32			
1 x Pt100 4-wire / class B					P41			
1 x Fe-CuNi (type J)					J11			
2 x Fe-CuNi (type J)					J12			
1 x NiCr-Ni (type K)					K11			
2 x NiCr-Ni (type K)					K12			
	^							
Resistance thermometer / clas	55 A				AXX			
Inside diameter D1								
7 mm lonly form 4J						07		
3.5 mm (only form DS)						3A		
Immersion tube length L	Insertion length U	Measuring	insert lei	ngth L5				
Version Form 4								
140 mm	65 mm	315 mm					D1	
200 mm	125 mm	375 mm					D2	
200 mm	65 mm	375 mm					D3	
260 mm	125 mm	435 mm					D4	
Version Form DS		015					10	
140 mm	65 mm	315 mm					15	
200 mm	125 mm	375 mm					25	
200 11111		375 mm					35	
Electrical connection								
Head form B with ceramic soc	ket							B00
Head form B with transmitter*								BTO

\* For more information, see our product range "temperature transmitters"

# Type W30

Temperature sensor with angle plug as electrical connection. This sensor is designed with compact dimensions and is intended for use in industrial applications for measuring liquid and gaseous media.

#### **Technical features**

- High vibration resistance
- Reliable electrical connection using screw-on connectors
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class A and B

#### **Measuring insert**

Interchangeable only for Ø 8 mm

#### Diameter

- 6 mm
- 8 mm

#### **Degree of protection**

IP65

#### Max. Temperature

200 °C Resistance thermometer, max. 125 °C at plug

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Cable socket, angle type, DIN EN 175 301-803, form A

#### Approvals

DNV GL





Cable socket, angle type DIN EN 175301-803 form A PA 6.6 (max. 125 °C)

Seal, silicone

Knurled nut, Ø30, Al, anodised or plastic nut



Order example	W	06	1	P21	050	0	10	2	GL
Туре									
Resistance thermometer	W								
Measuring insert	E								
Diameter									
6 mm		06							
8 mm		08							
Material									
Brass 2.0401 / 2.0402			1						
Stainless steel 1.4571			3						
Sensor element									
1 x Pt100 2-wire / class B				P21					
1 x Pt100 3-wire / class B				P31					
1 x Pt100 4-wire / class B				P41					
Desistance thermometer ( close A									
				AAA					
Immersion tube length L1*									
Without lonly for type measuring insertJ					000				
50 mm					100				
100 mm					100				
200 mm					200				
Measuring insert					200				
Not interchangeable						0			
Interchangeable (only for Ø 8 mm)						2			
Electrical connection						-			
Cable socket, angle type form A							10	-	
Process connection d1								1	
G1/2 A								2	
M18 x 1.5								6	
M20 x 1.5								Ν	
G3/4 A								3	
Options									
Version Germanischer Lloyd									GL

# Type W3M

Temperature sensor with angle plug as electrical connection. This sensor is designed with compact dimensions and is intended for use in industrial applications for measuring liquid and gaseous media.

#### **Technical features**

- High vibration resistance
- Reliable electrical connection using screw-on connectors
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class B

#### **Measuring insert**

Not interchangeable

### Diameter

- 6 mm
- 8 mm

#### **Degree of protection**

IP65

#### Max. Temperature

150 °C Resistance thermometer, max. 85 °C at plug

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

- Cable socket, angle type DIN EN 175 301-803, form A With transmitter built into the sensor housing
- Output 4...20 mA, 2-wire, power supply 10...35 VDC







TypeResistance thermometerWDiameter F16 mm068 mm08	Order example	W	06	1	P21	050	0	90	2
Resistance thermometerWDiameter F16 mm068 mm08	Туре								
Diameter F1       6 mm     06       8 mm     08	Resistance thermometer	W							
6 mm 06 8 mm 08	Diameter F1								
8 mm 08	6 mm		06						
	8 mm		08		_				
Material	Material								
Brass 2.0401 / 2.0402 1	Brass 2.0401 / 2.0402			1					
Stainless steel 1.4571 3	Stainless steel 1.4571			3					
Sensor element	Sensor element								
1 x Pt100 2-wire / class B P21	1 x Pt100 2-wire / class B				P21				
Immersion tube length L1*	Immersion tube length L1*								
50 mm 050	50 mm					050			
100 mm 100	100 mm					100			
150 mm 150	150 mm					150			
200 mm 200	200 mm					200			
Measuring insert	Measuring insert								
Not interchangeable 0	Not interchangeable						0		
Electrical connection	Electrical connection								
Cable socket, angle type form A 90	Cable socket, angle type form A							90	
Process connection d1	Process connection d1								
G1/2 A 2	G1/2 A								2
M18 x 1.5 6	M18 x 1.5								6
M20 x 1.5 N	M20 x 1.5								Ν
G¾ A 3	G¾ A								3

# Type W08

Temperature sensor with M12 angle plug as an electrical connection. This sensor is designed with very compact dimensions and is intended for use in industrial applications for measuring liquid and gaseous media.

#### **Technical features**

- High vibration resistance
- Reliable and compact electrical connection using M12 connector
- High degree of protection against ingress of moisture, dust and dirt
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class A and B

#### **Measuring insert**

Interchangeable only for Ø 8 mm

#### Diameter

- 6 mm
- 8 mm

### **Degree of protection**

IP65

#### Max. Temperature

200 °C Resistance thermometer, max. 90 °C at plug

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

- M12 cable socket, angle type, with knurled nut
- Head form J made of aluminium diecasting, silver finish, max. temperature 200 °C







Order example	W	06	3	P21	050	0	30	G
Туре								
Resistance thermometer	W							
Diameter F1								
6 mm		06						
8 mm		08						
Material								
Stainless steel 1.4571			3					
Sensor element								
1 x Pt100 2-wire / class B				P21				
2 x Pt100 2-wire / class B				P22				
1 x Pt100 3-wire / class B				P31				
1 x Pt100 4-wire / class B				P41				
Resistance thermometer / class A				AXX				
Immersion tube length L1*								
50 mm					050			
100 mm					100			
150 mm					150			
200 mm					200			
Measuring insert								
Not interchangeable						0		
Interchangeable (only for Ø 8 mm)						2		
Electrical connection								
M12 Cable socket, angle type round							30	
Head form J							JO	
Process connection d1								
M14 x 1.5								G
M10 x 1.0								Ρ
G1/4 A								L
G1/2 A								2

# Type WJK

Temperature sensor with spring-loaded immersion tube. This sensor was specially developed for measuring temperatures in gearbox mounts. The spring loading maintains a constant contact pressure between the sensor and the measurement point, thus ensuring excellent thermal coupling.

A special seal between the immersion tube and the screw connection guarantees outstanding insulation.

#### **Technical features**

- High vibration resistance
- Reliable and compact electrical connection using M12 connector
- High degree of protection against ingress of moisture, dust and dirt
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class A and B

#### **Measuring insert**

Not interchangeable

#### Diameter

6 mm

#### **Degree of protection**

IP65

#### Max. Temperature

200 °C Resistance thermometer, max. 80 °C at plug

#### **Process connection**

Fix connecting thread

#### **Insertion length**

Variable, spring-loaded 10 mm

#### **Electrical connection**

- Small cable socket, angle type, with knurled nut
- Head form J made of aluminium diecasting, silver finish, max. temperature 200 °C







Order example	W	06	1	P21	065	0	30	2JK
Туре								
Resistance thermometer	W							
Diameter								
6 mm		06						
Material								
Brass 2.0401			1					
Stainless steel 1.4571			3					
Sensor element								
1 x Pt100 2-wire / class B				P21	]			
2 x Pt100 2-wire / class B				P22				
1 x Pt100 3-wire / class B				P31				
1 x Pt100 4-wire / class B				P41				
Resistance thermometer / class A				AXX				
Immersion tube length L1*								
55-65 mm					065			
95-105 mm					105			
135-145 mm					145			
165-175 mm					175		-	
Measuring insert								
Not interchangeable						0		
Electrical connection								
Cable socket, angle type round / M12							30	
Head form J							JO	
Process connection d1								
G1⁄2 A								2JK
M18 x 1.5								6JK

### Type WK0

Temperature sensor with integrated instrument transformer and plug connection. This sensor is characterised by its robust construction and is intended for use in harsh environments such as construction and mining machines. The instrument transformer integrated into the housing offers an interferenceproof and standardised output signal.

### **Technical features**

- Very high vibration resistance
- Exceptionally durable connecting cable
- Reliable electrical connection thanks to robust Deutsch connector system
- High degree of protection against ingress of moisture, dust and dirt
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class B

#### Measuring insert

Not interchangeable

### Diameter

7 mm

#### **Degree of protection**

IP54

### Max. Temperature

150 °C Resistance thermometer, max. 85 °C at plug

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

- Connection cable with plug sensor housing with built-in transducer
- Output 4...20 mA, 2-wire, power supply 10...35 VDC
- Output 0...10 V, 3-wire, power supply 15...30 VDC







Order example	W	07	1	P21	030	27	2	01	1
Туре									
Resistance thermometer	W								
Diameter									
7 mm		07							
Material									
Brass 2.0401			1						
Stainless steel 1.4571			3						
Sensor element									
1 x Pt100 2-wire / class B				P21					
Length L1*									
30 mm					030				
100 mm					100				
Electrical connection									
FEP-cable, wire-braided						27			
KENPUR 500, orange						XX			
Process connection d1*									
G1/2 A							2		
Cable length LK									
1.0 m								01	
1.5 m								02	
2.0 m								03	
2.5 m								04	
Signal output									
420 mA, 2-wire									I
U1U V, 3-wire									U

# Type WMQ

Temperature sensor with light plastic-sheathed cable. This sensor is used for measuring liquid and gaseous media. Thanks to the flexible light plastic-sheathed cable, even measurement points that are difficult to access can be reached. It is also extremely resistant to external temperature influences.

#### **Technical features**

- Short response time
- High vibration resistance
- Connecting cable available with different insulating materials depending on application. Shielded variant also available on request
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class A and B
- Thermocouple class 1

#### **Measuring insert**

Interchangeable, Ø 6 mm Measuring insert no. 61

#### Diameter

- 3 mm
- 6 mm

### Degree of protection

IP54

#### Max. Temperature

- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

#### **Process connection**

- Plain immersion tube
- Clamp coupling

### **Electrical connection**

Cable







Order example	WM	Q	М	P21	0100	P0	0	01
Туре								
Resistance thermometer	WM							
Thermocouple	ТМ							
Diameter F1								
3 mm		Q						
6 mm		М						
Material								
Inconel 2.4816			Н					
Stainless steel 1.4571			М					
Sensor element								
1 x Pt100 2-wire / class B				P21				
2 x Pt100 2-wire / class B				P22				
1 x Pt100 3-wire / class B				P31				
2 x Pt100 3-wire / class B				P32				
1 x Pt100 4-wire / class B				P41				
				14.4				
I X Fe-CUNI (type J)				JII				
2 X Fe-CUNI (type J)				JIZ IZ11				
2 x NiCr-Ni (type K)				KII K12				
				r\ I Z				
Resistance thermometer / class A				AXX				
Length L1*								
100 mm					0100			
150 mm					0150			
200 mm					0200			
250 mm					0250			
500 mm					0500			
Electrical connection								
PVC cable						PO		
Fibre glass, wire-braided						80		
Silicone cable						SO		
FEP cable						FO		
Process connection								
Without							0	
G¼ A steel, galvanized								
M1U x 1 steel, galvanized							A	
61/4 A stainless steel 1.4571							F	
61/2 A stainless steel 1.45/1							K	
MIUXI Stainless steet							В	
Caple length LK*								01
1.U m								01

# For marine applications and shipbuilding

### Type W20

Temperature sensor with connection head form B. This robust sensor is used for measuring exhaust gas temperatures. It is used in large diesel engines such as those on ships and in combined heat and power stations. It is also used in turbines and compressors.

### **Technical features**

- Very high vibration resistance
- One-piece protection tube
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class B
- Thermocouple class 1

#### **Measuring insert**

Interchangeable

#### Diameter

- 14 / 17 mm conical up to 150 mm
- 17 / 23 mm conical up to 150 mm
- 20 / 23 mm conical from 200 mm

#### Degree of protection

IP54

#### Max. Temperature

Depending on Immersion tube material

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200 °C

#### Approvals

DNV GL







Order example	W	17	3	P31	100	2	BO	3T6
Туре								
Resistance thermometer	W							
Thermocouple	Т							
Diameter F1								
14 / 17 mm conical up to 150 mm		14						
17 / 23 mm conical up to 150 mm		17						
20 / 23 mm conical from 200 mm		20						
Material								
Stainless steel 1.4571 (max. 450 °C)			3					
Steel 1.7335, heat-resistant (max. 600 °C)			5					
Sensor element								
1 x Pt100 3-wire / class B				P31				
1 x Pt1000 2-wire / class B				P12				
1 x Fe-CuNi (type J)				1TJ				
2 x Fe-CuNi (type J) 1 x NiCe Ni (type J)				2TJ 1TV				
I X NICE-NI (type K)								
z x Nici-Ni (type K)				ZIR				
Resistance thermometer / class A				AXX				
Length L1*								
100 mm					100			
120 mm					120			
150 mm					150			
200 mm					200			
250 mm					250			
300 mm	_	_			300			
Measuring insert								
Interchangeable						2		
Electrical connection								
Head form B with ceramic socket							BO	
Head form B with transmitter**							BT	
Process connection d1*								
G½ A (for Ø 14 / 17 mm)								2T6
G¾ A								3T6
M27 x 2								HT6
M33 x 2								F16

\* Other specifications available on request

\*\* For more information, see our product range "temperature transmitters"

# Type T12

Temperature sensor with connecting cable. This robust sensor is designed for measuring exhaust gas temperatures. It is used in large diesel engines such as those on ships and in combined heat and power stations. It is also used in turbines and compressors.

### **Technical features**

- Very high vibration resistance
- One-piece protection tube
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class B
- Thermocouple class 1

#### **Measuring insert**

Interchangeable

### Diameter

12 mm

**Degree of protection** IP54

Max. Temperature 600 °C

**Process connection** 

Fix connecting thread

### **Electrical connection**

Cable







Order example	T	12	3	P31	120	20	5	2	01
Туре									
Thermocouple	Т	1							
Resistance thermometer	W								
Diameter									
12 mm		12							
Material									
Stainless steel 1.4571			3						
Sensor element									
1 x Pt100 3-wire / class B				P31					
1 x Fe-CuNi (type J)				1TJ					
1 x NiCr-Ni (type K)				1TK					
Immersion tube lenght L1*									
120 mm					120				
150 mm					150				
170 mm					170				
200 mm					200				
220 mm					220				
250 mm					250				
Measuring insert									
Interchangeable						20			
Electrical connection									
FEP-cable, wire-braided							5		
Process connection d1*									
G1/2 A								2	
G3/4 A								3	
M27 x 2								Н	
M33 x 2								F	
Cable length LK*									

1.0 m

\* Other specifications available on request

\*\* For more information, see our product range "temperature transmitters"

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# Type T10

Temperature sensor with connecting cable. This robust sensor is designed for measuring exhaust gas temperatures. It is used in diesel engines such as those on ships and in combined heat and power stations. It is also used in turbines and compressors.

#### **Technical features**

- Compact design
- Very high vibration resistance
- One-piece protection tube
- Exceptionally durable connecting cable
- Customer-specific fitting lengths and fixing thread on request

### Sensor element

Thermocouple class 1

Measuring insert Interchangeable

**Diameter** Conical 10 mm to 8 mm

**Degree of protection** IP54

Max. temperature 850 °C for thermocouple

**Process connection** Fix connecting thread

**Electrical connection** 

Cable

Approvals

DNV GL







Order example T	Г	10	0	1TK	065	2	07	L	01
Туре									
Thermocouple 1	Г								
Diameter									
10 mm		10							
Material									
Steel 1.4876			0						
Sensor element									
1 x NiCr-Ni (Type K)				1TK					
Length L1*									
65 mm					065				
95 mm					095				
Measuring insert									
Interchangeable						2			
Electrical connection									
FEP-cable, wire-braided							07		
Process Connection d1*									
M14 x 1.5								G	
G¼ A								L	
Cable length LK*									
1.0 m									01
1.5 m									02
2.0 m									03
2.5 M									04

# Type T95

Temperature sensor with connecting cable. This robust sensor is designed for measuring exhaust gas temperatures. It is used in diesel engines such as those on ships and in combined heat and power stations. It is also used in turbines and compressors.

#### **Technical features**

- High vibration resistance
- Optional protection tube available
- Exceptionally durable connecting cable
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Thermocouple class 2

#### **Measuring insert**

Not interchangeable

### Diameter

9.5 mm

#### **Degree of protection** IP54

Max. temperature 600 °C for thermocouple

#### **Process connection**

- Without
- Clamp coupling

#### **Electrical connection**

- FEP cable, wire-braided
- Fibre glass, wire-braided







Order example	T95	3	1TK	2000	07	0	02
Diameter							
9.5 mm	T95						
Material							
Stainless steel 1.4571		3					
Sensor element							
1 x NiCr-Ni (type K)			1TK				
2 x NiCr-Ni (type K)			2TK				
Length NL*							
200 mm				2000			
250 mm				2500			
290 mm				2900			
Electrical connection							
FEP cable, wire-braided					07		
Fibre glass, wire-braided					08		
Process connection							
Without						0	
Adjustable union nut M18 x 1.5						1	
Cable length LK*							
1.5 m							02
2.5 m							03
5.0 m							09

\* All other lengths are also available on request

# Type T45

Temperature sensor with connecting cable. This robust sensor is designed for measuring exhaust gas temperatures. It is used in large diesel engines such as those used on ships and in combined heat and power stations. It is also used in turbines and compressors.

### **Technical features**

- Very high vibration resistance
- Exceptionally durable connecting cable
- Customer-specific fitting lengths on request

#### Sensor element

Thermocouple class 1

### Measuring insert

Interchangeable

### Diameter

4.5 mm

**Degree of protection** IP54

### Max. temperature 800 °C for thermocouple

Process connection Fitting

### **Electrical connection**

Cable, wire-braided

#### Approvals

DNV GL







Type     I     I       Thermocouple     T     I       Diameter     45     I       A5 mm     45     I       Material     3     I       Inconel 2.4816     3     I       Sensor element     1TK     2TK       I.x NiCr-Ni (type K)     2TK     V       2.x NiCr-Ni (type K)     045     080       104 mm     104     138       150 mm     045     080       104 mm     138     150       150 mm     150     150       Electrical connection     150     150       FEt cable, wire-braided     07     150       Fitting SW5, 3-4 mm, stainless steel 1.4571     01     150       1.0 m     1.5 m     02     02       1.0 m     1.5 m     02     02       2.0 m     2.0 m     2.0 m     02	Order example	Т	45	3	1TK	045	07	01	01
Thermocouple   T   Image: Construction of the state	Туре								
Diameter   45     4.5 mm   45     Material   3     Stainless steel 1.4541   3     Inconel 2.4816   4     Sensor element   1     1 x NiCr-Ni (type K)   2TK     2 x NiCr-Ni (type K)   2TK     1 x NiCr-Ni (type K)   2TK     Sensor element   045     0 mm   045     80 mm   080     104 mm   104     138 mm   150     150 mm   138     150 mm   07     Process connection     FEP cable, wire-braided   07     Cable length LK     1.0 m   01     1.5 m   01     2.0 m   03     2.0 m   03	Thermocouple	Т							
4.5 mm   45     Material   3     Stainless steel 1.4541   3     Inconel 2.4816   4     Sensor element   11K     1 x NiCr-Ni (type K)   11K     2 x NiCr-Ni (type K)   21K     Length L1*   045     45 mm   045     80 mm   080     104 mm   1188     138 mm   138     150 mm   104     160 mm   07     Electrical connection   07     FEP cable, wire-braided   07     Process connection*   01     Shift S 3-4 mm, stainless steel 1.4571   01     Cable length LK   01     1.0 m   01     1.5 m   02     2.0 m   03	Diameter								
Material     3     4       Stainless steel 1.4541     3     4       Sensor element     1     1       1 x NiCr-Ni (type K)     1TK     2       2 x NiCr-Ni (type K)     2TK     2TK       Length L1*     080     045       80 mm     080     045       104 mm     104     138       150 mm     104     138       150 mm     07     7       FEP cable, wire-braided     07     7       Process connection*     01     7       Fitting SW5, 3-4 mm, stainless steel 1.4571     01     7       Cable length LK     01     02     02       2.0 m     02     02     02       2.0 m     02     02     02	4.5 mm		45						
Stainless steel 1.4541   3   4   4     Sensor element   1TK     1 x NiCr-Ni (type K)   1TK     2 x NiCr-Ni (type K)   2TK     Length L1*   045     45 mm   045     80 mm   080     104 mm   104     138 mm   138     150 mm   150     Electrical connection   07     FEP cable, wire-braided   07     Process connection*   01     Fitting SWS, 3-4 mm, stainless steel 1.4571   01     1.5 m   01     1.5 m   01     2.0 m   01     3.5 m   01	Material								
Inconel 2.4816   4     Sensor element   1TK     1 x NiCr-Ni (type K)   2TK     2 x NiCr-Ni (type K)   2TK     Length L1*   045     45 mm   045     80 mm   080     104 mm   104     138 mm   104     150 mm   103     FEP cable, wire-braided   07     Process connection*   01     Fitting SW5, 3-4 mm, stainless steel 1.4571   01     1.0 m   1.0 m     1.5 m   02     2.0 m   03     32 5 m   03	Stainless steel 1.4541			3					
Sensor element   1 x NiCr-Ni (type K)   1TK     1 x NiCr-Ni (type K)   2TK     2 x NiCr-Ni (type K)   2TK     Length L1*   045     45 mm   045     80 mm   080     104 mm   104     138 mm   103     150 mm   105     Electrical connection   07     FEP cable, wire-braided   07     Process connection*   01     Fitting SW5, 3-4 mm, stainless steel 1.4571   01     1.0 m   1.0 m     1.5 m   02     2.0 m   03     2.0 m   07	Inconel 2.4816			4					
1 x NiCr-Ni (type K)   1 TK     2 x NiCr-Ni (type K)   2 TK     Length L1*   045     45 mm   045     80 mm   080     104 mm   104     138 mm   138     150 mm   138     150 mm   150     Electrical connection   07     FEP cable, wire-braided   07     Process connection*   01     Fitting SW5, 3-4 mm, stainless steel 1.4571   01     1.0 m   1.0 m     1.5 m   01     2.0 m   03     2.0 m   03	Sensor element								
2 x NiCr-Ni (type K)   2TK   Image: Constraint of the second of the sec	1 x NiCr-Ni (type K)				1TK				
Length L1*     045       45 mm     045       80 mm     080       104 mm     104       138 mm     103       150 mm     103       FEP cable, wire-braided     07       Process connection*     01       Fitting SW5, 3-4 mm, stainless steel 1.4571     01       1.5 m     01       1.5 m     01       2.0 m     03       2.5 m     03	2 x NiCr-Ni (type K)				2TK				
45 mm   045   0     80 mm   080   0     104 mm   104   10     138 mm   138   138     150 mm   150   150     Electrical connection   150   150     FEP cable, wire-braided   07   07     Process connection*   01   01     Fitting SW5, 3-4 mm, stainless steel 1.4571   01   01     Cable length LK   01   01   02     2.0 m   03   03   03	Length L1*								
80 mm   080   1     104 mm   104   104     138 mm   138   138     150 mm   150   150     Electrical connection   150   16     FEP cable, wire-braided   07   07     Process connection*   01   01     Elettring SW5, 3-4 mm, stainless steel 1.4571   01   01     Cable length LK   01   01   02     1.0 m   01   02   01   02     2.0 m   03   03   03   03     2.5 m   04   03   03   04	45 mm					045			
104 mm   104   104     138 mm   138   138     150 mm   150   150     Electrical connection   150   150     FEP cable, wire-braided   07   07     Process connection*   01   01     Fitting SW5, 3-4 mm, stainless steel 1.4571   01   01     Cable length LK   01   01   02     1.0 m   01   02   01     1.5 m   02   03   03     2.0 m   03   03   03	80 mm					080			
138 mm   138   138   138   138   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150   150 <t< td=""><td>104 mm</td><td></td><td></td><td></td><td></td><td>104</td><td></td><td></td><td></td></t<>	104 mm					104			
150 mm   150     Electrical connection   FEP cable, wire-braided     FEP cable, wire-braided   07     Process connection*   01     Fitting SW5, 3-4 mm, stainless steel 1.4571   01     Cable length LK   01     1.0 m   01     1.5 m   02     2.0 m   03     2.5 m   04	138 mm					138			
Electrical connection07FEP cable, wire-braided07Process connection*01Fitting SW5, 3-4 mm, stainless steel 1.457101Cable length LK011.0 m011.5 m022.0 m032.5 m04	150 mm					150			
FEP cable, wire-braided07Process connection*01Fitting SW5, 3-4 mm, stainless steel 1.457101Cable length LK011.0 m011.5 m022.0 m032.5 m04	Electrical connection								
Process connection*     01       Fitting SW5, 3-4 mm, stainless steel 1.4571     01       Cable length LK     01       1.0 m     01       1.5 m     02       2.0 m     03       2.5 m     01	FEP cable, wire-braided						07		
Fitting SW5, 3-4 mm, stainless steel 1.4571   01     Cable length LK   01     1.0 m   01     1.5 m   02     2.0 m   03     2.5 m   02	Process connection*								
Cable length LK     01       1.0 m     01       1.5 m     02       2.0 m     03       2.5 m     04	Fitting SW5, 3-4 mm, stainless steel 1.4571							01	
1.0 m   01     1.5 m   02     2.0 m   03     2.5 m   04	Cable length LK								
1.5 m 02   2.0 m 03   2.5 m 04	1.0 m								01
2.0 m 03	1.5 m								02
25 m	2.0 m								03
2.5 111 04	2.5 m								04

### Type T55

Temperature sensor with connecting cable and Cannon connector. This robust sensor is designed for measuring exhaust gas temperatures. It is used in diesel engines such as those on ships and in combined heat and power stations. It is also used in turbines and compressors.

Thanks to the flexible light plastic-sheathed cable, even measurement points that are difficult to access can be reached. It is also extremely resistant to external temperature influences.

#### **Technical features**

- Reliable electrical connection thanks to robust Cannon connector system
- High vibration resistance
- Optional protection tube available
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Thermocouple class 2

Measuring insert

Not interchangeable

Diameter

5.2 mm

**Degree of protection** IP54

Max. temperature 800 °C for thermocouple

**Process connection** Without or with clamp coupling

#### **Electrical connection**

Mineral insulated cable with Cannon plug







Order example	T55	3	1TK	1500	X0	R
Diameter						
5.2 mm	T55					
Material						
Stainless steel 1.4571		3				
Sensor element						
1 x NiCr-Ni (type K)			1TK			
2 x NiCr-Ni (type K)			2TK			
Length L1*						
1500 mm				1500		
Electrical connection						
Mineral insulated cable with Cannon plug					XO	
Process connection						
M12 x 1						R

\* All other lengths are also available on request



# Type TWE

Temperature sensor with connecting cable. This robust sensor is designed for measuring exhaust gas temperatures. It is used in diesel engines such as those on ships and in combined heat and power stations. It is also used in turbines and compressors.

#### **Technical features**

- High vibration resistance
- Exceptionally durable connecting cable
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class B
- Thermocouple class 1

#### **Measuring insert**

Not interchangeable

#### Diameter

- 8 mm
- 12 mm

#### **Degree of protection**

IP54

#### Max. Temperature

- 600 °C resistance thermometer
- 800 °C thermocouple

#### **Process connection**

- Plain immersion tube
- Clamp coupling

#### **Electrical connection**

Compensation pipe, wire-braided

#### Approvals

DNV GL (only for type TWE)







Order example	TVA	С	J11	0100	07	0	01
Diameter F1							
8 mm	TVA						
12 mm	TWE						
Material							
Stainless steel 1.4571		С					
Sensor element							
1 x Fe-CuNi (type J)			J11				
1 x NiCr-Ni (type K)			K11				
1 x Pt100 3-wire / class B (type TWE only)			P31				
2 x Pt100 3-wire / class B (type TWE only)			P32				
Length L1*							
100 mm				0100			
150 mm				0150			
200 mm				0200			
250 mm				0250			
Electrical connection							
FEP-cable, wire-braided					07		
Fibre glass, wire-braided					08		
Process connection d1*							
Without						0	
G¼ steel, galvanized						I	
G½ steel, galvanized						K	
G1⁄2 stainless steel						J	
M27 x 2 steel, galvanized						Н	
Cable length LK*							
1.0 m							01

# Type W12

Temperature sensor with connection head form B. This robust sensor is designed for use in industrial and marine applications for measuring the temperature of cooling water, lubricants and hydraulic oil.

#### **Technical features**

- High vibration resistance
- One-piece protection tube
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class A and B

#### **Measuring insert**

Interchangeable

#### Diameter

- 12 mm
- 14 mm

#### **Degree of protection**

IP54

Max. Temperature 200 °C resistance thermometer

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Head form B made of aluminium diecasting, silver finish, max. temperature 200 °C







Order example	W	12	3	P31	080	2	BO	2T2
Туре								
Resistance thermometer	W							
Diameter F1								
12 mm		12						
14 mm		14						
Material								
Stainless steel 1.4571			3					
Sensor element								
1 x Pt100 3-wire / class B				P31				
2 x Pt100 3-wire / class B				P32				
1 x Pt100 4-wire / class B				P41				
Resistance thermometer / class A				AXX				
Immersion tube length U1*								
80 mm					080			
100 mm					100			
120 mm					120			
150 mm					150			
200 mm					200			
250 mm					250			
Measuring insert				-			1	
Interchangeable						2		
Electrical connection								
Head form B with ceramic socket							BO	
Head form B with transmitter**							BT	
Process connection E*								
G1/2 A								2T2
G <sup>3</sup> / <sub>4</sub> A								3T2
M27 x 2								HT2
M33 x 2								FT2

\* Other specifications available on request

\*\* For more information, see our product range "temperature transmitters"

# Type WMJ

Temperature sensor with connection head form J. This robust sensor is designed for use in industrial and marine applications for measuring the temperature of cooling water, lubricants and hydraulic oil.

#### **Technical features**

- Very high vibration resistance
- Simple alignment of the connection head
- One-piece protection tube
- Available with optional instrument transformer
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

Resistance thermometer class A and B

### Measuring insert

Interchangeable

#### Diameter

8 mm

### Degree of protection

IP54

Max. Temperature 200 °C resistance thermometer

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Head form J made of aluminium diecasting, silver finish, max. temperature 125 °C

#### Approvals

ABS, BV, DNV GL, LRS, RINA and Class NK







Order example W	8	3	P31	050	2	JO	2
Туре							
Resistance thermometer W							
Diameter							
8 mm	8						
Material							
Stainless steel 1.4571		3					
Sensor element							
1 x Pt100 3-wire / class B			P31				
2 x Pt100 2-wire / class B			P22				
1 x Pt1000 2-wire / class B			P12				
2 x Pt1000 2-wire / class B			P24				
Resistance thermometer / class A			AXX				
Immersion tube length L1*							
50 mm				050			
80 mm				080			
100 mm				100			
150 mm				150			
Measuring insert							
Interchangeable					2		
Electrical connection							
Head form J with ceramic socket						JO	
Head form J with transmitter** (without approvals)						JT	
Process connection d1*							
G1/2 A							2
G1/4 A							L
G¾ A							3

\* Other specifications available on request \*\* For more information, see our product range "temperature transmitters"

# Type W11

Temperature sensor with connecting cable. This robust sensor is designed for use in industrial and marine applications for measuring the temperature of cooling water, lubricants and hydraulic oil.

#### **Technical features**

- High vibration resistance
- Exceptionally durable connecting cable
- Customer-specific fitting lengths and fixing thread on request

### Sensor element

Resistance thermometer class A and B

#### **Measuring insert**

Interchangeable

### Diameter

11 mm

### **Degree of protection** IP54

Max. Temperature 200 °C resistance thermometer

**Process connection** Fix connecting thread

#### **Electrical connection**

Cable







Order example	W	11	3	P31	080	20	5	2	01
Туре									
Resistance thermometer	W								
Diameter									
11 mm		11							
Material									
Stainless steel 1.4571			3						
Sensor element									
1 x Pt100 3-wire / class B				P31					
Resistance thermometer / class A				AXX					
Immersion tube length L1*									
80 mm					080				
100 mm					100				
120 mm					120				
150 mm					150				
200 mm					200				
250 mm					250				
Measuring insert									
Interchangeable						20			
Electrical connection									
FEP cable, wire-braided							5		
Process connection d1*									
G1⁄2 A								2	
G3/4 A								3	
M20 x 1.5								Н	
M27 x 2								F	
Cable length LK*									
1.0 m									01

\* Other specifications available on request

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# For HVAC applications

### Type W04

Temperature sensor with connecting cable. This sensor was specially developed for use in solar thermal energy plants. Thanks to the optional digital sensor with 1-wire Bus interface, only one connecting cable is required for communication and voltage supply. A large number of sensors can communicate on a bus line with the control system.

### **Technical features**

- High electric strength
- Water-proof and steam-proof connection between bush and connecting cable
- Connecting cable available with different insulating materials depending on application. Shielded variant also available on request

### Sensor element

- Resistance thermometer class A and B
- Digital 1-wire bus temperature sensor ±0.5 °C (-10...85 °C)

#### **Measuring insert**

Not interchangeable

#### Diameter

- 4 mm
- 5.2 mm
- 6 mm

### Degree of protection

IP54

### Max. Temperature

Depending on connecting cable

#### **Process connection**

- Plain immersion tube
- Clamp coupling

#### **Electrical connection**

Cable







Order example		W	04	3	P21	040	001	0	01
Туре									
Resistance thermometer		W							
Diameter F1	Deep drawing casin	g length L1*							
4 mm	40 mm**		04			040			
5.2 mm	57 mm		05			057			
6 mm	60 mm		06			060			
Material									
Stainless steel 1.4571				3					
Sensor element*									
1 x Pt100 2-wire / class B					P21				
2 x Pt100 2-wire / class B					P22				
1 x Pt100 3-wire / class B (only	for Ø 6 mm)				P31				
1 x Pt100 4-wire / class B (only	for Ø 6 mm)				P41				
1 x Pt1000 2-wire / class B					P12				
1 x DS18B20U + (digital) integra	ated protection circuit	(Ø 6 mm only)			E01				
Resistance thermometer / clas	s A				AXX				
Connection cable		Temperatur	e range			1	1		
PVC cable (not for Ø 4 mm)		-5080 °C					001	-	
PVC cable, shielded (not for Ø 4	4 mm)	-2080 °C					002		
Silicone cable		-20180 °C					003		
Silicone cable, shielded (not for	~ Ø 4 mm)	-20180 °C					004		
FEP cable (not for Ø 4 mm)		-20200 °C					005		
Fibre glass, wire-braided (not f	or Ø 4 mm)	300400 °C					008		
Process connection									
Without								0	
M10 x 1								D	
G1/4 A									
Cable length LK									
1.0 m									01
1.5 m									02
2.0 m									03
2.5 m									04

\*\* 40 mm length is also available for Ø 6 mm

### Type WBA

Surface temperature sensor with connecting cable. This sensor is designed for measuring surface temperatures by means of installation or bonding. This sensor is used e.g. on panel heaters.

Indirect temperature measurement means that measurements do not need to be taken directly in the process. This prevents chemicals, for example, from influencing the sensor. Thanks to the optional digital sensor with 1-wire Bus interface, only one connecting cable is required for communication and voltage supply. A large number of sensors can communicate on a bus line with the control system.

#### **Technical features**

- Simple assembly
- High electric strength
- Water-proof and steam-proof connection between bush and connecting cable
- Available with optional drill hole to enable attachment to surfaces
- Connecting cable available with different insulating materials depending on application. Shielded variant also available on request
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class A and B
- Temperature sensor NTC 5k ±0.5 °C (beta 1 %)
- Digital 1-wire bus temperature sensor ±0.5 °C (-10...85 °C)

### Measuring insert

Not interchangeable

Diameter

SW6 / SW8

**Degree of protection** IP54

Max. temperature 70 °C resistance thermometer

**Process connection** Square for build-in or glue-in

#### **Electrical connection**

Connection cable







Order example     W     06     1     P12     040	01	0	01
Туре			
Resistance thermometer W			
Square F1			
SW6 06			
SW8 08			
Material			
Brass 2.0401 / 2.0402 1			
Stainless steel 1.4571 3			
Sensor element			
1 x Pt1000 2-wire / class B P12			
1 x Pt1000 2-wire / class B P24			
1 x DS18B20U + (digital) integrated protection circuit E01			
1 x NTC 5k N01			
Length L1*			
40 mm 040			
50 mm 050			
Electrical connection			
PVC-connection	01		
Silicone cable	03		
FEP-cable	05		
FEP-cable, wire-braided	07		
Databus-cable IZU Uhm, shielded	XI		
Process connection*			
Square for build-in or glue-in		0	
Square with borehole 5 mm		1	
Cable length LK			
1.0 m			01
1.5 m			02
2.5 m			04

### Type WDS

Temperature sensor with M12 connector. This sensor is designed for measuring media, for example, in heating and air conditioning systems as well as in cooling circuits in machines and plants.

Thanks to the optional digital sensor with 1-wire Bus interface, only one connecting cable is required for communication and voltage supply. A large number of sensors can communicate on a bus line with the control system.

#### **Technical features**

- High vibration resistance
- Reliable and compact electrical connection using M12 connector
- High degree of protection against ingress of moisture, dust and dirt
- Short response time
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class A and B
- Temperature sensor NTC 5k ±0.5 °C (beta 1 %)
- Digital 1-wire bus temperature sensor ±0.5 °C (-10...85 °C)

#### **Measuring insert**

Not interchangeable

#### Diameter

5.9 mm

#### **Degree of protection**

IP54

### Max. temperature

100 °C resistance thermometer

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Plug M12 x 1, brass nickel-plated, max. temperature 100 °C







Order example	W	06	3	P31	038	0	RO	R
Туре								
Resistance thermometer	W							
Diameter F1			1					
6 mm		06						
Material								
Stainless steel 1.4571			3					
Sensor element								
1 x Pt100 3-wire / class B				P31	]			
1 x Pt1000 2-wire / class B				P12				
1 x DS18B20U + (digital) integrated protection circuit				E01				
1 x NTC 5k				N01				
				A \/\/				
Resistance thermometer / class A				AXX				
Length L1*						_		
38 mm					038			
100 mm					100			
Measuring insert								
Not interchangable						0		
Electrical connection								
Plug M12 x 1							RO	
Process connection d1*								
M12 x 1.5								R
G1/4 A								L
G1/8 A								М

# Type WFI

Temperature sensor with mini-fit connector. This sensor is designed for measuring media, for example, in heating and air conditioning systems as well as in cooling circuits in machines and plants.

#### **Technical features**

- Cost-effective electrical connection using mini-fit connector
- Short response time
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer B
- Temperature sensor NTC 5k ±0.5 °C (beta 1 %)
- Temperature sensor KTY 81-210 ± 1%

#### **Measuring insert**

Not interchangeable

### Diameter

6.5 mm

### Degree of protection

IP54

Max. Temperature 100 °C resistance thermometer

#### **Process connection**

Fix connecting thread

#### **Electrical connection**

Mini-fit plug, 2-pole, max. temperature 100 °C









Order example W	65	3	P12	015	0	X0	М
Туре							
Resistance thermometer W	'						
Diameter							
6.5 mm	65						
4.3 mm	45						
3.2 mm	32						
Material							
Stainless steel 1.4571 / 1.4404		3					
Sensor element							
1 x Pt1000 2-wire / class B			P12				
1 x NTC 5k			N01				
1 x KTY81/210			C01				
Length L1*							
15 mm				015			
19.5 mm				019			
Measuring insert							
Not interchangeable					0		
Electrical connection							
Mini-fit, 2-pole						XO	
Process connection d1*							
G1/8 A							М

### Type WM8

Temperature sensor with M8 connector. This sensor is designed for measuring media, for example, in heating and air conditioning systems as well as in cooling circuits in machines and plants.

#### **Technical features**

- Reliable and compact electrical connection using M8 connector
- Simple alignment of the electrical connection using optional vortex thread
- High degree of protection against ingress of moisture, dust and dirt
- Very short response time
- Customer-specific fitting lengths and fixing thread on request

#### Sensor element

- Resistance thermometer class A and B
- Temperature sensor NTC 5k ±0.5 °C (beta 1 %)

#### **Measuring insert**

Not interchangeable

#### Diameter

4 mm

### Degree of protection

IP54

#### Max. temperature

100 °C resistance thermometer

### **Process connection**

- Fix connecting thread
- Vortex thread

### **Electrical connection**

M8 plug, max. temperature 85 °C







Order example	W	04	3	P31	015	0	X0	L
Туре								
Resistance thermometer	W							
Diameter								
4 mm		04						
Material								
Stainless steel 1.4571			3					
Sensor element*								
1 x Pt1000 2-wire / class B				P12				
Resistance thermometer / class A				AXX				
Length*								
15 mm					015			
Measuring insert								
Not interchangeable						0		
Electrical connection								
M8, 3-pole							XO	
Process connection*								
M5 M10 (with vortex thread)								L X

### Type WIG

Temperature sensor for outside and wet room temperature measurement. This sensor is used in heating and air conditioning systems and in building services.

#### **Technical features**

- Housing made of impact-absorbing plastic
- Straightforward electrical connection using quick-release fasteners
- Available with external sensor tube
- Available with optional instrument transformer

#### Sensor element

Resistance thermometer B Temperature sensor KTY 81-210  $\pm$  1%

#### **Measuring insert**

Not interchangeable

**Dimensions** 72 x 64 x 32.4 mm

### Degree of protection

IP65

Max. Temperature

#### **Process connection**

With screws for wall mounting

#### **Electrical connection**

0.14 - 1.5 m², with screw terminals









Order example	SME8	ATF1WIGH	P21	1
Туре				
Resistance thermometer	SME8			
Form				
Casing without external sensor tube		ATF1WIGH		
Casing with external sensor tube		ATF2WIGH		
Sensor element*				
1 x Pt100 2-wire / class B			P21	
1 x Pt100 3-wire / class B			P31	
1 x Pt1000 2-wire / class B			P12	
1 x KTY 81-210			N01	
Options				
With transmitter 420 mA				I
With transmitter 010 V				U

# Type WIR

Temperature sensor for interior temperature measurement. This sensor is used in heating and air conditioning systems and in building services.

#### **Technical features**

- Housing made of impact-absorbing plastic
- With snap-on cap
- Available with optional instrument transformer

#### Sensor element

Resistance thermometer class B Temperature sensor KTY 81-210 ± 1%

**Measuring insert** Not interchangeable

**Dimensions** 85 x 91 x 27 mm

Degree of protection

IP30

**Max. Temperature** -30...90 °C

Process connection

With screws for wall mounting

### **Electrical connection**

0.14 - 1.5 m², with screw terminals













Order example	SME8	RTF1WIGH	P21	I
Туре				
Resistance thermometer	SME8			
Form				
Casing		RTF1WIGH		
Sensor element*				
1 x Pt100 2-wire / class B			P21	
1 x Pt100 3-wire / class B			P31	
1 x Pt1000 2-wire / class B			P12	
1 x KTY 81-210			N01	
Optionen				
With Transmitter 420 mA				I
With Transmitter 010 V				U

# Type WRO

Temperature sensor with pipe clamp. This sensor is provided for use in industrial applications for measuring surface temperatures of pipe surfaces.

#### **Technical features**

- Simple assembly
- Connecting cable available with different insulating materials depending on application. Shielded variant also available on request

### Sensor element

Resistance thermometer class A and B

### **Measuring insert**

Not interchangeable

### Diameter

Diverse

### **Degree of protection** IP54

Max. Temperature

**Process connection** Hose clip stainless steel

#### **Electrical connection**

Silicone cable or fibre glass, wire-braided







Order example	WRO	С	P31	0025	S00	01
Туре						
Resistance thermometer	WRO					
Process connection						
Hose clip stainless steel		С				
Sensor element						
1 x Pt100 3-wire / class B			P31			
Resistance thermometer class A			AXX			
Diameter pipe*						
1625 mm				0025		
2335 mm				0035		
3250 mm				0050		
5070 mm				0070		
7090 mm				0090		
90110 mm				0110		
110130 mm				0130		
130150 mm				0150		
150170 mm				0170		
170190 mm				0190		
190210 mm				0210		
Connection cable						
Silicone cable					S00	
FEP cable					F00	
Fibre glass, wire-braided					G00	
Cable length LK*						

1.0 m

\* Other specifications available on request

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# **Temperature transmitters**

### Application

The task of electronic transmitters is to ensure that values measured by resistance thermometers, thermocouples or other physical sensors with small output signals are transmitted and displayed without distortion. Undesired distortion due to the connecting cable is, depending on the sensor technology, generally caused by

- The ohmic resistance of the supply line (depending on the length, cross-section and temperature)
- Parasitic thermoelectric voltages (at terminals, when using various materials in the connecting cable)
- Electromagnetic interference (caused by machines, high-frequency transmitters, atmospheric pressure discharges, etc.)

Since the increase in interference and instabilities is directly proportional to the length of the connecting cable, the transmitter should be connected directly to the sensor output to ensure that interference to the unamplified signal is kept to a minimum. This requirement is met by so-called "head-mount transmitters", installed in the (DIN) connection head of the sensor.



### Function

Transmitters convert the sensor signal (e.g. resistance change or thermoelectric voltage) into a standardized current or voltage signal. Due to amplification, interference susceptibility is considerably reduced and the length of the cable is irrespective for signal currents. The transmitter is powered via the loop current or an external power supply unit.

#### Head-mount transmitters

These transmitters are installed directly in the connection head or angle connector of the sensor and guarantee an undistorted measuring signal, even at the end of the connecting cable. SIKA provides transmitters for resistance thermometers and thermocouples for DIN Form B and Form J connection head.



### **Rail-mount transmitters**

For switch cabinet installation, SIKA provides transmitters for resistance thermometers and thermocouples, as well as signal converters for current and voltage signals. The transmitters are contained in an extremely compact housing which can be simply clipped on to all commercially available mounting rails.

### **Special transmitters**

Since head-mount or rail-mount installation is not always possible or switching outputs are required, SIKA also offers numerous special solutions on request.



# **Head-mount transmitters**

# Type MUB

The 2-wire programmable measuring transmitter is intended for conversion of widely varied electrical values, e.g. from a temperature sensor into an analogue standard current signal. This measuring transmitter can be used in the most varied industrial applications.

### **Technical features**

- High measurement accuracy
- Customer-specific programming or
- Easy programming via USB interface
- Input and output potential separated
- Customer-specific linearization

### Assembly

- Direct mounting in head form B
- DIN-rail by assembly device

#### Input

- Resistance thermometer Pt100, Pt500, Pt1000, Ni100 and Ni1000
- Linear resistance value up to10 k0hm
- Thermocouple type E, J, K, L, N, T, U and B, R, S, A1, C and D
- Voltage signal
- 2, 3 or 4-wire connection

#### Output

Current output 4...20 mA, 2-wire

#### Supply voltage

11...35 VDC

#### **Operating temperature**

-40...85 °C





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# Technical data, dimensions and order code

Technical data						
General						
Dimensions	Ø 44 x 21 mm					
Weight	approx. 35 g					
Degree of protection	IP54 housing / IP00 clamp					
Electrical data						
Output / Supply	420 mA, 1135 VDC; 2-wire					
Supply voltage influence	≤± 0.1 % / V deviation from 24 V					
Response time	< 2 s (with filter constant 0 s)					
Probe error detection	Yes (as per NAMUR recommendation 4	.3]				
Connection	Connecting lead <1,75 mm² (rigid and t	lexible wires)				
Accuracy						
General values						
→ Burden	R <sub>b</sub> = [U <sub>b</sub> - 11 V] / 0.022 A					
→ Burden influence	≤± 0.01 % of the measuring span / °C					
→ Balance conditions / accuracy	DC 24 V at approx. 22 °C / ±0.05 %					
→ Measuring current	< 0.3 mA					
Basic values	Measuring range	Measuring accuracy				
→ Input type Pt100, Pt500 and Pt1000 (Tk =3,85 x 10 <sup>-3</sup> 1/K) 2/3-wire	-100200 °C	±0.2 K				
2/3-wire	-200850 °C	±0.4 K				
4-wire	-100200 °C	±0.1 K				
4-wire	-200850 °C	±0.2 K				
→ Input type Ni100, Ni500 and Ni1000 2/3-wire 4-wire	-60250 °C -60250 °C	±0.4 K ±0.2 K				
→ Input type resistance / pot.	< 400 Ohm ≥ 400< 4000 Ohm > 4000< 10000 Ohm	±400 mOhm ±4 Ohm ±10 Ohm				
→ Input type type K	-2701372 °C	±0.10 % from -80 °C				
→ Input type type J	-2101200 °C	±0.10 % from -100 °C				
→ Input type type S	-501768 °C	±0.15 % from 20 °C				
ightarrow Input type voltage	-1001100 mV	±0.05 %				
Order code						
MUB 110	SME8MUB110-2W					

# Type MUJ

The 2-wire measuring transmitter is intended for conversion of widely varied electrical values, e.g. from a temperature sensor into an analogue standard current or voltage signal. This measuring transmitter can be used in the most varied industrial applications.

#### **Technical features**

- High measuring accuracy
- Programmable in accordance with customer request
- Fine-tuning can be arranged by span and zero controller

#### Assembly

Direct mounting in head form J

#### Input

- Resistance thermometer Pt100 or Pt1000
- 2-wire connection

### Output

Current output 4...20 mA, 2-wire

### **Operating voltage**

10...35 VDC

#### **Operating temperature**

-40...85 °C









# Technical data, dimensions and order code

Technical data					
General					
Dimensions	Ø 25 x 14 mm				
Weight	approx. 10 g				
Degree of protection	IP68 housing / IP00 clamp				
Electrical data					
Output / Supply	420 mA, 1035 VDC; 2-wire				
Supply voltage influence	25 mW0.8 W				
Response time	< 0.1 s				
Probe error detection	Yes (sensor break >20 mA, short circuit <4 mA)				
Connection	Connecting cable 0.130.75 mm² (rigid and flexible wires)				
Accuracy					
General values					
→ Burden	$R_{b} = [U_{b} - 10 V] / 0.022 A$				
→ Absolute accuracy	≤± 0.1 % of the measuring span				
→ Temperature coefficient	±0.01 K/°C				
→ Measuring current	approx. 0.8 mA				
Basic values	Measuring range Span				
$\rightarrow$ Input type Pt100 and Pt1000					
2-wire	-200600 °C	20850 K			
Order code					
MUJ 143	SME8LKM143-2W				

# **Rail-mount transmitters**

# Type MUT

The 2/3-wire measuring transmitter is intended for conversion of widely varied electrical values, e.g. from a temperature sensor into an analogue standard current or voltage signal. This measuring transmitter can be used in the most varied industrial applications.

### **Technical features**

- High measuring accuracy
- Programmable in accordance with customer request or
- Simple programming via USB interface
- Input / output potential isolated
- Customised linearisation
- 6.2 mm slimline housing

#### Assembly

DIN rail DIN EN 60715 (35 mm)

#### Input

- Resistance thermometer Pt100, Pt500, Pt1000, Ni100 and Ni1000
- Linear resistance value up to 10 k0hm
- Thermocouple type E, J, K, L, N, T, U as well as B, R, S, A1, C and D
- Voltage signal
- 2, 3 or 4-wire connection

#### Output

- Current output 4...20 mA
- Voltage output 0...10 V

### **Operating voltage**

11...35 VDC

#### **Operating temperature**

-10...70 °C









# Technical data, dimensions and order code

Technical data				
General				
Dimensions	93.1 x 6.2 x 101.2 mm			
Weight	approx. 50 g			
Degree of protection	IP20			
Electrical data				
Output / Supply	420 mA, 1135 VDC; 2-wire 010 V, 1535 VDC; 3-wire			
Supply voltage influence	≤± 0.1 % / V deviation from 24 V			
Response time	< 2 s (with filter constant 0 s)			
Probe error detection	Yes (as per NAMUR recommendati	on 43)		
Connection	Connecting cable 0.22.5 mm² (rig	id and flexible wires)		
Accuracy				
General values				
→ Burden	R <sub>b</sub> = [U <sub>b</sub> - 11 V] / 0.022 A			
→ Burden influence	≤± 0.01 % of the measuring span /	°C		
→ Load resistance / influence of the load (voltage output)	≥2 k0hm / ±15 mV			
→ Ripple voltage (voltage output)	±1 % related to 10 V, 090 kHz			
→ Balance conditions / accuracy	DC 24 V at approx. 22 °C / ±0.05 %			
→ Measuring current	<0.3 mA			
Basic values	Measuring range	Measuring accuracy		
→ Input type Pt100, Pt500 and Pt1000 (Tk =3.85 x 10 <sup>-3</sup> 1/K) 2/3-wire 2/3-wire 4-wire 4-wire	-100200 °C -200850 °C -100200 °C -200850 °C	±0.2 K ±0.4 K ±0.1 K		
→ Input type Ni100, Ni500 and Ni1000 2/3-wire 4-wire → Input type resistor / not	-60250 °C -60250 °C	±0.4 K ±0.2 K		
	< 400 Ohm > 400<4000 Ohm > 4000<10000 Ohm	±400 mOhm ±4 Ohm ±10 Ohm		
→ Input type type K	-2701372 °C	±0.10 % from -80 °C		
→ Input type type J	-2101200 °C	±0.10 % from -100 °C		
→ Input type S	-501768 °C	±0.15 % from 20 °C		
→ Input type voltage	-1001100 mV	±0.05 %		
Order code				
MUT 500	SME8MUT500-3W			

# **Transmitter accessories**

### MUZ

The programming software facilitates for instance the configuration of the head transmitter type MUB 110 and mounting bar transmitter MUT 500 per PC. The PC and measuring transmitter are connected through the USB interface.

### **Technical features**

- Easy connection via standard USB cable (A plug to mini B plug)
- No additional auxiliary power for transmitter programming necessary

### System requirements

- Windows XP, VISTA, 7 and 8
- 500 MB available hard disk space
- 512 MB available memory

Order code	
Programming software	SME8SWMUZ110500
USB cable, 3 m	SME8USBMUZ110500



