

- 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.



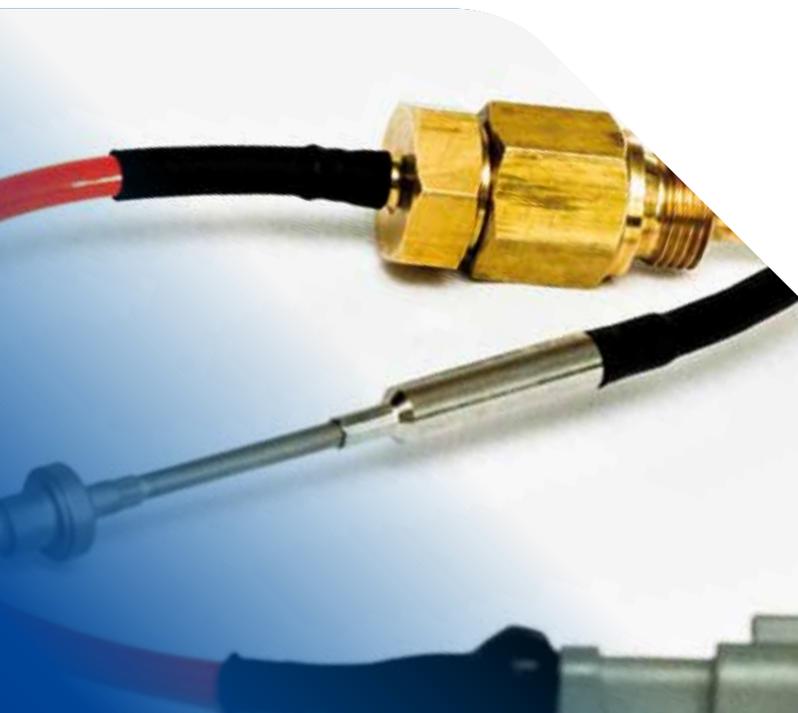
## „Made in Germany“ seal of quality

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 co-engineering 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,  $\varnothing$  6 mm  
Measuring insert no. 61

### Diameter

- 9 mm
- 11 mm
- 12 mm

### Degree of protection

IP54

### Max. Temperature

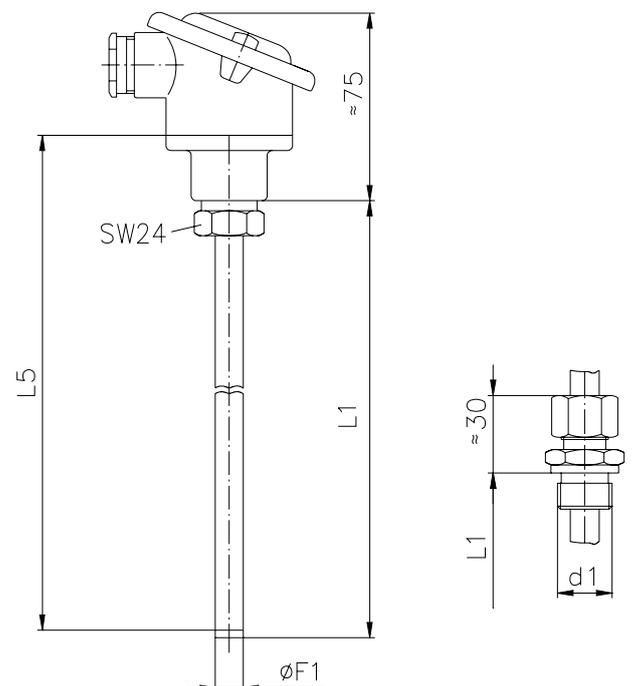
- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

### Process connection

- Plain immersion tube
- Clamp coupling

### Electrical connection

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



## Order code

Order example	WB	B	C	P31	0277	B0	0
<b>Type</b>							
Resistance thermometer	WB						
Thermocouple	TB						
<b>Diameter F1</b>							
9 mm		B					
11 mm		D					
12 mm		C					
<b>Material</b>							
Stainless steel 1.4571			C				
<b>Sensor element</b>							
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			
<b>Length L1*</b>		<b>Measuring insert L5*</b>					
277 mm		315 mm			0277		
367 mm		405 mm			0367		
517 mm		555 mm			0517		
<b>Electrical connection</b>							
Head form B with ceramic socket						B0	
Head form B with transmitter**						BT	
<b>Process connection d1</b>							
Without							0
G½ A							J
G¾ A steel, galvanized							A
G¾ A stainless steel							B
Clamp flange DIN 43734							C

\* 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  $\varnothing 8$  mm

### Diameter

- 6 mm
- 8 mm

### Degree of protection

IP54

### Max. Temperature

200 °C resistance thermometer

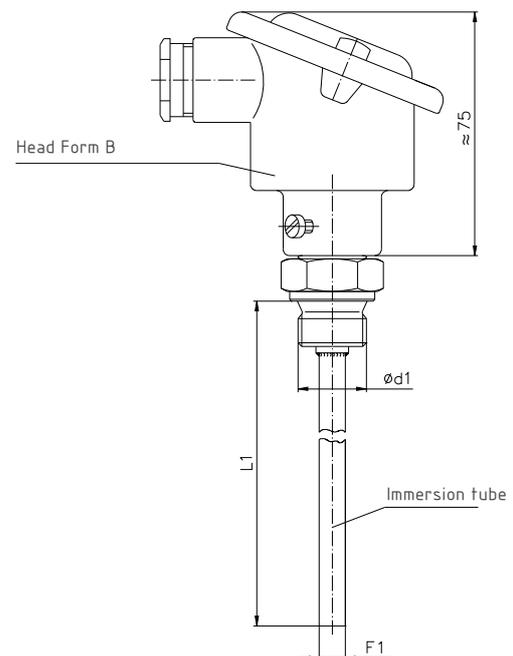
### Process connection

Fix connecting thread

### Electrical connection

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

## Type W06



## Order code

Order example	W	06	1	P32	050	0	B0	6
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter F1*</b>								
6 mm		06						
8 mm		08						
<b>Material*</b>								
Brass 2.0401			1					
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
<b>Immersion tube length L1*</b>								
50 mm					050			
100 mm					100			
150 mm					150			
200 mm					200			
<b>Measuring insert</b>								
Not interchangeable						0		
Interchangeable (only for Ø 8 mm)						2		
<b>Electrical connection</b>								
Head form B with ceramic socket							B0	
Head form B with transmitter**							M0	
<b>Process connection d1</b>								
M14 x 1.5								G
M18 x 1.5								6
G¼ A								L
G½ 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,  $\varnothing$  6 mm or 8 mm  
Measuring insert no. 61 or 81

### Diameter

- 9 mm
- 11 mm
- 14 mm

### Degree of protection

IP54

### Max. Temperature

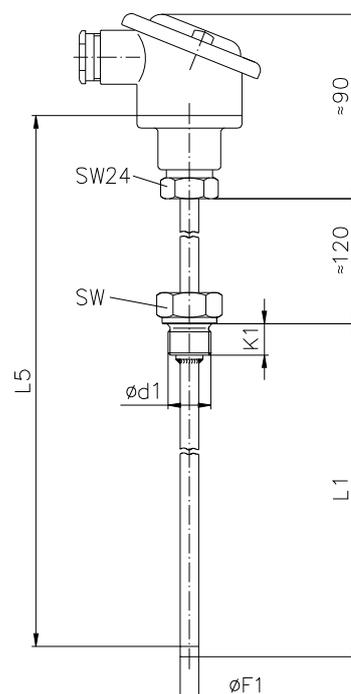
- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

### Process connection

- Plain immersion tube
- Fix connecting thread

### Electrical connection

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



$\varnothing d1$	K1	SW
M20x1,5	15	27
G1/2A		
G1A	30	41

## Order code

Order example	WB	B	C	P31	0100	B0	0	00
<b>Type</b>								
Resistance thermometer	WB							
Thermocouple	TB							
<b>Diameter F1</b>								
9 mm		B						
11 mm		D						
14 mm		F						
<b>Material</b>								
Stainless steel 1.4571			C					
<b>Sensor element</b>								
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				
<b>Length L1*                      Measuring insert L5*</b>								
100 mm					0100			
160 mm					0160			
250 mm					0250			
400 mm					0400			
<b>Electrical connection</b>								
Head form B with ceramic socket						B0		
Head form B with transmitter**						BT		
<b>Process connection d1*</b>								
Without							0	
G½ A							K	
M20 x 1.5 (no DIN)							G	
G 1 A							L	
Flange DN 25							F25	
Flange DN 40							F40	
<b>Options</b>								
Neck tube 25 mm								00

\* Other specifications available on request

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

## 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,  $\varnothing$  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

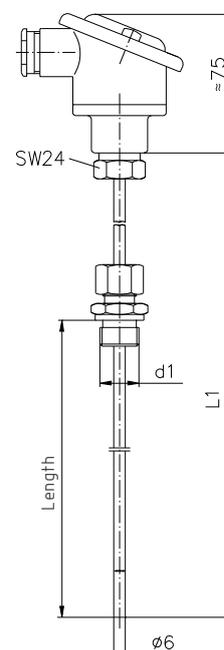
### Process connection

- Plain immersion tube
- Clamp coupling

### Electrical connection

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

Type WMM



## Order code

Order example	WM	M	M	P21	0250	B0	00
<b>Type</b>							
Resistance thermometer	WM						
Thermocouple	TM						
<b>Diameter</b>							
6 mm		M					
<b>Material</b>							
Stainless steel 1.4541 / 1.4571			M				
<b>Sensor element</b>							
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			
<b>Length NL*</b>							
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		
<b>Electrical connection</b>							
Head form B with ceramic socket						B0	
Head form B with transmitter** (only for 1 x Pt100 3-wire / class B)						BT	
<b>Process connection</b>							
Without							00
G¼ A steel, galvanized							I8
G½ A steel, galvanized							J8
G¼ A stainless steel							I3
G½ A stainless steel							J3

\* Other specifications available on request

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

## Type WDO

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,  $\varnothing$  3 mm or 6 mm  
Measuring insert no. 31 or 61

### Diameter

- 24 mm conical
- 18 mm conical

### Degree of protection

IP54

### Max. Temperature

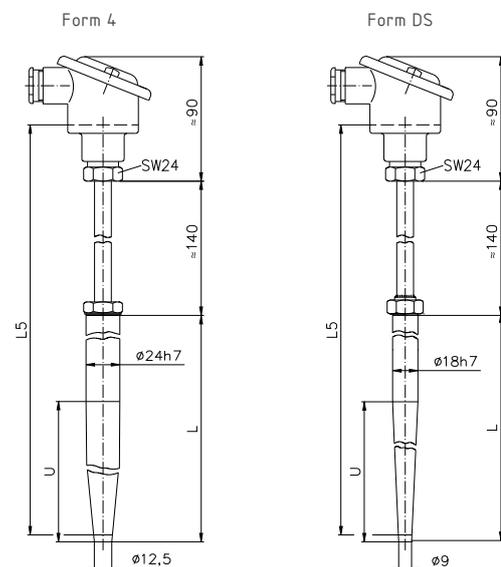
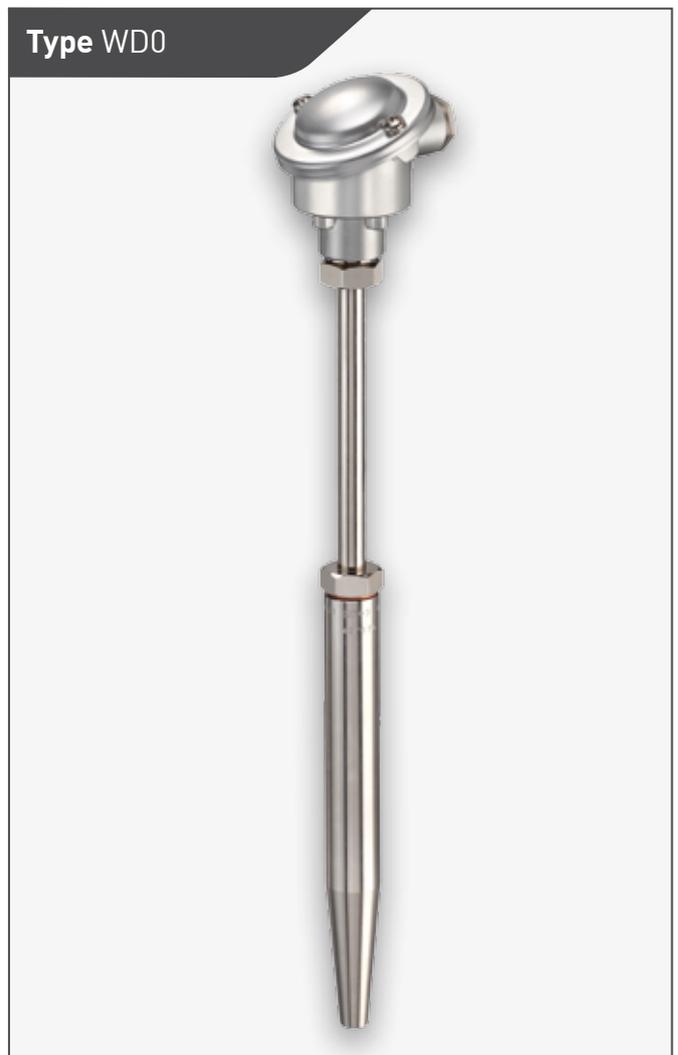
- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

### Process connection

With welding tube

### Electrical connection

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



## Order code

Order example	W	D0	C	P31	07	D1	B00
<b>Type</b>							
Resistance thermometer	W						
Thermocouple	T						
<b>Diameter</b>							
24 mm, immersion tube form 4		D0					
18 mm, immersion tube form DS		S0					
<b>Material</b>							
Stainless steel 1.4571			C				
Stainless steel 1.7380			D				
Stainless steel 1.5415			E				
Stainless steel 1.7335			F				
<b>Sensor element</b>							
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			
<b>Inside diameter D1</b>							
7 mm (only form 4)					07		
3.5 mm (only form DS)					3A		
<b>Immersion tube length L</b>		<b>Insertion length U</b>		<b>Measuring insert length L5</b>			
<b>Version Form 4</b>							
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
<b>Version Form DS</b>							
140 mm		65 mm		315 mm			1S
200 mm		125 mm		375 mm			2S
200 mm		65 mm		375 mm			3S
<b>Electrical connection</b>							
Head form B with ceramic socket							B00
Head form B with transmitter*							BT0

\* 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  $\varnothing$  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

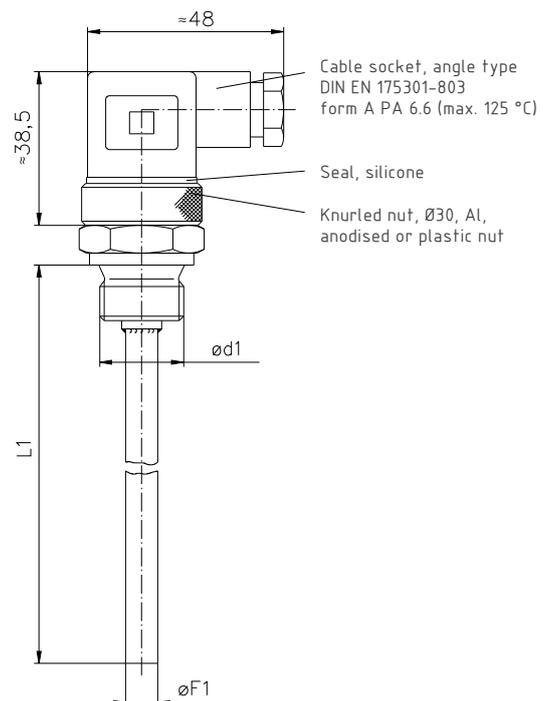
### Electrical connection

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

### Approvals

DNV GL

## Type W30



## Order code

Order example	W	06	1	P21	050	0	10	2	GL
<b>Type</b>									
Resistance thermometer	W								
Measuring insert	E								
<b>Diameter</b>									
6 mm		06							
8 mm		08							
<b>Material</b>									
Brass 2.0401 / 2.0402			1						
Stainless steel 1.4571			3						
<b>Sensor element</b>									
1 x Pt100 2-wire / class B				P21					
1 x Pt100 3-wire / class B				P31					
1 x Pt100 4-wire / class B				P41					
Resistance thermometer / class A				AXX					
<b>Immersion tube length L1*</b>									
Without (only for type measuring insert)					000				
50 mm					050				
100 mm					100				
150 mm					150				
200 mm					200				
<b>Measuring insert</b>									
Not interchangeable						0			
Interchangeable (only for Ø 8 mm)						2			
<b>Electrical connection</b>									
Cable socket, angle type form A							10		
<b>Process connection d1</b>									
G½ A								2	
M18 x 1.5								6	
M20 x 1.5								N	
G¾ A								3	
<b>Options</b>									
Version Germanischer Lloyd									GL

\* Other specifications available on request

## 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

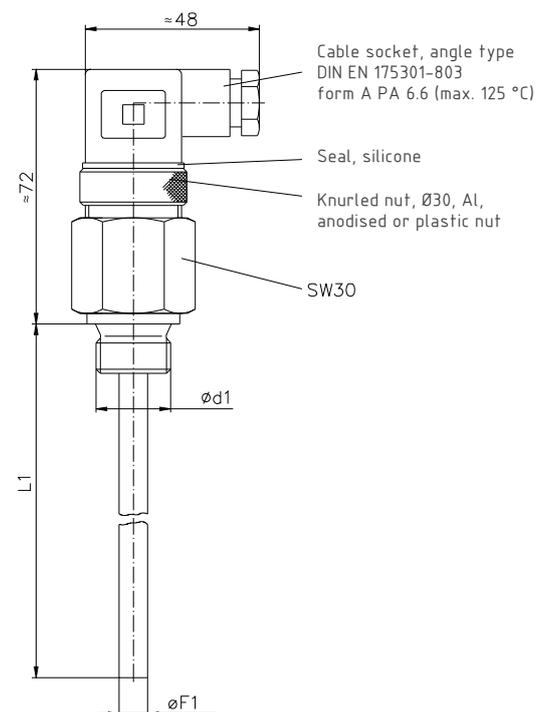
150 °C Resistance thermometer, max. 85 °C at plug

### 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



## Order code

Order example	W	06	1	P21	050	0	90	2
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter F1</b>								
6 mm		06						
8 mm		08						
<b>Material</b>								
Brass 2.0401 / 2.0402			1					
Stainless steel 1.4571			3					
<b>Sensor element</b>								
1 x Pt100 2-wire / class B				P21				
<b>Immersion tube length L1*</b>								
50 mm					050			
100 mm					100			
150 mm					150			
200 mm					200			
<b>Measuring insert</b>								
Not interchangeable						0		
<b>Electrical connection</b>								
Cable socket, angle type form A							90	
<b>Process connection d1</b>								
G½ A								2
M18 x 1.5								6
M20 x 1.5								N
G¾ A								3

\* Other specifications available on request

## 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  $\varnothing$  8 mm

### Diameter

- 6 mm
- 8 mm

### Degree of protection

IP65

### Max. Temperature

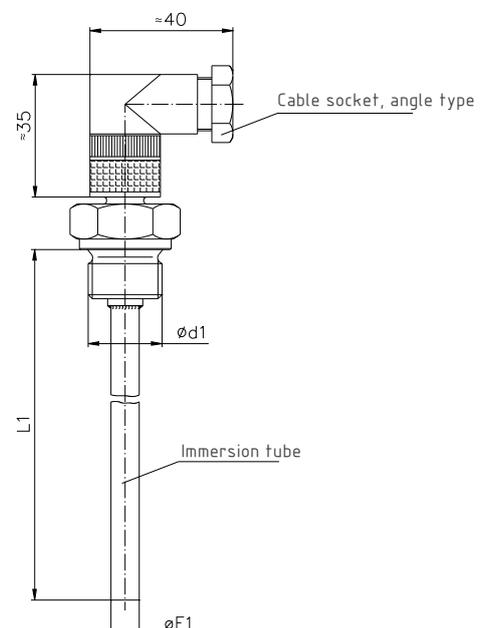
200 °C Resistance thermometer, max. 90 °C at plug

### 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 code

Order example	W	06	3	P21	050	0	30	G
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter F1</b>								
6 mm		06						
8 mm		08						
<b>Material</b>								
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
<b>Immersion tube length L1*</b>								
50 mm					050			
100 mm					100			
150 mm					150			
200 mm					200			
<b>Measuring insert</b>								
Not interchangeable						0		
Interchangeable (only for Ø 8 mm)						2		
<b>Electrical connection</b>								
M12 Cable socket, angle type round							30	
Head form J							J0	
<b>Process connection d1</b>								
M14 x 1.5								G
M10 x 1.0								P
G¼ A								L
G½ A								2

\* Other specifications available on request

# 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

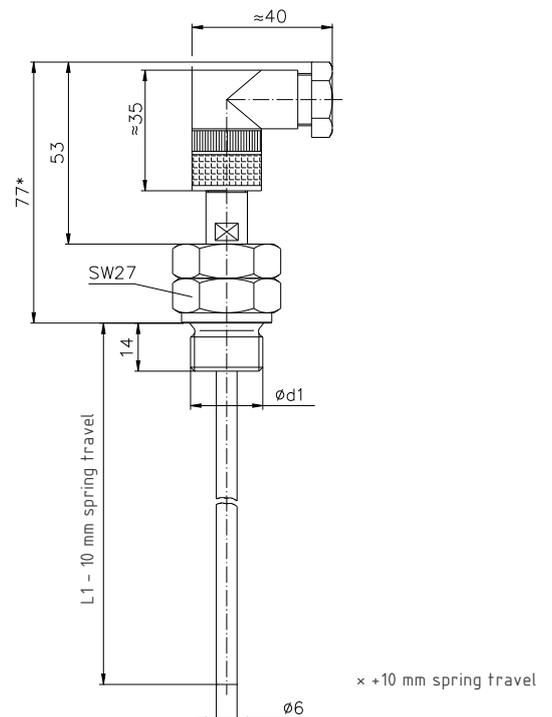
Fix connecting thread

### 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 code

Order example	W	06	1	P21	065	0	30	2JK
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter</b>								
6 mm		06						
<b>Material</b>								
Brass 2.0401			1					
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
<b>Immersion tube length L1*</b>								
55-65 mm					065			
95-105 mm					105			
135-145 mm					145			
165-175 mm					175			
<b>Measuring insert</b>								
Not interchangeable						0		
<b>Electrical connection</b>								
Cable socket, angle type round / M12							30	
Head form J							J0	
<b>Process connection d1</b>								
G½ A								2JK
M18 x 1.5								6JK

\* Other specifications available on request

## Type WKO

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 interference-proof 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

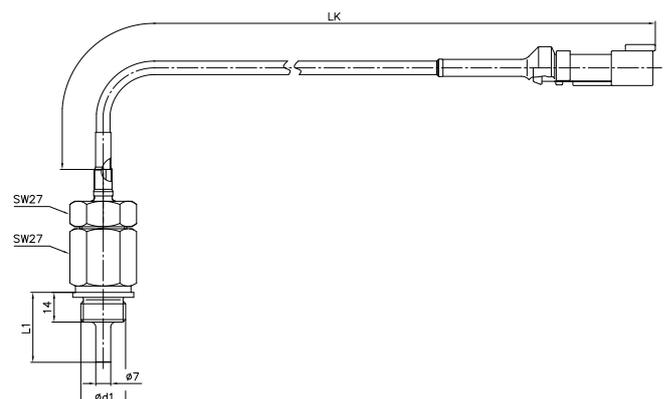
150 °C Resistance thermometer, max. 85 °C at plug

### 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 code

Order example	W	07	1	P21	030	27	2	01	I
<b>Type</b>									
Resistance thermometer	W								
<b>Diameter</b>									
7 mm		07							
<b>Material</b>									
Brass 2.0401			1						
Stainless steel 1.4571			3						
<b>Sensor element</b>									
1 x Pt100 2-wire / class B				P21					
<b>Length L1*</b>									
30 mm					030				
100 mm					100				
<b>Electrical connection</b>									
FEP-cable, wire-braided						27			
KENPUR 500, orange						xx			
<b>Process connection d1*</b>									
G½ A							2		
<b>Cable length LK</b>									
1.0 m								01	
1.5 m								02	
2.0 m								03	
2.5 m								04	
<b>Signal output</b>									
4...20 mA, 2-wire									I
0...10 V, 3-wire									U

\* Other specifications available on request

## 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,  $\varnothing$  6 mm  
Measuring insert no. 61

### Diameter

- 3 mm
- 6 mm

### Degree of protection

IP54

### Max. Temperature

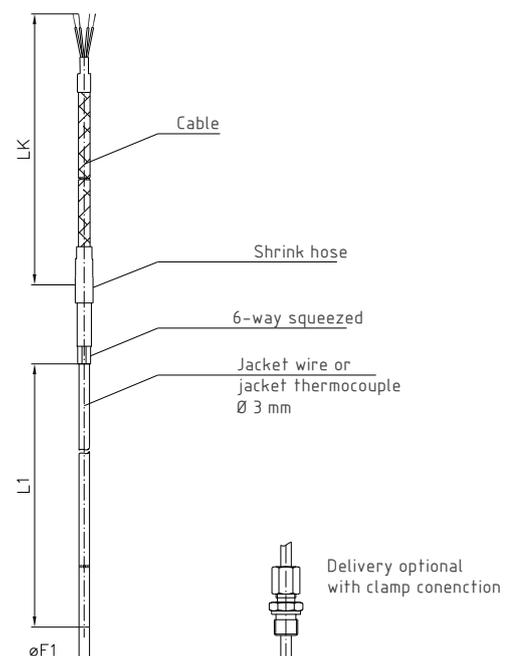
- 400 °C resistance thermometer
- 600 °C on request
- 800 °C thermocouple

### Process connection

- Plain immersion tube
- Clamp coupling

### Electrical connection

Cable



## Order code

Order example	WM	Q	M	P21	0100	P0	0	01
<b>Type</b>								
Resistance thermometer	WM							
Thermocouple	TM							
<b>Diameter F1</b>								
3 mm		Q						
6 mm		M						
<b>Material</b>								
Inconel 2.4816			H					
Stainless steel 1.4571			M					
<b>Sensor element</b>								
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				
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				
<b>Length L1*</b>								
100 mm					0100			
150 mm					0150			
200 mm					0200			
250 mm					0250			
500 mm					0500			
<b>Electrical connection</b>								
PVC cable						P0		
Fibre glass, wire-braided						80		
Silicone cable						S0		
FEP cable						F0		
<b>Process connection</b>								
Without							0	
G¼ A steel, galvanized							I	
M10 x 1 steel, galvanized							A	
G¼ A stainless steel 1.4571							F	
G½ A stainless steel 1.4571							K	
M10 x 1 stainless steel							B	
<b>Cable length LK*</b>								
1.0 m								01

\* Other specifications available on request

# 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

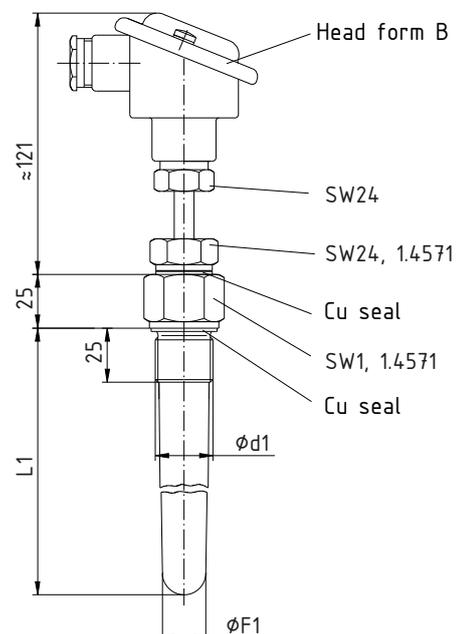
Fix connecting thread

### Electrical connection

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

### Approvals

DNV GL



## Order code

Order example	W	17	3	P31	100	2	B0	3T6
<b>Type</b>								
Resistance thermometer	W							
Thermocouple	T							
<b>Diameter F1</b>								
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						
<b>Material</b>								
Stainless steel 1.4571 (max. 450 °C)			3					
Steel 1.7335, heat-resistant (max. 600 °C)			5					
<b>Sensor element</b>								
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)				2TJ				
1 x NiCr-Ni (type K)				1TK				
2 x NiCr-Ni (type K)				2TK				
Resistance thermometer / class A				AXX				
<b>Length L1*</b>								
100 mm					100			
120 mm					120			
150 mm					150			
200 mm					200			
250 mm					250			
300 mm					300			
<b>Measuring insert</b>								
Interchangeable						2		
<b>Electrical connection</b>								
Head form B with ceramic socket							B0	
Head form B with transmitter**							BT	
<b>Process connection d1*</b>								
G½ A (for Ø 14 / 17 mm)								2T6
G¾ A								3T6
M27 x 2								HT6
M33 x 2								FT6

\* 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

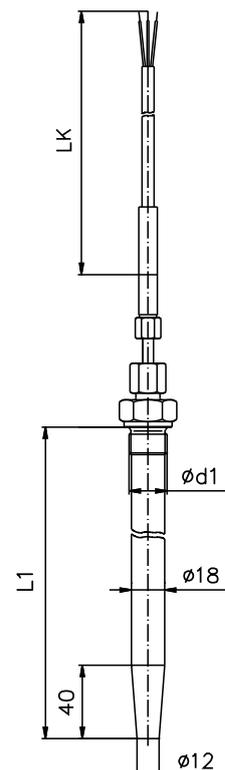
600 °C

### Process connection

Fix connecting thread

### Electrical connection

Cable



## Order code

Order example	T	12	3	P31	120	20	5	2	01
<b>Type</b>									
Thermocouple	T								
Resistance thermometer	W								
<b>Diameter</b>									
12 mm		12							
<b>Material</b>									
Stainless steel 1.4571			3						
<b>Sensor element</b>									
1 x Pt100 3-wire / class B				P31					
1 x Fe-CuNi (type J)				1TJ					
1 x NiCr-Ni (type K)				1TK					
<b>Immersion tube length L1*</b>									
120 mm					120				
150 mm					150				
170 mm					170				
200 mm					200				
220 mm					220				
250 mm					250				
<b>Measuring insert</b>									
Interchangeable						20			
<b>Electrical connection</b>									
FEP-cable, wire-braided							5		
<b>Process connection d1*</b>									
G½ A								2	
G¾ A								3	
M27 x 2								H	
M33 x 2								F	
<b>Cable length LK*</b>									
1.0 m									01

\* Other specifications available on request

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

# 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

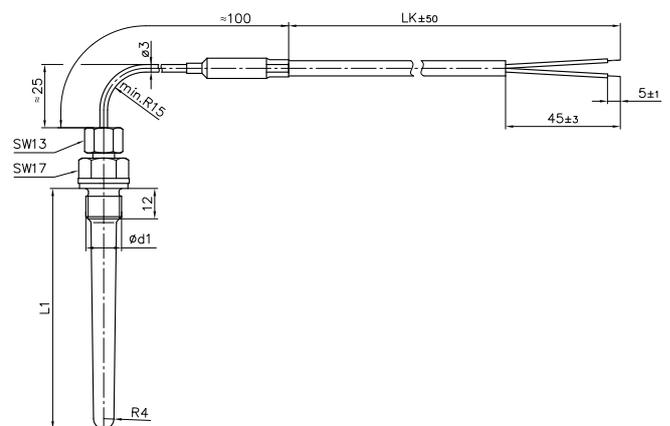
Fix connecting thread

### Electrical connection

Cable

### Approvals

DNV GL



## Order code

Order example	T	10	0	1TK	065	2	07	L	01
<b>Type</b>									
Thermocouple	T								
<b>Diameter</b>									
10 mm		10							
<b>Material</b>									
Steel 1.4876			0						
<b>Sensor element</b>									
1 x NiCr-Ni (Type K)				1TK					
<b>Length L1*</b>									
65 mm					065				
95 mm					095				
<b>Measuring insert</b>									
Interchangeable						2			
<b>Electrical connection</b>									
FEP-cable, wire-braided							07		
<b>Process Connection d1*</b>									
M14 x 1.5								G	
G $\frac{1}{4}$ A								L	
<b>Cable length LK*</b>									
1.0 m									01
1.5 m									02
2.0 m									03
2.5 m									04

\* Other specifications available on request

## 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

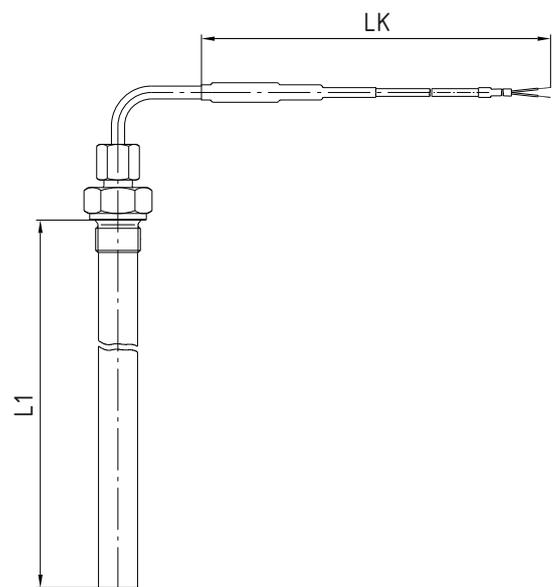
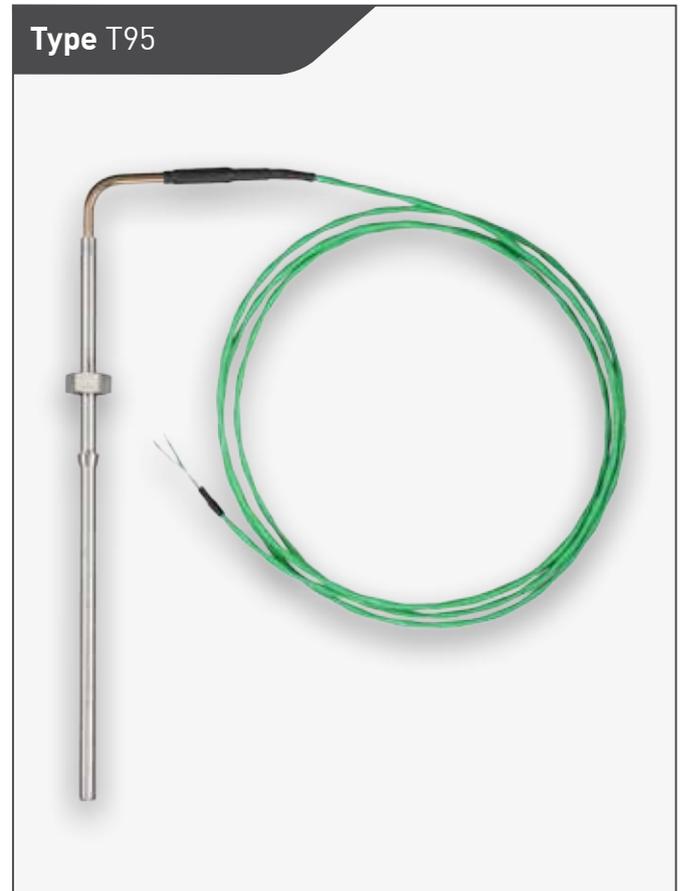
600 °C for thermocouple

### Process connection

- Without
- Clamp coupling

### Electrical connection

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



## Order code

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

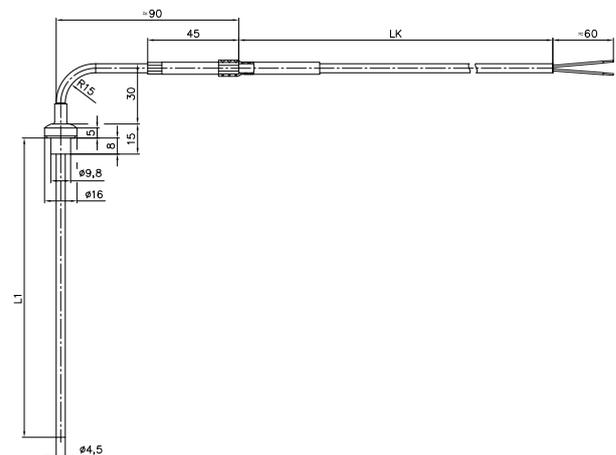
Fitting

### Electrical connection

Cable, wire-braided

### Approvals

DNV GL



## Order code

Order example	T	45	3	1TK	045	07	01	01
<b>Type</b>								
Thermocouple	T							
<b>Diameter</b>								
4.5 mm		45						
<b>Material</b>								
Stainless steel 1.4541			3					
Inconel 2.4816			4					
<b>Sensor element</b>								
1 x NiCr-Ni (type K)				1TK				
2 x NiCr-Ni (type K)				2TK				
<b>Length L1*</b>								
45 mm					045			
80 mm					080			
104 mm					104			
138 mm					138			
150 mm					150			
<b>Electrical connection</b>								
FEP cable, wire-braided						07		
<b>Process connection*</b>								
Fitting SW5, 3-4 mm, stainless steel 1.4571							01	
<b>Cable length LK</b>								
1.0 m								01
1.5 m								02
2.0 m								03
2.5 m								04

\* Other specifications available on request

## 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

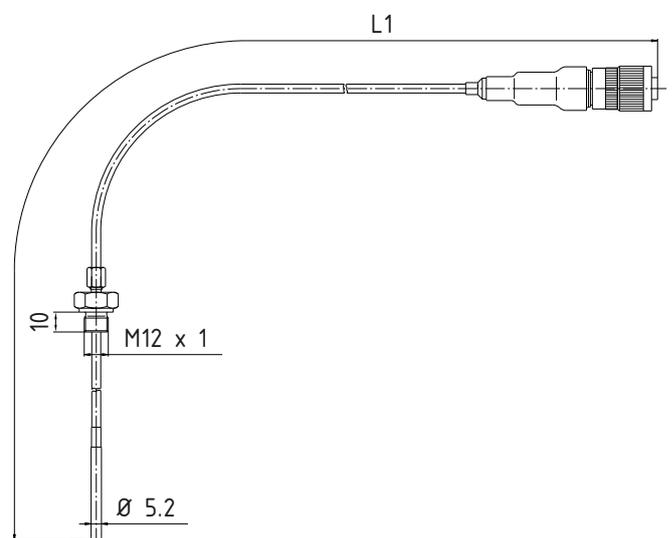
800 °C for thermocouple

### Process connection

Without or with clamp coupling

### Electrical connection

Mineral insulated cable with Cannon plug



## Order code

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

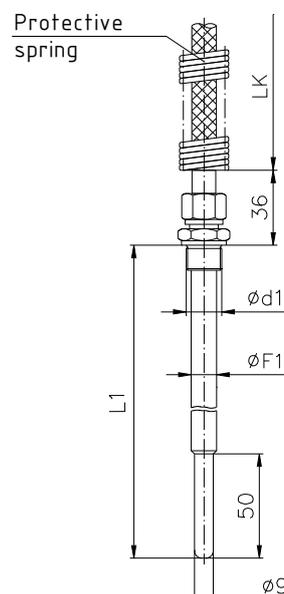
- Plain immersion tube
- Clamp coupling

### Electrical connection

Compensation pipe, wire-braided

### Approvals

DNV GL (only for type TWE)



## Order code

Order example	TVA	C	J11	0100	07	0	01
<b>Diameter F1</b>							
8 mm	TVA						
12 mm	TWE						
<b>Material</b>							
Stainless steel 1.4571		C					
<b>Sensor element</b>							
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				
<b>Length L1*</b>							
100 mm				0100			
150 mm				0150			
200 mm				0200			
250 mm				0250			
<b>Electrical connection</b>							
FEP-cable, wire-braided					07		
Fibre glass, wire-braided					08		
<b>Process connection d1*</b>							
Without						0	
G $\frac{1}{4}$ steel, galvanized						I	
G $\frac{1}{2}$ steel, galvanized						K	
G $\frac{1}{2}$ stainless steel						J	
M27 x 2 steel, galvanized						H	
<b>Cable length LK*</b>							
1.0 m							01

\* Other specifications available on request

# 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

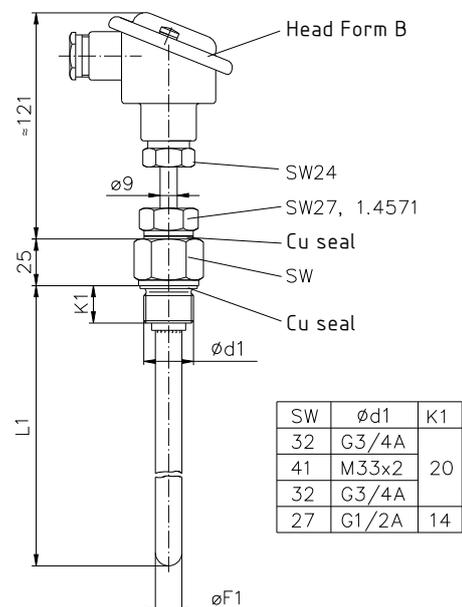
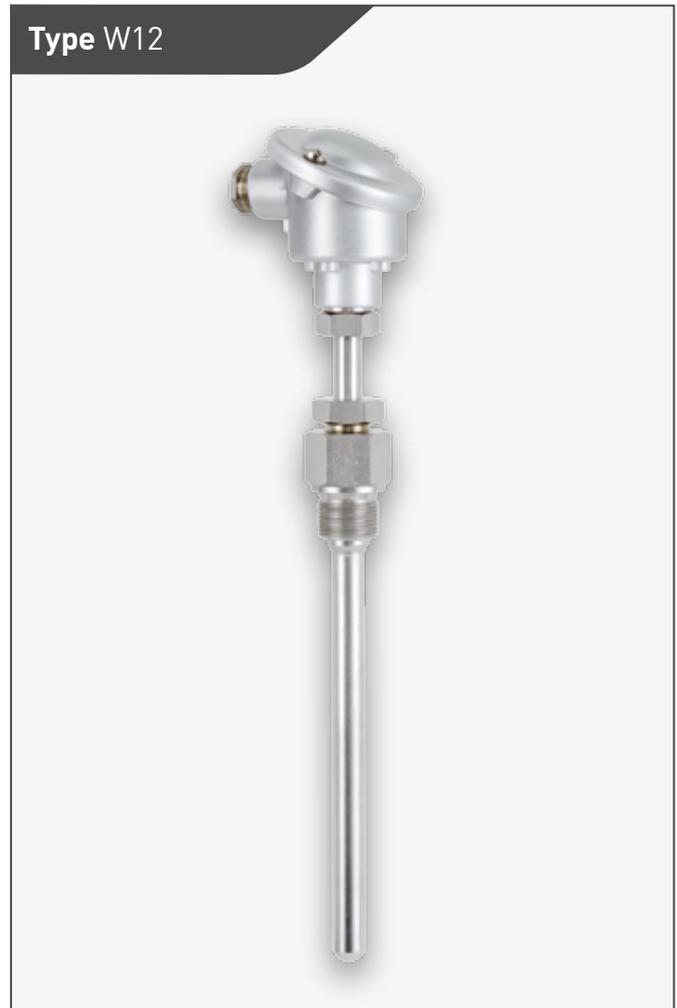
200 °C resistance thermometer

### Process connection

Fix connecting thread

### Electrical connection

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



## Order code

Order example	W	12	3	P31	080	2	B0	2T2
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter F1</b>								
12 mm		12						
14 mm		14						
<b>Material</b>								
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
<b>Immersion tube length U1*</b>								
80 mm					080			
100 mm					100			
120 mm					120			
150 mm					150			
200 mm					200			
250 mm					250			
<b>Measuring insert</b>								
Interchangeable						2		
<b>Electrical connection</b>								
Head form B with ceramic socket							B0	
Head form B with transmitter**							BT	
<b>Process connection E*</b>								
G½ A								2T2
G¾ 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

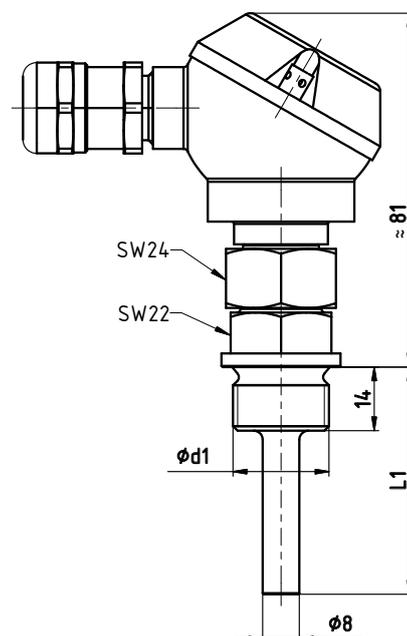
### Electrical connection

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

### Approvals

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

## Type WMJ



## Order code

Order example	W0	8	3	P31	050	2	J0	2
<b>Type</b>								
Resistance thermometer	W0							
<b>Diameter</b>								
8 mm		8						
<b>Material</b>								
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
<b>Immersion tube length L1*</b>								
50 mm					050			
80 mm					080			
100 mm					100			
150 mm					150			
<b>Measuring insert</b>								
Interchangeable						2		
<b>Electrical connection</b>								
Head form J with ceramic socket							J0	
Head form J with transmitter** (without approvals)							JT	
<b>Process connection d1*</b>								
G½ A								2
G¼ 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

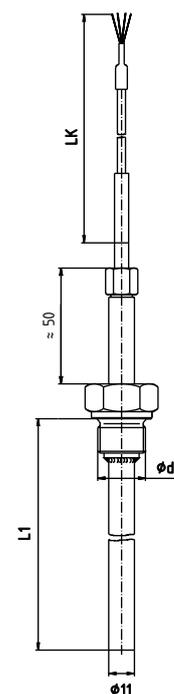
200 °C resistance thermometer

### Process connection

Fix connecting thread

### Electrical connection

Cable



## Order code

Order example	W	11	3	P31	080	20	5	2	01
<b>Type</b>									
Resistance thermometer	W								
<b>Diameter</b>									
11 mm		11							
<b>Material</b>									
Stainless steel 1.4571			3						
<b>Sensor element</b>									
1 x Pt100 3-wire / class B				P31					
Resistance thermometer / class A				AXX					
<b>Immersion tube length L1*</b>									
80 mm					080				
100 mm					100				
120 mm					120				
150 mm					150				
200 mm					200				
250 mm					250				
<b>Measuring insert</b>									
Interchangeable						20			
<b>Electrical connection</b>									
FEP cable, wire-braided							5		
<b>Process connection d1*</b>									
G½ A								2	
G¾ A								3	
M20 x 1.5								H	
M27 x 2								F	
<b>Cable length LK*</b>									
1.0 m									01

\* Other specifications available on request

# 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  $\pm 0.5\text{ }^{\circ}\text{C}$  (-10...85  $^{\circ}\text{C}$ )

### Measuring insert

Not interchangeable

### Diameter

- 4 mm
- 5.2 mm
- 6 mm

### Degree of protection

IP54

### Max. Temperature

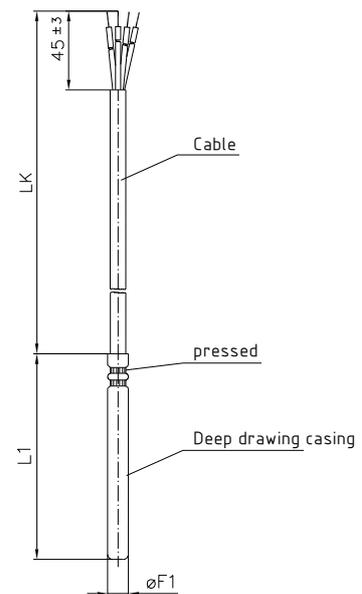
Depending on connecting cable

### Process connection

- Plain immersion tube
- Clamp coupling

### Electrical connection

Cable



## Order code

Order example		W	04	3	P21	040	001	0	01
<b>Type</b>									
Resistance thermometer		W							
<b>Diameter F1</b>	<b>Deep drawing casing length L1*</b>								
4 mm	40 mm**		04			040			
5.2 mm	57 mm		05			057			
6 mm	60 mm		06			060			
<b>Material</b>									
Stainless steel 1.4571				3					
<b>Sensor element*</b>									
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) integrated protection circuit (Ø 6 mm only)					E01				
Resistance thermometer / class A					AXX				
<b>Connection cable</b>		<b>Temperature range</b>							
PVC cable (not for Ø 4 mm)		-50...80 °C					001		
PVC cable, shielded (not for Ø 4 mm)		-20...80 °C					002		
Silicone cable		-20...180 °C					003		
Silicone cable, shielded (not for Ø 4 mm)		-20...180 °C					004		
FEP cable (not for Ø 4 mm)		-20...200 °C					005		
Fibre glass, wire-braided (not for Ø 4 mm)		300...400 °C					008		
<b>Process connection</b>									
Without								0	
M10 x 1								D	
G¼ A								I	
<b>Cable length LK</b>									
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  $\pm 0.5$  °C (beta 1 %)
- Digital 1-wire bus temperature sensor  $\pm 0.5$  °C (-10...85 °C)

### Measuring insert

Not interchangeable

### Diameter

SW6 / SW8

### Degree of protection

IP54

### Max. temperature

70 °C resistance thermometer

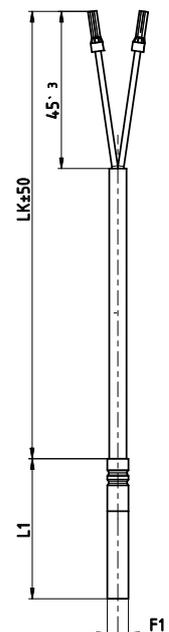
### Process connection

Square for build-in or glue-in

### Electrical connection

Connection cable

## Type WBA



## Order code

Order example	W	06	1	P12	040	01	0	01
<b>Type</b>								
Resistance thermometer	W							
<b>Square F1</b>								
SW6		06						
SW8		08						
<b>Material</b>								
Brass 2.0401 / 2.0402			1					
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
<b>Length L1*</b>								
40 mm					040			
50 mm					050			
<b>Electrical connection</b>								
PVC-connection						01		
Silicone cable						03		
FEP-cable						05		
FEP-cable, wire-braided						07		
Databus-cable 120 Ohm, shielded						X1		
Radox-cable, shielded						X2		
<b>Process connection*</b>								
Square for build-in or glue-in							0	
Square with borehole 5 mm							1	
<b>Cable length LK</b>								
1.0 m								01
1.5 m								02
2.0 m								03
2.5 m								04

\* Other specifications available on request

## 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  $\pm 0.5$  °C (beta 1 %)
- Digital 1-wire bus temperature sensor  $\pm 0.5$  °C (-10...85 °C)

### Measuring insert

Not interchangeable

### Diameter

5.9 mm

### Degree of protection

IP54

### Max. temperature

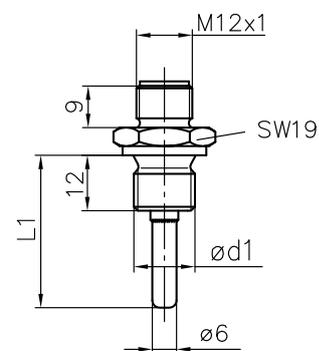
100 °C resistance thermometer

### Process connection

Fix connecting thread

### Electrical connection

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



## Order code

Order example	W	06	3	P31	038	0	R0	R
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter F1</b>								
6 mm		06						
<b>Material</b>								
Stainless steel 1.4571			3					
<b>Sensor element</b>								
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				
Resistance thermometer / class A				AXX				
<b>Length L1*</b>								
38 mm					038			
100 mm					100			
<b>Measuring insert</b>								
Not interchangeable						0		
<b>Electrical connection</b>								
Plug M12 x 1							R0	
<b>Process connection d1*</b>								
M12 x 1.5								R
G $\frac{1}{4}$ A								L
G $\frac{1}{8}$ A								M

\* Other specifications available on request

## 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  $\pm 0.5$  °C (beta 1 %)
- Temperature sensor KTY 81-210  $\pm 1$  %

### Measuring insert

Not interchangeable

### Diameter

6.5 mm

### Degree of protection

IP54

### Max. Temperature

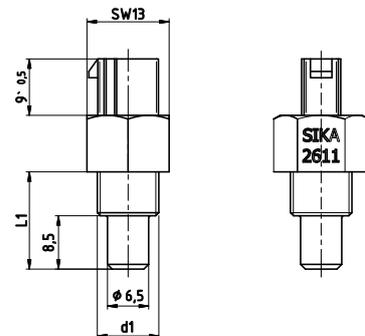
100 °C resistance thermometer

### Process connection

Fix connecting thread

### Electrical connection

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



## Order code

Order example	W	65	3	P12	015	0	X0	M
<b>Type</b>								
Resistance thermometer	W							
<b>Diameter</b>								
6.5 mm	65							
4.3 mm	45							
3.2 mm	32							
<b>Material</b>								
Stainless steel 1.4571 / 1.4404		3						
<b>Sensor element</b>								
1 x Pt1000 2-wire / class B				P12				
1 x NTC 5k				N01				
1 x KTY81 / 210				C01				
<b>Length L1*</b>								
15 mm					015			
19.5 mm					019			
<b>Measuring insert</b>								
Not interchangeable						0		
<b>Electrical connection</b>								
Mini-fit, 2-pole							X0	
<b>Process connection d1*</b>								
G $\frac{1}{8}$ A								M

\* Other specifications available on request

## 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  $\pm 0.5$  °C (beta 1 %)

### Measuring insert

Not interchangeable

### Diameter

4 mm

### Degree of protection

IP54

### Max. temperature

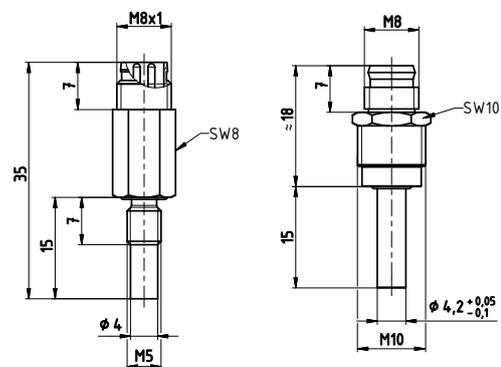
100 °C resistance thermometer

### Process connection

- Fix connecting thread
- Vortex thread

### Electrical connection

M8 plug, max. temperature 85 °C



## Order code

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

\* Other specifications available on request

## 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

-50...90 °C

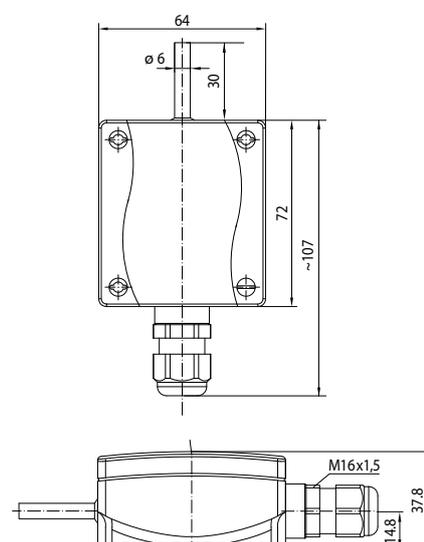
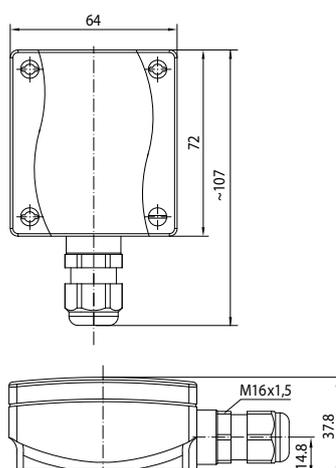
### Process connection

With screws for wall mounting

### Electrical connection

0.14 - 1.5 m<sup>2</sup>, with screw terminals

## Type WIG



## Order code

Order example	SME8	ATF1WIGH	P21	I
<b>Type</b>				
Resistance thermometer	SME8			
<b>Form</b>				
Casing without external sensor tube		ATF1WIGH		
Casing with external sensor tube		ATF2WIGH		
<b>Sensor element*</b>				
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	
<b>Options</b>				
With transmitter 4...20 mA				I
With transmitter 0...10 V				U

\* Other specifications available on request

## 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  $\pm 1\%$

### Measuring insert

Not interchangeable

### Dimensions

85 x 91 x 27 mm

### Degree of protection

IP30

### Max. Temperature

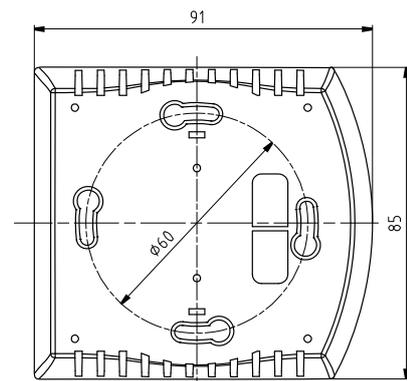
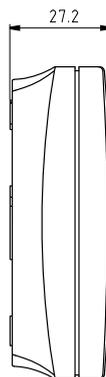
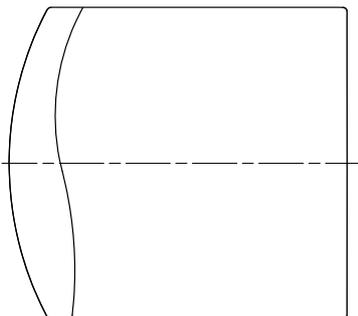
-30...90 °C

### Process connection

With screws for wall mounting

### Electrical connection

0.14 - 1.5 m<sup>2</sup>, with screw terminals



## Order code

Order example	SME8	RTF1WIGH	P21	I
<b>Type</b>				
Resistance thermometer	SME8			
<b>Form</b>				
Casing		RTF1WIGH		
<b>Sensor element*</b>				
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	
<b>Optionen</b>				
With Transmitter 4...20 mA				I
With Transmitter 0...10 V				U

\* Other specifications available on request

## 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

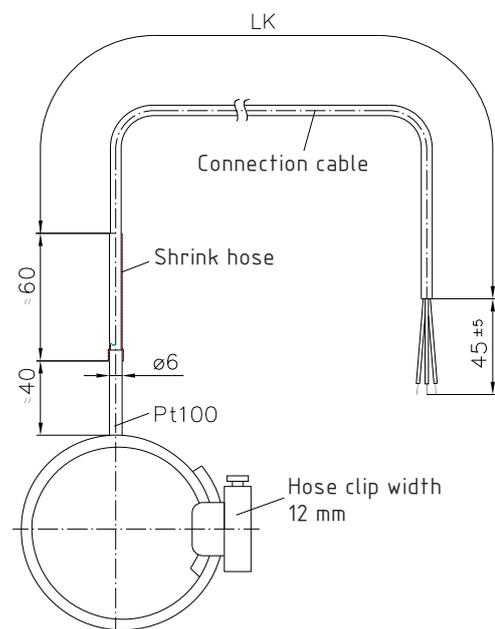
200 °C

### Process connection

Hose clip stainless steel

### Electrical connection

Silicone cable or fibre glass, wire-braided



## Order code

Order example	WRO	C	P31	0025	S00	01
<b>Type</b>						
Resistance thermometer	WRO					
<b>Process connection</b>						
Hose clip stainless steel		C				
<b>Sensor element</b>						
1 x Pt100 3-wire / class B			P31			
Resistance thermometer class A			AXX			
<b>Diameter pipe*</b>						
16...25 mm				0025		
23...35 mm				0035		
32...50 mm				0050		
50...70 mm				0070		
70...90 mm				0090		
90...110 mm				0110		
110...130 mm				0130		
130...150 mm				0150		
150...170 mm				0170		
170...190 mm				0190		
190...210 mm				0210		
<b>Connection cable</b>						
Silicone cable					S00	
FEP cable					F00	
Fibre glass, wire-braided					G00	
<b>Cable length LK*</b>						
1.0 m						01

\* Other specifications available on request

# 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 to 10 kOhm
- 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

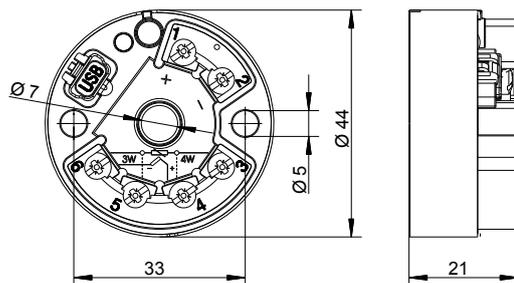
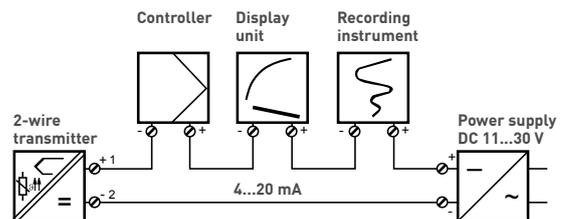
### Supply voltage

11...35 VDC

### Operating temperature

-40...85 °C

Type MUB 110



## Technical data, dimensions and order code

Technical data		
<b>General</b>		
Dimensions	Ø 44 x 21 mm	
Weight	approx. 35 g	
Degree of protection	IP54 housing / IP00 clamp	
<b>Electrical data</b>		
Output / Supply	4...20 mA, 11...35 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 43)	
Connection	Connecting lead ≤1,75 mm <sup>2</sup> (rigid and flexible wires)	
<b>Accuracy</b>		
<b>General values</b>		
→ Burden	$R_b = (U_b - 11 \text{ V}) / 0.022 \text{ A}$	
→ 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	
<b>Basic values</b>	<b>Measuring range</b>	<b>Measuring accuracy</b>
→ Input type Pt100, Pt500 and Pt1000 ( $T_k = 3,85 \times 10^{-3} \text{ 1/K}$ )		
2/3-wire	-100...200 °C	±0.2 K
2/3-wire	-200...850 °C	±0.4 K
4-wire	-100...200 °C	±0.1 K
4-wire	-200...850 °C	±0.2 K
→ Input type Ni100, Ni500 and Ni1000		
2/3-wire	-60...250 °C	±0.4 K
4-wire	-60...250 °C	±0.2 K
→ Input type resistance / pot.		
	≤ 400 Ohm	±400 mOhm
	≥ 400... < 4000 Ohm	±4 Ohm
	> 4000... < 10000 Ohm	±10 Ohm
→ Input type type K		
	-270...1372 °C	±0.10 % from -80 °C
→ Input type type J		
	-210...1200 °C	±0.10 % from -100 °C
→ Input type type S		
	-50...1768 °C	±0.15 % from 20 °C
→ Input type voltage		
	-100...1100 mV	±0.05 %
<b>Order code</b>		
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

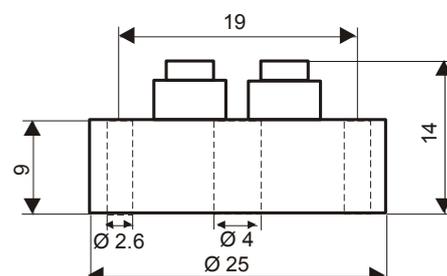
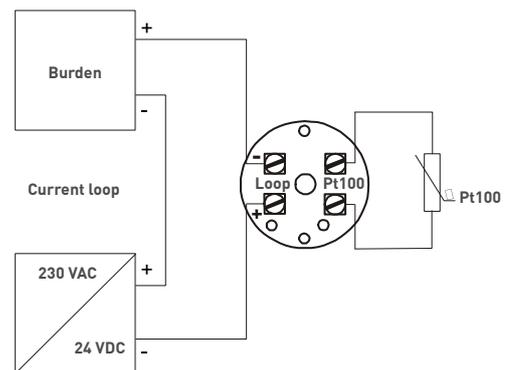
### Operating voltage

10...35 VDC

### Operating temperature

-40...85 °C

## Type MUJ 143



## Technical data, dimensions and order code

Technical data		
<b>General</b>		
<b>Dimensions</b>	Ø 25 x 14 mm	
<b>Weight</b>	approx. 10 g	
<b>Degree of protection</b>	IP68 housing / IP00 clamp	
<b>Electrical data</b>		
<b>Output / Supply</b>	4...20 mA, 10...35 VDC; 2-wire	
<b>Supply voltage influence</b>	25 mW...0.8 W	
<b>Response time</b>	< 0.1 s	
<b>Probe error detection</b>	Yes (sensor break >20 mA, short circuit <4 mA)	
<b>Connection</b>	Connecting cable 0.13...0.75 mm <sup>2</sup> (rigid and flexible wires)	
<b>Accuracy</b>		
<b>General values</b>		
→ <b>Burden</b>	$R_b = (U_b - 10 \text{ V}) / 0.022 \text{ A}$	
→ <b>Absolute accuracy</b>	≤± 0.1 % of the measuring span	
→ <b>Temperature coefficient</b>	±0.01 K / °C	
→ <b>Measuring current</b>	approx. 0.8 mA	
<b>Basic values</b>	<b>Measuring range</b>	<b>Span</b>
→ <b>Input type Pt100 and Pt1000</b> 2-wire	-200...600 °C	20...850 K
<b>Order code</b>		
<b>MUJ 143</b>	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 kOhm
- 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

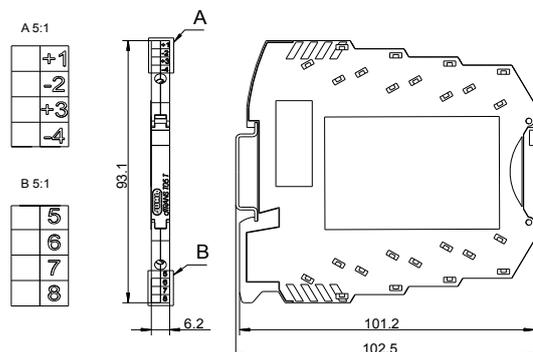
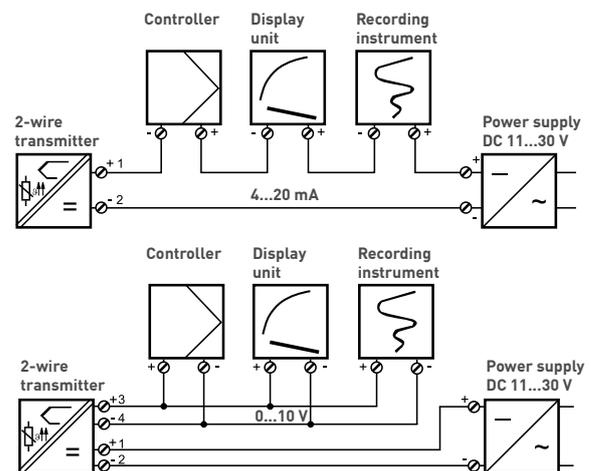
### Operating voltage

11...35 VDC

### Operating temperature

-10...70 °C

## Type MUT 500



## Technical data, dimensions and order code

Technical data		
<b>General</b>		
Dimensions	93.1 x 6.2 x 101.2 mm	
Weight	approx. 50 g	
Degree of protection	IP20	
<b>Electrical data</b>		
Output / Supply	4...20 mA, 11...35 VDC; 2-wire 0...10 V, 15...35 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 recommendation 43)	
Connection	Connecting cable 0.2...2.5 mm <sup>2</sup> (rigid and flexible wires)	
<b>Accuracy</b>		
<b>General values</b>		
→ Burden	$R_b = (U_b - 11 \text{ V}) / 0.022 \text{ A}$	
→ Burden influence	≤± 0.01 % of the measuring span / °C	
→ Load resistance / influence of the load (voltage output)	≥2 kOhm / ±15 mV	
→ Ripple voltage (voltage output)	±1 % related to 10 V, 0...90 kHz	
→ Balance conditions / accuracy	DC 24 V at approx. 22 °C / ±0.05 %	
→ Measuring current	<0.3 mA	
<b>Basic values</b>	<b>Measuring range</b>	<b>Measuring accuracy</b>
→ Input type Pt100, Pt500 and Pt1000 ( $T_k = 3.85 \times 10^{-3} \text{ 1/K}$ )		
2/3-wire	-100...200 °C	±0.2 K
2/3-wire	-200...850 °C	±0.4 K
4-wire	-100...200 °C	±0.1 K
4-wire	-200...850 °C	±0.2 K
→ Input type Ni100, Ni500 and Ni1000		
2/3-wire	-60...250 °C	±0.4 K
4-wire	-60...250 °C	±0.2 K
→ Input type resistor / pot.		
	≤ 400 Ohm	±400 mOhm
	≥ 400...≤4000 Ohm	±4 Ohm
	> 4000...≤10000 Ohm	±10 Ohm
→ Input type type K		
	-270...1372 °C	±0.10 % from -80 °C
→ Input type type J		
	-210...1200 °C	±0.10 % from -100 °C
→ Input type type S		
	-50...1768 °C	±0.15 % from 20 °C
→ Input type voltage		
	-100...1100 mV	±0.05 %
<b>Order code</b>		
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

