Temperature Sensors
the general catalogue

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WORLD OF AUTOMATION

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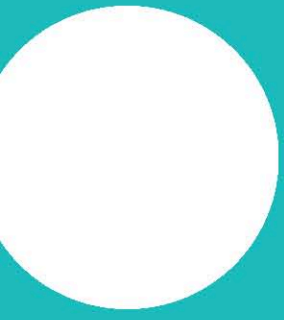

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A FEW WORDS ABOUT THIS CATALOGUE

Dear Customers,

You will find below a standardized list of –Temperature sensors, which are always in stock at our warehouse, capable of solving the immediate need of the most demanding applications.
The catalogue includes code, type, basic technical description and a photo for visual recognition of our product.
Indicative list:
Temperature sensors with different measuring range, length, construction material, process connection etc. are also available.

If your requests are not covered by this publication, please contact us

By phone at **+30 211 1206 900**
Through fax at **+30 211 1206 999**
Or by mail at **uteco@uteco.gr**

Series UTPR10 -Field mounted HART & Temperature transmitter with display

UTPR 10/1-Standard Temp. Assemblier with sensor & Flange thermowell
UTPR 10/2-Standard Temp. Sensor Assemblier with fixed immersion probes
UTPR 10/3-Standard Temp. Assemblier with welded barstock thermowell
UTPR 10/4-Standard Temp. Sensor Assemblier with sensor & screwwd thermowell
UTPR 10/5-Standard Temp. Sensor Assemblier with sensor & welded thermowell
UTPR 10/6-Standard Temp. Sensor Assemblier with tric clamp connection sanitarywellsl
UTPR 10/7-Standard Temp. Sensor Assemblier with sensor & thermowell with adjustable process connection

10-7

The model UTPR10 intelligent

UTPR10 field mounted HART temperature transmitter with display and optical buttons allows to easy programming , review and diagnostics – from the front of the housing …

Now you can benefit from easy programming and quick, at – a – glance review and diagnostics of your process values with the UTPR10 field mounted HART temperature transmitter .
Using unique technology, you can configure the transmitter from the front of the housing in any environment by simply touching the optical buttons – even when wearing gloves .

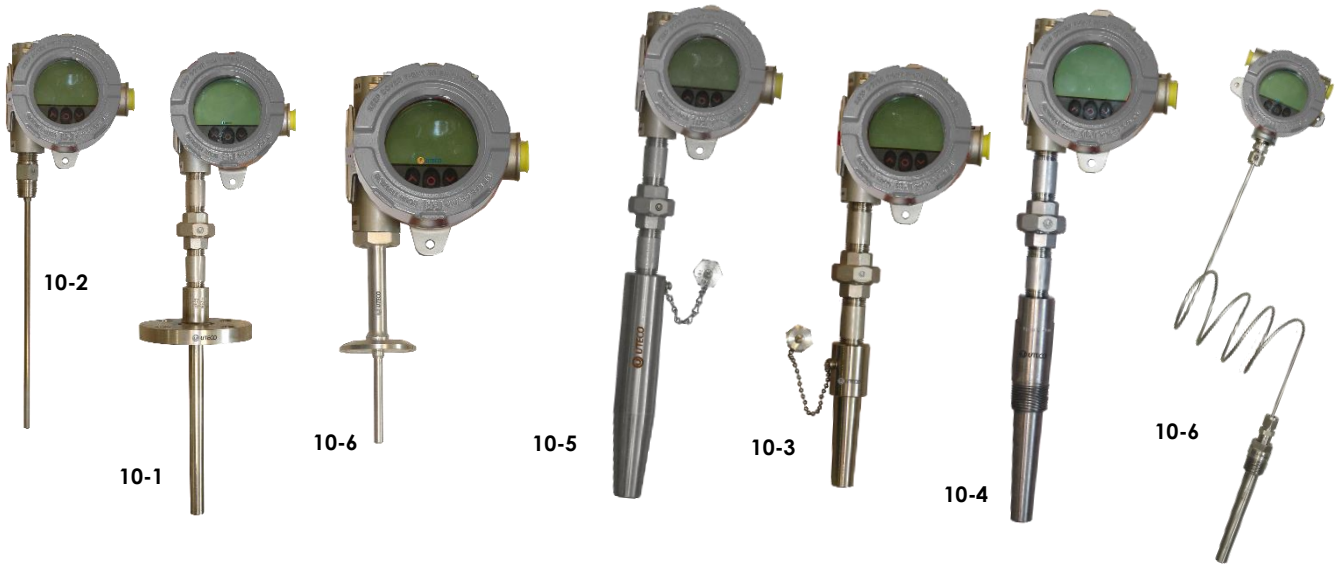
You can also perform advanced HART programming from the front, and as a result significantly reduce the need for handheld communicators (HHC).
UTPR10 features:

- Easy – to – read 60 mm diameter display provides a clear indication of your process magnitude , supported by a radial bar graph.
- Three optical buttons operating even in hard conditions.
- Easy – to – follow menus guide you through programming with scrolling help texts .
- HART 7 functionary with HART 5 compatibility.
- RTD, TC, Ohm, and bipolar mV input and analog output.

Once , installed , you never have to open the housing again .
The enclosure is **Ex d** explosion proof / flame proof to maintain safety and integrity at all times .

Easy configuration and operation: UTPR10 mounted HART temperature transmitter can be mounted on three different ways: on temperature sensor, on 1.5" – 2" pipe bracket or on wall / bulkhead.

Configuration is easy and logical with scrolling help texts and three logical buttons: up arrow, down arrow and OK.



10-2
10-1
10-6
10-5
10-3
10-4
10-6

Ordering Code

UTPRx

1	2	3	4	5	6	7	8	9

1	Housing	A low copper aluminium B stainless steel	
2	LOI	**Optical buttons** 1 NO 2 NO 3 YES	**Display** NO YES YES
3	0–ring	A – 40° ◦C to 85 °C Silicone rubber B - 20° to 85°C FKM rubber	
4	Conduit thread	1 M 20 x 1.5 2 ½ NPT	
5	Paint type	G 1/2 G ¾ G 1	M18x1.5mm Other specify
6	Transmitter	1. Yes 2. No (comes with a connection kit)	
7	Approvals	1. General purpose 2. Hazardous Area	
8	Thermowell type (see pages for descriptions and dimensions)	A: Heavy – Duty threaded ,Tapered well B: Standard Duty threaded , straight well C: Standard – Duty thread, Stepped well.	
9	Thermowell process Connection size (see page 2)	P2 threaded ½ NPT P3 Threaded ½ NPT P1 Threaded 1 NPT F? Flange well , Replace , with Ordering code from Table 1 on page 6 SW ? Welded replace? S- D? Sanitary Well. Replace	
10	Thermowell Insertion Length U:Dimensions (see pages 4 and 5)	U? Replace?	
11	Lagging Extension ("T'' Dimension) See page 4 to 5	TO no lagging T ? Replace	
12	Thermowell Material	S 304 S316 S310 S446 INC	
13	Fitting Type (N Dimension) See page 6 for Description and Dimensions	26 - NUN 26 - NPL 26 - NPL3	
14	Sensor type	E thermocouple type E J thermocouple type J K thermocouple type K T thermocouple type T	Pt100 Pt1000 Ni1000 Other Specify
15	Number of elements	1 x RTD 2 x RTD 1 x TC 2 x TC	
16	Number of conductor	2w 3w 4w	
17	Tolerance class	**Class 1** (for the Thermocouple) **Class 2** (for the Thermocouple)	Type A Type B Type 1/3 DIN Type 1/6 DIN Type 1/10 DIN **For RTD**
18	Temperature range	-50° + 260°C -50° + 400 °C -50° + 600 °C Or other specify	

Series BMR/10,11,12– Temperature sensors with terminal head form B with threated process connection

BMR10-Temperature sensor without extension tube
BMR11-Temperature sensor with extension tube
BMR12-Temperature sensor with adjustable screw

Application:

General Purpose. Temperature probes are preferentially used for measuring temperatures in fluids and gases. A decisive selection criterion is the reliable sealing feature of this installation type with vacuum and with overpressure. Application fields are found, amongst others, in heating, furnace / kiln and process technology.

BMR/10

BMR/11

BMR/12

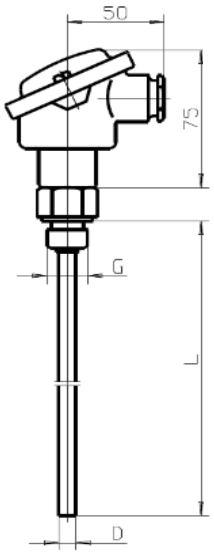
Specifications

Type and tolerances:	Thermocouple (element) as per EN 60584 class 1 or 2
Measuring insert:	1 x Fe-Cuni "J" DIN EN 60584 Class 2 operating -200° to 800°C 1 x NICR-N1 "K" DIN EN 60584 Class 2 operating temperature -200° to 800°C
	Available with different thermocouple As single or double thermocouple
Protective Sheath:	Stainless steel Nr.1.4571 with different diameter
Process Connection:	Thread, stainless steel 1.4571
Transmitter:	Programmable transmitter 4 – 20mA / 20 to 4mA output Wtrans B Programmable head transducer with ratio transmission (datasheet 70.7060)
Accessories:	Datasheet (pocket)

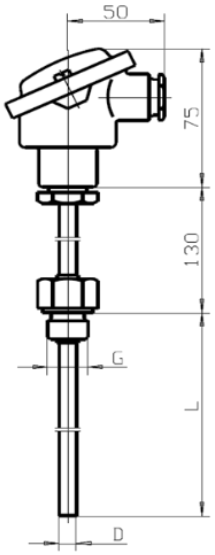
Ordering Code

	1	2	3	4	5	6	7	8	9
BMRxx									

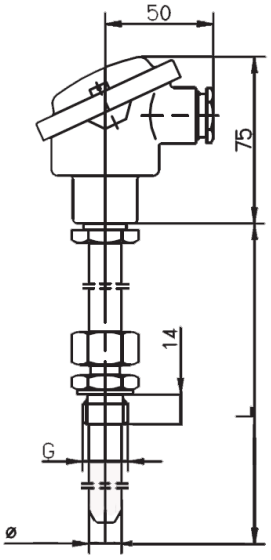
1	Measuring Insert	1xJ 1xL 1xK 2xJ 2xL	2xK 1xT 1xE 2xT 2xE
2	Protection tube diameter in mm	Ø6mm Ø7mm Ø8mm	Ø9mm Ø11mm Other specify
3	Immersion Length L	100mm 160mm 200mm 250mm	300mm 400mm 600mm Other specify
4	Sheath Material	AISI 304 AISI 316 AISI 321 Other specify	
5	Process Connection	G 1/2 G ¾ G 1	M18x1.5mm Other specify
6	Programmable transmitter	4-20mA (Specify Temperature Range) 00 (without transmitter) **Wtrans** B programmable head transducer with ratio transmission (data sheet 707060)	
7	Connection Head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)	
8	Temperature Range	-200 to +600°C -200 to +800°C	



BMR/10



BMR/11



BMR/12

Ordering Example

	1	2	3	4	5	6	7	8
BMR10	1xK	8.0mm	160	316	G 1/2	00	BUZ	-200+600 C

Series BMR/20,21,22 –Temperature sensors with terminal head form B with threated process connection

BMR20-Temperature sensors without extension tube
BMR21-Temperature sensors adjustable screw
BMR22-Temperature sensors with extension tube

Application:

General Purpose. Temperature sensors are mainly used for measuring temperatures in fluids and gasses. A decisive selection criterion is the reliable sealing feature of this installation type with vacuum and with overpressure. The application areas are among others, in the air conditioning technology and refrigeration engineering as well as the HVAC, Kiln and apparatus engineering sector.

BMR/20

BMR/21

BMR/22

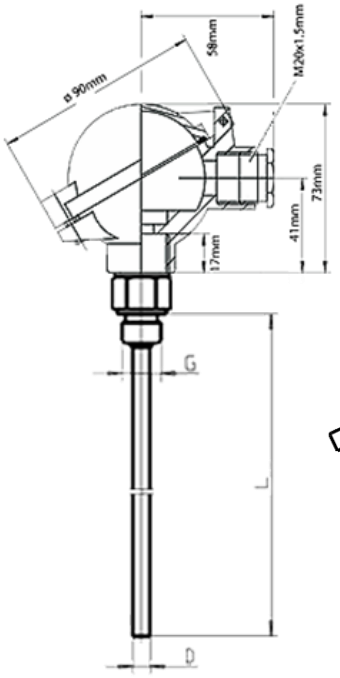
Specifications

Resistance Type and tolerance:	Resistance thermometer pt100 or pt1000 sensing element according to DIN EN 60571, Class B in 2wire, 3wire or 4wire circuit.
Measuring insert:	Replaceable RTD temperature probes , to DIN EN60571 class B
Response times :	t 0.4 approx. 50s , in water 0.2 m/s ø9 mm
	With replaceable measuring insert As single or double RTD temperature probes
Protective Sheath:	Stainless steel Nr.1.4571 with different diameter
Process Connection:	Thread, stainless steel 1.4571
Transmitter:	Analog transmitter 4 to 20 mA output Analog transmitter 0 to10V output Programmable transmitter 4-20mA/20 to 4mA output Wtrans B Programmable head transducer with ratio transmission (datasheet 70.7060)
Accessories:	Datasheet (pocket)

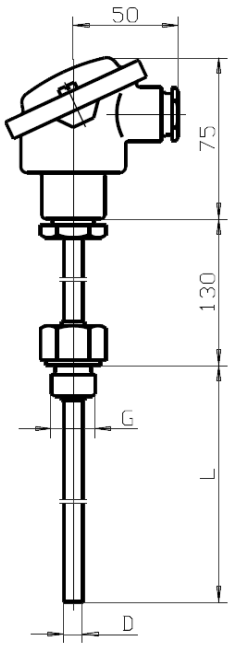
Ordering Code

	1	2	3	4	5	6	7	8	9
BMRxx									

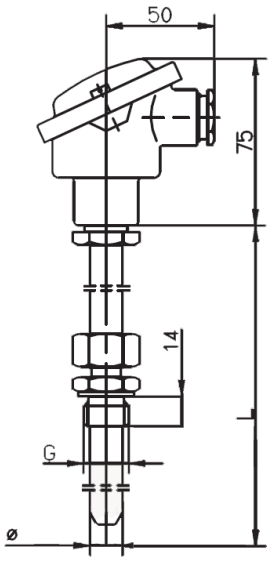
1	Measuring Insert	1xPt100 1xPt1000 1xPt500 1xNi1000 Other specify	
2	Protection tube diameter in mm	Ø6mm Ø7mm Ø8mm Ø9mm Ø9.5mm	Ø10mm Ø11mm Ø12mm Ø15mm Other specify
3	Immersion Length	100mm 160mm 200mm 250mm	300mm 400mm 650mm Other specify
4	Sheath material	AISI 316Ti AISI 304 AISI 321 Other specify	
5	Process connection	G ¼ G 3/8 G 1/2 G ¾	G 1 M18x1.5mm M20x1.5mm Other specify
6	Extension length	60mm 100mm 130mm (00)Without Other specify	
7	Number of RTD	1xRTD 2XRTD 3XRTD	
8	Number of conductors	2wire 3wire 4wire	
9	Tolerances class	Type A Din +/- 0.15° C Type B Din +/- 0.3° C Type 1/3 Din +/- 0.1° C Type 1/6 DIN +/- 0.05° C Type 1/10 DIN +/- 0.03° C	
10	Temperature transmitter	4-20mA (Specify Temperature Range) 0-10V (Specify Temperature Range) 00 (without transmitter) **Wtrans** B programmable head transducer with ratio transmission (data sheet 707060)	
11	Connection head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)	
12	Temperature range	-50°+200° C -70°+250° C -70°+300° C -70°+600° C -200° +600° C -200° +850° C	



BMR/20



BMR/22



BMR/21

Ordering Example

	1	2	3	4	5	6	7	8	9	10	11	12
BMRxx	1xPt100	8.0mm	100	316	G 1/2	00	1xRTD	3w	Ty B	00	BUZ	-500+200 C

Series BMR/23-Temperature sensors with solid drilled protection tube with terminal head Form B

Fast-Accurate- Low cost

Application:

General Purpose. Measuring and regulation furnaces, smelters, stacks, ovens and exhaust systems. The UTECO chrome iron thermocouple sheath is highly resistant to corrosion and oxidation at high temperatures and can be used in sulphur atmospheres and salt baths.

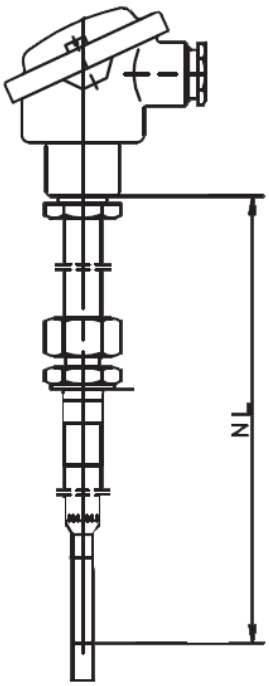
Specifications

Type and tolerances:	The thermocouple insert is fitted with thermocouple according to Class1 to DIN EN 60584
Sheath material:	SS 446
Connection Head:	Die Cast Aluminum, Form BUZ IP 65, Cable gland M20x1.5mm
Temperature range:	from 0° C to +1350° C

Ordering Code

	1	2	3	4	5
BMR23					

1	Measuring Insert	1xNiCr-Ni
2	Diameter in mm	Ø13mm
3	Immersion Length NL	200mm 305mm 450mm 500mm 600mm 750mm Other specify
4	Process Connection	G ½ A G ¾ A G 1 A Other specify
5	Connection Head	Form BUZ(Standard) Form KNE IP68 Form B IP 55 Form BUZH IP65



Ordering Example

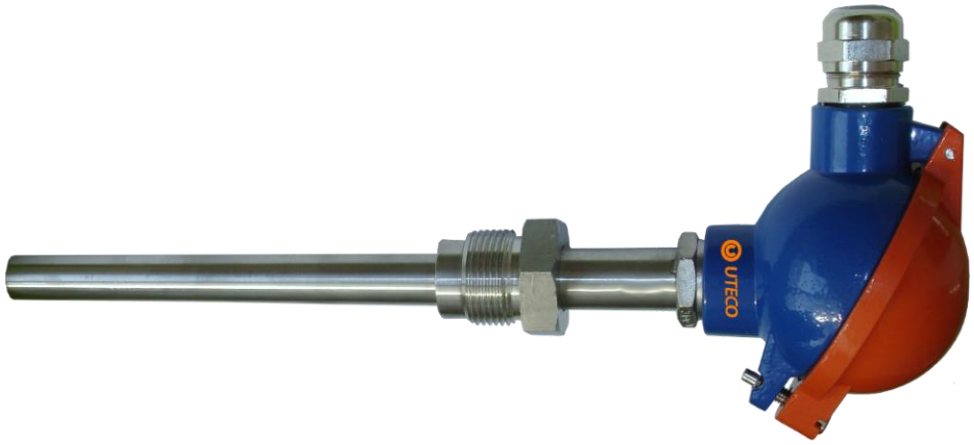
	1	2	3	4	5
BMR23	NiCR-Ni	13mm	750	G3/4	BUZ

Series BMR/24 – temperature Sensors with connection head Form B. Solid construction with high resistance against vibration according to IEC 68-2-6

Application: Marine Industry

General Purpose. Measuring of the exhaust temperature in ships, generators and stationary diesel engines,. Excellent vibration proof and Shockproof.

Measurement insert	Diameter	Immersion Length	Process Connection	Temperature	Article Nr.
1 x K	Ø12mm	80mm	G 3/4	0ο +800° C	BMR24.0000001
1 x K	Ø12mm	100mm	G 3/4	0ο +800° C	BMR24.0000002
1 x K	Ø12mm	120mm	G 3/4	0ο +800° C	BMR24.0000003
1 x K	Ø12mm	150mm	G 3/4	0ο +800° C	BMR24.0000004
1 x K	Ø12mm	200mm	G 3/4	0ο +800° C	BMR24.0000005
1 x K	Ø12mm	250mm	G 3/4	0ο +800° C	BMR24.0000006
1 x K	Ø12mm	300mm	G 3/4	0ο +800° C	BMR24.0000007



Specifications

Resistance Type and Tolerances:	The measuring insert with thermocouple type K to DIN IEC 60584 Class 2. Solid construction with high resistance against vibration according to IEC 68-2-6 ungrounded from the bottom
Outside diameter:	Ø12mm
Sheath material:	AISI 316 Ti
Process connection:	G¾
Immersion length:	80mm, 100mm, 150mm, 200mm, 250mm and 300mm
Temperature range:	from 0° C to +800° C
Terminal head:	Type BUZ Cast Aluminum IP65
Option:	With transmitter, 2 wire (4 to 20mA)

Other technical characteristics (length, diameter, process connection, etc.) available upon request.
Option: With Transmitter, 2 wire (4 to 20mA)

Series BMR/25- Temperature sensor with terminal head Form B Suitable for bearing oil with adjustable spring loaded mounting Galvanically protection mounting bush.

Application:

General Purpose. Measuring temperature in solids, on closed pipe work for engine room and bearings

Measurement insert	Diameter	Immersion Length	Process connection	Temp. Range	Article Nr.
1 x Pt100	6mm	70mm	G ½	-70 +260° C	BMR25.0000000
1 x Pt1000	6mm	70mm	G ½	-70 +260° C	BMR25.0000001

Specifications

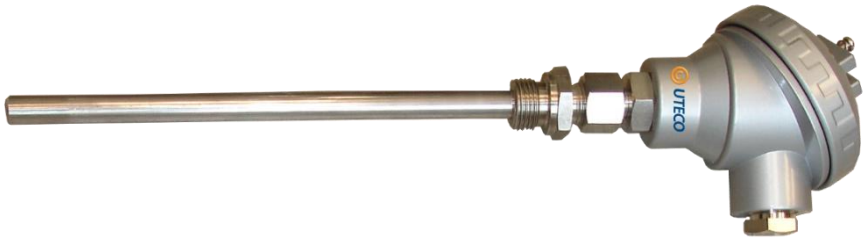
Resistance type and tolerances:	Resistance thermometer Pt100 or Pt1000, Class B, as per DIN EN 60751 Available with 2 or, 3 wire circuit
Outside diameter:	6mm
Sheath material:	AISI 316 Ti
Process connection:	G ½ A or ¾ A (spring loaded Galvanically protected steel)
Immersion length:	70mm
Temperature range:	from -70° C to +260° C
Terminal head:	Type BUZ Cast Aluminum IP65

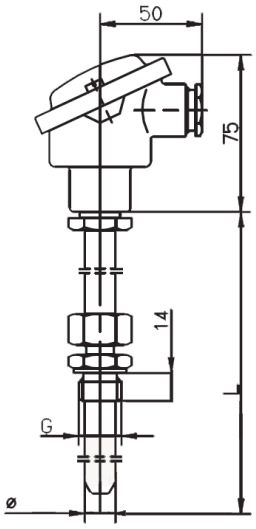
Other technical characteristics (length, Diameter, process connection, etc.) available upon request.

Series BMR/26 –High Temperature sensor with terminal head Type KNE with screw in mounting fitting.

Application:

General Purpose. Used for measuring temperature of primary and secondary combustion chambers. Application includes ovens, incinerator and furnaces.





Specifications

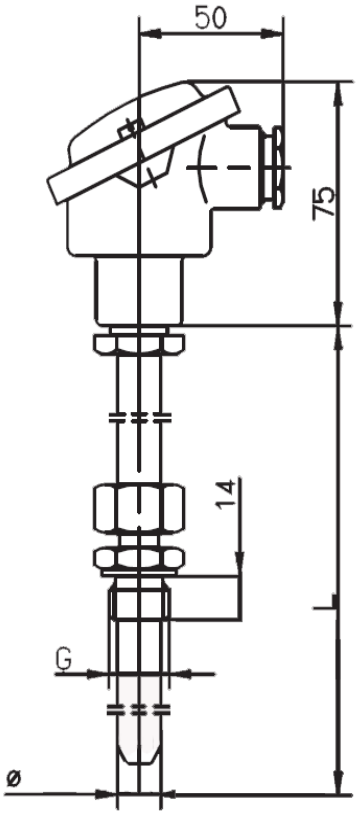
Type and tolerance:	The measuring insert is fitted with thermocouple, according to Class 1 to DIN EN 60584, Type K (NiCr-NiSi) , Type N (NiCrosil – NiSil) Type S (PtRh-Pt10%) Type R (PtRH-Pt13%) Version with two thermocouple are also available
Process attachment:	adjustable coupling
Measuring insert:	Replaceable TC temperature probes
Protective Sheath:	Gas–proof ceramic internal tube protects thermocouple against pollution.
Outer protective tube:	Heat –proof steel heat – proof steel for temperature range 0-1200° C

The BMR/26 is supplied with IP67 rated heavy duty die cast alloy terminal head.(M20x1,5 mm) (able entry thread)
The screw to lid has a robust chain ensuring it remains attached to the head. A ceramic terminal block inside the head makes connections to the extension cable very simple.
For temperature range 0° to 1200°C

Ordering Code

BMR26	1	2	3	4	5	6	7

1	Measuring Insert	1xK (NiCr-Ni) 2xK (NiCr-Ni) 1xN (NIcsi–NiSi) 2xN (NIsrsi–NiSi)	1xS (PtRH-Pt10%) 1xR (PtRH-Pt13%) other specify
2	Probe diameter	Ø9.6mm Ø10mm Ø12mm Ø15mm	
3	Immersion Length L	170mm 235mm 250mm Other specify	
4	Sheath material	No 1.4762 (446) No 1.4841 (3105) No 2.4816 (Inconel)	
5	Process connection	PF ¼ PF ¾ M24x2mm Other specify	
6	Connection Head	Form BUZ(Standard) Form KNE IP68 Form B IP 55 Form BUZH IP65	
7	Temperature range	0 to 950° C 0 to 1100° C 0 to 1200° C	



Ordering Example

BMR26	1	2	3	4	5	6	7
	K	9.6mm	170	1.4841	1/2	BUZ	950°C

Series BMR/27 LCD – Temperature probes with loop powered LCD indicator with connection head form BUZH with glass

Application:

General Purpose. Measuring temperature in fluids and gases. Indicative sectors, heating, furnace/Kiln, process technology and refrigeration engineering as well as HVAC

Measurement Insert	Probe Diameter	Immersion Length	Process Connection	Sheath material	Article Nr.
4-20mA	10mm	150mm	½ BSP	Nr14571	BMR27.0000000
4-20mA	8mm	200mm	½ BPS	Nr14571	BMR27.0000001
4-20mA	6mm	150mm	Ball weld in socket with clamping thread	Nr14571	BMR27.0000002

Specifications

Specifications:	▪ The indicator is equipped with **high- contrast**, **easy-to read** LCD digits ▪ Installation directly in a 4-20mA loop without need for power supply ▪ 2.5V voltage drop ▪ Typical accuracy of 0.1% allows for high precision read out ▪ HART transparent ▪ Designed for ambient temperature between -20ο C to +70οC
Outside diameter:	6mm, 8mm or 10mm
Immersion Length:	150 or 200mm
Sheath material:	Nr14571
Process connection:	½ BSP or Ball weld
Temperature range:	0° C to +200° C
Terminal head:	Form BUZH IP65 cast aluminum.

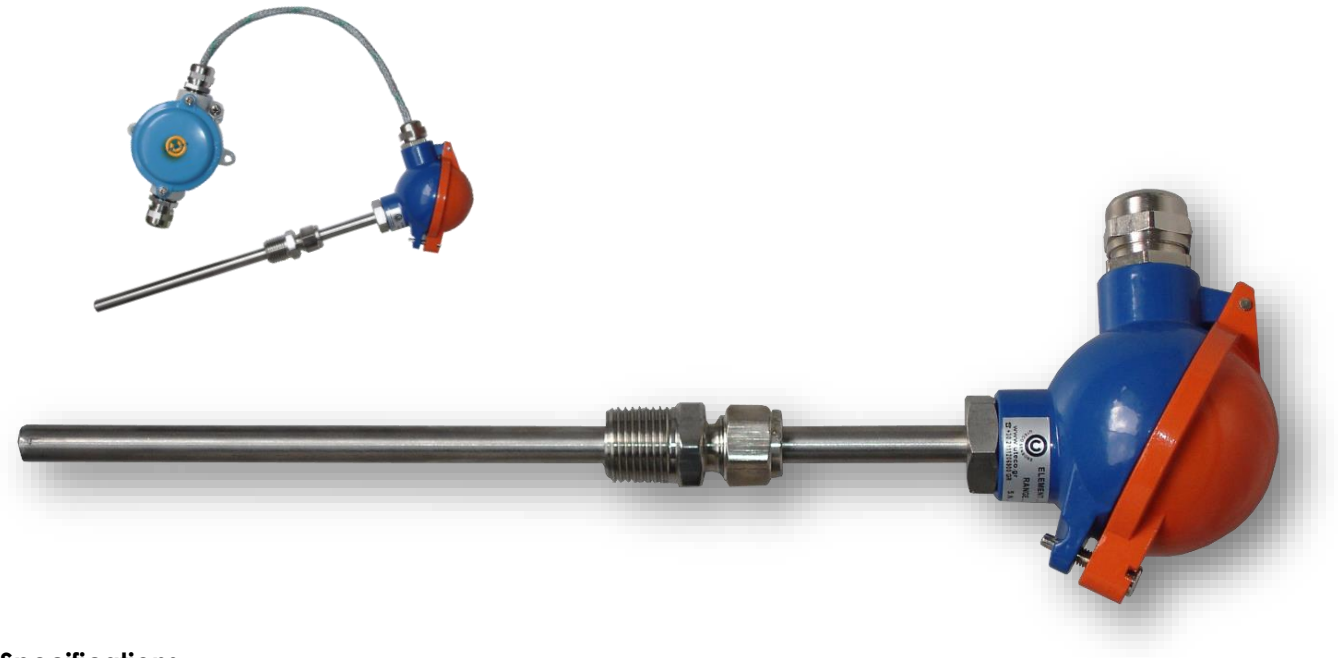
Other technical characteristics (length, diameter, process connection, etc.), available upon request.

Series BMR/51 – Temperature sensor with connection head form B (complete systems), with single protection tube, junction box, temperature transmitter, extension cable and adjustable screw in compression fitting.

Application:

General Purpose. Measuring flue gas temperature in ships. The operating range is up to 900°C

Measurement insert	Diameter	Immersion Length	Process Connection	Temperature	Junction Box	Article Nr.
1 x K	8x1.5mm	300mm	½ BSP	0° - 900° C	Yes	BMR51.4000000
1 x K	8x1.5mm	300mm	½ BSP	0° - 900° C	No	BMR51.4000001



Specifications

The thermocouple insert is fitted with thermocouple Type K according to class 2 to DIN EN 60584.
The thermocouple is electrical insulated from the protective tube connected to the process by adjustable compression fitting, outer protective tube in heat-resistant steel

Probe diameter:	8x1,5mm
Immersion length:	300mm
Sheath material:	310 S
Process connection:	½ BSP compression fitting
Junction Box:	IP65, die cast aluminum
Transmitter:	4-20mA APAQ-HC
Cable Length:	2m with insulation silicon-glass fiber & steel braid 200°C
Temperature range:	from 0°C to 900°C
Terminal head:	Type BUZ die cast Aluminum IP65

Other technical characteristics (length, diameter, process connection, etc.), available upon request.

Series BMR/52 – Temperature sensor RTD with connection head form B and union nut M24x1.5mm

Application:

General Purpose. Measurement temperature lubricant oil, fuel oil, water cooling, seawater circulation systems, fluid gas temperature

- Field of application up to 600° C Max
- 50 bar and media velocity up to 25 m/sec

Specifications

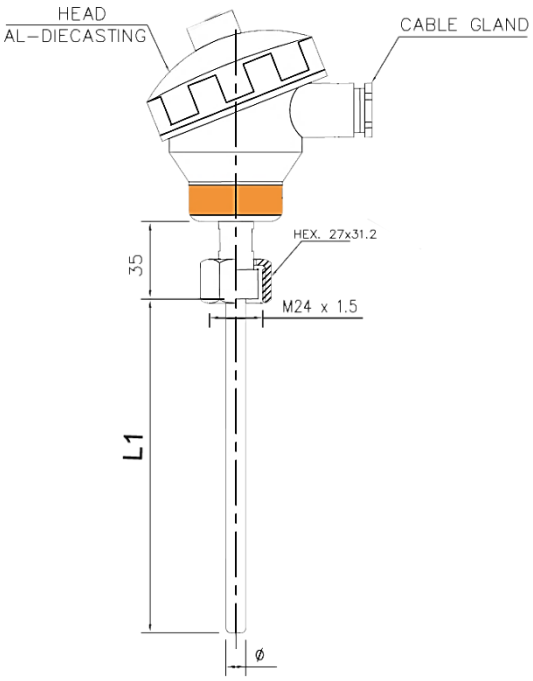
Type and tolerances:	Resistance thermometer Pt100 or Pt1000 Class B, 3 wire system to DIN EN 60751 and Thermocouple type K as per DIN EN 60584. High resistance against vibration according to IEC 68-2-6
Measuring Insert:	Interchangeable , short reaction time
Outer protective Sheath:	Stainless steel acid-proof steel Nr.14571
Process attachment:	Welded

Ordering Code

BMR52

1	2	3	4	5	6	7	8	9

1	Measuring Insert	1xPt100 1xPt1000 2xPt100	2xPt1000 1xK 2xK
2	Probe diameter in mm	Ø8mm Ø10mm Other specify	
3	Immersion Length L1	80mm 100mm 120mm 140 mm 170mm	220mm 320mm Other specify
4	Sheath Material	AISI 316Ti 14571	
5	Process Connection	M24 x 1.5 (Female)	
6	Number of conduct	2wire 3wire 4wire	
7	Connection Head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)	
8	Temperature Range	0-200° C 0–400° C 0–600° C	
9	Thermowell (see type TWT/12)	00 without 01 with thermowell	



Ordering Example:

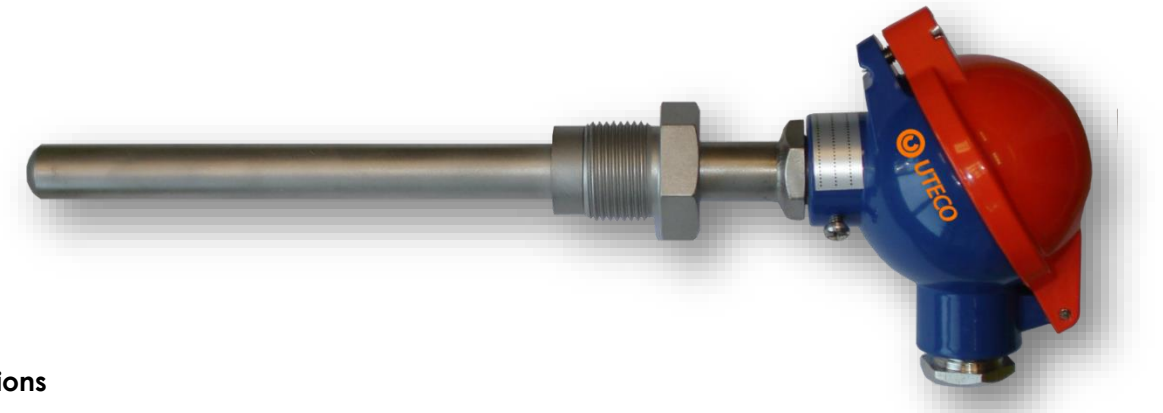
BMR52

1	2	3	4	5	6	7	8	9
1 X K	10	220	316	M24x1.5	2wire	Type B	0-600° C	00

Series BMR/53 – Temperature sensor with connection head form BUZ and loose screw connection

Application:

General Purpose. Measurement and regulation exhaust gas, temperature in stationary and marine. Suitable for measuring diesel engines, turbines & compressors with high resistance against vibration (according to IEC68-2-6)



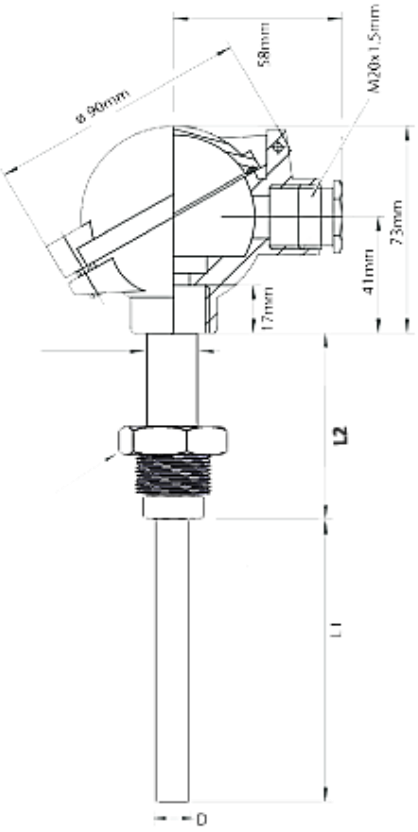
Specifications

Type and tolerances:	• Resistance thermometer Pt100 or Pt1000 Class B, 3 wire system as per DIN EN 60751 • Thermocouple Type K as per DIN EN 60584

Ordering Code

	1	2	3	4	5	6	7	8	9
BMR53									

1	Measuring Insert	1 x Pt100 2xPt100 1xPt1000
2	Diameter in mm	Ø10mm Ø12mm Ø15mm Other specify
3	Immersion Length L1	80mm 100mm 110mm 120mm 150mm 180mm 200mm 250mm 300mm Other specify
4	Sheath Material	WN.14571 AISI 316
5	Process Connection	½ BSP ¾ BSP M27x2mm Other specify
6	Extension Length L2	50mm 60mm 100mm
7	Number of Conductive	2 Cond 3 Cond
8	Connection Head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)
9	Temperature Range	0-200°C 0-350°C 0-600°C 0-700°C



Ordering Example:

	1	2	3	4	5	6	7	8	9
BMR53	1xPt100	12	150	316	3/4	50	3	BUZ	0-600°C

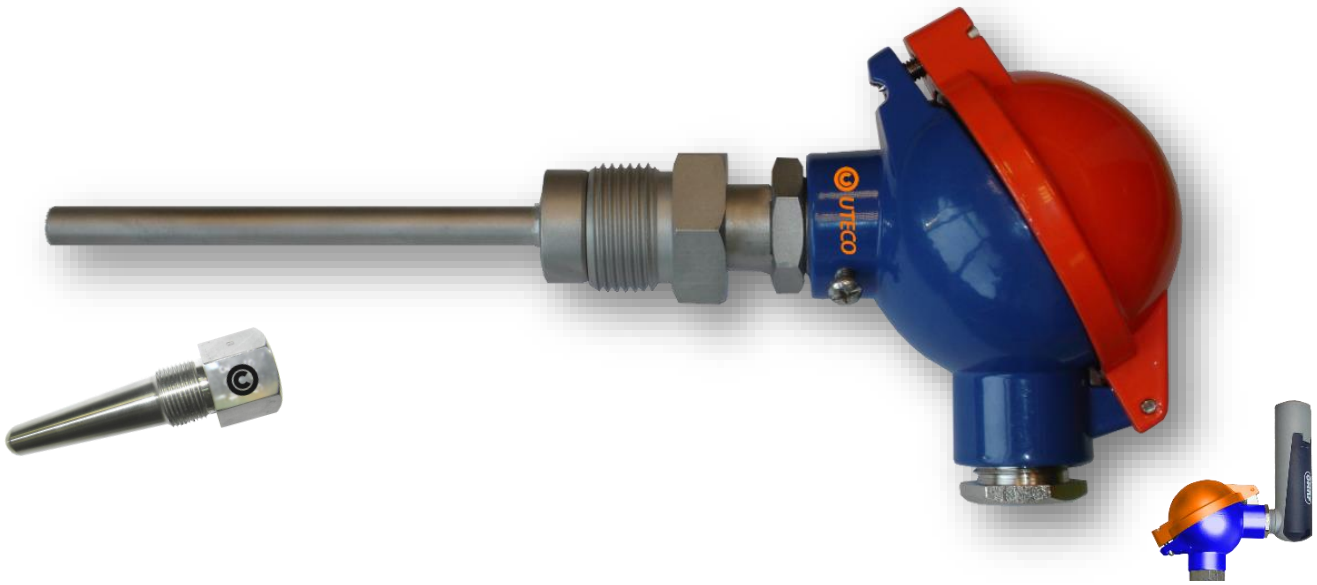
Versions available from standard items:

Measurement Insert	Diameter	Immersion Length	Temperature	Process Connection	Article Nr.
1xPt100	12mm	100mm	From 0° to 600°C	G3/4	BMR53.0000000
1xPt100	12mm	110mm	From 0° to 600°C	G3/4	BMR53.0000001
1xPt100	12mm	150mm	From 0° to 600°C	G3/4	BMR53.0000002
1xPt100	12mm	200mm	From 0° to 600°C	G3/4	BMR53.0000003
1xPt100	15mm	200mm	From 0° to 600°C	G3/4	BMR53.0000004
1xPt100	15mm	250mm	From 0° to 600°C	G3/4	BMR53.0000005
1xPt100	12mm	250mm	From 0° to 600°C	G3/4	BMR53.0000006
1xPt100	15mm	300mm	From 0° to 600°C	G3/4	BMR53.0000007
1xPt100	12mm	80mm	From 0° to 200°C	G3/4	BMR53.0000008
1xPt100	12mm	100mm	From 0° to 200°C	G3/4	BMR53.0000009
1xPt100	12mm	150mm	From 0° to 200°C	G3/4	BMR53.0000010

Series BMR/54 – Temperature sensor with connection head form BUZ and loose screw connection

Application:

General Purpose. Measuring lubricant oil, water cooling and seawater circulation system. This is the internal element without protecting well (thermowell) with high resistance against vibration (according to IEC 68-2-6)



Specifications

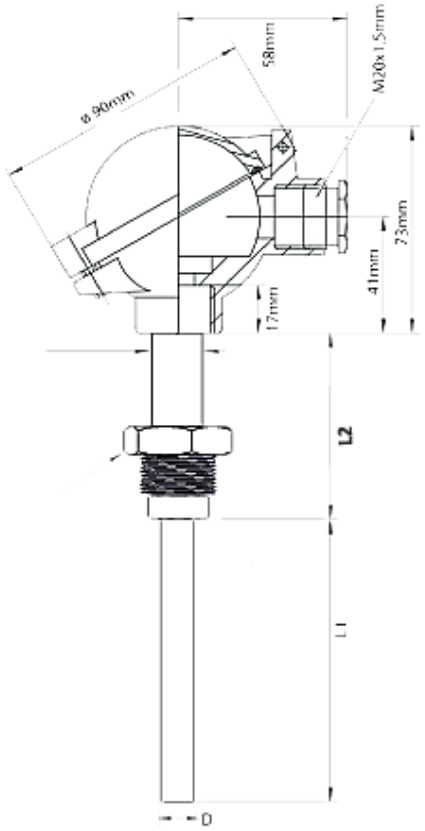
Type and Tolerances:	The measuring insert is fitted with resistance thermometer Pt100 or Pt1000 in accordance with DIN EN 60751 Class B with 2 or 3 wire system
Outer protective Sheath:	Stainless Steer Nr 14751
Outside diameter:	7.0mm
Response Time (Mean Values) at velocities in:	(7,0mm diameter) • Water at 0.4 m/s t0.5 = 6 sec – t0.9 = 24sec • Air at 3.0 m/s t0,5 = 38 sec
Temperature range:	From -70° C to +260° C
Available with transmitter	

Ordering Code

BMR54

1	2	3	4	5	6	7	8	9

1	Measuring Insert	1 x Pt100 1xPt1000 Other specify	
2	Probe diameter in mm	Ø6mm Ø7mm Ø8mm	Ø9mm Other specify
3	Immersion Length L1	80mm 100mm 120mm 150mm	200mm 300mm Other specify
4	Sheath Material	WN.14571 AISI 316Ti	
5	Process Connection	PF ½ PF ¾ Other specify	
6	Extension Length L2	50mm 60mm	70mm Other specify
7	Programmable Transmitter	4-20mA (Specify Temperature Range) 0-10V (Specify Temperature Range) 00 (without transmitter) **Wtrans** B programmable head transducer with ratio transmission (data sheet 707060)	
8	Connection Head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)	
9	Temperature Range	-70° +200°C -70° +400°C	



Ordering Example:

	1	2	3	4	5	6	7	8	9
BMR54	1xPt100	7.0	80	316	3/4	60	00	BUZ	-70° +260°C

Versions available from stand:

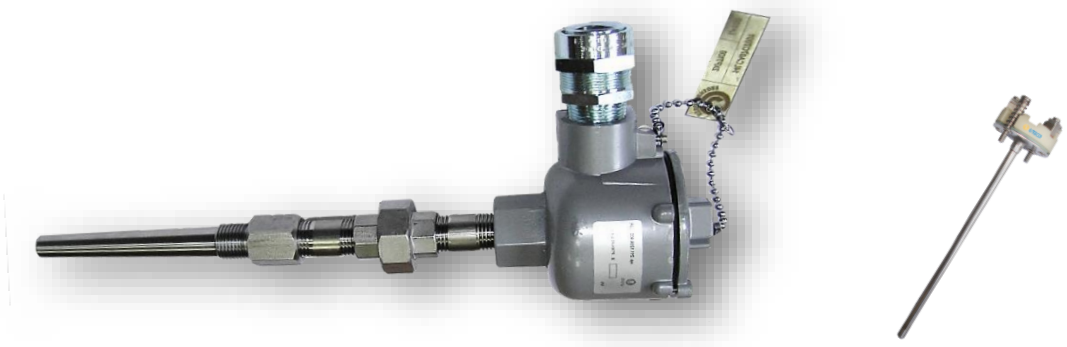
Measurement Insert	Probe Diameter	Immersion Length	Process Connection	Temperature	Article Nr.
1 x Pt100	7mm	80mm	G3/4	0-200° C	BMR54.0000000
1 x Pt100	7mm	100mm	G3/4	0-200° C	BMR54.0000001
1 x Pt100	7mm	120mm	G3/4	0-200° C	BMR54.0000002
1 x Pt100	7mm	150mm	G3/4	0-200° C	BMR54.0000003
1 x Pt100	7mm	200mm	G3/4	0-200° C	BMR54.0000004
1 x Pt100	7mm	250mm	G3/4	0-200° C	BMR54.0000005
1 x Pt100	7mm	300mm	G3/4	0-200° C	BMR54.0000006

Series TWT/10, 11, 12, 13, 14, 15- Temperature sensor with Ex-Head & Flameproof Replaceable measuring insert Exd.

TWT 10: Screw in temperature probes with continuous sheath without extension tube.
TWT 11: Screw in temperature probes with continuous thermowell without thread.
TWT 12: Push-in temperature probes with continuous sheath with extension tube.
TWT 13: Flange – in temperature probes with continuous sheath with extension tube.
TWT 14: Flange- in temperature probes with reduced tip sheath with extension tube.
TWT 15: Temperature probe with screwed barstock thermowell with extension nipple-union-nipple.

Application:

General Purpose. General purpose: Temperature probes for process technology (chemical and petrochemical plants, pressure vessels etc.) are preferentially used for measuring temperature in linquids and gases.



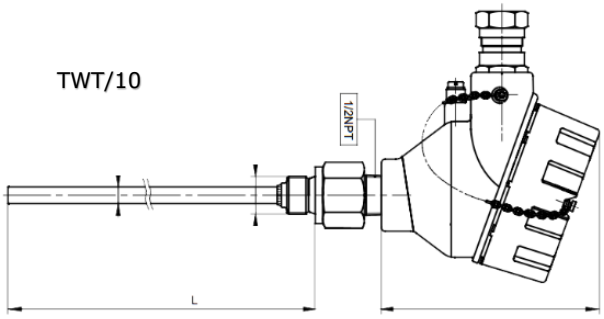
Specifications

Temperature probes consist of a protection fitting per DIN 43763 with various process connection options, a terminal head and a replaceable measuring insert. The protection fitting is made of material 14571 as standard. Other materials are available for special applications. All fitting are manufactured in accordance with pressure vessel regulations and are subjected to a pressure and leakage test.	
Resistance type and tolerances:	The measuring insert is normally fitted with a Pt100 temperature sensor as per DIN EN 60571 class A or B in 2wire,3wire or 4wire system . Versions with two Pt100. Thermocouples (elements) as per DIN EN 60584 class 2 version with two thermocouple are also possible
Transmitter:	An analog or programmable transmitter can be integrated for measurement transmission with a 4 to 20 mA or via the Hart interface.
Response time:	t 0.9 approx. 50s, in water 0.4 m/s, ø9 mm

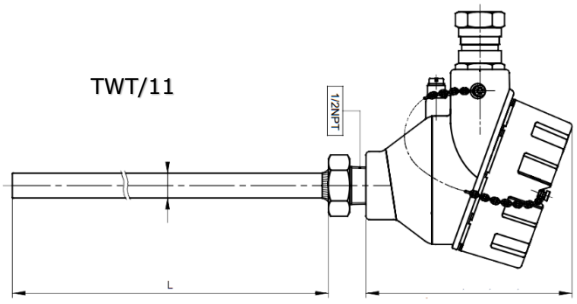
Ordering Code

	1	2	3	4	5	6	7	8	9
TWTxx									

TWT/10

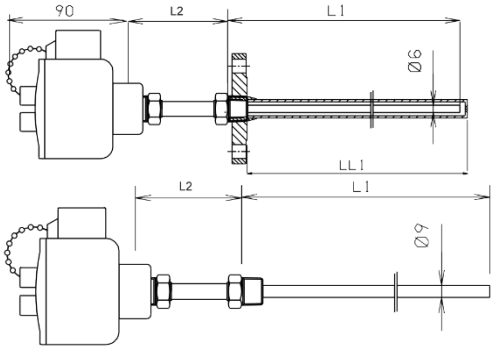


TWT/11

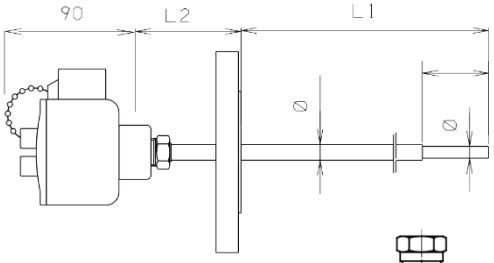


1	Measuring Insert	Pt100 Pt1000 Pt500 Type K	
2	Probe diameter:	10 21/14 (tapered) 12 18x14 (tapered) 14	15 16 Other specify
3	Immersion Length L	60mm 100mm 150mm 250mm	300mm 400mm Other specify
4	Sheath material	316 Ti (NI14571) Other specify	
5	Process connection	G ½ ½ NPT G ¾ ¾ NPT G1'' 1 NPT Flange PN16	Flange DN 20 Flange DN 25 2'' ANSI 150 RF 1-1/2 ANSI 150RF 2'' ANSI 300 RF Other specify
6	Extension length	80mm 100mm 150mm 165mm	200mm 00 (without) Other specify
7	Type of extension Length	01 Tube 02 Union –nipple-union 00 (without)	
8	Stepped sheath	12(stepped down to 9mm) 28(stepped down to 18mm) 22(stepped down to 19mm) 00 without Other specify	
9	Number of sensors	1xTC 2xTC 1XRTD 2XRTD	
10	Tolerance class	Class 1 (TC) Class 2 (TC) cl.A (RTD) cl. B (RTD) 1/6 DIN (RTD)	
11	Number of conductor	2 cond 3 cond 4 cond	
12	Connection Head	XD-AD (Aluminum cover) XD-ADwin (stainless steel) TTE-100 (Aluminum cover) TTE-300 (Aluminum cover with flame proof hole double cable entry(TTE 400 (aluminum cover with flame proof brass tool – double cable entry	
13	Temperature transmitter	**331** (Ex !x transmitter programmable output 4 to 20 mA/20 to 4mA) **336** (EX 1x programmable transmitter 4 to 20mA output and HART) **337**(programmable transmitter output 4 to 20mA) **338** (programmable transmitter 4 to 20mA output and HART Duall) 00 without	
14	Temperature range	-50+260° C -200 to 600° C -50 to 400° C -50 to 600° C -40 to 900° C (Type K only)	

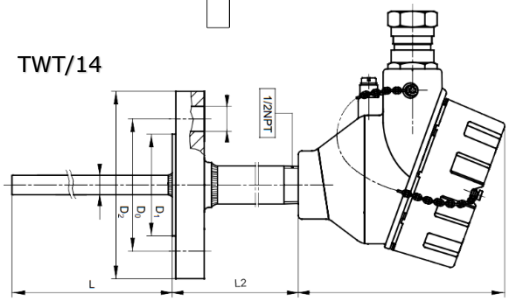
TWT/12



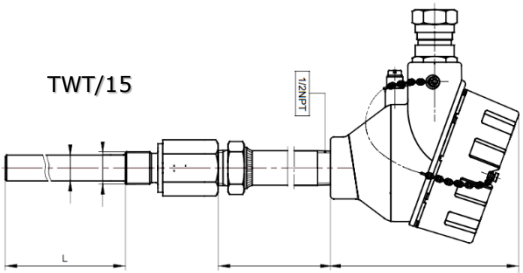
TWT/13



TWT/14



TWT/15



Ordering Example:

	1	2	3	4	5	6	7	8	9	10	11
TWTxx	1xPt100	10	100	316	1/2NPT	00	00	BUZ	1RTD	Cl.A	3

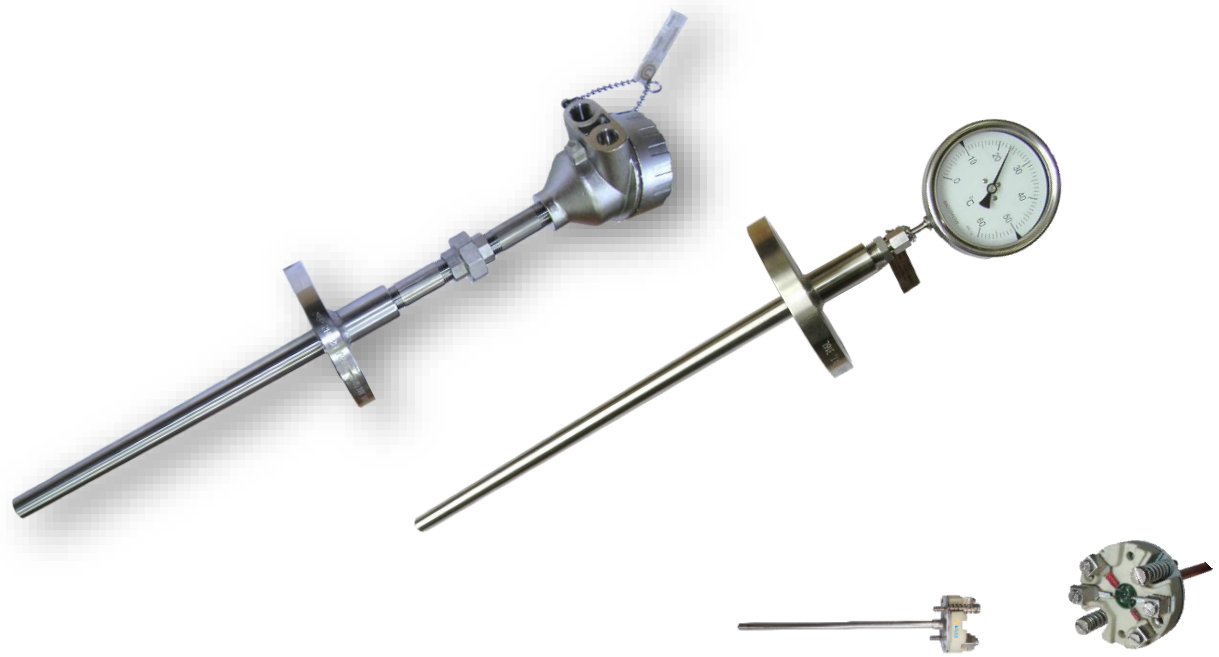
12	13	14
XD-AD	00	-50°+400°

Series TWF/10 - Temperature sensor with flanged bar stock thermowell

Application:

General Purpose. Measuring temperature in process technology (chemical and petrochemical plant, pressure vessels, etc.), are preferably used for measuring temperatures in liquids and gasses.

Measurement Insert	Stem Size	Immersion Length	Extension nipple/union	Flange Size	Article Nr.
1 x Pt100	22x19mm	300mm	190mm	1- ½'' 150 RF	TWF10.000000
4-20mA	22x19mm	300mm	190mm	1- ½'' 150 RF	TWF10.000001



Specifications

Resistance type and tolerances:	The measuring insert is fitted with resistance thermometer PT100 to EN 60751, CLASS A with 2,3 or 4 wire system. With replaceable measuring insert D: 6mm (mineral insulated cable).
Stem diameter under flange:	22mm
Tip diameter:	19mm
Tip thickness:	4mm
Immersion length:	300mm
Extension length:	190mm
Connection head:	Weather proof , INOX AISI 316, IP68, Form Exd,(Flameproof)
Ambient temperature:	From -50° to +150° C
Flange size:	1- ½'' 150 RF
Sheath Material:	AISI 316L
Bore:	7mm

Available with 2-wire transmitter (4-20mA/HART/In Ex version), bimetal dial thermometers

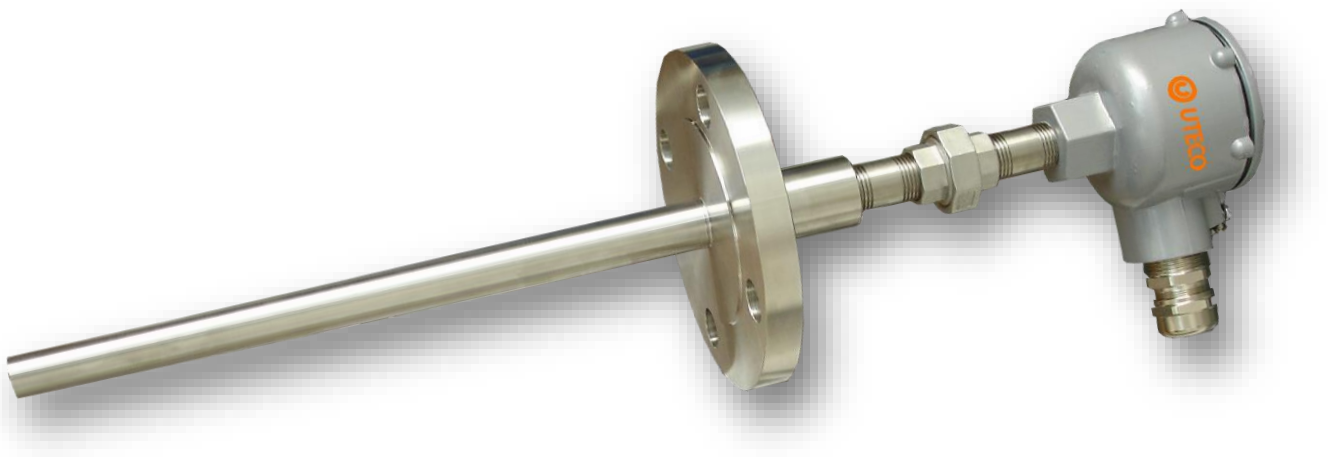
Other technical characteristics (length, diameter, flange size, etc.), available upon request.

Series TWF/11- Temperature sensor with Flanged bar stock thermowells

Application:

General Purpose of application used for measuring temperature in liquids and gases.
Application includes in Chemical & Petrochemical plant, pressure vessels. For temperature from -200° to 600°C with thermowells made of stainless steel, Inconel, titanium and hastelloy.
Available with two-wire transmitter (4 to 20mA/ Hart) in Ex version

Measurement insert	Stem size	Immersion Length	Extension nipple/mm	Flange size	Article Nr.
1 x NiCr–Ni (K)	22mm (Paraller stem)	600mm	400mm	1" 300RF	TWF11.4000000
1 x NiCr–Ni (K)	22x19mm (tapered stem)	255mm	160mm	1 1/2 300RF	TWF11.4000001
1 x NiCr–Ni (K)	22x19mm (tapered stem)	575mm	160mm	2" 300RF	TWF11.4000002
1 x NiCr–Ni (K)	21.3x2.77mm (tapered stem)	800mm	160mm	1" 150RF	TWF11.4000003
1 x Fe-CuN(J)	22x19mm (tapered stem)	300mm	160mm	2" 150RF	TWF11.2000000



Specifications

Measuring type and tolerance:	The measuring insert is fitted with thermocouple according to Class 1 to DIN EN 60584.
Stem diameter under flange:	22mm or 21.3mm
Sheath Material:	446,316L or INC600
Extension Length:	160mm or 400mm (nipple-union-nipple)
Connection Head:	Weather proof head with screw on cover, cast aluminum IP66 form Exd (Flame Proof) conduit entry thread ¾ NPT
Terminal Block:	Fixed ceramic block with clamp type terminals to suit wiring system
Tip thickness:	4mm
Tip diameter:	19mm, 21.3mm or 22mm
Bore diameter:	7mm
Flange Size:	1"300RF, 1 ½ 300RF, 2"300RF, 1" 150RF, 2"150RF

Other technical characteristics (length, diameter, flange size, material etc.) available upon request

Series Ex „I" for use in areas with an explosion hazard (Ex areas) with an explosion hazard (Ex areas) resistance thermometer probes for process technology with Ex (ATEX) approval.

II 1/2 G Ex ia IIC T1 to T6 (or Ex ib IIC T1 to T6)1
II 1/2 D Ex iaD 20/21 T80 °C to T400 °C (or ...ib...)1
II 1/2 G Ex d IIC T1 to T61v
II 1/2 D Ex tb A20/21 IP66 T80 °C to T400 °C1

Measurement Insert	Diameter probe	Immersion Length	Sheath Materials	Process Connection	Explosion Protection	Article Nr.
1XPt100	9x1mm	250mm	AISI 316Ti	G1/2	Exi a II CT1…T6	U902820/10-1001
2xPt100	11x2mm	400mm	AISI 316Ti	G 1/2	Exi a II CT1…T6	U902820/10-2001
1XPt100	11X2mm	250mm	AISI 316Ti	Flange DN25PN40	Exi a II CT1…T6	U902820/20-1001

Specifications

- For temperature from -200° to +600°C
- With thermowell made of stainless steel titanium, tantalum, Inconell and Hastelloy
- Available with two – wire transmitter (4 to 20mA/HART) in **Ex version**
- With replaceable measuring insert. The measuring insert is normally fitted with a Pt100 as per DIN EN 60751 Class B or A with 2, 3 and 4 wire circuits.

Terminal head:

Form B DIN 43729
Form BUZ
Form BUZH
Form BBKS
Form BEGF
Form XD-AD (EExd Atex)

Series JG/10, 11 Dial thermometers- combined temperature sensor.

JG/10 (Dial thermometers combined with connection head miniature type J)
JG/11 (Dial thermometer combine with extension cable)

Application:

General Purpose. JG 1O dial thermometers are the ideal solution for combined Temperature measurement of exhaust gas on large diesel engines.

JG/10

JG/11

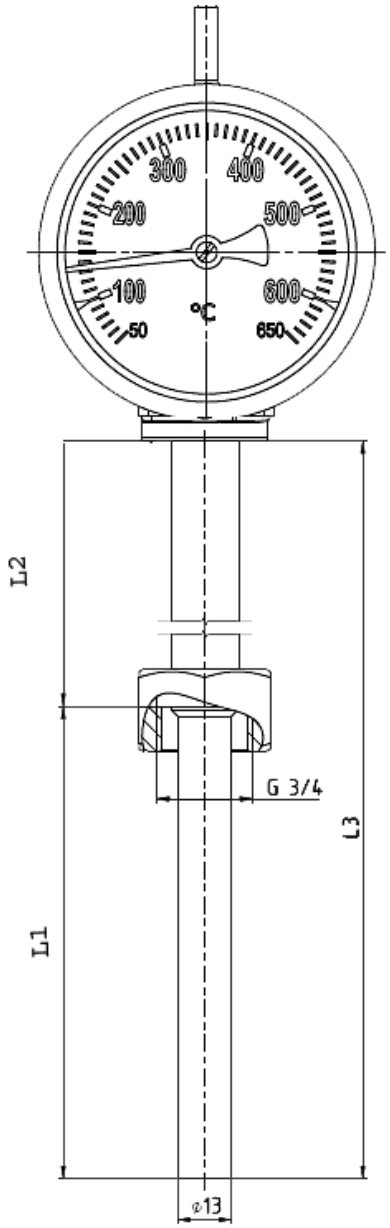
Specifications

JG10/11 offers two different versions for common diesel engine types: JG/10 for miniature head with terminal block and version with extension cable with connector ITT cannon plug 2-pole type CA310 8 E -10SL-4SB	
Measuring insert:	The measuring insert is fitted with thermocouple Typ K (NICR-NI) according to DIN EN 60584 class 2.
Case	Bayonet ring case, stain less steel 14301
Nominal size:	DN80
Case filling:	Silicone Oil
Dial:	white colored, black markings
Display range:	Display range: 50 to 650C
Electrical connection:	Cable output with 1,5 m cable
Length version:	Length version: JG 11
Degree of protection:	Dial Thermometer IP65 Electrical probe IP56

Ordering Code

JGxx	1	2	3	4	5	6	7	8	9

1	Tube diameter:	13 mm Other specify
2	Immersion length L1 :	115 mm 120 mm 150 mm 200 mm 250 mm
3	Extension length L2 :	50 mm 80 mm 165 mm Other specify
4	Process connection:	01($G^{3/4}$ female) 02 ($G^{3/4}$ male) Other Specify
5	Cable length :	1.5mm 2mm 00 (without) Other specify



Ordering Example:

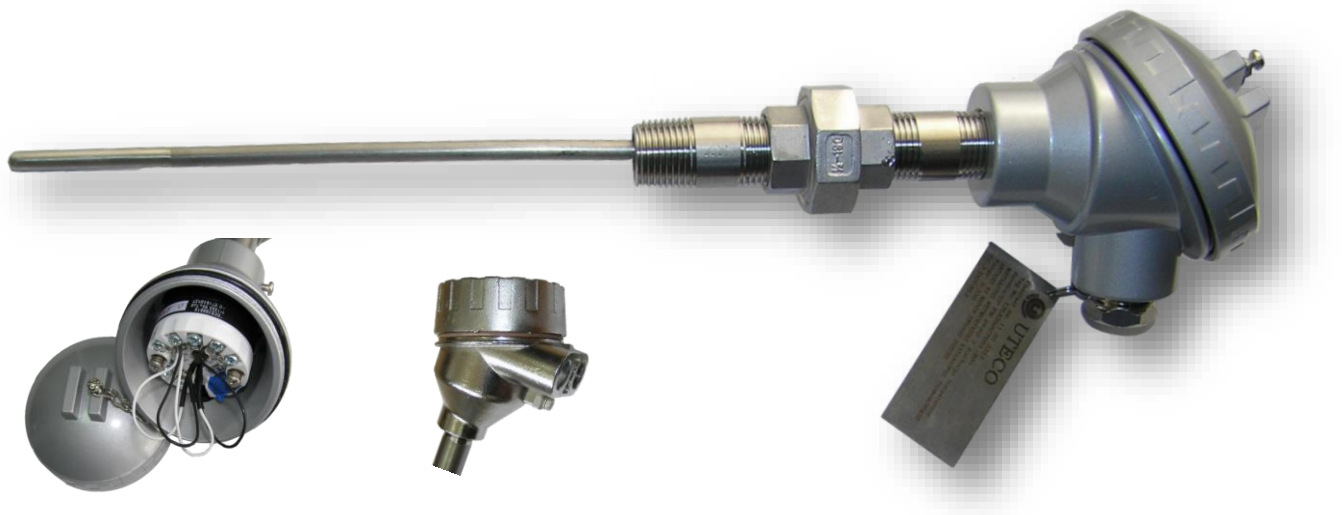
	1	2	3	4	5
JG10	13	200	50	10	00

Series BMRM/10- Spring loaded temperature sensor with temperature transmitter 4-20mA T01 HART

Application:

General Purpose. Measuring temperatures in fluids and gases. Indicative sectors of process technology, chemical & petrochemical, power plant

Measurement Insert	Probe Diameter	Immersion Length	Process connection	Extension Nipple/union	Article Nr.
4-20mA	6.35mm	110mm	R½ NPT	100mm	BMRM10.3000000
4-20mA	6.35mm	168mm	R½ NPT	100mm	BMRM10.3000001
4-20mA	6.35mm	192mm	R½ NPT	100mm	BMRM10.3000002
4-20mA	6.35mm	280mm	R½ NPT	100mm	BMRM10.3000003
4-20mA	6.35mm	390mm	R½ NPT	100mm	BMRM10.3000004



Specifications

Resistance type and tolerances:	The measuring insert is fitted with Thermocouple according to class 1 DIN EN 60584 Outside diameter 6.35mm (replaceable measuring insert).
Immersion length:	110mm,168mm,192mm, 280mm, 390mm
Process connection:	R ½ NPT
Probe material:	inconell 600 or AISI 316L
Transmitter:	electronic, 2 wires, smart power supply 24VDC loop power
Accuracy:	0.2% of full range
Communication protocol:	HART
Output signal:	4-20mA Linear
Transmitter type:	C520 HART Dual or dTRANS T01 Hart
Connection head:	Type gasketed cover with chain or ATEX Eexd
Cover:	Threaded material Aluminum or INOX 316
Enclosure protection:	IP65
Electrical Connection:	½ NPTF
Extension:	100mm
Sheath Material:	AISI 316L
Type connection:	Nipple-union-Nipple ½ NPT,MX ½ NPT-M
Identification plate:	Fixed, tag and service

Other technical characteristics (length, diameter, process connection etc.), available upon request.

Series BM/10- Temperature sensor with connection head form BUZ without process connection

Application:

General Purpose. Measuring temperature in fluids, gases, fuel oil, water cooling and sea water circulation system.

Specifications

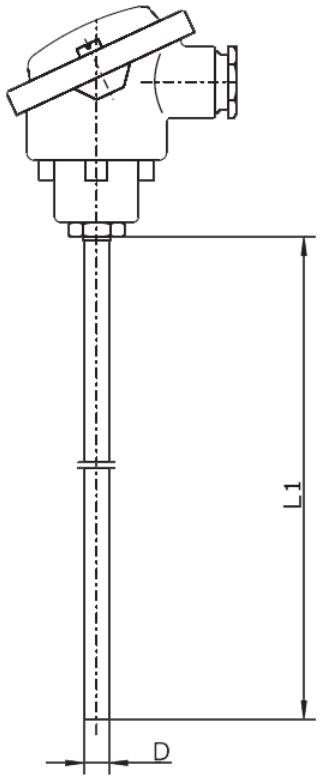
Type and tolerances:	Resistance thermometer Pt100, Pt500, or Pt1000 in accordance with IEC 60751, available with built in transmitter
Sheath material:	AISI 316Ti
Connection Head:	Die Cast Aluminum, Form BUZ IP 65, Cable gland M20x1.5mm

Ordering Code

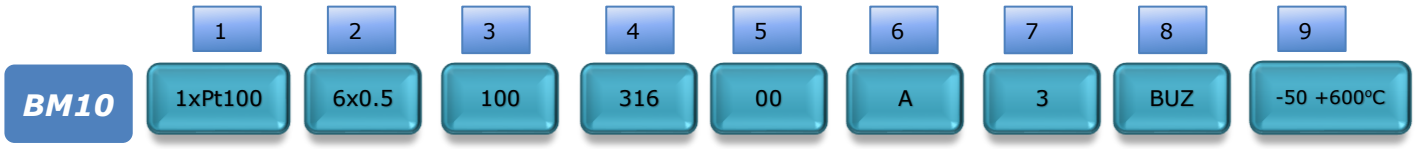
1	2	3	4	5	6	7	8	9

BM10

1	Measuring Insert	1 x Pt100 2xPt100 1xPt500 1xPt1000 2xPt1000 1xNi100 1xNi1000 Other specify
2	Diameter in mm	Ø6x0.5mm Ø8x1mm Ø10x2mm Other specify
3	Immersion Length L1	50mm 80mm 100mm 125mm 150mm 200mm 250mm
4	Sheath Material	WN.14571 (AISI 316T)
5	Programmable transmitter	4-20mA (Specify Temperature Range) 0-10V (Specify Temperature Range) 00 (without transmitter) **Wtrans** B programmable head transducer with ratio transmission (data sheet 707060)
6	Tolerance Class	Class A Class B 1/3 DIN 1/6 DIN 1/10 DIN
7	Number of Conductors	2 Cond 3 Cond 4 Cond
8	Connection Head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)
9	Temperature Range	-50 to +260°C -50 to +400°C



Ordering Example:



Versions available from standard items:

Measurement insert	Probe Diameter	Immersion Length	Temp. Range	Article Nr.
1 x Pt100	9.5mm	80mm	From -50° to+200°C	MB10.0000000
1 x Pt100	9.5mm	125mm	From -50° to+200°C	MB10.0000001
1 x Pt100	9.5mm	150mm	From -50° to+200°C	MB10.0000002
1 x Pt100	9.5mm	200mm	From -50° to+200°C	MB10.0000003
1 x Pt100	9.5mm	250mm	From -50° to+200°C	MB10.0000004
1 x Pt100	6mm	50mm	From -50° to+260°C	MB10.0000005
1 x Pt100	6mm	100mm	From -50° to+260°C	MB10.0000006
1 x Pt100	8mm	200mm	From -50° to+260°C	MB10.0000007
1 x Pt100	6mm	200mm	From -50° to+260°C	MB10.0000008
1 x Pt100	8mm	200mm	From -50° to+260°C	MB10.0000009
1 x Pt100	10mm	500mm	From -50° to+400°C	MB10.0000010
4-20 mA	6mm	100mm	From -50° to+260°C	MB10.0000011

Series BM/11- Temperature sensor with connection head form B Open Air measurement

Application:

General Purpose. Measuring temperature in air ducts. The sensor is mounted with flange or compression fitting.

Measurement insert	Probe Diameter	Immersion Length	Process Connection	Temp. Range	Article Nr.
1 x Pt100	8mm	200mm	Flange	From -50° to+260°C	MB11.1100000
1 x Pt1000	8mm	200mm	Flange	From -50° to+260°C	MB11.1200000
4-20mA	8mm	200mm	Flange	From -50° to+260°C	MB11.0000000
0-10V	8mm	200mm	Flange	From -50° to+260°C	MB11.0000001
Ni1000	8mm	200mm	Flange	From -50° to+260°C	MB11.0000002

Specifications

Measuring insert:	The measuring insert is removable , according to DIN EN 60751, Class 1/3 in 2-wire, 3 wire or 4 wire (other tolerance class to be specified)
Terminal Box:	Form B according to DIN 43729 in light-alloy metal protective rating IP65 cable gland M20x1.5
Protection tube:	Ø8x1 Stainless Steel tube Open for quick response time
Immersion Length:	200mm(or other specified)
Transmitter:	Analog transmitter output 4-20mA or 0-10V
Response time	Air at3.0m/s t0.5= 10sec

Series BM/20- Temperature sensor mineral insulated cables with connection head form

Application:

General Purpose. Measuring temperature in chemical plant, power stations, pipelines, in engine construction and on test beds. The thermocouple wires are embedded in compressed fire –resistance magnesium oxide inside the flexible thin –walled sheath

Measurement insert	Probe Diameter	Immersion Length	Sheath Material	Temp. Range	Article Nr.
1xNiCr-Ni	6mm	925mm	Inconell600	From -200° +1200°C	BM20.4000000
3xNiCr-NI	6mm	1200mm	Inconell600	From-200° +1200°C	BM20.0000001
1xNiCr-Ni	3mm	600mm	Inconell600	From-200° +1200°C	BM20.4000002
4-20mA	3mm	600mm	Inconell600	From 0° +1100°C	BM20.0000003
1xNiCr-Ni	4.5mm	915mm	Inconell600	From-200° +1200°C	BM20.4000004
1xNiCr-Ni	6mm	400mm	Inconell600	From -200° +1200°C	BM20.4000005
1xNiCr-Ni	6mm	625mm	Inconell600	From-200° +1200°C	BM20.4000006
1xNiCr-Ni	6mm	1600mm	Inconell600	From -200° +1200°C	BM20.4000007

Specifications

Technical Specification	▪ The thermocouples are normally insulated from the sheath ▪ The measuring insert is fitted with thermocouple to DIN EN 60584 ▪ Versions with two thermocouple are also available
Probe Length:	3mm, 4.5mm, 6mm
Sheath material:	Inconell600
Temperature range:	-200° +1200° C
Terminal head:	Form B , IP65 die cast aluminum

Other technical characteristics (length, diameter, etc.) available upon request.

Series BMY/10- Temperature sensor with terminal head form B with stepped sheath

Application:

General Purpose. Measuring temperature in fluids and gases. Indicative sectors, heating installations, ovens, furnace, plant engineering, refrigeration and HVAC

Measurement insert	Probe Diameter	Immersion Length	Temp. Range	Article Nr.
1xPt100	ø6/3.8mm	100mm	From -70° to +260°C	BMY10.0000000
2xPt1000	ø6/3.8mm	200mm	From -70° to +260°C	BMY10.0000001
1xPt100	ø6/3.8mm	200mm	From -70° to +400°C	BMY10.0000002
1xPt100	ø8/6 mm	200mm	From -70° to +400°C	BMY10.0000003

Specifications

Resistance type and tolerances:	Resistance thermometer 1xPt100 Class B single or double as per DIN EN60751 2, 3, 4 or 6 wire systems.
Out diameter:	6/3.8mm or 8/6mm
Sheath material:	AISI 316Ti
Temperature range:	From -70° to +400° C
Terminal head:	Type BUZ , IP65 die cast aluminum or BBK plastic

Other technical characteristics (Type of terminal head, length, process connection, tolerance, class, etc.) available upon request.

Option: Available with transmitter output 4-20mA or 0-10V, T03 or T03BU

Series BMRM/11 – Temperature sensor with connection head form BUZ, extension tube & measuring insert interchangeable.

Application:

General Purpose. Measuring temperature in fluids and gases, indicative sectors, heating, furnace/ kiln, cooling water, lubrication oil, hydraulic oil and refrigeration plants within general industry and marine applications.

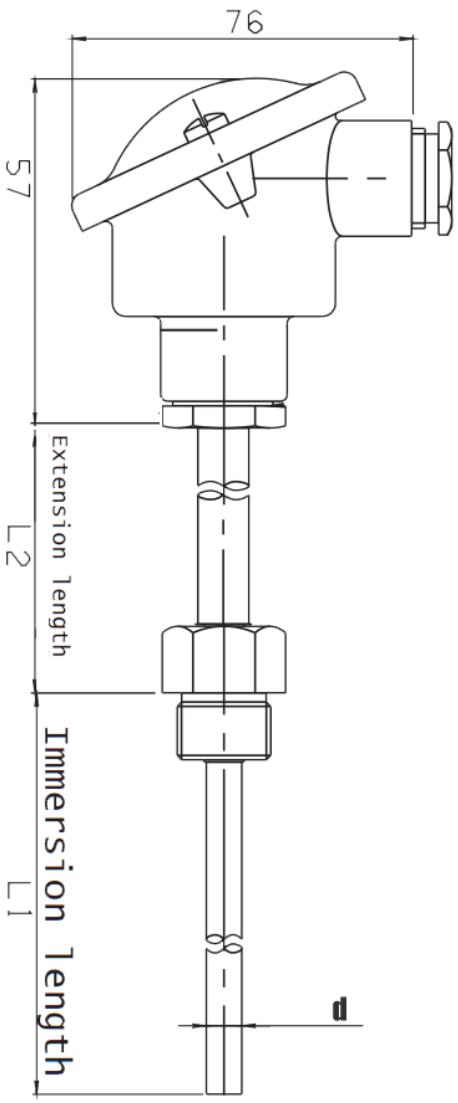
Specifications

Type and tolerances:	The measuring insert according to DIN EN 60584 for thermocouple and to DIN EN 60571 for resistance thermometers. • Mechanical and thermal stress in accordance with DIN 43772. • Process attachment: welded • Measuring insert: interchangeable short reaction time • Available with built-in transmitter
Outside diameter:	Ø6/ Ø8/ Ø9/ Ø9.5/ Ø10/ Ø11/ Ø12/ Ø15
Sheath material:	W.No. 14571 (AISI 316 Ti)
Process connection:	¼ BSP. ½ BSP, ½ NPT, ¾ BSP, ¾ NPT. 1'' BSP, M18 X 1.5, M20X 1.5 mm M27X 2 mm
Immersion length:	50mm, 100mm, 150mm, 200mm, 250mm, 300mm
Extension length:	50mm,100mm, 150mm
Vibration stability:	shock 100g in 6ms vibration 4g sine function 2-100Hz measured according to IEC 60068-2-6
Connection head :	Cast Aluminum Type BUZ - IP65, cable gland M20x1.5 mm

Ordering Code

	1	2	3	4	5	6	7	8	9
BMRM11									

1	Measuring insert	1xPt100 2xPt100 1xPt1000 1xNiCr –Ni (K)	2xNiCr-Ni(K) 1xFe–Konst (J) 2xFe–Konst (J) (Other specify)
2	Probe diameter :	6x0.5 mm 8x1 mm 9x1 mm 9.5x1.2 mm 10x1 mm	10x2 mm 11x1 mm 12x1.5mm 15x2 mm Other specify
3	Immersion length L1 :	50 mm 80 mm 100 mm 150 mm 200 mm 250 mm 300 mm Other specify	
4	Sheath material :	W. No 14571 (AISI 316 Ti) Other specify	
5	Process connection :	¼ ½ ¾ 1'' M18x1.5 M20x1.5 M27x2mm	BSP Or NPT
6	Extension length L2 :	50 mm 100 mm 150 mm Other specify	
7	Programmable transmitter:	4-20 mA 0-10 V Wtrans B 00	
8	Tolerance class:	Class 1 for thermocouple Class 2 for tthermocouple Class A for resistance thermometer Class B for resistance thermometer 1/3 DIN for resistance thermometer 1/6 DIN for resistance thermometer 1/10 DIN for resistance thermometer	
9	Number of conductors:	2cond. 3 cond. 4 cond.	
10	Connection head:	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection) **Wtrans** B programmable head transducer with ratio transmission (data sheet 707060)	
11	Temperature range :	-200° +260° C -70° +260° C -70° +400° C -70° +600° C -200° +600° C -200° +800° C	



Ordering Example:

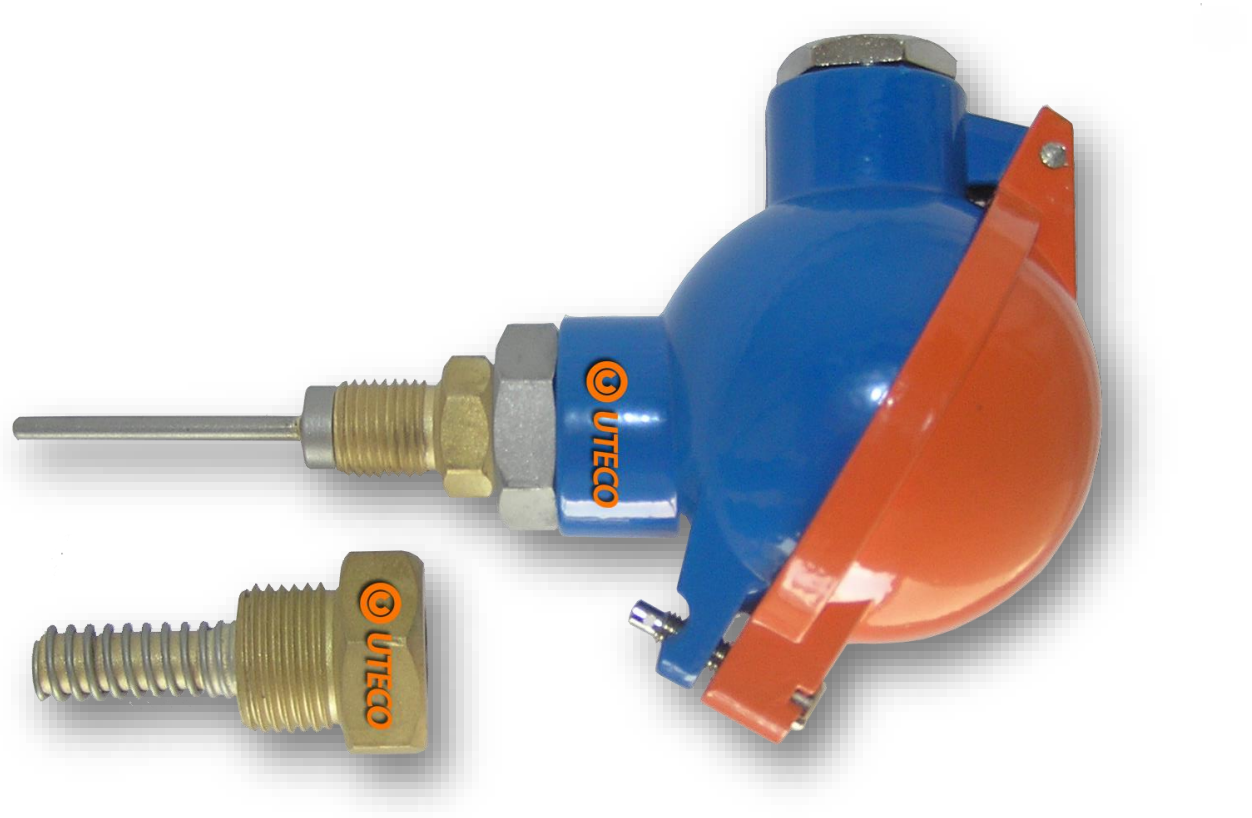
1	2	3	4	5	6	7	8	9	10	11
BMRM11	1xPt100	10x1	150	316	1/2BSP	50	4-20mA	CIA	3cond	BUZ	-70+260 C

Series BMRM/12 – Temperature sensor insert type with spring pocket and connection head form B

Application:

General Purpose. Measurement temperature in solids, on closed pipe work for engine room.

Measurement insert	Probe Diameter	Immersion Length	Process connection	Sheath Material	Articles Nr.
2 x Pt100	11mm	33mm	½ BSP	bronze	BMRM12.0000000



Specifications

Resistance type and tolerances:	Resistance thermometer 2xPt100, Class A, DIN EN 60751 with 2 wire circuit.
Outside diameter :	11mm
Sheath material :	Bronze
Immersion Length:	33mm
Process connection:	½ BSP
Terminal Head:	Cast Aluminum form BUZ IP65
Temperature range:	From -50 to +260° C

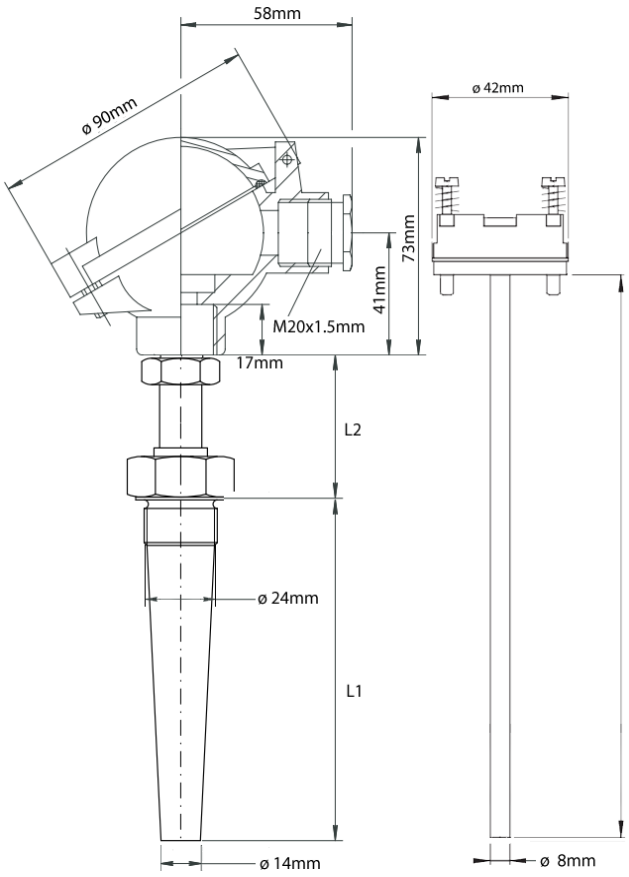
Other technical characteristics (length, diameter, process connection, etc.) available upon request.

Series BMRM/13- Temperature probe with solid drilled protection tube and measuring insert interchangeable

Application:

General Purpose. Measuring and regulation exhaust gas, temperature in stationary and marine suitable for measuring:

- **Diesel engines**
- **Turbine**
- **Compressors**



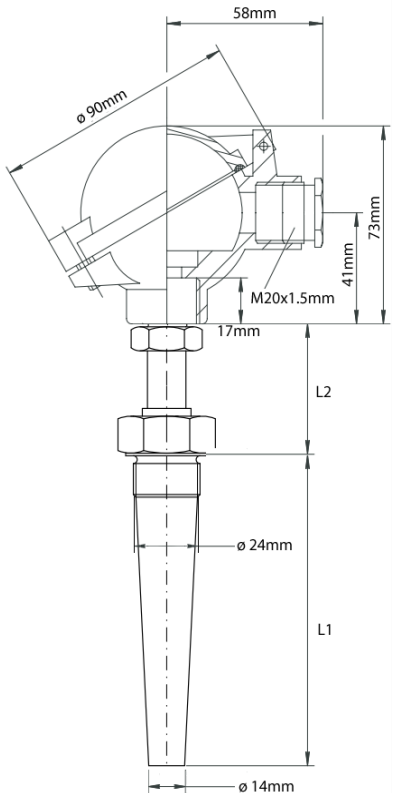
Specifications

Type and tolerance:	Resistance thermometer Pt100, CLASS B to DIN EN 60751, ±(0.3 +0.005x t) t=temperature of medium, numerical value, 2-3 or 4 wire system	
Insulation resistance:	Minimum 0.5Mohm at 600°C according to EN60751	
Vibration stability:	Shock:	100g/6ms
	Vibrations:	4g sine Functions,2-200Hz Measured according to IEC 60068-2-6
Thermowell type:	Drilled bar stock with tapered stem	
Stem diameter under thread:	24mm or 18mm	
Tip diameter:	14mm or 12mm	
Tip thickness:	4mm	
Bore diameter:	Ø9mm	
Extension length:	50mm or 100mm	
Measuring insert:	Interchangeable	
Connection head:	Die cast aluminum , form BUZ IP65, cable gland M20x1.5mm	
Immersion length:	80mm, 100mm, 150mm, 200mm, 250mm	
Temperature range:	From -50 to +700° C	
Sheath material:	AISI 316 or304	

Ordering Code

BMRM13 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

1	Measuring Insert	1 x Pt100 2xPt100 1xPt1000 2xPt1000
2	Diameter in mm	Ø18/14mm Ø23/17mm Ø24/14mm Other specify
3	Immersion Length	80mm 100mm 150mm 200mm 250mm 300mm Other specify
4	Sheath Material	AISI 304 AISI 316
5	Process Connection	G ½ A G ¾ A Other specify
6	Extension Length	50mm 68mm 100mm 130mm Other specify
7	Programmable Transmitter	4-20mA (Specify Temperature Range) 0-10V (Specify Temperature Range) 00 (without transmitter)
8	Connection Head	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 (see accessories connection)



Ordering Example:

	1	2	3	4	5	6	7	8
BMRM13	1xPt100	23/17	100	304	G3/4A	68	4-20mA 0-600	BUZ

Versions available from standard items:

Measurement insert	Stem Size	Immersion Length	Process Connection	Temperature Range	Articles Nr.
1 x Pt100	18x12mm	80mm	G ½	0-600°C	BMRM13.0000000
1 x Pt100	18x12mm	100mm	G ½	0-600°C	BMRM13.0000001
1 x Pt100	24x14mm	80mm	G ¾	0-600°C	BMRM13.0000002
1 x Pt100	24x14mm	100mm	G ¾	0-600°C	BMRM13.0000003
1 x Pt100	24x14mm	150mm	G ¾	0-600°C	BMRM13.0000004
1 x Pt100	24x14mm	200mm	G ¾	0-600°C	BMRM13.0000005
1 x Pt100	24x14mm	250mm	G ¾	0-600°C	BMRM13.0000006

Series BMRM/14-Temperature probe with screwed bar stock thermowell with connection head ATEX Version Eexd II CT6

Application:

General Purpose. Measuring temperature in cargo oil pumping system, water feed system and the medium temperature flow system

Measurement insert	Stem Size	Insertion Length	Process Connection	Temp. range	Article Nr.
1 x Pt100	10mm	16mm	M22X1,5mm	From -50 to +260° C	BMRM14.0000000

Specifications

Resistance and tolerance:	The measuring insert is fitted with resistance thermometer PT100 to DIN EN 60751, CLASS A With 3 or 4 wire system with replaceable measuring insert D6mm
Stem diameter under thread:	10mm
Immersion length:	16mm
Connection head:	Weatherproof with screw on cover, cast-aluminum IP65, explosion proof EExd IICT6
Process connection:	M22X1,5mm
Sheath Material:	AISI 316L

Other technical characteristics (length, diameter, process connection, etc.), available upon request.

Series BMRM/15 –Thin line exhaust gas temperature probe with solid drilled thermowell & removable insert.

Application:

General purpose. Measuring and regulate exhaust gas temperature in stationary and suitable for measuring diesel engines (marine), turbines and compressor temperature.

Specifications

type and tolerance:	• Resistance thermometer 1xPt100, 2xPt100, 1Pt1000 Class B with 3wire system to DIN EN 60751 • Thermocouple tolerance. • Class 1 to DIN EN 60584 sensor element: Type K, Type J, Type E, Type N
Process attachment:	Nipple
Measuring insert:	Interchangeable
Solid thermowell:	Acid- proof steel
Temperature range :	0-800° C
Response times:	

Response times

Protection tube	Indicative response times			
	Water 0.2 m/s		Air 1 m/s	
ø24 / ø14	$t_{0.5}$	$t_{0.9}$	$t_{0.5}$	$t_{0.9}$
	30 s	95 s	200 s	700 s

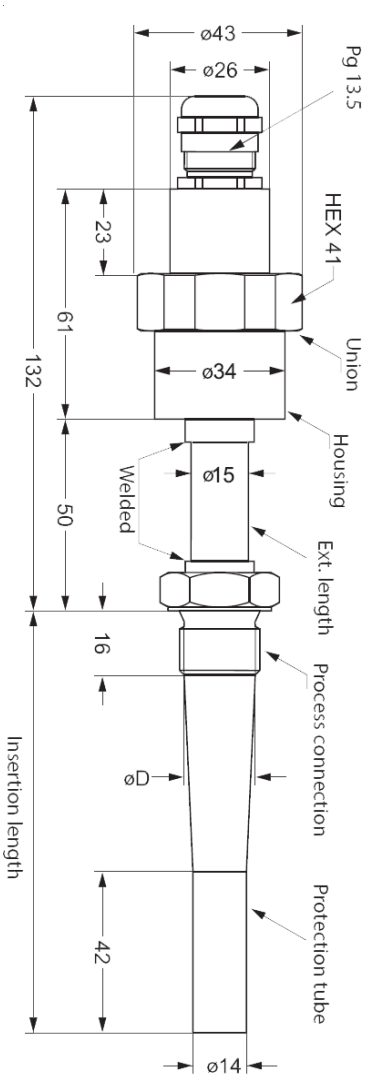
Mechanical and environmental conditions

Max. temperature	Ambient:	90 °C with 600 °C media temperature
Vibration stability	Shock:	100 g / 6 ms
	Vibrationes:	4 g sine function, 2 – 100 Hz , measured according to IEC 60068-2-6
Enclosure	IP65 according to IEC 60529	
Cable entry	Pg 16	

Ordering Code

	1	2	3	4	5	6	7	8	9
BMRM15									

1	Measuring insert	1x Pt100 1x Pt 1000 Type K Type J Type E Type N (Other specify)
2	Diameter in mm :	Ø18/14 mm Ø 23/27 m Ø24/14 Other specify
3	Immersion length L :	80 mm 100 mm 120 mm 150 mm 170 mm 200 mm 250 mm 300 mm Other specify
4	Sheath material :	Wr 14571 316
5	Process connection :	G 1/2 G ¾ M22xx 2 mm Other specify
6	Extension length :	50 mm 70 mm 100 mm Other specify
7	Number of sensors:	1x RTD 2x RTD 1x TC 2x TC
8	Number of conductors:	2wire 3wire 4wire
9	Temperature range:	0-600° C 0-800° C



Ordering Example:

	1	2	3	4	5	6	7	8	9
BMRM15	Pt10 0	24/14	150	316	G3/4	50	1xRTD	2w	0-600°C

Series MS/10-Measuring inserts with terminal block, without or with temperature transmitter for in thermocouple and resistance thermometers for terminal head Form B

Application:

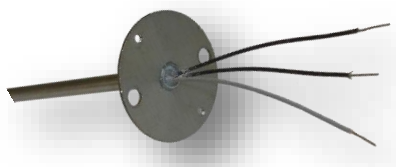
MS10

General Purpose. The insert are suitable for type A and B terminal head.

Specifications

Type and tolerance:	The measuring are normally fitted with a Pt100 to DIN EN 60751, Class B with 2, 3 or 4 wire. Versions with Pt500, Pt1000. Ni100, Ni1000 can also be supplied • As single or twin insert • Available with transmitter • Thermocouples(elements) as per DIN EN60584 Class1 or Class2 • For temperature from -200° to 1150°C
Process Attachment:	Flying leads, ceramic block, temperature transmitter
Terminal Block:	Suitable for terminal heads B, BKK, BUZ, BUZH and A
Protection tube:	Stainless Steel 1.4571
Transmitter:	Analog transmitter output 4-20mA analog transmitter output 0- 0 10V
Programmable:	• 2-wire transmitter with HART interface • 2-wire transmitter with Ex protection • 2-wire transmitter with HART interface and Ex protection • Profibus PA

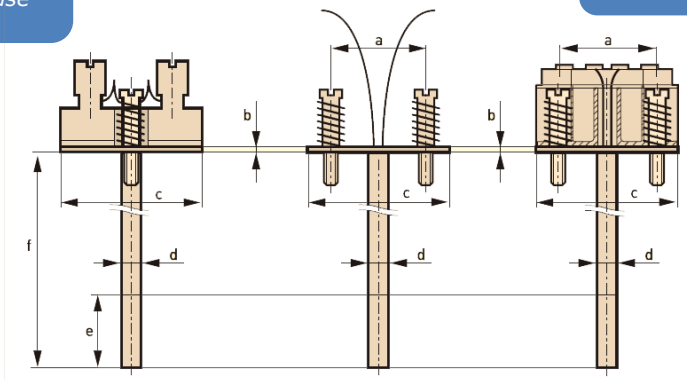
Alternative terminations



Flying leads: *Long leads which allow you to free choice of mounting a transmitter or a terminal block after purchase*

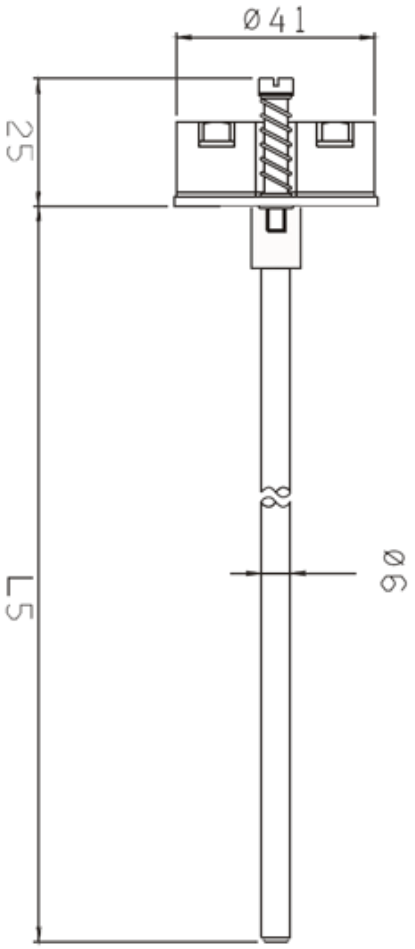
Terminal block:
Mounted terminal block

Transmitter:
Mounted transmitter which has to be specified separately



Ordering Code

1	Measuring Insert	1 x Pt100 1 x Pt1000 1xPt500 1xNi100 1xNi1000 Other specify	1 x K 1 x J 1 x E 1 x T 1 x N
2	Diameter in mm	Ø2mm Ø3mm Ø4.5mm Ø6mm Ø7mm Ø8mm Other specify	
3	Immersion Length L	125mm 175mm 225mm 275mm	325mm 525mm 735mm Other specify
4	Sheath Material	AISI 316Ti AISI 321 Inconell 600	
5	Number of elements	1 x RTD 2 x RTD 3 x RTD 1 x TC 2 x TC	
6	Number of Conductors	2w 3w 4w	
7	Tolerance Class	Type A Din +/-0.15°C Type B Din +/-0.3°C Type 1/3 Din +/-0.1°C Type 1/6 Din +/-0.05°C Type 1/10 Din +/-0.03°C Class 1(for TC) Class 2 (For TC)	
8	Temperature transmitter	4-20mA 0-10V HART (Ex) HART	Profibus None
9	Temperature range	-50° +260°C -50° +400°C -50° +600°C -200° +600°C -200° +800°C -200° +1150°C	
10	Process attachment	Flying leads Ceramic Block Transmitter	



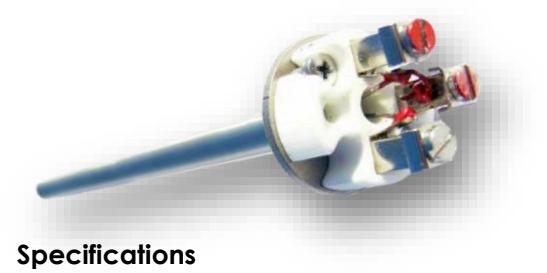
Ordering Example:

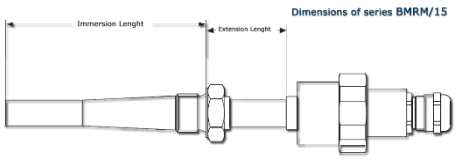
	1	2	3	4	5	6	7	8	9	10
MS10	1xPt100	6	325	316	1xRTD	3w	B	None	-50° +400°C	Ceramic Block

Series MS/11- Measuring insert for BMRM/15 Thin Line exhaust gas temperature probe

Application:

General Purpose. The insert is suitable for BMRM/15 Thin Line exhaust gas temperature probe





Specifications

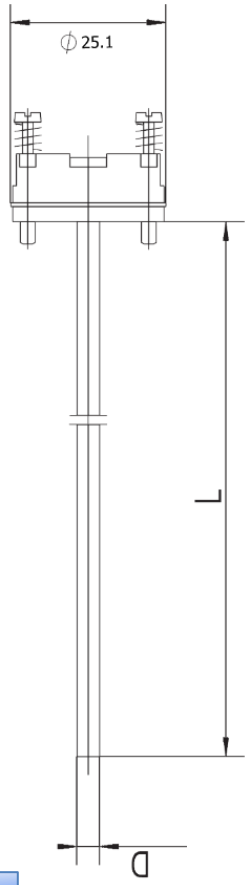
Resistance type and tolerance:	Resistance thermometer Pt100 or Pt1000, CLASS B, to DIN/ EN 60751, 2 wire or 3 wire system.
Terminal blocks:	form J ceramic Ø25.1mm (miniature socket)

Ordering Code

1	2	3	4	5

MS11

1	Measuring Insert	1 x Pt100 1 x Pt1000	
2	Tube diameter	Ø8mm Ø6mm	Ø7mm Other specify
3	Insert Length	70mm 80mm 100mm 110mm 120mm 128mm 145mm 148mm 150mm	168mm 170mm 196mm 200mm 205mm 250mm 300mm 350mm Other specify
4	Sheath Material	AISI 304 AISI 316	
5	Temperature range	-50°C +600°C -50°C +700°C	



Ordering Example:

1	2	3	4	5
MS11	1xPt100	8	100	304	-50+600

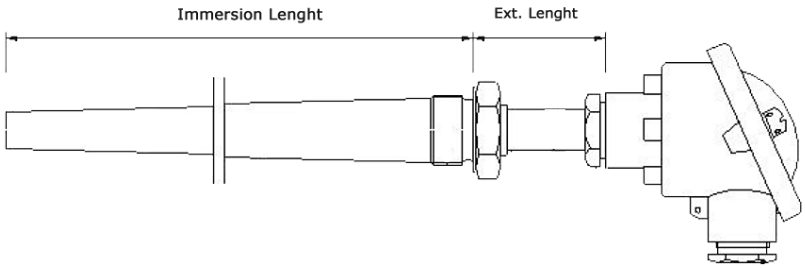
Series MS/12- Measuring insert for thermocouple and resistance thermometer for exhaust gas temperature probes with terminal block form B or standard transmitters 4-20mA

Application:

General Purpose. The insert is suitable for screw-in thermocouple and resistance thermometer for series BMRM/13

Series MS/12

Dimensions of BMRM/13



Specifications

Resistance type and tolerance:	The measuring insert are normally fitted with a temperature sensor Pt100 or Pt1000 to DIN EN 60751, Class B with 2, 3 or 4 wire system. The measuring insert with thermocouple type K is according to Class 2 of DIN EN 60584
Probe outer diameter:	8.0mm
Immersion length:	80mm,100mm, 110mm, 120mm,150mm, 200mm, 250mm, 300mm
Terminal blocks:	form B diameter 42mm or temperature transmitter 4-20mA
Temperature range:	from -50° to +800° C

Ordering Code

1	2	3	4	5	6

MS12

1	Measuring Insert	1 x Pt100 1 x Pt1000 1 x NiCr-Ni 2 x NiCr-Ni 4-20mA
2	Tube diameter	Ø8mm
3	Immersion Length	80mm 100mm 110mm 120mm 150mm 200mm 250mm 300mm
4	Sheath Material	AISI 304 AISI 316
5	Temperature range	-50°C +600°C -50°C +700°C
6	Extension Length	50mm 100mm Other specify

Ordering Example:

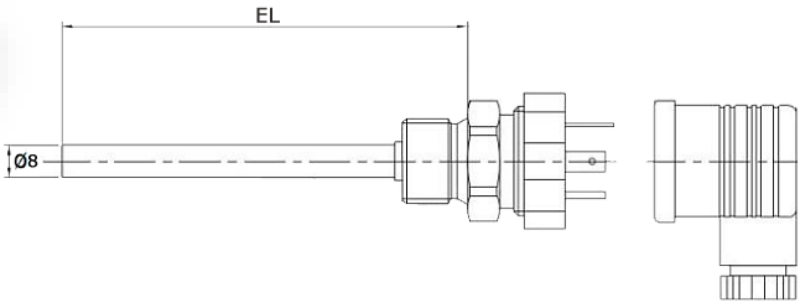
	1	2	3	4	5	6
MS12	1xPt100	8	150	316	-50 ° +600°	50

Series MS/13- Measuring insert for Series CON/15, UCON1 & UCON2 resistance thermometer with plug connector

Application:
The insert is suitable for screw-in RTD temperature probe with plug connector and with series CON/15, UCON1 & UCON2 according to DIN EN 175301

Series MS/13

Dimensions of series CON



Specifications

Resistance type and tolerance:	Resistance thermometer Pt1000 or Pt100 Class B to DIN EN 60751 ±(0.3+0.005x t) t=temperature of medium, with 3 wire system
Probe outer diameter:	6.0mm
Immersion length (EL):	50mm, 80mm,100mm, 150mm, 200mm, 250mm
Tube material:	Nr.14571 (AISI 316Ti)
Extension cable:	Silicone /Teflon 3x0.5mm²
Temperature range:	from -50° to +200° C

Ordering Code

	1	2	3	4
MS13				

1	Measuring Insert	1 x Pt100 1 x Pt1000
2	Tube diameter	Ø6mm Other specify
3	Immersion Length	50mm 80mm 100mm 150mm 200mm 250mm
4	Sheath Material	AISI 304 AISI 316

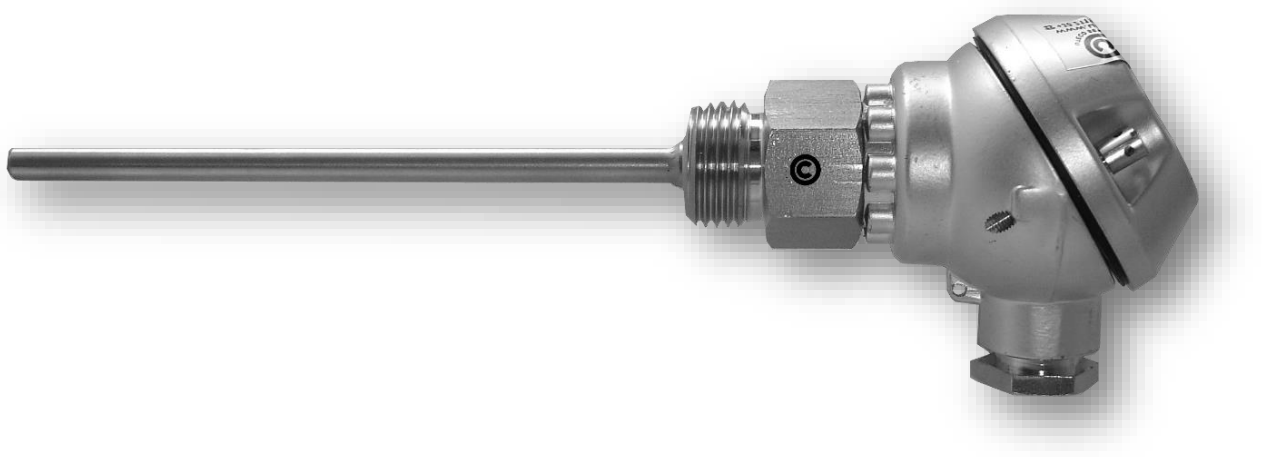
Ordering Example:

	1	2	3	4
MS13	1xPt100	6	80	304

Series JG/07, 08-Temperature probes with terminal head form J (thermocouple)

JG07- Thread – in Thermocouple with continuous sheath)
JG08- Thread – in Thermocouple sheath with continuous sheath and union nut.

Application:
General purpose: Measuring temperature in liquids and gases. A decisive selection selection criterion is the reliable sealing feature of this installation type with vacuum and with overpressure.
The application areas are, among others, in the HVAC, kiln and apparatus engineering sector.



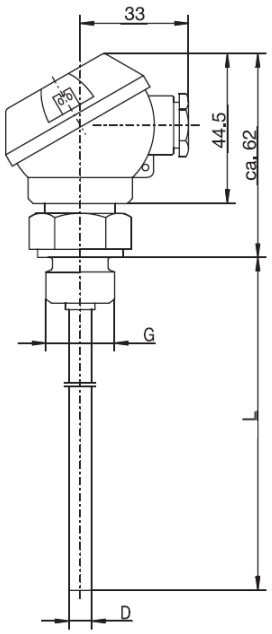
Specifications:

Resistance type and tolerances:	The measuring insert is equipped with thermal pairs thermocouples are also possible. For temperature from -200° +800° C structure isolated or connected with thermowell protection class IP65.
Terminal Head :	Form J, die cast aluminum, M16x1.5 IP65.
Process connection:	Stainless steel 14571
Protection tube:	Stainless steel 14571

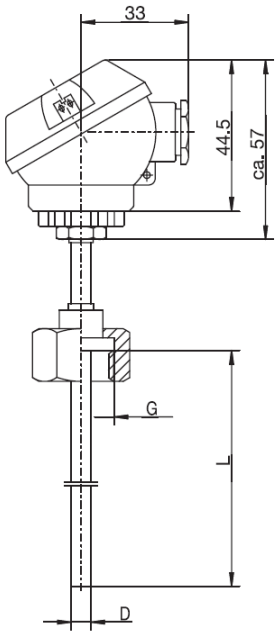
Ordering Code

	1	2	3	4	5	6	7	8	9
JGxx									

1	Measuring insert:	
2	Diameter in:	
3	Immersion Length:	
4	Sheath material :	
5	Process connection :	
6	Number of elements :	
7	Tolerance class	
8	Temperature range :	



JG/07



JG/08

Ordering Example:

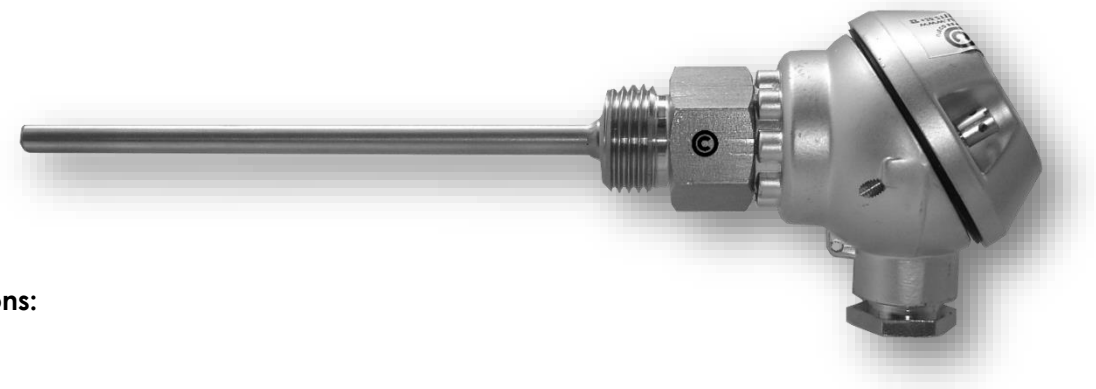
	1	2	3	4	5	6	7	8
JGxx	1xJ	6.0m	100	14571	G 1/2	1xTC	1	-200+600 C

Series JG/09, 10-Temperature sensor with terminal head form J (RTD)

JG09- Thread –in RTD temperature probes with continuous sheath and union nut.
JG10- Thread – in RTD temperature probes with continuous sheath.

Application:

General purpose: Measuring temperature in liquids and gases. A decisive selection selection criterion is the reliable sealing feature of this installation type with vacuum and with overpressure.
The application areas are, among others, in the HVAC, refrigeration engineering kiln and apparatus engineering sector.



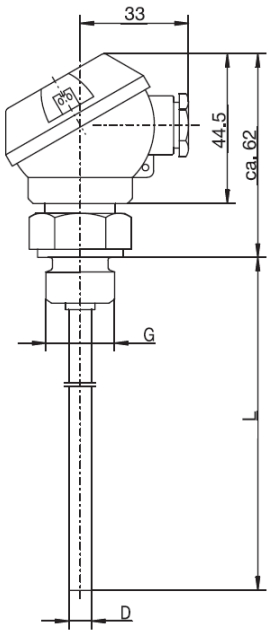
Specifications:

Resistance type and tolerances:	The measuring insert is normally fitted with a pt100 temperature probes according to DIN EN 60751 class B in 2wire circuit. Versions with pt500, pt1000, Ni1000 can also be supplied. As well as 3 and 4wire circuit connections. A transmitter can be optionally integrated into the connection head.
Element output:	As single or double RTD temperature probes. Available with transmitter
Terminal Head :	Form J, die cast aluminum, M16x1.5 IP65.
Process connection:	Stainless steel 14571
Protection tube:	Stainless steel 14571
Protection class:	IP65
Response Times:	t0.5 = 5 sec, t0.9 =14 sec, in water 0.4 m/sec 6mm/diameter
Transmitter:	Analog transmitter output 4 to 20 mA
Temperature Range:	from -580° to 400° C

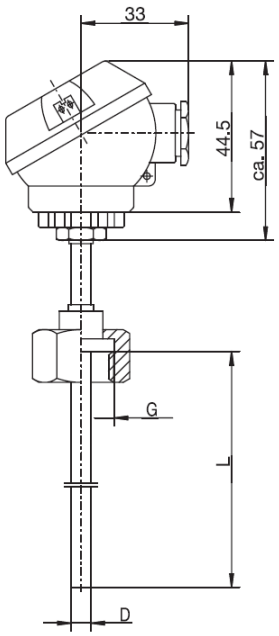
Ordering Code

	1	2	3	4	5	6	7	8	9	10
JGxx										

1	Measuring insert:	1xPt100 1xPt1000 1xPt500	1xNi100 1xNi1000 Other specify
2	Diameter in:	6.0 mm 7.0 mm 8.0 mm	9.0 mm 11 mm Other specify
3	Immersion Length:	50mm 100 mm 150 mm	250 mm 300 mm Other specify
4	Sheath material :	St.st 316 Ti	
5	Process connection :	G ¼ G 3/8 G ½ Union nut G ½ Union nut G ¾ Other specify	
6	Number of elements :	1 x RTD 2 X RTD	
7	Number of conductor	2wire 3wire 4wire	
8	Tolerance class:	Class B (standard) Class A Other specify	
9	Temperature transmitter :	4-20 mA NONE (00)	
10	Temperature range:	-20° to 150° C -50° to 180° C -50° to 200° C -50° to 260° C -50° to 400° C	



JG/09



JG/10

Ordering Example:

	1	2	3	4	5	6	7	8	9	10
JGxx	1xPt100	6	100	316	G 1/4	1xRTD	2w	B	00	-50 °+200°

Series JG/11, 12-Temperature sensor with terminal head form J (RTD)

JG11 Push – in RTD temperature probes with continuous thermowell.
JG12 Push in RTD temperature probes with stepped sheath

Application:

General purpose: Measuring temperature in liquids and gases. A decisive selection selection criterion is the reliable sealing feature of this installation type with vacuum and with overpressure.
The application areas are, among others, in the HVAC, kiln and apparatus engineering sector.

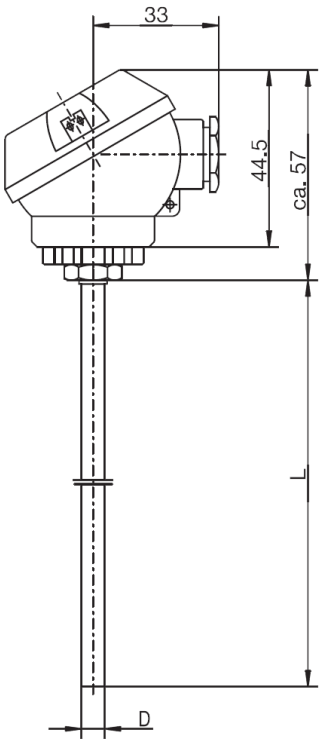
Specifications:

Resistance type and tolerances:	The measuring insert is normally fitted with a pt100 temperature probes according to DIN EN 60751 class B in 2wire circuit. Versions with pt500, pt1000, Ni1000 can also be supplied. As well as 3 and 4wire circuit connections. A transmitter can be optionally integrated into the connection head.
Element output:	As single or double RTD temperature probes. Available with transmitter
Terminal Head :	Form J, die cast aluminum, M16x1.5 IP65.
Process connection:	Stainless steel 14571
Protection tube:	Stainless steel 14571
Protection class:	IP65
Response Times:	t0.5 = 5 sec, t0.9 =14 sec, in water 0.4 m/sec 6 media
Transmitter:	Analog transmitter output 4 to 20 mA
Temperature Range:	from -580° to 400° C

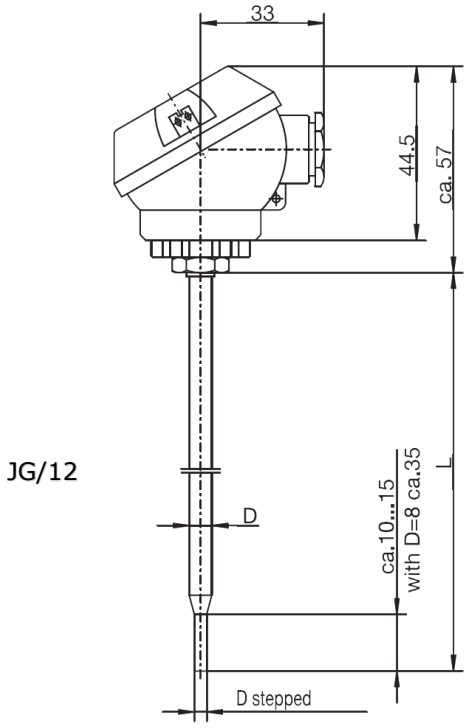
Ordering Code

	1	2	3	4	5	6	7	8	9
JGxx									

1	Measuring insert:	1xPt100 1xPt1000 1xPt500 1xNi100 1xNi1000 Other specify
2	Diameter in:	6.0 mm 8.0 mm 6 to 3.8 mm 8 to 6 mm Other specify
3	Immersion Length:	50 mm 100 mm 150 mm 250 mm 300 mm Other specify
4	Sheath material :	AISI 316 Ti
5	Number of element:	1X RTD 2X RTD
6	Number of conductor:	2wire 3wire 4wire
7	Tolerance class:	Class B (standard) Class A
8	Temperature transmitter :	4-20 mA NONE (00)
9	Temperature range :	-20 +150° C -50 +200° C -50° +260° C -50° +400° C



JG/11



JG/12

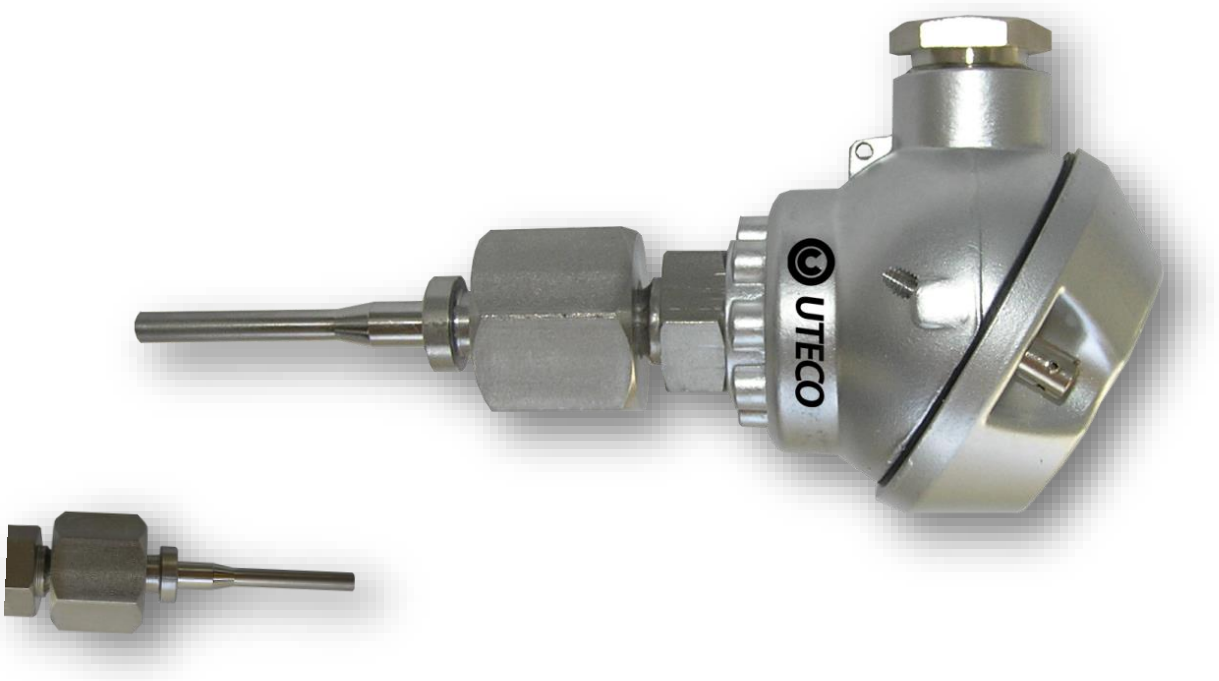
Ordering Example:

	1	2	3	4	5	6	7	8	9
JGxx	Pt100	6	100	316	1xRTD	3w	B	00	-50° +260°C

Series JG/13 – Temperature sensor with mini terminal head form J and union nut

Application:
General Purpose. Measuring temperature for food industry in liquids and gases

Measurement Insert	Diameter	Immersion Length	Process Connection	Temperature Range	Article Nr.
1 x Pt100	3mm	33mm	G1/8 female	-50 to +260° C	JG13.0000000
1 x Pt100	3mm	50mm	G1/8 female	-50 to +260° C	JG13.0000001
1 x Pt100	3mm	150mm	G1/8 female	-50 to +260° C	JG13.0000002
1 x Pt100	4mm	40mm	G1/8 female	-50 to +260° C	JG13.0000003
2 x Pt100	3mm	33mm	G1/8 female	-50 to +260° C	JG13.0000004



Specifications

Resistance type and tolerances:	Resistance thermometer PT100, Class A, IEC 751, 2, 3, or 4 wire system
Outside diameter:	3mm
Sheath material:	AISI 316 Ti
End Tip:	20mm
Process connection:	G 1/8 female
Immersion length:	33mm
Temperature range:	from -50° C to +260° C
Terminal head:	terminal head form J, Aluminum die – Casting, Pg9, IP54

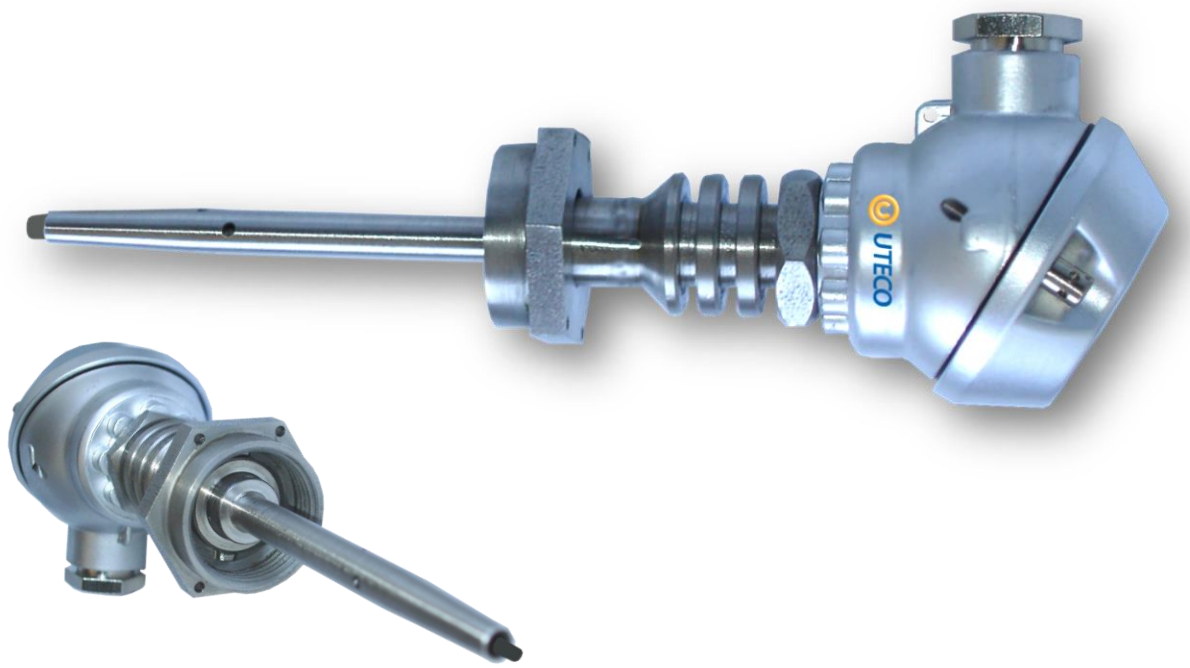
Other technical characteristics (length, diameter, connector, etc.), available upon request.

Series JG/14 – Temperature probe with terminal heads form J exposed junction for quick response time and high temperature

Application:

General Purpose. Measuring temperature on heavy duty gas turbines, exhaust gas, compressor discharge and bleed Air

Measurement Insert	Probe Diameter	Immersion Length	Process Connection	Sheath Material	Article Nr.
1xNiCr Ni	7mm	76mm	M23X2mm	St.st.316L	JG14.4000000



Specifications

Resistance type and tolerances:	The measuring insert is fitted with a thermocouple (stainless steel, MgO insulation with type k) CLASS 1 to EN 60584 the thermocouples re manufactured and tested at various points during the manufacturing cycle, ensuring the highest possible level of quality Production testing includes helium leak testing, calibration, thermal shock, insulation resistance and hermeticity of sealing points
Probe diameter:	7mm
Immersion length:	76mm
Sheath material:	ST.ST 316L
Process connection:	M23X2mm
Temperature range:	0-900 ° C
Terminal head:	terminal head form J, IP65

Other technical characteristics (length, Diameter, process connection, etc.) available upon request.

Series CON/10 – Temperature probes with plug connector and EN175301-803 interchangeable measuring insert

Application:

General Purpose. Measuring under pressure in motors, compressors, plant engineering and generator engines

Measurement Insert	Probe Diameter	Immersion Length	Process connection	Temperature Range	Article Nr.
1 x Pt100	8mm	130mm	G1/4	-50 +260°C	CON10.0000000
1 x Pt100	8mm	130mm	G1/2	-50 +260°C	CON10.0000001
1 x Pt1000	8mm	150mm	G1/2	-50 +260°C	CON10.0000002

Specifications

Resistance type and tolerances:	The measuring insert is fitted with Resistance thermometer 1xPt100 to DIN EN 60751 CLASS A 3 Wire system, cold plated male and female connector CON37 with Interchangeable measuring insert.
Probe diameter:	8mm
Probe length:	130mm or 150mm
Sheath material:	AISI 316 Ti
Process connection:	G¼ or G1/2
Connector:	DIN 43650/PG 13.5mm
Temperature range:	from -50° C to +260° C

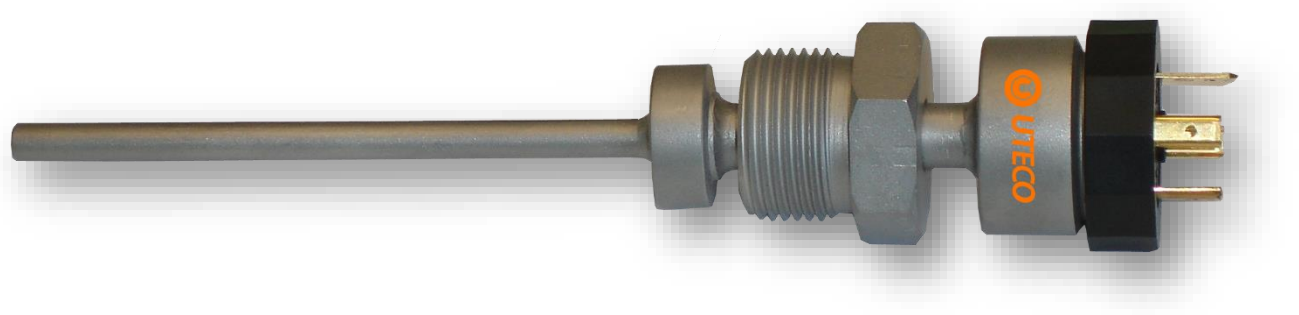
Other technical characteristics (length, diameter, process connection, etc.), available upon request.

Series CON/11- Temperature probes with plug connector to EN 175301-803 in vibration proof design

Application:

General Purpose. Measuring Measuring under pressure in motors. Compressors, plant engineering and shipbuilding (Generator engines)

Measurement Insert	Probe Diameter	Immersion Length	Process connection	Temperature Range	Article Nr.
1 x Pt100	6mm	99mm	G3/4	-50 +260° C	CON11.0000000
1 x Pt100	7mm	99mm	G3/4	-50 +260° C	CON11.0000001
1 x Pt100	7mm	120mm	G3/4	-50 +260° C	CON11.0000002



Specifications

Resistance type and tolerances:	The measuring insert is fitted with Resistance thermometer 1xPt100 to DIN EN 60751 Class A , 3 wire system, cold plated male and female connector CON37 with Interchangeable measuring insert
Probe diameter:	6mm
Probe length:	99mm
Sheath material:	AISI 316 Ti
Process connection:	G3/4
Connector:	DIN 43650 CON37
Temperature range:	from -70° C to +260° C

Other technical characteristics (length, diameter, process connection, etc.), available upon request.

Series CON/12-Temperature probes with M12x1 plug connection

Application:

General Purpose. Used for controlling cooling water, lubricants oil, hydraulic oil, and refrigeration plants within general industry and marine applications

Measurement Insert	Probe diameter	Immersion Length	Process connection	Temperature Range	Article Nr.
1xPt100	ø6mm	100mm	G1/2	-50 to +260°C	CON12.0000000
1xPt1000	ø6mm	150mm	G1/2	-50 to +260°C	CON12.0000001
1xPt100	ø6mm	100mm	G3/8	-50 to +260°C	CON12.0000002
1xPt100	Ø8mm	200mm	G1/2	-50 to +260°C	CON12.0000003

Specifications

Resistance type and tolerances:	The measuring insert is fitted with resistance thermometer 1xPt100 to DIN EN 60751 class A or with AAC1/3 Class B) 2 or 4 wire system M12x1 plug connection IP67 protection according to EN60529 with machine connector plugged in for temperature from -50 to +260°C parts in contact with the medium electrolytically polished surface roughness Ra≤0.8mm
Probe diameter:	6 or 8mm
Immersion length:	50mm, 100mm, 150mm, 200mm
Sheath material:	AISI 316Ti or 316L
Process connection:	G 3/8, G 1/2
Response time	time water 0.4m/s ø6mm t0.5=55s t0.9=12s
Temperature range:	from -50° C to +260° C

Option: transmitter 4 to 20mA or (reversed) 20 +4mA output

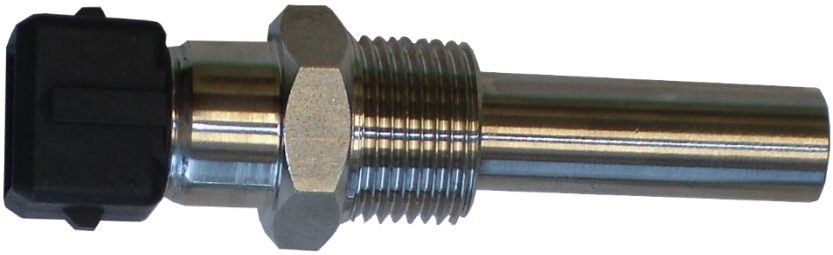
Other technical characteristics (length – diameter-process connection etc) available upon request.

Series CON/13–Vibro temperature probes with AMP plug connector in vibration proof design

Application:

General Purpose. Used for measuring under pressure in utility vehicles construction and agricultural machinery, motors, compressors and in railway technology

Measurement insert	Probe diameter	Immersion length	Sheath material	Process Connection	Article Nr.
1xPt100	7.5mm	29mm	St. St. 316	M14x1.5mm	CON13.0000000
1xPt1000	6.0mm	60mm	St. St. 316	M14x1.5mm	CON13.0000001



Specifications

Resistance type and tolerances:	The measuring insert is fitted with resistance thermometer 1xPt100 or Pt1000, 2wire systems class A or B to DIN EN 60751 withy AMP plug connector (junior-Power-Timer)
Outer diameter:	6 or 7mm
Immersion length:	25mm,26mm,29mm,60mm
Process connection:	$G^{1/4}$, $G^{3/8}$, M10x1, M12x1.5, M14x1.5mm
Sheath material:	Stainless Steel

Other technical characteristics (Length diameter, process connection, etc.), are also available upon request

Series CON/14- Exhaust Gas Temperature probes with male connector 6 pole (Jaeger)

Application:

General Purpose. Used for measuring exhaust temperature in ships and stationary diesel-engines, turbines, compressors and generator with temperature range up to 900° C

Measurement insert	Probe diameter	Immersion length	Sheath material	Connectors	Article Nr.
2 x NiCr-Ni	4.5mm	133mm	Inconell 600	6pole	CON14.5000000

Specifications

Resistance type and tolerances:	The measuring insert is fitted with thermocouple type K, tolerance EN 60584-2, CLASS 1, 2xNiCr-Ni
Tube diameter:	4.5mm
Immersion length:	133mm
Gasket	Ø 14x10x7/3mm
Temperature range:	0-900° C
Connector:	Jaeger 6 pole male

Other technical characteristics (Length, diameter, etc), are also available upon request

Series CON/ 15,16,17,18 -Temperature sensor with plug connector according to DIN EN 17531 with measuring insert interchangeable.

CON15-Temperature probe with connection socket pg 11 without neck tube
CON16 -Temperature probe with connect socket pg 11 with neck tube
CON17-Temperature probe with connect socket pg 11 with stepped sheath and without neck tube

Application:

General Purpose. For measuring temperature of liquid and gaseous media. The RTD temperature probes in vibration proof design allow temperature measuring under pressure in motors, compressors, plant engineering and ship building.

Specifications

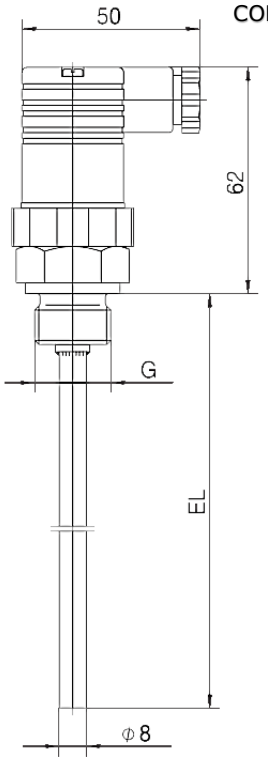
Measuring insert type and tolerance:	The measuring insert is fitted with resistance thermometer pt100 according to DIN EN 60571 ,class b in 2-wire system Versions with Pt500 or Pt1000 can also be supplied.
	The plug connector between the protection fitting and the connection cable are locked contact stable and have protection class IP65 when connected
Lloyds register:	LR approval for basic type UCON 1 and UCON 2
Response Times:	t0.5 =155, t0.9=45s, in water with 0.2 m/s, ø8 mm t0.5 = <2s, t0.9 =<4s , in water with 0.2 m/s ø6 mm Stepped down to ø3.3 mm
	Available with transmitter.
Temperature range:	-50° +260° C shake proof design

Ordering Code

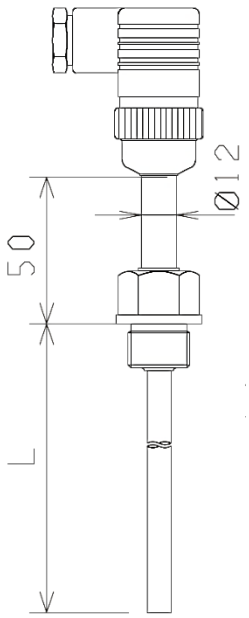
	1	2	3	4	5	6	7	8	9	10
CONxx										

1	Measuring insert:	1xPt100 2xPt100 1xPt1000 2xPt1000
2	Probe diameter:	6 mm 8 mm 10 mm 11 mm Other specify
3	Immersion length	50 mm 100 mm 150 mm 200 mm 250 mm Other specify
4	Sheath material :	AISI 316Ti AISI 304
5	Process connection :	G ¼ G 3/8 G ½ G ¾ M18x1.5 M20x1.5 ½ NPT Other specify
6	Extension neck Tube :	50 mm 70 mm 100 mm 00 (without) Other specify
7	Stepped sheath :	06(ø6 mm, stepped down to ø3.3 mm) 08(ø8 mm stepped down to 6.0 mm) 00 (without)
8	Tolerance class:	Cl.A ± 0.15 C Cl. B ± 0.3 C 1/3 DIN ± 0.1 1/6 DIN ± 0.05 C 1/10 DIN
9	Number of conductor:	2wire 3wire(only 1xPt100, 1xPt1000) 4wire(only 1xPt100 ,1xPt1000)
10	Temperature range:	-50° +180° C -50° +250° C Other specify

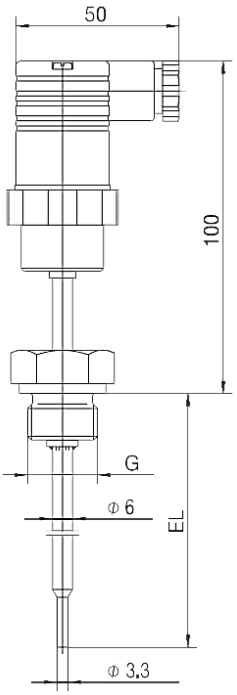
CON/15



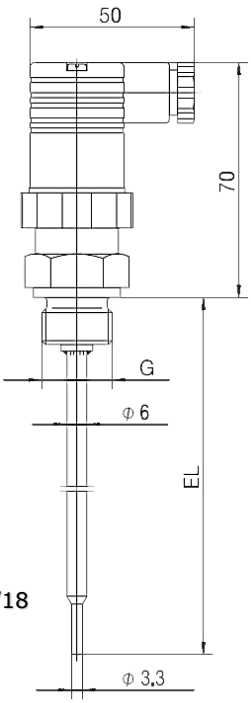
CON/16



CON/17



CON/18



Ordering Example:

	1	2	3	4	5	6	7	8	9	10
CONxx	1xPt100	8	100	316	1/2	50	00	Cl.A	3	-50 ° +180 °C

Series CON/60- Temperature sensor with plug- and socket Connection according to din 43650 and integrated transmitter 4-20mA

Application:

General Purpose. Measuring temperature for heating installation, furnace and apparatus construction.

- Machine construction and building installations
- Marine engineering
- General Industrial

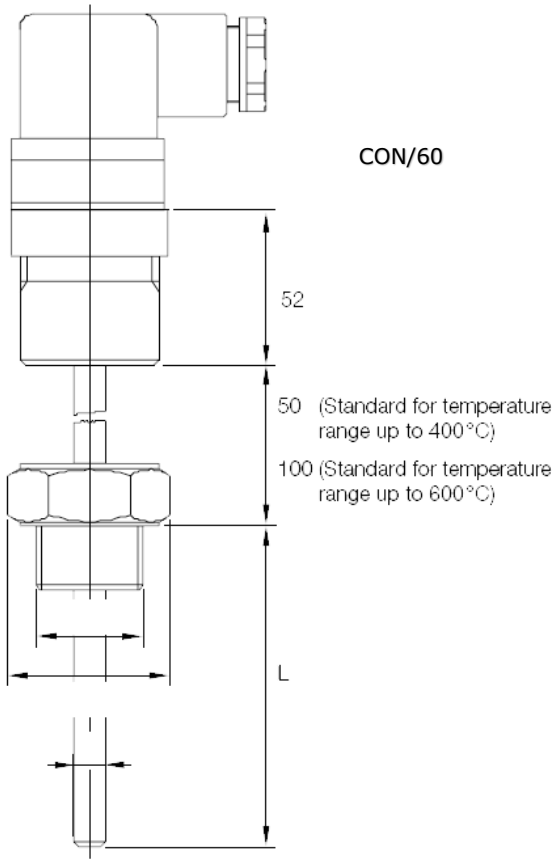
Specifications

Resistance type and tolerances:	The insertion resistance thermometers with integrated transmitter are used with the plug-on display model CON/10as economical digital thermometer with analogue output(4-20mA)	
Resistance type:	Resistance type Pt100, Class B to DIN EN 6075. A connector according to DIN 43650 allow the transmitter to be easily connected electrically or retrofitted with the plug on display.	
Transmitter:	Temperature probe with transmitter are used to transmit measuring signals noise – Free over long distances. The two-wire transmitter is integrated in the resistance thermometer and outputs a temperature linear output signal of 4-20mA	
Supply:	12…30VDC	
Ambient temperature :	-40° +85°C	
Measuring range:	-50° +200°C -200° +600°C	
Accuracy:	<0.5% of measuring span	
Plug-on Display:	Display:	4-digita, red LED
	Indicating range:	-1999….+9999
	Voltage drop:	≤5VDc
	Protection :	IP65
Temperature probe:	Sheath Material:	Stainless steel 14571
	Process Connection:	Stainless steel 14571
	Transmitter Housing:	Stainless steel
	Pmax:	36 bar
	Protection:	IP65

Ordering Code

CON60	1	2	3	4	5	6	7

1	Measuring insert:	1xPt100
2	Sheath diameter:	6 mm 8 mm 10 mm Other specify
3	Immersion length	25 mm 50 mm 100 mm 160 mm 200 mm Other specify
4	Sheath material :	AISI 316Ti
5	Process connection :	G ¼ G ½ ½ NPT 00(without) Other specify
6	Transmitter measuring range :	0 +50°C 0 +100°C 0 +120°C 0 +200°C 0 +400°C -200° +400°C -200° +600°C Other specify
7	Output:	4-20mA 0-10V



Ordering Example:

1	2	3	4	5	6	7
CON60	1xPt100	6	100	316	G1/4	0-120°C	4-20mA

Series CON/20 – Temperature sensor with vibration proof design and plug connector to EN 175301-803 – with Approval by GL

Application:

General Purpose. Used for measuring under pressure in motors, compressors plant engineering and shipbuilding

Measurement Insert	Probe Diameter	Immersion Length	Process Connection	Sheath Materials	Article Nr.
1 x Pt100	Ø8x1mm	50mm	G ½	316Ti	CON20.0000000
1 x Pt100	Ø8x1mm	100mm	G ½	316Ti	CON20.0000001
1 x Pt100	Ø8x1mm	150mm	G ½	316Ti	CON20.0000002
1 x Pt100	Ø8x1mm	200mm	G ½	316Ti	CON20.0000003
1 x Pt100	Ø8x1mm	100mm	G ¼	316Ti	CON20.0000004
1 x Pt100	Ø8x1mm	150mm	G3/8	316Ti	CON20.0000005
1 x Pt100	Ø8x1mm	100mm	M18x1.5	316Ti	CON20.0000006
1 x Pt100	Ø8x1mm	150mm	M20x1.5	316Ti	CON20.0000007

Specifications

Resistance type and tolerances:	The measuring insert is fitted with resistance thermometer 1xPt100 2, 3 or 4 wire system class A to DIN IEC60751 with connection socket pg9 to EN 175301 ***With protection class IP 65 when connected vibration proof design: German Lloyd, application category "D" Characteristic line 2***
Outer Diameter:	8mm
Immersion length:	50mm,100mm,150mm, 200mm
Process connection:	Thread G1/2, or G1/4, G3/8, M18x1.5 , M20x1.5m thread
Temperature range:	from -50 to +260° C

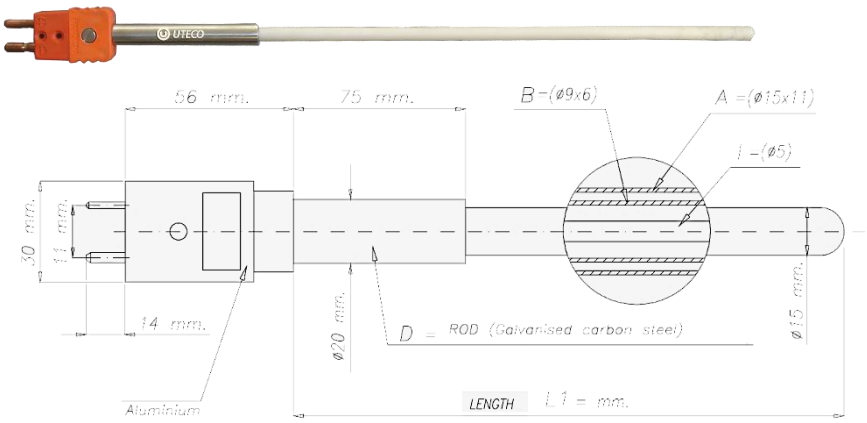
Approval by GL

Other technical characteristics (length, diameter, process connection, etc.), available upon request

Series CON/50- High Temperature sensor with compensated connector.

Application:

General Purpose. Measuring temperature in gases.
The application areas are, among others, Kiln, High temperature Furnaces and apparatus engineering sector



Specifications

Type and tolerance:	The measuring insert is fitted with thermocouple according to class 1 to DIN EN 60584. Type S, R, or B
Wire Diameter:	0.25mm, 0.35mm or 0.5mm
Probe diameter:	Ø10 or 15mm
Support tube:	Ø20mm
Ceramic Sheath:	C610 or C799
Compensated connector:	Standard male- Female (max180°)
Temperature range:	0-1600 °C

Ordering Code **CON 50**

1	2	3	4	5

1	Measuring Insert	1 x S 1 x R 1 x B
2	Ceramic diameter in mm	Ø10mm Ø15mm
3	Immersion Length	150mm 200mm 250mm 300mm 350mm 400mm 500mm Other specify
4	Sheath Material (Ceramic)	C610 C799
5	Connector	(ST) Standard made of thermoplastic for 200 °C (Cer) Standard made of Ceramic for 600 °C

Ordering Example:

CON 50

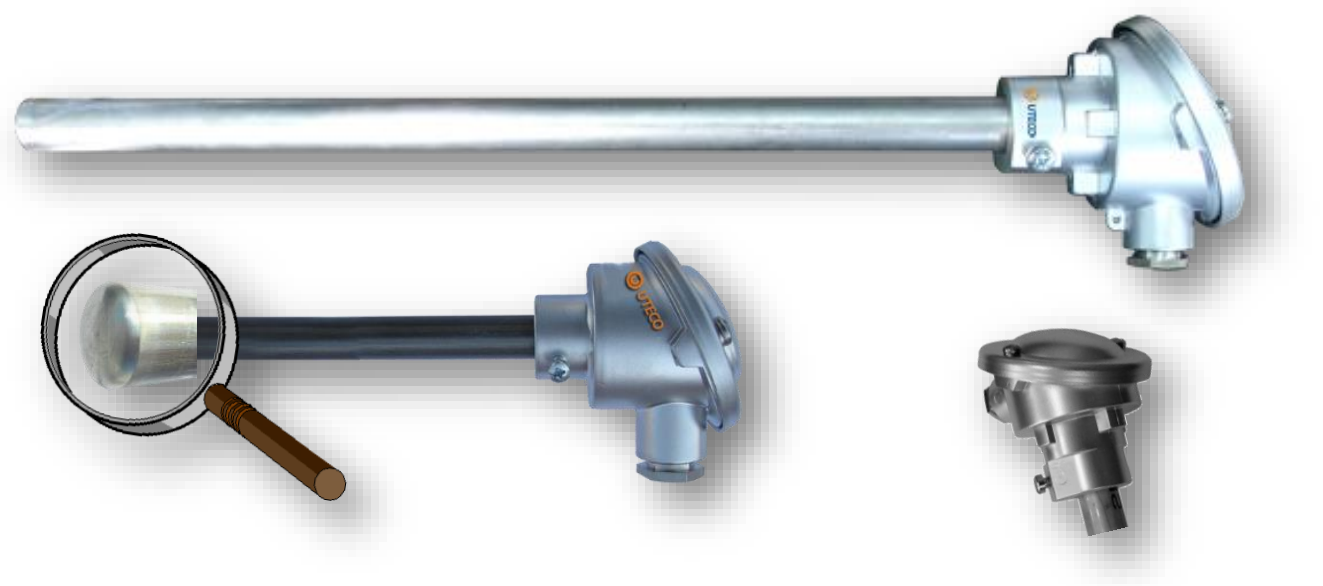
1	2	3	4	5
1xS	10	150	C61	ST

Series BM/30 & AM/10 – High temperature sensor with terminal head form BUZ or A.

BM/30 High Temperature probes with terminal Head B
AM/10 High Temperature probes with terminal Head A

Application:

General Purpose. Used for measuring temperatures in liquids and gases. Application includes heating, installations oven, furnaces and plant engineering. Mounted with either sliding flange or with compression fitting (see section accessories)



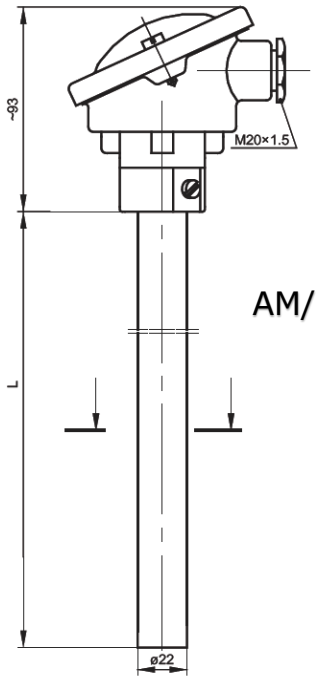
Specifications

Type and tolerances:	The measuring insert is fitted with thermocouple Type K,J, E , N ,R , S or B according to DIN EN 60584. lass 1
Outer protective tube:	Heat – proof steel according to DIN 43720 Available with single or double thermocouple
Process attachment:	Adjustable flange or coupling. Gas- proof ceramic internal tube protects thermocouple against pollution.
Probe diameter :	Ø15 mm
Internal tube	ceramic c610 or c710
Terminal head:	form BUZ or A , die cast aluminum M20x1.5 m , IP65 ambient temperature -40 to 100° C
Temperature Range:	0°-1400° C

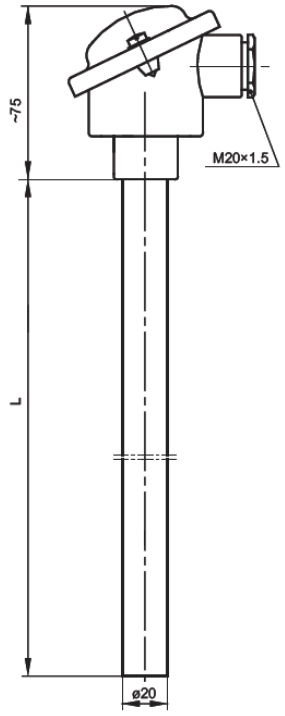
Ordering Code

	1	2	3	4	5	6	7	8	9
BM30									

1	Measuring insert:	Type K max +1200°C Type J max + 800°C Type N max +1200°C Type E max + 800° C Type S max + 1600°C Type R max + 1600°C
2	Number of thermocouple:	1x TC 2 x TC Other specify
3	Probe diameter :	Ø10 mm Ø13 mm Ø15 mm Ø22 mm Other specify
4	Immersion length:	250 mm 1000 mm 350 mm 1400 mm 400 mm Other specify 700 mm
5	Outside sheath material :	316 Ti 14841 14749 Inconell 600 KANTHAL AF
6	Internal sheath material:	KER 610 KER 710
7	Process connection :	½ BSP (adjust) ¾ BSP (adjust) 1'' BSP (adjust) Ø15 flange Ø22 flange
8	Program transmitter:	4-20mA 00
9	Connection Head:	Form BUZ (Standard) IP65 Form KNE IP68 Form B IP65 Form BUZH IP65 From A22 IP55 (see accessories connection)
10	Temperature range:	0° -800°C 0° -1200°C 0° -1400°C



AM/10



BM/30

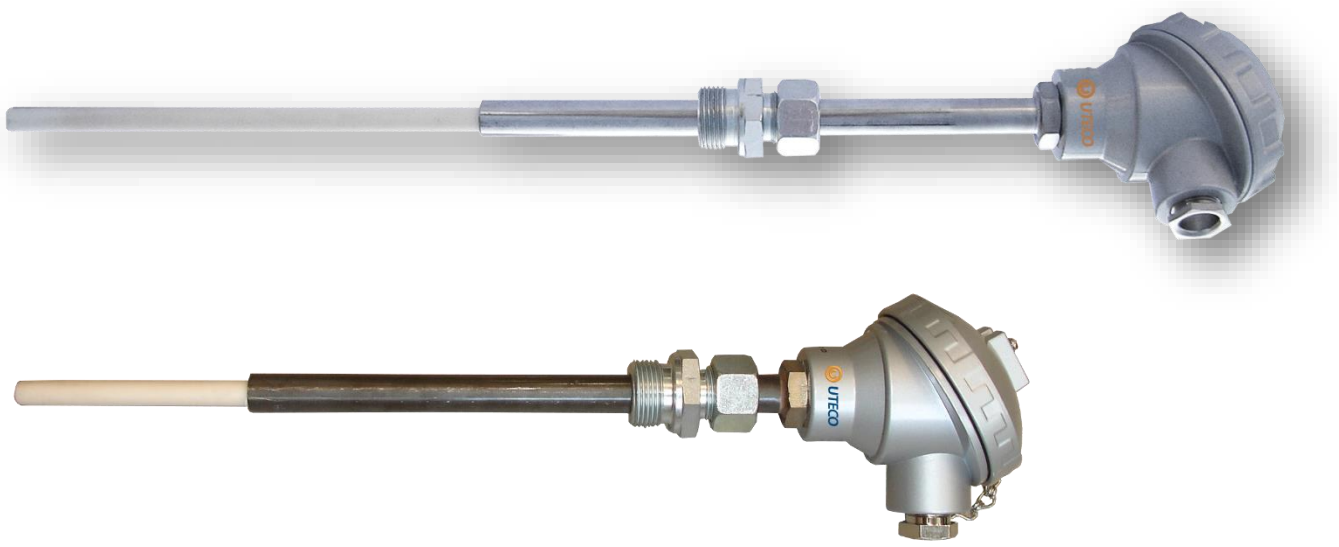
Ordering Example:

Ordering Code	1	2	3	4	5	6	7	8	9	10
BM30	K	1xTC	1	40	1484	KER610	3/4	00	BUZ	0-1200°C

Series BK/10- High temperature sensor with terminal head form KNE with thread and stepped sheath made of ceramic.

Application

General purpose used for measuring temperature of primary and secondary combustion chambers.
Application includes oven, incinerator and furnaces.



Specifications

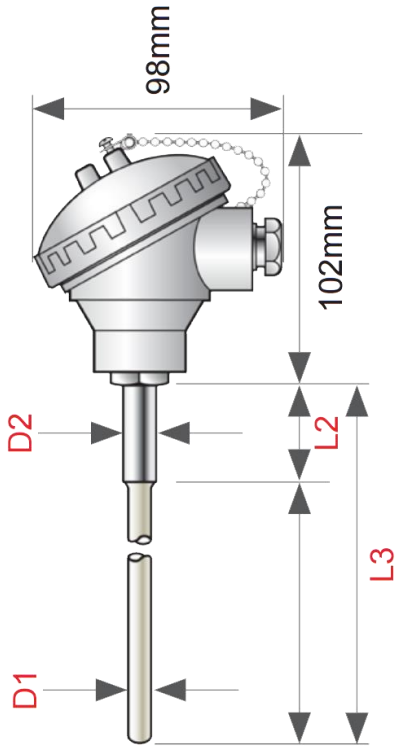
Type and tolerances:	Measuring insert is fitted. Thermocouple according to DIN EN 60584 Class 1 Version with two thermocouples are also possible version with Type R, S, N and K

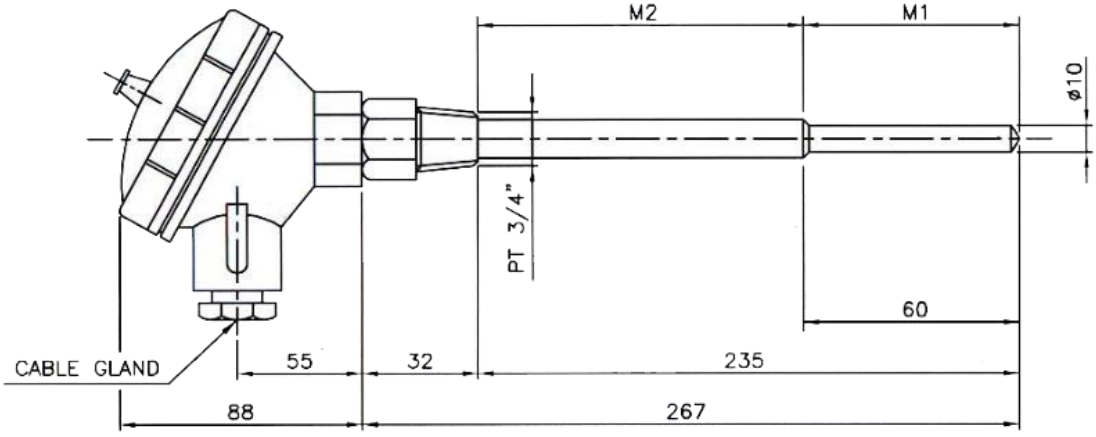
The BMR/26 is supplied with IP67 rated heavy duty die cast alloy terminal head.(M20x1,5 mm) (able entry thread)
The screw to lid has a robust chain ensuring it remains attached to the head. A ceramic terminal block inside the head makes connections to the extension cable very simple.
For temperature range 0° to 1600°C

Ordering Code

	1	2	3	4	5	6	7	8	9
BK10									

1	Measuring Insert	1xS PtRh10% 0 +1550°C 1xR PtRh13%-Pt 0 +1600°C 1xN NiCroSil –NiSil 0 +1300°C 1xK NiCr-Ni 0 +1200°C
2	Ceramic probe outer diameter D1	10 mm 12 mm 15 mm Other specify
3	Immersion length L3	250 mm 267 mm 370 mm 500 mm Other specify
4	Support tube diameter D2	15mm 21,3 mm Other specify
5	Support tube length L2	50 mm 100 mm 150 mm 200 mm Other specify
6	Ceramic sheath material	C610 C799
7	Process connection Adjustable	¾ BSPM 1'' BSPM M 33x2 female
8	Temperature range	0 to 1200°C 0 to 1300°C 0 to 1550°C 0 to 1600°C
9	Wire thermocouple diameter (only for PtRh-Pt)	0,35 mm 0,5 mm





Ordering Example:

	1	2	3	4	5	6	7	8	9
BK10	1xS	10	250	15	200	C799	3/4	0-1600°C	0.5mm

Series BK/11-High temperature sensor with terminal head form KNE with thread and stepped sheath made of ceramic.

Application

General purpose used for measuring temperature of primary and secondary combustion chambers.
Application includes oven, incinerator and furnaces.

Specifications

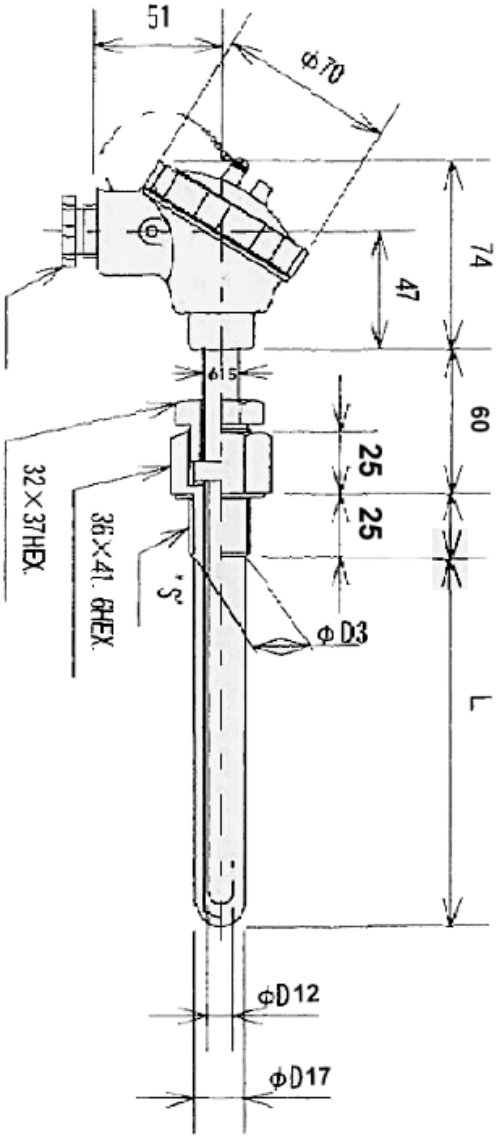
Type and tolerances:	Measuring insert is fitted. Thermocouple according to DIN EN 60584 Class 1 Version with two thermocouples are also possible version with Type R, S, N and K

The BMR/26 is supplied with IP67 rated heavy duty die cast alloy terminal head.(M20x1,5 mm) (able entry thread)
The screw to lid has a robust chain ensuring it remains attached to the head. A ceramic terminal block inside the head makes connections to the extension cable very simple.
For temperature range 0º to 1600ºC

Ordering Code

	1	2	3	4	5	6	7	8	9
BK11									

1	Measuring Insert	1XK (NiCr-Ni) 2xK (NiCr- Ni) 1xN (NiCROSil – NiSiL) 2xN NiCROSil –NisiL 1xS (P+RH-Pt10%) 1xR (P+RH-Pt 13%)
2	Outside protection tube diameter	00(without) 15 mm 17 mm
3	Inside ceramic tube diameter	10 mm 12 mm
4	Immersion Length	250 mm 350 mm Other specify
5	Process connection	PF3/4 BSPM Other specify
6	sheath Tube material	Inconnell 600 SS446
7	Sheath ceramic material	C610 C799
8	Temperature range	0-1200°C 0-1400°C 0-1600°C



Ordering Example:

	1	2	3	4	5	6	7	8
BK11	1xS	17	12	35	PF3/4	Inc	C79	1600°

Series BK/20 – High temperature sensor with terminal head form BUZ with snap lock system and ceramic tip

Application:

General Purpose. Measuring temperatures in liquids and gases: Application includes heating installations, ovens, furnaces and plant engineering.

Measurement insert	Diameter	Total Length	Ceramic material	Temperature Range	Article Nr.
1 x Pt30Rh-Pt 6Rh (B)	10x7mm	458mm	C799	0° to +1700° C	BK20.0000000
1 x Pt30Rh-Pt 6Rh(B)	10x7mm	1020mm	C799	0° to +1700° C	BK20.0000001
1 x NiCr –Ni (K)	10x7mm	475mm	C799	0° to +1250° C	BK20.4000000
1 x Pt30Rh-Pt 6Rh(B)	10x7mm	475mm	C799	0° to +1700° C	BK20.0000002
1 x NiCr –Ni (K)	10x7mm	475mm	C799	0° to +1250° C	BK20.4000001
1 x NiCr –Ni (K)	10x7mm	610mm	C799	0°to +1250° C	BK20.4000002

Specifications

Resistance type and tolerances:	The thermocouple insert is fitted with thermocouple to class 2 according to DIN EN 60584 Thermocouple diameter wire 0.5mm for Type B (Pt30Rh- Pt 6Rh) and 2mm for Type (NiCr-Ni)
Probe diameter:	10x7mm, ceramic C799
Support tube:	22x2mm (Material 1.4841)
Probe Length:	457mm, 458mm, 475mm, 610mm, 1020mm
Support length:	204mm
Temperature range:	from 0° to +1700° C
Terminal head:	Form BUZ DIN 43729 Aluminum die casting IP65 (Snap lock system)

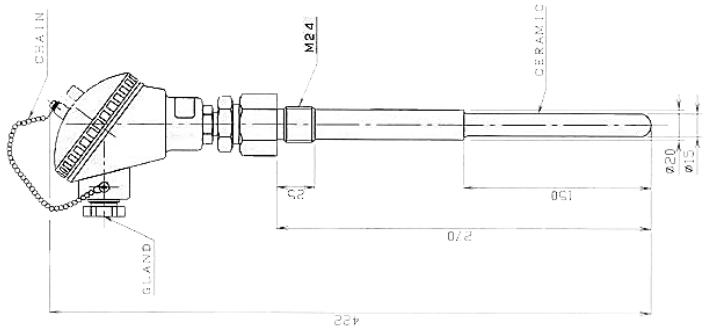
Other technical characteristics (length, diameter, etc.), available upon request.

Series AK/20 – High Temperature sensor with terminal head form KNE with thread and stepped sheath made of ceramic.

Application:

General Purpose of application used for measuring heating installations, furnaces and plant engineering

Specifications



Measuring insert:	The AK/20 is fitted with thermocouple as per DIN EN 60584 Class 2, Type K (NiCr-Ni) Version with two thermocouple are also possible. The ceramic sheath can be supplied as impervious Aluminous porcelain (c610) which is suitable for use up to 1400° C or impervious recrystallized Aluminum (c799) which is suitable for use up to +1650° C . Both sheaths, being ceramic, are relatively fragile and can be damaged by thermal shock. If not, preheated before insertion into high temperature applications.

The BMR/26 is supplied with IP67 rated heavy duty die cast alloy terminal head.(M20x1,5 mm) (able entry thread)
The screw to lid has a robust chain ensuring it remains attached to the head. A ceramic terminal block inside the head makes connections to the extension cable very simple.
For temperature range 0° to 1200°C

Ordering Code

	1	2	3	4	5	6	7
AK20							

1	Measuring Insert	1xK (NiCr-Ni) 2xK (NiCr-Ni)
2	Ceramic Tube diameter	Ø10mm Ø15mm
3	Immersion Length L	270mm Other specify
4	Sheath material	C610 C799
5	Process connection	M24x2mm Other specify
6	Metallic support Diameter	20 mm Other specify

Ordering Example:

	1	2	3	4	5	6
AK20	K	10mm	270	C610	M24x2	20mm

Series AKK/10 – High Temperature sensor with terminal head A with ceramic tip.

Application:

General Purpose. Measuring high temperatures in gases, ovens, furnaces and plant engineering.
Field of application up to 1700° C (depending on thermocouple)
Mounted with either sliding flange or with compression fitting.

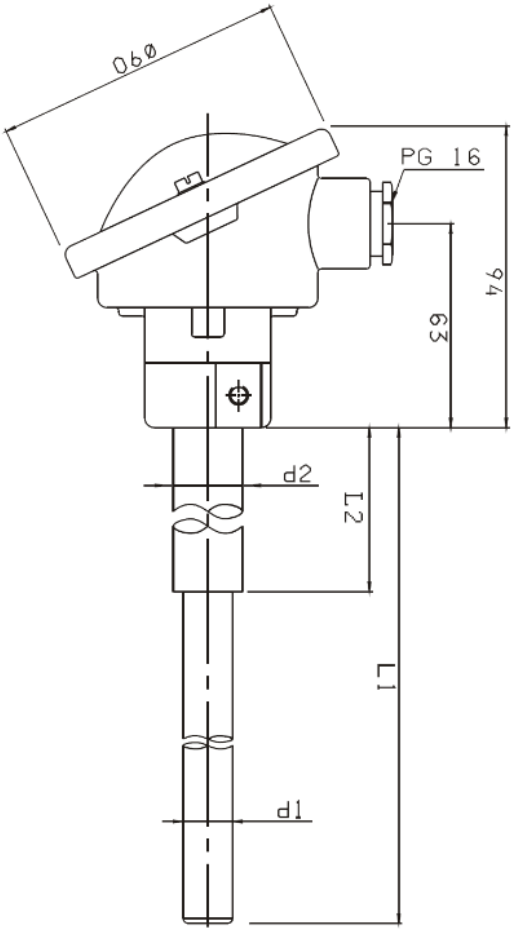
Specifications

Type and tolerances:	The measuring insert is fitted with thermocouple Type : K, J, E, N, R, S or B in accordance with DIN EN 60584 Class 1 Available with single or double thermocouple.
Process attachment:	Adjustable flange or coupling.
Ceramic probe diameter	10 mm, 15mm or 24mm
	Gas – proof ceramic internal tube protects thermocouple against pollution.
Support tube diameter:	ø15 mm/ ø 22mm/ ø32 mm
Immersion length:	250mm / 350mm/ 500mm /700mm/ 1000mm /1200mm
Terminal head:	form A DIN 43729 Aluminum die Casting, IP54
Temperature range:	from 0 to +1700° C

Ordering Code

	1	2	3	4	5	6	7	8	9
AKK10									

1	Measuring Insert	Type K max +1200°C Type J max +700° C Type E max +800°C Type N max +1200° C Type R max +1600° C Type S max +1600° C Type B max + 1800° C	
2	Number of thermocouple	1xTC 2xTC	
3	Ceramic probe diameter	ø10 ø15 ø24	
4	Support tube length L2	150 mm 200 mm 400 mm Other specify	
5	Nominal length L1	250mm 350mm 400mm 500mm	700mm 1000mm 1200mm Other specify
6	Sheath ceramic material	KER610 KER710	
7	Internal ceramic material	KER610 KER710	
8	Process connection	¾ BSP 1'' BSP 1-1/4BSP ø15 flange according to DIN 43734 ø22 mm flange according to DIN43734 ø32 mm flange according to DIN43734	
9	Program transmitter	4-20 mA 00(without)	
10	Connection head	Type A (IP54) Type BUZ (IP65)	
11	Temperature range	0-700° C 0-800° C 0 +1200° C 0+1600° C 0- 1800° C	



Ordering Example:

	1	2	3	4	5	6	7	8	9	10	11
AKK10	S	1	10	150	250	KER710	610	3/4	00	BUZ	1200 C

Series AM/40-High temperature sensor for plug-in metal welded multipart thermowell with bar stock tip.

Application:

General Purpose application used for measuring high temperature in low pressurized application up to 1 bar suitable in pipes, stocks and ducts for flue and combustion gar measurements. Where the thermowell is exposed to mechanical abrasion

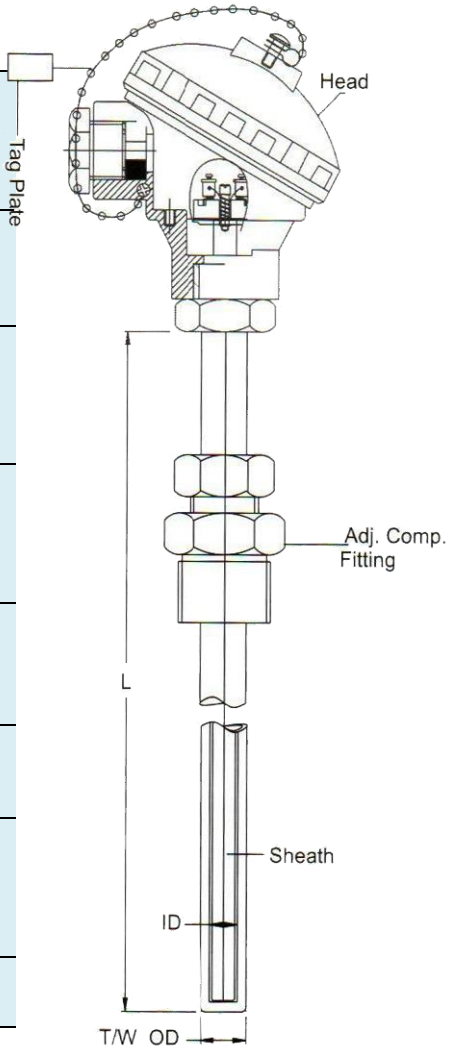
Specifications

Type and tolerance:	The thermowell insert is fitted with thermocouple according to Class 1 or Class 2 to DIN EN 60584. Available with twin thermocouple with thermowells made of various materials. Available with transmitter.
Connection head:	Screw Type cover, Material: Aluminum die-casting, Temperature range:-40°C up to +100°C IP66
Measuring insert:	Replaceable measuring insert Type M.I.C. Inconell 600 ø6 mm isolated measuring point.
Temperature range:	Operating temperature 0-1200°C

Ordering Code

	1	2	3	4	5	6	7	8
AM40								

1	Measuring Insert	1xK (NiCR-Ni) 2xK (NiCR-Ni) 1xJ (Fe-konst) 2xJ (Fe-konst) 1xN (NiCroSil-Nisil) 2xN (NiCroSil-Nisil)
2	Thermowell Diameter :	22 mm 24 mm 26 mm 30 mm Other specify
3	Total length L :	500 mm 710 mm 1000 mm 1200 mm 1500 mm Other specify
4	Sheath material :	SS304 SS316 SS310 HRS-446 Inconell 600 Other specify
5	Process connection:	(01) compression fitting G1 (02) Backing flange (03) Compression fitting G 3/4 (00) without Other specify
6	Connection head :	(01) Type A22 (02) Type BUZ (03) Type BUZH (04) Type Screw Cover
7	Programmable Transmitter:	(01) 4-20 mA (specify temperature range) (02) Hart (specify temperature range) (03) Hart Dual(specify temperature range) (04) Hart ATEX(specify temperature range) (05) 4-20 mA ATEX(specify temperature range) (06) (without transmitter)
8	Temperature Range:	0-750° C 0-1150° C 0-1200° C



Ordering Example:

	1	2	3	4	5	6	7	8
AM40	2xK	22mm	100	44	03	04	03	0-1200°C

Series MLT/10 – Temperature sensor with terminal head form A with cast iron thermowell

Application:
General Purpose. Measuring and regulating temperatures for molten metal

Measurement insert	Diameter in mm	Immersion Length	Extension Length	Temperature Range	Article Nr.
1 x NiCr–Ni (K)	70mm	1100	500mm	0° to +900° C	MLT10.4000000
2 x NiCr–Ni (K)	70mm	1700	500mm	0° to +900° C	MLT10.5000000

Specifications

Resistance type and tolerances:	The measuring insert is fitted with thermocouple according to class 2 to DIN EN 60584insert is fitted with thermocouple according to Class 2 to DIN IEC 60584
Probe diameter:	70mm
Immersion length:	1100mm or 1700mm
Temperature range:	0° to +900° C
Terminal head:	form A22 DIN 43729 Aluminum die casting IP54
Sheath material:	Cast Iron

Other technical characteristics (length, diameter, etc.), available upon request.

Series MMTC 10/13 – Male Connector (contact block).

Accessories for thermocouples Type S/R

Measurement insert	Article Nr.
17x50mm	MMTC10.0000000
17x100mm	MMTC13.0000000

Specifications

UTECO- contact Block only for temperature, Type S or R, 2 strings.

Length:	50mm or 100mm
	Nickel coated

Series MLT/20 – Thermocouples CLASS 1, Type K (NICR-NI) DIP

Measurements thermoelement can be used up to 1350 °C quick response time due to the thin wall at the hot-tip.
Several hundred measurements in aluminum, excellent durability in bronze, brass and copper (alloys).
Excellent resistance to chemical corrosion of molten aluminum and copper (alloys).

Measurement insert	Dip Length	Wire length	Article Nr.
1 x NiCr–Ni (K)	457mm	1100mm	MLT20.4000000
1 x NiCr–Ni (K)	203mm	1400mm	MLT20.4000001

Specifications

DIP measurement thermoelement consists of a chronium–steel tube.

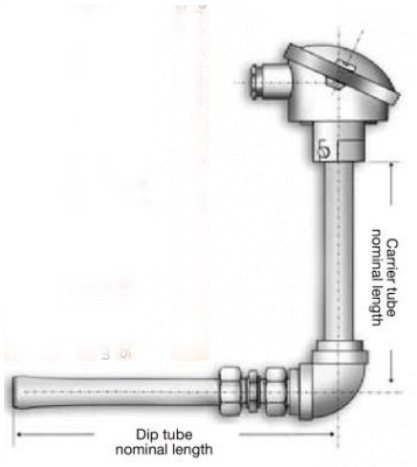
Type **SS446/DIN 1.4749** and two **Type K (NICR-NI)** thermowires.

These elements are simple to connect very economical and easy to use with the light weight lance and optional digital pyrometer.

Series MLT/30 – Angle Temperature probes with terminal head form A for molten metal

Application:
General Purpose. Application for measuring and regulating temperatures in salt baths

Measurement insert	Diameter in mm	Length in mm	Temperature Range	Sheath Material	Article Nr.
1xFe-Konst	ø22x2mm	600	0° Up to 700° C	Titanium	MLT30.0000000



Specifications

Connection head:	Type A22 IP54
Carrier tube:	ø22x2mm material St. 35.8
Temperature range:	from 0° to +700° C
Dip tube:	Ø18x1.5mm made of titanium
Elbow:	¾ with 2 screw nipples
Inner tube:	Ø10x7mm C610
Thermocouple:	1xFe-Konst type J Ø3mm mineral insulated cable to DIN EN 60584
Carrie tube length:	500mm
Dip tube Nr.:	600mm

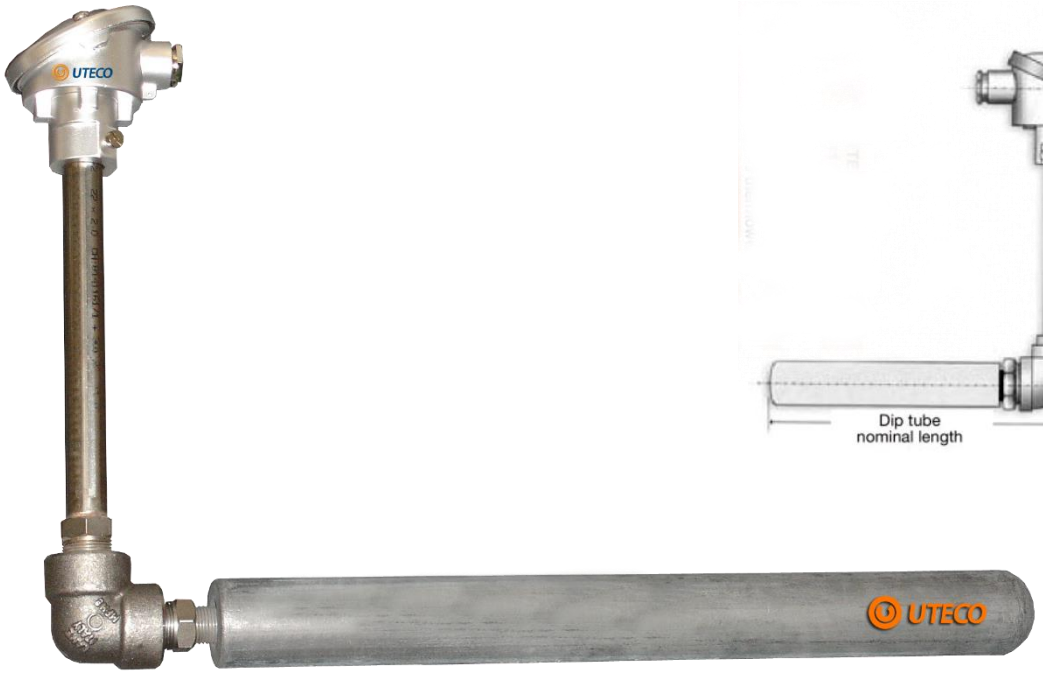
Recommended protection tube.
Titan NT for tused salt
Tenifer Up to 600° C

Series MLT/31 – Angle Temperature probes with terminal head form A for molten metal.

Application:

General Purpose. Application for measuring and regulating temperatures for molten metal

Measurement insert	Article Nr.
1 x NiCr–Ni (K)	MLT31.4000000



Specifications

Connection head:	Type A IP54
Carrier tube:	Stahl ø22x2mm
Temperature range:	from 0° to +700° C
Dip tube:	Graphite Ø50x25x500mm
Elbow:	G¾
Inner tube:	Stahl, mit G1/2 A
Measuring insert:	1xNICR-NI, Ø6mm, Mineral insulated cable material 24816
Deviation:	IEC 584-2 KL1
Dip tube nominal length:	500mm

Recommended protection tube

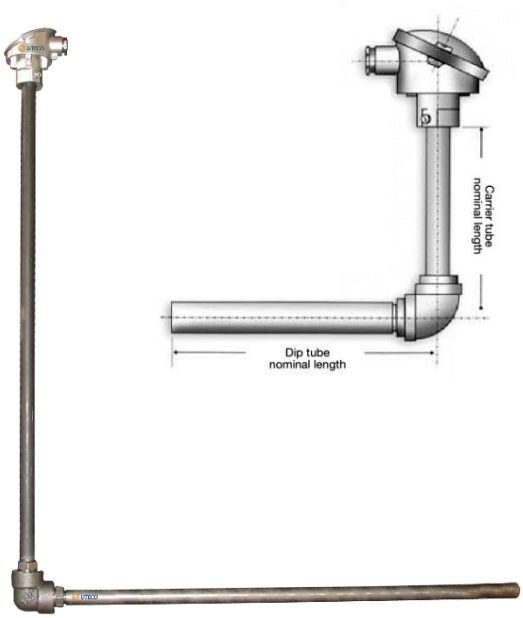
Graphite molten metal for:

- Aluminum 700°C
- Copper 1200°C
- Brass 900°C

Series MLT/32 – Angle Temperature probes with terminal head form A for molten metal

Application:
General Purpose. Application for measuring and regulating temperatures in molten metal and in salt baths

Measurement insert	Article Nr.
1 x NiCr–Ni(K)	MLT32.4000000
1 x NiCr–Ni(K)	MLT32.4000001



Specifications

	MLT32.4000000	MLT32.4000001
Connection head:	Type A22 IP54	Type A22 IP54
Dip Protection tube:	Ø22x5mm- made of pure iron	32x4mm- Protection sleeve made of smoke tube welded on the dip tube
Carrier tube:	Ø22x2mm Material St.358	Ø22x2mm Material St.358
Temperature range:	from 0° to +1000° C	from 0° to +1000° C
Dip tube Length:	710mm	700mm
Carrier tube Length:	700mm	700mm
Elbow:	¾ with 2 screw nipples	1¼" with screw nipples
Measuring insert:	1xNICR-NI, Class 1, Ø4.5mm mineral insulated cable to DIN EN 60584	1xNICR-NI, Class 1, Ø4.5mm mineral insulated cable to DIN EN60584
Sheath material:	Inconell 600	Inconell 600

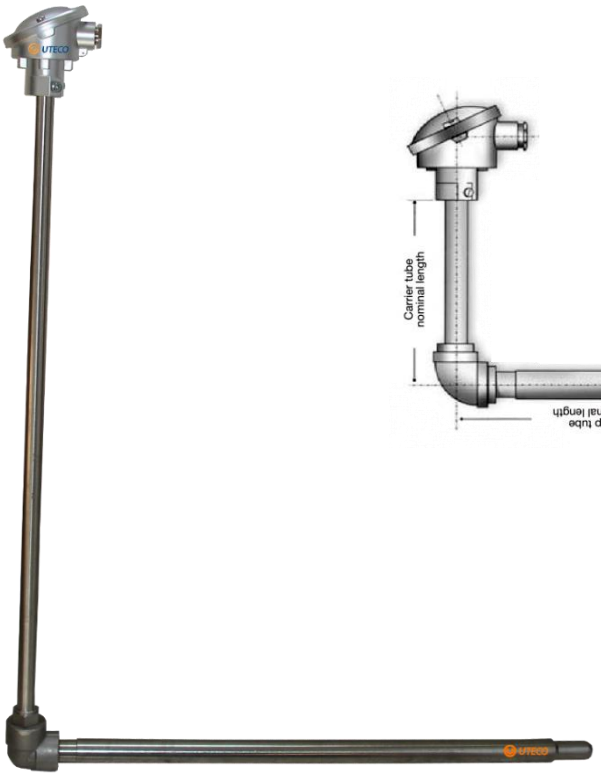
Recommended protection tube
Pure iron 22x5mm for tused salt
Sodium nitrate, chloride and annealing, tempering and quenching baths
Containing Cyanide up to 1000°C
For molten metal: Al/mg alloy up to 700oC and Zinc

Series MLT/33 – Angle Temperature probes with terminal head form A for molten metal

Application:

General Purpose. Application for measuring and regulating temperatures in molten metal and in salt baths

Measurement insert	Article Nr.
1 x NiCr–Ni(K)	MLT33.4000000
1 x PtRH-Pt 10% (S)	MLT33.6000000



Specifications

	MLT33.4000000	MLT33.6000000
Connection head:	Type A22 IP54	Type A22 IP54
Dip Protection tube:	Ø30x9mm, made of SL25 Point tapered (Ø24mm l=50mm, tube drilled)	Ø30x9mm, made of SL25 Point tapered (Ø24mm l=50mm, tube drilled)
Carrier tube:	Ø22x2mm Material St. 35.8	Ø22x2mm Material St. 35.8
Temperature range:	from 0° to +1100° C	from 0° to +1300° C
Dip tube Length:	700mm	700mm
Carrier tube Length:	700mm	700mm
Elbow:	1¼" with screw 2 nipples	1¼" with 2 screw nipples
Inner tube:		Ø8x5mm C799
Measuring insert:	1xNICR-NI, Class 1, Ø4.5mm to DIN EN 60584-2	1xPtRH-Pt 10%, Type S, Ø0.5mm to DIN EN 60584-2

Recommended protection tube

1.4821(SL 25) for tused salt
Sodium nitrate, chloride and annealing tempering and quenching baths
Containing Cyanide

Series MLT/34– Angle Temperature probes with terminal head form A with Syalon thermowell

Application:

General Purpose. It is extremely resistant to corrosion by most non-ferrous metals, particularly aluminum has excellent thermal shock resistance or a result of its high, strength, toughness and thermal conductivity

Measurement insert	Probe diameter	Dip tube Length	Temp. Range	Article Nr.
1 x NiCr–Ni(K)	Ø16mmx10mm	500mm	From 0° to +1200°C	MLT34.4000000
1 x NiCr–Ni(K)	Ø22mmx12mm	500mm	From 0° to +1200°C	MLT34.4000001
1 x NiCr–Ni(K)	Ø28mmx16mm	1200mm	From 0° to +1200°C	MLT34.4000002

Specifications

Connection head:	Type A22 IP54
Carrier tube:	Stahl Ø22x2mm
Temperature range:	From 0° to +1200°C
Dip tube:	**Syalon** 101
Elbow:	G3/4
Measuring insert:	1xNICR-NI(K), Ø6mm,Mineral insulated cable material 24816 to DIN EN 60584 class 1

Recommended protection tube

SYALON 101
Aluminum 700°C
Brass 1200°C
SYALON 110
Copper 1400°C

Series RM- Indoor, Outdoor and Channel RTD temperature sensor

RM/10 (Channel RTD Temperature sensor with stepped sheath protection class IP65)
RM/11 (Indoor and Outdoor RTD temperature sensor with stepped sheath protect class IP66)
RM/12 (Outdoor RTD Temperature sensor protection class IP65)
RM/13 (Indoor RTD temperature sensor protection class IP20)

Application:

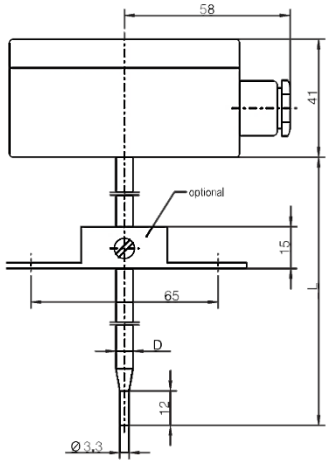
General Purpose. Indoor, outdoor and channel RTD Temperature Probes for air conditioning technology -mainly used for temperature measurement in rooms, in air channels and outdoors such as data centers, hospitals, offices, air ducts etc.

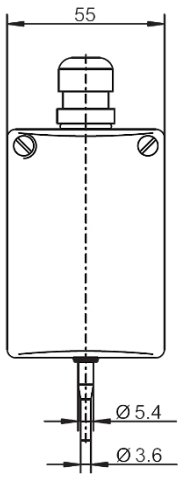
RM/10

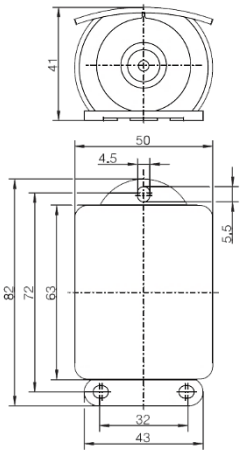
RM/11

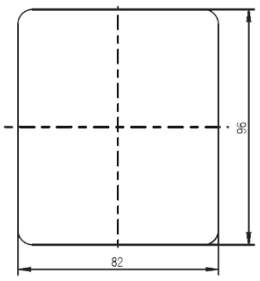
RM/12

RM/13









Specifications

Measuring insert:	The measuring insert is normally fitted with a Pt100 temperature sensor as per DIN EN60751 Class B in 2-wire system version with Pt500, Pt1000, Ni 100, Ni 1000, NTC can also supplied .
Temperature Range:	-50° to 90°C
Terminal Box Protection Class:	Plastic PVC housing IP20 to IP65
Protection Tube:	Stainless steel 1,4571 diameter 8mm
Connection:	in 2wire, 3wire, or 4 wire circuit
Sheath Material:	Stainless steel 14571
Transmitter:	analog transmitter, output 4-20mA or 0-10V

Ordering Code

RMxx

1	2	3	4	5	6	7	8	9

1	Measuring Insert	Pt100 Pt500 Pt1000 Ni100 Ni1000	KTY-81-110 NTC 1 Kohm NTC 10 Kohm Other specify
2	Protection tube diameter	(00)None ø6.0 mm ø8.0 mm Other specify	
3	Protection tube Length	(00)None 100mm 150mm 200mm Other specify	
4	Process connection	(00)None (01)(G ¼) (02)(G ½) (03)(stop flange 0.6 mm) (04)(stop flange 0.8 mm)	
5	Number of RTD	1xRTD 2xRTD	
6	Number of conduct	2wire 3wire 4wire	
7	Tolerance class	(01)Class B (standard) (02)Class A (03)Class AA (1/3 DIN B) (04)Technical data Ni / NTC / KTY	
8	Temperature transmitter	00 None 4-20 mA (connection with 1xPt100) 0-10 V RS485 MODBUS	
9	Temperature range	-50° +90° C -30° +60° C -20° +80° C -50° +200° C	

Ordering Example:

RM10

1	2	3	4	5	6	7	8	9
Pt100	6	150	03	1xRTD	3	01	00	-50+200° C

Series RM/15 – Temperature sensor with Junction Box for Air

Application:

General Purpose. Measuring the Indoor & Outdoors air temperature. Typical application are rooms, chill rooms, cargo, refrigerated ware house, data centers etc. The sensor is mounted on the wall about 1.8m above the floor level. Installation should not take place near a cooling /heat source or directly front of air blowing channel

Specifications

Resistance type and tolerance :	The measuring insert is normally fitted with a Pt100 or Pt1000 to DIN EN 60751 Single Or Double • High accuracy • Rapid response time • Highduarabilit6y against vibration
Protection tube Diameter:	Round 14mm Stainless steel perforated with open end
Connection Box:	Wall mounted aluminum head, protection IP68,die cast aluminum with screw cap and chain Available with temperature transmitter

Ordering Code

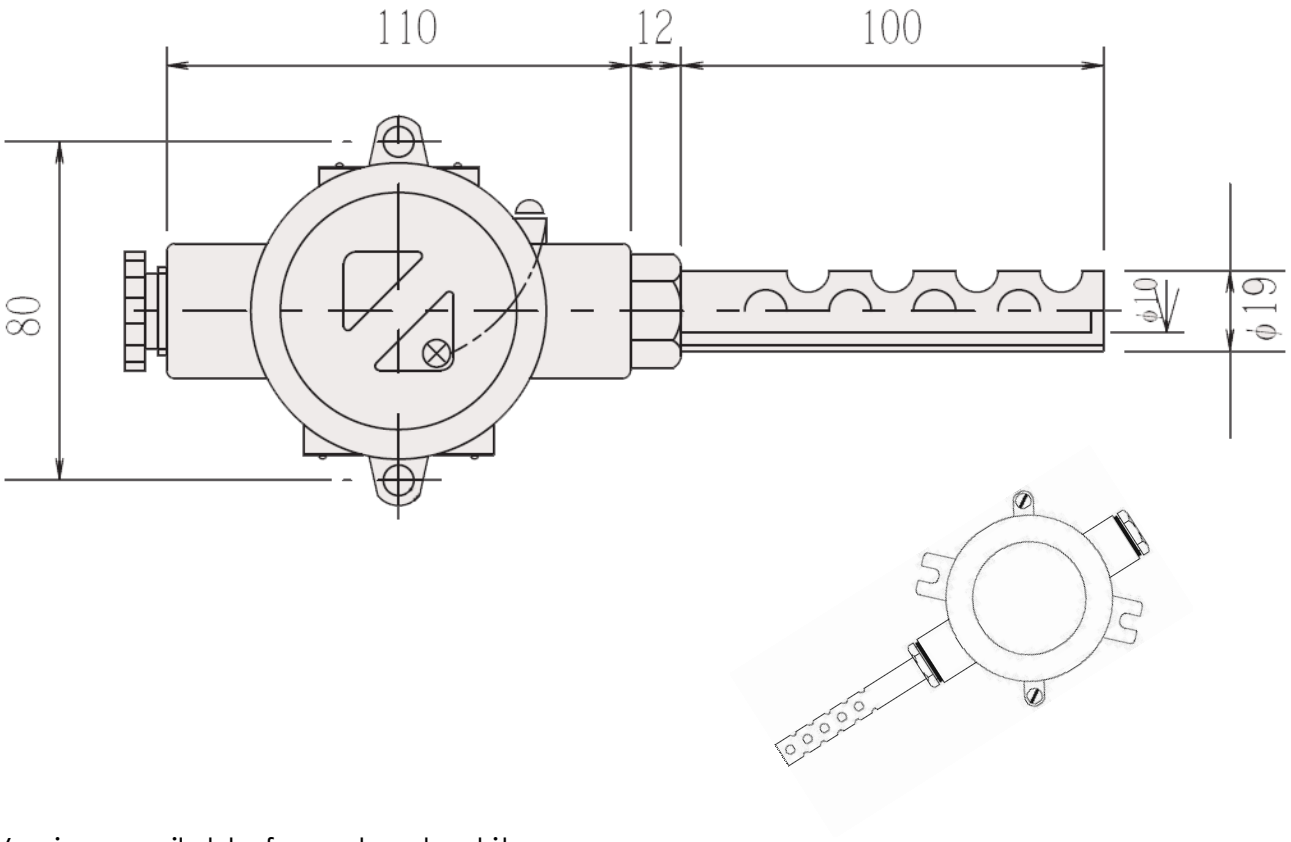
RM15

1	2	3	4	5	6	7	8

1	Measuring Insert	1 x Pt100 2 x Pt100 1xPt1000 2xPt1000 Other specify	
2	Probe diameter in mm	Ø6mm Ø8mm Ø10mm Ø12mm Ø14mm Other specify	
3	Immersion length L1	65mm 85mm 100mm 150mm Other specify	
4	Sheath Material	AISI 304 AISI316Ti	
5	Number of conductors	2wire 3wire 4wire	
6	Tolerance in acc. with DIN IEC60751	TypA +/-0.15°C TypB +/-0.3°C Typ1/3 +/-0.1°C Typ1/6 +/-0.05°C Typ1/10 +/-0.03°C	
7	Temperature Transmitter	4-20mA (Analog) 0-10V (Specify Temperature Range) 4-20mA (Programmable) 00 (without transmitter)	**Wtrans B** programmable head transducer with ratio transmission (data sheet 707060) Modbus
8	Temperature range	-50° to 80°C -50° to 200°C Other specify	

Ordering Example:

	1	2	3	4	5	6	7	8
RM15	1xPt100	14	65	316	3	1/6	00	-50 +80°C



Version available from standard items

Measurement insert	Probe Diameter	Immersion Length	Sheath material	Temperature Range	Article Nr.
1 x Pt100 1/3DIN	14mm	150mm	AISI 316	from -50° to +260°C	RM14.0000000
2 x Pt100 1/3DIN	14mm	150mm	AISI 316	from -50° to +260°C	RM14.0000001
1 x Pt100 1/3DIN	8mm	100mm	AISI 316	from -50° to +260°C	RM14.0000002
4-20MA 1/3DIN	8mm	100mm	AISI 316	from -50° to +260°C	RM14.0000003
0-10V 1/3DIN	8mm	100mm	AISI 316	from -50° to +260°C	RM14.0000004
1xPt100 1/6DIN	14mm	85mm	AISI 316	from -50° to +70°C	RM14.0000005

Series RM/20 – Temperature sensor Twin Resistance thermometer for water ingress Alarm systems.

Application:

General Purpose. Measuring temperature in water ingress Alarm systems with two sensors 1 x Pt100 with different diameter 2mm and 7mm

Measurement insert	Probe Diameter	Immersion Length	Sheath material	Temperature Range	Article Nr.
1xPt100	2mm	50mm	AISI 316	from -50° to +150°C	RM20.0000000
1xPt100	7mm	50mm	AISI 316	from -50° to +150°C	RM20.0000001

Specifications

Resistance & tolerance:	Resistance thermometer 1xPt100 Class A, 2 wire systems to DIN EN 60751.
Probe diameter:	2mm or 7mm
Probe Length:	50mm
Protection tube:	St. St. 1.4571
Process Connection:	1/8 NPT
Bare end:	70mm with insulation Teflon 2x0.22mm^2
Temperature range:	-50 +150° C
Response time:	Within 5 sec
Ingress Protection:	IP68

Series RM/30 – Temperature sensor with EExd terminal Box

Application:

General Purpose of applications used for LNG cargo Tank Bulk Head, refrigerators and other containers holding.

- Excellent measurement accuracy
- Rapid response speed
- High durability against vibrations
- Operating range -200° C to 100°C
- Class A

Measurement insert	Probe Diameter	Immersion Length	Sheath material	Temperature Range	Article Nr.
1 x Pt100	4.8mm	100mm	AISI 316	from -200° to +100°C	RM30.1100000
1 x Pt100	6mm	120mm	AISI 316	from -200° to +100°C	RM30.1100001
1 x Pt100	10mm	150mm	AISI 316	from -200° to +100°C	RM30.1100002
1 x Pt100	12mm	200mm	AISI 316	from -200° to +100°C	RM30.1100003
4 – 20mA	6mm	100mm	AISI 316	from -200° to +100°C	RM30.0000000

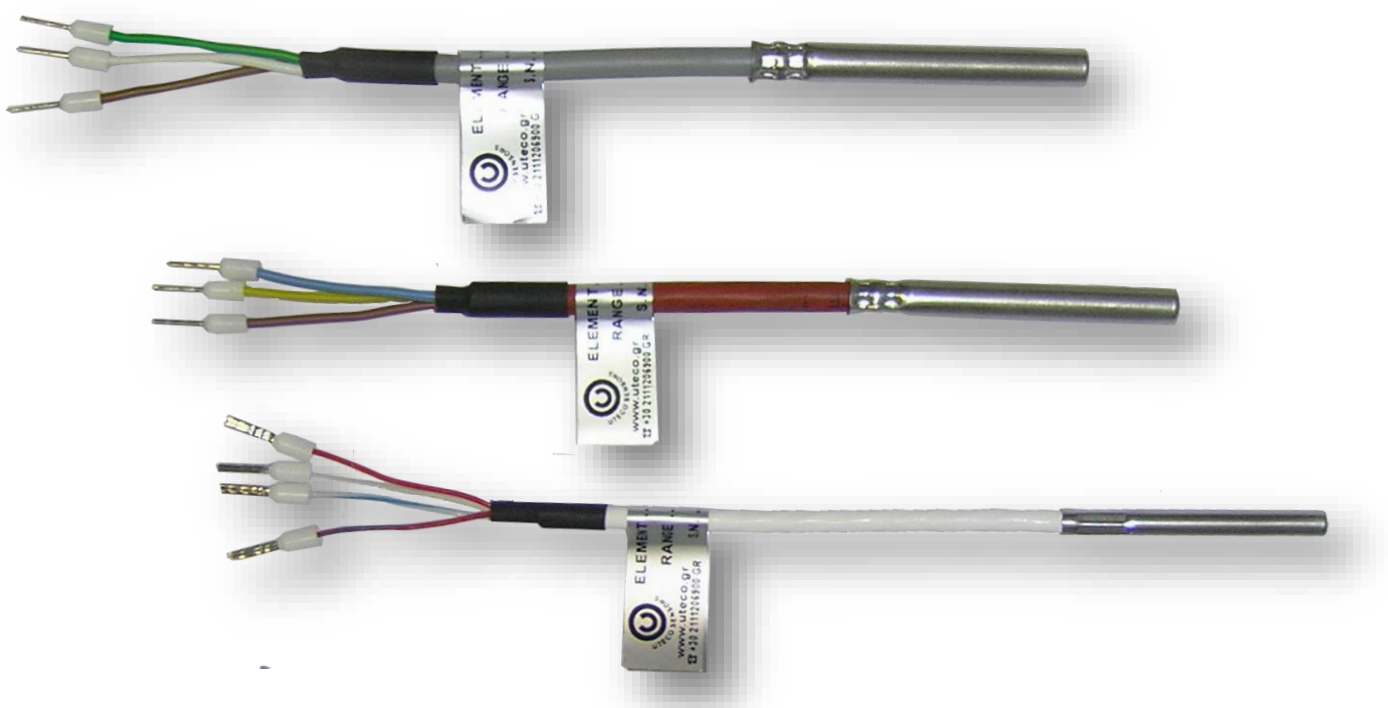
Specifications

Measurement insert:	The measuring insert is normally fitted with a Pt100 Temperature probes sensors to DIN EN 60751 Class A in 3 wire or 4 wire
Connection Box:	Weatherproof with screw on cover, cast aluminium IP66, explosion proof Eexd IICT6
Transmitter:	analog transmitter, output signal 4 – 20 mA
Cable Gland:	Entry thread 1/2NPT IP 66/68 ExdIICGb / ExeII CGb /ExtbIII CDb

Series CB/30 Temperature sensor with connection cable.

Application:

General Purpose. Measuring temperature in liquids and gases. Application includes HVAC, controlling cooling water, ventilation systems with in general industry and marine applications.

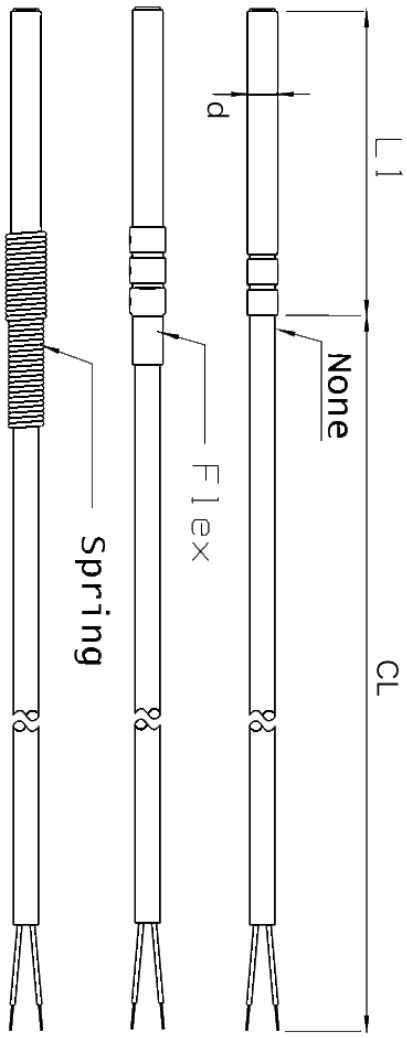


Resistance & tolerance:	Thermometer is based on standardized Pt100, Pt500, Pt1000, Ni100, Ni1000, NTC/PTC, AD592, D518S20. The probe is based on a stainless Nr.14571, Steel housing with cable, which makes the sensor extremely flexible.
Cable:	PVC, ambient temperature -5 +80 C PUR, ambient temperature -5 + 105 C Silicone, ambient temperature -190 + 260 C Fiber glass/ metal braiding -50+400 C
Response time:	$t_{0.5}$ = 4 s and $t_{0.9}$ = 10 s with Ø5 mm $t_{0.5}$ = 6 s and $t_{0.9}$ = 14 s with Ø6 mm in water 0.4 m/s • Short response times
Vibration stability:	Shock -100 g/6 ms
Vibrations:	4g sine function 5-200 Hz measured according to IEC 60068-2-6
Protection:	IP67

Ordering Code

1	2	3	4	5	6	7	8	9
CB30								

1	Measuring insert	1xPt100 1xPt 500 1xPt1000 1xNi1000 1xNi100 NTC (Specify the kΩ at 25° C) PTC (Specify the kΩ at 25° C) AD 592 DS18520 (Other specify)
2	Probe diameter :	3.0 mm 4.0 mm 4.5 mm 4.8 mm 5.0 mm 6.0 mm 7.0 mm 8.0 mm Other specify
3	Immersion length :	30 mm 40 mm 50 mm 60 mm 70 mm 100 mm 150 mm 200 mm Other specify
4	Sheath material :	AISI 316
5	Cable length:	0.5 m 1.0 m 1.5 m 2.0 m 3.0 m 3.5 m 5.0 m 5.5 m 6.0 m Other specify
6	Cable insulation :	PVC -5° +80° C PUR -5° +105° C Silicone -50° +180° C PTFE -190° +260° C Arm fiber glass -50° +400° C
7	Tolerance class/DIN :	Cl. A ± 0.15 °C Cl. B ± 0.3 °C 1/3 DIN ± 0.1 °C 1/6 DIN ± 0.05 °C
8	Number of elements:	1x RTD 2x RTD
9	Junction (outer of cable)	Flexible Spring NONE



Ordering Example:

	1	2	3	4	5	6	7	8	9
CB30	Pt100	4	50	316	3	PTFE	Cl.B	1xRTD	None

Series CB/11 – Temperature sensor with Silicon connecting cable

Application:

General Purpose. Measuring temperature in liquids and gases. Application include HVAC, refrigeration, heating, installations, ovens, plant engineering and laboratories.

Measurement insert	Diameter	Immersion Length	Cable length	Temperature Range	Article Nr.
1 x Pt100	6mm	50mm	3m	-50 +180° C	CB11.0000000
1 x Pt100	6mm	160mm	3m	-50 +180° C	CB11.0000001
1 x Pt1000	6mm	50mm	5m	-50 +180° C	CB11.0000002
KTY 84	6mm	50mm	0.3m	-50 +180° C	CB11.0000003

Specifications

Resistance & tolerance:	Resistance thermometer Pt100 to DIN IEC 60751 class A, B or 1/3 DIN available with 2, 3 or 4 wire circuit.
Probe Diameter:	6mm
Probe Length:	50mm, 160mm
Protection Tube:	Stainless steel 14571
Protection:	IP 67
Cable Insulation:	Silicon – Silicon (3 x 0,5mm²)
Temperature:	From -50 to +180° C

Option: Other versions available with Pt500, Ni1000, Ni120, NTC10KΩ, KTY 11-6, AD592 (available with single or twin resistance thermometer)

Other technical characteristics (length, diameter, cable length etc.) available upon request

Series CB/12 - Temperature sensor with Teflon connecting cable

Application:

General Purpose. Measuring temperature in liquids and gases. Application include HVAC, refrigeration, heating, installations, ovens, plant engineering and laboratories.

Measurement insert	Diameter	Immersion Length	Cable Length	Temperature range	Article Nr.
1 x Pt100	4mm	40mm	1.5m	-50 +260°C	CB12.0000000
1 x Pt100	3mm	22mm	2m	-50 +260°C	CB12.0000001
1 x Pt100	3mm	22mm	3m	-50 +260°C	CB12.0000002
1 x Pt1000	4mm	40mm	2m	-50 +260°C	CB12.0000003
NTC 10Ohm	4mm	40mm	2m	-50 +160°C	CB12.0000004

Specifications

Resistance & tolerance:	Resistance thermometer Pt100 to DIN IEC 60751 class A, B or 1/3 DIN available with 2, 3 or 4 wire circuit.
Probe Diameter:	3mm or 4mm
Probe Length:	40mm
Protection Tube:	Stainless steel 14571
Protection:	IP 67
Cable Insulation:	Teflon-Braided-Teflon (4 x 0,22mm²)
Temperature:	-50° +260° C

Option: Other versions available with Pt500, Ni1000, Ni120, KTY 11-6, KTY84, AD592 (available with single or twin resistance thermometer)

Other technical characteristics (length, diameter, cable Length etc.) available upon request

Series SUR/10- Surface Temperature sensor is an adhesive foil sensor with terminal box IP65. Fitted analogue transmitter 4-20mA

Application:

General Purpose. Measuring temperatures on material surface and especially in solar panels.

Output	Length	Temperature range	Cable length	Article Nr.
4-20 mA	40mm	from -50 to +105°C	1m	SUR10.0000000
4-20 mA	40mm	from -50 to +105°C	2m	SUR10.0000001
0-10V	40mm	from -50 to +105°C	2m	SUR10.0000002
4-20 mA	40mm	from -50 to +105°C	3m	SUR10.0000003
MODBUS	40mm	from -50 to +105°C	2m	SUR10.0000004

Specifications

Resistance & tolerance:	Resistance type and tolerance: Resistance thermometer PT100 or Pt1000, Class A+-0.15° C to 0° C (DIN EN60751) 3 wire system
Temperature range:	from -50 to +105°C
Protection mode:	IP66
Dimensions Probe (w/h/d):	20mm/40mm/7mm
Casing probe:	Aluminum plate, including adhesive tape (tesa)
Adhesive foil:	double sided Pe-Foam mounting tape, fully outdoor suitable UV, water and ageing water
Terminal box	plastic PC housing
Transmitter:	analog transmitter, output signal 4 – 20 mA or 0-10V or MODBUS temperature transmitter

The new THM501 MODBUS temperature transmitter allows user to connect temperature probes in a RS485 MODBUS RTU network, thus reducing the commissioning costs.

By installing the surface temperature sensor at the back of a solar (panel), the panel temperature can be measured. The temperature of solar panels are crucial for their output, because the output decreases by 0.43%k with increasing temperature. By monitoring the temperature at the solar cells, conclusions can be drawn about the behavior of the output curve.

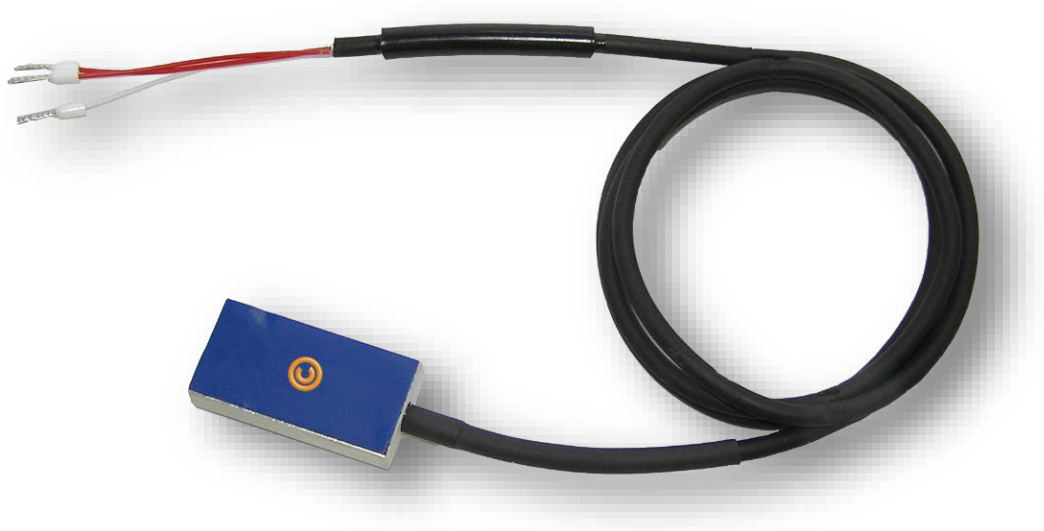
Other technical characteristics (cable length, temperature range, e.g) available upon request

Series SUR/11- Surface Temperature probes is an adhesive foil sensor.

Application:

General Purpose. Measuring temperatures on material surface and especially in solar panels.

Measurement insert	dimensions in mm (w/h/d)	Temperature range in °C	Cable length	Article Nr.
1 x Pt100	20x40x7	from -50 to +105°C	3m	SUR11.0000000
1 x Pt1000	20x40x7	from -50 to +105°C	3m	SUR11.0000001



Specifications

Resistance & tolerance:	Resistance type and tolerance: Resistance thermometer PT100 or Pt1000, Class A+-0.15° C to 0° C to DIN IEC 60751 and 3 wire system, insulation resistance: 100MΩ with 100Vdc
Temperature range:	from -50 to +105°C
Protection mode:	IP66
Connection cable length:	3m with 2 3 conductor connection
Insulation cable:	Stranded copper wire 2,3 or 4 x0.30mm² (22AWG) with single conductor polypropylene insulation and overall thermoplastic elastomer insulation, outer diameter ≈3.5mm
Dimensions Probe (w/h/d):	20mm/40mm/7mm
Casing probe:	Aluminum plate, including adhesive tape (tesa)
Adhesive foil:	double sided Pe-Foam mounting tape, fully outdoor suitable UV, water and ageing water

By installing the surface temperature sensor at the back of a solar (panel), the panel temperature can be measured. The temperature of solar panels are crucial for their output, because the output decreases by 0.43%k with increasing temperature. By monitoring the temperature at the solar cells, conclusions can be drawn about the behavior of the output curve.

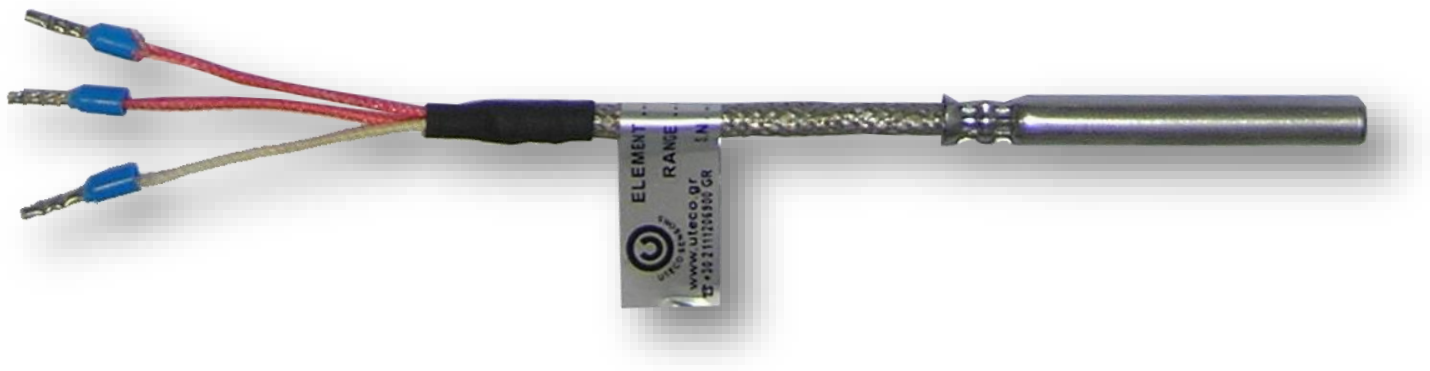
Other technical characteristics (measurement insert, cable length) available upon request

Series CB/13 – Temperature probes with fiber glass/braiding connecting cable.

Application:

General Purpose. Measuring temperature in liquids and gases. Application include HVAC, refrigeration, heating, installations, ovens, plant engineering and laboratories.

Measurement insert	Probe Diameter	Probe Length	Cable length	Temperature Range	Article Nr.
1 x Pt100	6mm	50mm	2m	-50°C +350°C	CB13.0000000
1 x Pt100	6mm	50mm	5m	-50°C +350°C	CB13.0000001
1 x Pt100	6mm	160mm	1.5m	-50°C +350°C	CB13.0000002
1 x Pt1000	6mm	50mm	2m	-50°C +350°C	CB13.0000003
1 x Pt1000	8mm	150mm	1.5m	-50°C +350°C	CB13.0000004



Specifications

Resistance type and tolerances:	Resistance thermometer PT100 or PT1000, Class B (single or twin) Accuracy: ±0,20° C to 0 °C ,DIN IEC 606751,2 or 3 or 4 wire circuit
Outside diameter:	6mm or 8mm
Sheath material:	St.St. 1.4571
Probe Length:	50mm, 150mm, 160mm
Temperature range:	From -50°C to +350°C
Cable insulation:	Fiber Glass – Fiber Glass - Braided (3 x 0,5mm²)

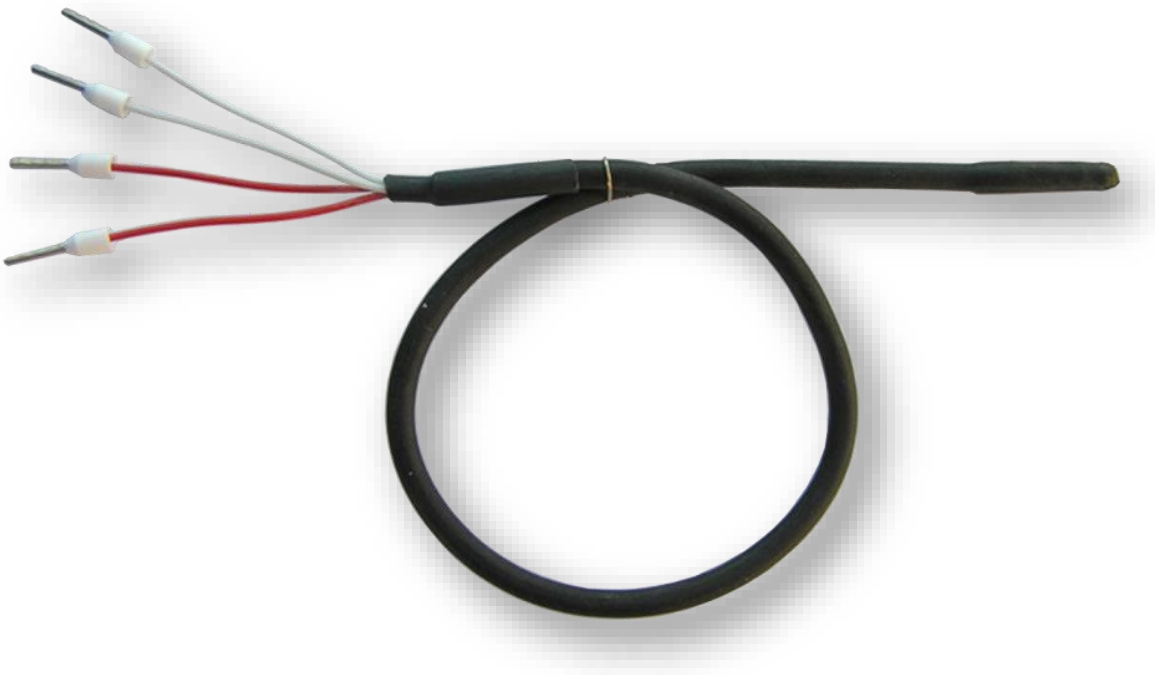
Other technical characteristics (Diameter, immersion length, or cable length etc.) available upon request

Series CB/14 – Temperature sensor with single conductor polypropylene insulation and overall thermoplastic connecting cable.

Application:

General Purpose. Measuring temperatures in liquids and gases. Application include HVAC and refrigeration, plan engineering and laboratories

Measurement insert	Diameter	Cable Length	Temperature Range	Article Nr.
1 x 100	5mm	5m	-50°C +105°C	CB14.0000000
1 x 1000	5mm	5m	-50°C +105°C	CB14.0000001
10KΩ	5mm	1.5m	-50°C +105°C	CB14.0000002



Specifications

Resistance type and tolerances:	Resistance thermometer PT100,Class B or A IEC 751 3or4 wire system, thermistor 10KΩ ±1% @25°C B(25/85)=3977 ± 0.75%
Compensating cable:	Stranded copper wires 2 or 4x0,30mm² (22AWG)with single conductor polypropylene insulation and overall thermoplastic elastomer insulation outer diam.~3.5mm
Protection:	IP68
Insulation resistance:	100MΩ with 100V DC

Series CB/20, 21, 22- Temperature sensor with compensating or extension cable.

CB20 Push-in thermocouple with stainless steel thermowell
CB21 Push-in thermocouple with stainless steel thermowell angled at 90°
CB22 Push-in thermocouple with stainless steel thermowell angled at 90°

Application:
General Purpose. Measuring temperature on solids, such as hot–plates and welding jaws. Applications include ovens, plant engineering, laboratories and machinery.

Specifications

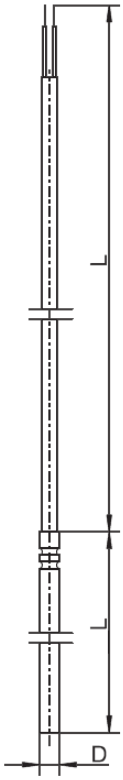
Type and tolerances:	Thermocouple to DIN EN 60584 J, K, T, E Class 1 or 2 The probe is based on a stainless steel housing Nr. 14571 with cable which makes the sensor extremely flexible PVC -5° +80° C
Cable insulation:	Silicone, Ambient Temperature -50°+180° C PTFE -190° +260° C Metal braiding -50° to 600° C
Cable entry:	Also with 90°
	Short response times

Ordering Code

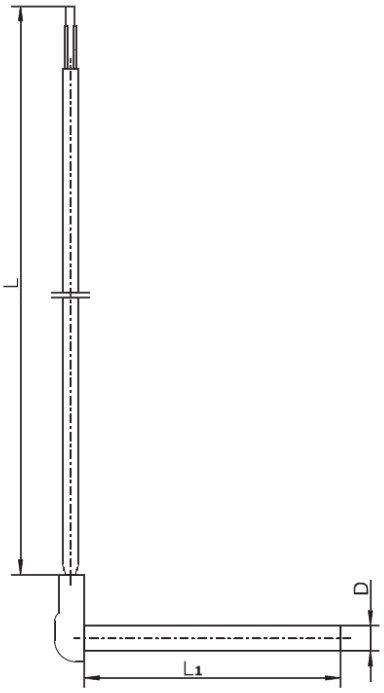
CBxx	1	2	3	4	5	6	7	8	9

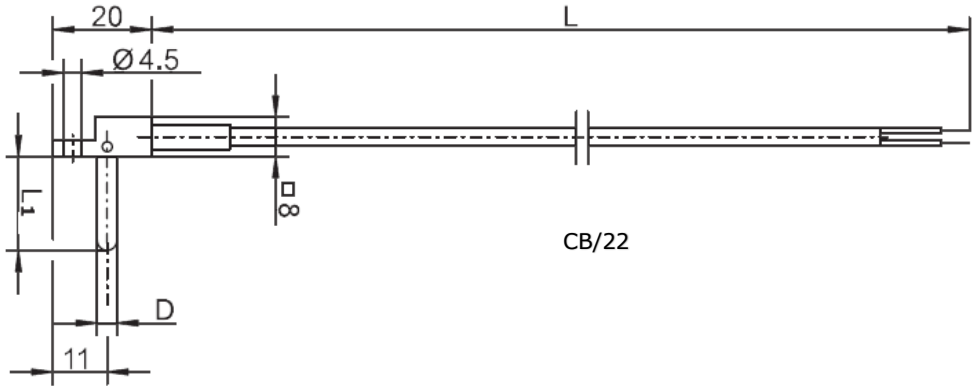
1	Measuring insert :	1 x J 1 x K 1 X T 1 X E	
2	Probe diameter :	3.0 mm 3.2 mm 4.0 mm 4.5 mm 4.8 mm	5.0 mm 6.0 mm 7.0 mm 8.0 mm Other specify
3	Immersion length :	10 mm 15 mm 30 mm 40 mm 50 mm	60 mm 70 mm 100 mm Other specify
4	Sheath material :	wNr 14571 (316 Ti)	
5	Cable length :	0.5 m 1.0 m 1.5 m 2.0 m 2.5 m	3.0 m 4.0 m 5.0 m Other specify
6	Cable insulation :	PVC -5° +80° C Silicone -50°+ 180° C PTFE -190° + 260° C Metal braiding -50° + 400° C Metal braiding -50° + 600° C Other specify	
7	Tolerance class :	Class 1 Class 2	
8	Number of elements:	1 x TC 2 x TC	
9	Junction (outer of cable)	Flexible Spring NONE	

CB/20



CB/21





CB/22

Ordering Example:

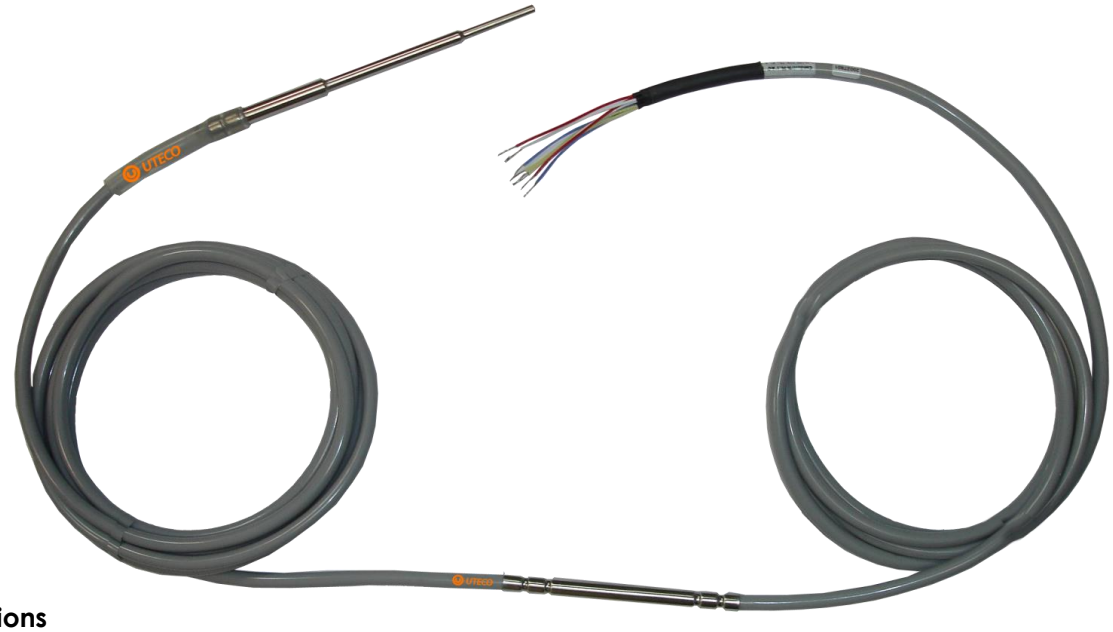
	1	2	3	4	5	6	7	8	9
CBxx	1XJ	4	40	316	2	Metal Braid -50°+400°	1	1xT C	NONE

Series CB/30- Steam Push- in, Temperature sensor in steam-tight version.

Application:

General Purpose. Measuring temperature in sterilizers. They are highly suitable for application in pressurised atmospheres containing steam.

Measurement insert	Probe Diameter	Immersion Length	Cable length	Article Nr.
2 x Pt100	8/6/4mm	155mm	5.3m	CB30.0000000



Specifications

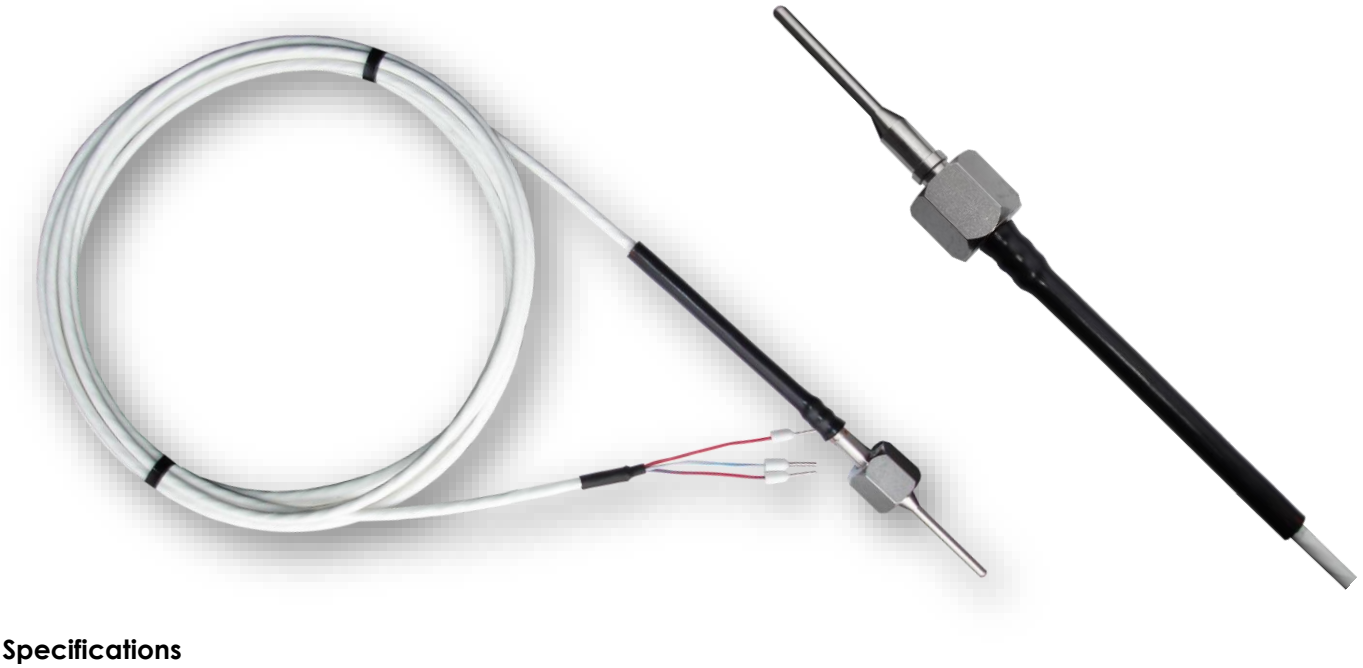
Resistance type and tolerances:	Resistance thermometer PT100, Class A, to DIN EN 60751. Available with 2, 3 or 4 wire circuit.
Probe Diameter:	with stepped sheath 8/6/4mm
Total Probe Length:	155mm,
Protection tube:	St. St. 1.4571
Protection:	IP69
Connecting cable:	Silicon
Ambient Temperature:	From -50° to +180°C

Other technical characteristics (length, diameter, cable length etc.) available upon request

Series CBRY/10– Temperature sensor with conical sensor and fast response for hygienic use.

Application:

General Purpose. Measuring temperature in liquids and gases. Suitable for hygienic use in the food industry.



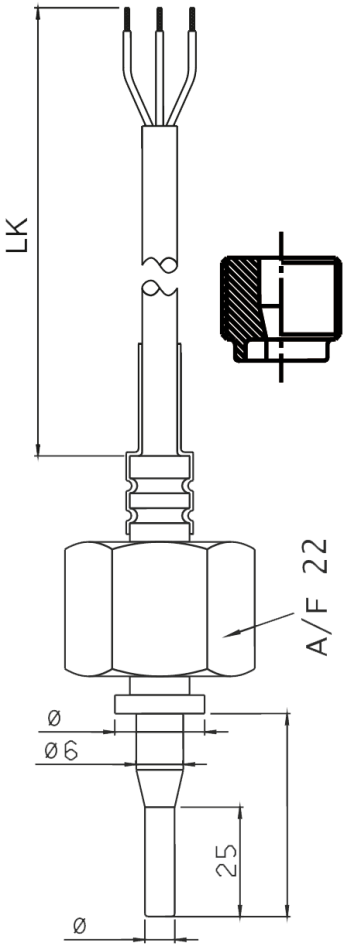
Specifications

Resistance type and tolerances	According to DIN EN 60571 class 1/3 DIN B 3wire system. The protective sheath is standard of stainless steel, AISI 316Ti.
Connection Cable:	The connection cable is standard Teflon-Braiding-Teflon protection at junction IP65 process connection 1/8 or 3/8 female BSP.
Response Time: (mean values)	Measured out velocities in: water at 0.4 m/s t0.5 <5 sec
Recommended measuring:	Current Max 2mA
Pressure range:	<25 bar(water flow 3m/sec)
Temperatue range:	From -50° to +260°C

Ordering Code

	1	2	3	4	5	6	7	8	9
CBRY10									

1	Measuring Insert	Pt100 Pt500 Pt1000
2	Probe diameter in	3.0mm 4.0mm
3	Immersion Length L	25 mm 33 mm Other specify
4	Sheath material	AISI 316Ti
5	Process connection	1/8 female 3/8 female Other specify
6	Cable length	1000 mm 2000 mm 3000 mm 5000 mm Other specify
7	Insulation cable	PVC -5° to +85° C Silicone -50°+ to 180° C Teflon -199° to +260° C
8	Number of elements	1xPt 2xPt
9	Tolerance class/DIN	Class A ±0.15° C Class B ± 0.3° C 1/3 DIN ± 0.1° C 1/6DIN ± 0.05° C



Ordering Example:

	1	2	3	4	5	6	7	8	9
CBRY10	1xPt100	4	33	316	$^{1/8}$Fem	3	Teflon	1xPT	1/3

Series CBRY/20 – Temperature sensor for main bearing with cable, quick replacement

Application:

General Purpose of application used for main bearing. The probes are mounted in the middle of the door. The probe measurement the combined temperature of bearing shell and the lubrication oil that flow from the bearing.

Measurement insert	Dimension of case in mm L/w/h	Sheath Material	Cable Length	Article Nr.
1xPt100	63x42x31mm	AISI 316	8m	CBRY20.1100000
1xPt100	121x33x150mm	AISI 316	8m	CBRY20.1100001
1xPt100	100x42x31mm	AISI316	8m	CBRY20.1100002

Specifications

Resistance type and tolerance:	Resistance thermometer PT100 to DIN IEC 60751, Class A, 3 wire system.
Dimension of Case :	63x42x31mm or 121x33x150mm
Cable Insultation:	PVC-PVC (3x0,34mm2)
Temperature range :	From -30° to +150° C

Other technical characteristics (Dimensions, cable length, insulation cable etc.) available upon request

Series CBB/10 temperature sensor with straight cable and bayonet lock.

Application:
It used for measuring and regulating exhaust gas in connection with stationery or marine engines. Is used in ship engines worldwide.

Specifications

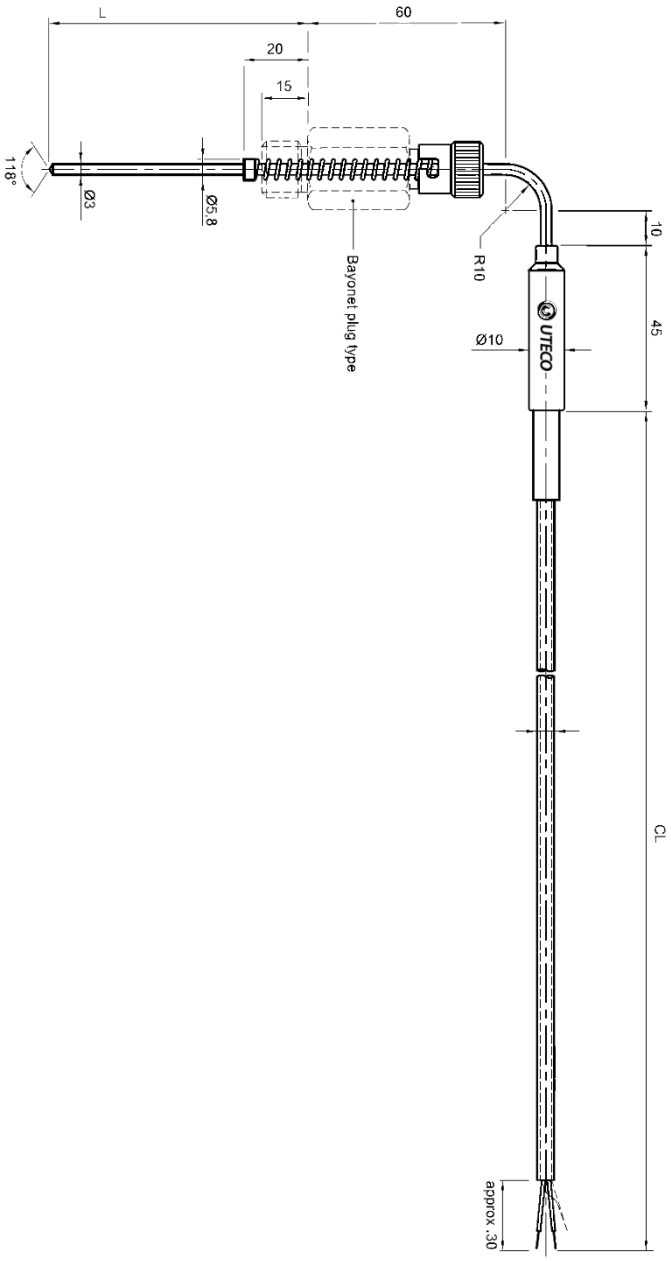
Resistance type & tolerance:	The measuring insert is fitted with thermocouple (mineral insulated cable) Type K or J to DIN EN 60584 Class 1.
Protection grade:	IP67
Process connection:	Bayonet lock Ø10mm
Compensating cable:	Teflon/braiding/Teflon 2x0.5mm
Temperature range:	From 0° to 600° C Ungrounded from the bottom

Ordering Code

CBB10

1	2	3	4	5	6	7	8

1	Measuring Insert	1xJ 2xJ 1xK 2xK
2	Diameter in mm:	3.0mm 3.2 mm
3	Immersion Length L	34mm 80mm Other specify
4	Sheath material	AISI 316 Inconell 600
5	Process connection	Bayonet lock 10mm Other specify
6	Cable length	1.5m 3m 5m Other specify
7	Insulation cable	Teflon PFA -60°+260° C KAPTON -60° +300° C Braiding -30° +350°C
8	Bayonet Plug	M16x1.5 mm M18x1.5 mm 3/8 BSP 00(without) Other specify



Ordering Example:

CBB10	1	2	3	4	5	6	7	8
	1 X K	3.2	80	inco	Bayonet	3m	Teflon	M18x1.5

Series CBB/11, 12, 13, 14 -Temperature sensor with bayonet lock

Lock (push-in Thermocouples)

CBB/11 – Temperature probe, protection tube /measuring tip (120°C) St.St D:8x12mm
CBB/12 – Temperature probe, protection tube /measuring tip (120°C) St.St D:6x15mm
CBB/13 – Temperature probe, protection tube /measuring tip (120°C) St.St D:6x15mm
CBB/14 – Temperature probe, protection tube /measuring tip (Flat-Bottom) St.St

Application: Used for measuring temperature in solids, bearing and molding tools, for example in the plastic industry. The special form of the measuring tips makes these temp-probes suitable for use in flat-bottom or cone-shapped bores

CBB11

CBB12

CBB13

CBB14

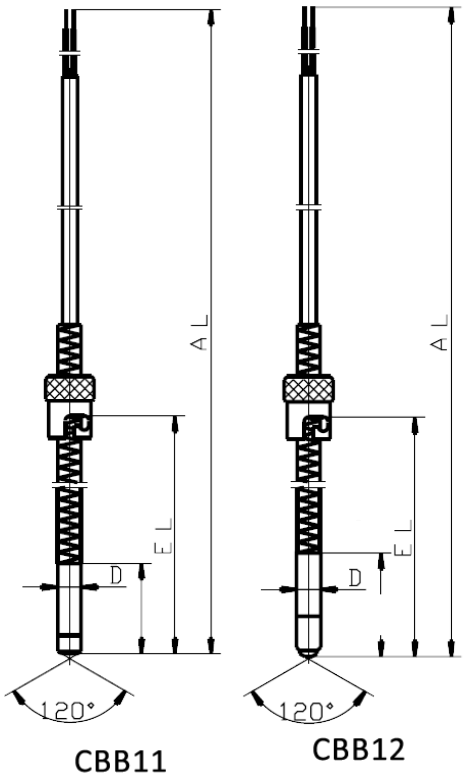
Specifications

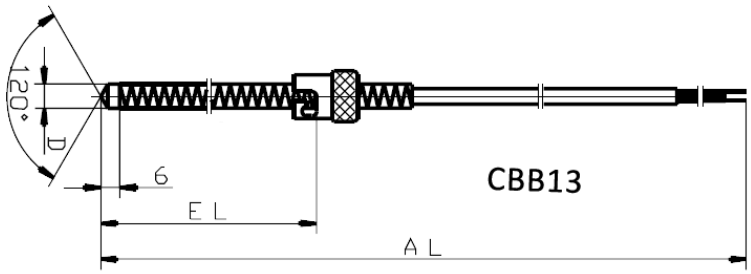
Measuring insert and tolerance:	The measuring insert is normally fitted with thermocouples to EN 60584, or DIN 43710 versions with two thermocouples are also available for temperature 0° to 400° C -goodheat transfer through adjustable spring pressure -insulated assembly, or joined to protection tube -insertion and removal without tools
The fugged pressure spring, which also functions as a cable protection, is made from rust and acid resistant stainless steel1.4310 and ensures a steady pressure between the measuring tip and the bottom of the hole .the fitting lenght can be altered by rotating the bayonet lock. Bayonet locks and suitable sockets are available in the diameter 12, 14.5, 15 snd 16mm	
Accessories:	Bayonet sockets

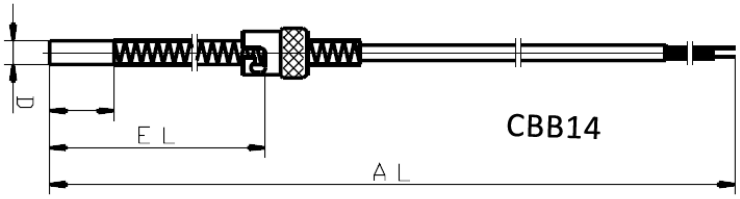
Ordering Code

	1	2	3	4	5	6	7	8	9
CBBxx									

1	Measuring Insert	1xJ (Fe-Con EN60584 Class 2) 1x L (Fe-CuNi Din 43710 Class2) 1 x K (NiCr-NiSi EN60584 Class 2) 2x L (Fe-Con Din 43710 Class2) 2xK (NiCr-NiSi EN60584 Class 2)	
2	Probe diameter	5mm 6mm 8mm Other Specify	
3	Probe Length L1	6mm 10mm 12mm 15mm	20mm 30mm 40mm Other specify
4	Fitting Length (EL in mm)	(01)(20-175mm) (02)(6-240mm) (03) (30-300mm)	
5	Compesating cable length	2m 3m 4m 5m	6m 7m Other specify
6	Insulation cable	(01)Silicone -50° to 180° C (02)PTFE -190° to 260°C (03)Metal Braiding -20° to 400°C (04)Metal Bariding -20° to 550°C	
7	Type of Bayonet lock	(05)Male (06)Female (00)Without	
8	Bayonet Lock diameter (only female)	12mm 14.5mm 15mm 16mm 00mm	
9	Hot junction	(07) Grounded (08) Ungrounded	







Ordering Example:

	1	2	3	4	5	6	7	8	9
CBBxx	1xJ	8	12	02	3	03	M	00	08

Series CBBR/10 – Main Bearing Temperature sensor with bayonet Fitting

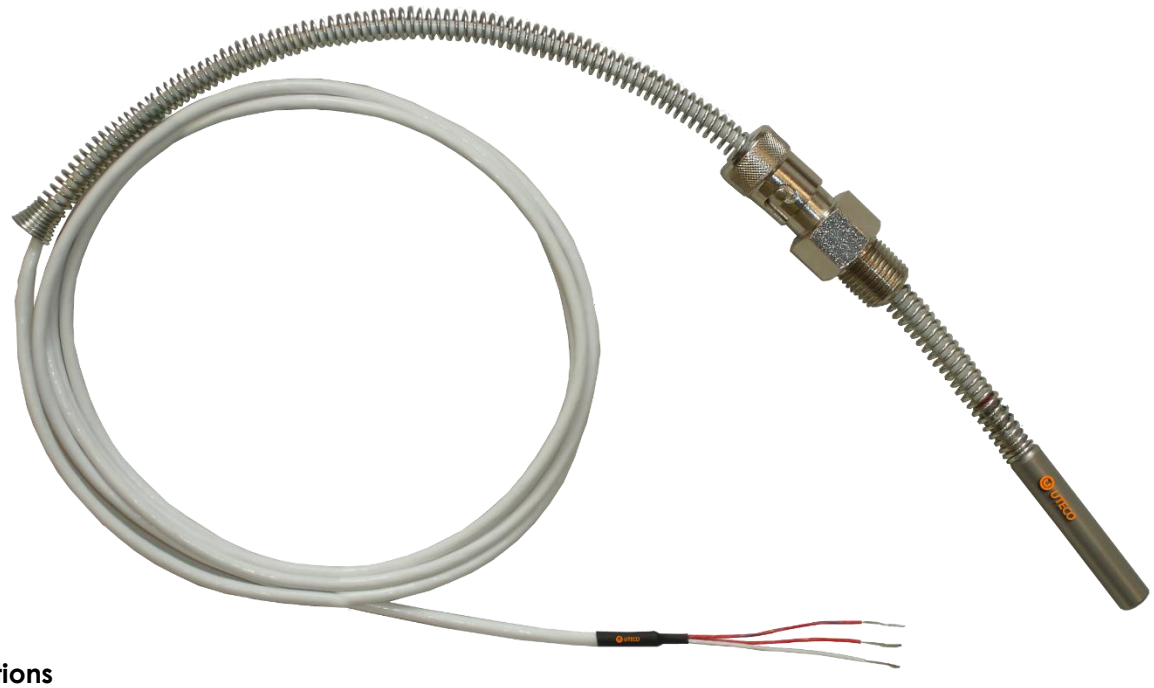
Application:

General Purpose of application used for measuring temperature for main bearing, in solids, and molding tools.

Features:

- Excellent measurement accuracy
- Rapid response speed
- High durability against vibrations
- Maintenance and checks easy.

Measurement insert	Probe Diameter	Probe length	Process connection	Cable length	Article Nr.
1x Pt100	6mm	46mm	G1/4	5m	CBBR10.1100000
1x Pt100	6mm	46mm	G1/4	8m	CBBR10.1100001
1x Pt100	6mm	46mm	G1/4	10m	CBBR10.1100002
2x Pt100	6mm	46mm	G1/4	10m	CBBR10.1120000
1x Pt1000	6mm	46mm	G1/4	10m	CBBR10.1200000



Specifications

Measurement insert and tolerance:	The sensor in normally Pt100 or Pt1000 Temperature probe to DIN IEC60751 with Class 2 or 3 wire circuit.
Probe Diameter:	6mm
Probe Length:	46mm
Probe Material:	AISI 316
Process connection:	Bayonet lock, diam:12mm with socket G1/4
Cable insulation:	Teflon-Braided-Teflon (4x0.22mm²)
Temperature range:	From -50°C to +260°C

Other technical characteristics (cable length, diameter, bayonet lock diameter) available upon request

Series SUR/09 – Temperature sensor with terminal box IP65 and fitted head transmitter.

Application:

General Purpose. Measuring temperature in liquids and gases on round or flat surfaces in refrigeration, heating, HVAC, plant engineering and laboratories.

Specifications

Type and tolerances:	Resistance thermometer Pt100, Class A to DIN EN 60751 with 2.3 or 4 wire
Connection case:	Plastic case IP65
Measuring insert:	Stainless steel 14751 ø6mm

Ordering

SUR09

SUR09

1	2	3	4	5	6	7

1	Measuring Insert	1 x Pt100 1xPt1000 Other specify	
2	Protection tube diameter in mm	Ø4mm Ø5mm Ø6mm Ø8mm Other specify	
3	Protection tube length L1	50mm 70mm 100mm 150mm	200mm Other specify
4	Sheath Material	Nr.14571 (AISI 316)	
5	Connecting cable materials	PVC -5° +80°C Silicone -5° +180°C PTFE -190° +260°C Metal Braiding -50° +350°C	
6	Connecting Cable Length	2m 3m 4m 5m 7m	
7	Trasmitter	4-20mA (Analog) 0-10V (Specify Temperature Range) 4-20mA (Programmable) 00 (without transmitter) **Wtrans B** programmable head transducer with ratio transmission (data sheet 707060) Modbus	

Ordering Example:

	1	2	3	4	5	6	7
SUR09	1xPt100	6	50	316	PVC	7m	4-20(A) -50° +105°C

Series SUR/20, 21, 22, 23, 24, 27, 28, 30 – Surface Temperature sensor.

SUR20 –Temperature probe with protection fitting stainless steal
SUR21 –Temperature probe with protection fitting aluminum
SUR22 –Temperature probe with colar fitting vertical
SUR23 – Temperature probe with colar fitting horizontal
SUR24 –Temperature probes with fastening holes protection fitting St. St ring dimensions 15x8mm
SUR27 –Temperature probe for cylindrical surface (Pipes)
SUR28 –Temperature probe with fastening holes protection fitting bronze ring dimension 10x5mm
SUR30 –Temperature probe with protection fitting aluminum ø10x16mm

Application:

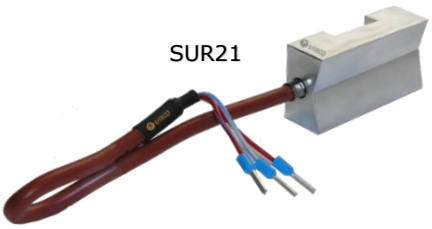
General Purpose of application used for measuring temperature on closed pipe work and/or other round and flat surfaces for example a heating platen, via their mounting holes. The remaining versions avoid the necessity for mechanical modification of the measurement location due to their easy installation via cable tiers or hose clamps. An advantage to the indirect method of temperature measurement is that disruption of the flow stream is avoided. Additionally, the life of the probes is not shortened by the effects of either pressure or chemicals.

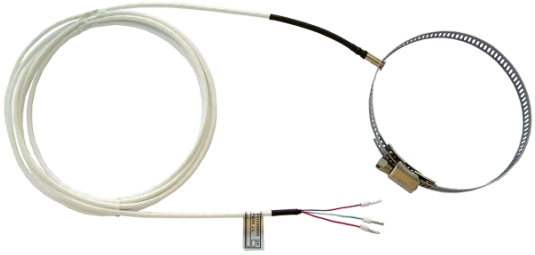
The low thermal mass of the sensor means that there is very little influence of the sensor on the measured object. Thermal conductance paste is available to improve heat transfer . Large differences in temperature between the measured medium and the surrounding ambient air will influence the measurement in such cases we recommend additional insulation around the sensor.

Specifications

Meaqsurement insert type & tolerances:	The measurement insert is normally fitted with a Pt100as per to DIN EN 60751 Class B or A in 2, 3, 4 wire Circuit :versions Pt500, Pt 1000, Ni1000, NTC10KΩ PTC2KΩ can also be supplied The Measuring insert is normally fitted with thermocouples to DIN EN 60584 Class 1 or 2 versions Typ K, J, , L, E, N, T, can also be supplied	
Cable insulations:	Silicone PTFE PVC Metal Braiding Marine Signal YOZS 250V Shipboard cable Low Voltage RTFRO (ETFE 3x0.75m²) **Approved ABS-DNV-GL-NKK**	Ambient Temp. -50° +180°C Ambient Temp. -190° +260°C Ambient Temp. -5° +80°C Ambient Temp. -50° +400°C Ambient Temp. -40° +90°C Ambient Temp. -65° +150°C

SUR20


SUR21


SUR22


SUR23

SUR24

SUR30

SUR28

SUR27

Ordering Code

SURxx

1	2	3	4	5	6	7	8

1	Measuring Insert	Pt100 Pt1000 Pt500 Ni1000 Ni100 Ni120 NTC10KΩ	KTY81-110 NiCR-Ni(K) Fe-Konst (J) Cu-Con (T) NiCr-Con (E) NiCrSi-NiSi(N)
2	Number of elements	Single Double	
3	Number of Conductors	2w 3w 4w 6w	
4	Tolerance Class	(01)Type A (for RTD) (02) Type B (for RTD) (03) Type 1/3 DIN (for RTD) (04) Class 1 (For thermocouple) (05) Class 2 (For thermocouple)	
5	Cable	1000mm 1500mm 2000mm	2500mm 3000mm Other specify
6	Operating Temperature range	(01)-5° to 105°C / PVC (02)-50° to 180°C / Silicone (03)-50° to 260°C / PTFE (04)-50° to 400°C / metal Braiding (05)-50° to 700°C / metal Braiding (For TC only) (06)-40° to 90°C Marine Signal (3x0.75mm for RTD only) (07)-65° to 150°C RTFRO (ETFE 3x0.75mm for RTD Only)	
7	Extra Codes	01 without extracodes 02 starin Reliefspring 03 Strain Relief heatshrink tube	
8	Pipe Diameter (onlySUR22/23/27)	(01) 19 to 28 (02) 26 to 38 (03) 38 to 50 (04) 50 to 65	(05) 60 to 120 (06) other Specify (07) without

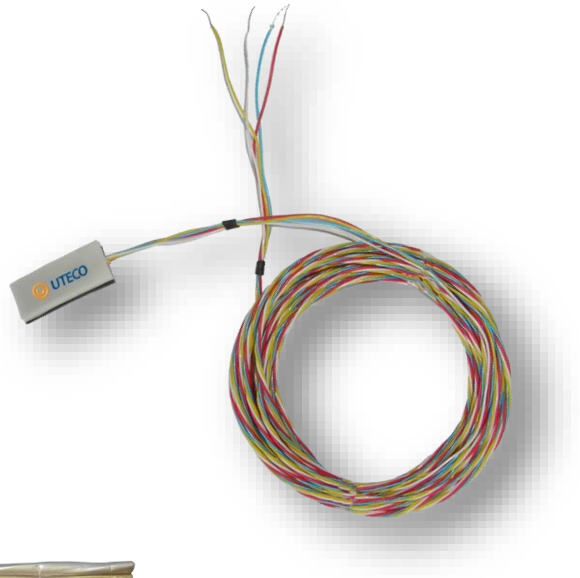
Ordering Example:

	1	2	3	4	5	6	7	8
SURxx	1xPt100	Singl	3w	2	3000	02	02	04

Series SUR/25 – Flexible Silicon Surface temperature sensor with PFA insulated extension cable.

Application:
General Purpose of application used for measuring temperatures on round or flat surfaces.

Measurement insert	Sensor body (W x L x T)	Temperature range	Cable length	Article Nr.
1xPt100 (4 wire)	23mmx10x1mm	-70 +200°C	4m	SUR25.1100000



Specifications

Moisture protection to IP67 standard

Measuring insert type and tolerance:	Resistance thermometer PT100 Class B to DIN EN 60751, CLASS B ,Available with 4 or 3 wire circuit
Sensor body:	23x10x1mm (other dimension are possible) minimal bend radius about 25mm
Cable Insulation :	Teflon 1x0.35mm2

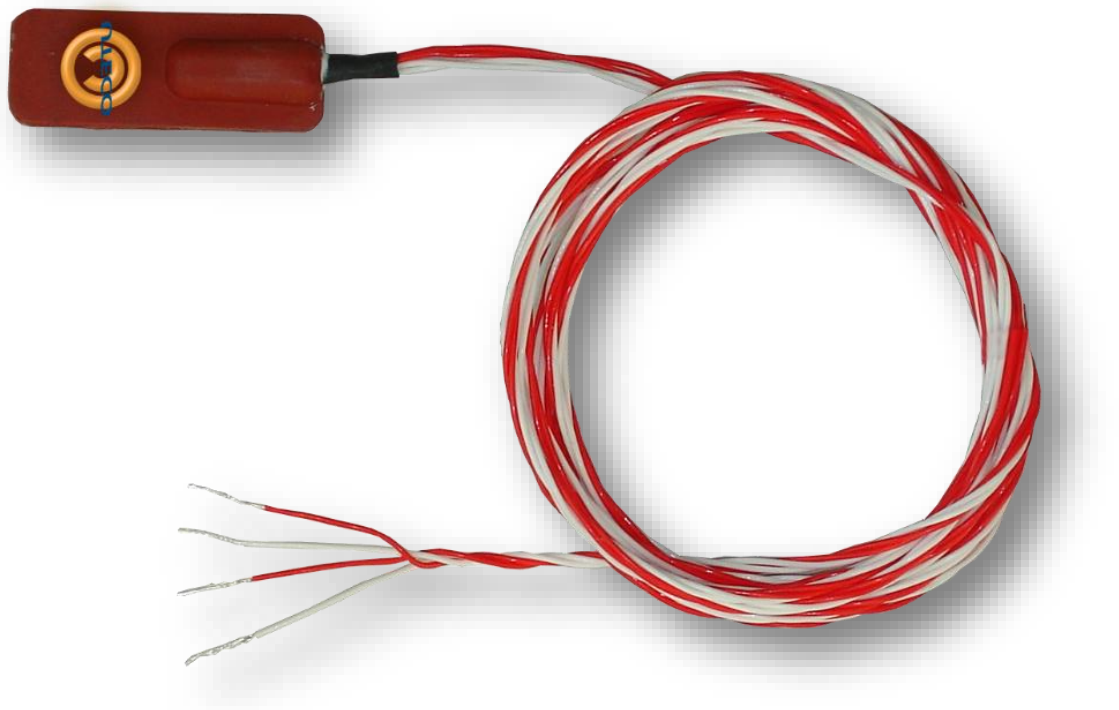
Other technical characteristics (length x width, thickness, cable length, etc.) available upon request

Series SUR/26- Surface temperature sensor with flexible silicon rubber patch molded onto a Teflon lead wire.

Application:

General Purpose of application used for measuring temperatures on round or flat surfaces.
The patch has an aluminum backing for fast temperature response. The aluminum is coated with a very strong silicon adhesive and backing strip.

Measurement insert	dimensions in mm(w/h/d)	Temperature range in °C	Cable length	Article Nr.
1 x Pt100 (4 wire)	40x13mm	from -50° to +150°	2m	SUR26.1100000
1 x Pt100 (4 wire)	40x13mm	from -50° to +150°	4m	SUR26.1100001
1 x Pt100 (4 wire)	40x13mm	from -50° to +150°	6m	SUR26.1100002



Specifications

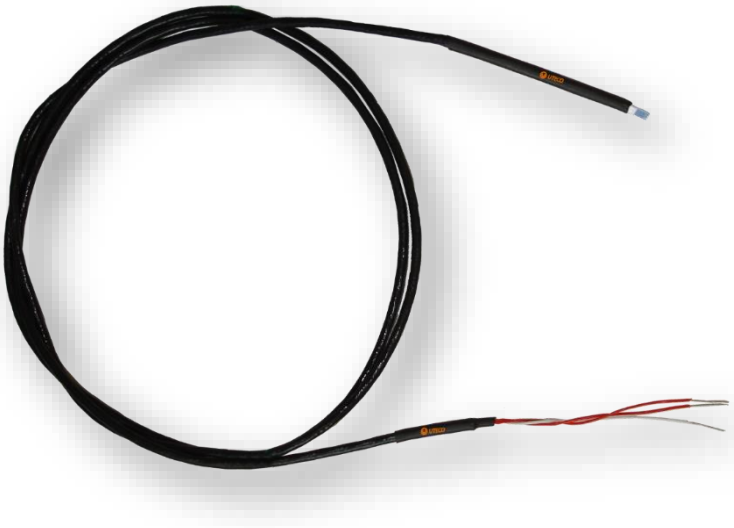
Measuring insert type and tolerance:	Resistance type 1xPt100, Class B 4 wire system to DINEN 60751
Temperature range:	-50+150° C
Connection cable length:	2m
Sensor Body (w/h/d):	40mm x 13mm
Cable insulation:	Teflon 1 x 0.35mm^2 Good resistance to Oils & Chemicals
Installation :	Simply peel off the backing and stick to a clean, dry surface. One hour after application the sensor and adhesive will resist moisture to IP67 standards.

Series SUR/29- Surfaces slot temperature sensor flexible, and short response.

Application:

General Purpose of application used for measuring temperatures on small and in accessible places and on flats or slightly carved surfaces. Furthermore they are also suited for motors and stators.

Measurement insert	Dimensions (thin film sensor) B x L x H x S	Cable length	Article Nr.
1 x Pt 100	2x5x1.3x0.64mm	3m	SUR29.1100000
1 x Pt 100	1x3x1x0.3mm	1.5m	SUR29.1100001
1 x Pt1000	2x5x1.3x0.64mm	3m	SUR29.1200000



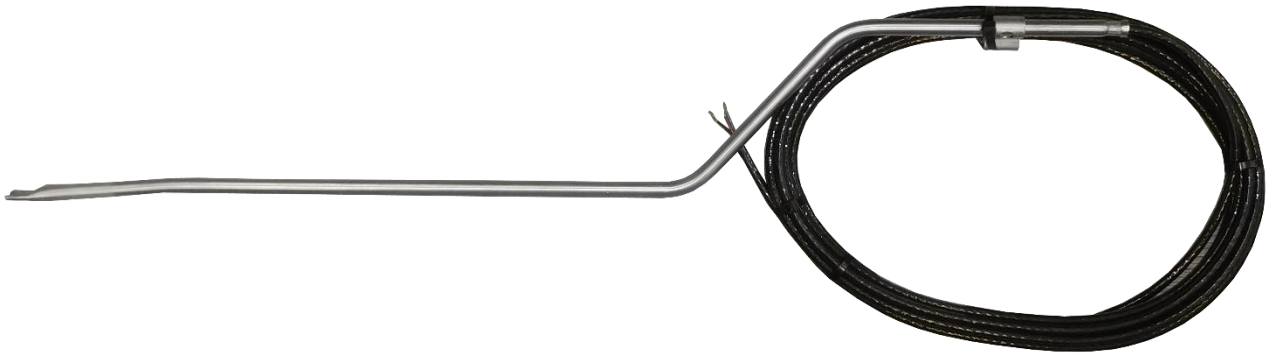
Specifications

Measuring insert type and tolerance:	Resistance thermometer P+100 or P+1000 class B from ±0,30°C to 0°C to DIN EN 60751, 2 or 3 system wire system
Cable Insulation:	Teflon/Teflon
Temperature range:	from -50° to 200°C
Recommended measuring current:	0.3mA- 1mA

Other technical characteristics (cable length etc.) available upon request

Series SUR/40 -Temperature sensor for main bearing

Application:
General propose of application
Used for measurement of bearing metal temperatures or the temperature of the flowing out of the bearings



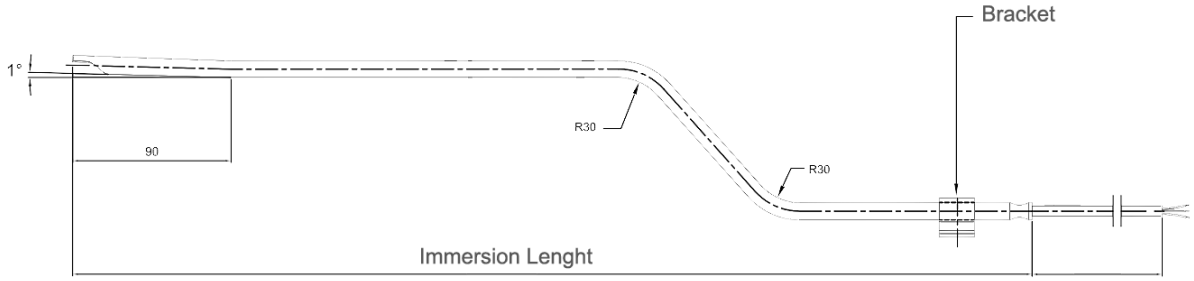
SUR40

Specifications

Meaqsurement insert type & tolerances:	the measuring insert is fitted with pt100 or pt1000 to DIN EN 60751 Class B or A with 2,3 or 4wire system .
Tube Diameter:	9,5 mm
Immersion Length:	410 mm, 480 mm, 545 mm, 620 mm
Tube material:	AISI 316 Ti
Reaction Time:	15 sec in water detects 63.2 % sudden changes in temperature.
Temperature range:	-50 + 180 °C
Connection cable:	Connection cable: Teflon/braiding/ Teflon 2 x 0.75 mm 3 x 0.75 mm 4 x 0.75 mm 6 x 0.75 mm
Protection grade:	IP66
Bracket with saddles is part of the sensors	

Ordering Code

	1	2	3	4	5	6
SURxx						



1	Measuring Insert	1xPt100 2xPt100 1xPt1000 2xPt1000 T802ohm/20 °C
2	Tube Diameter	9.5 Other Specify
3	Immersion Length	410mm 480mm 545mm 620mm
4	Sheath material	AISI 316Ti
5	Number of Conductors	2w 3w 4w
6	Cable Lenght	5m 6m 8m 9m Other specify

Ordering Example:

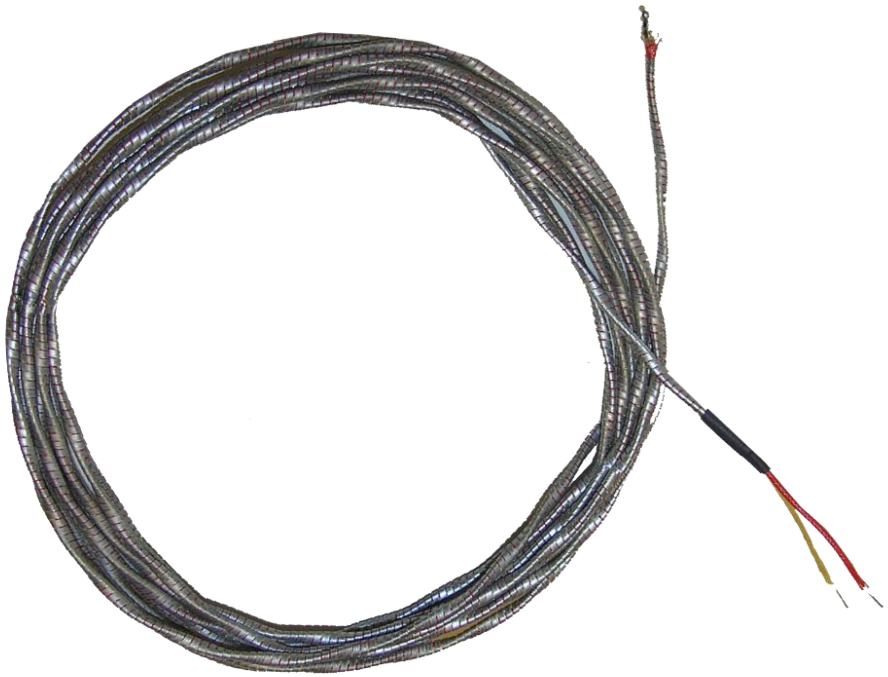
	1	2	3	4	5	6
SUR40	1xPt100	9.5	410m	316	3w	5

Series THR/10 – Heavy Duty Industrial Thermocouple Wire Shielded Extension Cables up to 703° C

Application:

General Purpose of application used for measuring temperature on Aluminum Solid round Bar for temperature monitoring in the core of the bar, in order to avoid temperature over 580°C

Measurement insert	Temperature range	Cable length	Article Nr.
1 x NiCr-Ni(K)	up to 703° C	5m	THR10.4000000
1 x NiCr-Ni(K)	up to 703° C	7m	THR10.4000001
1 x NiCr-Ni(K)	up to 703° C	11m	THR10.4000002
1 x NiCr-Ni(K)	up to 703° C	16m	THR10.4000003
1 x NiCr-Ni(K)	up to 703° C	20m	THR10.4000004



Conductors:	20 AWG solid special limits thermocouple type K per ASTM E 230
Insulation:	Nominal .012" wall braided 703°C Fiberglass with silicone Impregnation color coded Positive (KKP)-yellow Negative (KK)-red
Construction:	two conductors twisted
Covering :	spirally wrapped half-oval galvanized steel nominal OD=.136"

Other technical characteristics (cable length, insulation cable) available upon request

Series THR/11 -Exposed tip thermocouple with fitted Mini plugs connector.

Application:

General Purpose of application used for measuring temperature in wide variety of application like air, heating installations, ovens, plant engineering, food, pharmaceutical industries and laboratories

Measurement insert	Conductor Diameter/mm Ø	Cable length	Temperature range	Article Nr.
1 x Fe-CuNi(J)	2 x 0.51mm	2m	From 0º to +370°C	THR11.2000000
1 x Fe-CuNi(J)	2 x 0.51mm	6m	From 0º to +370°C	THR11.2000001
1 x Fe-CuNi(J)	2 x 0.51mm	7m	From 0º to +370°C	THR11.2000002
1 x NiCr-Ni(K)	2 x 0.51mm	8m	From 0º to +370°C	THR11.4000000
1 x NiCr-Ni(K)	2 x 0.51mm	2m	From 0º to +370°C	THR11.4000001
1 x NiCr-Ni(K)	2 x 0.51mm	3m	From 0º to +370°C	THR11.4000002
1 x Cu-CuNi(T)	2 x 0.51mm	3m	From 0º to +370°C	THR11.7000000

Specifications

Measuring insert type and tolerance:	Thermocouple to DIN IEC 60584, Class 1 type of thermocouple J, K, T, exposed welded junction
wire type:	flat pair silicone varnished glass fiber
overall diameter :	1.30x2.2mm
Temperature range:	0-370°C
Positive leg:	Type J (Iron) Type K (Nickel chromium) Type T (Copper)
Negative leg:	Type J (Constantan) Type K (Nickel aluminum) Type T (Constantan)
Termination:	color coded miniature plug

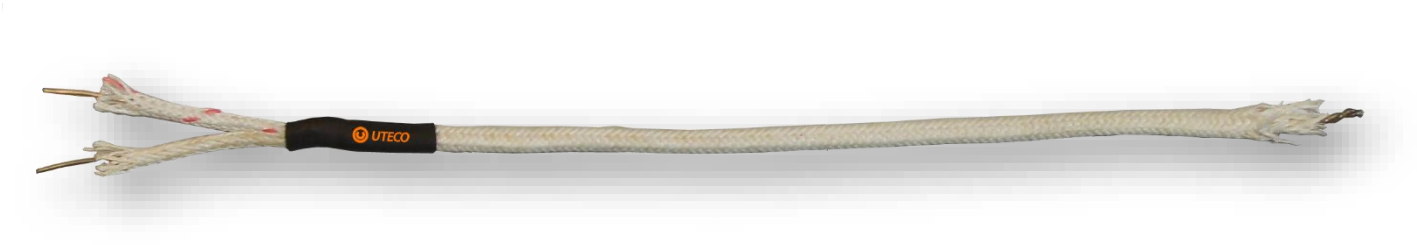
Other technical characteristics (wire size, cable length, insulation, cable etc.) available upon request.

Series THR/12 –Hi-Temperature Thermocouple wire with CEFIR insulation 1200°C

Application:

General Purpose of application used for measuring temperature in glass, ceramic, brick and metal industry
Best abrasion resistance at high temperature (up to 1200°C)

Measurement insert	Cable length	Temperature range	Article Nr.
1 x NiCr-Ni(K)	3m	From 0° to +1200°C	THR12.4000000
1 x NiCr-Ni(K)	5m	From 0° to +1200°C	THR12.4000001
1 x NiCr-Ni(K)	7m	From 0° to +1200°C	THR12.4000002
1 x NiCr-Ni(K)	11m	From 0° to +1200°C	THR12.4000003



Specifications

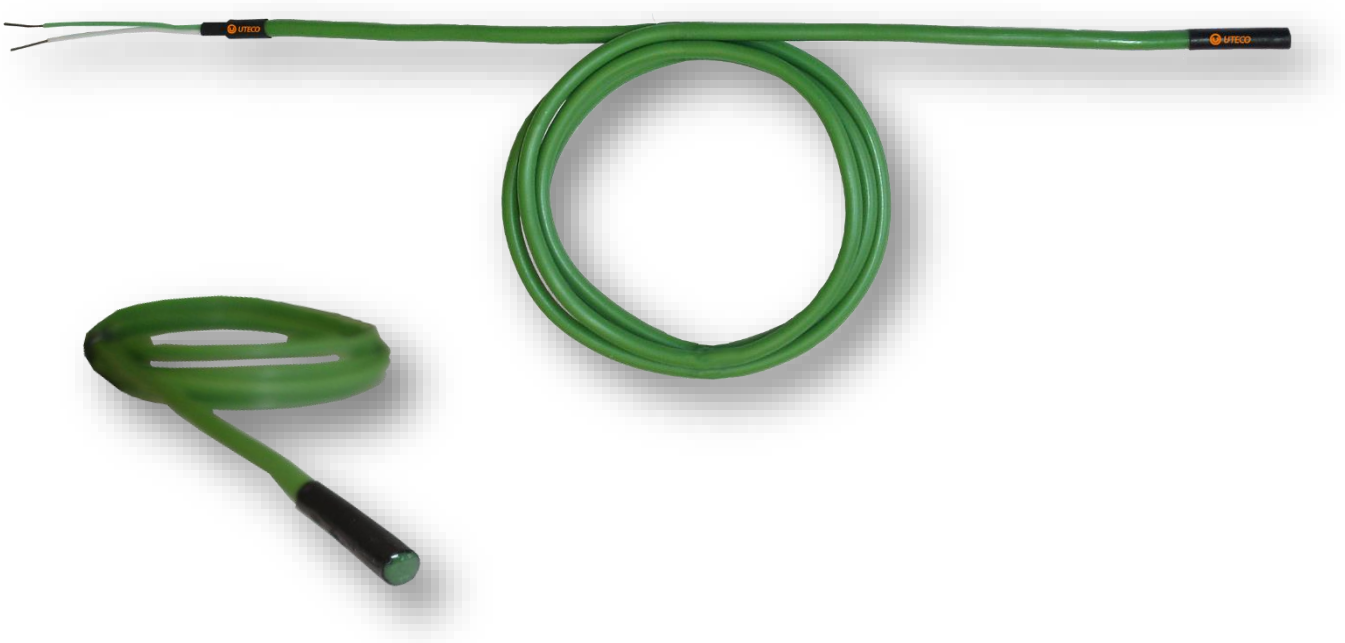
Conductors:	Solid, thermocouple grade material (K) calibration according ANSI
Insulation :	CEFIR, ceramic fibre braided
Construction:	Parallel conductor
Jacket:	CEFIR, ceramic fibre braided
Identification:	Negative leg: magnetic
Conductor size:	AWG 20 Ø mm: 0.8 Outer ø mm: 3.2x1.8mm Weight/km : 15.9Kg

Other technical characteristics (cable length, insulation, cable etc.) available upon request.

Series THR/13 –Temperature sensor with extension cable, special fluidized bed coating procedure with a melting epoxy powder

Application:

General Purpose. For temperature measurement in gaseous media of heating, cooling or air conditioning systems



Specifications

Type and tolerance class:	Extension cable type KX(Positive)Nickel- chromium(chromel)-(Negative)Nickel- Aluminum (Alumel)-stranding 7x0.20mm- Class1 to EN60584, accuracy ±0.004 x t
Wire Type:	PVC Insulation-colors Green (Positive) and white (Negative) according to IEC 60584- diameter over insulation abt.1.30mm Twisted conductors (Pitch abt.40mm) PVC outer Sheath- green color Nominal External diameter :4.20 +/- 0.20mm
Operating voltage:	300V
Operating temperature:	Fixed laying -30°C to 70°C Flexible -5°C to +70°C
Protection:	In order to protect the sensing elements installed in our temperature probes against humidity and mechanical overstress, there is special fluidized bed coating procedure with a melting epoxy powder changes in temperature are causing formation of humidity. Thus, there is a risk that the humidity can permeate in the contact point of the sensor. As a result, the sensor would corrode and oxygenate. Thus, the contact point would become unreliable

Ordering Code

THR13 | 1 | 2 | 3 | 4 | 5 |

1	Measuring Insert	1 x Nicr-Ni Type K 1 x Fe-Konst type J 1 x Cu-Con type T
2	Conductors	7 x 0.2mm (stranded) 1 x 0.5mm (Solid) 1 x 0.2mm (Solid)
3	Conductor Insulation	PVC PFA
4	Length	0.5m 1m 1.5m 2m 2.5m 3m Other specify
5	Temperature range	+5°C to +70°C -75°C to +250 °C

Ordering Example:

	1	2	3	4	5
THR13	1xK	7x0.2mm	PVC	1.5m	+5° to 70°C

Series THR/20- Thermocouples to DIN 43732 with ceramic insulation

Application:

General Purpose application used for the measuring insert is fitted with thermocouple to EN60584, these thermocouple are intended as replacement elements for thermocouples. The thermocouple can also be used for direct temperature measurement in special applications. The thermocouple must not be mechanically stressed during operation.

Measurement insert	Diameter wire	Temperature range	Overall length	Article Nr.
1xNiCr NI(K)	3.0mm	From 0° to 1200° C	1220mm	THR20.4000000
1xNiCr NI(K)	3.0mm	From 0° to 1200° C	2000mm	THR20.4000001
1xNiCr Nisi(N)	3.0mm	From -200° +800°C	1220mm	THR20.5000000
1xFe CuN(J)	3.0mm	From -200° +800°C	1220mm	THR20.2000000

Specifications

Wire diameter:	3.0mm
Insulation:	C 610 12x8x4x50mm OVAL
Overall Length:	1220mm, 2000mm
Temperature range:	From -200° to +1200° C

Other technical characteristics (wire size, length insulation diameter, etc.) available upon request.

Series CBW/10 - Exhaust gas temperature sensor angle form with extension Cable (PTFE)

Application:

General Purpose of application used for measurement of exhaust temperature in ships, stationary diesel engines, turbines, compressors and generators with resistance thermometer for up to 700°C

Specifications

Resistance type and tolerance:	The measuring insert is fitted with resistance Pt1000 or Pt100 to DIN EN 60751 Class B with 2, 3 or 4 wires system.
Probe Diameter:	ø4.5mm/ ø6.0mm
Probe Length:	80mm /130mm
Sheath material:	AISI 316 Ti or Wnr 1.4571
Gasket:	Ø16x6mm
Extension cable:	Teflon-Braiding-Teflon (4x0.5mm)
Temperature	Up to 700° C

Ordering Code

1	2	3	4	5

CBW10

1	Measuring Insert	1xPt100 2xPt100 1xPt1000 2xPt1000	
2	Probe Diameter in mm	Ø4.5mm Ø6mm Other specify	
3	Immersion Length	80mm 130mm Other specify	
4	Sheath Material	AISI 316Ti (Wnr.24816)	
5	Cable Length	2m 5m 7m	12m 14m Other specify

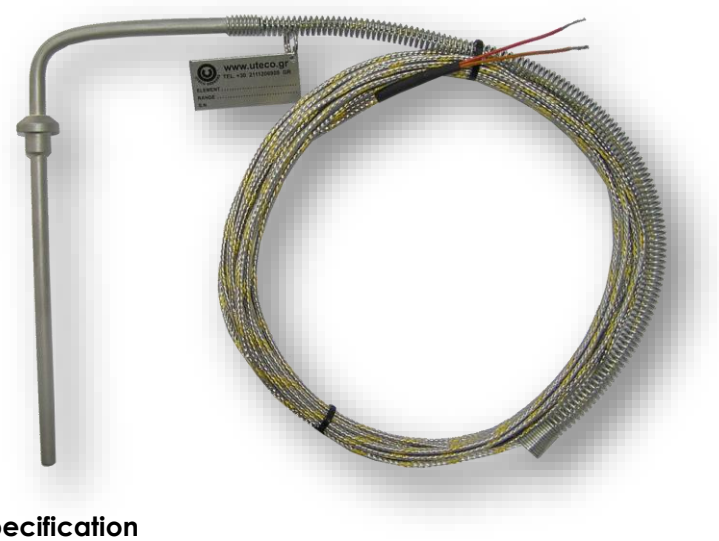
Ordering Example:

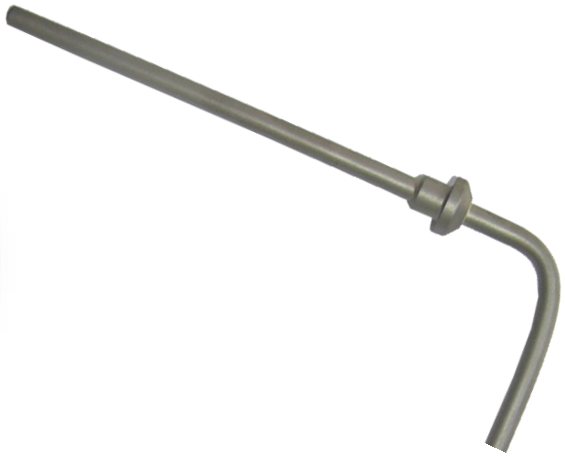
	1	2	3	4	5
CBW10	1xPt1000	4.5	130	31	7

Series CBW/20 - Exhaust gas temperature sensor angle form with extension cable

Application:

General Purpose of application used for measurement of exhaust temperature in ships, stationary diesel engines, turbines, compressors and generators





Specification

Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple type K, Tolerance DIN IEC 60584-2 CLASS 1
Gasket:	Ø16x9.8x7x8mm
Temperature:	From 0° to +850°C

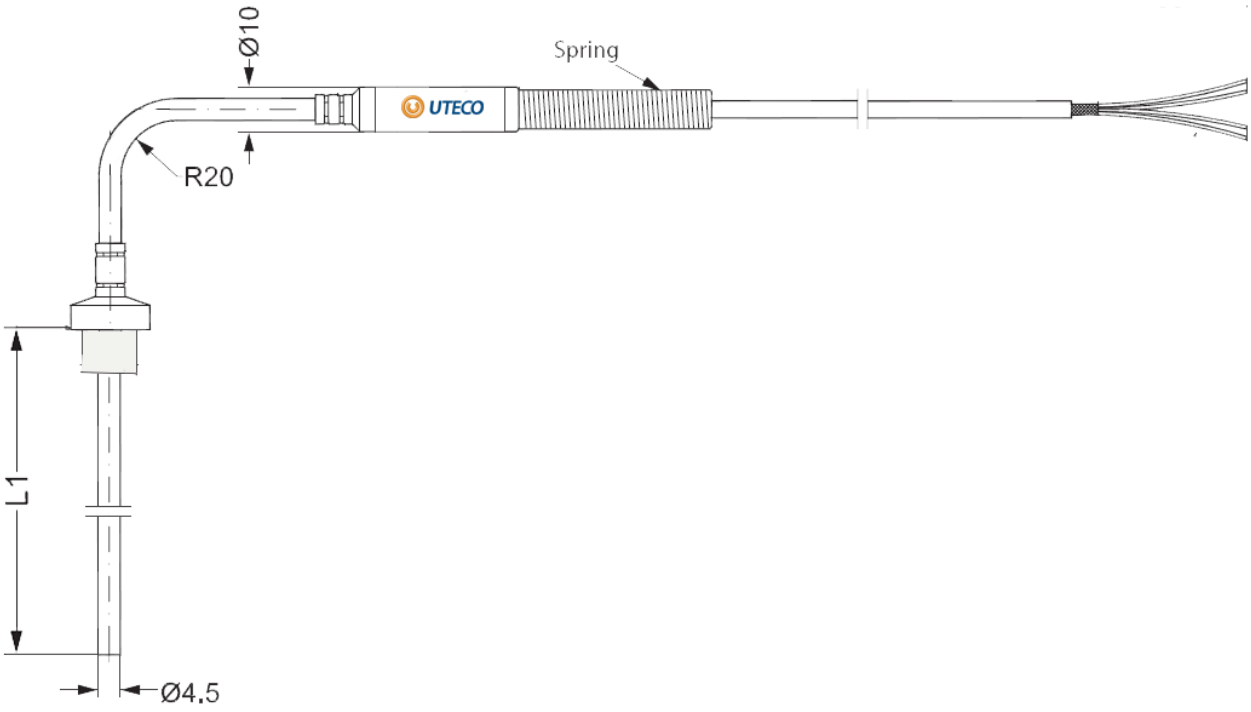
Ordering Code

CBW20	1	2	3	4	5	6

1	Measuring Insert	1xNiCr Ni(K) 2xNiCr Ni(K)
2	Probe Diameter in mm	Ø4.5mm Ø6mm
3	Immersion Length	45mm 80mm 127mm 138mm 140mm 150mm 170mm Other specify
4	Sheath Material	Inconell 600 (Wnr.24816) AISI 316Ti (Wnr.14571) AISI 446
5	Cable Length	4m 5m 7m 12m 14m Other specify
6	Electrical Connection	Plug connection Box None

Ordering Example:

CBW20	1	2	3	4	5	6
	1xK	4.5	127	Inconell	7	None



Version available form

Measurement insert	Probe Diameter	Probe length	Sheath Material	Cable length	Article Nr.
1xNiCr Ni(K)	6mm	50mm	Wnr 2.4816	10m	CBW20.4000000
1xNiCr Ni(K)	6mm	80mm	Wnr 2.4816	7m	CBW20.4000001
1xNiCr Ni(K)	6mm	127mm	Wnr 2.4816	7m	CBW20.4000002
1xNiCr Ni(K)	6mm	127mm	Wnr 2.4816	12m	CBW20.4000003
1xNiCr Ni(K)	6mm	127mm	Wnr 2.4816	14m	CBW20.4000004
1xNiCr Ni(K)	6mm	140mm	Wnr 2.4816	5m	CBW20.4000005
1xNiCr Ni(K)	6mm	170mm	Wnr 2.4816	5m	CBW20.4000006
1xNiCr Ni(K)	4.5mm	55mm	Wnr 2.4816	4m	CBW20.4000007
1xNiCr Ni(K)	4.5mm	69mm	Wnr 2.4816	7m	CBW20.4000008
1xNiCr Ni(K)	4.5mm	80mm	Wnr 2.4816	5m	CBW20.4000009
1xNiCr Ni(K)	4.5mm	129mm	Wnr 2.4816	6m	CBW20.4000010
1xNiCr Ni(K)	4.5mm	150mm	Wnr 2.4816	5m	CBW20.4000011

Series CBW/21 - Exhaust gas temperature sensor angle form with extension cable

Application:

General Purpose of application used for measurement of exhaust temperature in ships, stationary diesel engines, turbines, compressors and generators.

Specification

Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple type K, Tolerance DIN IEC 60584-2 CLASS 1
Gasket:	Ø16x6mm
Temperature:	From 0° to +850°C

Ordering Code

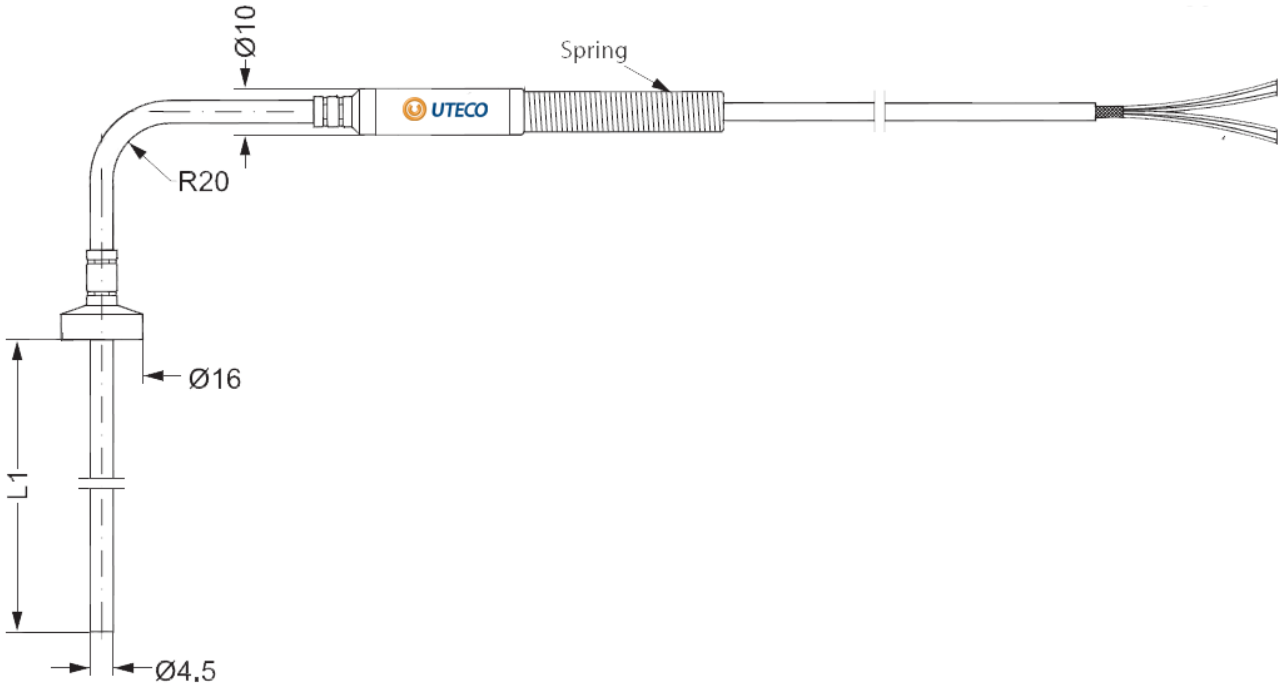
CBW21

1	2	3	4	5	6

1	Measuring Insert	1xNiCr Ni(K) 2xNiCr Ni(K)
2	Probe Diameter in mm	Ø4.5mm Ø6mm
3	Immersion Length	45mm 80mm 127mm 138mm 140mm 150mm 170mm Other specify
4	Sheath Material	Inconell 600 (Wnr.24816) AISI 316Ti (Wnr.14571) AISI 446
5	Cable Length	4m 5m 7m 12m 14m Other specify
6	Electrical Connection	Plug connection Box None

Ordering Example:

	1	2	3	4	5	6
CBW21	1xK	4.5	127	Inconell	7	None



Version available form

Measurement insert	Probe Diameter	Probe length	Sheath Material	Cable length	Article Nr.
1xNiCr Ni(K)	6mm	50mm	Wnr 2.4816	10m	CBW21.4000000
1xNiCr Ni(K)	6mm	80mm	Wnr 2.4816	7m	CBW21.4000001
1xNiCr Ni(K)	6mm	127mm	Wnr 2.4816	7m	CBW21.4000002
1xNiCr Ni(K)	6mm	127mm	Wnr 2.4816	12m	CBW21.4000003
1xNiCr Ni(K)	6mm	127mm	Wnr 2.4816	14m	CBW21.4000004
1xNiCr Ni(K)	6mm	140mm	Wnr 2.4816	5m	CBW21.4000005
1xNiCr Ni(K)	6mm	170mm	Wnr 2.4816	5m	CBW21.4000006
1xNiCr Ni(K)	4.5mm	55mm	Wnr 2.4816	4m	CBW21.4000007
1xNiCr Ni(K)	4.5mm	69mm	Wnr 2.4816	7m	CBW21.4000008
1xNiCr Ni(K)	4.5mm	80mm	Wnr 2.4816	5m	CBW21.4000009
1xNiCr Ni(K)	4.5mm	129mm	Wnr 2.4816	6m	CBW21.4000010
1xNiCr Ni(K)	4.5mm	150mm	Wnr 2.4816	5m	CBW21.4000011

Series CBW/23 & CBW/24 - Exhaust gas temperature sensor angle form with extension Cable

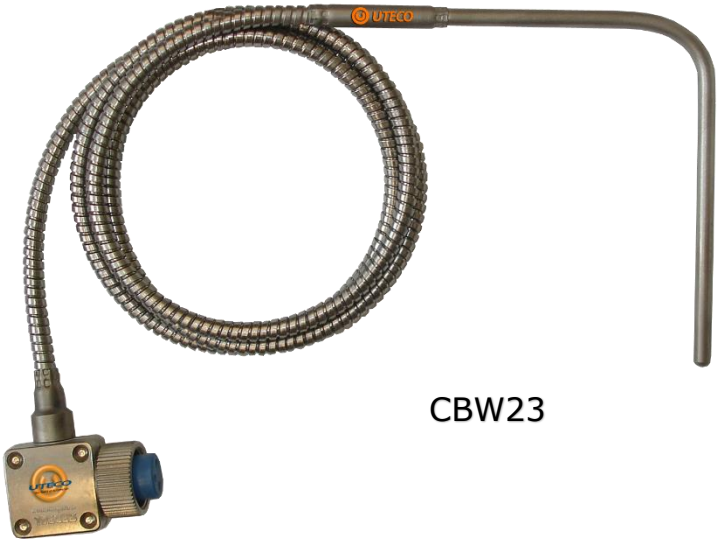
Application:

General Purpose of application used for measurement turbo charger exhaust gas and Cylinder exhaust gas as well.

Features:

- High accuracy
- Rapid response time
- High durability against vibration
- Easy maintenance
- Operating range from 0° to 800°C

Measurement insert	Probe Diameter	Probe length	Process Connection	Article Nr.	
1xNiCr Ni(K)	4.8mm	100mm	M18x1.5mm	CBW23.40000000	CBW24.40000000
1xNiCr Ni(K)	6mm	100mm	NO (CBW23)	CBW23.40000001	CBW24.40000001
1xNiCr Ni(K)	4.8mm	150mm	M18x1.5mm	CBW23.40000002	CBW24.40000002
1xNiCr Ni(K)	6mm	150mm	NO (CBW23)	CBW23.40000003	CBW24.40000003



CBW23

CBW24

Specifications

Measuring insert type and tolerance:	The measuring insert is fitted with Thermocouple Type K to DIN EN 60584, Class 2.
Probe Diameter:	4,8mm or 6.0mm
Probe Length:	100mm or 150mm
Cable length:	1.5m
Process Connection:	M18x1.5mm (male)
Sheath Material	Inconell 600
Extension cable:	Kapton-Kapton-Braiding with covered stainless steel flexible armor
Termination:	3pole female connector (Jaeger France)
Temperature:	Up to 800° C

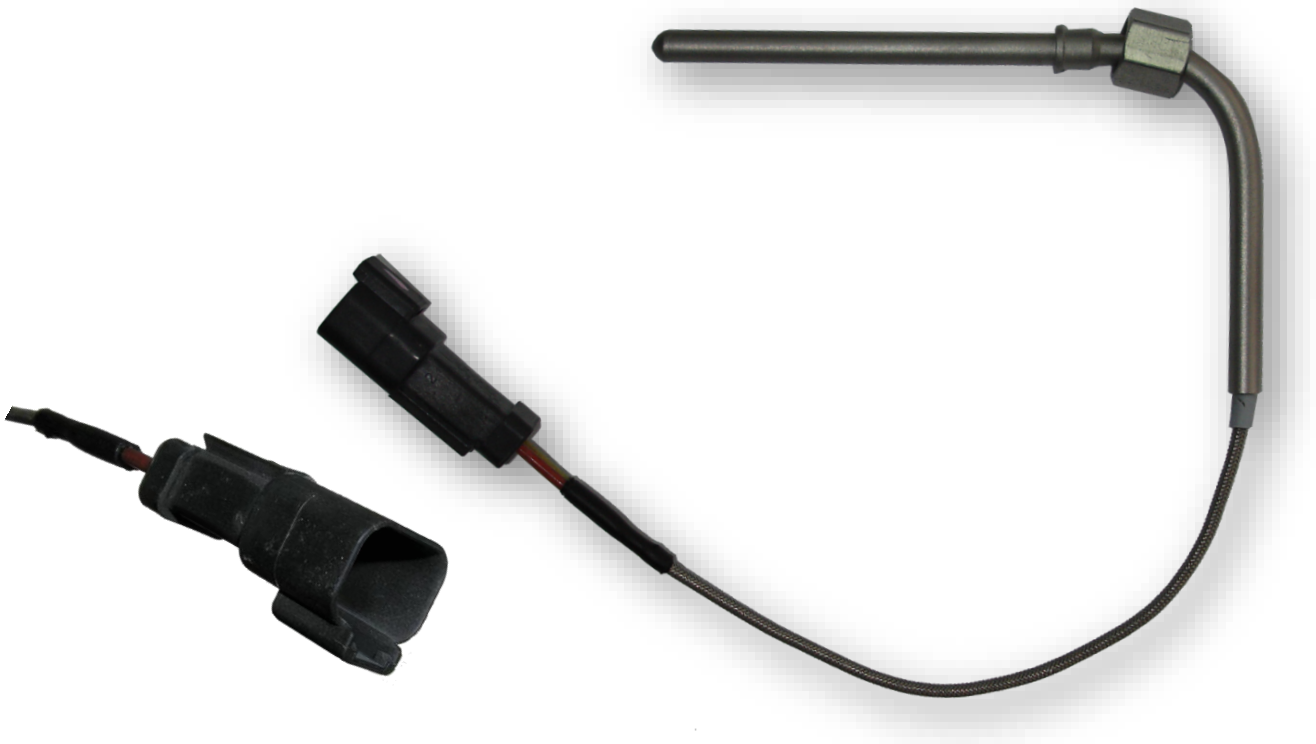
Other technical characteristics (length, diameter, cable Length etc.) available upon request

Series CBWR/10- Exhaust gas temperature sensor with connector output DTO42P

Application:

General Purpose of application used for measurement of exhaust temperature in ships-engines, with thermocouples for up to 800°C

Measurement insert	Diameter	Probe length	Cable length	Process connection	Article Nr.
1xNiCr Ni(K)	6m	80mm	2m	M11Female	CBWR10.4000000
1xNiCr Ni(K)	6m	80mm	4m	M11Female	CBWR10.4000001



Specifications

Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple type K, Tolerance to DIN EN 60584 CLASS 1. Hot junction isolated from the ground.
Tube Diameter:	6.0mm
Horizontal length :	60mm
Vertical length:	100mm
Ring :	Ø9.5mm
Length under ring :	80mm
Process Connection:	M11x1,25mm Female
Material :	Stainless Steel 316Ti
Extension cable:	KAPTON+KAPTON+ Steel coating connector output DTO42P
Temperature:	from 0 to -800°C

Other technical characteristics (length, diameter, connector etc.) available upon request

Series CBWR/21- Temperature sensor with compensating cables and single protection tube (right-angled).

Application:

General Purpose of application used for measurement of exhaust temperature in ships in connection with diesel engines in the Exhaust systems.
Excellent vibration proof and shockproof performances at high temperature.

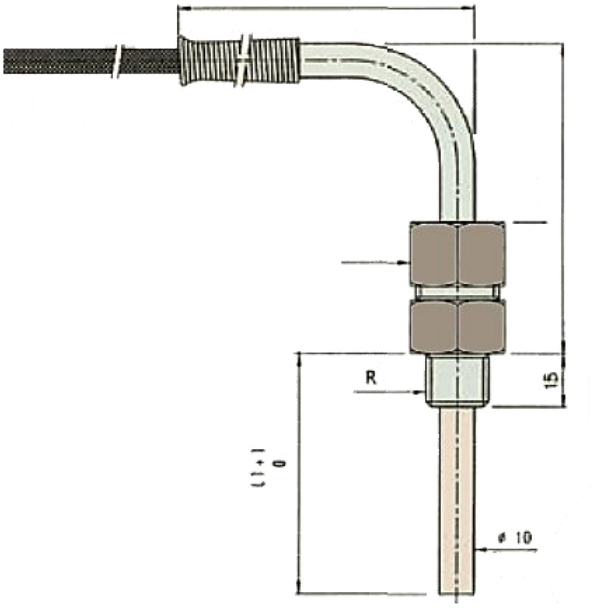
Specifications

Measuring insert type and tolerance:	The measuring insert in fitted with thermocouple Type K to DIN EN 60584 Class 1 The measuring insert is with insulated measuring junction.	
Protective Sheath Material:	Stainless Steel Nr.1.4571 Pressure test at 25bars	
Process connection:	Adjustable thread Stainless Steel	
Cable insulation:	Silicone-Teflon or fiberglass- all Types are armoured with relief spring in cables junction.	
Response time(mean values) measured at velocities in:	Water at 0.4m/s: t0.5=10sec t0.9=31sec For temperature from -40° +800° C	
Vibration stability:	**Shock:**	100g/6ms
	Vibration:	4g sine Functions 2-200Hz Measured according to IEC 60068-2-6

Ordering Code

	1	2	3	4	5	6	7	8	9	10
CBWR21										

1	Measuring Insert	K- NiCr-Ni (-40° +850°C) J- FeCuNi (-40° +700°C) N- NiCRSi (-40° +850°C) E- NiCr-CuNi (-40° +800°C)
2	Probe diameter in mm	Ø8mm Ø10mm Ø12mm Ø14mm Other specify
3	Immersion length	100mm 150mm 186mm 236mm 316mm Other specify
4	Sheath Material	AISI 316 Nimonic 75 (only D8mm) Pyrosil (only D8mm) Other specify
5	Process connection	Without (00) ½ thread ¾ thread M14x1.5 thread M18x1.5 thread Other Specify
6	Extension length	2000mm 3000mm 3300mm 4000mm 4200mm 5000mm 6000mm 6500mm 15000mm Other specify
7	Sheath shape	Straight (S) Tapered(T) Reduced (R)
8	Tolerance Class	1 2
9	Number of thermocouple	1x TC 2x TC
10	Wire insulation	Silicone armoured (SA) Teflon armoured (TA) Fiberglass armoured (FA)



Ordering Example:

	1	2	3	4	5	6	7	8	9	10
CBWR21	1xK	10	10	316	M18	330	T	1	1xTC	SA

Series CBWR/22- Angle Temperature sensor with compensating cables and single protection tube.

Application:

General Purpose of application used for measurement of exhaust temperature in ships in connection with diesel engines in the Exhaust systems.
Excellent vibration proof and shockproof performances at high temperature.

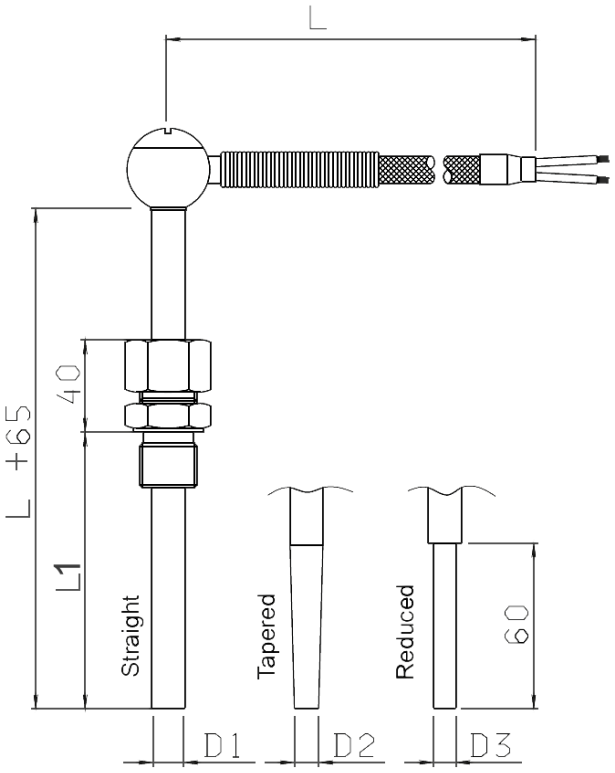
Specifications

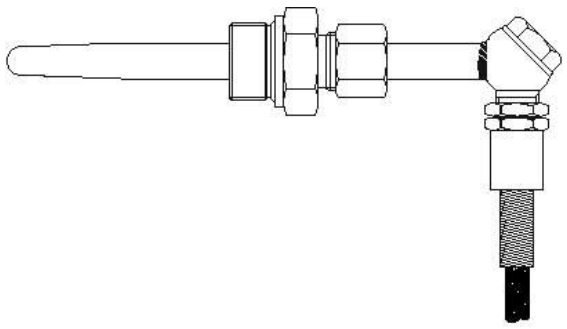
Measuring insert type and tolerance:	The measuring insert in fitted with thermocouple Type K to DIN EN 60584 Class 1 The measuring insert is with insulated measuring junction.	
Protective Sheath Material:	Stainless Steel Nr.1.4571 Pressure test at 25bars	
Process connection:	Adjustable thread Stainless Steel	
Cable insulation:	Silicone-Teflon or fiberglass- all Types are armoured with relief spring in cables junction.	
Response time(mean values) measured at velocities in:	Water at 0.4m/s: t0.5=10sec t0.9=31sec For temperature from -40° +800° C	
Vibration stability:	**Shock:**	100g/6ms
	Vibration:	4g sine Functions 2-200Hz Measured according to IEC 60068-2-6

Ordering Code

	1	2	3	4	5	6	7	8	9	10
CBWR22										

1	Measuring Insert	1xK-NiCr-Ni (-40° +850°C) J- FeCuNi (-40° +700°C) N- NiCRSi (-40° +850°C) E- NiCr-CuNi (-40° +800°C)
2	Probe diameter in mm	Ø8mm Ø10mm Ø12mm Ø14mm Other specify
3	Immersion length	100mm 150mm 186mm 236mm 316mm Other specify
4	Sheath Material	AISI 316 Nimonic 75 (only D8mm) Pyrosil (only D8mm) Other specify
5	Process connection	Without (00) ½ thread ¾ thread M14x1.5 thread M18x1.5 thread Other Specify
6	Extension length	2000mm 3000mm 3300mm 4000mm 4200mm 5000mm 6000mm 6500mm 15000mm Other specify
7	Sheath shape	Straight (S) Tapered(T) Reduced (R)
8	Tolerance Class	1 2
9	Number of thermocouple	1x TC 2x TC
10	Wire insulation	Silicone armoured (SA) Teflon armoured (TA) Fiberglass armoured (FA)





Ordering Example:

	1	2	3	4	5	6	7	8	9	10
CBWR22	1xK	10	10	316	M18	330	T	1	1xTC	SA

Series CBWR- Thermocouple temperature sensor with cable & single protection tube. Preferred for measuring of exhaust temperature in ships & stationary diesel engines. Excellent vibration proof and shockproof. Application field: Diesel engine- Generators- Marine sector

Measurement insert	Diameter	Probe length	Process Connection	Connector	Cable length	Article Nr.
2xK	12/10mm	110mm	M24x1.5Fem	6 pole	0.8m	U4285192171 (Angle)
2xK	12/10mm	110mm	M24x1.5Fem	6 pole	1.5m	U4285192175 (Angle)
2xK	12/10mm	110mm	M24x1.5Fem	6 pole	2.6m	U4285192175 (Angle)
1xK	12/10mm	110mm	M24x1.5Fem	3 pole	2m	U4344992175 (Angle)
1xK	12/10mm	110mm	M24x1.5Fem	3 pole	3m	U4344992176 (Angle)
1xK	12/10mm	110mm	M24x1.5Fem	3 pole	3m	U4345982178 (Angle)

Specifications

The measuring insert in fitted with thermocouple Type K (Single or Double) to DIN IEC 60584 Class 2 solid construction with high resistance vibration according to IEC 68-2-6 unground from the bottom, ***straight or angle form***.

Tube diameter :	12/10mm with stepped sheath
Probe Length :	110mm
Process connection:	M24x1.5Fem
Material :	AISI 316L made from solid bar stock
Compensating cable:	Fiberglass-Fiberglass-Braiding with covered eith stainless steel flexible armour
Termination:	3 pole or 6 pole female connector (jaeger)
Temperature range:	0-800°C

Other technical characteristics (length, diameter, process connectors, cable length etc.) available upon request

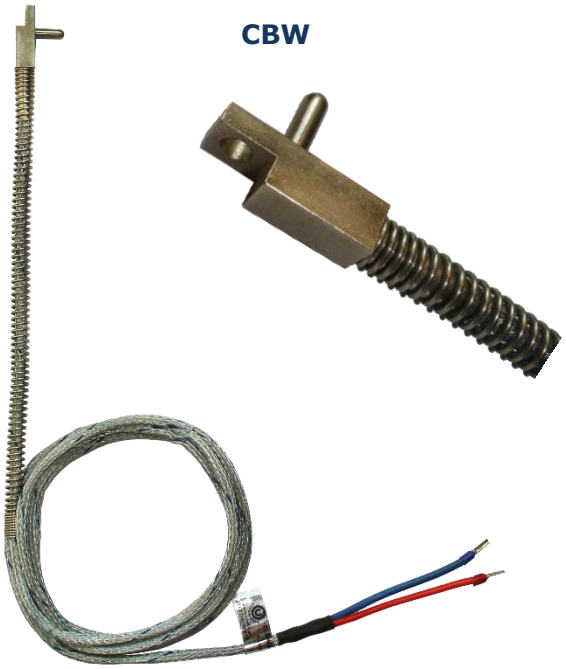
Series CBWR/23 & CBW/10- Temperature sensor with compensating cable and protection tube angled 90°

Application:
General Purpose of application used for measuring temperature…
CBWR/23- in solids, of feeds cylinders
CBW/10- Extruding press injection moulds and locks surfaces

Measurement insert	Probe Diameter	Probe length	Process Connection	Temperature Range	Article Nr.
1x Fe-Konst(CBW)	4mm	12mm	No	From 0° to +400°C	CBW10.2000000
1x NiCR-NI(CBW)	4mm	12mm	No	From 0° to +500°C	CBW10.4000000
2xFe-Konst (CBWR)	4mm	11mm	M6	From 0° to +400°C	CBWR23.2200000
1xFe-Konst (CBWR)	6mm	11mm	M8	From 0° to +400°C	CBWR23.2000000

CBWR

CBW



Specifications

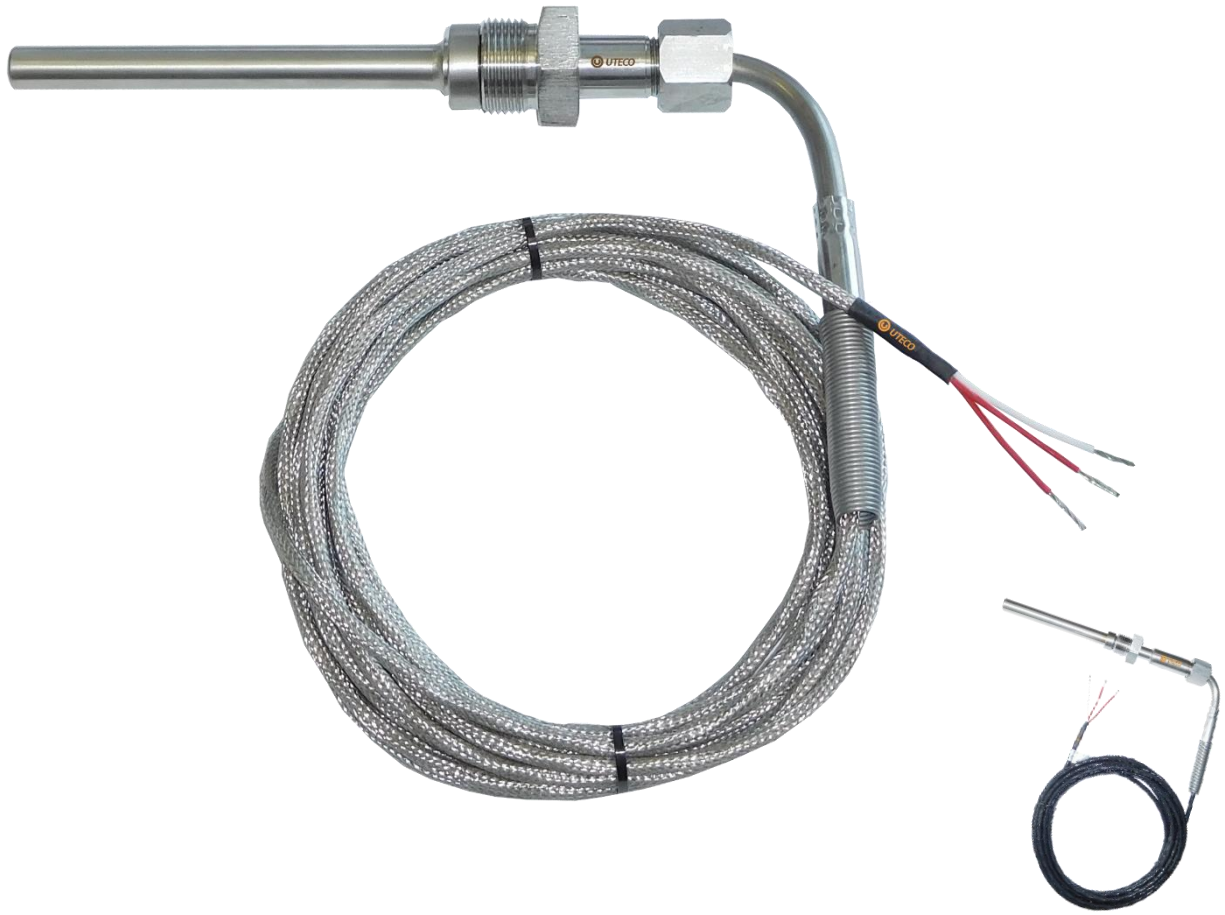
Measuring insert type and tolerance:	The measuring insert is normally fitted with thermocouple to DINIEC 60584 Class2
Probe diameter :	4mm or 6mm
Probe Length :	11mm or 12mm
Cable length:	2.5m
Process connection:	M6 or M8
Material :	AISI 304
Connection cable:	Metal Braiding, temperature from 0° to +500°C
Cable insulation:	Fiber Glass - fiber Glass- Braided

Other technical characteristics (length, diameter, process connectors, cable length etc.) available upon request

Series CBR/30- Exhaust gas temperature sensor with connection cable and measuring insert interchangeable with spring loaded.

Application:
For measuring and regulating exhaust gas in stationary or maritime

- Diesel engines
- Turbines



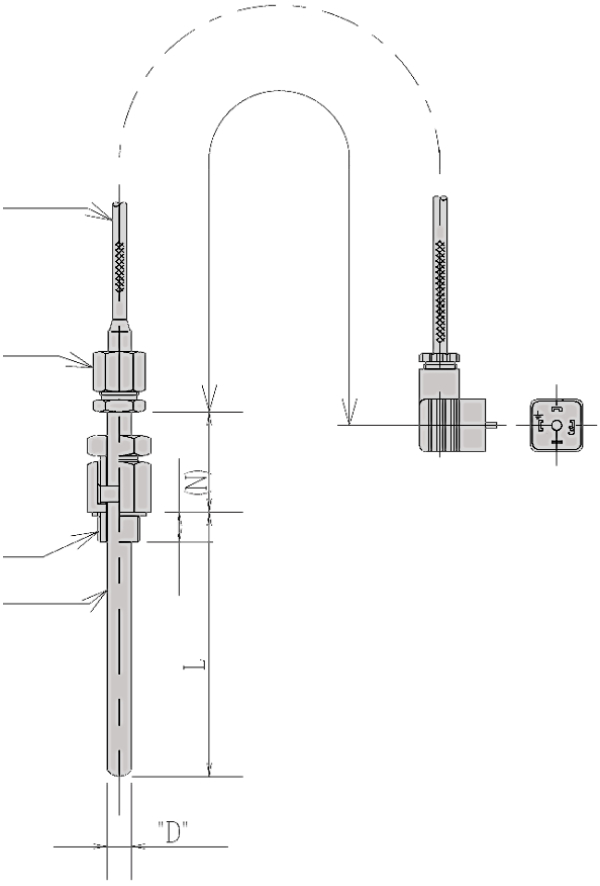
Specifications

Measuring insert type and tolerance:	The measuring insert is fitted with resistance thermometer PT100 Pt1000 to DIN EN 60751, Class B with 3 wire systems.
Process attachment:	Weld in nipple
Measuring insert:	Interchangeable
	Excellent vibration proof and shockproof performances at high temperature
Cable insulation:	Teflon-fiberglass-braiding (3x0.80mm)
Temperature range:	Up to 700° C

Ordering Code

CBR30	1	2	3	4	5	6	7	8	9	10

1	Measuring Insert	1 x Pt100 2 x Pt100 1 x Pt1000 2 x Pt1000
2	Probe diameter in mm	Ø10mm Ø12mm Ø15mm Other specify
3	Immersion length	60mm 105mm 120mm Other specify
4	Sheath Material	W.nr 1.4571 (AISI 316Ti)
5	Process connection	G 1/2 G ¾ Other Specify
6	Extension length	60mm 70mm Other specify
7	Cable Length	2m(Teflon-Fiberglass-braiding) 4m(Teflon-Fiberglass-braiding) 5m(Teflon-Fiberglass-braiding) 6m(Teflon-Fiberglass-braiding) Other specify
8	Electrical Connection	Plug Connection Box None
9	Temperature Range	0-600°C 0-700°C
10	Extra outer insulation cable	Flexible tube ø12mm None



Ordering Example:

	1	2	3	4	5	6	7	8	9	10
CBR30	1xPt100	12	10	316	1/	60	4	None	0-700°C	Flexible Tube

Series CBR/31 Diesel engine Temperature sensor with solid drilled protection tube and measuring interchangeable with spring loaded.

Application:

General Purpose of application used for measurement of exhaust gas or main engines. Excellent vibration proof and shock proof.

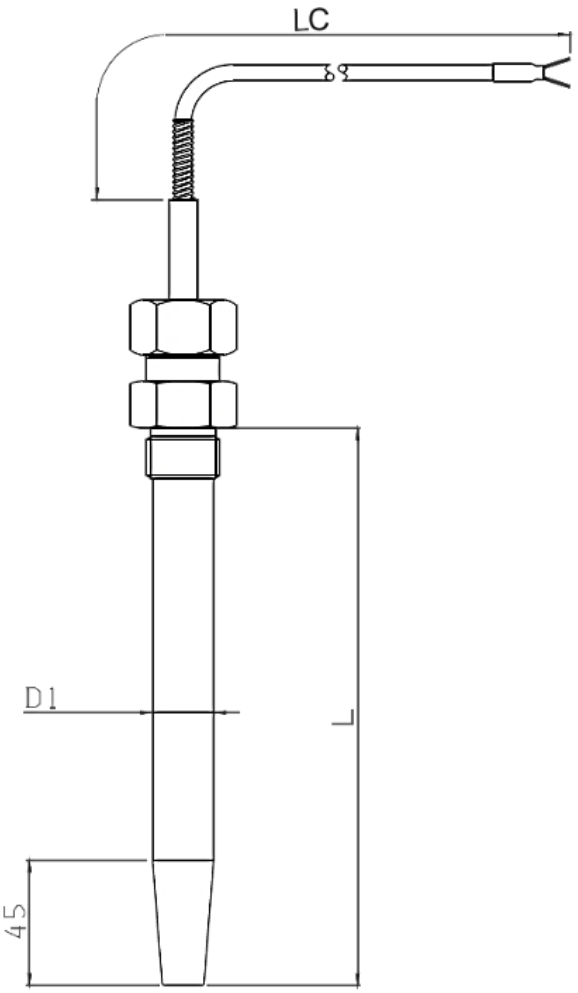
Specifications

Type and tolerance:	The measuring insert is fitted with thermocouple Type K to DIN EN 60584 class 1. The measuring insert is with insulated measuring junction.	
Protective Sheath:	Stainless steel Nr.14571	
Pressure Test:	25bars	
Cable insulation:	Silicon, Teflon, or fiber glass – all types are armoured Stainless Steel for temperature from -40° +850° C	
Vibration stability:	**Shock:**	100g/6ms
	Vibration:	4g sine Functions 2-200Hz Measured according to IEC 60068-2-6
Process Connection:	Stainless steel 14571	

Ordering Code

	1	2	3	4	5	6	7	8	9
CBR31									

1	Measuring Insert	K –NiCr-NI (-40° +850°) J –Fe–CuNi (-40° +700°) E –NiCr–CuNi (-40° +800°) N -NICrSi–NiSi (-40° +850°)
2	Probe diameter D1 in mm	Ø 12.5 x 8.5 (conus) Ø 18/12 (conus) Ø 22/15 (conus) Other specify
3	Immersion length L	100 mm 150 mm 200 mm Other specify
4	Sheath Material	AISI 316 Ti
5	Process connection	G ½ A G ¾ A Other specify
6	Extension cable length LC	2000 mm 3000 mm 4000 mm 5000 mm Other specify
7	Tolerance Class	1 2
8	Number of thermocouple	1 x TC 2 x TC
9	Electrical connection	Plug Connection box Without (00)



Ordering Example:

	1	2	3	4	5	6	7	8	9
CBR31	K	12.5 x 8.5	10	316	G 1/2	3000	1	1xTC	00

Series CBR/32, 33, 34, 35 – Screw in RTD temperature sensor with connecting cable

CBR32 (screw in RTD temperature probe with fixed thread fitting)
CBR33 (screw in RTD temperature probe with loose thread fitting)
CBR34 (screw in RTD temperature probe with thread protection tube)
CBR35 (screw in RTD temperature probe with loose thread fitting and stepped protection tube)

Application:

General Purpose. General purpose: used for measuring temperature in liquids and gases. An important selection criterion is their reliable sealing against both negative and positive pressure. Application include heating installations, ovens furnaces, HVAC, refrigeration, and plant engineering.

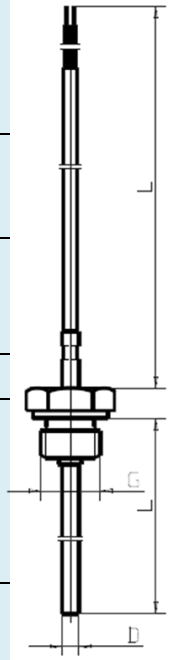
Specifications

Measuring insert:	Is normally fitted with a Pt100 Temperature probe to DIN EN 60751, Class B in 2-wire systems. Version with Pt500, Pt1000, Ni100 or Ni1000 • As single or twin RTD temperature probe • In 2-wire, 3-wire, or 4-wire system. • Connecting cable in PVC, Silicone, and PTFE or with metal braiding.
Compensating cable:	PVC, ambient temperature -5°+80°C Silicone, ambient temp. -50°+180°C PTFE, ambient temp. -190°+260° C Metal braiding, ambient temperature from -50° to +350°C
Process Connection:	Connection thread ,stainless steel 14571
Protection tube:	st.st. 14571
Response times:	t0.5 approx. 2sec, t0.4 approx. 6sec, in water 0.2/sec 6mm diameter.
Temperature range:	For temperature from -50°+400° C

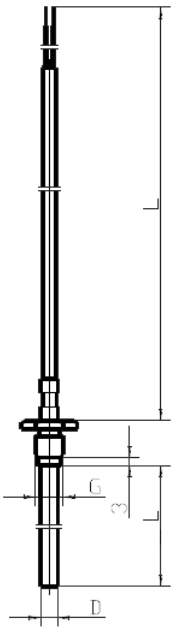
Ordering Code

CBRxx	1	2	3	4	5	6	7	8	9

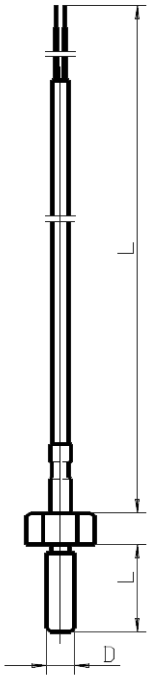
1	Measuring Insert	Pt100 Pt500 Pt1000 Ni100 Ni1000 Other specify
2	Probe tube diameter	ø3,0mm ø6,0mm ø4,0mm ø8,0mm ø4,8mm Other ø5,0mm specify
3	Protection tube length L	17mm 137mm 37mm 200mm 50mm 250mm 100mm Other specify
4	Sheath material	St.st 14571 (316ti)
5	Process connection	Thread ¼ pie Thread 3/8 pie Thread ½ pie Thread ¾ pie Thread M8 Thread M10x1 Other specify
6	Connecting cable length	1m 2m 2.5m 3m
7	Number of RTD	1xRTD 2XRTD
8	Number of conductor	2wire 3wire 4wire
9	Operating temperature	(00)-200° to+400°C/ Metal/braiding (01)-50° to 200°C/ Silicone (02)-50° to +260°C/ PTFE (03)-50° to +400°C/ Metal braiding (04)-50° to +80°C / PVC (05)-50° to +105°C/PVC



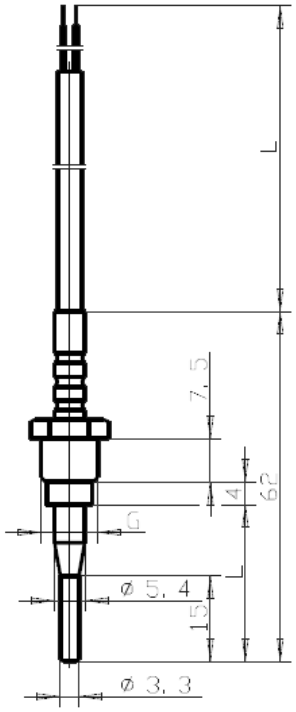
CBR/32



CBR/33



CBR/34



CBR/35

Ordering Example:

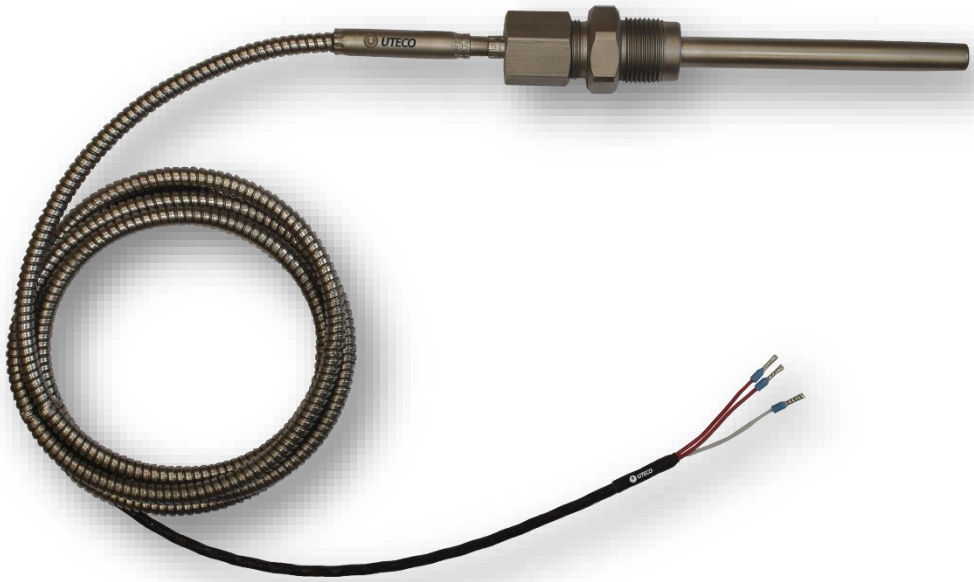
	1	2	3	4	5	6	7	8	9
CBRxx	1xPt10 0	4	50	316	1/2	3	1xRTD	3w	01

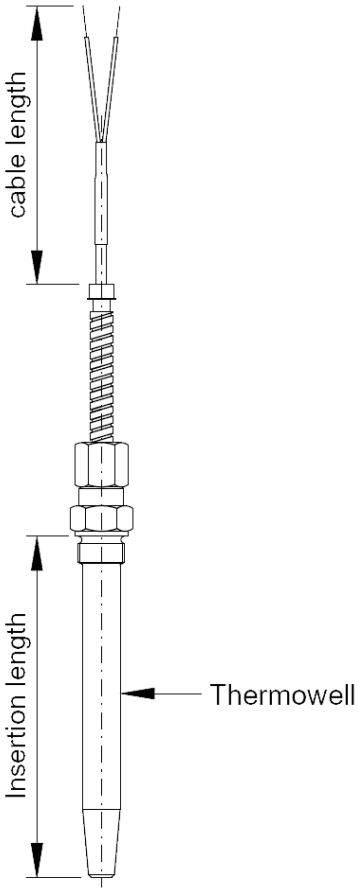
Series CBR/36- Diesel engine temperature sensor with solid drilled protection tube and measuring interchangeable with spring loaded

Application:

General Purpose. Measuring and regulation exhaust gas or main engines for temperature up to 700°C. Excellent vibration proof and shockproof performances at high temperature.

- **Diesel engines**
- **Turbine**
- **Compressors**



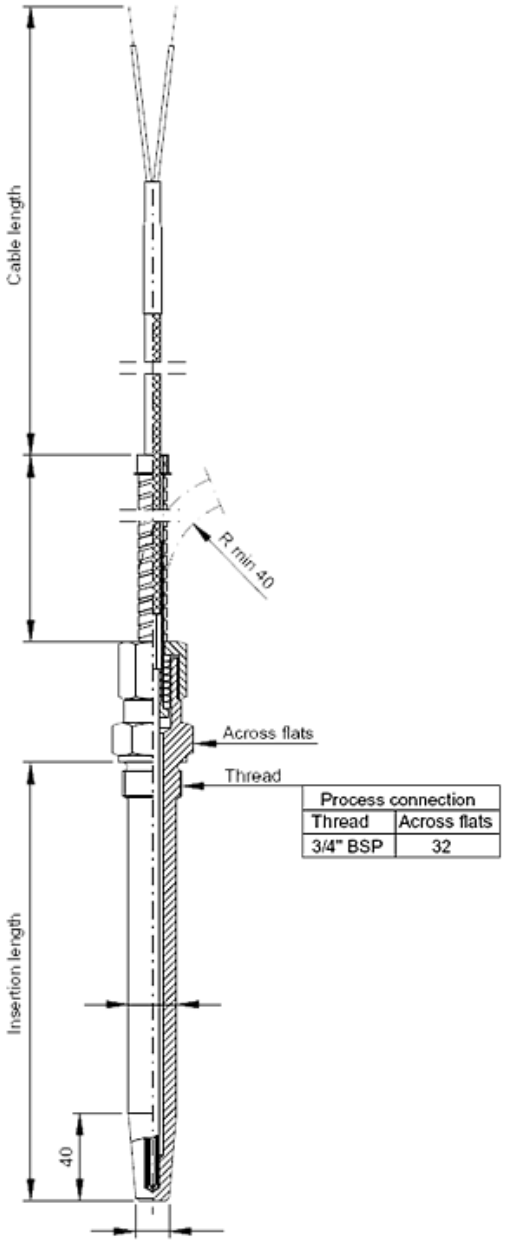


Specifications

Type and tolerance:	Resistance thermometer Pt100, Class B to DIN EN 60751, ±(0.3 +0.005 x t) t=temperature of medium, numerical value, 2-3 or 4 wire system	
Insulation resistance:	Minimum 0.5Mohn at 600°C according to EN60751	
Vibration stability:	**Shock:**	100g/6ms
	Vibration:	4g sine Functions 2-200Hz Measured according to IEC 60068-2-6
Thermowell type:	Drilled bar stock with tapered stem	
Stem diameter under thread:	12mm	
Tip diameter:	11mm	
Tip Thickness:	4mm	
Bore diameter:	Ø9mm	
Measuring insert:	interchangeable	
Immersion Length:	115mm	
Temperature range:	From -50o to +700oC	
Sheath material:	AISI 316	
Cable insulation:	Teflon-braiding-Teflon 3x0.75mm with outer sheath flexible tube inox	
Cable length	2000mm	
Process connection:	PF 3/4	

	1	2	3	4	5	6
CBR36						

1	Measuring Insert	1 x Pt100 1 x Pt1000 2 x Pt100 2 x Pt1000
2	Diameter in mm	Ø12/11mm Ø18/14mm Ø23/17mm Ø24/14mm
3	Immersion Length	80mm 100mm 115mm 120mm 150mm 200mm Other specify
4	Sheath Material	AISI 304 AISI 316
5	Process Connection	G ½ A G ¾ A Other specify
6	Extension Cable Length	2000mm 3000mm 4000mm 5000mm Other specify



Ordering Example:

	1	2	3	4	5
CBR36	1xPt100	12/11	115	316	2000mm

Series CBR/40- In melt Temperature sensor with compensating cable.

Application:

General Purpose of application used for measuring melt temperature in the plastics industry. Depending on the requirements, sword-shaped or plane probe tips provide for the ideal measuring conditions.

Measurement insert	Fitting Length	Probe tips Shape	Sheath Material	Probe tip Length	Cable length	Article Nr.
1 x Fe-Konst (J)	90mm	Flat	AISI 316	5mm	2m	CBR40.2000000
1 x Fe-Konst (J)	152mm	Sword	AISI 316	10mm	2m	CBR40.2000001
1 x NiCr-Ni(K)	152mm	Sword	AISI 316	15mm	3m	CBR40.4000000

Specifications

Measuring insert type and tolerance:	The measuring insert is normally fitted with thermocouple according to DIN EN 60584, Class 1
Connection:	Connector, 2-pin standard
Temperature range:	-40 +600° C
Cable insulation:	Metal braiding, ambient +400° C
Process Connection:	½ x 20 UNF
Connector:	Connector type J or K male 2 Pin

Other technical characteristics (length, diameter, process connection etc.) available upon request

Series CBR/41- Screw –in temperature sensor with compensating and connecting cable.

Application:

General Purpose of application used for measuring temperature in liquids and gases include heating installation ovens, furnaces and plant engineering.

Measurement insert	Thread D	Standard Length	Temperature range	Cable length	Article Nr.
1 x Pt100	M6	8mm	From -50° to +400°C	3m	CBR41.1100000
1 x Pt100	M8x1	8mm	From -50° to +400°C	3m	CBR41.1100001
1 x Pt100	M10x1	8mm	From -50° to +400°C	3m	CBR41.1100002
1 x NiCr-Ni(K)	M12x1.5	12mm	From -50° to +400°C	3m	CBR41.4000000
1 x Fe-Konst (J)	M14x1.5	12mm	From -50° to +400°C	3m	CBR41.2000000
1 x NiCr-Ni(K)	M20x1.5	15mm	From -50° to +400°C	3m	CBR41.4000001
1 x Fe-Konst (J)	G 1/2	15mm	From -50° to +400°C	3m	CBR41.2000001
1 x Fe-Konst (J)	M6	8mm	From -50° to +400°C	3m	CBR41.2000002

Specifications

Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple to DIN EN 60584 and resistance thermometer to DIN EN 60751 Class B with 2, 3, or 4 wire systems
Sheath material:	Stainless steel 316
Lead wire:	Stranded Cu wire, or thermocouple stranded wire 2x0.5mm^2 Fiberglass insulation, metallic over braid

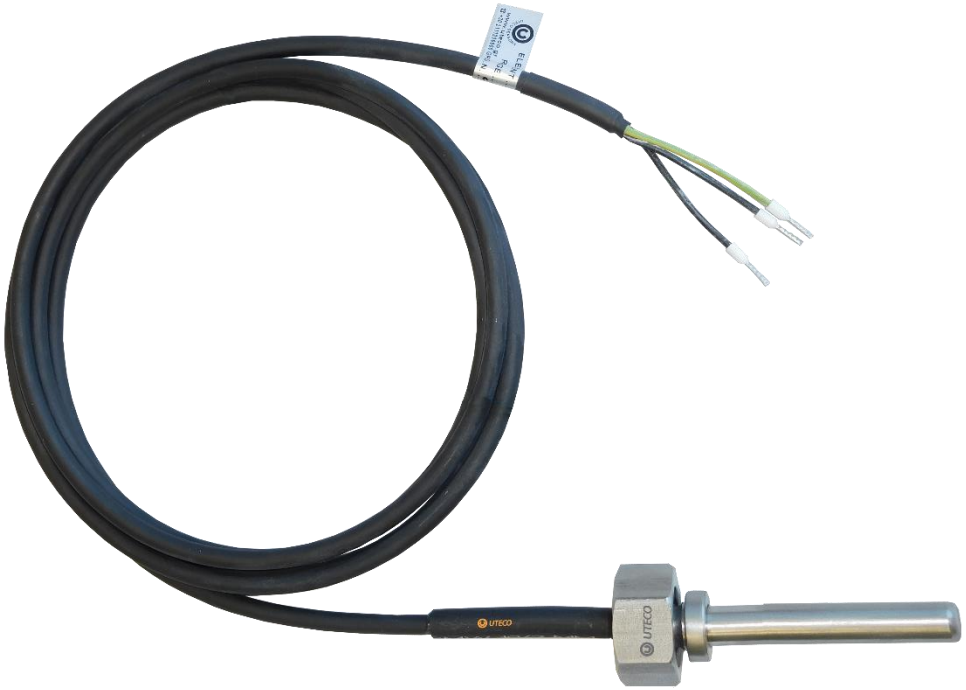
Options: Pt500, Pt1000, Ni100, Ni1000
Hot junction: Insulated of grounded.
Other lead wire insulation Types: PVC, Silicone and Teflon

Other technical characteristics (length, diameter, process connection etc.) available upon request

Series CBR/48 – Screw in RTD temperature sensor with connecting cable

Application:

General Purpose. General purpose: used for measuring temperature in liquids and gases. An important selection criterion is their reliable sealing against both negative and positive pressure. Application include heating installations, ovens furnaces, HVAC, refrigeration, and plant engineering.



Specifications

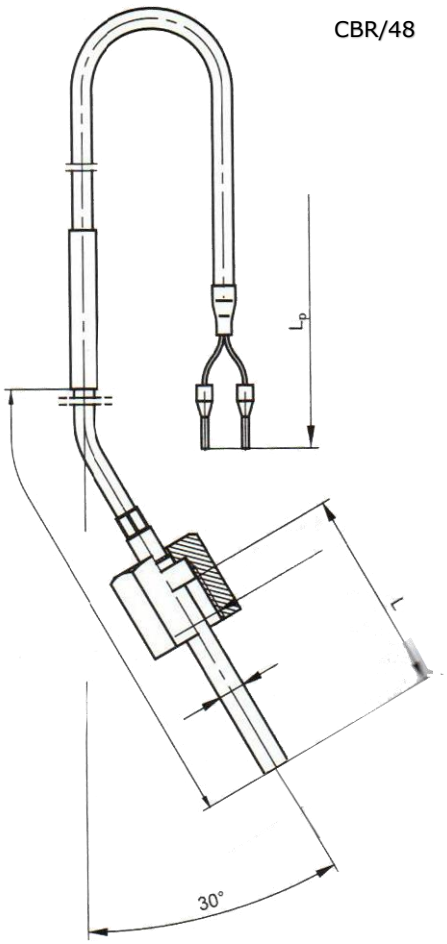
Measuring insert:	Is normally fitted with a Pt100 Temperature probe to DIN EN 60751, Class B in 2-wire systems. Version with Pt500, Pt1000, Ni100 or Ni1000 • As single or twin RTD temperature probe • In 2-wire, 3-wire, or 4-wire system. • Connecting cable in PVC, Silicone, and PTFE or with metal braiding.
Compensating cable:	PVC, ambient temperature -5°+80°C Silicone, ambient temp. -50°+180°C PTFE, ambient temp. -190°+260° C Metal braiding, ambient temperature from -50° to +350°C
Process Connection:	Connection thread ,stainless steel 14571
Protection tube:	st.st. 14571
Response times:	t0.5 approx. 2sec, t0.4 approx. 6sec, in water 0.2/sec 6mm diameter.
Temperature range:	For temperature from -50°+400° C

Ordering Code

	1	2	3	4	5	6	7	8	9
CBR48									

1	Measuring Insert	Pt100 Pt500 Pt1000 Ni100 Ni1000 Other specify		
2	Probe tube diameter	ø3.0mm ø4.0mm ø4.8mm ø5.0mm	ø6.0mm ø8.0mm Other specify	Ø9.0mm Ø10.0mm
3	Protection tube length L	30mm 37mm 50mm 100mm	137mm 200mm 250mm Other specify	
4	Sheath material	St.st 14571 (316ti)		
5	Process connection	Thread ¼ pie Female Thread 3/8 pie Female Thread ½ pie Female Thread ¾ pie Female Thread M10x1 Female Other specify		
6	Connecting cable length	1m 2m 2.5m 3m Other specify		
7	Number of RTD	1xRTD 2XRTD		
8	Number of conductor	2wire 3wire 4wire		
9	Operating temperature	(00)-200° to+400°C/ Metal/braiding (01)-50° to 200°C/ Silicone (02)-50° to +260°C/ PTFE (03)-50° to +400°C/ Metal braiding (04)-50° to +80°C / PVC (05)-50° to +105°C/PVC (06)-30° to +80°C 500-TPE		

CBR/48



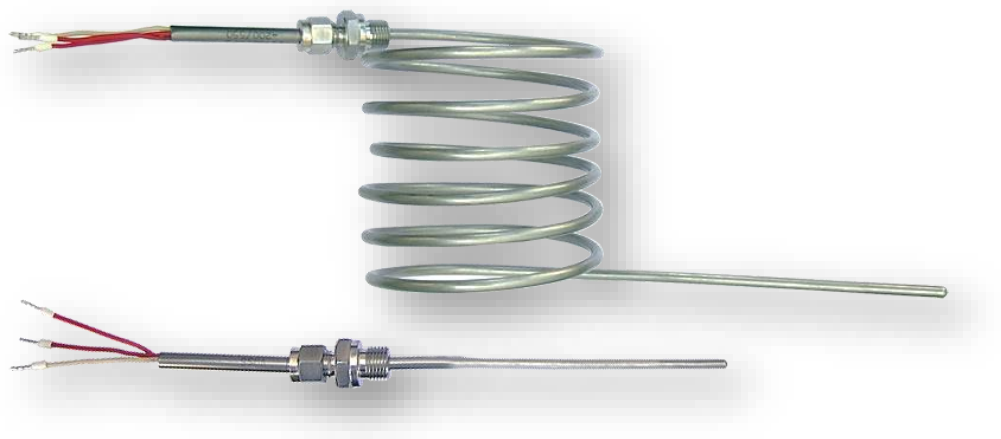
Ordering Example:

	1	2	3	4	5	6	7	8	9
CBR48	1xPt100	4	50	316	1/2	3	1xRTD	3w	01

Series MIC/10, 11, 12, 13 -RTD temperature sensor- flexible mineral insulated (type mantel) with extension cable.

MIC 10 (Mineral Insulated resistance thermometer for oil and gas tanks)
MIC 11 (Mineral insulated resistance thermometer with bare connecting wires)
MIC 12 (Mineral insulated resistance thermometer with Lemosa connector)
MIC 13 (Mineral insulated resistance with connecting cable)

Applications:
Used for measurement of temperature in pipeline and tank systems, e.g. in oil tankers, chemical plants, power stations, in engine construction, on test beds and in all applications where flexibility and problem – free replacement are required.



Specifications:

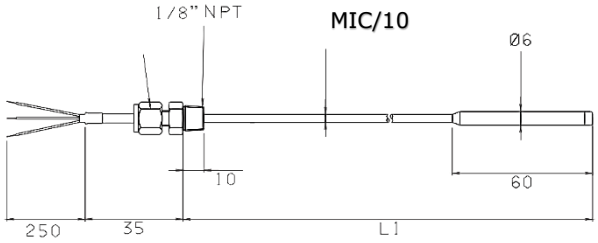
Resistance type and tolerance:	The measuring element is according to DIN EN 60571 standard with glass element. Class B, 3wire circuit. As single or twin resistance thermometer. In 2wire, 3wire or wire circuit. Version with Pt500 or Pt1000 are also available. Fast response time. Flexible sheath with shock – protected sensor
Probe Diameter:	Diameters as small as 1.9mm are available.
Process Connection :	Thread, stainless steel 14571.
Protection tube:	Protection tube and sheath are welded together. The excellent heat transfer between the protection tube and the temperature sensor enables short response times (t 0.5 mm from 0.7 sec) and high accuracy. The smallest bending radium is 5 times the external diameter.
Response Time:	Response times (t 0.5 mm from 0.7 sec)
Temperature Range:	From -200◦ to +600◦C
Insulation resistance:	> 1000 Mohm at 500 VDC

Ordering Code

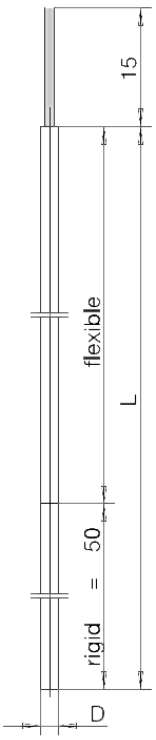
	1	2	3	4	5	6	7	8	9
MICxx									

1	Measuring insert:	1xPt100 1xPt1000 2xPt100 2xPt1000
2	Probe diameter:	1.9mm 3.0mm 4.5mm 4.8mm 6.0mm 8.0mm
3	Immersion length L1 :	100mm 9000mm 200mm 10000mm 300mm 12000mm 500mm 14000mm 1000mm 17000mm 2000mm 20000mm 4000mm 22000mm 6000mm 25000mm 8000mm Other specify
4	Sheath material :	AISI 316Ti
5	Process connection :	1/8 NPT ¼ NPT 00 (without) Other specify
6	Cable length:	250mm 500mm 1000mm 2500mm 3000mm 00 (without) Other specify
7	Insulation cable:	01 PVC (-5°+80° C) 02 Silicone (-50° + 180°C) 03 PTFE (-190° +260° C) 04 metal braiding (-50°+350°C)
8	Tolerance class:	Cl.A ± 0.15 °C Cl. B ± 0.3 °C 1/3 DIN ± 0.1°C 1/6 DIN ± 0.05 °C 1/10 DIN
9	Number of conductor:	2wire 3wire 4wire
10	Temperature range:	-196 to +400°C (class B) only -100 to +400°C (class A) only -200 to + 600°C (class B) only -50 to +600°C -50 to +400°C
11	Sensor tip diameter:	01 ø6 x 60 mm 02 ø8 x 95 mm

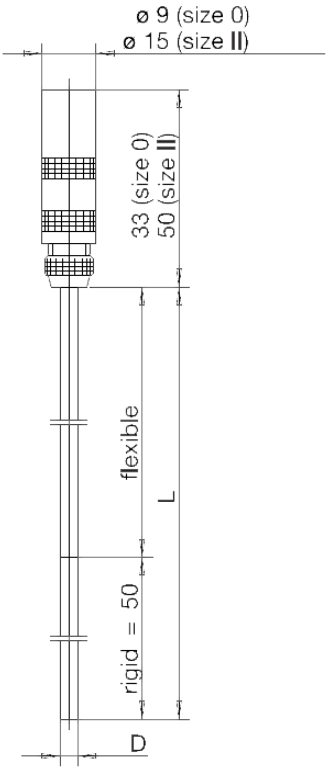
MIC/10



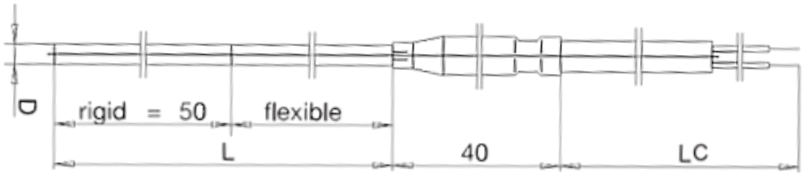
MIC/11



MIC/12



MIC/13



Ordering Example:

	1	2	3	4	5	6	7	8	9	10	11
MICxx	1xPt100	3.0mm	1400	31 6	1/8NPT	250	03	Cl.A	3	-100° +400 °C	0 1

Series MIC/20- Bearing Temperature sensor with 3 pole connector and spring loaded system.

Application:

General Purpose of application used for measuring temperature for medium speed engines. This sensor have high durability against vibration and special environments. Fitted with spring loaded systems

Measurement insert	Diameter	Length	Extension length	Temperature range	Article Nr.
1xPt100	6mm	16mm	1150mm	From -50 to +150°C	MIC20.1100000
1xPT100	6mm	16mm	580mm	From -50 to +150°C	MIC20.1100001

Specifications

Measuring insert type and tolerance:	The measuring insert is fitted with resistance thermometer PT100, to DIN/IEC 60751, CLASS A, 3 Wire system
Tip diameter :	6mm
Tip length:	16mm (end tip)
Sheath Material:	AISI 316
Extension length:	1150 or 580mm
Mechanical connection:	M18x1,5mm
Probe length:	20 or 25mm (end tip)
Connector	Jaeger 3 pole male
Insulation:	>100MΩ 500 V DC
Response time :	at 63% 1,6 sec at 90% 3.6 sec
Process Connection:	M10x1mm
Springloaded:	42mm

Other technical characteristics (length, diameter, process connection etc.) available upon request

Series MIC/21- Temperature probe with connector Type ITT Cannon

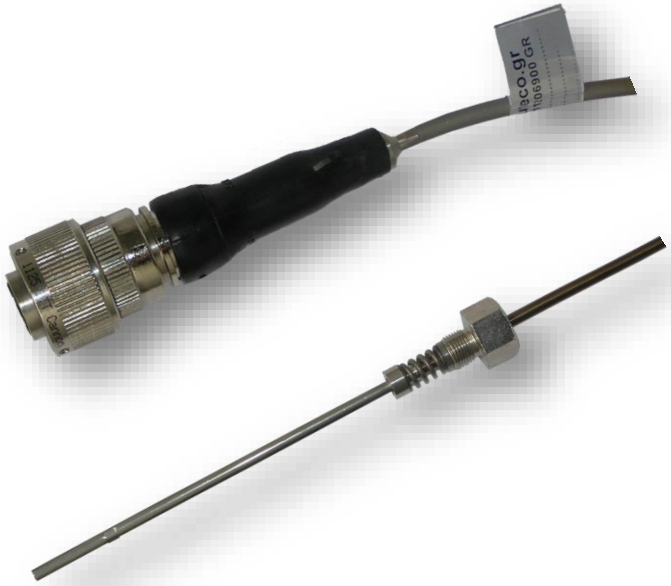
Application:

General Purpose of application used for measuring temperature in the main engine exhaust gas systems (Cylinder lines).

Features:

- **Excellent measurement accuracy**
- **Rapid response speed**
- **High durability against vibration**
- **Maintenance and checks are easy**

Measurement insert	Diameter	Immersion Length	Process Connection	Article
2xNiCR NI(K)	5.5mm	133mm	M12x1.0	MIC21.4200000



Specifications

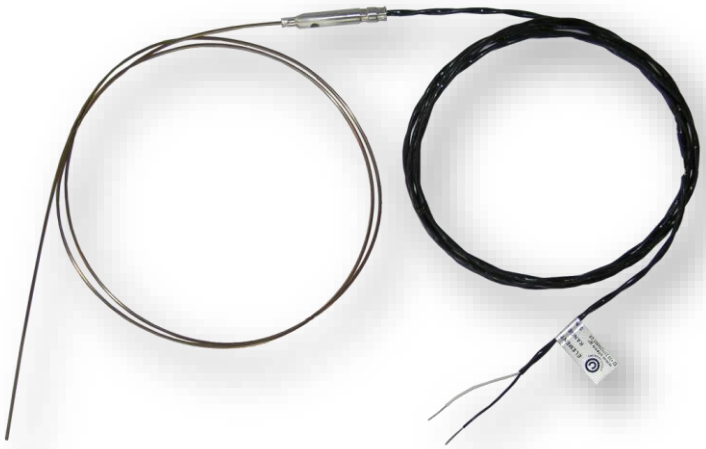
Measuring insert type and tolerance:	The Measuring insert is fitted thermocouple **type K** to DIN IEC 60584
Tube Diameter:	5.5 mm
Process Connection :	M12x1.0 mm
Probe Length:	133 mm
Material:	Inconel 600
Extension probe:	Flexible mineral insulated thermocouple (type Mantel) Length: 1500mm
Connector:	ITT Cannon , 5 pole
Temperature range:	From 0°C to +800°C

Other technical characteristics (length, diameter, connector etc.) available upon request

Series MIC/30 - Mineral insulated temperature probe with compensating cable.

Application:

General Purpose of application used for measuring temperature in liquids and gases on solids such as hot plates and welding jaws. Indicative sectors heating installations, ovens, plant, engineering and laboratories. Where flexibility and problem –free replacement are required



Specifications

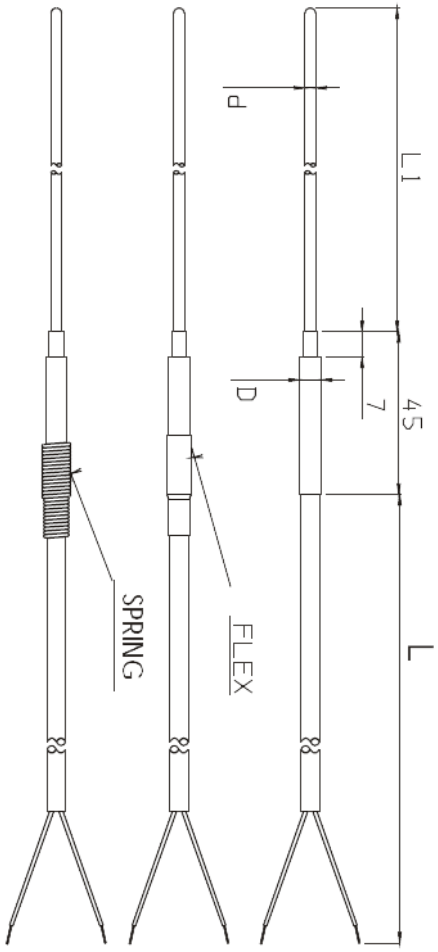
Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple Type K,J,K, T,E,N according to DIN EN 60584 Class 1 or 2 • The measuring junction is standard insulated. The grounded alternatively exposed measuring junction. • The excellent heat transfer between the sheath and the thermocouples enables short response times (t 0.5 from 0.15 sec) and high measurement accuracy. The shock –proof construction ensures along life. The minimum bending radius is 5X the external diameter. The minimum fitting length EL is 50mm for 0.5mm to 2.0mm and 100mm for 3.0 to 60mm diameter
Test pressure:	40 bar (helium) leakage test at the measurement point
Insulation resistance:	Thermocouple against sheath at ambient temperature for lengths up to 1m:200MΩ, for lengths 1m and above 200MΩ x m
Connection :	Available with cable ends as: bare wires, with ferrules, receptacles or multipole connector
Compensating Cable:	Silicon, ambient temperature -50°C to +180°C Metal braiding, ambient temperature -20°C to +350°C
Protection tube:	Stainless steel 1.4541, Thermocouple Type K Inconel 2.4816(Inconel 600), thermocouple type K
Response times:	In water with 0.4m/sec / in air with 2m/sec 0.5mm dia: water $t_{0.5}$ =0.15sec, $t_{0.9}$=0.30sec / air $t_{0.5}$=3.5sec, $t_{0.9}$=8.0sec 1.0mm dia: water $t_{0.5}$ =0.20sec, $t_{0.9}$=0.60sec / air $t_{0.5}$=7.5sec, $t_{0.9}$=17.0sec 1.5mm dia: water $t_{0.5}$ =0.40sec, $t_{0.9}$=0.90sec / air $t_{0.5}$=10.0sec,$t_{0.9}$=25.0sec 2.0mm dia: water $t_{0.5}$ =0.80sec, $t_{0.9}$=2.60sec / air $t_{0.5}$=13.0sec,$t_{0.9}$=34.0sec 3.0mm dia: water $t_{0.5}$ =1.00sec, $t_{0.9}$=2.80sec / air $t_{0.5}$=22.0sec,$t_{0.9}$=64.0sec 4.5mm dia: water $t_{0.5}$ =2.50sec, $t_{0.9}$=6.50sec / air $t_{0.5}$=34.0sec,$t_{0.9}$=113.0sec 6.0mm dia: water $t_{0.5}$ =3.00sec, $t_{0.9}$=9.00sec / air $t_{0.5}$=55.0sec,$t_{0.9}$=170.0sec

Ordering Code

MIC30

1	2	3	4	5	6	7	8

1	Measuring Insert	1 x J operating temperature -200°C +800°C 1 x K operating temperature -200°C +1200°C 1 x T operating temperature -200°C +700°C 1 x E operating temperature -200°C +700°C 1 x N operating temperature -40°C +1250°C
2	Probe diameter in mm	Ø0.5mm Ø4.5mm Ø1.0mm Ø6.0mm Ø1.5mm Ø8.0mm Ø2.0mm Ø3.0mm
3	Immersion length	50mm 70mm 100mm 150mm 200mm 300mm 400mm Other specify
4	Sheath Material	AISI 316Ti Inconel Hastelloy Nicrobell
5	Cable length	0.5m 1.0m 2.0m 2.5m 3.0m
6	Insulation cable	PVC -5°C + 80°C Silicone -50°C + 180°C PTFE -1905°C + 260°C Metal braiding -20°C + 350°C
7	Tolerance class	Class 1 Class 2
8	Number of Thermocouple	1xTC 2xTC 3xTC
9	Junction	Flexible Spring without



Ordering Example:

MIC30

1	2	3	4	5	6	7	8	9
1xJ	3	100	316	2	PTFE	1	1xT	Spring

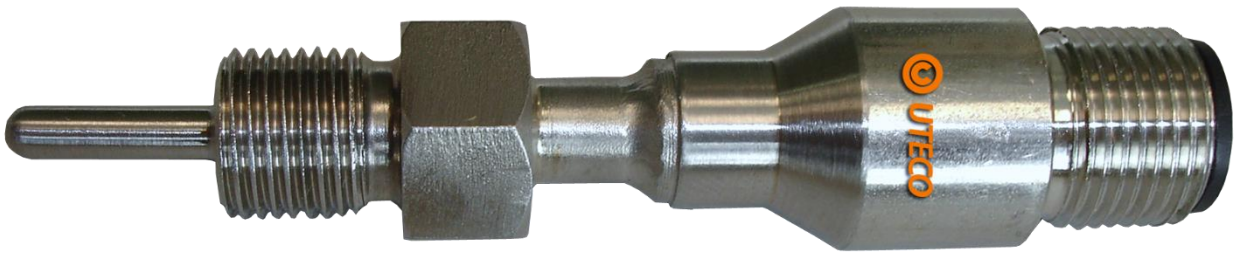
Measurement insert	Diameter	Immersion Length	Cable length	Temperature	Article Nr.
1xFe CuNi(J)	1.5mm	110mm	3m	From -200° to 800°C	MIC30.2000000
1xNiCr Ni(K)	1.5mm	150mm	1.5m	From -200° to 1200°C	MIC30.4000000
1xFe CuNi(J)	2mm	80mm	1.5m	From -200° to 800°C	MIC30.2000001
1xFe CuNi(J)	1mm	150mm	2m	From -200° to 800°C	MIC30.2000002
1xNiCr Ni(K)	3mm	70mm	1.5	From -200° to 1200°C	MIC30.4000001
1xFe CuNi(J)	1mm	70mm	1.5	From -200° to 800°C	MIC30.2000003
1xFe CuNi(J)	1.5mm	200mm	2m	From -200° to 800°C	MIC30.2000004
1xFe CuNi(J)	2mm	60mm	1.5m	From -200° to 800°C	MIC30.2000005
1xFe CuNi(J)	3mm	70mm	1.5m	From -200° to 800°C	MIC30.2000006
1xNiCr Ni(K)	1.5mm	70mm	1.5m	From -200° to 1200°C	MIC30.4000002

Series CON/22 – Temperature probes with 4 pins plug connector M12 male thread

Application:

General Purpose. Measuring under pressure in utility vehicles, construction and agricultural machinery, motors and compressors. The plug connectors between the protection fitting and the connection cable and locked contact stable and have the protection Class IP67 (IP69K) when connected. Suitable to give a fast response time despite low temperature and short immersion length.

Measurement insert	Probe Diameter	Immersion Length	Process Connection	Temperature Range	Article Nr.
1xPt100	3mm	13mm	G1/8	From -50° to +120°	CON22.1100000
1xPt100	3mm	24mm	G1/8	From -50° to +120°	CON22.1100001
1xPt1000	3mm	13mm	G1/8	From -50° to +120°	CON22.1200000
1xPt1000	3mm	24mm	G1/8	From -50° to +120°	CON22.1200001
1xPt1000	6mm	50mm	G3/8	From -50° to +200°	CON22.1200002
1xPt1000	6mm	100mm	G1/2	From -50° to +200°	CON22.1200003



Specifications

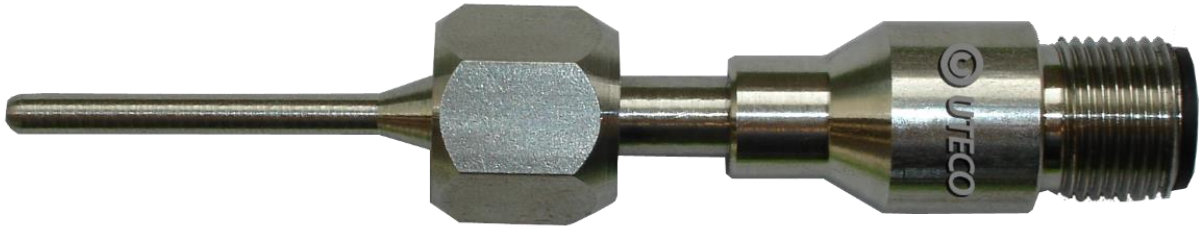
Measuring insert type and tolerance:	The measuring insert is fitted with resistance thermometer to DIN EN 60751,Class A, 4 wire system, M12x1 plug connection IP67 according to EN 60529 with machine connector plugged in for temperature from -50° to 120° C
Probe diameter	3mm
Immersion Length:	13mm or 24mm
Sheath material:	AISI 316 (Stainless steel)
Process Connection:	1/8“ GAS(UNI 338) Straight gas male thread
Protection class:	IP67
Temperature range:	From -50° to +200°C

Series CON/30– Temperature sensor with M12x1 machine connector

Application:

General Purpose of application used for measuring temperature for food industry in liquids and gases with conical sensor rapid response.

Measurement insert	Diameter	Immersion Length	Process Connection	Sheath Material	Article Nr.
1xPt100	3mm	25mm	G1/8 female	AISI 316	CON30.1100000
1xPt100	3mm	20mm	G1/8 female	AISI 316	CON30.1100001



Specifications

Resistance type and tolerance:	Resistance type and tolerance resistance thermometer PT100, CLASS1/3 din B to DIN IEC 60751, 3 wire system
Outside diameter	3mm
Time contact:	t0.50 sec<1.0sec
Sheath material:	AISI 316L
Connection:	Connection round plug M12x1 male thread
Probe length:	20 or 25mm (end tip)
Process Connection:	G1/8 female
Pressure range:	<25 bar(water flow 3m/sec)
Protection class:	IP67
Temp. range:	-50 to +260°C

Other technical characteristics (length, measurement insert version Pt1000, Ni1000, Pt500) are also available upon request

Series CON/40 – thermocouple type con – mineral insulated with plug

Application:

General Purpose of application used for temperature in chemical plant , power stations , pipelines in engine construction and on test beds and in all applications where flexibility and problem – free replacement are required

Specifications

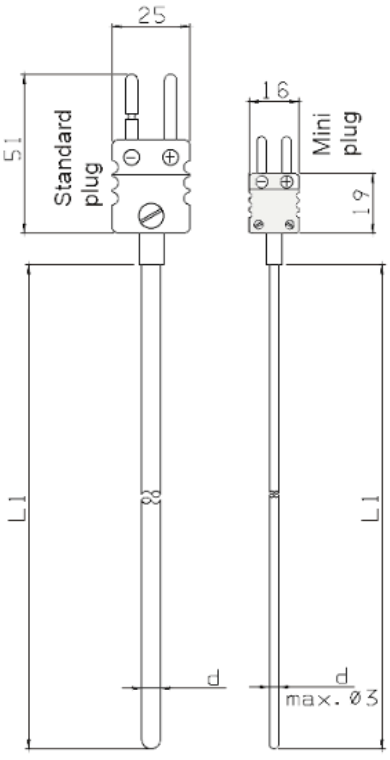
Measuring insert type and tolerance:	•The thermocouples are normally insulated from the sheath, •The measuring insert is fitted with thermocouple to DIN EN 60584 •Test pressure:40 bar (helium/leakage test at the measurement point
Sheath material:	AISI 316, Inconel 600, or Nimonic
Connection:	Compensated male standard connector with body in molded Nylon according to STM E 1129/E 1129M-91 T° Max.120°C
Temperature range:	From -200° to +1200°C

Ordering Code

CON40

1	2	3	4	5	6	7

1	Measuring Insert	1 x NiCr-Ni (K) 2 x NiCr-Ni (K) 3 x NiCr-Ni (K) 1 x FC-CuNi (J) 2 x FC –CuNi (T) 1 x NiCrSi–NiSi (N)	
2	Sheath Diameter	Ø0.5mm Ø1.0mm Ø1.5mm Ø2.0mm Ø3.0mm	Ø4.5mm Ø4.8mm Ø6.0mm Ø6.4mm Ø8.0mm
3	Immersion Length L1	Min 50mm Max 6000mm Other specify	
4	Sheath Material	AISI 316 Inconel Hastelloy Nicrobell Nimonic	
5	Tolerance class	Class 1 Class 2	
6	Electrical connection	Standard plug Mini plug	



Ordering Example:

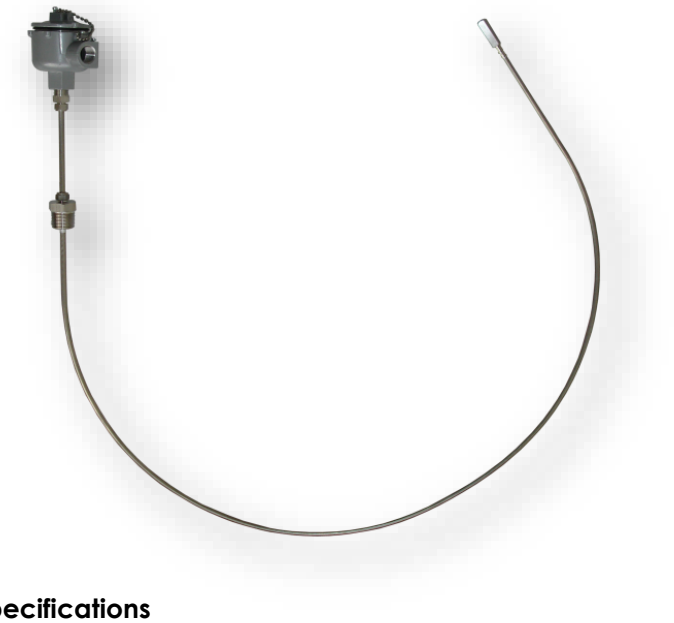
CON40	1	2	3	4	5	6
	1xK	3.0	600	Incone l	1	Standard plug

Series SKIN/10- Fan tip thermocouples are designed for welding directly to boiler or process tubes.

Application:

General Purpose of application used for measuring temperature on tube surface's temperature up to 1100° C with a corrected minimum accuracy of +-2%. These thermocouples can be supplied with a Xastelloy X sheath material for superior resistance to the most corrosive atmospheres

Measurement insert	Diameter	Immersion Length	Sheath Material	Process Connection	Article Nr.
1xNiCr Ni(K)	8.0mm	2950mm	Xastelloy X	R 1" NPT	SKIN10.400000
1xNiCr Ni(K)	8.0mm	1850mm	Xastelloy X	R 1" NPT	SKIN10.400001
1xNiCr Ni(K)	8.0mm	4625mm	Xastelloy X	R 1" NPT	SKIN10.400002



Specifications

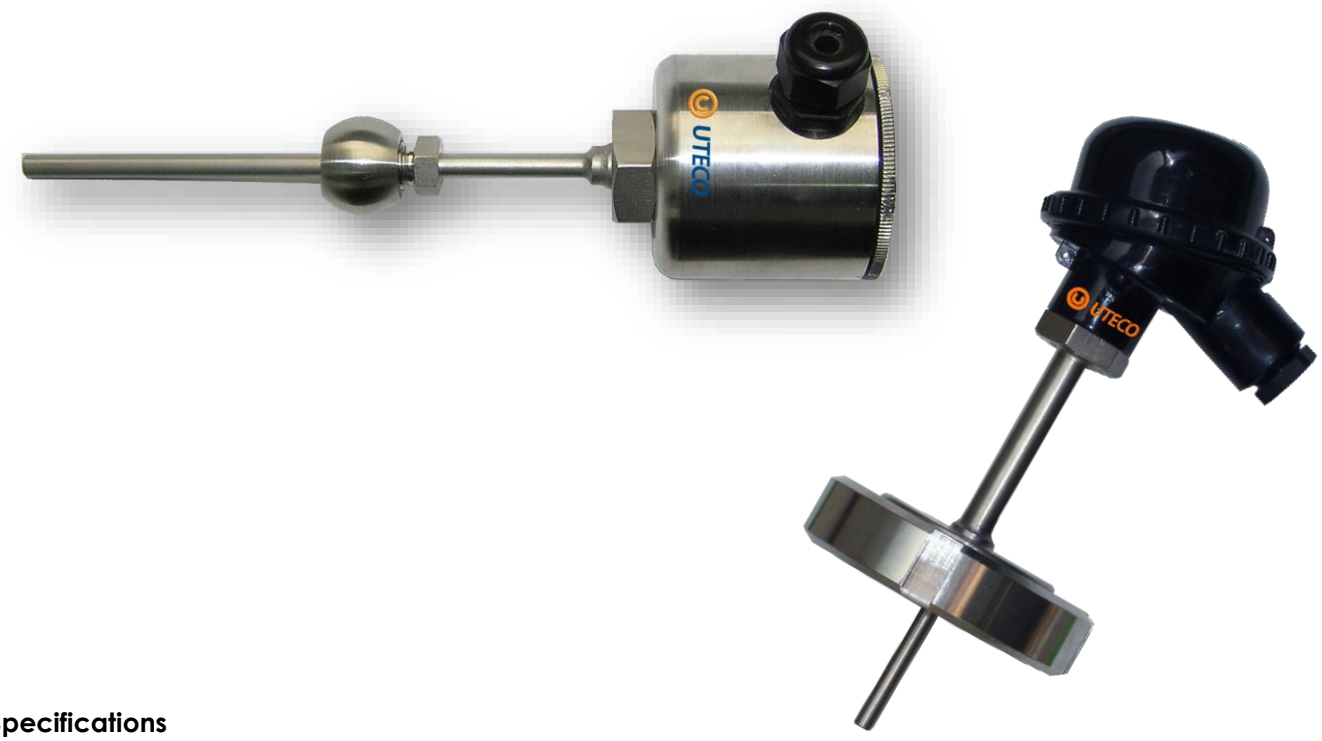
Measuring insert type and tolerance:	The thermocouples are normally insulated from the sheath The measuring insert is fitted with thermocouple to ANSI MC96.1 and ASTM E230-1993 Fan tip thermocouples with a Xastelloy X Sheath material Have an exceptionally long life and allows a smaller sheath diameter to be used 8,0mm standard, thus enabling the thermocouple to be bent into coils. The use of expansion coils allow for heater tube movement
Probe diameter:	8mm
Process Connection:	R1"NPT St. St.316
Connection head:	weatherproof, cast aluminum, IP66 Form Eexd IIC T6 ATEX Mounting weld clamp (two supplied with each assembly)

Other technical characteristics (length, diameter, process connection material, etc.) available upon request

Series SAN/20- RTD temperature sensor for the food and pharmaceutical industries with Hygienic process connection.

Application:

General purpose of application used for food and pharmaceutical industries. A wide variety of process connection can be supplied.

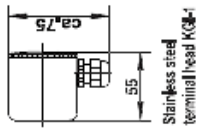


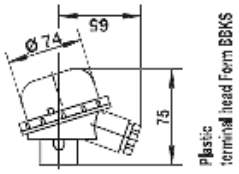
Specifications

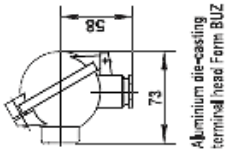
Resistance type and tolerances:	Pt100 single or twin temperature sensors to EN 60571, class A, in – wire system. The RTD temperature probes for the food and pharmaceutical industries are suitable for the temperature range -50° to +250°C
Probe Diameter:	The RTD can be supplied with at 3.00mm, 4.5 mm, 6mm, 8mm diameter 316 Stainless steel Probe
Protection:	Terminal heads are available in IP67 or IP68 rated
	Die cast Alloy, Heavy duty stainless steel, glass filled Nylon or polypropylene with a 20x1.5 mm (M20) cable entry. Available as simplex or duplex in 2, 3 or wire system. With optional 2wire transmitter 4-20MA or 0+10V CIP – compliant installation.
Response times:	t 0.9= 10 sec , in water 0.4 m/sec, 6mm diameter

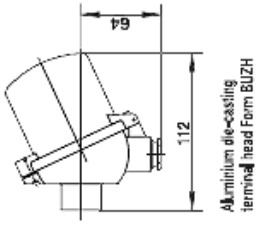
Ordering Code

SANxx	1	2	3	4	5	6	7	8	9



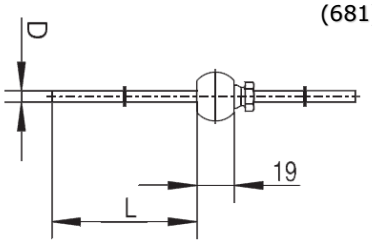






1	Measuring Insert	Pt100 Pt500 Pt1000
2	Probe diameter D1	3.0mm 4.5mm 6.0mm 8.0mm Other specify
3	Immersion Length C1	25mm 50mm 80mm 100mm 150mm 00 (without)
4	Extension Length L2	70mm 100 mm 120 mm 00 (without) Other specify
5	Process connection	104 (G1/2 pipe thread) 380 (G ½ pipe thread with CIP compliant conical seal 601 (taper nipple with ring nut DN10 to DIN 11851) 604 (taper nipple with ring nut DN25to DIN 11851) 605 (taper nipple with ring nut DN32 to DIN11851) 611 (clumping nipple DN10/20DIN32676) 613 (clumping nipple DN25/40 DIN32676) 616 (clumping nipple DN50 DIN 32676) 617 (clumping nipple DN2,5 '' DIN32676 681 (Bull weld-in socket with clumping threal) 682 (weld-in socket with CIP compliant sealing system 840 (Bull weld-in pocket)
6	Sheath Material	St.st 316L St.st 316Ti
7	Number of conductor	2wire 3wire 4wire
8	Number of elements	1xPt 2xPt
9	Tolerance class/DIN	C/A ± 0.1°C C/B ±0.3°C 1/3 DIN ± 0.1°C 1/6 DIN ±0.05°C
10	Terminal Head	BUZ BUZH BBK5 Form B KGI-1 (st.st)
11	Protection tube form	01 (stepped sheath) with 6 to 3.8mm or ø8 to 6mm 02 (continuous sheath)

(681)



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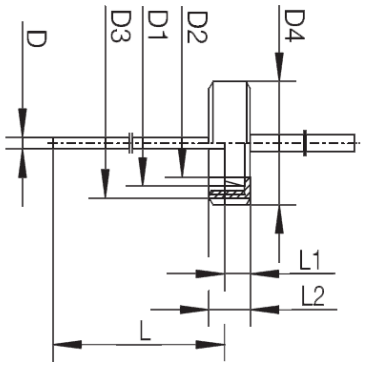

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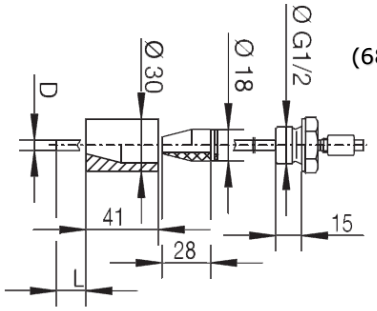

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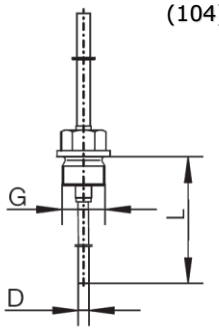

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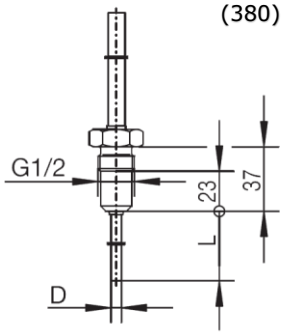

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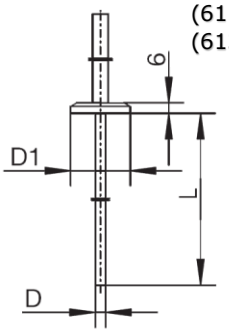

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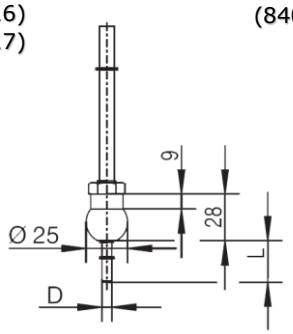


Ordering Example:

	1	2	3	4	5	6	7	8	9	10	11
SANxx	1xPt100	6.0mm	50	70	605	316	3W	1xP	1/3	BBKS	0

Series INS/10 - Food temperature Insertion temperature sensor.

Application:

General Purpose of application used for cooking and baking processes in all areas of food processing and preservation other application are autoclaves and sterilizers.
The Stainless Steel probe tube is available with concentric point or oblique tip (approx25° or 45°)
The versions are highly resistant to shock and vibration. The handle is resistant to oil and acid.

Measurement insert	Diameter	Length	Cable length	Temperature range	Article Nr.
1 x Pt100	4mm	150mm	4m	-50 +260°C	INS10.1100000
1 x Pt100	4mm	150mm	5m	-50 +260°C	INS10.1100001
1 x Pt100	4mm	150mm	3m	-50 +260°C	INS10.1100002
2 x Pt100	4mm	150mm	4m	-50 +260°C	INS10.1120000
1 x Pt1000	4mm	150mm	4m	-50 +260°C	INS10.1200000
1x NTC10Kohm	4mm	150mm	4m	-50 +260°C	INS10.0000000

Specifications

Resistance type and tolerances:	Resistance thermometer Pt100 ,class A,(single or twin) accuracy ±0,15°C to 0°C, to DIN EN 60751 3,4 or 6wire circuit
Outside diam.:	4mm (oblique or angled at 45°)
Sheath material :	St.St.1.4571
Probe length:	150mm
Connecting cable:	Teflon (PTFE) - Braiding - Teflon
Protection :	IP67
Temp. range:	From -50°C to +260°C

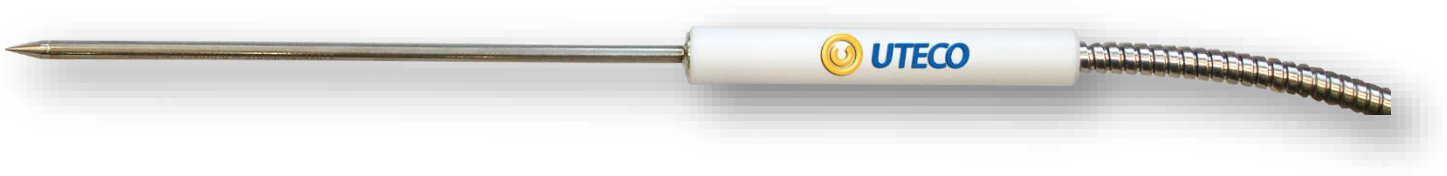
Other technical characteristics (length, diameter, cable length etc.) available upon request

Series INS/20- Food temperature Insertion temperature sensor with stainless steel flexible tube.

Application:

General Purpose of application used for cooking and baking processes in all areas of food processing and preservation other application are autoclaves and sterilizers.
The Stainless Steel probe tube is available with concentric point or oblique tip (approx25° or 45°)
The versions are highly resistant to shock and vibration. The handle is resistant to oil and acid.

Measurement insert	Diameter	Length	Cable length	Temperature range	Article Nr.
1 x Pt100	4mm	150mm	4m	From -50° to +260°C	INS20.1100000
1 x Pt100	4mm	150mm	3m	From -50° to +260°C	INS20.1100001
1 x Pt100	4mm	150mm	5m	From -50° to +260°C	INS20.1100002
2 x Pt100	4mm	150mm	3m	From -50° to +260°C	INS20.1120000
1 x Pt1000	4mm	150mm	4m	From -50° to +260°C	INS20.1200000
1x NTC10Kohm	4mm	150mm	4m	From -50° to +120°C	INS20.0000000



Specifications

Resistance type and tolerances:	Resistance thermometer Pt100 ,class A,(single or twin) accuracy ±0,15°C to 0°C, to DIN EN 60751 3,4 or 6wire circuit
Outside diameter:	4mm (oblique or angled at 45°)
Sheath material :	St.St.1.4571
Probe length:	150mm
Connecting cable:	Teflon (PTFE)-Braiding—Teflon and stainless steel flexible tube
Protection:	IP67
Temp. range:	-50+260° C

Other technical characteristics (length, diameter, cable length etc.) available upon request

Series INS/30 -Food insertion temperature sensor.

Application:

General Purpose of application used for measurement meat and fruit during transportation specially on board ships the operating range is from -45° C to 40° C.

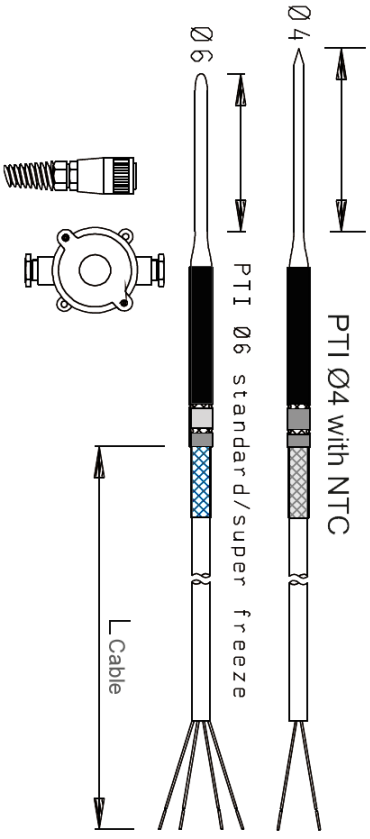
Specifications

Measuring insert type:	The measuring insert is normally fitted with Pt100 resistance thermometer according to DIN EN 60571 Standard Class B 1/6 DIN with 4wire system (tolerance 100 0hm +/- 0.01 ohm at 0° C.
Protective Tube:	of 6 mm stainless steel length 75 mm
	Available with black enameled marine box of – light alloy metal, protection IP67.
Response time (mean value):	measured at velocities in water at 0.4 m/s t05 = 7 sec
Recommended measuring:	max 2 mA
Cable insulation:	Neopren Ø9mm 4x1.5 mm

Ordering Code

INS30	1	2	3	4	5

1	Measuring insert:	1xPt100 1X NTC 1xPt1000
2	Probe diameter:	Ø6 mm (standard) Ø4 mm (NTC)
3	Probe Length:	70 mm 75 mm(Standard) 90 mm Other specify
4	Cable length:	2500m 5000m 12000m 15000m
5	Connection :	BOX NONE (00) Cannon plug



Ordering Example:

INS30	1	2	3	4	5
	1xPt100	6	70	5000	00

Series INS/31, 31, 33, 34 – Compost Temperature Sensor

INS 31- Compost temperature probes with miniature connection head
INS 32- Compost temperature probe with quick disconnection design using IP67/screw connector
INS 33- Compost temperature probes with a sturdy handle and a stainless steel lance with connection head BUZ
INS 34- Compost temperature probe with a stardy handle and a stainless steel lance with quick disconnection design using IP67 / screw connector

Application:
General Purpose. Temperature probes are used for the accurate measurement of compost or substrate temperature in all mushroom processes.

INS 31

INS 32

INS 33

INS 34

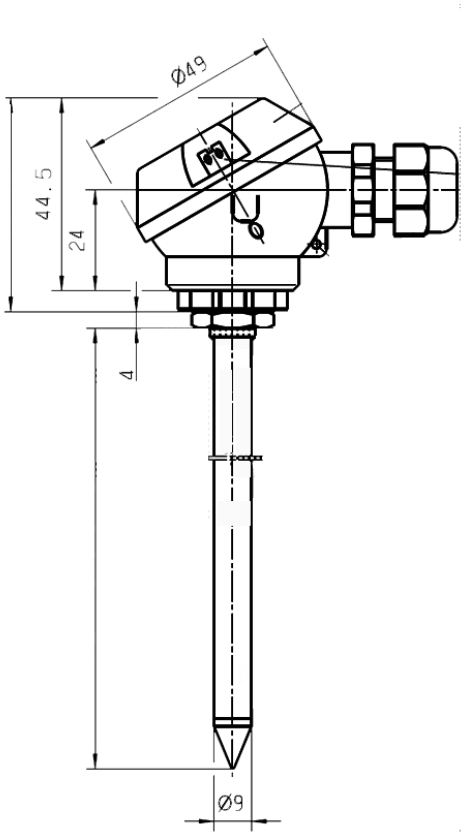
Specifications

Temperature probes are supplied either separately or complete with extension cables.	
Calibration:	Probes have standard calibration RTD Pt100,Pt1000, NTC10KΩ, 4-20mA or Wtrans B programmable Head transducer with ratio transmission (datasheet 707060)
Probe Length:	Probes are available in various length and design. Design can be customized for various application demads of the customer

Ordering Code

	1	2	3	4	5	6	7	8	9
INSxx									

1	Measuring Insert	1x Pt100 1xPt1000 AD592 1xNTC10K Other specify	
2	Probe diameter	6mm 8mm 9mm 10mm 15mm 20mm Other specify	
3	Immersion Length L	100mm 200mm 300mm 500mm 1000mm 1500mm Other specify	
4	Sheath material	AISI 316Ti	
5	Programmable transmitter	4-20mA (specify temperature) 0-10V (specify temperature) 00 (without transmitter) Wtrans B programmable head transducer with radiation transmission(datasheet 70.7060)- ONLY version INS32	
6	Tolerance class	Class A Class B 1/3 DIN	
7	Cable Length Only for Series INS 32 & INS 34	2m 5m 10m 20m	30m 00(without) Other Specify
8	Number of conductors	2 cond 3 cond 4 cond	
9	Temperature range	-50°C +105°C	



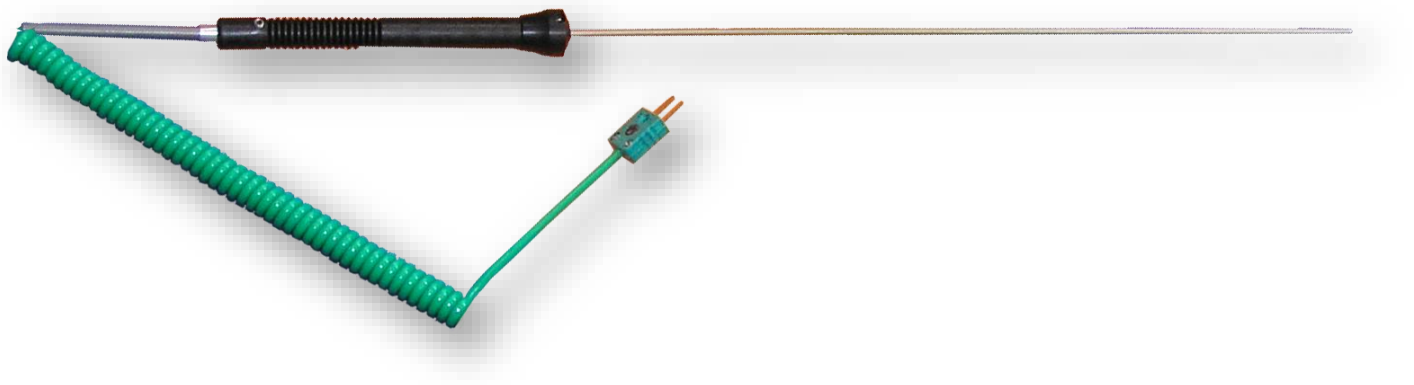
Ordering Example:

	1	2	3	4	5	6	7	8	9
INSxx	1xPt100	9 mm	300	31 6	4-20mA	A	00	2w	- 50°+105°C

Series PRT/10 – Handle temperature probe with cable and miniature connector.

Application:
General Purpose of application used for measuring temperature in gases, fluids and liquids

Measurement insert	Probe Diameter	Immersion Length	Cable length	Article Nr.
1xNiCr Ni(K)	1.5mm	300mm	2m	PRT10.4000000
1xNiCr Ni(K)	3mm	400mm	2m	PRT10.4000001
1xNiCr Ni(K)	3mm	800mm	2m	PRT10.4000002
1xNiCr Ni(K)	3mm	1000mm	2m	PRT10.4000003
1xNiCr Ni(K)	4.5mm	300mm	2m	PRT10.4000004
1xNiCr Ni(K)	6mm	450mm	2m	PRT10.4000005
1 x Fe-CuN(J)	1.5mm	300mm	2m	PRT10.2000000
1 x Fe-CuN(J)	3mm	300mm	2m	PRT10.2000001
1 x Fe-CuN(J)	4.5mm	450mm	2m	PRT10.2000002
1 x Cu CuNi (T)	1.5mm	300mm	2m	PRT10.7000000
1 x Cu CuNi (T)	3mm	300mm	2m	PRT10.7000001



Specifications

Measuring temperature:	from -200°C up to+1150°C
Thermocouple type:	Type K, J, T to DIN EN 60584-2
Accuracy:	class1
Hand grip material:	PVC suitable up to 90°C
Hand grip Length:	100mm
Sheath material:	Inconel for Type K AISI 316 for J or T
Mini thermocouple plug:	Type K, J or T
Length:	300mm,400mm,800mm or 1000mm
Diameter:	3mm

Suitable for connection with UTECO's portable thermometers.

Other technical characteristics (length, diameter, cable length etc.) available upon request

Series PRT/11 – Handle Temperature probe with cable and miniature connector (male)

Application:

General Purpose of application used for measuring temperature on surface.
Fast respond probe

Measurement insert	Probe Diameter	Probe Length	Cable length	Temperature range	Article Nr.
1xNiCr Ni(K)	ø10mm	150mm	1.5m	0° +800°C	PRT11.4000000
1xNiCr Ni(K)	ø30mm	65mm	1.5m	0° +400°C	PRT11.4000001

Specifications

Measuring temperature:	from 0°C up to+800°C
Thermocouple type:	Type NiCr Ni(K) to DIN EN 60584-2
Accuracy:	Class1
Hand grip material:	Nylon
Hand grip Length:	150mm

Compensated extension cable spiral–wound with polyurethane insulation and miniature connector male NiCR-Ni
Grounded hot junction

Series PRT/12 – High handle temperature probe with cable and miniature connector (male).

Application:

General Purpose of application used for bigieta (Solids bar) surface measurement for temperature up to 1260oC. Type K (NiCr Ni) measures hot metal surface. Especially designed for heavy duty.

Measurement insert	Diameter	Probe Length	Extension length	Cable length	Article Nr.
1xNiCr Ni(K)	50mm	100mm	200mm	1m	PRT12.4000000

Specifications

Specifically designed for use where surface temperatures reach at to 1260°C and rough handling is routine UTECO's foundry probe uses large, heavy duty tips that can penetrate surface slag to measure the true temperature of the casting.
The surface to be measured must be electrically conductive.
The lead wires are 24-AVG stranded wire with high temperature insulation and stainless steel flexible tube.

Suitable for connection with UTECO's portable thermometers.

Series PRT/13- High Handle temperature probes with cable and miniature connector (male).

Application:

General Purpose of application used in molten brass, copper, aluminum, and other non-ferrous melts.
Designed for intermittent temperature sensing up to 1250°C
Fast-Accurate- Low cost

Measurement insert	Probe Diameter	Curved Lunge 90°C Length	Straight Lunge length	Cable length	Article Nr.
1xNiCr Ni(K)	Ø13mm	460mm (+200mm tube)	1000mm	2m	PRT13.40000000

Specifications
Tip thermocouple 16gauge Type K wires are swaged directly into the protection tube, providing a rapid responding hot junction
Higher quality casting at lower cost

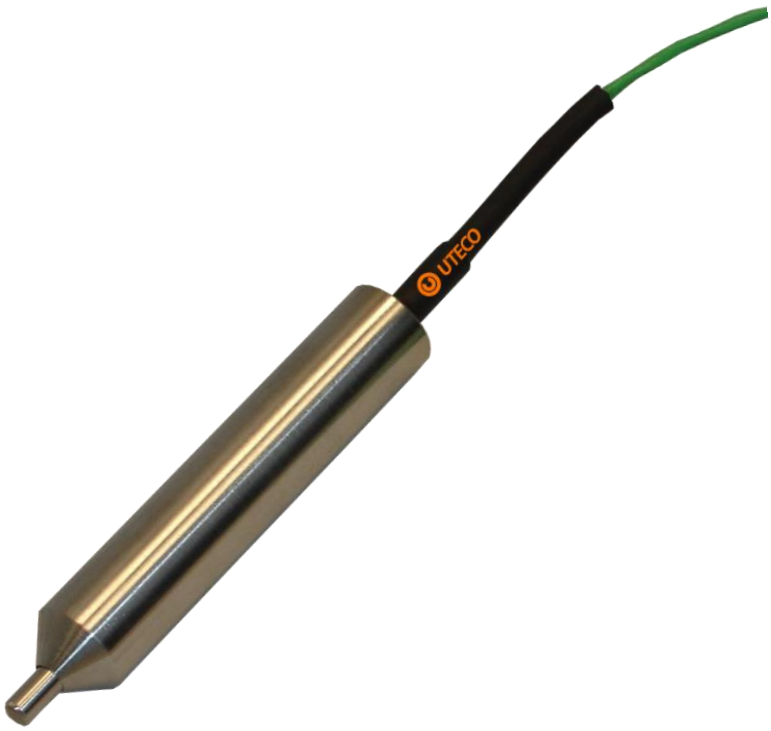
Series PRT/14-Portable cargo temperature probe with cable and miniature connector (male).

Application:

General Purpose of application used for raw materials such as tobacco, cocoa, cotton and jute.

- **oleiferous goods such as seeds and nuts**
- **Aluminum powder, ores and coals etc**

Measurement insert	Probe Diameter	Length probe	Cable length	Temperature range	Article Nr.
1xNiCr Ni(K)	Ø20mm	100mm	35m	-40° to 150°C	PRT14.40000000
1xPt1000	Ø20mm	100mm	35m	-40° to 150°C	PRT14.12000000



Specifications

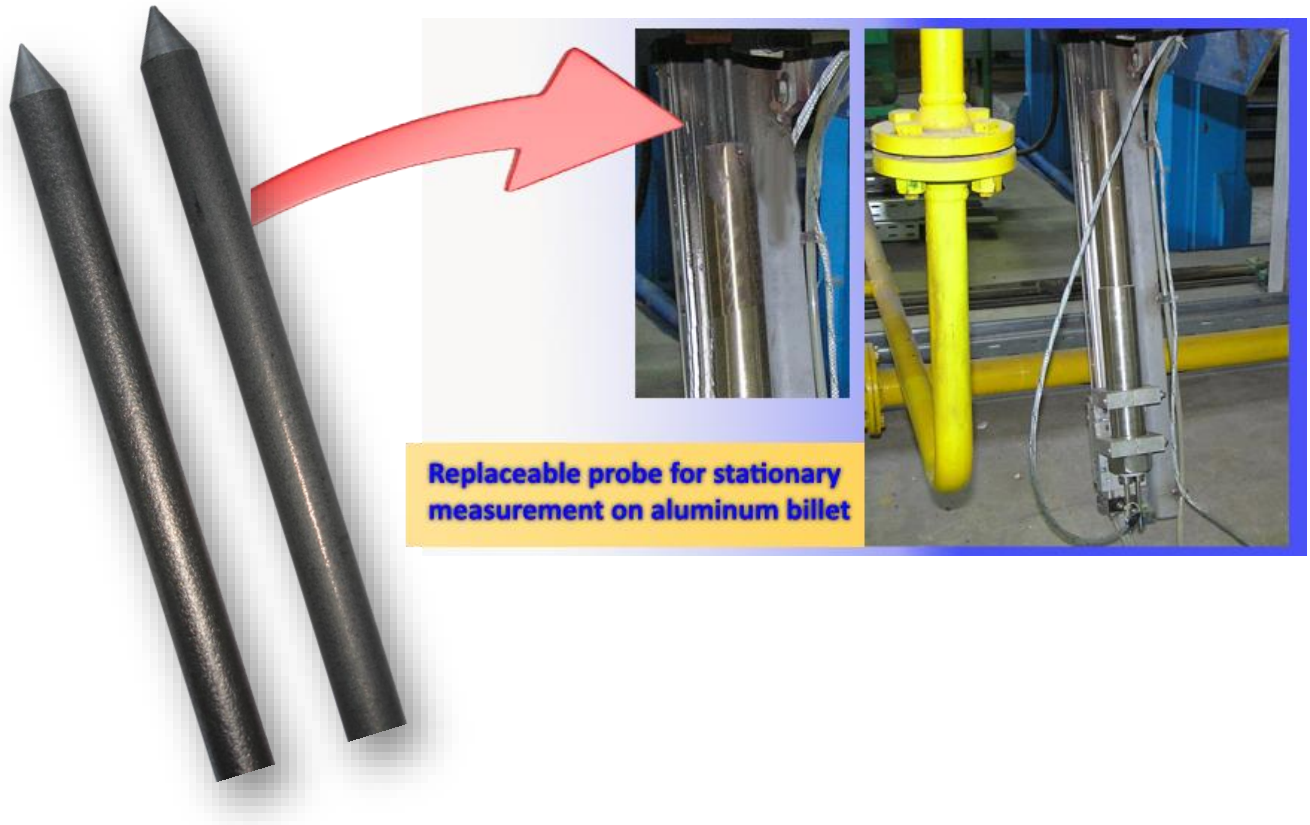
Accuracy:	Class 1 for Type K, Class A for Pt1000 2 wire system
Thermocouple type:	Type NiCr Ni (K) to DIN EN 60584-2
Sheath Material:	AISI 316L
Cable length:	35m (with 6 marks every 5 meters for the depth indicator, tension=50N
Insulation Cable:	Teflon/Braiding/Teflon
Degree of protection:	IP65

Option: Portable thermometer Type K
Portable thermometer Pt1000

Series TH/10- Penetration temperature probe.

Application:
General Purpose of application used for stationary measurement on aluminum billet
Replaceable probe.

Measurement insert	Diameter	Immersion length	Article Nr.
1xNiCr Ni(K)	8.0mm	300mm	TH10.4000000
1xNiCr Ni(K)	8.0mm	820mm	TH10.4000001
1xNiCr Ni(K)	8.0mm	900mm	TH10.4000002
1xNiCr Ni(K)	8.0mm	1000mm	TH10.4000003
1xNiCr Ni(K)	10mm	900mm	TH10.4000004
1xNiCr Ni(K)	10mm	1000mm	TH10.4000005



Specifications

Conical tip for insertion into aluminum bar under heat treatment (soft)

Measuring temperature:	from 0°C up to+1260°C
Thermocouple type:	Type NiCr Ni (K) to DIN EN 60584-2
Material:	NiCr Ni(K) (pair)
Accuracy:	Class2

Other technical characteristics (length) available upon request

Series TH/11- Thermocouple to DIN EN 60584-2
Bare welded for thermocouple Type S, R, B

Application:

General Purpose application used for the measuring insert is fitted with thermocouple to EN60584, these thermocouple are intended as replacement elements for thermocouples. The thermocouple can also be used for direct temperature measurement in special applications. The thermocouple must not be mechanically stressed during operation.

Measurement insert	Diameter	Continues Temperature Range	Intermittent use °C	Overall Length	Article Nr.
1xPtRh10%-Pt(S)	0.35mm	1300°C	1420 °C	From 85mm until 3035mm	TH11.9000000
1xPtRh13%-Pt (R)	0.35mm	1300 °C	1420 °C	From 85mm until 3035mm	TH11.8000000
1xPtRh10%-Pt (S)	0.5mm	1400 °C	1650 °C	From 85mm until 3035mm	TH11.9000001
1xPtRh13%-Pt (R)	0.5mm	1400 °C	1650 °C	From 85mm until 3035mm	TH11.8000001
1xPtRh30%-PtRh6%(B)	0.5mm	1600 °C	1770 °C	From 85mm until 3035mm	TH11.3000000

TH/11

TH/12

Series TH/12- Thermocouple to DIN EN 60584-2
Bare welded for thermocouple Type J, K, N

Application:

General Purpose application used for the measuring insert is fitted with thermocouple to EN60584, these thermocouple are intended as replacement elements for thermocouples. The thermocouple can also be used for direct temperature measurement in special applications. The thermocouple must not be mechanically stressed during operation.

Measurement insert	Diameter Wire	Article Nr.
1xFe-CuN(J)	0.35mm	TH11.2200000
1xNiCr Ni(K)	0.35mm	TH11.4200000
1xNiCrosil-NiSil(N)	0.5mm	TH11.5000000

Series DIB/10- Digital thermometer battery powered with UTECO temperature probes

Measurement insert	Diameter	Immersion length	Sheath Material	Process Connection	Cable Length	Article Nr.
1 x Pt100 (DIB-RCF)	8.0mm	300mm	AISI316	R ¾ BSP	5m	DIB10.1100000
1 x Pt100 (DIB-BOC)	14mm	95mm	AISI316	R ½ BSP	-	DIB10.1100001
1 x Pt100 (DIB-BOC) Sanitary Ball weld	6.0mm	100mm	AISI316	Ball weld in socket	-	DIB10.1100002
1 x Pt100 (DIB-BCC)	8.0mm	200mm	AISI316	R ½ BSP	-	DIB10.1100003

DIB-BOC

DIB-BOC
Sanitary Ball weld

DIB-RCF

Indicators Specifications

- Display: Stainless steel case with 100 mm diameter, IP 65
- Input – Pt100 (DIN IEC 751, α=1.385), 3-wire connection
- Range -50°C to 200°C (or other on request)
- 3 ½ digits LCD display, 13mm height, 2 sec update rate
- Outside working temperature – from -10°C up to 60°C
- Accuracy – 0.25 % F.S. (suitable to Pt100 sensor class A)
- Power supply – 3V (2 x 1.5V, alkaline batteries, 1,5Ah). Working time – appr. 3 years. Low battery indication.

DIB-BCC

Available with any kind of UTECO's temperature probe (Pt 100).
Inform us for the requested form (with tube or cable) and characteristics (Diameter, length, process connection, insulation of cable, operating temperature)

Special Construction– SPC/11

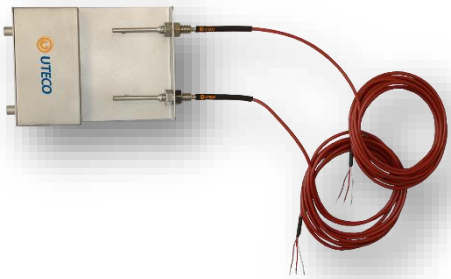
Series DIB-BOC – Digital thermometer battery powered with UTECO temperature probes

Article Number: SP11.1100000

Special Construction

SPC/12- Psychrometer – Temperature sensors for measurement of relative humidity rH% for use with electronic indicators, controllers or recorders.

Article Number: SP12.0000000



Two resistance thermometer are fitted to measure the relative humidity, one as the wet probe and the other as the dry probe.

Special Construction

Series: Delos T electronic temperature switch with display and analog output Type 902940/50 and M12x1 connection for RTD Temperature probes Ambient temperature on the display case -20 to +75° C

Process connection dimensions

- **Screw connection: G3/8 or ½ Typ.SAN 3601**
- **Screw connection with CIP-conforming sealing cone G1/2" Typ.SAN 3602**

DELOS T:
- **Full Stainless steel**
- **Full Programmable**
- **LCD Rotating Display**
- **IP 67**

Clamp as per DIN 32676:

Type	DIN	D1
SAN 3604	-	Ø25
SAN 3605	10/20	Ø34
SAN 3606	25/1"	Ø50.5
SAN 3607	40/1.5"	Ø50.5
SAN 3608	50/2"	Ø64
SAN 3609	2.5"	Ø77.5

- **Spherical welding socket with clamping screws** ***Typ. SAN 3610***

Clamp with union nut as per DIN 11851 ***(Milk pipe union)***

Type	DIN	D1
SAN 3611	10	Ø22
SAN 3612	25	Ø44
SAN 3612	32	Ø50

- **Seal flange assembly Ø29.5x11mm** R 1" BSP Type SAN 3614
- **Clamp with union nut BLANK** 1 1/2" I.S.S Type SAN 3620

Type description for basic type 902940/50

1	**Version:**	0 - Standard, with factory settings 1 - Customer-specific configuration (specification in plain text)
2	**Operating temperature in ° C:**	001 -50 to +500° C
3	**Measuring input:**	1400 1xPt1000 in 4-wire circuit DINEN 60751
4	**Output:**	470 1xPNP switching output 471 2xPNP Switching output 475 1xPNP Switching output and 1x Analog output
5	**Sheath Diameter in mm:**	---
6	**Fitting Length EL in mm:**	---
7	**Process connection:**	---

ORDER Code:	*1*	*2*	*3*	*4*	*5*	*6*	*7*
902940/50	0	001	1400	475	6mm	50mm	SAN 3601 G ½"

Accessories for basic typ.902940/50

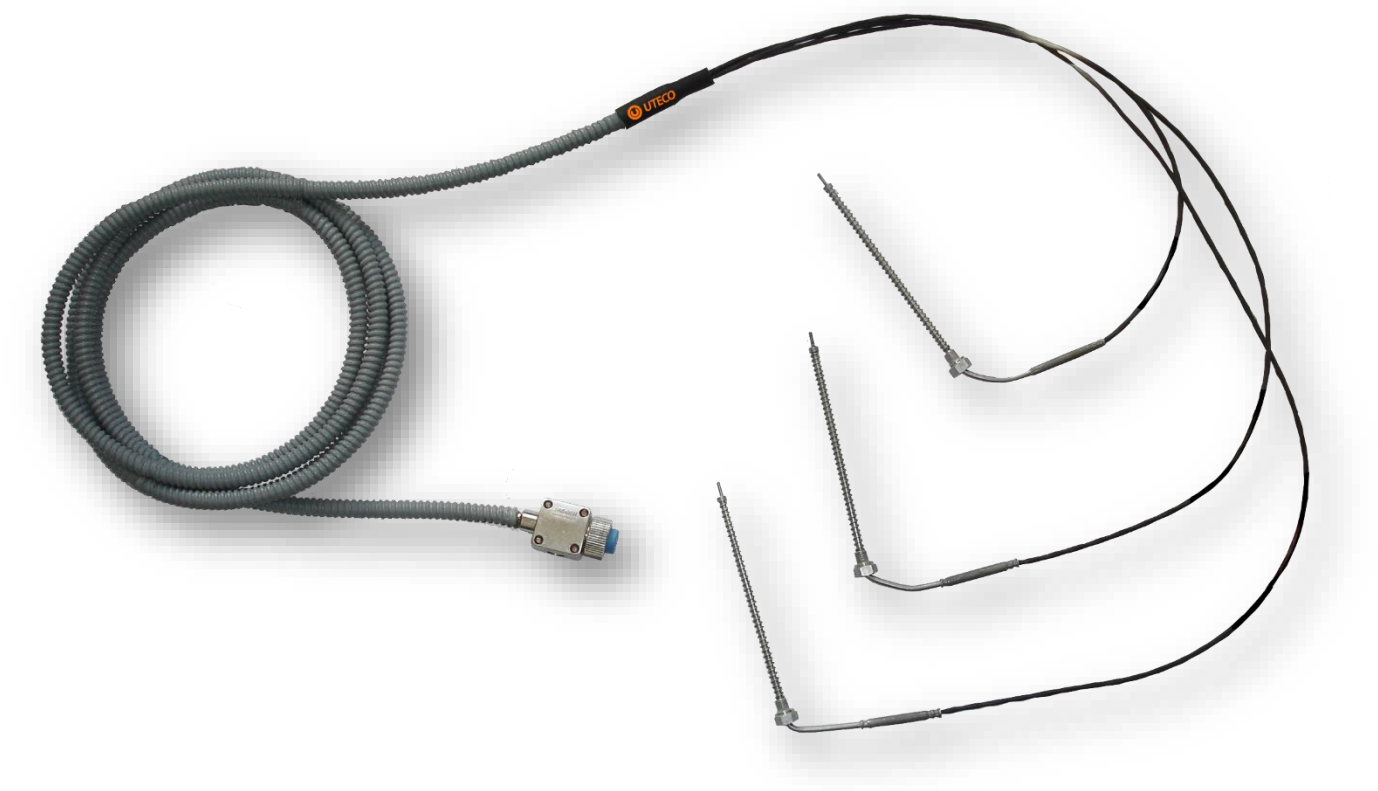
- Connecting cable with 4-pole straight plug socket M12x1 and 2m PVC-cable No.00404585
- Combination tool No.40/00526614

Other Accessories on web

Special Construction

Series MIC Triple –Temperature probe. Accurate, Rapid Response for measurements Diesel engine with connector 6 pole

Measurement insert	Diameter	Immersion Length	Process Connection	Cable length	Article Nr.
1xK	2mm	145mm	M8 x 1	4.3m	U4444315601



Specifications

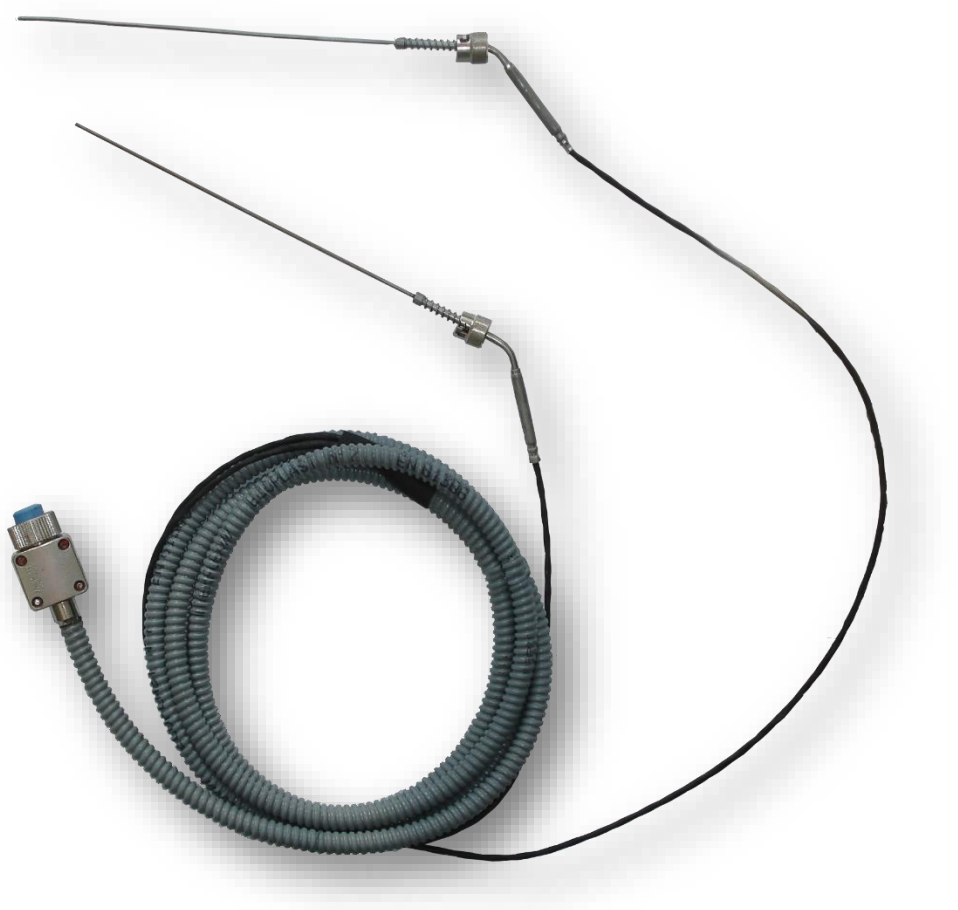
Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple Type K according to DIN IEC 60584 Class 1
Probe Diameter:	2mm
Immersion length:	145mm
Sheath Material:	Inconell 600
Process Connection:	M8x1
Termination:	6 pole Female Connector (Jaeger)
Temperature:	0-800°C
Compensating Cable:	Teflon-braiding-Teflon with flexible armour

Other technical characteristics (Cable length, diameter, length etc.) available upon request

Special Construction

Series MIC Double– Exhaust gas Temperature probes. Accurate, Rapid Response for measurement Diesel Engine with connector 4 pole

Measurement insert	Diameter	Immersion Length	Process Connection	Cable length	Sheath Material	Article Nr.
1xK	2mm	195mm	Bayonet	3.5m	Inconell 600	U4445325201



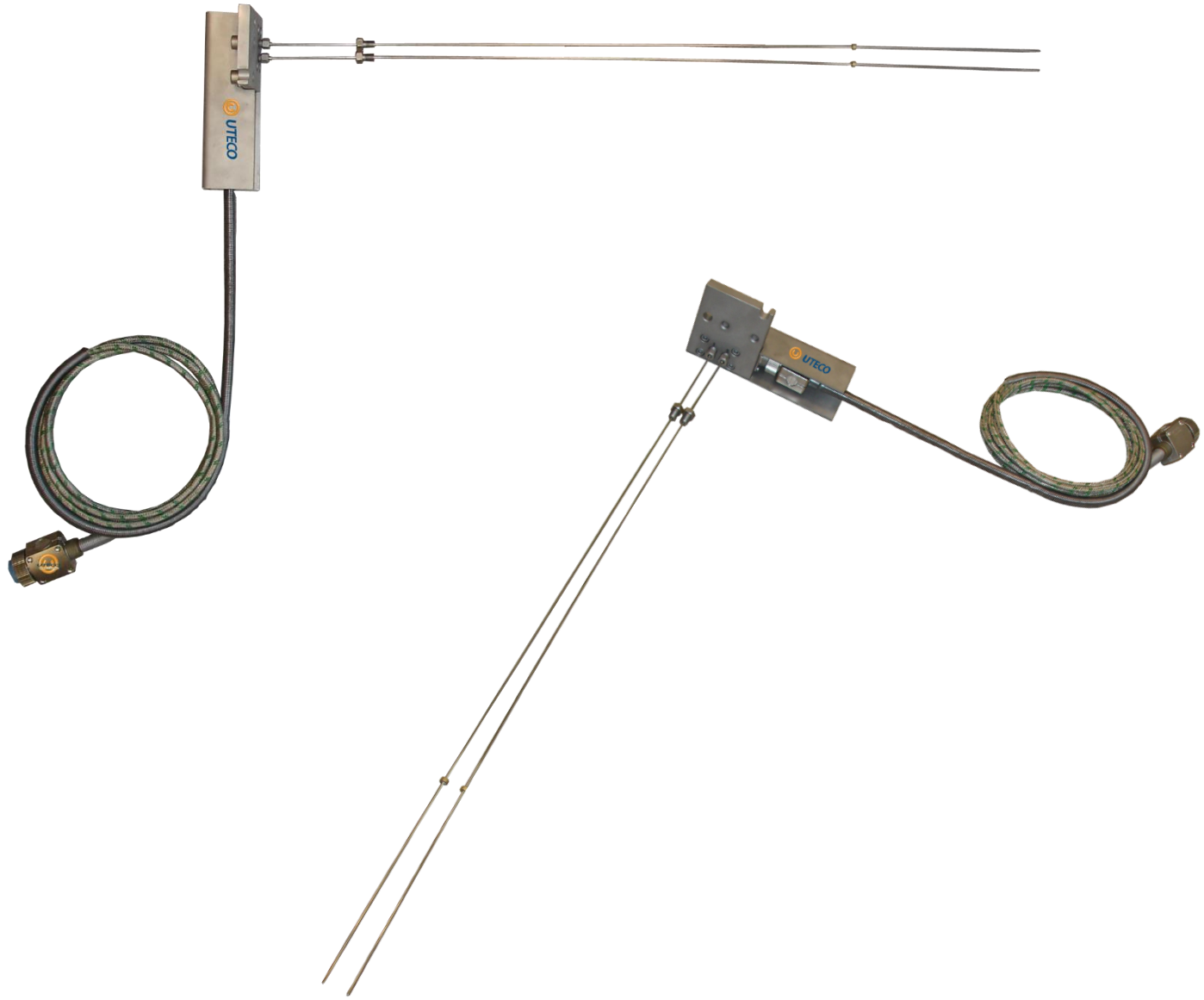
Specifications

Measuring insert type and tolerance:	The measuring insert is fitted with thermocouple Type K according to DIN IEC 60584 Class 1
Probe Diameter:	2mm
Immersion length:	195mm
Sheath Material:	Inconel 600
Process Connection:	Bayonet Lock
Termination:	4 pole Female Connector (Jaeger)
Temperature:	From 0º to 800°C
Compensating Cable:	Teflon-braiding-Teflon with flexible armour

Other technical characteristics (Cable length, diameter, length etc.) available upon request

Special Construction
SPC/41-Temperature probes

Series MIC – Temperature probes for Wärtsilä VASA46 two double probes NiCR-Ni (Type K) and connector type Jaeger France



Article No: SPC41.0000000	
Temperature Range:	**0° up to 900° C**

Special Construction
SPC/43-Temperature probes

Series MIC – Temperature probes with heavy duty transition joint probes in convenient termination to silicone coated lead wire.

Article No: SPC43.0000000	
Pocket:	Stainless steel
Measurement insert:	1xCu-CuNi Type T, Class 1
Diameter:	2mm

Special Construction

SPC/20- Spring loading –Insert Type

Article No: SPC20.1120000	
Measurement insert:	2 x Pt100
Diameter rod:	6mm

Special Construction

SPC/30- Exd Multipoint Sensors

Article No: SPC30.1100000	
3 points	
Measurement insert:	1 x Pt100
Length 1:	3.1m
Length 2:	8.8m
Length 3:	14.6m

Special Construction

Series INS/11 – Temperature Probe with PTC or NTC sensor, PTFE handle inox steel cap and insulation cable silicone.

Application:
General Purpose of application used for measuring the core temperature of goods. This is generally used with cooking oven or blast chiller controllers.

Specifications

Sheath material :	St.St.1.4571
Connecting cable:	Teflon (PTFE) - Braiding - Teflon
Protection :	IP67
Temp. range:	From -50°C to +120°C

Other technical characteristics (length, diameter, cable length etc.) available upon request

Special Construction

SPC/32

Series SUR-Temperature probes front flush with temperature measurement PFA insulated pocket and fast response probe tip 3mm and 4mm

Options: 1xPt100 or 2xPt100 with class accuracy 1/3B or 1/10B

3wire or 4 wire system

Article No: SPC32.0000000

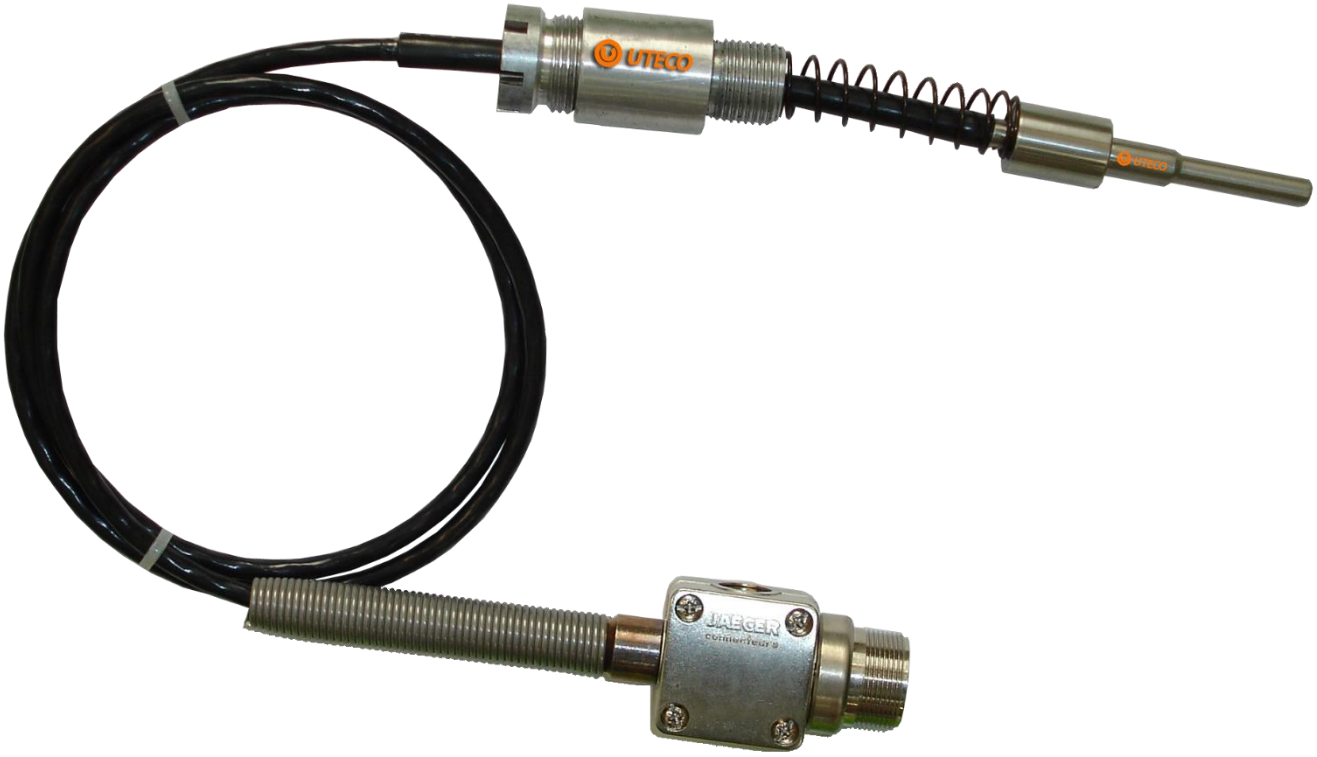
Special Construction

SPC/35- Tube Skin thermocouples with Lead Wire

Article No: SPC35.0000000	
Probe type:	Mineral insulated (Mgo) Thermocouple with welded to a weld pad.
Thermocouple type:	Type K, J or N
Probe diameter:	6,0mm or 8,0mm
Insulation material:	densely packed Mgo 99,6% purity
Sheath material:	inconell 600, SS310 or Hastelloy X
Hot junction:	Insulated
Min. insulation resistance:	10 Mohm at ambient temperature with 200 VDC
Probe length:	to be specified
Weld pad dimensions:	25x25x3,2mm
Weld pad material:	same as sheath material

Special Construction - SPC/36

-Temperature sensor with cable and spring for bearings



Article No: SPC36.1100000	
Temperature Sensor 1xPt100 class A 3wire systems to DIN EN60751	
Immersion Length:	45mm
Probe diameter:	8/6 mm
Cable length:	1m with insulation PTFE 4x0.5mm^2
Connection type:	4 pole male - Jaeger France
Temperature range:	-70^o up to 260^{o}C

Special Construction - SPC/37

Series MIC –Incinerator
(Thermocouple for furnace Type K Nicr-NI Class 1)

Article No: MIC37.4000000	
Incinerator (Thermocouple for furnace Type K Nicr-Ni Class 1)	
Immersion Length:	162mm
Extension Length:	980mm
Probe diameter:	ø6 mm
Process connection:	¼ BSP
Cable length:	5m with insulation Polyamide - Polyamide AISI braiding 2x0.5mm²
Material:	NICROBELL
Temperature range:	0° up to 1200°C

Series TWT 35- Screw-in ceramic pockets for thermocouple

Article No: TWT35.0000000	
Process connection:	3/8 BSP (male)
Entry connection:	¼ BSP(female)
Immersion length:	160mm
Sheath material:	Ceramic C799 ø10mm
Temperature range:	From 0° to 1400°C

Special Construction - SPC/38

Series SUR – Temperature probes for surface for example a heating plater via their mounting holes

Special Construction

SPC/42- Temperature probe

Series CBR/MC Temperature probe for piston cooling oil with Junction

Article No: SPC42.0000000	
Measuring insert:	1xPt100
Probe Diameter:	10mm
Probe Length:	200mm
Process Connection:	M18x1.5
Cable Length:	4000mm
Sheath Material:	AISI316

Special Construction

SPC/80- Single Or Tri Level Thermocouple Pt-RH with outer Sheath of platinum.

Application:

Glass Industry (Glass Fore-hearth)

Article No: SPC80.0000000	
Measuring range:	**100° to 1600° C**

Head mounted analog 2-wire transmitter with digital adjustment d TRANS T03 for connection (Type 707031) to Pt100 resistance thermometer for installation in: Terminal Head form B to DIN 43729

Type	Article Nr.
d TRANS T03 B	3201200006
Fixing bracket for mounting	3201200013

Specifications

Analog 2-wire transmitter with digital adjustment for installation in terminal head Form B

Input:	Pt100, 3-wire
Output:	4-20 mA
Operating temperature range:	-40 +85° C
Supply Voltage:	7.5 - 30V DC

Standard accessories

- 1 operating instruction 70.70.16.0
- Fixing items (2 screws, 2 pressure spring)

Accessories

- PC setup program, multilingual
- PC interface (electrically isolated) with TTL/RS232 converter, power supply (230V AC) and adapter (socket)
- PC interface (electrically isolated) with TTL/RS232 converter, power supply (115V AC) and adapter (socket)
- supply units 1-way and 4-way (Data Sheet 70.7500)
- isolating amplifier and supply isolator (Data Sheet 70.7510)
- supply unit for transmitters (Data Sheet 70.7520)

Head mounted Analog 3- wire transmitter with digital adjustment d TRANS T03 BU (Type 707033) - for connection to Pt100 resistance thermometer for installation in: Terminal Head form B to DIN 43729

Type	Article Nr.
d TRANS T03 BU	3201200011
Fixing bracket for mounting	3201200013

Specifications

Analog 3-wire transmitter with digital adjustment for installation in terminal head Form B

Input:	Pt100, 3-wire
Output:	0-10V
Operating temperature range:	-40 +85° C
Supply voltage:	7.5-30V DC

Standard accessories

- 1 operating instruction 70.70.16.0
- Fixing items (2 screws, 2 pressure spring)

Accessories

- PC setup program, multilingual
- PC interface (electrically isolated) with TTL/RS232 converter, power supply (230V AC) and adapter (socket)
- PC interface (electrically isolated) with TTL/RS232 converter, power supply (115V AC) and adapter (socket)
- supply units 1-way and 4-way (Data Sheet 70.7500)
- isolating amplifier and supply isolator (Data Sheet 70.7510)
- supply unit for transmitters (Data Sheet 70.7520)

Head mounted transmitter d TRANS T01 Junior (Type 707014) programmable 2-wire for connection to resistance thermometer and thermocouples to install in: Terminal Head form B to DIN 43729

Type	Article Nr.
d TRANS T01 Junior	3201200014
Fixing bracket for mounting	3201200013

Specifications

Input thermocouple:	J, K, S ,R, N, DIN EN 60584
Resistance thermocouple:	Pt100 DIN EN 60751 Pt100 JIS Pt1000 DIN
Connection circuit:	2,3 or 4-wire circuit
Output:	4-20mA
Operating temperature Range:	-40 +85° C
Supply Voltage:	DC 8 ... 35V

Standard accessories

- 1 operating instruction B707014
- Fixing items (2 screws & 2 compression springs)

Accessories

- PC setup program, multi-lingual
- PC interface with USB/TTL converter, adapter
- supply units 1- and 4-way
- isolating amplifier and supply isolator

Head mounted transmitter d TRANS T03 J (Type 707030) Analog 2-wire with digital adjustment to install in Terminal Head form J

Type	Article Nr.
d TRANS T03 J	3201200012

Specifications

Input:	Pt100
Connection circuit	2 wire
Mounting	terminal head Form J
Output:	4-20mA
Operating temperature range:	-40 to +85° C
Supply voltage:	7.5- 30 V DC

Standard accessories

- Operating instruction
- Fixing items

Accessories

- PC setup program, multilingual
- PC interface cable (isolated) with TTL/RS 232 converter, power supply (230V AC) and adapter.

Head mounted transmitter d TRANS T01 (HART) (Type 707011) Programmable 2-wire for connection to resistance thermometers and thermocouples and installation in: Terminal Head form B to DIN 43729

Type	Article Nr.
d TRANS T01 HART	3201200016
Fixing bracket for mounting	3201200013

Specifications

Input:	Thermocouple L, J, U, T, E, B, D, C, K, S ,R, N, DIN EN 60584	
Resistance thermocouple:		Pt100 DIN EN 60751 Pt100 JIS Pt500 DIN Pt1000 DIN Ni100 Ni500 Ni1000
Connection circuit	2, 3 or 4 wire circuit	
Output:	4-20mA	
Operating temperature Range:	-40 +85° C	
Supply voltage:	10…35VDC	

Standard accessories

- 1 operating instruction B70.7011
- Fixing items :2 screws & 2 compression springs

Accessories

- PC setup program, multi-lingual
- HART modem (sales No.40/00345666)
- supply units 1- and 4-way (JUMO Datasheet 70.7500)
- Ex Supply unit isolating transformer-with HART capability (JUMO Datasheet 40.4757)

Head mounted transmitter d TRANS T01 HART (Type 707016) Programmable 2-wire for connection to resistance thermometers and thermocouple for installation in: Terminal Head form B to DIN 43729

Type	Article Nr.
d TRANS T01 HART Ex	3201200100
Fixing bracket for mounting	3201200013

Specifications

Input:	Thermocouple L, J, U, T, E, B, D, C, K, S ,R, N, DIN EN 60584
Resistance thermocouple:	Pt100 DIN EN 60751 Pt100 JIS Pt500 DIN Pt1000 DIN Ni100 Ni500 Ni1000
Connection circuit	2 ,3 or 4-wire circuit
Output:	4-20mA
Operating temperature Range:	-40 +85° C
Supply voltage:	10…30V DC
Certificates:	II GEx ia IIC T6/T5/T4 II 2GEx ia IIc T6/T5/T4

Standard accessories

- 1 operating instruction 70.7016
- Fixing items : 2 screws & 2 pressure springs

Accessories

- PC setup program, multi-lingual
- HART modem USB
- Supply isolator for Ex transmitter with 2-wire connection, HART capable
- (Jumo Datasheet 40.4757)

Head mounted transmitter d TRANS T01 (Type 707015) Programmable 2-wire for connection to resistance thermometers and thermocouple for installation in: Terminal Head form B to DIN 43729

Type	Article Nr.
d TRANS T01 Ex	3201200007
Fixing bracket for mounting	3201200013

Specifications

Input:	Thermocouple L, J, U, T, E, B, D, C, K, S ,R, N, DIN EN 60584
Resistance thermocouple:	Pt100 DIN EN 60751 Pt100 JIS Pt500 DIN Pt1000 DIN Ni100 Ni500 Ni1000
Connection circuit	2, 3 or 4 wire circuit
Output:	4-20mA
Operating temperature Range:	-40 +85° C
Supply Voltage:	8…30V DC
Certificates:	II 1GEEx ia IIC T6/T5/T4

Standard accessories

- 1 operating instruction 70.7015
- Fixing items : 2 screws & 2 pressure springs

Accessories

- PC setup program, multi-lingual
- PC interface cable with TTL/RS 232 con & adapter

Head mounted transmitter APAQ-HCF T/C for thermocouple input, 4-20mA output.

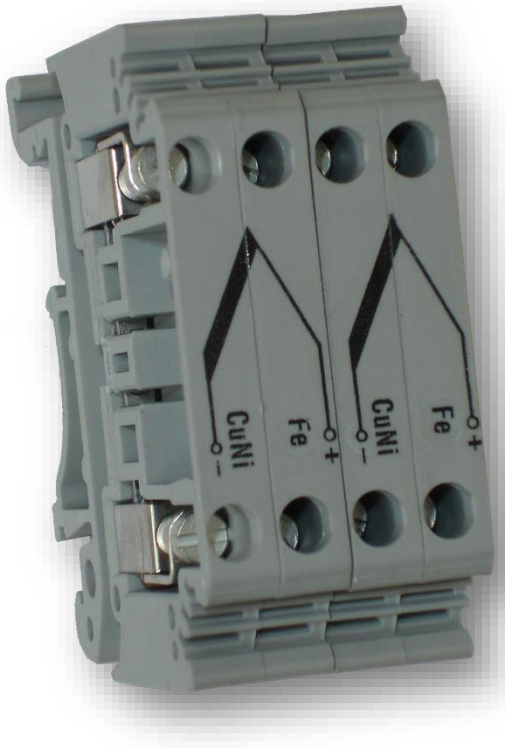
Input	Adjust-ments	Temperature	Output	Mounting	Article Nr.
Thermocouple Type J, L, T, K and N	0 to 50 mV	-40 to +85°C	4-20 mA	DIN B-head or larger	3941202040

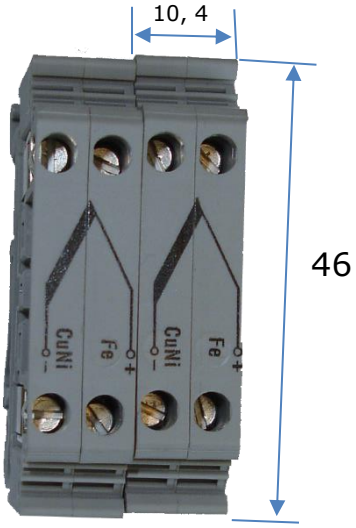
Specifications

Input:	**Thermocouples selectable**: type J, L, T, K and N with ranges within -5 to +55 mV
Input:	**impedance:** >5 MΩ
Input:	**Max. sensor wire resistance:** 500 Ω (total loop)
Monitoring:	**Sensor break detection, selectable:** Upscale ~25 mA, downscale ~3 mA
Adjustments:	**Span, selectable:** 10 to 50 mV
Adjustments:	**Span, fine adjustment:** ±10 %
Output:	**Current:** 4 - 20 mA
Output:	**Current limitation:** ~ 25 mA
Output:	**Permissible load:** 700 Ω @ 24 VDC, 25 mA
Temperature: Ambient, operating:	-40°C to +85° C
Response time 10-90%:	≤ 0.2 s
Power supply voltage:	6.5 to 32 VDC (polarity protected)
Permissible ripple:	4 Vp-p @ 50/60 Hz
Linearity (mA output to mV input):	±0.1 % of mV span
Calibration	±0.1 % of span
Material / Flammability(UL):	Zinc alloy + ABS / V0
Mounting:	DIN B-head or larger
Connection, single/stranded wires :	≤2.5 mm2, AWG 14
Protection, housing with cover/terminals:	IP 20 / IP 10

Rail mounted Thermocouple compensated Terminal Blocks
Type U-KD

Type	Article Nr.
NiCr-Ni (K)	3.00.04.00.002
Fe-CuNi (J)	3.00.04.00.001
Cu-CuNi (T)	3.00.04.00.003





Specifications

Body material:	Polyamide
Maximum wire size:	2.3mm
Temperature range:	-20°C to +90°C
Calibration:	Fe-CuNi (J)- NiCr-Ni (K)- Cu-CuNi (T)

Terminal blocks slide onto any type of DIN EN rail
Terminal Block available in packages of 50 Pieces.

DIN Rail transmitter dTrans T03T PT100, 4-20mA output

Type	Article Nr.
d trans T03T PT100	1200102301

Specifications

Transmitters T03T are designed for industrial applications, used to measure temperatures through Pt100 resistance thermometers in 2-/3-wire circuit connections. Output 4-20mA is linear with temperature calibration / configuration of the transmitter from a PC using Jumo's setup program for adjustable / configurable parameters.
It features fine calibration / adjustment of the output signal of a transmitter.

Input:	Pt100 (EN 60751) from -200°C to +850°C
Analogue output:	4-20mA
Supply voltage:	7,5 – 30 V DC
Calibration / configuration accuracy:	≤ ±0,2% or ≤ ±0,2°C

Accessories

- PC setup
- program, multilingual
- PC interface (electrically isolated) with TTL/RS232 converter, power supply (230V AC) and adapter (socket)
- PC interface (electrically isolated) with TTL/RS232 converter, power supply (115V AC) and adapter (socket)

DIN Rail transmitter APAQ-LR PT100, 4-20mA output

Type	Article Nr.
APAQ-LR	3941200000

Specifications

Input:	Pt100 3-wire connection
Sensor Failure	upscale, downscale
Fine adjustment:	± 10%
Zero:	from -50°C to +50°C (from -60°F to +120°F)
Output:	4-20 MA
Operating temperature:	from -20°C to +70°C
Galvanic isolation:	NO
Power supply:	from 6,5 to 32VDC
Typical accuracy:	± 0,15% of temperature span
Input:	Pt100 3-wire connection

DIN Rail 2-wire transmitter APAQ-LC T/C for thermocouples, 4-20mA output

Type	Article Nr.	Price (€)
APAQ-LC	3941200002	

Specifications

Input:	T/C J,L,T,K,N
Sensor Failure	upscale, downscale
Span:	from 10 to 50MV continuously
Fine adjustment:	± 10%
Output:	4-20 MA
Operating temperature:	from -20°C to +70°C
Galvanic isolation	NO
Power supply:	from 6,5 to 32VDC
Typical accuracy:	±0,5% to ±1,0% of temperature span

DIN Rail universal-programmable transmitter d TRANS T02 PCP

Type	Article Nr.
d TRANS T02 PCP	1200102280

Specifications

The dTRANS T02 PCP is a digital 4-wire transmitter/signal conditioner with isolation of the standard signal, custom linearization, 2 alarms, 2 LEDs and fine adjustment with 2 push buttons or the setup program. Features **excellent long-term stability** and **probe break and short circuit detection.** Utilization of setup software allows true **online communication** with display of actual value.

Input:	TC, RTD, voltage, current, resistance transmitter, potentiometer
Analog Output:	0-20mA or 4-20mA or 0-10V or 2-10V
Digital Output:	**alarm:** 2 open-collector outputs
	switching capacity: 35V, 100mA
Supply:	20-53V AC/DC or 110-240V AC

Accessories

- Setup program, multilingual 70/00378730
- PC interface with TTL/RS232 converter and adapter (socket) 70/00350260
- PC interface with USB/TTL converter, adapter (socket) and adapter (pins) 70/00456352

DIN Rail programmable transmitter dTRANS T04 – 4 wire Transmitter, settable via DIP switch/PC setup program (707040) for connection to Pt100/Pt1000 resistance thermometer or potentiometer; rail-mounted to EN 60715

Type	Input	Article Nr.
d TRANS T04	Potentiometer 20-53V AC/DC	1200102330
d TRANS T04	Pt100 20-53V AC/DC	1200102331
d TRANS T04	Pt100 110- 240V AC/DC	1200102332

Specifications

The transmitters intended for industrial applications record the temperature or the resistance with an RTD temperature probe **Pt100, Pt1000**, or a potentiometer in **2-wire or 3-wire** connection. The continuous analog signal path allows for fast output reaction times in the event of a temperature change (analog permanent measurement instead of digital sampling rate). This results in a low-noise and interference-resistant output signal. High precision is ensured by range-specific amplification – even in small measuring ranges. The transmitter is set directly on the device using **DIP switches** or with the **PC setup program**.

Input:	Pt100,Pt1000 2-3 wire, Potentiometer
Analog Output:	0-20mA or 4-20mA or 0-10V
Supply:	110-240 AC, 20-53 AC/DC

Accessories

- PC interface with converter USB/TTL, JUMO/707040

Series TWW/09- Threaded Thermowell with internal and external thread.

Application:

- Weld-in thermowells are used for installing thermocouple or resistance thermometers whenever replacement without draining the system and /or pressure resistance are required for use in container, tanks and tank systems

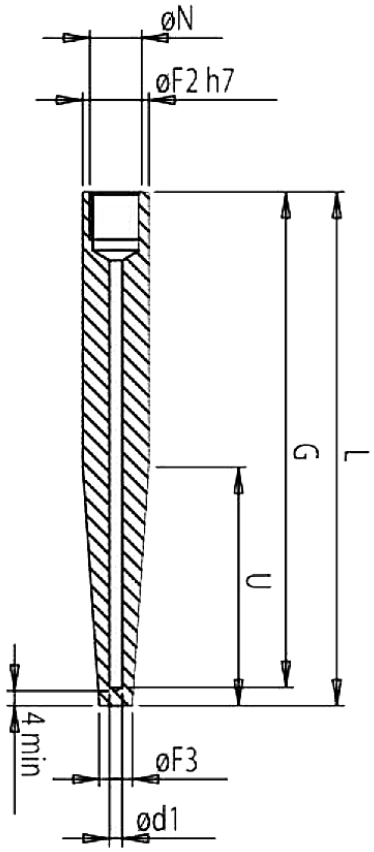
Specifications

Barstock pocket **With different materials:**	W.nr 1.4571 (AISI 316Ti) W.nr 1.5415 (16Mo3) W.nr 1.7335 (13CrMo4-5) W.nr 1.7380(10CrMo9-10) W.nr 1.4961(x8CrNiNb1613)
Operating Pressure:	Up to 500bars(inside)
Bore diameter d1:	3.5/7mm
Tip diameter:	4mm
Internal Thread:	M14x1.5mm M18x1.5mm ½ BSP

Ordering Code

TWW09 | 1 | 2 | 3 | 4 | 5 | 6 |

1	Outside diameter in mm F2	Ø18mm Ø24mm Ø26mm Other specify
2	Tip diameter F3	Ø9mm Ø12.5mm Other specify
3	Immersion Length L / U	L / U 110 / 65 110 / 73 140 / 65 200 / 65 200 / 125 260 / 125 170 / 133 410 / 275
4	Sheath Material	Wnr. 14571 Wnr. 15415 Wnr. 17335 Wnr. 17380 Wnr. 14961 Other specify
5	Internal thread	M14x1.5mm M18x1.5mm ½ BSP Other specify
6	Bore Diameter	3.5mm 7.0mm Other specify



Ordering Example:

	1	2	3	4	5	6
TWW09	24	9	125	1.7335	M14	7

Series TWW/10- Socket- weld thermowells are used for installing thermocouple or resistance thermometers whenever replacement without draining the system and /or pressure resistance are required

Internal thread	Stem Diameter	Bore Diameter	Immersion Length	Material	Article Nr.
½ NPT	33.4mm	7mm	80mm	AISI 316 L	TWW10.0000000
½ NPT	33.4mm	7mm	250mm	AISI 316 L	TWW10.0000001

Specifications

Thermowell in different materials:	Steel 1.7335, St. St 316L,or A-182 Gr F22
operating pressure :	up to 450 bar
Immersion Length:	80mm or 250mm
Internal thread :	½ NPT with St. St. plug and chain
Temperature range:	0- 800°C

Socket Weld thermowells can be accompanied by follow Documentation:
Construction drawing
Hydrostatic test pressure
Inspection and material certificates according to EN 10204 3.1B, 3.1C
Performance test to ASME PTC 19.3 – 1974

Other technical characteristics (length, diameter, internal connection, material etc.) available upon request

Series TWW/11 -weld –in thermowells are used for installing thermocouple or resistance thermometers whenever replacement without draining the system and /or pressure resistance are required

Internal thread	Stem Diameter	Bore Diameter	Immersion Length	Material	Article Nr.
½ NPT	38.1mm	7mm	55mm	316 L	TWW11.0000000
½ NPT	38.1mm	7mm	80mm	I 316 L	TWW11.0000001
1 NPT	38.1mm	7mm	80mm	A-182Gr F91 Nr 1.4903	TWW11.0000002

Specifications

Thermowell in different materials:	Steel 1.0305, St. St 316L, Steel 1.7335, Steel 1.4903 or A-182 Gr F22
operating pressure :	up to 450 bar
Immersion Length:	55mm or 80mm
Internal thread :	½ NPT with St. St. plug and chain
Temperature range:	0- 800°C

Weld –in wells can be accompanied by follow Documentation:
Construction drawing
Hydrostatic test pressure
Inspection and material certificates according to EN 10204 3.1B, 3.1C
Performance test to ASME PTC 19.3 – 1974

Other technical characteristics (length, diameter, internal connection, material etc.) available upon request

Series TWW/12- Temperature probe with thermowell steel 1.7335

Application:

General Purpose of application used for process technology with thermowell steel 1.7335 and replaceable measuring insert for chemical and petrochemical, plant, pressure vessels, ects

Measurement insert	Probe diameter	Immersion Length	Extension Length	Temperature Range	Article Nr.
1 x Pt100	Ø24 / 12,5mm	125mm	150mm	From -50° to +600°C	TWW12.1100000
2 x Pt100	Ø24 / 12,5mm	65mm	150mm	From -50° to +600°C	TWW12.1120000

Specifications

Measuring type and tolerance:	The measuring insert is fitted with resistance thermometer 1xPt100 or 2xPt100 to DIN EN 60751 class A or B with 2, 3 or 4 wire systems with replaceable measuring insert diameter 6mm M.I.C
Pocket diameter:	Ø24mm stepped down to 12,5mm
Fitting Length:	65mm or 125mm
Pocket material:	Steel 1.7335(operating temperature +540°C) Other Version: Stainless Steel 14571 (operating temperatutre +600°C) Titanium, tantalum, Inconel, Hastelloy
Bore diameter:	7mm
Terminal Head:	Form BUZH
Option:	Available with analog transmitter 4-20mA Available with analog transmitter 0-10V Available with Programmable transmitter 4-20mA/20-4mA Available with Programmable transmitter 4-20mA output and HART

Series TWT/11- Screw-in pocket for systems where drain- or pressure- less installations / exchanging of thermocouples or resistance thermometers are required.

Process Connection	Stem Diameter	Bore Diameter	Immersion Length	Sheath Material	Article Nr.
½ m. - ½ f. BSP	12mm	9mm	100mm	1.4571	TWT11.0000000
½ m. - ½ f. BSP	10mm	7mm	100mm	1.4571	TWT11.0000001
½ m. - ½ f. BSP	8mm	6mm	100mm	1.4571	TWT11.0000002
¾ m. - ¾ f. BSP	15mm	12mm	100mm	1.4571	TWT11.0000003

Specifications

pockets in different materials:	steel 1.0305, stainless steel 1.4571, steel 1.7335
operating pressure :	up to 450 bar
Immersion Length:	100mm
Outside diameter:	8mm,10mm,12mm,15mm
Process Connection:	R ½ BSP, ¾ BSP or NPT
Temperature range:	up to 800°C

Other technical characteristics (length, diameter, connector etc.) available upon request

Series TWT/12- Threaded thermowell with parallel or tapered stem

Application:
For systems where drain or pressure – less installations / exchanging of thermocouples or resistance thermometers

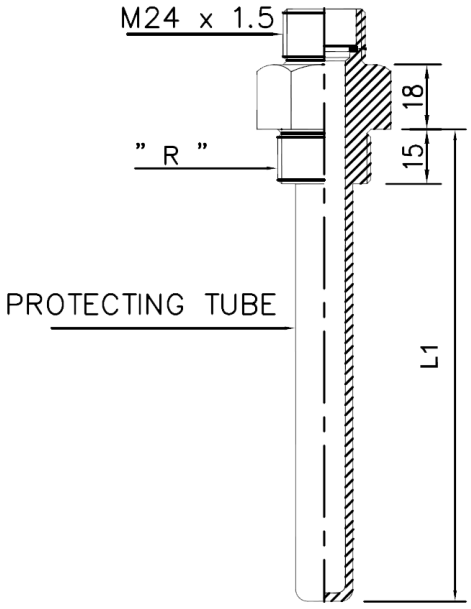
Specifications

- Barstock pocket
- Thread standard BSP or metric
- All available in different length
- Heavy duty, vibration proof.
- Sheath material AISI316T 14571

Ordering Code

	1	2	3	4	5	6
TWT12						

1	Outside diameter in mm (stem diameter under thread)	12 mm 15mm 23mm Other specify
2	Tip diameter in mm	12 mm 15mm 14.5mm Other specify
3	Immersion Length L1	60mm 80mm 100mm 120mm 150mm 200mm 300mm
4	Sheath Material	AISI316Ti AISI304
5	Process Connection R	PF ¾ M 26 X 1,5 m Other specify
6	Type of Thermowell	(P.S) Parallel stem (T.S) Tapered stem



Ordering Example:

	1	2	3	4	5	6
TWT12	12	12	200	316	3/4	P.S

Series TWT/13- Threaded Thermowell with internal and external thread.

Application:

- For protecting temperature sensors
- For tasks that require easy and quick replacement of temperature sensors without interruption of the process.

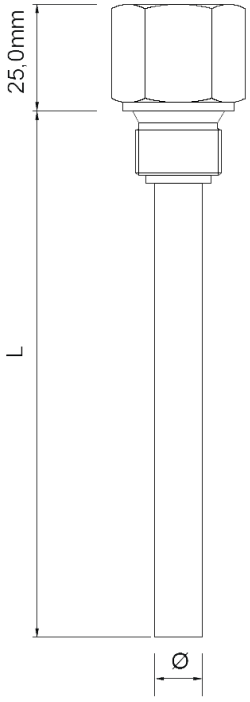
Specifications

Pockets indifferent materials:	Stainless steel and Teflon
Operating Pressure:	Up to 75bars

Ordering Code

1	2	3	4	5
TWT13				

1	Outside diameter in mm	Ø8m (inner diameter Ø6mm) Ø9m (inner diameter ø7mm) Ø10m (inner diameter Ø8mm) Ø11m (inner diameter Ø9mm) Ø12m (inner diameter Ø10mm) Ø12.7m (inner diameter Ø8mm) Ø13.8m (inner diameter Ø8mm) Ø15m (inner diameter Ø11mm)	
2	Immersion Length L	50mm 100mm 120mm 150mm	200mm 250mm 300mm Other specify
3	Sheath Material	AISI 304 AISI 316 Other specify	
4	Process connection:	½ BSP ½ NPT ¾ BSP ¾ NPT	M24x2mm M33X2mm Other specify
5	Internal thread	½ BSP ¾ BSP Other specify	



Ordering Example:

1	2	3	4	5
TWT13	10	100	304	½ BSP	½ BSP

Versions available from standard items

Process Connection	Stem Diameter	Bore Diameter	Immersion Length	Sheath Material	Article Nr.
½ m. - ½ f. BSP	12mm	9mm	100mm	1.4571	TWT13.0000000
½ m. - ½ f. BSP	10mm	7mm	100mm	1.4571	TWT13.0000001
½ m. - ½ f. BSP	8mm	6mm	100mm	1.4571	TWT13.0000002
¾ m. - ¾ f. BSP	15mm	12mm	100mm	1.4571	TWT13.0000003

Series TWT/14- Threaded Thermowell with clamping ring and parallel or tapered stem.

Application:

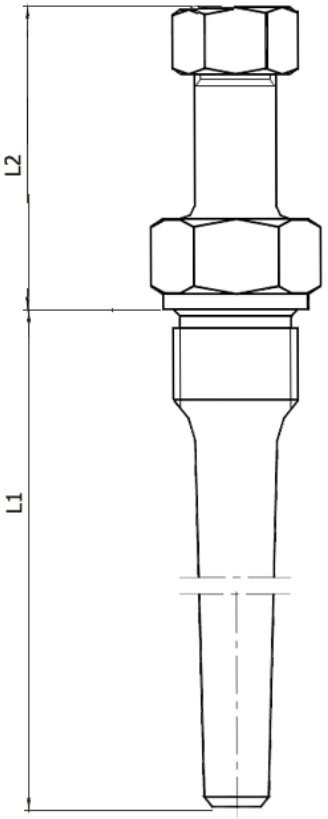
- Thermowell are used in containers, tanks and pipelines for installation /replacement of sensors without having to drain or evacuate the process
- For protecting temperature probe.

Specifications

Bar stock thermowell:	With different materials
Operating Pressure:	Up to 75bars
Thread Standard:	BSP or Metric

Ordering Code

	1	2	3	4	5
TWT14					



1	Outside diameter in mm (Stem diameter under thread)	Ø9mm Ø11mm Ø12mm Ø15mm	Ø17mm Ø20mm Ø24mm Other specify
2	Tip diameter	Ø9mm Ø11mm Ø12mm Ø13mm	Ø14mm Ø15mm Other specify
3	Immersion Length L1	40mm 100mm 150mm 200mm	250mm 300mm Other specify
4	Extension Length L2	37mm 36mm 85mm	Other specify
5	Sensor diameter (will be put on the thermowell)	Ø6.0mm Ø8.0mm Ø9.0mm Ø9.5mm	Ø10mm Other specify
6	Sheath Material	AISI 304 AISI 316 Ti Other specify	
7	Process connection:	G½ G¾ M18x1.5mm	M27x2mm M33X2mm
8	Type of thermowell	(P.S)Parallel Stem (T.S)Tapered Stem	

Ordering Example:

	1	2	3	4	5	6	7	8
TWT14	15	15	150	36	8.0	316	M18	PS

Series TWT/15- Threaded thermowell from barstock with internal/external thread and parallel or tapered stem.

Application:

- For protecting temperature probe
- Using in containers, tanks and tank systems, for installation, replacement of sensors without having to drain or evacuate the process.

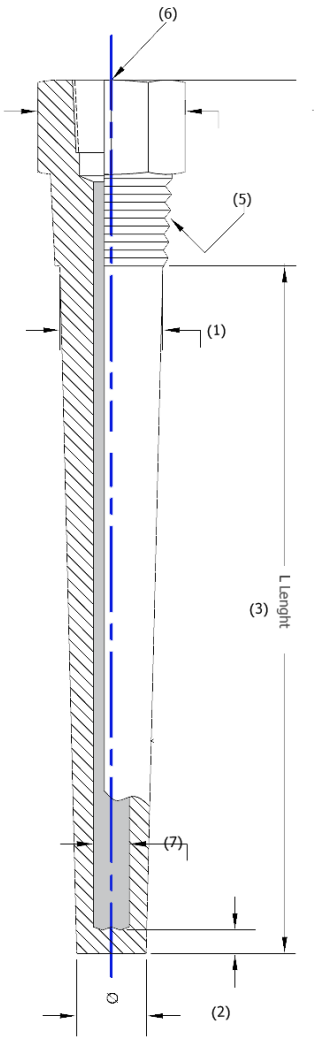
Specifications

Barstock pocket (with different materials):	AISI 304 or AISI 316
Operating Pressure:	Up to 450bars

Ordering Code

	1	2	3	4	5	6	7	8
TWT15								

1	Outside diameter in mm (Stem diameter under thread)	Ø18mm Ø23mm Ø28mm Other specify
2	Tip diameter	Ø14mm Ø23mm Ø28mm 00(without Tip) Other specify
3	Immersion Length L	100mm 250mm 120mm 150mm 200mm 300mm 220mm 350mm Other specify
4	Sheath Material	AISI 304 AISI 316 Other specify
5	Process connection:	½ BSP 1 NPT ½ NPT M24x2mm ¾ BSP M33X2mm ¾ NPT Other specify
6	Internal thread	½ BSP ¾ NPT ½ NPT Other specify ¾ BSP
7	Bore diameter	7.0mm 13mm 16mm Other specify
8	Type	Parallel Stem (P) Tapered Stem (T)



Ordering Example:

	1	2	3	4	5	6	7	8
TWT15	18	14	150	316	½ BSP	½ BSP	7	T

Series MC/10- Protecting tubes with upper compression sealing for fast substitution of temperature sensors without having to empty the process

Process Connection	Type of sealing	Stem Diameter	Probe Diameter	Immersion Length	Sheath Material	Article Nr.
1/8NPT	SS FERRULE	5x3.5mm	Ø 3mm	50mm	AISI 316	MC10.0000000
1/4NPT	PTFE SEALANT GLAND	6x5mm	Ø 3mm	100mm	AISI 316	MC10.0000001
3/8NPT	SS FERRULE	9x7mm	Ø 6mm	150mm	AISI 316	MC10.0000002
1/2NPT	SS FERRULE	8x6.5mm	Ø 6mm	150mm	AISI 316	MC10.0000003

Specifications

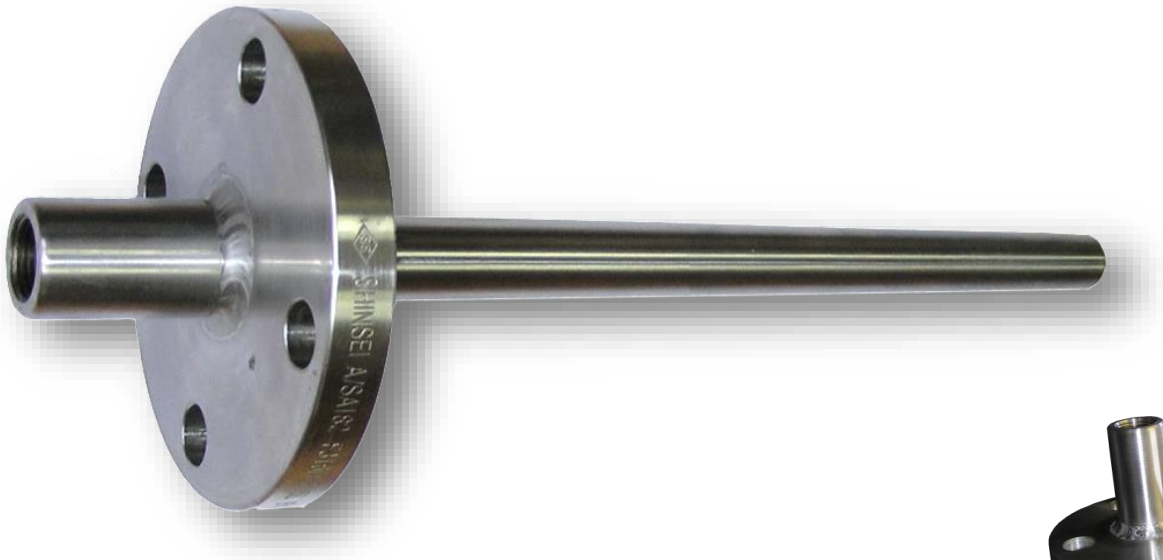
Sheath materials:	AISI 316ss
Probe Outer diameter:	3mm, 4.5mm and 6mm
Available Tube size:	(O.DxI.D) Ø5x3mm, Ø9x7mm or Ø12x9mm only for ½" connection
Probe sealing:	SS FERRULE or with PTFE sealant gland
Process Connection:	1/8NPT, 1/4NPT, 3/8NPT, 1/2NPT with CIL (straight gas thread to UNI 338) or NPT (tapered gas thread to ANSI B 2.1)
Max Working pressure:	100Bar (350◦)

Other technical characteristics (length, diameter, process connection etc.) available upon request

Series TWF/12- Flanged bar stock thermowells with parallel or tapered stem

Application:

- Thermowell are used in LPG & tanks for temperature probe installation, whenever replacement without draining the system and /or pressure resistance are required.

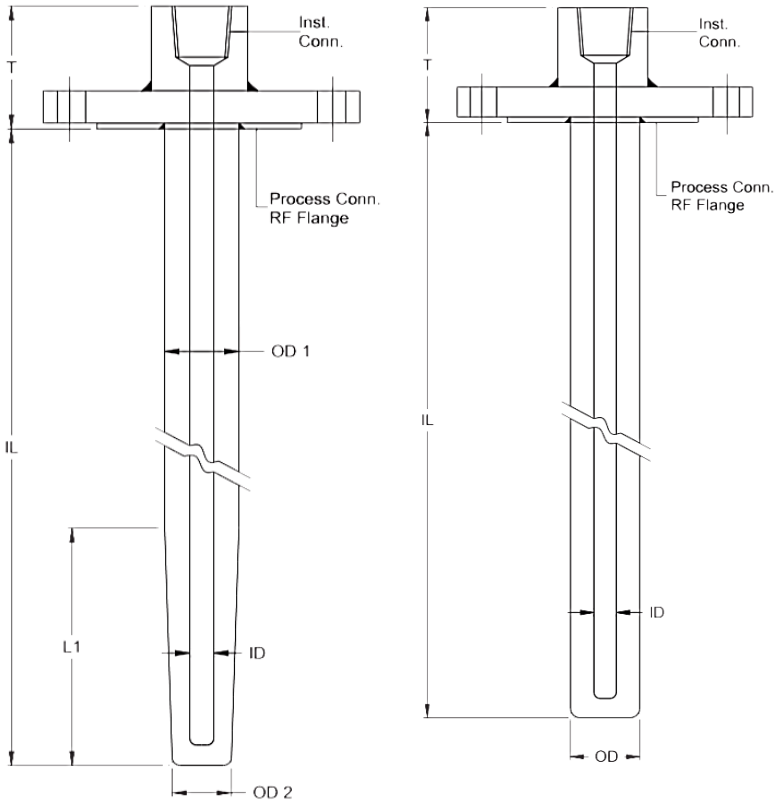


Specifications

Type:	Tapered or Parallel stem from barstock, flanged. Welded on both sides to thermowell(un-machined)
Barstock stock Diameter:	32mm
Stem Diameter:	19mm
Surface finish:	1μm(40RU)
Eccentricity:	10% of wall thickness max
Tip thickness:	4mm
Flange Size / Internal Thread	To be specified
	Test wells can be supplied with Stainless steel plug and chain Specify when ordering
Test on Thermowell:	1. Material Test Chemical-By PMI (positive material identification) 2. Dimensional Test The thermowell must be checked according to specified dimension given in drawing 3. Hydrostatic Pressure test 4. Dye penetrant inspection 5. Radiography

TWF12	1	2	3	4	5	6	7	8	9	10	11

1	Thermowell Material	SS304 SS 316 SS 310 Inconell-600 Inconell-800HRS-446 Other specify
2	Thermowell diameter OD1	To be specify
3	Thermowell diameter OD2	To be specify
4	Bore Diameter	To be specify
5	Flange Size	To be specify
6	Flange Material	SS 304 SS 316 SS 310 Other specify
7	Internal thread	¼ ½ 3/8 ¾ 1" Other specify BSP Or NPT
8	Tapered length	To be specify
9	Length of T" mm	To be specify
10	Immersion length	To be specify
11	Type of thermowell	Tapered Parallel



Ordering Example:

TWF12	1	2	3	4	5	6	7	8	9	10	11
	Ss316	22m	19mm	7mm	1 ½" 150RF	316	½ NPT	60	100	420	Tapered

Series TWF/20- Flanged bar stock thermowell with tapered stem, Fillet and groove weld with velocity collar

Stem Diameter under flange	Tip Diameter	Bore Diameter	Immersion Length	Sheath Material	Flange size	Article Nr.
25mm	19mm	9mm	337mm	AISI 316L	1-1/2" 600RF	TWF20.0000000

Introduction

A Velocity collar is a metal ring machined into the shank of a thermowell and installed tightly into the standoff of a pipe

The velocity collar transfers the rigid point
Velocity calculations are performed under the velocity collar

Why we use velocity collars

The goal of a velocity collar is reducing the effective unsupported length of a thermowell

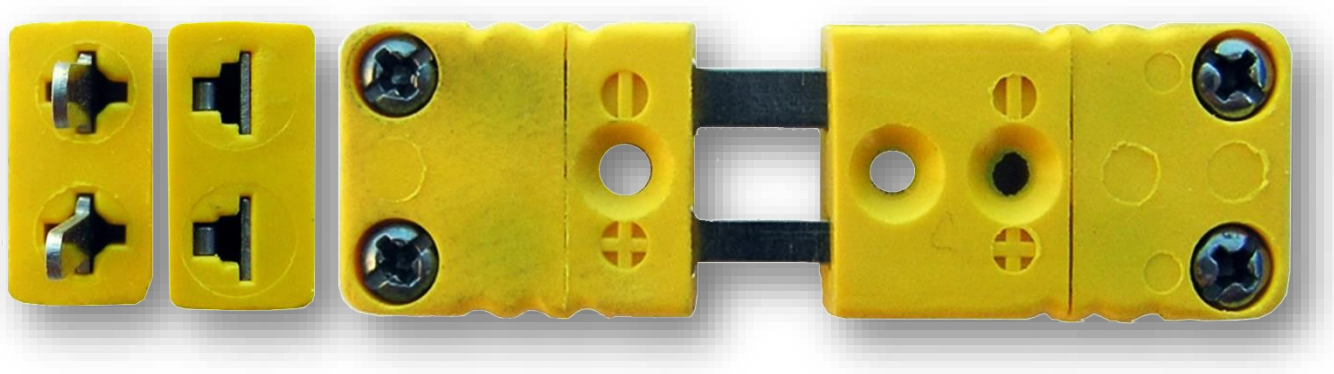
In theory, this helps accomplish two things:

- **Eliminates vortex-induced failures**
- **Reduces bending stress**

Velocity collar position :	130mm
Material:	AISI 316L
Flange Size :	1-1/2" 600RF

Miniature Connector with thermocouple material contacts

Type	Contacts	color	Article Nr.
Iron / Const.(J)	Plug	Black	U3831622864
Iron / Const.(J)	Jack	Black	U3831622865
Chrome / Alumer(K)	Plug	Green	U3831632826
Chrome / Alumer(K)	Jack	Green	U3831632174
Copper / Const.(T)	Plug	Blue	U3831642836
Copper / Const.(T)	Jack	Blue	U3831642137
PtRh / Pt(S,R)	Plug	Green	U3831652852
PtRh / Pt(S,R)	Jack	Green	U3831652153
Chrome / Const.(E)	Plug	Violet	U3831672169
Chrome / Const.(E)	Jack	Violet	U3831672870
Nicrosil / Nisil(N)	Plug	Orange	U3831682964
Nicrosil / Nisil(N)	Jack	Orange	U3831682965



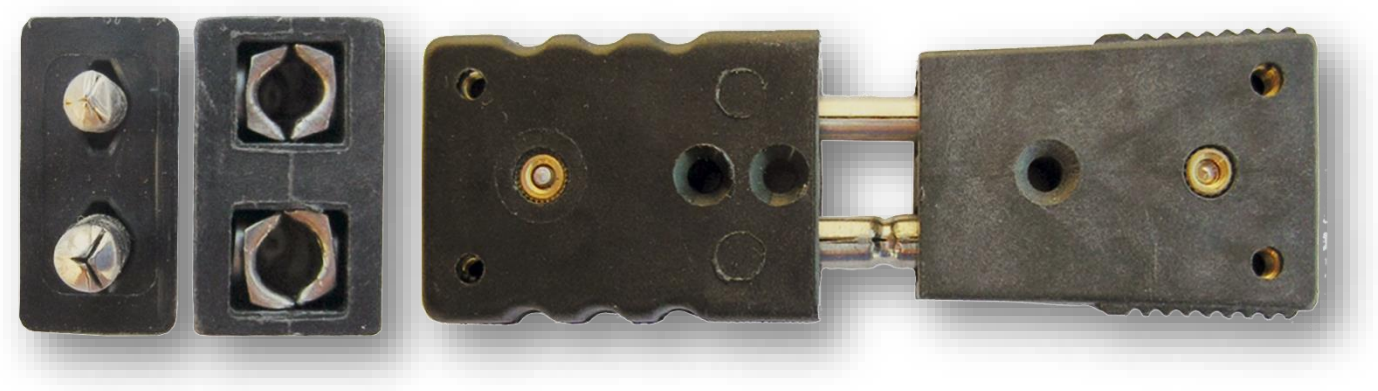
Specifications

Thermowells are used for installing thermocouples resistance thermometers,whenever replacement without draining the system and/or pressure resistance are required

Body material:	Tough, self-extinguishing thermoplastic compound with low moisture absorption rate and good dielectric strength
Maximum cable diameter:	min. 0,12mm, max. 0,8mm
Wire terminals:	screw type for quick wiring , 5mm
Maximum temperature rating:	200°C

Standard Connector with thermocouple material contacts

Type	Contacts	color	Article Nr.
Iron / Const.	Plug	Black	U3831612920
Iron / Const.	Jack	Black	U3831622281
Chrome / Alumer	Plug	Yellow	U3831632933
Chrome / Alumer	Jack	Yellow	U3831632235
Copper / Const.	Plug	Blue	U3831652000
Copper / Const.	Jack	Blue	U3831652001
PtRh / Pt	Plug	Green	U3831652941
PtRh / Pt	Jack	Green	U3831652250
Nicrosil / Nisil	Plug	Orange	U3831682962
Nicrosil / Nisil	Jack	Orange	U3831682963



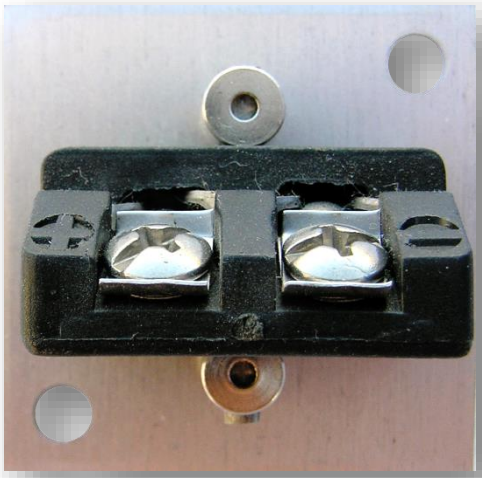
Specifications

Thermowells are used for installing thermocouples resistance thermometers,whenever replacement without draining the system and/or pressure resistance are required

Body material:	Tough, self-extinguishing thermoplastic compound with low moisture absorption rate and good dielectric strength
Maximum cable diameter:	1.6mm
Wire terminals:	6.4mm
Maximum temperature rating:	200°C

Standard panel with Thermocouple material contacts

Type	color	Article Nr.
Iron / Constantan(J)	Black	U3831622368
Chrome1 / Alume1(K)	Black	U3831632382
PtRh / Pt(S,R)	Green	U3831652340
NICROSIL / NiSil(N)	Orange	U3831682361



Specifications

Thermowells are used for installing thermocouples resistance thermometers, whenever replacement without draining the system and/or pressure resistance are required

Front panel:	anodized aluminum 2,4mm thick
Panel dimensions:	38x38mm
Panel cut out:	square or round 30mm
Depth behind panel:	20mm
Maximum temperature rating:	200°C
Maximum conductor dimension:	1.6mm

ACCESSORIES – Connection Head

Connection head type XDA ATEX 94/9/EC,

EN 50018, EN60079-1

Material of body and cover :aluminum die-casting	
Service temperature :	-50+150 C silicon rubber
Cable gland:	¾ NPT
Process thread:	½ NPT
Protection degree :	IP65
Certificate no.	EEXD IIC T6 IP65
Ordering Nr.	U3880373001

Connection head type KNE

Material of body and cover :aluminum die-casting Cable gland washer-zinc- -Plated press steel Cover chain-chrome-plated steel	
Service temperature :	-40+150 C silicon rubber
Cable gland:	M20x1,5
Process thread:	½ NPT
Protection degree :	IP65
Ordering Nr.	U3000312111

Connection head to DIN EN 50446 FORM B

Material of body and cover :aluminum die-casting	
Service temperature :	-40+100 C
Cable gland:	M20X1.5
Process thread:	B15 or M24X1,5mm
Protection degree :	IP65
Ordering Nr.	B15 U320033111 M24X1,5mm U399033211

Connection head type XD-SD

Material of body and cover : Stainless steel DIN 1.4401 AISI 316	
Service temperature :	T=-50+150 C Silicon rubber Maximum space for transmitter (without spring loading Ø 58x35mm)
Cable gland:	M20X1.5 (double)
Process thread:	1/2NPT
Protection degree :	IP68
Flame proof	zone1, zone 21 Zone 2, zone 22
Ordering Nr.	U3000333023

Connection head form BUZH

Material of body and cover :aluminum die-casting	
Service temperature :	-40+100 C
Cable gland:	M20X1.5
Process thread:	M24X1,5mm
Protection degree :	IP65
Ordering Nr.	U3000312110

Connection head to DIN EN 50446 Form A

Material of body and cover : Aluminum die-casting	
Service temperature :	-40 +100° C
Cable gland:	M20X1.5mm
Process entry:	D 22,8mm or 32,5mm
Protection degree :	IP64
Ordering Nr.	A22 U3000322110 A32 U3000326110

Connection head TYP BBK to DIN EN 50446 Form B

Material of body and cover : PPO Plastic	
Service temperature :	-30 ° C to 130°C
Cable gland:	M20X1.5mm
Process thread:	M24x1,5
Protection degree :	IP65
Ordering Nr.	U3200382160

Connection head form J (miniature head)

Material of body and cover :aluminum-casting	
Service temperature :	-40 to +100° C
Cable gland:	M16X1.5mm
Process thread:	M12X1mm
Protection degree :	IP65
Ordering Nr.	U3200351160

ACCESSORIES-Cable Gland

Screwed cable gland Euro top brass

With the new Euro-Top Connect, which is equipped with a special sealing insert, it is possible to secure cables with pre-assembled connectors particularly easy and quickly

Material:	Nickel plated brass	
Sealing :	Neoprene	
Clamping insert :	Polyamide o-ring Perbunan (NBR)	
Temperature :	-40° C to +100° C	
Thread metric	acc to EN 60423	
Protection class :	IP68	Notes integrated strain relief acc to EN 50262
Size:	M20x1,5	
Clamping range :	6.0 to 12 mm	
Wrench size	22/22	
Ordering Nr.	U3981770004	

Cable gland for armored cables

Suitable for use in areas less than 2000 cm3 with gas group IIC according to EN 50014/50018
The cable gland is suitable for direct insertion into the apparatus installation.
For use in gas and dust potentially hazardous areas zone 1 and 2 groups IIA,IIB and IIC
Exd and Exe 2G and D

Temperature :	40° C to +110 ° C=LCIE 97 ATEX 6008 X102	
Entry thread	NPT ½"	
Clamping flange	3.0 to 12,0 mm	
Material	St. St. (316L)	
Sealing :	Neoprene	
Certificates:	IMQ08 ATEX 021X Marking Ex II 2GD Exd II CGb/Exell CGb/ Extb III CDb	
Approvals	ATEX	
Protection class :	IP66/68	
Wrench size	22/22	
Other entry thread :	NPT 3/8, NPT ¾ NPT 1", NPT 1 ¼'' NPT 1- 1/2", NPT 2'' NPT 2- 1/2", NPT 3'' NPT 4''	
Ordering Nr.	U3981770061	

Screwed cable gland Euro top Polyamide

With the new Euro-Top Connect, which is equipped with a special sealing insert, it is possible to secure cables with pre-assembled connectors particularly easy and quickly

Material:	Polyamide 6	
Sealing :	Neoprene	
Thread metric	acc to EN 60423	
Temperature :	-30° C to +80 ° C intermittent to +150° C	
Entry thread	NPT ½"	
Clamping range	6.0 to 12 mm	
Protection class :	IP68	Notes integrated strain relief acc to EN 50262
Size:	M20x1,5mm	
Wrench size	24/24	
Ordering Nr.	398177D0G1	

Cable gland for armored cables

Operating conditions: dangerous area group II zone 1-2-21-22, Indoor high humidity, dusts and oil and /or outdoor rain exposed

Thread standard:	GK UNI 6125 pr NPT or ISO Metric Material standard zinc- plated steel	
Ambient Temperature:	-40 ° C to +110° C	
Protection mode:	112GDExd IIC, Exe, Exi.ExtDA21 IP66/67	
Size:	1/2 NPT or ¾ NPT	
Cable Dimensions:	Ø Max 9 to 17mm	
Ordering Nr.	3981770060	

Temperature measuring transmitter for MSD4 Power connector 4-20 mA or 0-10V

UTECO transmitter transforms the temperature sensitive resistance of a RTD into a 4 to 20 mA.
The housing of the transmitter is a female power connector DIN EN 175301-803 (DIN 43650)
Thus the refitting of a transmitter for a temperature sensor with a power connector is possible by simple replacement of the female part of the connector

Sensor Connector:	RTD acc. to EN 60751 (e.g. PT100)
Sensor connection	2-wire circuit
Measuring current	0,8 mA
Output signal	4-20 mA 2 wire current loop Also Available 0-10V
Loop voltage:	7.5-36 V DC
Sensor fracture	>24mA
Sensor short circuit	<2.6mA
Type of clamps :	Screw clamps
Weight :	approx.30g
Power connector:	DIN EN 175301-803 (DIN 43650) Binder MSD4, Hirschmann GDM
Service temperature :	-40 +100° C
Cable gland:	M20X1.5mm
Process entry:	D 22,8mm or 32,5mm
Protection degree :	IP64
Ordering Nr.	4-20mA 0-100 ° C U3001200003

Standard Cylindrical Connectors

Standard Connector Female 3 pole Ø contacts Ø 2mm	
Specification:	• 6,9,12 and 19 Contacts of Ø 1-1.5 - 2 • 3 to 52 contacts, of Ø 2-3 and 4mm • Contacts to be soldered • Cord section max. 1,34-3,18-5,26mm2 • Standard series • Water proof standard series • High voltage series
Usage temperature:	-40° C to +100 ° C
Protection degree :	IP 50,54 with joint under base
Ordering Nr.	U3001643202

Standard Cylindrical Connectors

Standard connector male 4 pole Ø contacts Ø 2mm	
Specification:	• 6,9,12 and 19 Contacts of Ø 1-1.5 - 2 • 3 to 52 contacts, of Ø 2-3 and 4mm • Contacts to be soldered • Cord section max. 1,34-3,18-5,26mm2 • Standard series • Water proof standard series • High voltage series
Usage temperature:	-40° C to +100 ° C
Protection degree :	IP 50,54 with joint under base
Ordering Nr.	U3001644908

Standard Cylindrical Connectors

Standard panel connector male 4 pole Ø contacts Ø 2mm	
Specification:	• 6,9,12 and 19 Contacts of Ø 1-1.5 - 2 • 3 to 52 contacts, of Ø 2-3 and 4mm • Contacts to be soldered • Cord section max. 1,34-3,18-5,26mm2 • Standard series • Water proof standard series • High voltage series
Usage temperature:	-40° C to +100 ° C
Protection degree :	IP 50,54 with joint under base
Ordering Nr.	U3001644104

ACCESSORIES-Bayonet sockets

Bayonet sockets for temperature probes form bayonet (nut)	A
Bayonet sockets for temperature probes form bayonet (plug)	**B**

Series MMTHR- Thermocouples PTRH-Pt 10% Type S

Application:
Are used for exact temperature measurement of molten metal in foundries and steel works.

Measurement insert	Dimensions	Article Nr.
1xPTR4-RH-Pt10%	10x200x400mm	MMTHR10.00000

Specifications
IPTS68
DIN IEC584 Type S with U-glass tube 35mm long, with ceramic housing and paper tube ø30x6mm, refractory protection coating is standard length of x=200mm, besides an additional heat insulation, without protection cap.

Nominal Length:	400mm

Other technical characteristics (Thermocouples Type R, B, protection coating 100mm and 300mm, nominal length 200 to 900mm) available upon request

Pipe Fittings SS316

The essential advantage of pipe fittings is the variable fitting length and simple dismanting of the temperature probe. They are used for sheath according to DIN 43763 (Pipe fitting with stuffing gland) in oven construction, as well as for installing mineral –insulated RTD Temperature probes and Thermocouples.

Thread	To suit	Code
1/8 BSPD	1.0mm	398210001
1/8 BSPD	1.5mm	398210002
1/8 BSPD	2.0mm	398210003
1/8 BSPD	3.0mm	398210004
1/8 NPT	1.0mm	398210005
1/8 NPT	1.5mm	398210006
1/8 NPT	2.0mm	398210007
1/8 NPT	3.0mm	398210008
1/8 NPT	4.5mm	398210009
1/8 NPT	6.0mm	398210010
¼ BSPP	3.0mm	398210011
¼ BSPP	6.0mm	398210012
¼ BSPP	8.0mm	398210013
¼ NPT	3.0mm	398210014
¼ NPT	4.5mm	398210015
¼ NPT	6.0mm	398210016
3/8 BSPP	6.0mm	398210017
3/8 BSPP	8.0mm	398210018
½ BSPP	4.5mm	398210019
½ BSPP	6.0mm	398210020
½ BSPP	8.0mm	398210021
½ BSPP	10.0mm	398210022
½ NPT	6.0mm	398210023
½ NPT	8.0mm	398210024
½ NPT	10mm	398210025
M8x1	1.0mm	398210026
M8x1	1.5mm	398210027
M8x1	2.0mm	398210028
M8x1	3.0mm	398210029
M10x1	6.0mm	398210030

ACCESSORIES

Installation Locations and Accessories for Temperature probes

- Ball Valves
- T-Pieces
- Adapter screw fittings
- Installation Accessories

The correct selection of installation locations for recording the representative local temperature is a necessary precursor to temperature measurement in pipelines.
The high degree of accuracy of temperature probes is frequently lost as a result of the incorrect installation of the device – this occurrence usually leads to the incorrect assessment that the probe is of poor quality.

As a result, the correct installation location is first step for correct temperature measurement.

Ball valve with 2 process connections, measuring sockets M10x1 according to DINEN 1434, for installation type DS temperature probes, nickel-plated brass
T max=150°C, PN=16bar
Process connection: Thread G1/2, G3/4, G1, G1-1/4 or G1 1/2

Code: 3201921/14

Ball valve with 2 process connections, without measuring sockets, Nickel- plated brass,
T max=150°C, PN=16bar

Code: 3201921/13

T-piece with bi-directional internal thread, measuring socket, continuous thread, brass.
Process Connection G1/2, G3/4, or G1

Code: 3201921/15

Adapter screw fitting for installation of type DS temperature probes, brass
Process connection: G1/4(with measuring socket, thread G1/4 or M10x1) G3/8, G1/2 or G3/4

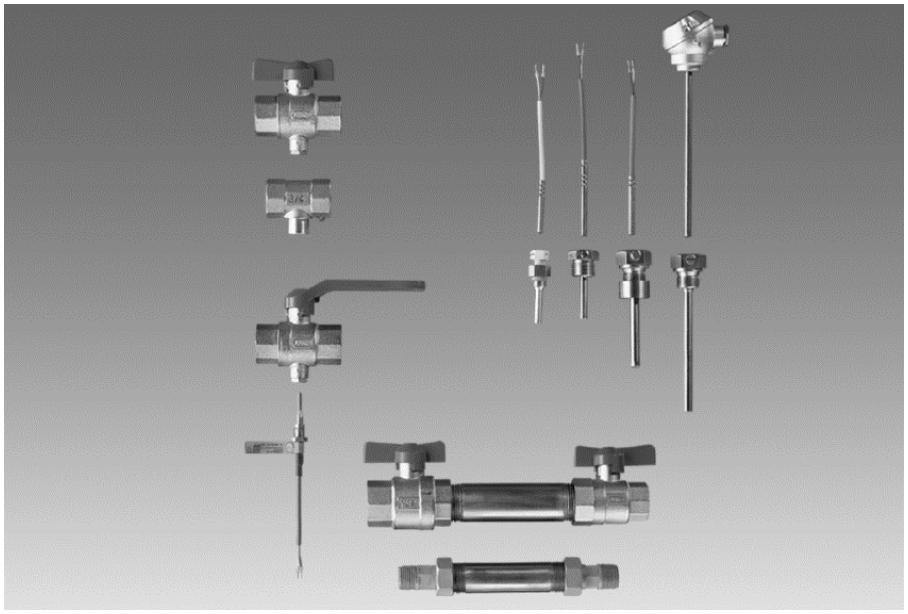
Code: 3201921/17

Screw connection set, with screw connection in the versions as half-shell (plastic) or as swivel (brass) for temperature probe modification for direct installation in installation location in installation locations according to DIN EN1434
Process connection M10x1, G1/4, G3/8, G1/2 or G3/4.

Code: 3201921/18

Screw-in pocket with M10x1 thread, straight protection tube, approved up to 130°C, PN=16Bar, material stainless steel or brass
Process connection: G1/4, G3/8, G1/2 or ¾
Fitting Length 35mm, 40mm, 50mm, 85mm, 120mm, 155mm, or 210mm

Code: 3201921/20



ACCESSORIES

Terminal block with screws and seal for terminal heads form A

Number of terminals	Thermocouple	Art.No
2	Base metal	3200414610
4	Base metal	3200414611
4	Noble metal	3200414910

Noble metal

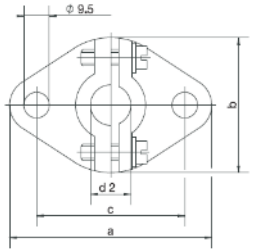
Base metal

Terminal Blocks-For terminal heads form B, BBK, BUZ and BUZH

Number of Terminals		Art.No
2		3990423210
4		3990423312
6		3990423510

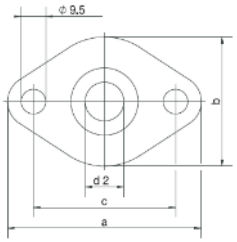
Backing flange for stop flanges according to DIN 43734

For Sheath diameter in mm	Material	Dimensions in mm a b c d2	Code
15	Cast iron	75 50 55 16	3501710Δ00
22	Cast iron	90 65 70 23	3201700000
32	Cast iron	90 65 70 33	3501730M40



Backing flange for stop flanges according to DIN 43734

For Sheath diameter in mm	Material	Dimensions in mm a b c d2	Code
15	Cast iron	75 50 55 15	3201700005
22	Cast iron	90 65 70 22	3201700006
32	Cast iron	90 65 70 32	3201700007



Heat transfer compound

Packing	Temperature range	Thermal conductivity	Order. No
110gr	-40° to +200° C	0.81 w/MxK	3201540072

Temperature probes

with

Marine Approvals

UBMR Series
Exhaust gas temperature probe type UBMR1 and UBMR2 with connection head form B

UBMR1 BUZ
(straight)

Application
Temperature probe with connection head form B
Type UBMR1 And UBMR2 are used for measuring:
- Exhaust gas temperatures
- They are used in large diesel engines such as those on ships
- They are used in turbines and compressors
- For cooling water and for oil temperature measurement

Technical Specifications
- The measuring insert fitted with thermocouple according to Class 2 EN60584, with one or two for thermocouples for temperatures between -50°C and +800°C
- The measuring insert with Pt100 or Pt1000 temperature sensors to EN 60751 class B in 2-wire 3-wire or 4-wire connection can be provided for temperatures between -70°C and +700°C

UBMR1: Temperature probe with single protection tube and loose screw connection
UBMR2: Temperature probe with solid drilled protection tube ø24/ø14 mm and the measuring insert is removable insert tube ø8mm St.St. Can be exchanged or calibrated without closing down the process

Tube: The protective sheath is standard of Stainless steel 316 or 304

Connection head: Form B connection head with ceramic socket made of aluminum diecasting max temperature 200°C, Protection IP65, and cable gland

Process connection:
Fix connecting thread (UBMR2)
Loose screw connection (UBMR1)

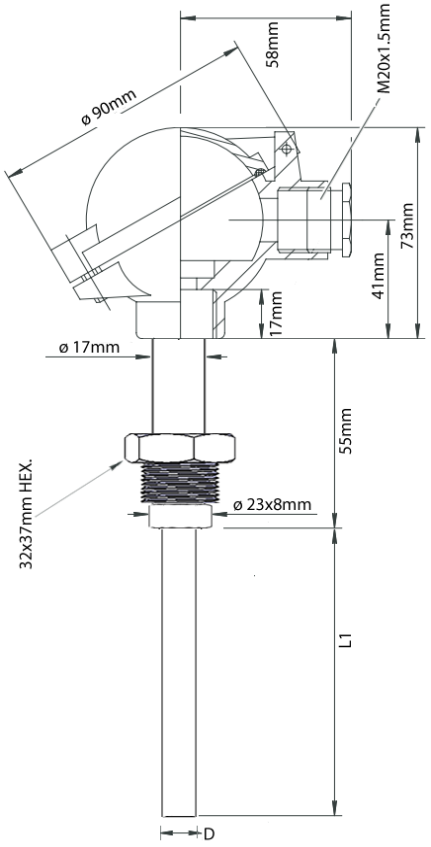
Vibration stability: 4g the function ,2-100Hz, measured according to IEC 60068-2-6

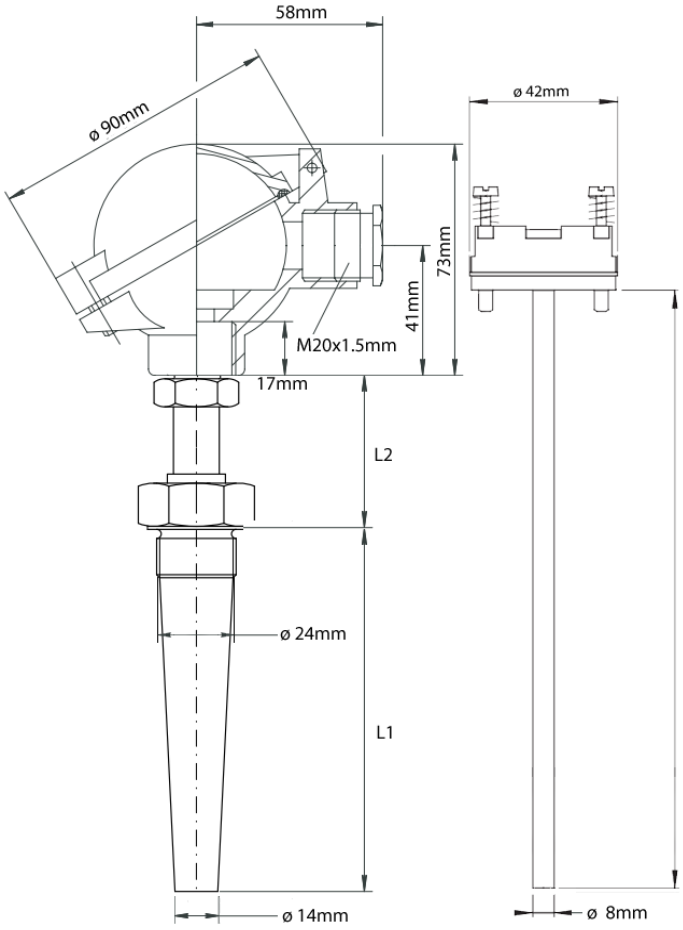
Measured current / Maximum current
Pt 100 recommended: 0.1mA max: 7mA
Pt 1000 recommended: 0.1mA max: 1mA

UBMR2 BUZ
(tapered)

UBMR Series
Exhaust gas temperature probe type UBMR1 and UBMR2 with connection head form B

Dimensional drawings



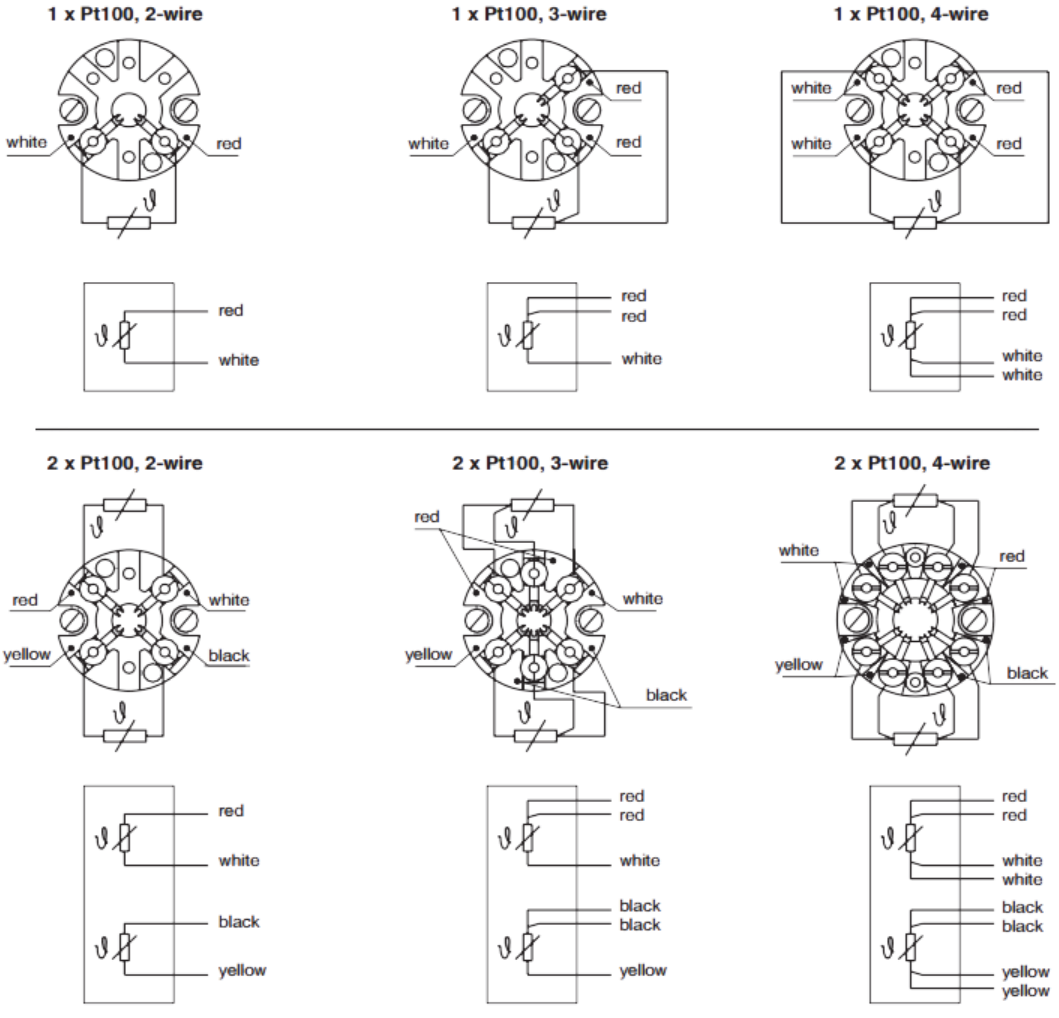


Ordering code

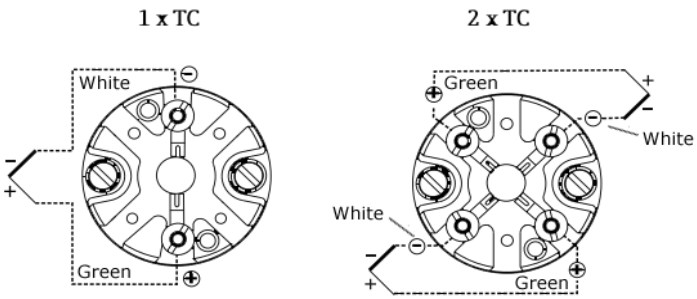
Type	Element	Diameter in mm	Length L1 in mm	Sheath Material	Process Connection	Extension Length L2 in mm	Temperature Range
UBMR1 (straight)	1xPt 100	ø6	from 50 to 300	304	without	without	from -50°C to +200°C
UBMR2 (straight)	2xPt 100	ø7		316	⅜ BSP	55mm	
UBMR1 (tapered)	1xPt 1000	ø8			½ BSP	65mm	from -50°C to +600°C
UBMR2 (tapered)	2xPt 1000	ø9			¾ BSP	100mm	
	1xK (NiCr-Ni)	ø9,5			1 BSP	130mm	from -70°C to +700°C
	2xK (NiCr-Ni)	ø10			other specify	other specify	
		ø11					from -50°C to +800°C
		ø12					
		ø13					
		ø14					
		ø15					
		ø14/24					
UBMR1	1xPt 1000	15	270	316	¾ BSP	55	-50 to +600

UBMR Series
Exhaust gas temperature probe type UBMR1 and UBMR2 with connection head form B

Connection diagram For resistance thermometer.
Color code DIN EN 60751



Connection diagram for resistance thermocouple
Color code DIN EN 60589



UMIC Series
Mineral Insulated Temperature Sensor
Flexible metal sheath

For temperature from -200…+1200ºC (for thermocouple), -200…+600ºC (for resistance thermometer

Flexible sheath with shock proof measuring insert
Protection tube diameter from 3.0mm
Fast response time
As single or twin temperature sensor in 2 wire 3wire or 4 wire circuit

Application

Temperature probe with mineral Insulated cable:
Are used in chemical plant, power station, pipelines, tank systems, in engine construction, on test beds and in all applications where flexibility and problem free replacement are required.

Technical Specifications

The low resistance internal copper or Ni conductors are embedded in compressed heat resistance magnesia oxide inside the flexible thin- walled sheath.
The excellent heat transfer between the sheath and the temperature probe enables short response times(T 0.5 from 0.15sec) and high measurement accuracy.
The shock-proof construction ensures a long life.
The minimum bending radius in 5x the external diameter must be kept straight 40mm from tip (only for resistance thermometer).
The normally fitted with Pt100 or Pt1000 temperature probe To EN60751 class A,B 1/3 or 1/6 are also available 2-wire 3-wire or 4-wire systems
The thermocouples type K,J or N to EN60584 class 1 or 2 version
with one or two thermocouples insulation resistance :
Thermocouples against sheath at ambient temperature for length up to 1 meter: 200MΩ For length 1 meter and above 200MΩ x meter(s)
Response times for thermocouple diameter ø3mm:

Water	T 0.5 = 1sec	Air	T 0.5 = 22sec
	T 0.9 = 2.8sec		T 0.9 = 64sec

Response times for resistance thermometer diameter ø3mm:

Water	T 0.5 = 1.3sec	Air	T 0.5 = 13.5sec
	T 0.9 = 4sec		T 0.9 = 41secProtection

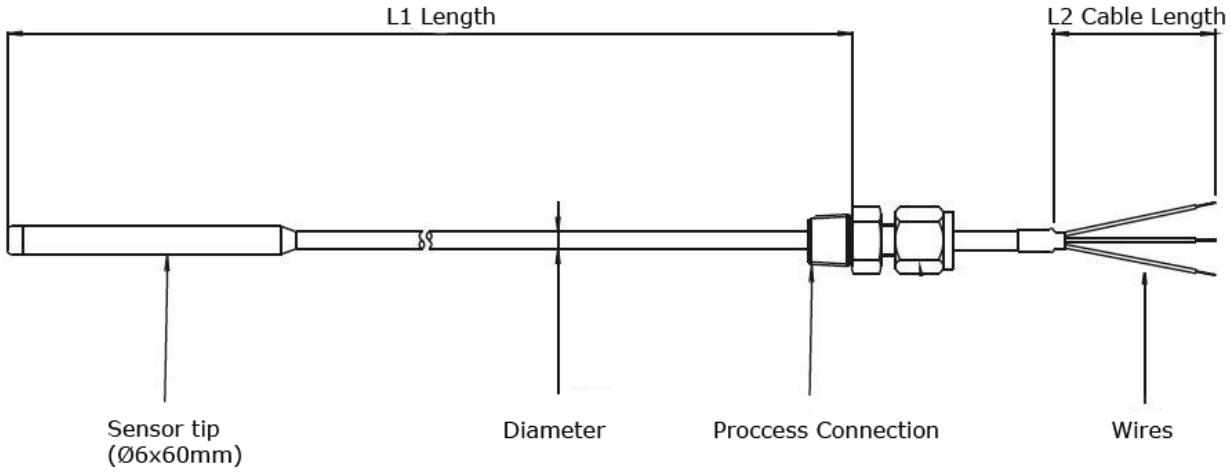
Protection Tube:
Stainless steel 304 or 316 (for resistance thermometer)
Stainless steel 316 (for thermocouple type J)
Inconell 600 (thermocouple type K,N)
Hastelloy (thermocouple Type K)
Pyrosil (thermocouple Type N)
Sensor tip:
Φ6x60mm stainless steel 316 or without tip

Compensating cable or connecting cable:
Teflon-Braiding-Teflon PTFE, ambience temperature -190°C to +260°C
Metal brainding ambient temperature -50°C to 350°C

Process connection:
Adjustable fitting stainless steel 316

UMIC Series
Mineral Insulated Temperature Sensor
Flexible metal sheath

Dimensional drawing



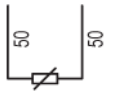
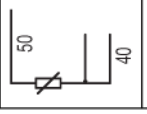
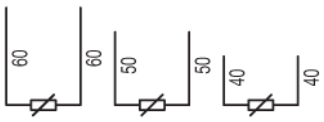
Ordering code

	Element	Diameter in mm	Length L1 in mm	Sheath Material	Process Connection	Cable length L2 in mm	DIN Tolerance Classes / wires
	1xPt100	ø3,0	from 50 to 35000	304	⅛NPT	250	Class A 2-W
	1xPt1000	ø3,2		316	¼NPT	500	Class A 3-W
		ø4,5		Inconell	⅜NPT	1000	Class A 4-W
	1xNiCr-Ni (K)	ø4,8		Hastelloy	½NPT	other specify	Class B 2-W
	2xNiCr-Ni (K)	ø6,0		Pyrosil	⅛BSP		Class B 3-W
	1xFe-CuNi (J)	ø8,0			¼BSP		Class B 4-W
	2xFe-CuNi (J)	ø9,5			⅜BSP		Class 1/3 2-W
	1xNiCrSi - NiSi (N)				½BSP		Class 1/3 3-W
					¾BSP		Class 1/3 4-W
					1"BSP		Class 1/6 2-W
					without		Class 1/6 3-W
					other specify		Class 1/6 4-W
							Class1 or 2 (for thermocouple)
UMIC							
UMIC	1xPt100	4,8	6000	316	⅛NPT	250	Class B 3-W

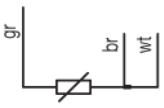
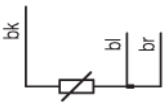
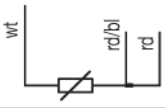
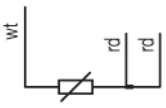
UMIC Series

Connection diagram 1/2

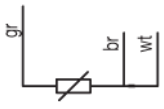
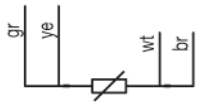
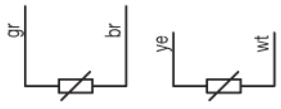
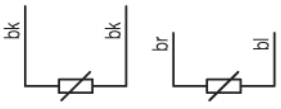
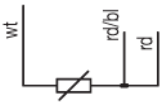
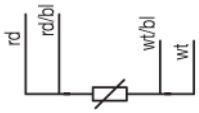
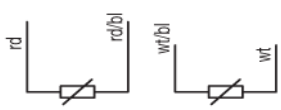
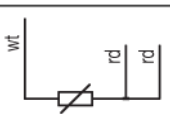
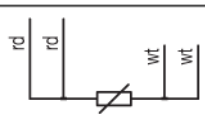
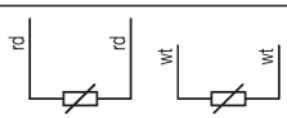
Marking of the stranded conductors on 3-wire and 4-wire RTD temperature probes and 2x Pt and 3x Pt
Generally the stranded conductor dimensions are distinguished by 50 mm and 40 mm length (60 mm for 3x Pt).

2-wire	3-wire	4-wire	2x 3-wire	2x Pt	3x Pt
					

Color coding on cables

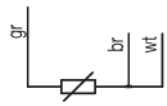
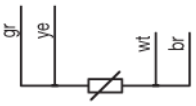
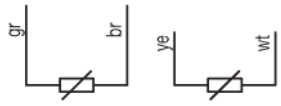
		1x 3-wire	
3-wire cable	Color coding: (to DIN 47100) white, brown, green		
	Color coding: (to VDE 0293-0) black, blue, brown		
	Color coding: red, red/blue, white		
	Color coding: (to IEC 60751) red, red, white		

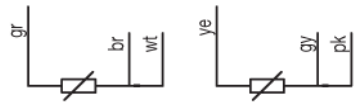
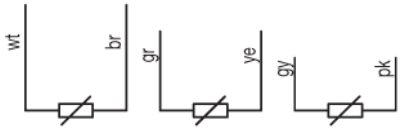
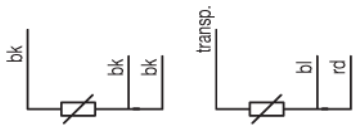
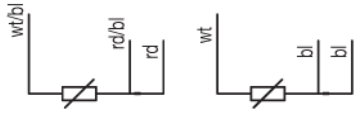
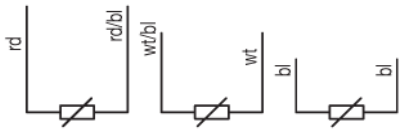
Color coding on cables

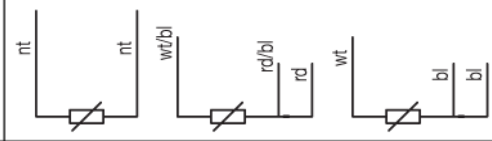
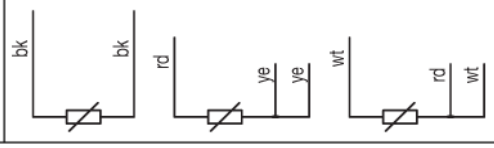
		1x 3-wire	1x 4-wire	2x Pt
4-wire cable	Color coding: (to DIN 47100) white, brown, green, yellow			
	Color coding: (to VDE 0293-0) black, black, brown, blue			
	Color coding: red, red/blue, white/blue, white			
	Color coding: (to IEC 60751, not for 2x Pt) red, red, white, white			

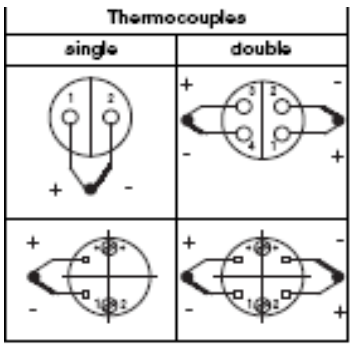
UMIC Series

Connection diagram 2/2

		1x 3-wire	1x 4-wire	2x Pt
5-wire cable	Color coding: (to DIN 47100) white, brown, green, yellow, grey			

		2x 3-wire	3x Pt
6-wire cable	Color coding: (to DIN 47100) white, brown, green, yellow, grey, pink		
	Color coding: (to VDE 0293-0) black, black, black, red, blue, transparency		
	Color coding: red, red/blue, white/blue, white, blue, blue		

		1x 2-wire and 2x 3-wire	2x 4-wire
8-wire cable	Color coding: red, red/blue, white/blue white, blue, blue, nature, nature		
	Color coding: red, red, black, black yellow, yellow, white, white		



UCON Series
Temperature Probe with plug connector.
Straight thermometer with or without extension length

Application
The UCON temperature probes in vibration proof design allows temperature measuring under pressure in motors, compressors, controlling cooling water, lubrication oil, hydraulic oil, plant engineering, in gases, fluids and refrigeration plants within general industry and marine applications.

Technical Specifications

Element
Resistance thermometer Pt100 or Pt1000 acc. To DIN EN 60751☐
Recommended measuring current max 2mA

Tube
Protective sheath, stainless steel 316 or 304
Extension length stainless steel Ø 12mm, 50mm length

Sensor tip
From Ø 6mm to Ø 12mm, stainless steel 316 or 304

Plug Connection
Angular, locked, contact stable, protection class IP65 when connected

Process Connect
Thread, stainless steel AISI 316 or 304

Temperatures

	Minimum	Maximum
Proccess:	-50°C	+500°C
Connector:	-40°C	+125°C

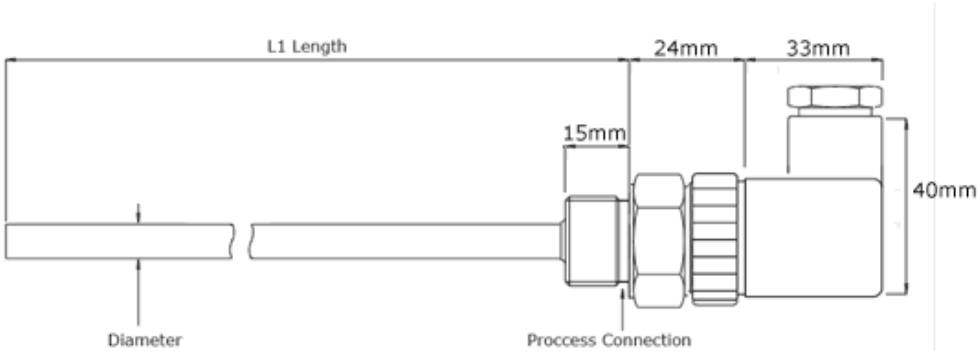
Please refer to **Ordering Code** scheme on page 2 for combination possibilities of Sheath, Length and Process Connection

UCON Series

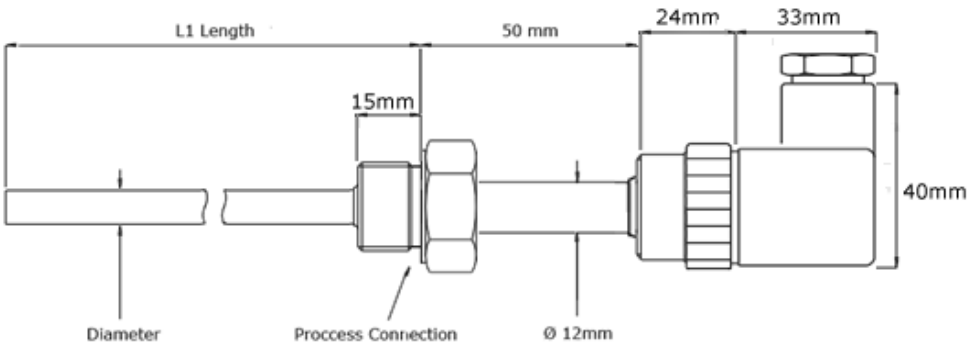
Temperature Probe with plug connector.
Straight thermometer with or without extension length

Dimensional drawing

without extension



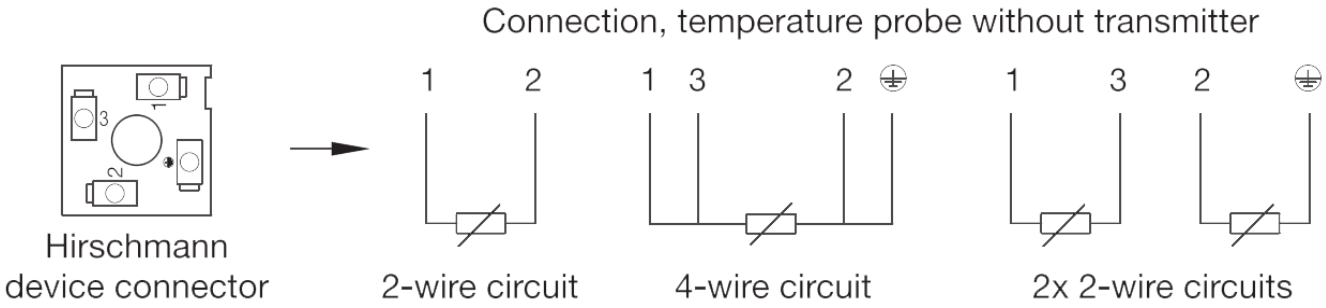
with extension



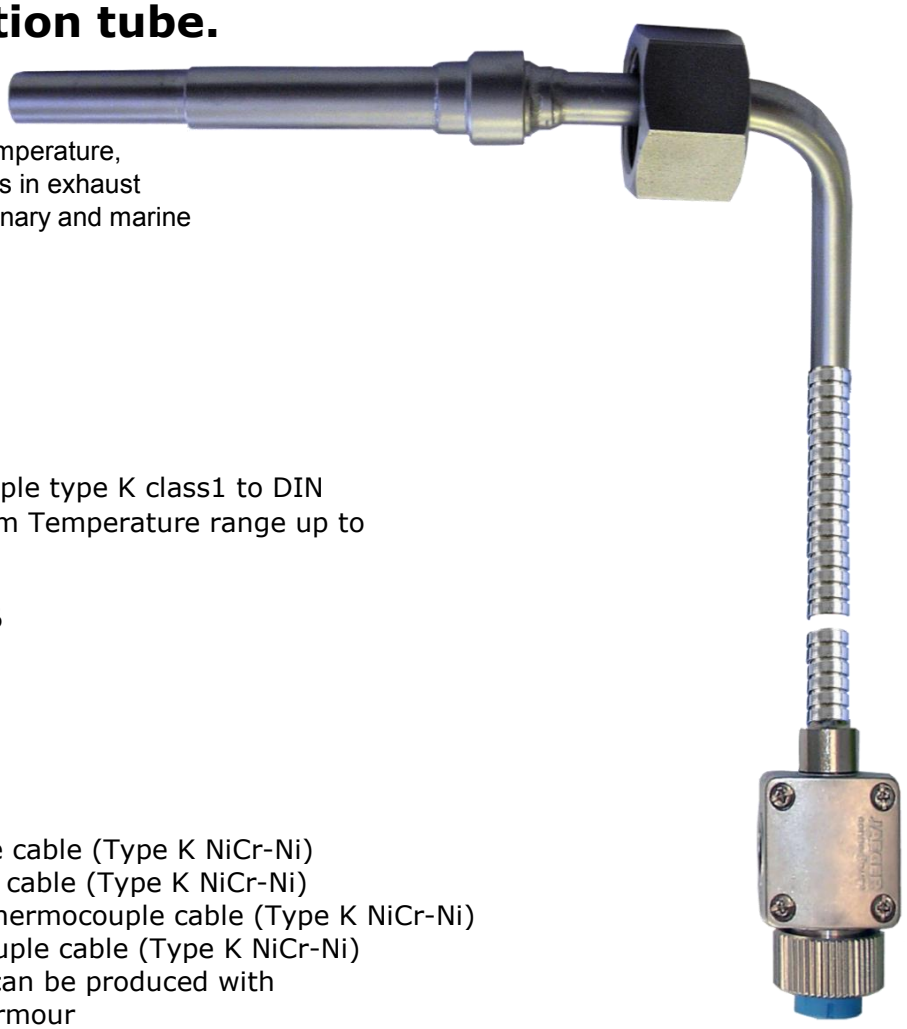
Ordering code

Element	Element	Diameter in mm	Sheath Material	Process Connection	DIN Tolerance Classes / wires	Operating Temperature in °C
UCON1	1xPt100	ø6	316	¼ BSP	Class A 2-W	from -50 to +500
UCON2	1xPt1000	ø7	304	⅜ BSP	Class A 3-W	
		ø8		½ BSP	Class A 4-W	
		ø9		¾ BSP	Class B 2-W	
		ø9,5		¼ NPT	Class B 3-W	
		ø10		⅜ NPT	Class B 4-W	
		ø11	Length L1 in mm	½ NPT	⅓ DIN B	
		ø12	from 50 to 300	¾ NPT		
				16 x 1,5 M		
				18 x 1,5 M		
				20 x 1,5 M		
				22 x 1,5 M		
UCON1	1xPt100	6	150	316	G¼	Class B 3-W	150

UCON Series
Connection diagram



UCBWR Series
Angle temperature probe with cable and solid drilled protection tube.



Application

Temperature probes preferred for measuring temperature, mainly on ships in connection with diesel engines in exhaust systems, turbines and compressors within stationary and marine applications.applications.

Excellent vibration proof and shockproof

Technical Specifications

Element
Measurement insert fitted with thermocouple type K class1 to DIN IEC60584 with insulated measuring system Temperature range up to 800°C

Tube
Protective sheath stainless steel, AISI 316
(solid drilled protection tube)

Pressure Test
at 25 bars

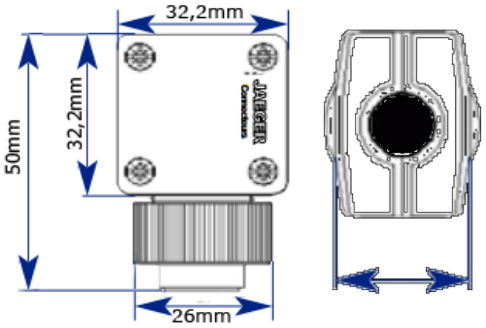
Process Connection
Thread, stainless steel 304 or 316

Cable
(SA) Silicon insulated thermocouple cable (Type K NiCr-Ni)
(TA) Teflon insulated thermocouple cable (Type K NiCr-Ni)
(KA) Kapton (Polymide) insulated thermocouple cable (Type K NiCr-Ni)
(GA) Fiberglass insulated thermocouple cable (Type K NiCr-Ni)
(FLA) in addition all above cable types can be produced with separate covered stainless steel flexible armour

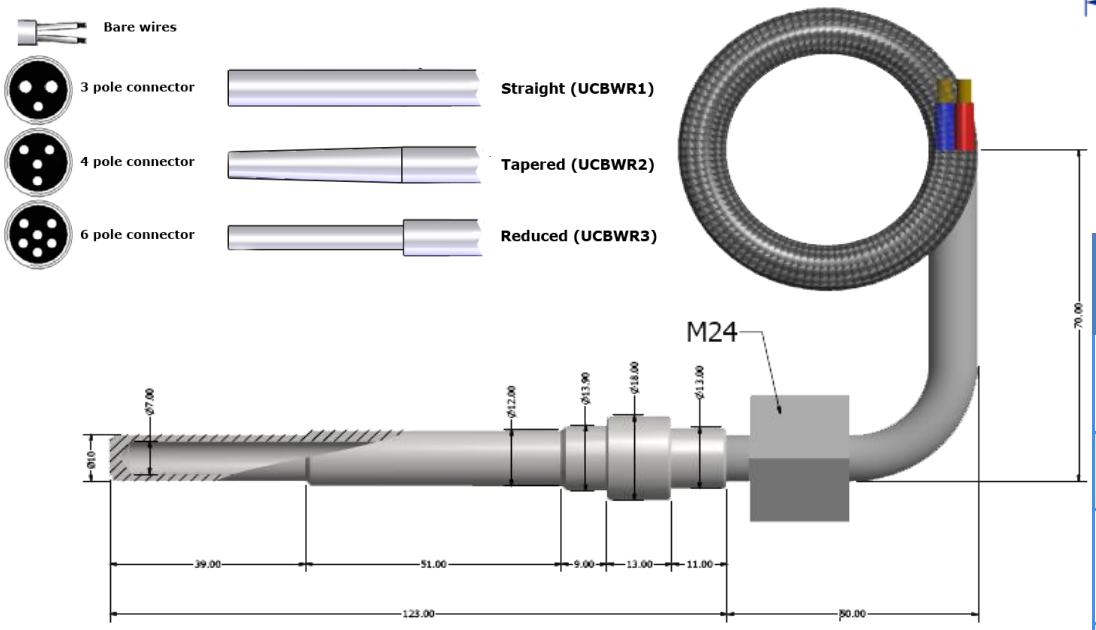
Sheath Shape
Straight = UCBER1
Tapered = UCBWR2
Reduced = UCBWR3

Standard Connector
female connector with 3,4 or 6 cabled conductors
Locking by screwing
Material nickel alloy, brass contacts, silver treatment, insulation PBT
Operating temperature: from -50°C to +100°C
Termination method: Solder
Diamensons: 32,2mm x 32,2mm x 20,2mm

UCBWR Series
Angle temperature probe with cable and solid drilled protection tube.



Dimensional drawing



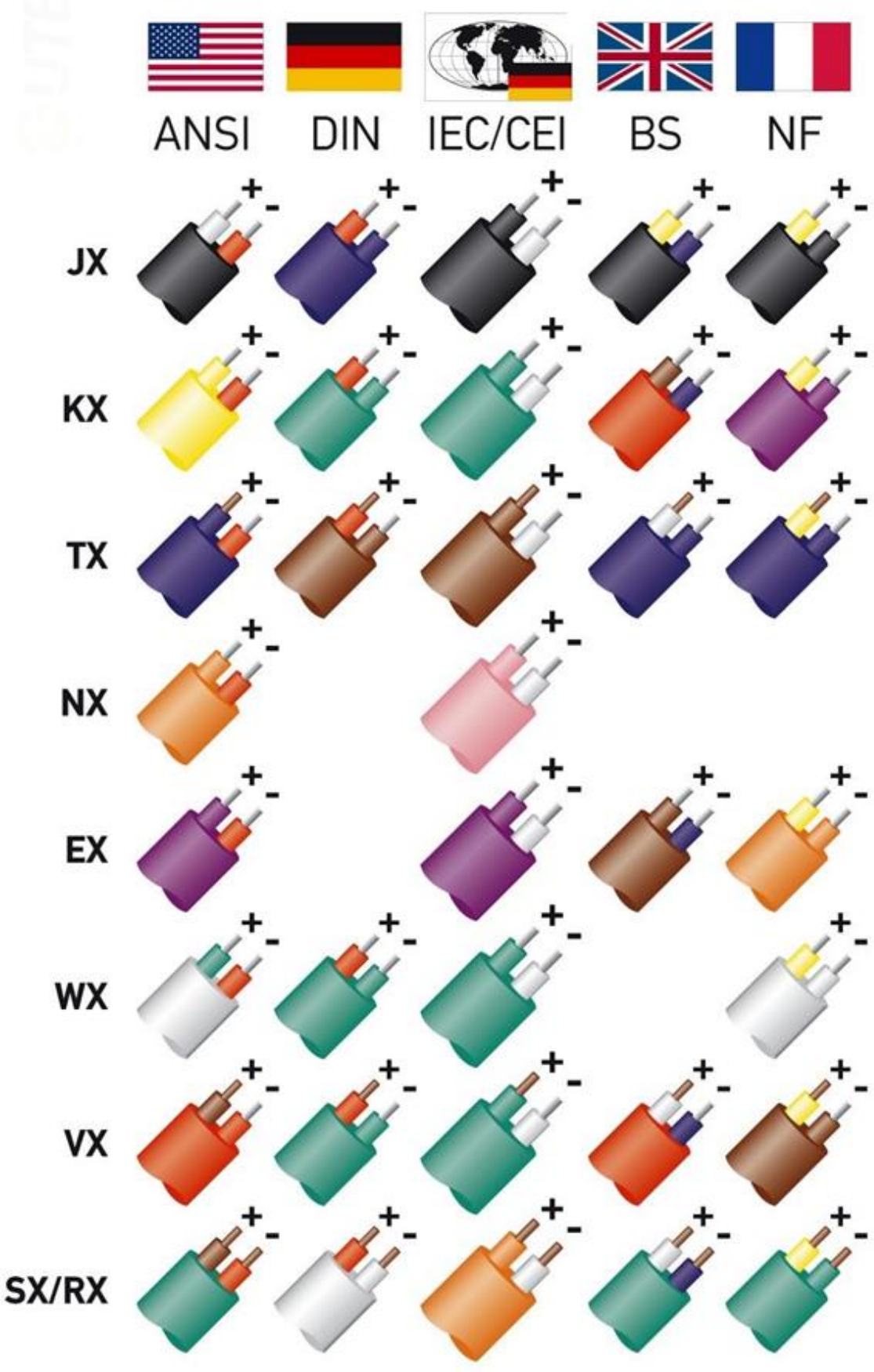
Wire Insulation type
SA (Silicon - Fiberglass - Steel Braid)
TA (Teflon - Steel Braid - Teflon)
KA (Kapton - Kapton - Steel Braid)
GA (Fiberglass - Fiberglass - Steel Braid)
SA (Silicon - Fiberglass - Steel Braid)-**FLA**
TA (Teflon - Steel Braid - Teflon)-**FLA**
KA (Kapton - Kapton - Steel Braid)-**FLA**
GA (Fiberglass - Fiberglass - Steel Braid)-**FLA**

Ordering code

Type	Element	Diameter in mm	Length L1 in mm	Sheath Material	Process Connection	Cable length L2 in mm	Termination
UCBWR1 (straight)	1xK (NiCr-Ni)	ø10	from 50 to 300	316	½ BSP (m)	from 1000 to 10000	bw(bare wire)
UCBWR2 (tampered)	2xK (NiCr-Ni)	ø12		304	¾ BSP (m)		3 pole
UCBWR3 (reduced)		ø10/12 reduced			M 18x1,5 (m)		4 pole
		ø15			M24x1,5 (f)		6 pole
					other specify		

				316				
UCON1	1xN	10	6000	316	½ NPT	3000	SA	4

International Color Code for Compensating & Extension Cables



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