

Technical Information

UTEKO UBMR SERIES



Exhaust gas temperature probe type UBMR1 and UBMR2 with connection head

Application



UBMR 1

Temperature Probe with single protection tube and screw connection

UBMR 2

Temperature Probe with solid drilled protection tube $\varnothing 24/\varnothing 14$ mm & exchangeable measuring insert (SS, $\varnothing 8$ mm)

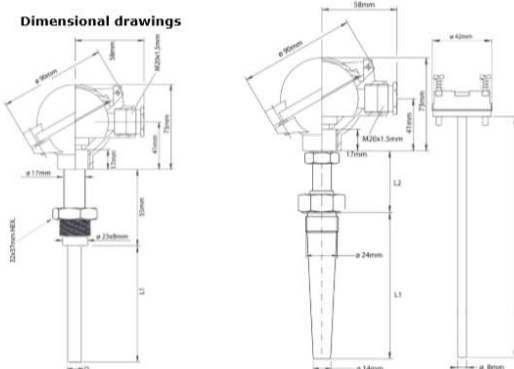
Intended use: They can be used in enclosed spaces subject to temperature, humidity, and vibration or to generated heat from other equipment for measuring Temperatures indicatively:

- on reciprocating machinery
- exhaust gas
- in turbines and compressors
- in cooling water systems and for oil temperature measurement.

Installation: To be installed only in a thermowell¹ at areas classified as Environmental Categories:

- **ENV2:** Enclosed spaces subject to temperature, humidity and vibration (Tamb: 5 °C ...55 °C)
- **ENV 3:** Enclosed spaces subject to generated heat from other equipment (Tamb: 5 °C ...70 °C)
- **ENV 4:** Mounted on reciprocating machinery (Tamb: 5 °C ...55 °C)

Dimensional drawings



Relative Humidity: 0...95% RH
Ambient Temperature (outside the process area):
Process Temperature:

- Terminal block: 5°C...70°C
- Transmitter: -10 °C ...85 °C
- Terminal Block (for UBMR 1 & UBMR 2 version):
 - For RTD: -50 °C ... 180 °C
 - For Thermocouple: -50 °C ... 800 °C
- Transmitter (only for UBMR 1 version):
 - For RTD: -50 °C ... 260 °C
 - For Thermocouple: 0 °C ... 600 °C
- Connection head IP65
- Cable gland [M20x1.5mm]: \geq IP65

Ingress Protection Degree:

¹ UBMR 2 does not need extra thermowell.

Technical Data:

Description:

Connection Head: Die Cast Aluminum with Silicon O-ring, equipped with cable gland & terminal device.

Protection Tube: protection tube [SS 316, SS 304, SS446 or Inc.600]

Process Connection: threaded

Exchangeable Measuring Insert (only for UBMR 2 version): Yes [Material SS 316, Diameter: ø8mm]

Measuring Element:

One or two Pt100 (standard version) or Pt1000 Temperature Sensors class A, B or AA

[EN 60751],

in 2-wire, 3-wire or 4-wire connection for terminal blocks while in 3-wire for transmitter version.

Accuracy Class [IEC/EN 60751]:

Tolerance Class	Temperature range of validity (°C)		Tolerance Values (°C)
	Wire wound resistors	Film resistors	
AA	-50 to 250	0 to 150	± (0.1+ 0.0017 t)
A	-100 to 450	-30 to 300	± (0.15+ 0.002 t)
B	-196 to 600	-50 to 500	± (0.3+ 0.005 t)

where t: measured Temperature in °C

One or two Thermocouples of Class 1 or 2 [EN 60584] with insulated hot junction.

Accuracy Class [IEC/EN 60584-1]:

Thermocouple Tolerance values and Temperature limits of Validity			
Type	IEC 60584-1		
	Class 1	Class 2	Class 3
K	-40...1000 °C	-40...1200 °C	-200...40° C
Tolerance [t=temperature] [°C] The largest value between the two	±1,5 or ±0,004· t	±2,5 or ±0,0075· t	±2,5 or ±0,015· t

where t: measured Temperature in °C

See Type Designation for applicable combinations.

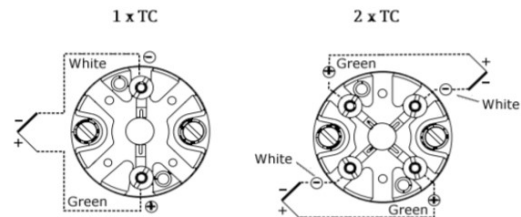
Vibration Resistance:

Type of Temperature Sensor	Vibration Resistant [as per IEC 60068-2-6]
A) Option with Terminal Block:	0.7g...4g Frequency range 2-100Hz
B) Option with Transmitter: 4...20mA	4g Frequency range 2-100Hz

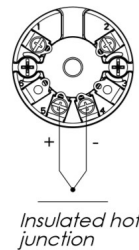
Electrical connection:

For Thermocouples [color code per IEC/EN 60584 series]

A) Without transmitter:

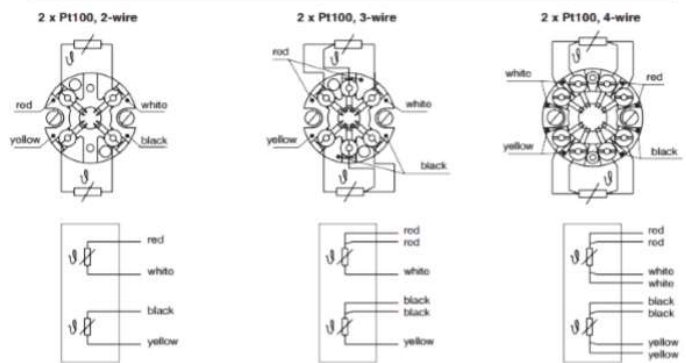
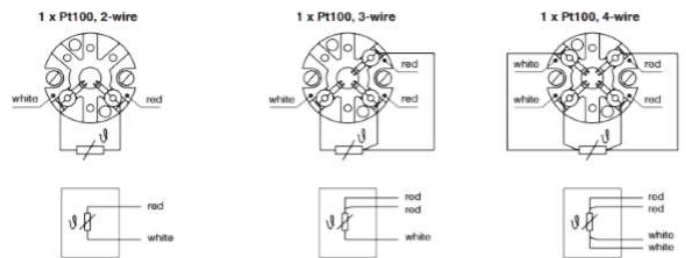


B) With transmitter:

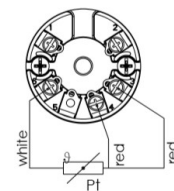


For RTDs [color code per IEC/EN 60751]:

C) Without transmitter:



D) With transmitter:



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Doc:USP_TDS_0005/ Rev:1

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Electrical/Mechanical Specifications:

Option with Transmitter:

Supply Voltage (V): 8...35V DC

Output Signal: 4...20mA

Wire Size: 0.34...1.5mm²/ AWG 22...16 stranded wire

Measured current/ Max Current:

A) Pt 100 recommended: 0.3mA to 1mA

B) Pt1000 recommended: 0.1mA to 0.3mA

The measuring current shall be as small as possible to avoid error from self-heating.

Option with Terminal Block:

Max Current and Wire Size as above stand also for terminal block version.

Approvals- Compliances

- IEC/EN 60751- Industrial platinum resistance thermometers and platinum temperature sensors
- IEC/ EN 60584-1- Thermocouples. EMF specifications and tolerances
- IEC/ EN 60584-3- Thermocouples. Extension and compensating cables. Tolerances and identification system
- Approved as per Lloyd's Register's Type Approval System, Test Specification Number 1- March 2019 [Certificate No: LR2041438TA], for Marine and Offshore applications for use in environmental categories ENV2, ENV3 and ENV4 as defined in the above-mentioned System.
- RoHS Compliant
- REACH Compliant
- MEPC.269 (68) Compliant

Type Designation

A) Terminal Block Version

Type	Element	Diameter in mm	Length L1 (mm)	Sheath Material	Process Connection	DIN Tolerance Classes/ wires	Extension Length L2 (mm)	Temperature Range	Connection Head
UBMR1	1xPt 100	Ø6	50...300	AISI 304	without	Class A 3-w	without	-50 °C...200 °C	NAA
UBMR2	2xPt100	Ø7		AISI 316	3/8 BSPP	Class A 4-w	55mm	-50 °C...600 °C	DIN B
	1xPt1000	Ø8	AISI 446	1/2 BSPP	Class B 2-w	65mm	-70 °C...700 °C		
	2xPt1000	Ø9	Inc.600	3/4 BSPP	Class B 3-w	100mm	-50 °C...800 °C		
	1xK	Ø9.5		1 BSPP	Class B 4-w	130mm	Any other range in between		
	2xK	Ø10		other specify	Class AA 3-w	other specify			
		Ø11			Class AA 4-w				
		Ø12			Class 1 ²				
		Ø13			Class 2				
		Ø14							
		Ø15							
		Ø14/24							

² Class 1 and Class 2 are only for TC version, while Classes A, B, AA are only for RTD version.

E.g.:

UBMR1	1xPt1000	15	/	270	mm	AISI316	3/4 BSPP	CLB 3-w	Ext.	55	mm	-50...600 °C	NAA
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B) Transmitter Version

Type	Element	Diameter (mm)	Length L1 (mm)	Sheath Material	Process Connection	DIN Tolerance Classes/wires	Extension Length L2 in mm	Available Measuring Temperature Range	Output Signal	Defined Measuring Temperature Range	Connection Head
UBMR1	1xPt100	Ø8	50...150	AISI 304	1/2" BSPP	Class A 3-w	50 mm	-50 °C...260 °C	4...20 mA	Tmin... Tmax	KNE
	1xK	Ø10	50...300	AISI 316	3/4" BSPP	Class B 3-w					NAA
		Ø11 ³		AISI 446	3/8" BSPP	Class AA 3-w					
		Ø12		Inc.600	1" BSPP	Class 1 ⁴					
		Ø14		1/2" NPT	Class 2						
		Ø15		3/4" NPT							

E.g.:

UBMR1	1xPt100	15	/	270	mm	AISI316	3/4" BSPP	CLB 3-w	Ext.	50	mm	50...260 °C	(4...20 mA / 0...100 °C)	KNE
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UTECO ABEE accepts no responsibility for possible errors in this brochure and reserves the right to change its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary in specifications already agreed.

³ Only for RTD version.

⁴ Class 1 and Class 2 are only for TC version, while Classes A, B, AA are only for RTD version.

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