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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

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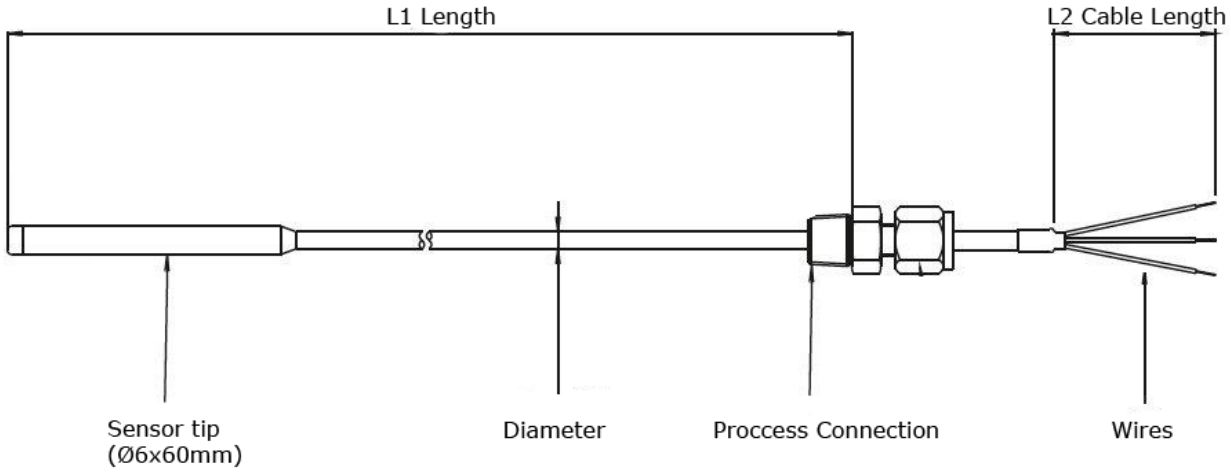
Dimensional drawing



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

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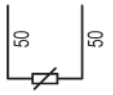
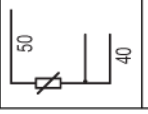
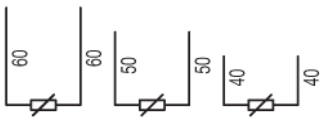
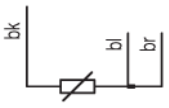
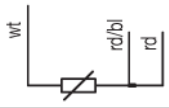
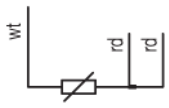
Connection diagram 1/2

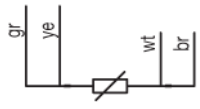
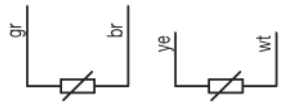
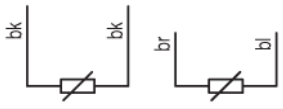
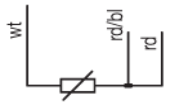
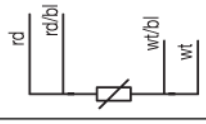
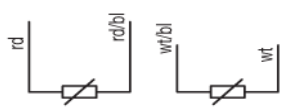
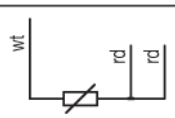
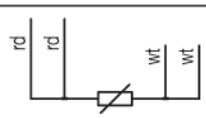
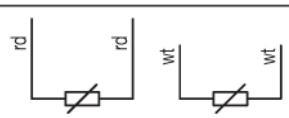
Marking of the stranded conductors on 3-wire and 4-wire RTD temperature probes and 2x Pt and 3x Pt
Generally the stranded conductor dimensions are distinguished by 50 mm and 40 mm length (60 mm for 3x Pt).

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			

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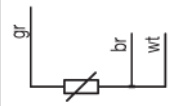
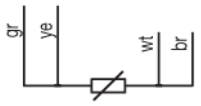
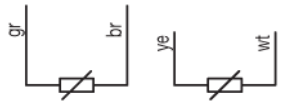
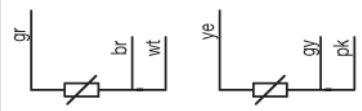
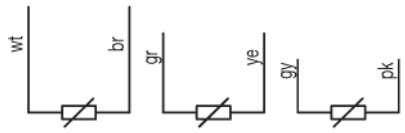
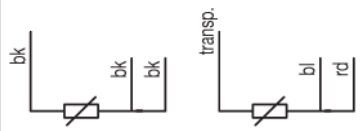
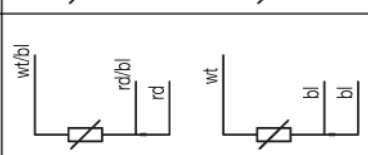
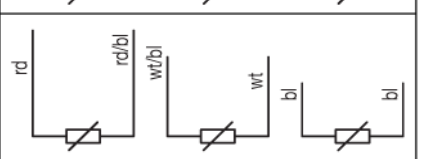
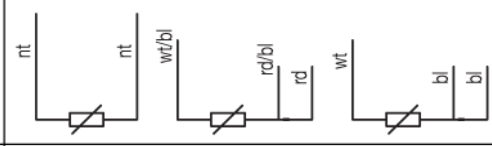
Connection diagram 2/2

		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