ASHCROFT®
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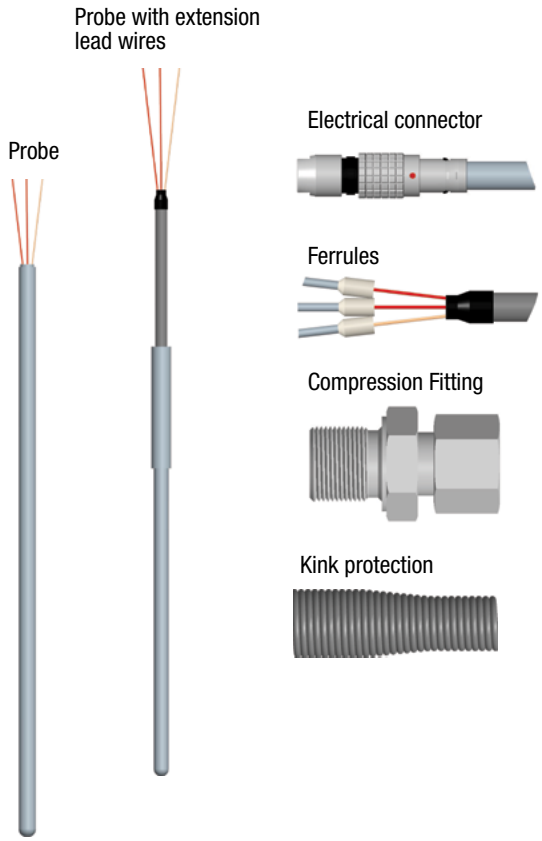
Electrical Thermometer for Thermocouples (S80) and RTD (S81)

TYPICAL USES

- For chemical and petrochemical plants, refineries, utilities, pulp and paper, etc.
- For a wide range of process: vapors, gases and liquids
- Flexible configurations, heavy duty MgO
- Special designs for intrinsically safe and non-incendive applications

DESCRIPTION

- Power Generation
- Reactors
- Storage Tanks
- Cooling Towers
- Industrial equipment Manufacture
- Industrial Ovens
- HVAC/R
- Food and Beverage
- Pharmaceutical and Biotech



SPECIFICATIONS

Model:	Thermocouple S81 RTD S81	
Stem Diameter:	3 mm, 4.5 mm, 6 mm, 8 mm	
Stem Length:	min. 50 mm max. 3000 mm	
Stem Material:	Stainless steel 316L (1.4401) Inconel 600 (2.4816)	
Insulation Material:	Compacted pure MgO (Magnesium oxide)	
Senore Types and max. Range:	RTD: Pt100 Pt1000 Thermocouples: Type J Type E Type K Type N	 -200 up to 600 °C -40 up to 600 °C -40 up to 750 °C -200 up to 800 °C -200 up to 1000 °C -200 up to 1000 °C
Wiring Configuration:	RTD (single or dual) as 2, 3 or 4 wire Thermocouple (single or dual) as 2 wire	
Cable Connection:	Miniature electrical connector (male or female) Leads with ferrules	
Extension Cables:	PVC: Silicone: PTFE (Teflon®): Fibre glass:	-20 ...+105 °C -60 ...+180 °C -75 ...+240 °C -60 ...+400 °C
Insulation Resistance:	For RTD ≥100 MΩ with U = 250 VDC For TC ≥1 GΩ with U = 500 VDC	
Sensitive Length of RTD: Thermocouple:	 7 to 40 mm < 5mm	
Minimum Immersion Length:	in liquids: in gases/vapour:	40 mm + 4 * Ø 40 mm + 7 * Ø

KEY BENEFITS

- **Flexible designs for critical applications**
- **Highly accurate and repeatable**

Ingress Protection:	Ex i Ex e	IP20 IP54

APPROVALS

Accuracy Classes: (RTD - IEC 60751)	Class A: Class B: 1/2 Class B: 1/3 Class B:	±(0,15 + 0,0020 * |t|) ±(0,30 + 0,0050 * |t|) ±(0,15 + 0,0025 * |t|) ±(0,10 + 0,0017 * |t|)	
Accuracy Classes: (TC - ANSI MC 96.1)		Standard	Special
	Type J	±2,2 °C or ±0,0075 * |t|	±1,1 °C or ±0,0040 * |t|
	Type E	±1,7 °C or ±0,0050 * |t|	±1,0 °C or ±0,0075 * |t|
	Type K	±2,2 °C or ±0,0075 * |t|	±1,1 °C or ±0,0040 * |t|
	Type N	±2,2 °C or ±0,0040 * |t|	±1,1 °C or ±0,0040 * |t|

ashcroft.eu
sales@ashcroft.com
+49 (0) 2401/808-0

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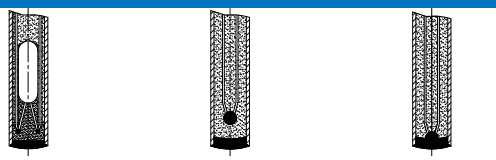
APPROVALS

Accuracy Classes: (TC - IEC 60584-2)		Class 1	Class 2	Class 3
	Type J	±1,5 °C or ±0,0040 * |t|	±2,5 °C or ±0,0075 * |t|	N/A
	Type E	±1,5 °C or ±0,0040 * |t|	±2,5 °C or ±0,0075 * |t|	±2,5 °C or ±0,0150 * |t|
	Type K	±1,5 °C or ±0,0040 * |t|	±2,5 °C or ±0,0075 * |t|	±2,5 °C or ±0,0040 * |t|
	Type N	±1,5 °C or ±0,0040 * |t|	±2,5 °C or ±0,0040 * |t|	±2,5 °C or ±0,0150 * |t|

APPROVALS

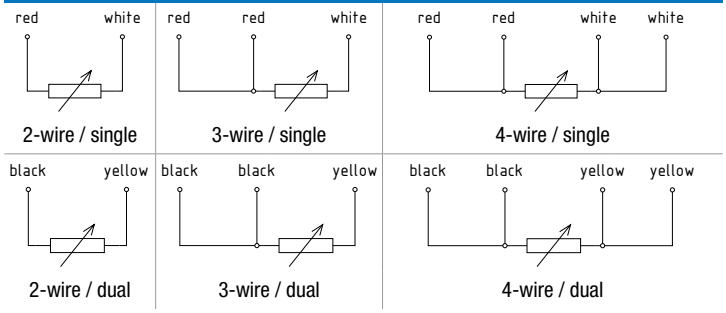
Available Approvals:	FM, ATEX, IECEx, SIL2, INMETRO, EAC, CCC, AMI, ExNEPSI
FM Intrinsically safe: Class I, Division 1, Groups A, B, C, D	T4 for -55 °C ≤ Ta ≤ +80 °C T5 for -55 °C ≤ Ta ≤ +55 °C T6 for -55 °C ≤ Ta ≤ +40 °C
FM Nonincedive: Class I, Division 2, Groups A, B, C, D	T4 for -55 °C ≤ Ta ≤ +80 °C T5 for -55 °C ≤ Ta ≤ +55 °C T6 for -55 °C ≤ Ta ≤ +40 °C
ATEX or IECEx:	II 1 G Ex ia IIC T6 Ga -50 °C to +60 °C II 2 G Ex ib IIC T6 Gb -50 °C to +60 °C II 2 G Ex e IIC T6 Gb -55 °C to +60 °C

SENSING ELEMENT TYPES



RTD | TC - ungrounded | TC - grounded

MEASUREMENT CIRCUITS - COLOR IDENTIFICATION FOR RTD



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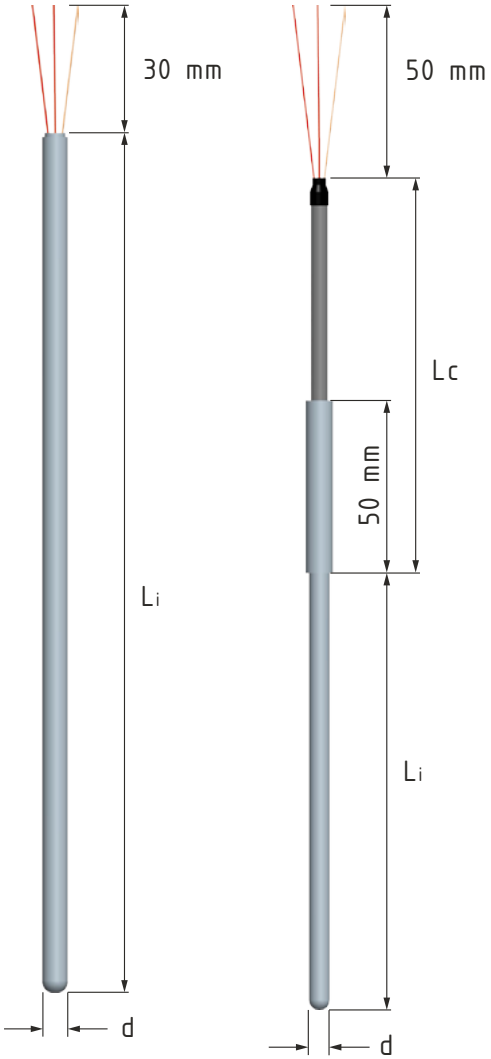
DIMENSIONS IN MM [INCH]

For reference only, consult Ashcroft for specific dimensional drawings



HOW TO ORDER S81 TEMPERATURE PROBES:

- The ordering code is built by selecting the appropriate configuration for the various sections of the ordering code.
- The insert nominal length L is measured from base of the lead wire transition piece to the tip of the probe.
- The lead wire length LC is measured for the base of the lead wire transition piece to the end of the lead wire jacket.
- The L length and the LC length are added to the end of the ordering code in millimeters.

d = Stem diameter
LC = Length lead wire
L = Insertion length

Ashcroft Instruments GmbH • sales@ashcroft.com • www.ashcroft.eu
Deutschland / Germany
Max-Planck-Str. 1
D-52499 Baesweiler
Tel.: +49 (0) 2401 808-0

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