

Data Sheet

S81 RTD Temperature Probes

RTD Temperature probes with mineral insulation, available with optional connectors.

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
- Available with remote heads and flex armor

DESCRIPTION

These probes may be supplied with either single or dual elements. The probe can be supplied with extension lead wire, process connection connectors. The lead wires can be PVC, silicone, PTFE or fiberglass insulation.

SPECIFICATIONS

Sheath Stem Diameter: 1/8", 3/16", 1/4", 3 mm, 4.5 mm, 6 mm, 8 mm

Stem Length: Minimum: 50 mm/2 in
Maximum: 3 m/120 in

Sensor Type & Measuring Range
RTDs Platinum 385 Curve
Pt 100, -200 to 600 °C
Pt 1000, -40 to 600 °C

Wiring Configuration: RTDs (single or dual)
2-wire
3-wire
4-wire

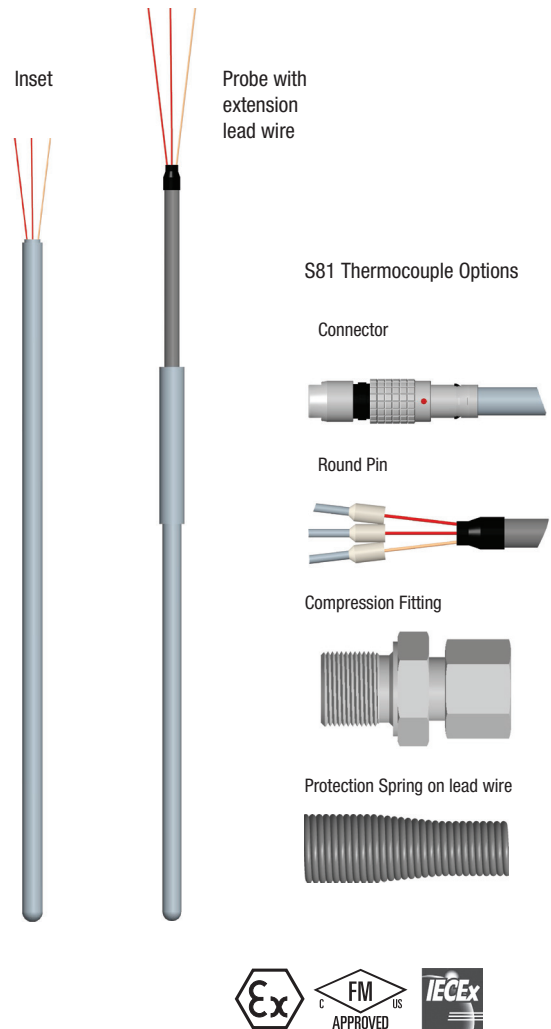
Accuracy Class
RTDs (IEC 60751)
Class A
Class B
Class AA

OPTIONAL APPROVALS

FM Intrinsically safe: Class I, Division 1, Groups A, B, C, D
T4 for $-55\text{ °C} \leq T_a \leq 80\text{ °C}$
T5 for $-55\text{ °C} \leq T_a \leq 55\text{ °C}$
T6 for $-55\text{ °C} \leq T_a \leq 40\text{ °C}$

FM Nonincendive: Class I, Division 2, Groups A, B, C, D
T4 for $-55\text{ °C} \leq T_a \leq 80\text{ °C}$
T5 for $-55\text{ °C} \leq T_a \leq 55\text{ °C}$
T6 for $-55\text{ °C} \leq T_a \leq 40\text{ °C}$

ATEX or IECEx: 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



KEY BENEFITS

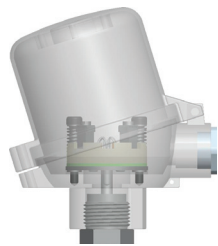
- Flexible designs for critical applications
- Highly accurate and repeatable

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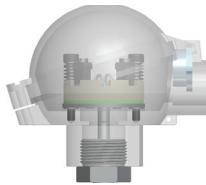
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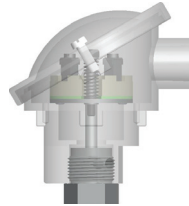
OPTIONAL S81 HEADS



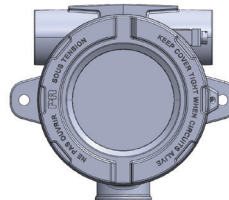
BUZH-AL
Type E



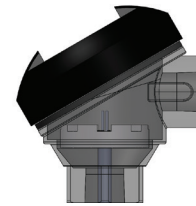
BUZH-AL
Type D



DIN B
Type B



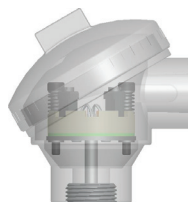
PR 7501 with display
Type P



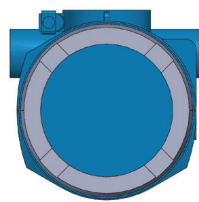
Cast Iron
Type Y



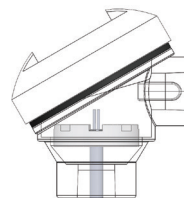
SCCA-AL
Type N



SCCI-Stainless Steel
Type G



E&H Display Housing
Type H



Polypropylene
Type A

OPTIONAL APPROVALS

FM Intrinsically Safe: Class I, Division 1, Groups A, B, C, D
T4 for $-55\text{ °C} \leq T_a \leq 80\text{ °C}$
T5 for $-55\text{ °C} \leq T_a \leq 55\text{ °C}$
T6 for $-55\text{ °C} \leq T_a \leq 40\text{ °C}$

FM Non-Incendive: Class I, Division 2, Groups A, B, C, D
T4 for $-55\text{ °C} \leq T_a \leq 80\text{ °C}$
T5 for $-55\text{ °C} \leq T_a \leq 55\text{ °C}$
T6 for $-55\text{ °C} \leq T_a \leq 40\text{ °C}$

ATEX or IECEx: 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
II 2 G Ex d IIC T6 Gb -55 °C to 60 °C

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ORDERING CODE	Example:	S81	1	T	1	A	A	B	A	7	2	Cont. on next page
Area Classification												
1 - Standard -General Purpose			1									
3 - Intrinsic Safety - ia												
B - Intrinsic Safety - ib												
E - Increased Safety												
N - Non-Incendive												
Sheath Diameter												
R - 1/8" Ø3.18 mm												
S - 3/16" Ø4.76 mm												
T - 1/4" Ø6.35 mm				T								
3 - 3 mm												
4 - 4.5 mm												
6 - 6 mm												
8 - 8 mm												
RTD Type												
1 - Pt 100					1							
2 - Ni 120												
3 - Pt 1000												
Accuracy or Class (IEC 60751)												
A - Class A						A						
B - Class B												
C - 1/2 DIN												
D - Class AA - 1/3 DIN												
RTD Element/Range												
A - -50 to 400 °C							A					
B - -200 to 600 °C												
D - Vibration-proof												
Electrical Circuit												
A - Single 2-wire												
B - Single 3-wire								B				
C - Single 4-wire												
D - Dual 2-wire												
E - Dual 3-wire												
F - Dual 4-wire												
Sheath Material												
A - AISI 316/1.4404									A			
Wire Termination												
7 - Stripped										7		
8 - With flat pin												
9 - With round pin												
F - With plug LEMO type FFA.1S												
P - With socket LEMO type PCA.1S												
D - With plug and socket LEMO on inset												
Connector Strain Relief												
- - Non-applicable (no connector)												
1 - Crimp - Braze adapter (for use with flex armor and no wire options)												
2 - Grommet - for regular wire option, with no flex armor											2	
3 - Bracket - for regular wire option, with no flex armor												

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ORDERING CODE	Example: (Continued)	B	X	X	-	M	M	C3	3	-	3P	T	LC=900	L=400
Remote Head Type														
- - Non-applicable (no remote head)													Lead wire length in mm	Insertion length in mm
G - SCCI Stainless steel														
N - SCCA Aluminum														
B - DIN B Aluminum		B												
D - BUZ Aluminum														
E - BUZH Aluminum														
P - PR 7501 (N/A with FM approval)														
Y - Cast iron (N/A with FM approval)														
A - Polypropylene (N/A with FM approval)														
H - E&H Housing (N/A with FM approval)														
Length Probe														
X - L=(min=50, max=10000) (add actual length in mm L=?? at the end of ordering code)			X											
Length Cable														
X - Lc=(min=100, max=10000) (add actual length in mm LC=?? at the end of ordering code)				X										
Flex Armor														
- - Without					-									
1 - With flex armor														
2 - Flex armor with PVC jacket														
Lead Wire														
M - PVC						M								
N - Silicon														
O - PTFE														
P - Fiberglass														
- - Without														
Lead Wire Options														
M - With protective spring on lead wire							M							
N - Without protective spring on lead wire														
O - Electrically shielded, with protective spring														
P - Electrically shielded, without protective spring														
Q - With stainless steel braided cover, with protective spring														
R - With stainless steel braided cover, without protective spring														
- - Without														
Process Connection														
-- - Without connection														
C1 - Compression fitting ¼ NPT, AISI 316														
C2 - Adjustable compression fitting with gland TFE ¼" AISI 316														
C3 - Compression fitting ½ NPT, AISI 316								C3						
C4 - Adjustable compression fitting with gland TFE ½" AISI 316														
B1 - Non-adjustable compression fitting ¼ NPT, brass														
B2 - Adjustable compression fitting with gland TFE ¼" brass														
B3 - Non-adjustable compression fitting ½ NPT, brass														
B4 - Adjustable compression fitting with gland TFE ½" brass														
A1 - Compression fitting G ¼" AISI 316														
A3 - Compression fitting G ½" AISI 316														
Y1 - Adjustable spring loaded, double thread ½ NPT, AISI 316														
3														3
Certifications														
- - None required														
F - FM														
A - ATEX														
X - IECEx														
S - SIL 2 + ATEX														
I - INMETRO														
D - ATEX + IECEx														
2 - SIL 2														
P - EAC (Gost R) + Metrological Russia														
Calibration Report														
- - Without														
3P - 3 points single														3P
5P - 5 points single														
3D - 3 points dual														
5D - 5 points dual														
Tagging														
- - Without														
T - Label in stainless steel with tag														T

Lead wire length in mm
Insertion length in mm
mm = inches x 25.4

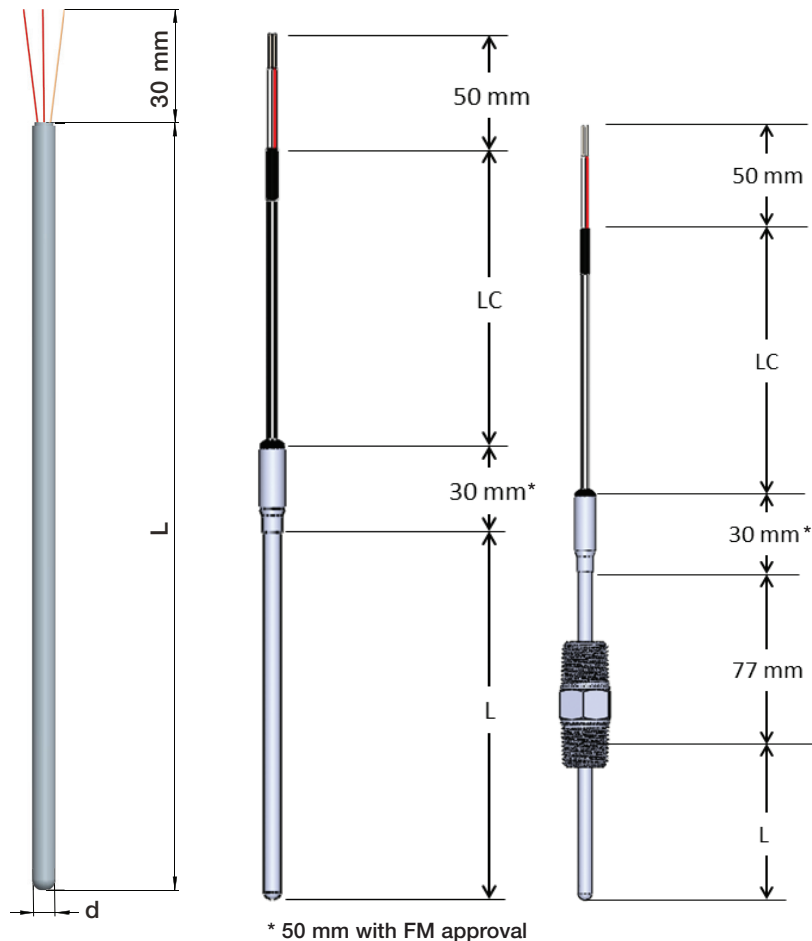
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DIMENSIONS in [] are millimeters

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 top of the cable transition piece or center of threads 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.
- To convert inches to millimeters multiply by 25.4.
 $\text{mm} = \text{inches} \times 25.4$
- Custom configurations are available.

d = Stem diameter

LC = Length lead wire

L = Insertion length