

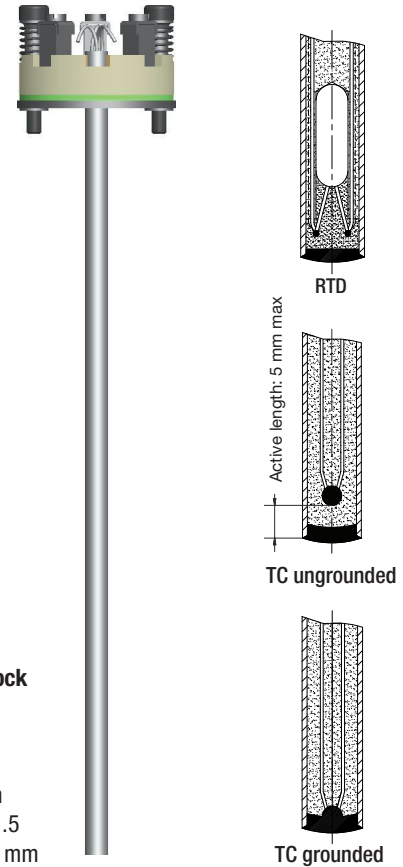
S01 RTD & Thermocouple Inserts

TYPICAL USES

- For industrial applications used for probe replacements
- Special designs for intrinsically safe and non-incendive application

DESCRIPTION

The sensors incorporated in these inserts are with a mineral insulation metal sheath. They can be of two types: resistance temperature detectors (RTDs) or thermocouples (TCs). In each case, the sensor supplies an electrical signal corresponding to the temperature. Integral DIN style terminal block and transmitter designs. The travel of this spring mounting assures best thermal conductivity, compensation of length tolerances in thermowells and protection against vibration. When mounted in thermowells, inserts can be simply replaced, without removing the thermowell from the pipe and without any process interruption.



Ceramic terminal block or transmitter :

Size DIN B
Diam. 42 mm
Screw spring : 33 mm
Screw thread : M4 x 1.5
Spring travel : 8 to 10 mm



SPECIFICATIONS

Ashcroft Series:	S01
Insert 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 Pt 100 -200 to 600 °C Pt 1000 -40 to 600°C Thermocouples Type J -40 to 750 °C Type E -200 to 800 °C Type K -200 to 1200 °C Type N 0 to 1200 °C Type T -200 to 350 °C
Wiring Configuration:	RTDs single or dual 2 Wire 3 Wire 4 Wire Thermocouples 2 Wire single or dual
Accuracy Class	RTD's (IEC 60751) Class A: ±(0.15 + 0.0020 t) Class B: ±(0.30 + 0.0050 t) Class AA: ±(0.10 + 0.0017 t)

KEY BENEFITS

- Flexible designs for critical applications.
- Fast response times

Thermocouples (ASTM E230)

	Type J	Type K	Type E	Type N
Standard	±2.2 °C or ±0.0075* t ⁽¹⁾	±2.2 °C or ±0.0075* t ⁽¹⁾	±1.7 °C or ±0.0050* t ⁽¹⁾	±2.2 °C or ±0.0040* t ⁽¹⁾
Special	±1.1 °C or ±0.0040* t ⁽¹⁾	±1.1 °C or ±0.0040* t ⁽¹⁾	±1.0 °C or ±0.0075* t ⁽¹⁾	±1.1 °C or ±0.0040* t ⁽¹⁾

Thermocouples (IEC 60584-2)

	Type J	Type K	Type E	Type N
Class 1	±1.5 °C or ±0.0040* t ⁽¹⁾	±1.5 °C or ±0.0040* t ⁽¹⁾	±1.5 °C or ±0.0040* t ⁽¹⁾	±1.5 °C or ±0.0040* t ⁽¹⁾
Class 2	±2.5 °C or ±0.0075* t ⁽¹⁾	±2.5 °C or ±0.0075* t ⁽¹⁾	±2.5 °C or ±0.0075* t ⁽¹⁾	±2.5 °C or ±0.0040* t ⁽¹⁾
Class 3	N/A	±2.5 °C or ±0.0040* t ⁽¹⁾	±2.5 °C or ±0.0150* t ⁽¹⁾	±2.5 °C or ±0.0150* t ⁽¹⁾

(1) Absolute temperature in °C

S01 RTD & Thermocouple Inserts**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 Ashcroft Series: $55\text{ °C} \leq T_a \leq 55\text{ °C}$
T6 for Ashcroft Series: $55\text{ °C} \leq T_a \leq 40\text{ °C}$

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

Data Sheet

S01 RTD & Thermocouple Inserts

S01 RTD ORDERING CODE	Example:	S01	1	T	1	A	A	B	A	B	--	X	-----	
Area Classification														Continued on next page
1 - Standard			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														
3 - 3 mm														
4 - 4.5 mm														
6 - 6 mm														
8 - 8 mm														
RTD Type														
1 - Pt 100 Platinum 385 temperature coefficient					1									
2 - Ni 120														
3 - Pt 1000 Platinum 385 temperature coefficient														
Accuracy or Class (IEC 60751)														
A - Class A (-100 to 450 °C wire wound RTD)(-30 to 300 °C thin film RTD)						A								
B - Class B (-196 to 600 °C wire wound RTD)(-50 to 500 °C thin film RTD)														
D - Class AA - 1/3 DIN (-50 to 250 °C wire wound RTD)(0 to 150 °C thin film)														
RTD Element/Range														
A - RTD - -50/+500 °C							A							
B - RTD - -196/+600 °C														
D - RTD -vibrations-proof														
Electrical Circuit														
A - Single 2 wires														
B - Single 3 wires								B						
C - Single 4 wires														
D - Dual 2 wires														
E - Dual 3 wires														
F - Dual 4 wires														
Sheath Material														
A - AISI 316L / 1.4404									A					
Head Type														
A - Dimension DIN A														
B - Dimension DIN B										B				
--											--			
Insert Nominal Length														
X - Li=(min=100, max=100000) (add actual length LI=?? at the end of ordering code)												X		
-----													-----	

Data Sheet

S01 RTD & Thermocouple Inserts

S01 RTD ORDERING CODE Example: Continued)	1	-	3p	T
Electrical Connection				
-- With terminal block				
1 - With transmitter - Not available with FM IS or NI approvals	1			
3 - Without terminal block, with flying leads				
Certifications				
-- None		-		
F - FM				
2 - SIL 2				
A - ATEX				
S - SIL 2 + ATEX				
I - INMETRO				
X - IECEX				
D - ATEX + IECEX				
Calibration Report				
-- Without				
3P - 3 points			3P	
5P - 5 points				
3D - 3 points				
5D - 5 points				
Tagging				
-- Without				
T - Label in stainless steel with tag				T

LI=400

Nominal length in mm

mm = inches x 25.4

Prices subject to change without notice • All prices subject to escalation

Data Sheet

S01 RTD & Thermocouple Inserts

S01 TC ORDERING CODE	Example:	S01	S	T	K	N	1	1	3	B	--
Area Classification											
S - Standard			S								
J - 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											
Thermocouple Type											
E - Temperature range: -200 to 800 °C											
J - Temperature range: -40 to 750 °C											
K - Temperature range: -200 to 1,200 °C					K						
N - Temperature range: 0 to 1,200 °C											
T - Temperature range: -200 to 350 °C											
Accuracy or Class											
N - ASTM E230: Standard limits											
S - ASTM E230: Special limits											
1 - IEC 60584-2: class 1											
2 - IEC 60584-2: class 2										N	
3 - IEC 60584-2: class 3											
Junction											
1 - Ungrounded											1
2 - Grounded											
3 - Ungrounded, vibration-proof											
4 - Grounded, vibration-proof											
Electrical Circuit											
1 - Single											1
2 - Dual											
Sheath Material											
1 - AISI 316/ 1.4401											
3 - Inconel 600/ 2.4816											3
Head Type											
A - Dimension DIN A											
B - Dimension DIN B											B
--											--

Data Sheet

S01 RTD & Thermocouple Inserts

S01 TC ORDERING CODE	Example: (Cont'd)	X	-----	1	-	3P	T	LI=600
Insert Nominal Length								
X - Li=... (min=50, max=100000).								
(add actual nominal length LI=?? at end of ordering code)								

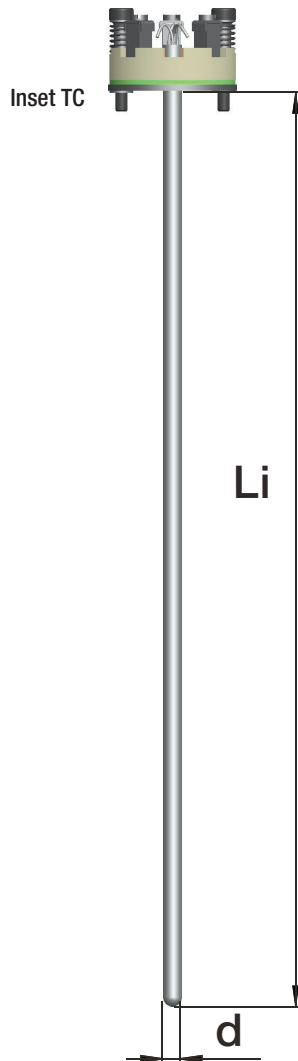
Electrical Connection								
- - With terminal block								
1 - With transmitter								
3 - Without terminal block, with flying leads								
Certifications								
- - None required								
F - FM								
A - ATEX								
X - IECEX								
S - SIL 2 + ATEX								
I - INMETRO								
D - ATEX + IECEX								
2 - SIL 2								
Calibration Report								
-- - without								
3P - 3 points								
5P - 5 points								
3D - 3 points								
5D - 5 points								
Tagging								
- - without								
T - Label in stainless steel with tag								
Consult factory for other configurations								

Nominal length in mm
mm = inches x 25.4

S01 RTD & Thermocouple Inserts

DIMENSIONS in [] are millimeters

For reference only, consult Ashcroft for specific dimensional drawings



HOW TO ORDER S01 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_i is measured from base of the DIN mounting plate to the tip of the probe.
- To convert inches to millimeters multiply by 25.4.
 $\text{mm} = \text{inches} \times 25.4$

d = Stem diameter

L_i = Insert Nominal Length