ASHCROFT®
Trust the shield.®

S50 Electrical Thermometer for RTD and Thermocouples

TYPICAL USES

- Choice of single or dual RTDs
- Sensor Types: Pt100, and Pt1000
- Metric Stem Diameters: 3 mm, 4.5 mm, 6 mm, 8 mm, 1/8", 3/16" and 1/4"
- Head Types: DIN B, BUZ, BUZH, Ex d, SCCI and SCCA
- High accuracy sensors available
- Wide selection of aluminum alloy or 316 SS connection heads
- ASME style lag extensions
- Available stainless steel tags with customer specified information

DESCRIPTION

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

Ex d Head with Nipple-Union-Nipple extension

SCCA Head

SPECIFICATIONS

Model:	S50	
Stem Diameter:	3 mm, 4.5 mm, 6 mm, 8 mm, 1/8", 3/16", 1/4"	
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)	
Lag Extension:	Nipple Nipple-Union-Nipple Telescopic	40 or 100 mm 120 mm 125 to 200 mm
Cable Entry:	Cable gland in Nickel-plated brass, plastic or stainless steel	
Sensore Types and max. Range: (single and dual)	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	
Electrical Connection:	Ceramic terminal block Spring loaded with 8 to 10 mm travel	
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	
Ambient Temperature:	-40 to 85 °C	

KEY BENEFITS

- **Designed for ASME style thermowells**
- **Manufactured to IEC 60751**

ACCURACY CLASSES

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|
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|

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

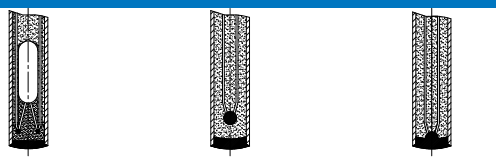
ASHCROFT®
Trust the shield.®

S50 Electrical Thermometer for RTD and Thermocouples

APPROVALS

Available Approvals:	FM, ATEX, IECEx, SIL2, INMETRO, EAC, CCC, AMI, ExNEPSI
FM Explosion proof: Class I, Division 1, Groups A, B, C, D	T4 for -40 °C ≤ Ta ≤ +80 °C T6 for -40 °C ≤ Ta ≤ +60 °C
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 II 2 G Ex d IIC T6 Gb -55 °C to +60 °C

SENSING ELEMENT TYPES

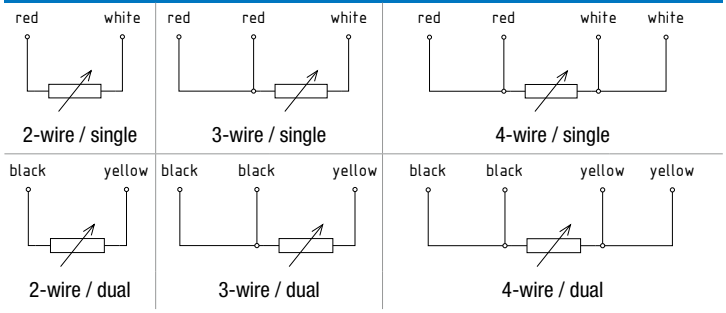


RTD | TC - ungrounded | TC - grounded

MINIMUM IMMERSION LENGTH

Type & Inserts Ø	in liquid	in gas/vapour
RTD Ø 3 mm	45 mm	55 mm
RTD Ø 6 mm	60 mm	75 mm
TC Ø 3 mm	15 mm	25 mm
TC Ø 6 mm	30 mm	50 mm

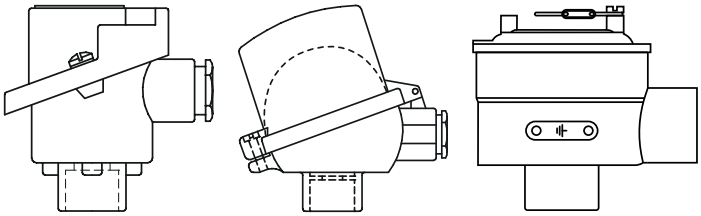
MEASUREMENT CIRCUITS - COLOR IDENTIFICATION FOR RTD



2-wire / single | 3-wire / single | 4-wire / single

2-wire / dual | 3-wire / dual | 4-wire / dual

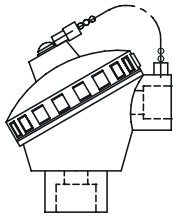
HEAD TYPES



DIN B - IP66
Aluminum alloy

BUZ / BUZH - IP66...68
Aluminum alloy

Ex(d) - IP66
Aluminum alloy /
Stainless steel 316



SCCA / SCCI - IP67
Aluminum alloy /
Stainless steel 316

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

For more information on support and local partners please visit our web page at ashcroft.eu or follow the QR-Code

ASHCROFT®
Trust the shield.®

S50 Electrical Thermometer for RTD and Thermocouples

IP RATING MATRIX

HEAD TYPE	MATERIAL	CABLE ENTRY	CABLE GLAND	IP RATING
DIN B	Aluminum epoxy coated	M20x1,5	without	IP 00
			Polyamide PA	IP66
			Nickel-plated brass	IP66
			Stainless steel	IP66
		PG16	without	
			Polyamide PA	
			Nickel-plated brass	
		1/2 NPT	without	
			Polyamide PA	
			Nickel-plated brass	
			Stainless steel	
BUZ/BUZH	Aluminum epoxy coated	M20x1,5	without	IP 00
			Polyamide PA	IP66
			Nickel-plated brass	IP66
			Stainless steel	IP66
		PG16	without	
			Polyamide PA	
			Nickel-plated brass	
		1/2 NPT	without	
			Polyamide PA	
			Nickel-plated brass	
			Stainless steel	
Ex(d)	Aluminum epoxy coated Stainless steel	M20x1,5	without	IP 00
			Nickel-plated brass	IP66
			Stainless steel	IP66
		1/2 NPT	without	
			Nickel-plated brass	
			Stainless steel	
		3/4 NPT	without	
			Nickel-plated brass	
			Stainless steel	
SCCA SCCI[1)]	Aluminum epoxy coated Stainless steel	M20x1,5	without	IP 00
			Polyamide PA	IP66
			Nickel-plated brass	IP66
			Stainless steel	IP66
		1/2 NPT	without	
			Polyamide PA	
			Nickel-plated brass	
			Stainless steel	
		3/4 NPT	without	
			Nickel-plated brass	
			Stainless steel	

[1)]Stainless steel head type not compatible with Nickel-plated brass cable gland

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

For more information on support and local partners please visit our web page at ashcroft.eu or follow the QR-Code

ASHCROFT®
Trust the shield.®

S50 Electrical Thermometer for RTD and Thermocouples

LAG EXTENSION	CONNECTION TO HEAD	CONNECTION TO THERMOWELL	STANDARD LENGTH
DIN Ø11/7	M24x1,5	G 1/2	150 mm
		M14x1,5	
		M18x1,5	
DIN Ø14/11	M24x1,5	G 1/2	
		M18x1,5	
without	M24x1,5	G 1/2	16 mm
		G 3/4	
		M14x1,5	
		M18x1,5	
		1/2 NPT	27 mm
		Compression fitting G 1/2	0 mm
		Compression fitting 1/2 NPT	

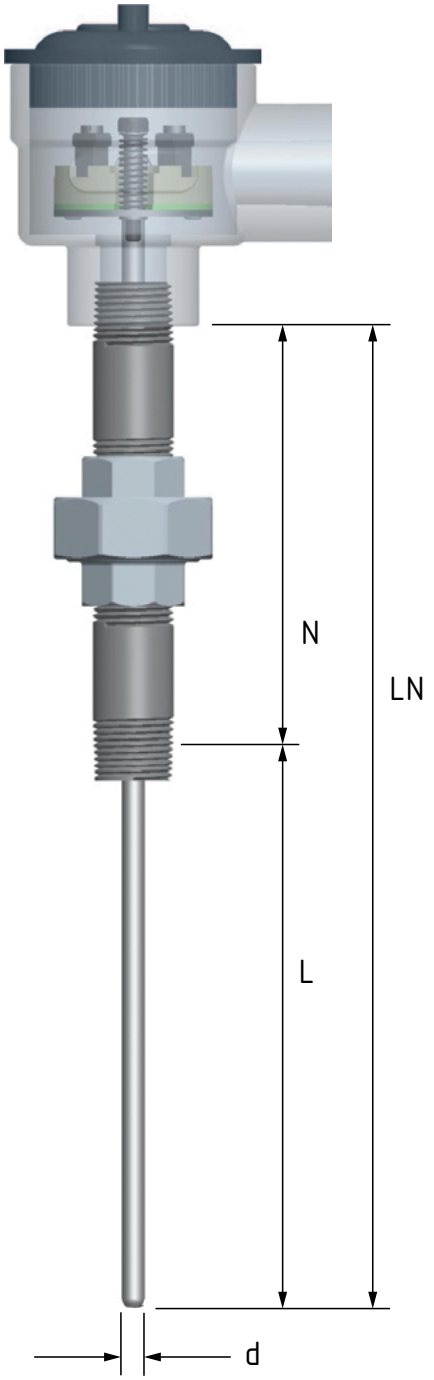
Ashcroft Instruments GmbH • sales@ashcroft.com • www.ashcroft.eu
Deutschland / Germany
Max-Planck-Str. 1
D-52499 Baesweiler
Tel.: +49 (0) 2401 808-0

For more information on support and local partners please visit our web page at ashcroft.eu or follow the QR-Code

S50 Electrical Thermometer for RTD and Thermocouples

DIMENSIONS IN MM [INCH]

For reference only, consult Ashcroft for specific dimensional drawings



HOW TO ORDER S50 TEMPERATURE PROBES:

- The ordering code is built by selecting the appropriate configuration for the various sections of the ordering code.
- The Insert nominal length LN is measured from base of the head to the tip of the probe.
- The lag extension length N is measured from the base of the head to the center of the threads on the lag extension.
- LN can be calculated by adding the Lag extension length N to the Probe insertion length L.
- The N length and the LN length are added to the end of the product code in millimeters.

d = Stem diameter
N = Lag Extension Length
L = Insertion Length
LN = Insert Nominal Length
LN = N + L

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

For more information on support and local partners please visit our web page at ashcroft.eu or follow the QR-Code