

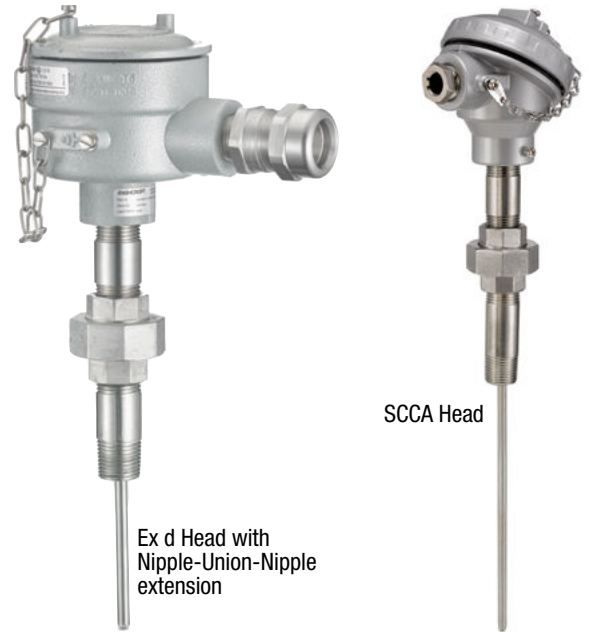
S50 Electrical Thermometer for RTD and Thermocouples

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



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	40 or 100 mm	
	Nipple-Union-Nipple	120 mm	
	Telescopic	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	-200 up to 600 °C	
	Pt1000	-40 up to 600 °C	
	Thermocouples:		
	Type J	-40 up to 750 °C	
	Type E	-200 up to 800 °C	
	Type K	-200 up to 1000 °C	
	Type N	-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 $\geq 100 \text{ M}\Omega$ with U = 250 VDC For TC $\geq 1 \text{ G}\Omega$ with U = 500 VDC		
Sensitive Length of RTD:	7 to 40 mm		
Thermocouple:	< 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:	$\pm(0,15 + 0,0020 * \text{Itl})$
	Class B:	$\pm(0,30 + 0,0050 * \text{Itl})$
	1/2 Class B:	$\pm(0,15 + 0,0025 * \text{Itl})$
	1/3 Class B:	$\pm(0,10 + 0,0017 * \text{Itl})$

Accuracy Classes: (TC - ANSI MC 96.1)	Standard	Special
Type J	$\pm 2,2 \text{ }^\circ\text{C}$ or $\pm 0,0075 * \text{Itl}$	$\pm 1,1 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$
Type E	$\pm 1,7 \text{ }^\circ\text{C}$ or $\pm 0,0050 * \text{Itl}$	$\pm 1,0 \text{ }^\circ\text{C}$ or $\pm 0,0075 * \text{Itl}$
Type K	$\pm 2,2 \text{ }^\circ\text{C}$ or $\pm 0,0075 * \text{Itl}$	$\pm 1,1 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$
Type N	$\pm 2,2 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$	$\pm 1,1 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$

Accuracy Classes: (TC - IEC 60584-2)	Class 1	Class 2	Class 3
Type J	$\pm 1,5 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0075 * \text{Itl}$	N/A
Type E	$\pm 1,5 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0075 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0150 * \text{Itl}$
Type K	$\pm 1,5 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0075 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$
Type N	$\pm 1,5 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0040 * \text{Itl}$	$\pm 2,5 \text{ }^\circ\text{C}$ or $\pm 0,0150 * \text{Itl}$

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APPROVALS

Available Approvals: FM, ATEX, IECEx, SIL2, INMETRO, EAC, CCC, AMI, ExNEPSI

FM Explosion proof: T4 for $-40\text{ °C} \leq T_a \leq +80\text{ °C}$
 Class I, Division 1, T6 for $-40\text{ °C} \leq T_a \leq +60\text{ °C}$
 Groups A, B, C, D

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

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

ATEX or IECEx: II 1 G Ex ia IIC T6 Ga -50 °C to $+60\text{ °C}$
 II 2 G Ex ib IIC T6 Gb -50 °C to $+60\text{ °C}$
 II 2 G Ex e IIC T6 Gb -55 °C to $+60\text{ °C}$
 II 2 G Ex d IIC T6 Gb -55 °C to $+60\text{ °C}$



SENSING ELEMENT TYPES



RTD



TC - ungrounded

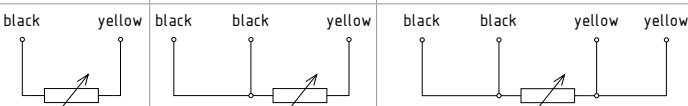
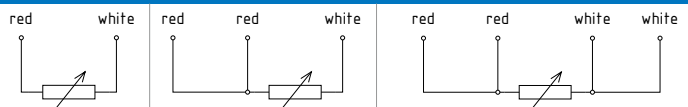


TC - grounded

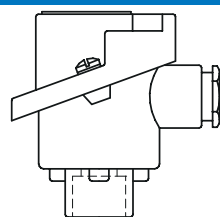
MINIMUM IMMERSION LENGTH

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

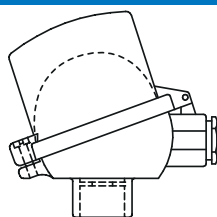
MEASUREMENT CIRCUITS - COLOR IDENTIFICATION FOR RTD



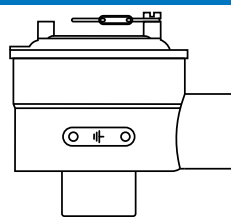
HEAD TYPES



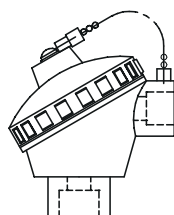
DIN B - IP66
Aluminum alloy



BUZ / BUZH - IP66...68
Aluminum alloy



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



SCCA / SCCI - IP67
Aluminum alloy /
Stainless steel 316



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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	
	1/2 NPT	PG16	Nickel-plated brass	
			without	
		1/2 NPT	Polyamide PA	
			Nickel-plated brass	
			without	
			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	
	1/2 NPT	PG16	Nickel-plated brass	
			without	
		1/2 NPT	Polyamide PA	
			Nickel-plated brass	
			without	
			Stainless steel	
Ex(d)	Aluminum epoxy coated	M20x1,5	without	IP 00
			Nickel-plated brass	IP66
			Stainless steel	IP66
		1/2 NPT	without	
			Nickel-plated brass	
			Stainless steel	
	Stainless steel	1/2 NPT	without	
			Nickel-plated brass	
			Stainless steel	
		3/4 NPT	without	
			Nickel-plated brass	
			Stainless steel	
SCCA SCC ¹⁾	Aluminum epoxy coated	M20x1,5	without	IP 00
			Polyamide PA	IP66
			Nickel-plated brass	IP66
			Stainless steel	IP66
		1/2 NPT	without	
			Polyamide PA	
	Stainless steel	1/2 NPT	Nickel-plated brass	
			Stainless steel	
		3/4 NPT	without	
			Nickel-plated brass	
			without	
			Stainless steel	

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


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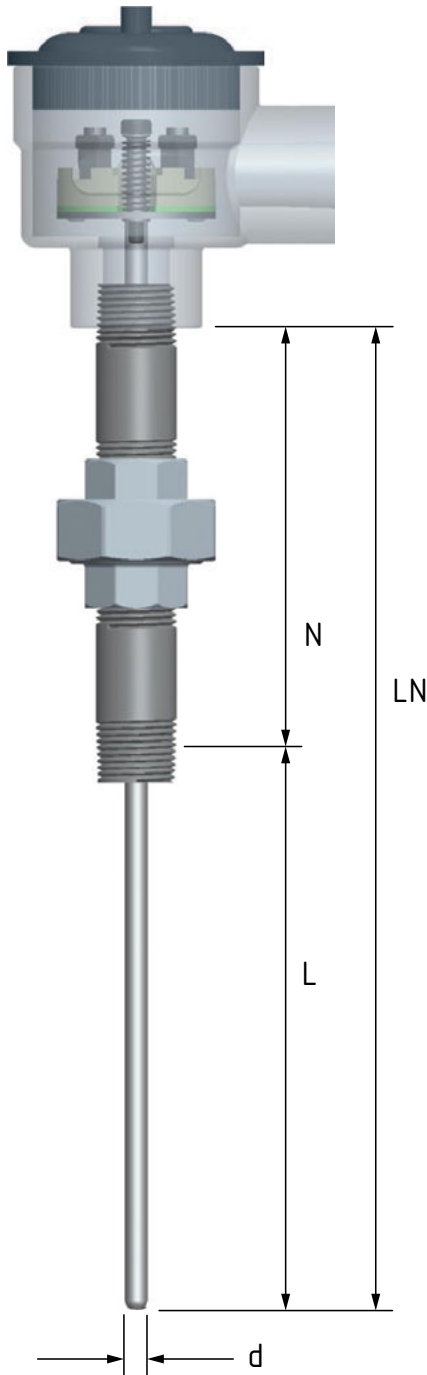
LAG EXTENSION	CONNECTION TO HEAD	CONNECTION TO THERMOWELL	STANDARD LENGTH
DIN Ø11/7	M24x1,5	G 1/2	150 mm
		M14x1,5	
		M18x1,5	
DIN Ø14/11	M24x1,5	G 1/2	16 mm
		M18x1,5	
without	M24x1,5	G 1/2	27 mm
		G 3/4	
		M14x1,5	
		M18x1,5	
		1/2 NPT	0 mm
Compression fitting G 1/2	0 mm		
Compression fitting 1/2 NPT			



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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

