

Type AR10 RTDs & AT10 Thermocouples, for Standard Processes



with DIN
lag extension



Interior View

APPLICATIONS

- *Process temperature measurements for power generation.*
- *Exhaust gas temperature measurements for diesel engines.*
- *Bearing temperature measurements for turbines.*
- *Oven temperature measurements for industrial drying ovens.*

DESCRIPTION

The Ashcroft AT10 and AR10 temperature sensor assemblies provide accurate temperature measurements for most applications. Each temperature sensor assembly consists of a spring loaded temperature sensor insert, a connection head and lag extension. The assembly may also include an optional terminal block for wiring and/or transmitters. Thermocouple assemblies are manufactured to either to IEC 60584-2 or ANSI MC 96.1 and RTD assemblies are manufactured to IEC 60751.

SPECIFICATIONS

- Ashcroft Series:** AT10 & AR10
- Insert Stem Diameter:**
3 mm, 4.5 mm, 6 mm, 8mm
- Stem Length:**
Minimum: 0.05 m/2 in.
Maximum: 100 m/3937 in.
- Sensor Type & Measuring Range:**
AR10 RTDs
Pt 100 -200 to +600°C
Pt 1000 -40 to +600°C
AT10 Thermocouples
Type J -40 to +750°C
Type E -200 to +800°C
Type K -200 to +1100°C
Type N -200 to +1100°C
- Wiring Configuration**
AR10 RTDs
2 wire
3 wire
4 wire
AT10 Thermocouple
2 wire
- Optional Approvals (pending)**
IEC 60079-11
ATEX: Ex ia IIC T6
IECEX: Ex ia IIC T6 Ga
- Accuracy Class:**
AR10 RTDs (IEC 60751)
Class A: $\pm(0.15 + 0.0020 * t)^{(1)}$
Class B: $\pm(0.30 + 0.0050 * t)^{(1)}$
1/2 Class B: $\pm(0.15 + 0.0025 * t)^{(1)}$
1/3 Class B: $\pm(0.10 + 0.0017 * t)^{(1)}$

AT10 Thermocouples (IEC 60584-2)

	Type J	Type K	Type T	Type E	Type N
Class 1	$\pm 1.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 0.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$
Class 2	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 1.0^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$
Class 3	N/A	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.0^{\circ}\text{C}$ or $\pm 0.0150 * t^{(1)}$	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0150 * t^{(1)}$	$\pm 2.5^{\circ}\text{C}$ or $\pm 0.0150 * t^{(1)}$

AT10 Thermocouples (ANSI MC 96.1)

	Type J	Type K	Type T	Type E	Type N
Standard	$\pm 2.2^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 2.2^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 1.0^{\circ}\text{C}$ or $\pm 0.0075 * t^{(1)}$	$\pm 1.7^{\circ}\text{C}$ or $\pm 0.0050 * t^{(1)}$	$\pm 2.2^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$
Special	$\pm 1.1^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.1^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 0.5^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.0^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$	$\pm 1.1^{\circ}\text{C}$ or $\pm 0.0040 * t^{(1)}$

(1) Absolute temperature in °C

Type AR10 RTDs Part Number Coding

1. TYPE

ITEM	DESCRIPTION
1	Standard
3	Ex ia IIC T6 Ga

2. STEM DIAMETER (e)

ITEM	DESCRIPTION
3	3 mm
4	4.5 mm
6	6 mm
8	8 mm

3. SENSOR

ITEM	DESCRIPTION
1	Pt 100
2	Pt 1000

4. ACCURACY CLASS

ITEM	DESCRIPTION
A	Class A
B	Class B
C	1/2 Class B
D	1/3 Class B

5. SENSING ELEMENT

ITEM	DESCRIPTION
A	-50 to +400°C
B	-200 to +600°C
D	Vibration resistant

6. WIRING CONFIGURATION

ITEM	DESCRIPTION
A	Single, 2 wire
B	Single, 3 wire
C	Single, 4 wire
D	Double, 2 wire
E	Double, 3 wire
F	Double, 4 wire

7. STEM MATERIAL

ITEM	DESCRIPTION
A	AISI 316L SS

8. HEAD TYPE

ITEM	DESCRIPTION
B	DIN B, Aluminum Alloy, IP66
C	BBK, Plastic, IP64
D	BUZ, Aluminum Alloy, IP68
E	BUZH, Aluminum Alloy, IP68

9. HEAD MOUNTING CONNECTION

ITEM	DESCRIPTION
M	M20 x 1.5
P	Pg 16
2	1/2 NPT Female

10. CABLE GLAND

ITEM	DESCRIPTION
0	None
P	Polyamide PA, for unarmored cable
L	Nickel plated brass, for unarmored cable
M	Nickel plated brass, single seal for armoured cable
N	Nickel plated brass, double seal for armoured cable
S	Stainless steel, for unarmored cable
T	Stainless steel, single seal for armoured cable
U	Stainless steel, double seal for armoured cable

11. LAG EXTENSION LENGTH (T)

ITEM	DESCRIPTION
T	(min. 0.05- max. 1 m) M (min. 2-max. 39 in.) E

12. LAG EXTENSION TYPE

ITEM	DESCRIPTION
F5	DIN 11/7 AISI 316/1.4401 T = 0.15 m
F6	DIN 14/11 AISI 316/1.4401 T = 0.15 m
F8	DIN 11/7 AISI 316/1.4401 T = customer specified
F9	DIN 14/11 AISI 316/1.4401 T = customer specified
51	Fixed threaded connection T = 0.018 m
52	Fixed threaded connection T = 0.027 m
00	No lag extension, no plug
40	No lag extension with plug

13. PROCESS CONNECTION

ITEM	DESCRIPTION
Q3	G 1/2 A thread
Q4	G 3/4 A thread
S6	M14 x 1.5 thread
S7	M18 x 1.5 thread
R3	1/2 NPT male thread
A3	G 1/2 A, compression fitting, AISI 316
C3	1/2 NPT male compression fitting, AISI 316
00	No process connection

14. SENSOR MOUNTING BLOCK

ITEM	DESCRIPTION
0	Ceramic terminal block
1	Transmitter
2	Ceramic terminal with transmitter
3	No terminal block with flying leads

15. APPROVALS

ITEM	DESCRIPTION
0	None
A	ATEX Ex ia
X	IECEx Ex ia

16. CALIBRATION REPORT

ITEM	DESCRIPTION
00	None
3P	3 point report for single sensor
5P	5 point report for single sensor
3D	3 point report for double sensor
5D	5 point report for double sensor

17. NOMINAL LENGTH (S)

ITEM	DESCRIPTION
S	(min. 0.05-max. 100 m) M (min. 2-max. 3937 in.) E

18. OPTIONS

ITEM	DESCRIPTION
RH	Metal

AR10	1	3	1	A	A	A	A	B	M	0	T0.15M	F5	Q3	1	X	3P	S0.20M	XRH
Model Type (AR10)	Type (1) (3)	Stem Diameter (3) (4) (6) (8)	Sensor (1) (2)	Accuracy Class (A) (B) (C) (D)	Sensing Element (A) (B) (D)	Wiring Config. (A) (B) (C) (D) (E) (F)	Stem Material (A)	Head Type (B) (C) (D) (E)	Head Mounting (M) (P) (2)	Cable Gland (O) (P) (L) (N) (S) (T) (U)	Lag Extension Length (T)	Lag Extension Type (F5) (F6) (F8) (F9) (51) (52) (00) (40)	Process Connection (Q3) (Q4) (S6) (S7) (R3) (A3) (C3) (00)	Sensor Mounting Block (0) (1) (2) (3)	Approvals (0) (A) (X)	Calibration Report (00) (3P) (5P) (3D) (5D)	Nominal Length (S)	Options (RH)
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	T[11]	[12]	[13]	[14]	[15]	[16]	S[17]	[18]

Type AT10 Thermocouples Part Number Coding

1. TYPE

ITEM	DESCRIPTION
1	Standard
3	Ex ia IIC T6 Ga

2. STEM DIAMETER (e)

ITEM	DESCRIPTION
3	3 mm
4	4.5 mm
6	6 mm
8	8 mm

3. SENSOR

ITEM	DESCRIPTION
E	Type E (-200 to +800C°)
J	Type J (-200 to +750C°)
K	Type K (-200 to +1100C°)
N	Type N (-200 to +1100C°)

4. ACCURACY CLASS

ITEM	DESCRIPTION
1	Class 1, IEC 60584-2
2	Class 2, IEC 60584-2
3	Class 3, IEC 60584-2
A	Standard, ANSI MC 96.1
B	Special, ANSI MC 96.1

5. SENSING ELEMENT

ITEM	DESCRIPTION
1	Insulated
2	Grounded
3	Insulated with vibration resistance
4	Grounded with vibration resistance

6. WIRING CONFIGURATION

ITEM	DESCRIPTION
1	Single
2	Double

7. STEM MATERIAL

ITEM	DESCRIPTION
1	AISI 316 SS
3	Inconel 600

8. HEAD TYPE

ITEM	DESCRIPTION
B	DIN B, Aluminum Alloy, IP66
C	BBK, Plastic, IP64
D	BUZ, Aluminum Alloy, IP68
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17. NOMINAL LENGTH (S)

ITEM	DESCRIPTION
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18. OPTIONS

ITEM	DESCRIPTION
RH	Metal

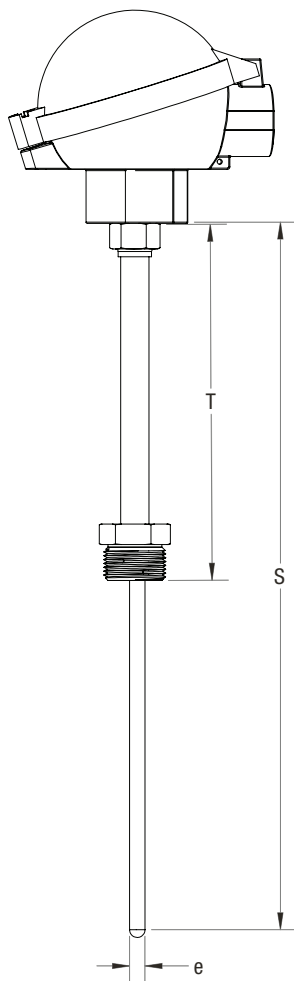
AT10	1	3	E	1	1	1	1	B	M	0	T0.15M	F5	Q3	1	X	3P	S0.20M	XRH
Model Type (AT10)	Type (1) (3)	Stem Diameter (3) (4) (6) (8)	Sensor (E) (J) (K) (N)	Accuracy Class (1) (2) (3) (A) (B)	Sensing Element (1) (2) (3) (4)	Wiring Config. (1) (2)	Stem Material (1) (3)	Head Type (B) (C) (D) (E)	Head Mounting (M) (P) (2)	Cable Gland (0) (P) (L) (N) (S) (T) (U)	Lag Extension Length (T)	Lag Extension Type (F5) (F6) (F8) (F9) (51) (52) (00) (40)	Process Connection (Q3) (Q4) (S6) (S7) (R3) (A3) (C3) (00)	Sensor Mounting Block (0) (1) (2) (3)	Approvals (0) (A) (X)	Calibration Report (00) (3P) (5P) (3D) (5D)	Nominal Length (S)	Options (RH)
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	T[11]	[12]	[13]	[14]	[15]	[16]	S[17]	[18]

All specifications are subject to change without notice.
All sales subject to standard terms and conditions.
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Type AT10 & AR10 Thermocouples and RTDs

Dimension Drawing



e = Stem Diameter
T = Lag Extension Length
S = Nominal Length

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