

Explosion proof Metallic protection tube thermocouple and RTD

Model : R960 series

Spec. sheet no. RD09-07

Service intended

Protection tube type is constructed with the insulator which insulates the element wire, and with the protection tube which protects the insulator.

To install this model on the process pipe or on the container, it normally attaches to a connector, a flange, or a compression fitting on the protection tube.

It can be manufactured as it is required for its use.

As its special features, it does not have any resistance issues with a lead wire, and its immediate response to a temperature change leads to a less error rate of temperature change in a broad range.



Standard features

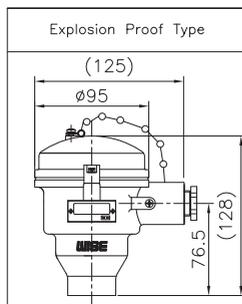
Element

Thermocouple : K, E, J, T, N
RTD : Pt 100 Ω at 0 °C

Head material

ALDC (Standard)
316SS

Head type



Certificates

KCS Ex d e IIC T6 IP67

Tolerance on temperature reading

■ Thermocouple

Class 1, Class 2 (DIN/IEC584-2, BS/EN60584-2, JIS C1602)
Special, Standard (ASTM E230, E988, ISA-MC96.1)

■ RTD

Class A : $\pm(0.15 + 0.002 |t|)$
Class B : $\pm(0.3 + 0.005 |t|)$

Tube and element wire size (Thermocouple only)

Outer diameter (mm)	
Tube	Element wire
6.4	0.65
8.0	0.65 (1.0)
10.0	1.0 (1.6)
12.0	1.0 (1.6)
15.0	1.0, 1.6 (2.3)
17.3	1.6 (2.3) (3.2)
21.7	2.3 (3.2)

* () Standard

Protecting tube outer diameter (RTD only)

6.4, 8.0 and 10 mm

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1. Base model

R961	Thermocouple single element
R962	Thermocouple double (Duplex) element
R963	RTD single element
R964	RTD double element

2. Head and tip shape type

A	ALDC head and ungrounded
C	316SS head and ungrounded

3. Element

K	K (0.75)	A	Pt 100 Ω (B), 4 wire
J	J (0.75)	B	JPt 100 Ω (B), 4 wire
T	T (0.75)	9	Pt 100 Ω (A), 3 wire
E	E (0.5)	0	JPt 100 Ω (A), 3 wire
N	N (0.75)	C	Pt 100 Ω (A), 4 wire
Q	Pt 100 Ω (B), 3 wire	D	JPt 100 Ω (A), 4 wire
U	JPt 100 Ω (B), 3 wire	Z	Other

4. Tube material

0	304SS
1	316SS
2	Inconel 600
3	310SS
4	446SS
5	347SS
6	321SS
7	316L SS
9	Other

5. Tube and element outer diameter (mm)

F0	6.4 and 0.65	M1	15.0 and 1.0
F9	6.4 for RTD	M2	15.0 and 1.6
G0	8.0 and 0.65	M3	15.0 and 2.3
G1	8.0 and 1.0	P2	17.3 and 1.6
G9	8.0 for RTD	P3	17.3 and 2.3
J1	10.0 and 1.0	P4	17.3 and 3.2
J2	10.0 and 1.6	Q3	21.7 and 2.3
J9	10 for RTD	Q4	21.7 and 3.2
K1	12.0 and 1.0		
K2	12.0 and 1.6		

6. Conduit connection

1	½" PF
2	½" PT
3	½" NPT
4	¾" PF
5	¾" PT
6	¾" NPT
7	None
8	M20 x 1.5P
9	Other

7. Mounting type

X	Refer to mounting table (11 th character)
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8. Connection type

XX	Refer to connection type table (12 th and 13 th character)
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9. Insert length

X	Refer to insert length table (14 th character)
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10. Option

0	None
1	Accessories
4	Epoxy coated ALDC head
7	Accessories and epoxy coated ALDC head

1	2	3	4	5	6	7	8	9	10
R961	A	K	1	F1	2	X	XX	X	1

Sample ordering code

Mounting, connection type and insert length table - 11th thru 14th characters

11 th character		12 th character		13 th character		14 th character	
Code	Mounting	Code	Connection size and connector material	Code	Connection type	Code	Insert length (mm)
A	None	A	None	A	None	A	100
	Fixed thread lag length	B	1/8" and 304SS	B	PT	B	200
B	80 mm	C	1/4" and 304SS	C	NPT	C	300
C	100 mm	D	3/8" and 304SS	D	PF	D	400
D	150 mm	E	1/2" and 304SS	E	NPS	E	500
E	200 mm	F	3/4" and 304SS	F	UNF	F	600
F	Other	G	1" and 304SS	G	BSPT	G	700
	Fixed flange lag length	H	1 1/4" and 304SS	H	BSPF	H	800
G	80 mm	J	1 1/2" and 304SS	J	MM	J	900
H	100 mm	K	2" and 304SS	K	B16.5 Class 150 RF	K	1,000
J	150 mm	L	3" and 304SS	L	B16.5 Class 150 FF	L	1,500
K	200 mm	M	7/16" and 304SS	M	B16.5 Class 300 RF	M	2,000
L	Other	N	1/2" and 316SS	N	B16.5 Class 300 FF	N	2,500
M	Movable thread	P	1/4" and 316SS	O	Sanitary	P	3,000
N	Movable flange	Q	3/8" and 316SS	P	B16.5 Class 600 RF	Q	3,500
P	Compression fitting	R	1/2" and 316SS	Q	B16.5 Class 600 FF	R	4,000
	Union and nipple length	S	3/4" and 316SS	R	JIS 5K RF	S	4,500
Q	100 mm length	T	1" and 316SS	S	JIS 5K FF	T	5,000
R	150 mm length	U	1 1/4" and 316SS	T	JIS 10K RF	U	6,000
S	Other	V	1 1/2" and 316SS	U	JIS 10K FF	V	7,000
	Nipple length	W	2" and 316SS	V	JIS 20K RF	W	8,000
T	50 mm	X	3" and 316SS	W	JIS 20K FF	X	9,000
U	100 mm	Y	7/16" and 316SS	X	B16.5 Class 1,500 RTJ	Y	10,000
V	150 mm	Z	Other	Y	B16.5 Class 2,500 RTJ	Z	Other
W	Other			Z	Other		
X	Fixed thread						
Z	Other						

■ Note for 14th character, please choose a code of next higher length if applicable length is not. Actual length shall be specified.

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