Sheathed type resistance temperature detector
Model : R220 series (R series)

Spec. sheet no. RD02-03

Service intended

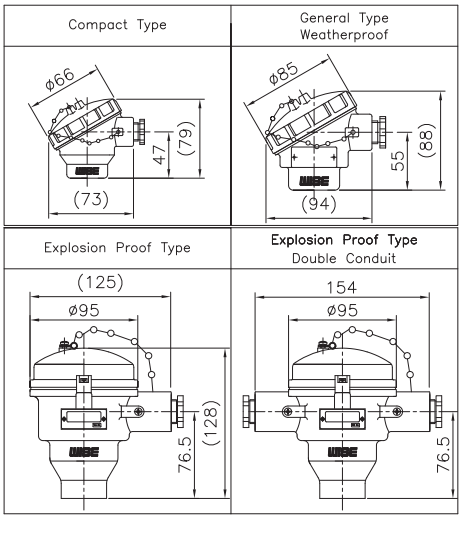
Sheathed type RTD is constructed in a way that monolithic resistance element is connected with MI cable (MgO compacted metal sheathed lead wires), and has a longer life and a fast response time.
High purity white gold resistance wire is used to perform with a better accuracy.
Except the end tip length of 60 mm, it could be bent 2 times more than its out diameter so can be used in the process pipe where it is not easy to install due to the obstacles exist around the installation site.

Explosion proof type | General type

Standard features

Element
Pt 100 Ω at 0 ℃
TCR : 3,850 ppm/k

Head type



Tolerances on temperature reading
Class A : ± (0.15 + 0.002 l t l)
Class B : ± (0.3 + 0.005 l t l)

Head material
ALDC (Standard)
304SS (Not available compact type)
316SS (Not available compact type)

Temperature range
-200 ~ 600 ℃ (Film type element)
- Class A (-90 ~ 300 °C)
- Class B (-200 ~ 600 °C)

-200 ~ 600 ℃ (Ceramic type element)

Sheath material
316L SS

Sheath outer diameter
3.2, 4.8, 6.4 and 8.0 mm

Certificates
KCS Ex d IIC T6

Main order — Ordering information

1. Base model

R221	Sheathed type resistance temperature detector (Single element)
R222	Sheathed type resistance temperature detector (Double (Duplex) element)

2. Head type

A	General (Weatherproof)
B	General (Weatherproof) and spring - loaded
F	Explosion proof
L	Compact (Small)
P	Explosion proof (Double conduit)

3. Element (Tolerance)

Q	Pt 100 Ω (B)
9	Pt 100 Ω (A)

4. Sheath material

1	316SS
7	316L SS
9	Other

5. Sheath outer diameter (mm)

D9	3.2
E9	4.8
F9	6.4
G9	8.0

6. Conduit connection

3	½" NPT
6	¾" NPT
7	None
8	M20 x 1.5P
9	Other

7. Mounting type

X	Refer to mounting table (11th character)

8. Connection type

XX	Refer to mounting table (12th and 13th character)

9. Insert length

X	Refer to insert length table (14th character)

10. Option

0	None
1	Accessories
4	Epoxy coated ALDC head
5	Head material : 304SS (Only for weatherproof head)
6	Head material : 316SS (Not available for explosion proof-double conduit type)
7	Accessories and epoxy coated ALDC head
8	Accessories and head material : 304SS (Only for weatherproof head)
9	Accessories and head material : 316SS

1	2	3	4	5	6	7	8	9	10	
R221	**A**	**Q**	**1**	**F9**	**3**	**X**	**XX**	**X**	**0**	**Sample ordering code**

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

11th character		12th character		13th character		14th 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	⅛" and 304SS	B	PT	B	200
B	80 mm	C	¼" and 304SS	C	NPT	C	300
C	100 mm	D	⅜" and 304SS	D	PF	D	400
D	150 mm	E	½" and 304SS	E	NPS	E	500
E	200 mm	F	¾" and 304SS	F	UNF	F	600
F	Other	G	1" and 304SS	G	BSPT	G	700
	Fixed flange lag length	H	1¼" and 304SS	H	BSPF	H	800
G	80 mm	J	1½" 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	⅛" and 316SS	N	B16.5 Class 300 FF	N	2,500
M	Movable thread	P	¼" and 316SS	O	Sanitary	P	3,000
N	Movable flange	Q	⅜" and 316SS	P	B16.5 Class 600 RF	Q	3,500
P	Compression fitting	R	½" and 316SS	Q	B16.5 Class 600 FF	R	4,000
	Union and nipple length	S	¾" 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	1¼" and 316SS	T	JIS 10K RF	U	6,000
S	Other	V	1½" 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.
- Note for *Y code (Oil sealing type), only available with spring-loaded head type.

Memo

Industrial bimetal thermometer
Model : T110

Spec. sheet no. TD01-01

Service intended
Bimetal thermometer is used for measuring temperature of gas or fluid. It is suitable for measurement, regulation, and direct monitoring for the fluid. It meets the most stringent criteria on resistance to a corrosive atmosphere and exceptional climatic circumstances.

Nominal diameter
50, 65, 75, 100, 125 and 150 mm

Accuracy
±2.0 % of full scale

Temperature element
Coiled bimetal

Working range
Maximum scale value

Standard features

Location of stem
Center back connection, direct

Case
304SS

Cover
304SS

Window
Glass

Dial
White aluminium with black graduations

Pointer
Black painted aluminium alloy

Stem
6.0, 6.4, 8.0 and 10.0 mm diameter
304SS, 316SS and 316L SS
Max. Insertion length : 2,000 mm

Zero adjustment
Internal

Stem, process connection
¼", ⅜", ½", ¾" PT, NPT and PF

Option
±1.0 % of full scale
Not available with diameter 50 and 65 mm

Certificates
ATEX Ex II GD c IIC TX

Main order — Ordering information

1. Base model

T110	Industrial bimetal thermometer

2. Norminal diameter (mm)

1	50
2	65
3	75
4	100
5	125
6	150

3. Type of mounting

X	Center back connection, direct

4. Stem material

0	304SS
1	316SS
2	316L SS

5. Stem, process connection

A	None
C	¼"
D	⅜"
E	½"
F	¾"
G	1½S (Only available with sanitary)
H	2S (Only available with sanitary)
I	2½S (Only available with sanitary)

6. Stem connection type (CF: Compression fitting)

A	None
B	PF
C	PT
D	NPT
E	CF + PT
F	CF + NPT
G	CF + PF
H	MT + PT (Movable thread), Not available with diameter 50 and 65 mm
I	MT + NPT (Movable thread), Not available with diameter 50 and 65 mm
J	MT + PF (Movable thread), Not available with diameter 50 and 65 mm
S	Clamp (Sanitary type flange), Not available with diameter 50 and 65 mm

7. Stem outer diameter (mm)

0	6.0
1	6.4
2	8.0
3	10.0 (Not available process connection, ¼")

8. Range

XXX	Refer to scale range table

9. Insertion length

X	Refer to insertion length table

10. Accessories

0	None
1	Thermowell
2	Special accuracy (±1.0% of full scale)
3	Thermowell and special accuracy

1	2	3	4	5	6	7	8	9	10	
T110	**3**	**X**	**0**	**E**	**D**	**1**	**XXX**	**X**	**1**	**Sample ordering code**

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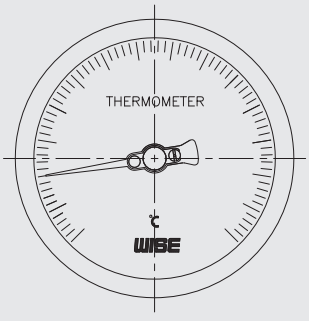
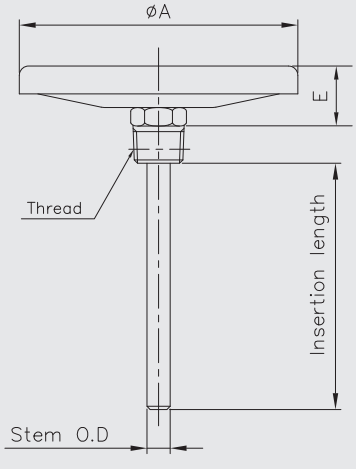
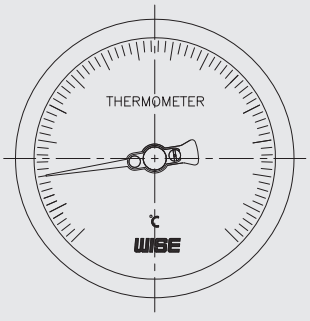
T110 : Type of mounting

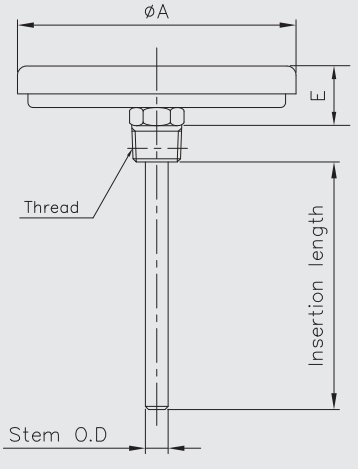
Code X



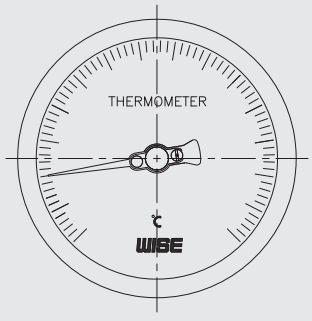


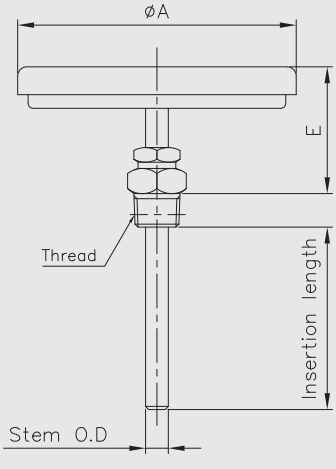
Code X*





Code X**





Dimensions (mm)

Dial Size	Available code	A	E±2
50	X	50	23.5
	X**	50	33.5
65	X	65	28.5
	X**	65	38.5
75	X	86.5	28
	X**	86.5	43
100	X	111	32
	X**	111	42
125	X	137.5	30
	X**	137.5	44
150	X*	169.5	43
	X**	169.5	51

Scale ranges

Code	Scale range (℃)	Scale spacing (℃)	Minimum stem length (mm)	
			6.0 and 6.4	8.0 and 10.0
032	-50 ~ 50	2	55	50
037	-50 ~ 100	2	45	35
054	-30 ~ 50	2	70	60
059	-30 ~ 100	2	50	45
061	-30 ~ 120	2	45	35
069	-20 ~ 50	2	80	70
074	-20 ~ 100	2	45	45
079	-20 ~ 150	5	40	35
084	-10 ~ 50	1	95	80
099	0 ~ 50	1	110	70
100	0 ~ 60	1	95	80
101	0 ~ 70	2	80	60
102	0 ~ 80	2	70	55
104	0 ~ 100	2	55	50
106	0 ~ 120	2	50	45
109	0 ~ 150	2	45	35
114	0 ~ 200	5	35	35
119	0 ~ 250	5	35	30
124	0 ~ 300	5	35	25
129	0 ~ 350	5	30	25
134	0 ~ 400	5	80	65
144	0 ~ 500	10	70	60
154	0 ~ 600	10	70	60

Insertion length

Code	1	2	3	4	5	6	7	8	9	A	B	C
Length (mm)	50	60	70	80	100	120	130	150	175	200	225	250

Code	D	E	F	G	H	J	K	L	M	N	P
Length (mm)	275	300	350	375	400	450	500	550	1,000	1,500	2,000

Process industry bimetal thermometer
Model : T140

Spec. sheet no. TD01-07

Service intended
Bimetal thermometer is used for measuring temperature of gas or fluid. It is suitable for measurement, regulation and direct monitoring for the fluid. It meets the most stringent criteria on resistance to a corrosive atmosphere and exceptional climatic circumstances.

Nominal diameter
75, 100, 125 and 150 mm

Accuracy
±2.0 % of full scale

Temperature element
Coiled bimetal

Working range
Maximum scale value

Standard features

Location of stem
Center back with angle stem

Case
304SS

Cover
304SS

Window
Glass

Dial
White aluminium with black graduations

Pointer
Black painted aluminium alloy

Stem
6.0, 6.4, 8.0 and 10.0 mm diameter
304SS, 316SS and 316L SS
Max. Insertion length : 2,000 mm

Zero adjustment
External

Stem, process connection
¼", ⅜", ½", ¾" PT, NPT and PF

Option
±1.0 % of full scale

Main order — Ordering information

1. Base model

T140	Process industry bimetal thermometer

2. Nominal diameter (mm)

3	75
4	100
5	125
6	150

3. Type of mounting

W	Bottom connection, direct

4. Stem material

0	304SS
1	316SS
2	316L SS

5. Stem, process connection

A	None
C	¼"
D	⅜"
E	½"
F	¾"
G	1½S (Only available with sanitary)
H	2S (Only available with sanitary
I	2½S (Only available with sanitary)

6. Stem connection type (CF: Compression fitting)

A	None
B	PF
C	PT
D	NPT
E	CF + PT
F	CF + NPT
G	CF + PF
H	MT + PT (Movable thread)
I	MT + NPT (Movable thread)
J	MT + PF (Movable thread)
S	Clamp (Sanitary type flange)

7. Stem outer diameter (mm)

0	6.0
1	6.4
2	8.0
3	10.0 (Not available process connection, ¼")

8. Range

XXX	Refer to scale range table

9. Insertion length

X	Refer to insertion length table

10. Accessories

0	None
1	Thermowell
2	Special accuracy (±1.0 % of full scale)
3	Thermowell and special accuracy

1	2	3	4	5	6	7	8	9	10	
T140	**4**	**W**	**0**	**E**	**C**	**1**	**XXX**	**X**	**1**	**Sample ordering code**

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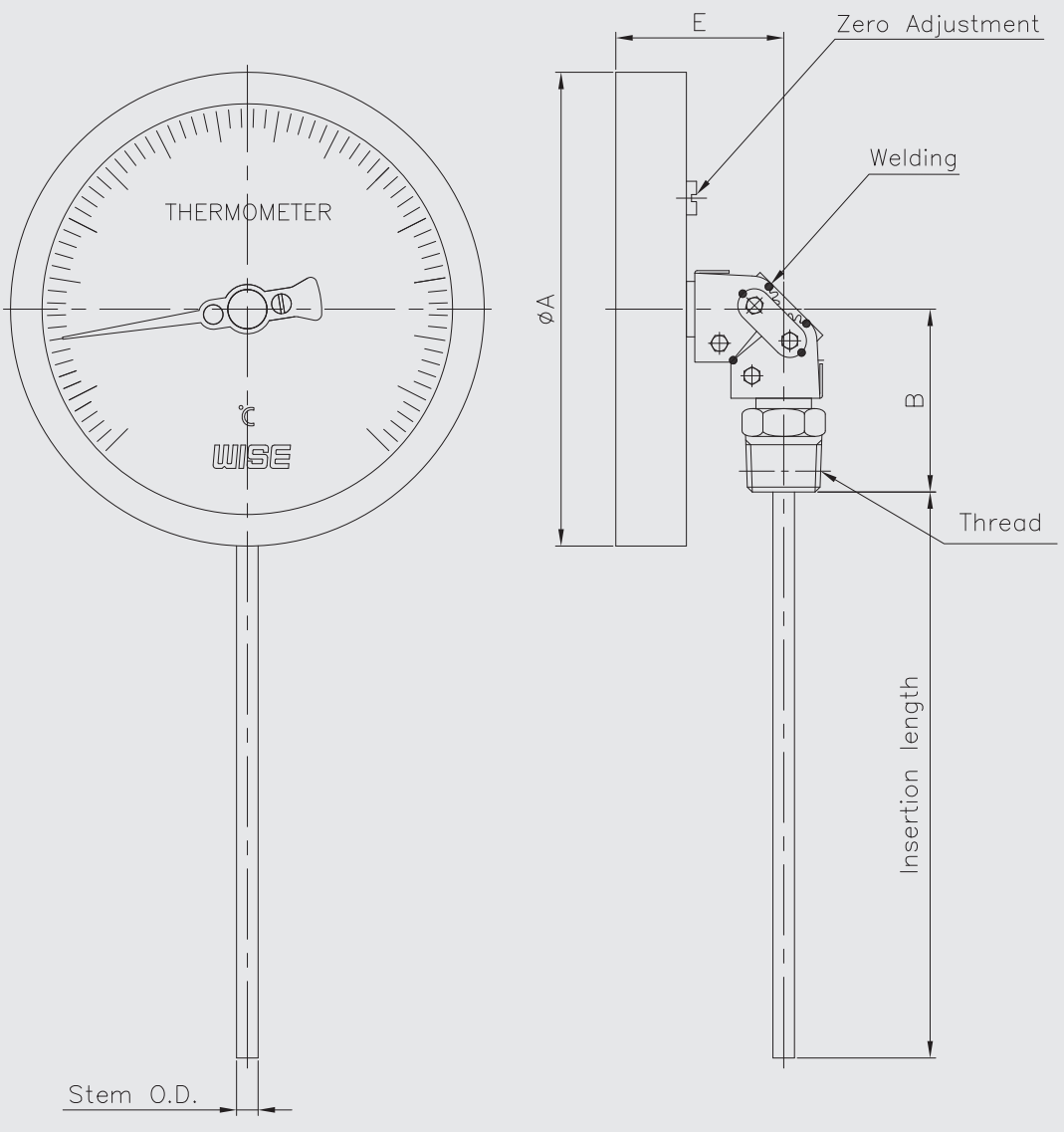
T140 : Type of mounting



Dimensions (mm)

Dial Size	A	B±2	E±2
75	86.5	70	53
100	111	70	57
125	137.5	70	55
150	169.5	95	68

Scale ranges

Code	Scale range (℃)	Scale spacing (℃)	Minimum stem length (mm)	
			6.0 and 6.4	8.0 and 10.0
032	-50 ~ 50	2	55	50
037	-50 ~ 100	2	45	35
054	-30 ~ 50	2	70	60
059	-30 ~ 100	2	50	45
061	-30 ~ 120	2	45	35
069	-20 ~ 50	2	80	70
074	-20 ~ 100	2	45	45
079	-20 ~ 150	5	40	35
084	-10 ~ 50	1	95	80
099	0 ~ 50	1	110	70
100	0 ~ 60	1	95	80
101	0 ~ 70	2	80	60
102	0 ~ 80	1	70	55
104	0 ~ 100	2	55	50
106	0 ~ 120	2	50	45
109	0 ~ 150	2	45	35
114	0 ~ 200	5	35	35
119	0 ~ 250	5	35	30
124	0 ~ 300	5	35	25
129	0 ~ 350	5	30	25
134	0 ~ 400	5	80	65
144	0 ~ 500	10	70	60
154	0 ~ 600	10	70	60

Insertion length

Code	1	2	3	4	5	6	7	8	9	A	B	C
Length (mm)	50	60	70	80	100	120	130	150	175	200	225	250

Code	D	E	F	G	H	J	K	L	M	N	P
Length (mm)	275	300	350	375	400	450	500	550	1,000	1,500	2,000