# Extension lead wire thermocouple and resistance temperature detector
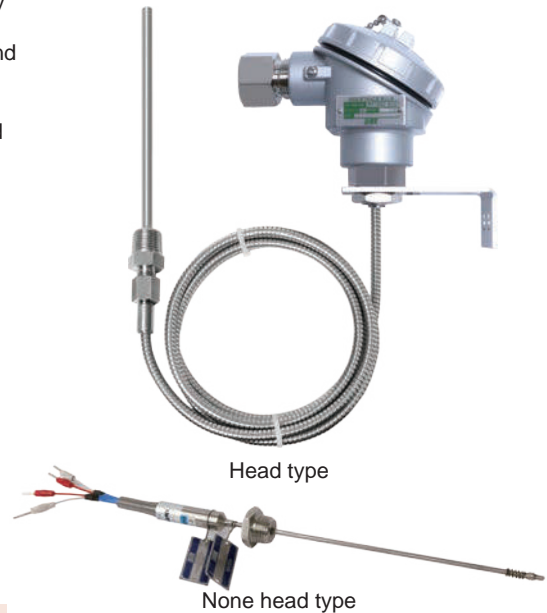## Model : R300 series

## Service intended

This type of detector does not use terminal head, rather it directly connects to an indicator or a transmitter. It is very useful where the distance between measuring parts and the location of its head is too far. The measuring parts and its head can be connected by using an extension wire. Extension wire can be selected according to its installation site condition, its protection shape of armored tube, and its wire covering material.

Head type

None head type

## Degree of protection
EN60529/IEC529/IP65

## Standard features

### Element
Thermocouple : K, E, J, T, N, R, S, B
RTD : Pt 100 Ω at 0℃ (Ceramic and Mica type)

### Basic outline drawing

Extension lead type

Armored lead type

Bayonet locking type

### Tolerances on temperature reading
■ Thermocouple
Class 1, Class 2 (DIN/IEC584-2, BS/EN60584-2, JIS C1602)
Special, Standard (ASTM E230, E988, ISA-MC96.1)

■ R.T.D.
Class A : ± (0.15 + 0.002 l t l)
Class B : ± (0.3 + 0.005 l t l)

### Sheath outer diameter
■ Thermocouple
1.0, 1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5 and 12.7 mm
 * Double element is not available for 1.0 and 1.6 mm
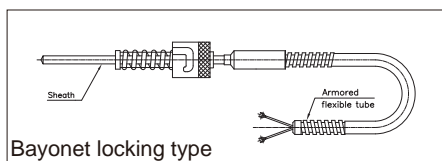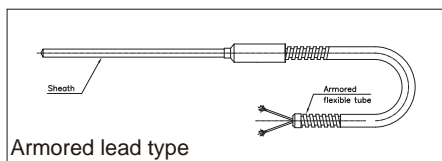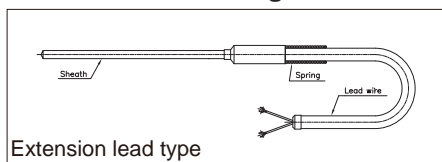   sheath outer diameter

■ R.T.D.
3.2, 4.8, 6.4 and 8.0 mm

### Sensing element structure
Protection tube or sheathed

### Protecting tube outer diameter
6.4, 8.0, 10.0, 12.0 and 15.0 mm

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## 1. Base model

| | |
|---|---|
| **R311** | Extension lead type single element |
| **R312** | Extension lead type double element |
| **R321** | Armored lead type single element |
| **R322** | Armored lead type double element |
| **R331** | Bayonet locking type single element |
| **R332** | Bayonet locking type double element |

## 2. Head type

| | |
|---|---|
| **A** | General (Weatherproof) |
| **P** | None head |

## 3. Element (Tolerance)

| | | | | |
|---|---|---|---|---|
| **K** | K (0.75) | **3** | T (0.4) |
| **J** | J (0.75) | **4** | E (0.4) |
| **T** | T (0.75) | **5** | N (0.4) |
| **N** | N (0.75) | **R** | R (0.25) |
| **E** | E (0.5) | **S** | S (0.25) |
| **B** | B (0.5) | **Q** | Pt 100 Ω (B) |
| **1** | K (0.4) | **9** | Pt 100 Ω (A) |
| **2** | J (0.4) | **Z** | Other |

## 4. Sheath or protecting tube material

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

## 5. Sheath or protecting tube outer diameter (mm)

| | |
|---|---|
| **A9** | 1.0 (Sheath / Single TC only) |
| **B9** | 1.6 (Sheath / Single TC only) |
| **C9** | 2.3 (Sheath / TC only) |
| **D9** | 3.2 (Sheath) |
| **E9** | 4.8 (Sheath) |
| **F9** | 6.4 (Sheath) |
| **G9** | 8.0 (Sheath) |
| **H9** | 9.5 (Sheath / TC only) |
| **L9** | 12.7 (Sheath / TC only) |
| **E8** | 4.8 (Tube / Not available for double RTD) |
| **F8** | 6.4 (Tube) |
| **G8** | 8.0 (Tube) |
| **J0** | 10.0 (Tube) |
| **K9** | 12.0 (Tube) |
| **M9** | 15.0 (Tube) |

## 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. Lead wire length (m)

| | |
|---|---|
| **A** | 300 mm (Standard), Lead wire type only |
| **B** | 1 (Lead wire type only) |
| **C** | 2 (Lead wire type only) |
| **D** | 3 (Lead wire type only) |
| **E** | 4 (Lead wire type only) |
| **F** | 5 (Lead wire type only) |
| **G** | Other |

## 8. Mounting type

| | |
|---|---|
| **X** | Refer to mounting table (12th character) |

## 9. Connection type

| | |
|---|---|
| **XX** | Refer to mounting table (13th and 14th character) |

## 10. Insert length

| | |
|---|---|
| **X** | Refer to insert length table (15th character) |

## 11. Option

| | |
|---|---|
| **00** | None |
| **01** | Accessories |
| **1A** | Epoxy coated ALDC head |
| **1B** | Head material : 304SS |
| **1C** | Head material : 316SS |
| **1D** | Accessories and epoxy coated ALDC head |
| **1E** | Accessories and head material : 304SS |
| **1F** | Accessories and head material : 316SS |

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | **Sample ordering code** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R311 | P | K | 1 | F9 | 1 | A | X | XX | X | 00 | |

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

| 12th character | | 13th character | | 14th character | | 15th 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 15th 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.

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