

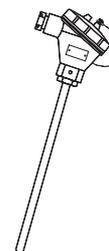
Temperature Sensors

Head Type Quick Selection Guide

Step 1. Select the temperature sensor type

Select the temperature sensors as head type.

Type	Thermocouples	Sheath thermocouples	RTD	Sheath RTD
Code	SH1	SH2	SH3	SH4



Step 2. Select the head type

Select the head type, material, and wireway specification.

Type	Standard		
	Small	Middle	Middle 2-port
Appearance			
Code	C8 : Aluminum PF3/8	D1, D2 : Aluminum PF1/2, PF3/4 E1, E2 : Cast iron PF1/2, PF3/4 F1, F2 : Stainless steel PF1/2, PF3/4	G1 : Aluminum PF1/2×2

Type	Explosion-proof			Exposed
	Middle	Bidirectional	Middle 2-port	
Appearance				
Code	H1 : Aluminum PF1/2 H2 : Aluminum PF3/4 I1 : Stainless steel PF1/2 I2 : Stainless steel PF3/4	J1 : Aluminum PF1/2×2 J2 : Aluminum PF3/4×2 J3 : Aluminum PF1/2, PF3/4	K1 : Aluminum PF1/2×2	M1 : Aluminum

Step 3. Select the tube (sheath) type

Select the tube (sheath) at the bottom of the head.

Type	Standard		Middle joint						Flanged					Special		
Code	A0	E0 EC ED	F0	B0	C0	G0	H0 HC HS	K0 KS	L0	M0	N0	P0 PC	Q0 QC	SC	I0	R0
Appearance																

※ First digit meaning of the tube (sheath) code

A Standard	F Nipple screwed	L Compression fitting	Q Metal support flanged 2
B Slide screwed	G Screwed	M Flanged	S Metal support slide flanged (ceramic)
C Upper slide screwed	H Metal support	N Slide flanged	I I pad
E Metal support	K Nipple union	P Metal support flanged (1)	R R pad

※ Second digit meaning of the tube (sheath) code

0 Metal	C Non-metal	D Double ceramic	S Spring load structure
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※ The tube (sheath) type is decided according to the head type of temperature sensor. Refer to the corresponding page of the temperature sensor type.

Step 4. Select the element type

Select the element type.

Sensor	Sensor element	Sensor	Sensor element
Thermocouples	K, E, J, T, N, B, R, S (Code: K, E, J, T, N, B, R, S)	RTD	DPT100, JPt100
Sheath thermocouples	K, E, J, T, N (Code : K, E, J, T, N)	Sheath RTD	(Code : D, J)

※ Sensor type: thermocouples and sensor element: B, R, S requires selecting the wire thickness additionally.

Wire thickness (code) : Ø0.3 (30), Ø0.4 (40), Ø0.45 (45), Ø0.5 (50)

Step 5. Select the elements and tube (sheath) thickness

Select the elements and tube (sheath) thickness.

Elements (Code)	Sensor	Tube (sheath) thickness [Ø]
Single (S)	Thermocouples	6.0, 6.4, 8.0, 10, 13, 13.8, 15, 17, 17.3, 20, 21.7, 22, 25, 27, 30, 35, 40 ※ In case of metal or non-metal, thickness is separated.
	Sheath thermocouples	1.0, 1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5, 12.7
	RTD	6.4, 8.0, 10, 12, 13.8, 15, 17.3, 22, 27
	Sheath RTD	2.3, 3.2, 4.8, 6.4, 8.0, 9.5, 12.7
Double (D)	Thermocouples	6.4, 8.0, 10, 13, 13.8, 15, 17, 17.3, 20, 21.7, 22, 25, 27, 30, 38, 40
	Sheath thermocouples	1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5, 12.7
	RTD	8.0, 10, 12, 13.8, 15, 17.3, 22, 27
	Sheath RTD	3.2, 4.8, 6.4, 8.0, 9.5, 12.7
Triple (T)	Thermocouples	6.4, 8.0, 10, 13, 13.8, 15, 17, 17.3, 20, 21.7, 22, 25, 27, 30, 38, 40
	Sheath thermocouples	3.2, 4.8, 6.4, 8.0, 9.5, 12.7
	RTD/Sheath RTD	RTD and Sheath RTD does not have triple.

※ Write the code for tube (sheath) thickness as 3-digit. (e.g.: 6 → 060, 6.4 → 064, 10 → 100, 12.7 → 127)

Step 6. Select the material of tube (sheath)

Select the material of tube (sheath).

Sensor	Material (Code)
Thermocouples	• Metal : 304SS (304), 316SS (316), 316LSS (36L), 310SS (310), INCONEL600 (INC), 50Co-30Cr (50C), 446SS (446) • Non-metal : PT1 (PT1), PT0 (PT0), GK-SIC (GK), RED-SIC (RED), KP (Al ₂ O ₃ 99.99%)
Sheath thermocouples	316SS (316), 310SS (310), INCONEL600 (INC), 446SS (446)
RTD	304SS (304), 316SS (316), 316LSS (36L)
Sheath RTD	316SS (316)

※ Please contact us if surface treatment of tube (sheath) is required.

※ In case of sheath thermocouples, the material is decided according to sheath thickness. Refer to the F-37 page.

Step 7. Select the length of tube (sheath)

Write the upper and lower length tube (sheath).

Type	Length[mm]
Lower tube (sheath)	Write the code as 4-digit.
Upper tube (sheath)	• Metal : 080mm, 100mm, 120mm, 150mm, 300mm ※ Union type tube (sheath) is available only 120mm, 150mm, 300mm. • Non-metal : 100mm, 150mm, 200mm, 300mm

※ In case of non-upper length tube (sheath) (A0, B0, F0, L0, N0, I0, R0), write the code as "XXX".

Step 8. Select the upper thickness of tube (sheath)

Select the upper thickness of tube (sheath).

Upper	Ø21.7 (217), Ø27.2 (272), Ø15 (150)
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※ The upper thickness Ø15 of tube (sheath) is available only "C0" tube type.

※ In case of non-upper thickness of tube (sheath) (A0, B0, F0, L0, N0, I0, R0), write the code as "XXX".

Step 9. Select the connection specification

Connection type is decided when selecting tube (sheath) type. Select the connection specification only.

Screw specification	PT 1/8, PT 1/4, PT 3/8, PT 1/2, PT 3/4, PT 1, PT 1 1/2, PT 2, NPT 1/8, NPT 1/4, NPT 3/8, NPT 1/2, NPT 3/4, NPT 1, NPT 1 1/2, NPT 2
Flange specification	Flange standard + Flange size + Flange type + Flange material

※ For more information of screw and flange specification, refer to F-88 to F-93 page.

※ Flange material (Code) : 304SS (304), 316SS (316), 316LSS (36L), 310SS (310), INCONEL600 (INC), 50Co-30Cr (50C), 446SS (446)

Step 10. For ordering as set with thermowell

The last code should be adding "W" for ordering as a set with thermo well.

Temperature Sensors

Lead Type Quick Selection Guide

Step 1. Select the temperature sensor type

Select the temperature sensors as lead type.

Type	Thermocouples	Sheath thermocouples	RTD	Sheath RTD
Code	SL1	SL2	SL3	SL4



Step 2. Select the lead type

Select the lead type.

Code	A0	B0	C0	C1	D0	D1	G0	H0	I0	J0	L0	M0	R0	R1	S0	S1
Appearance																

※ Code Descriptions

A0	Tip Rod	D0	Tip needle	I0	Bayonet 3	R0	Quick connector
B0	Straight	D1	Tip needle + Compression fitting	J0	Nipple	R1	Quick connector + Compression fitting
C0	Standard	G0	Bayonet 1	L0	I pad	S0	Metal connector
C1	Standard + Compression fitting	H0	Bayonet 2	M0	R pad	S1	Metal connector + Compression fitting

Step 3. Select cover material and protection type

Select the cover material and protection type.

Code	Outside	Inside	Protection type
10	Vinyl cover wire	Vinyl cover wire	Protection spring
1F	Vinyl cover wire	Vinyl cover wire	Flexible Tube
20	SUS braiding	Fiberglass cover	Protection spring
2F	SUS braiding	Fiberglass cover	Flexible Tube
30	Fiberglass cover	Fiberglass cover	Protection spring
3F	Fiberglass cover	Fiberglass cover	Flexible Tube
40	SUS braiding	Teflon cover	Protection spring
4F	SUS braiding	Teflon cover	Flexible Tube
50	Silicon cover	Teflon coating	Protection spring
5F	Silicon cover	Teflon coating	Flexible Tube

Step 4. Select the element type

Select the element type.

Sensor	Sensor element	Sensor	Sensor element
Thermocouples	K, E, J, T, N, B, R, S (Code: K, E, J, T, N, B, R, S)	RTD	DPT100, JPT100
Sheath thermocouples	K, E, J, T, N (Code : K, E, J, T, N)	Sheath RTD	(Code : D, J)

※ Sensor type: thermocouples, sensor element: B, R, S requires selecting the wire thickness additionally.

Wire thickness (code) : Ø0.3 (30), Ø0.4 (40), Ø0.45 (45), Ø0.5 (50)

Step 5. Select elements and tube (sheath) thickness

Select elements and tube (sheath) thickness.

Elements (Code)	Sensor	Tube (sheath) thickness [Ø]
Single (S)	Thermocouples	3.2, 4.8, 6.4, 8.0, 10, 13.8
	Sheath thermocouples	1.0, 1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5, 12.7
	RTD	6.4, 8.0, 10, 12, 13.8, 15, 17.3, 22, 27
	Sheath RTD	2.3, 3.2, 4.8, 6.4, 8.0, 9.5, 12.7
Double (D)	Thermocouples	6.4, 8.0, 10, 13.8
	Sheath thermocouples	1.6, 2.3, 3.2, 4.8, 6.4, 8.0, 9.5, 12.7
	RTD	8.0, 10, 12, 13, 15, 17, 22, 27
	Sheath RTD	3.2, 4.8, 6.4, 8.0, 9.5, 12.7
Triple (T)	Thermocouples	8.0, 10, 13.8
	Sheath thermocouples	3.2, 4.8, 6.4, 8.0, 9.5, 12.7
	RTD/Sheath RTD	RTD and Sheath RTD does not have triple.

※ Write the code for tube (sheath) thickness as 3-digit. (e.g.: 3.2 → 032, 8.0 → 080, 12.7 → 127)

Step 6. Select the material of tube (sheath)

Select the material of tube (sheath).

Sensor	Material (Code)
Thermocouples	304SS (304), 316SS (316), 316L (36L), INCONEL 600 (INC)
Sheath thermocouples	316SS (316), 310SS (310), 446SS (446), INCONEL 600 (INC)
RTD	304SS (304), 316SS (316), 316LSS (36L)
Sheath RTD	316SS (316)

※ Please contact us if surface treatment of tube (sheath) is required.

※ In case of sheath thermocouples, the material is decided according to sheath thickness. Refer to the F-60 page.

Step 7. Select the length of tube (sheath)

Write the lower tube (sheath) length and lead length.

Type	Length
Lower tube (sheath) [mm]	Write the 4-digit code.
Lead [m]	Write the 3-digit code.

Step 8. Select the connection specification

Connection type is decided when selecting tube (sheath) type. Select the connection specification only.

Screw specification	
	PT 1/8, PT 1/4, PT 3/8, PT 1/2, PT 3/4, PT 1, PT 1 1/2, PT 2 NPT 1/8, NPT 1/4, NPT 3/8, NPT 1/2, NPT 3/4, NPT 1, NPT 1 1/2, NPT 2

※ For more information of screw and flange specification, refer to F-88 to F-89 page.