

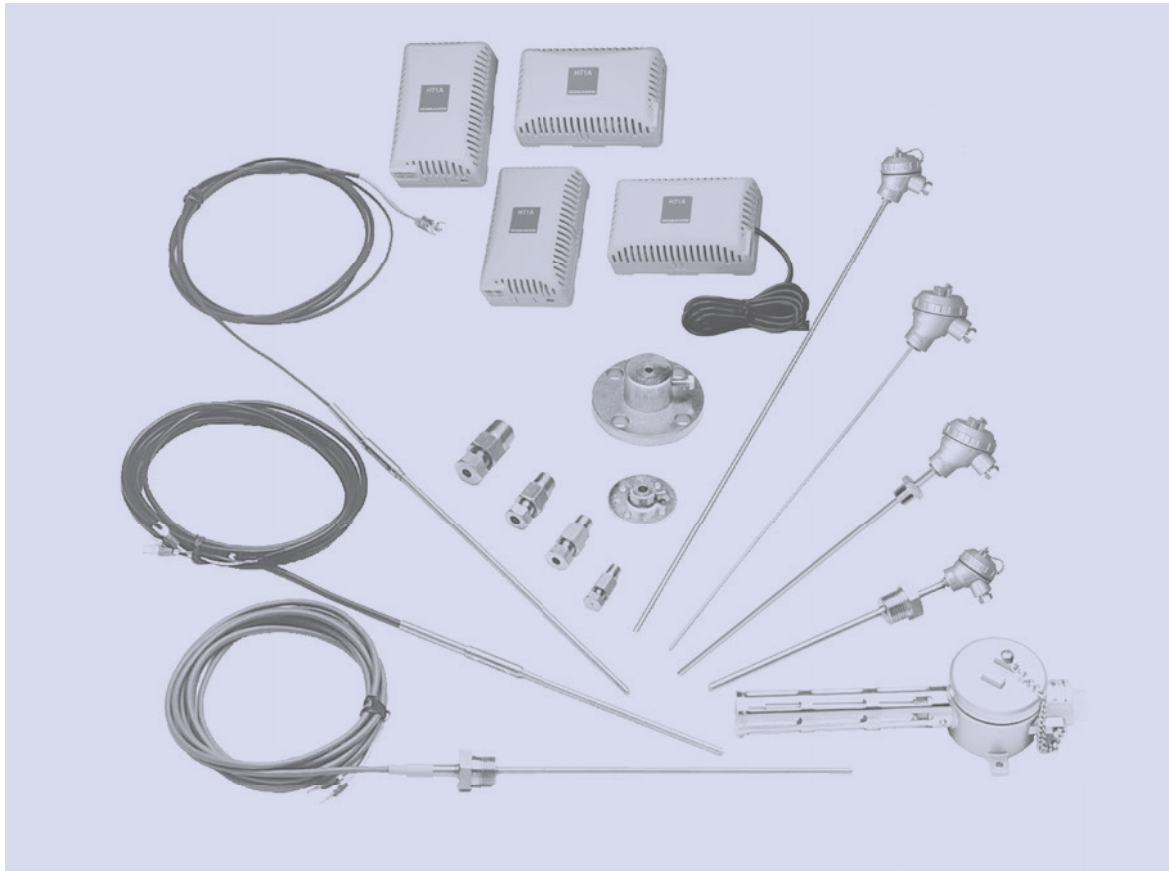
°C

%RH

SHIMADEN

SENSOR

Series TD/RD/R/STD/SRD



BASIC FEATURES

Temperature sensor that can meet your needs

There are two types of Shimaden temperature detectors: standard type and special type.

Standard Type Temperature Sensor

Standard type is a list of commonly used shapes and specifications, and is available with short delivery times and low prices.

Thermocouple: The TD series is a standard type using class 2 thermocouples. There are two types of sheath thermocouples: TD-11S with direct lead attachment and TD-18S with terminal box. We will manufacture the metal sheath length and compensating lead length according to your order. Please contact your sales representative for pricing.

R.T.D.: The RD series is a standard type that uses Class B R.T.D. elements, and is available in general type, general type drip-proof specification, and sheath type. We will manufacture the protective tube, metal sheath length and lead wire length according to your order. Please contact your sales representative for pricing.

R series: The R-50M series is a wall-mounted R.T.D. for refrigeration, cold storage and low temperature areas.

Specially Ordered Temperature Sensor

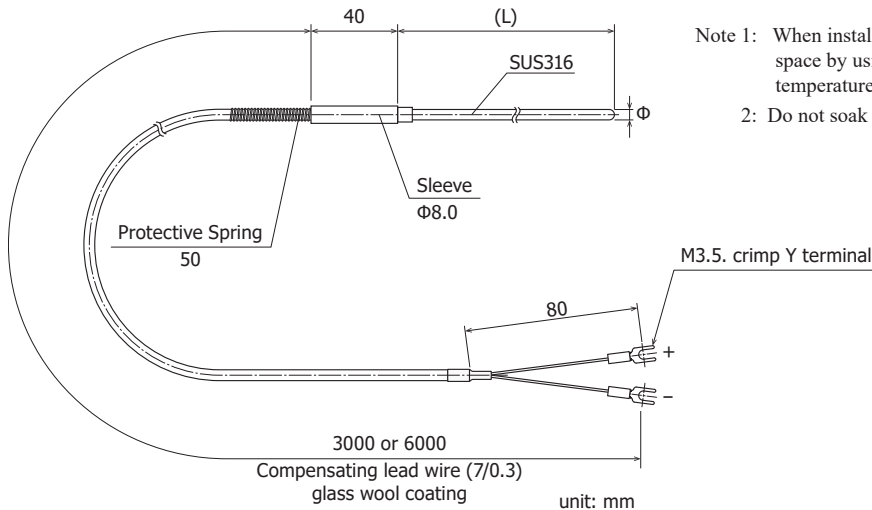
Special ordered types are manufactured to customer specifications.

Standard Type Temperature Sensor

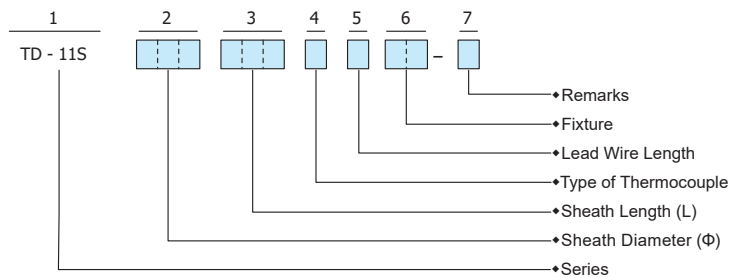
Series TD Thermocouple Sensor

■ Series TD-11S Thermocouple Sensor

- External Dimensions -



- Note 1: When installing a sensor, make sure to create an air cooling space by using mounting brackets, etc. so that the temperature of the sleeve portion does not exceed 80 °C.
 2: Do not soak the compensation lead wire.



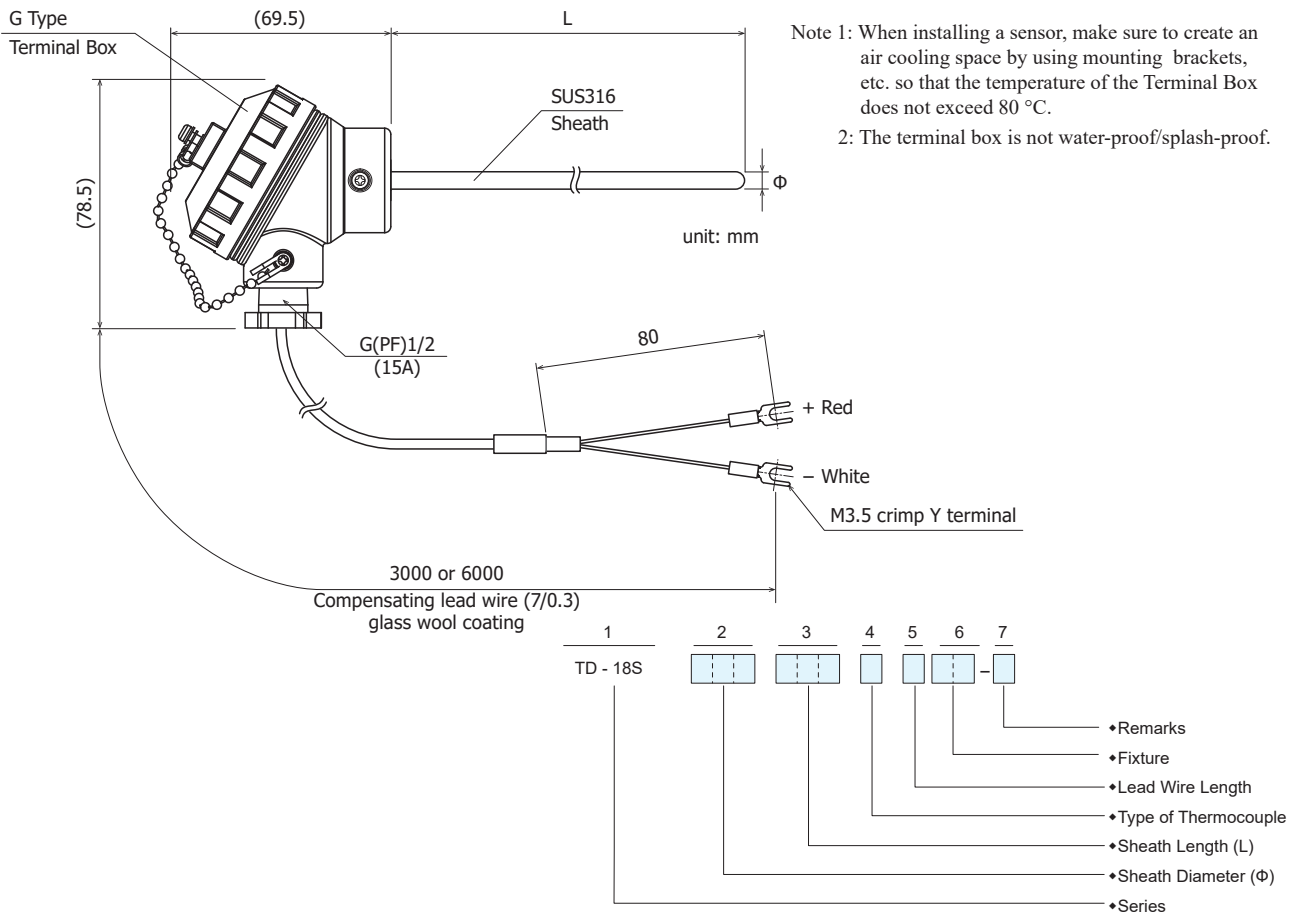
■ Data sheet for TD-11S Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	TD-11S-	SLEEVE TYPE THERMOCOUPLE Sheath SENSOR	
2. Sheath Diameter (Φ) & 3. Length (L)	016	Φ1.6	150 mm J/450 °C MAX, K/650 °C MAX
			250 mm J/450 °C MAX, K/650 °C MAX
			350 mm J/450 °C MAX, K/650 °C MAX
			500 mm J/450 °C MAX, K/650 °C MAX
			Others (Please consult before ordering.)
	032	Φ3.2	150 mm J/650 °C MAX, K/750 °C MAX
			250 mm J/650 °C MAX, K/750 °C MAX
			350 mm J/650 °C MAX, K/750 °C MAX
			500 mm J/650 °C MAX, K/750 °C MAX
			Others (Please consult before ordering.)
	048	Φ4.8	150 mm J/750 °C MAX, K/800 °C MAX
			250 mm J/750 °C MAX, K/800 °C MAX
350 mm J/750 °C MAX, K/800 °C MAX			
500 mm J/750 °C MAX, K/800 °C MAX			
Others (Please consult before ordering.)			
4. Element TYPE		J	JIS J 0.75 class 2
		K	JIS K 0.75 class 2
5. Lead Wire	C	3000 mm (3 meters) Diameter : 0.3 mm x 7, glass wool coating	
	F	6000 mm (6 meters) Diameter : 0.3 mm x 7, glass wool coating	
	X	Others (Please consult before ordering.)	
6. Fixture	00-	None	
	45-	With compression fitting PT1/8 Φ1.6, 3.2, 4.8	
	46-	With compression fitting PT1/4 Φ1.6, 3.2, 4.8	
	47-	With compression fitting PT3/8 Φ3.2, 4.8	
	48-	With compression fitting PT1/2 Φ3.2, 4.8	
	49-	With compression fitting PT3/4 Φ3.2, 4.8	
	51-	Sliding Flange Type (FA)	
7. Remarks	0	Without	
	9	With (Please consult before ordering.)	

Standard Type Temperature Sensor

■ Series TD-18S Thermocouple Sensor

– External Dimensions –



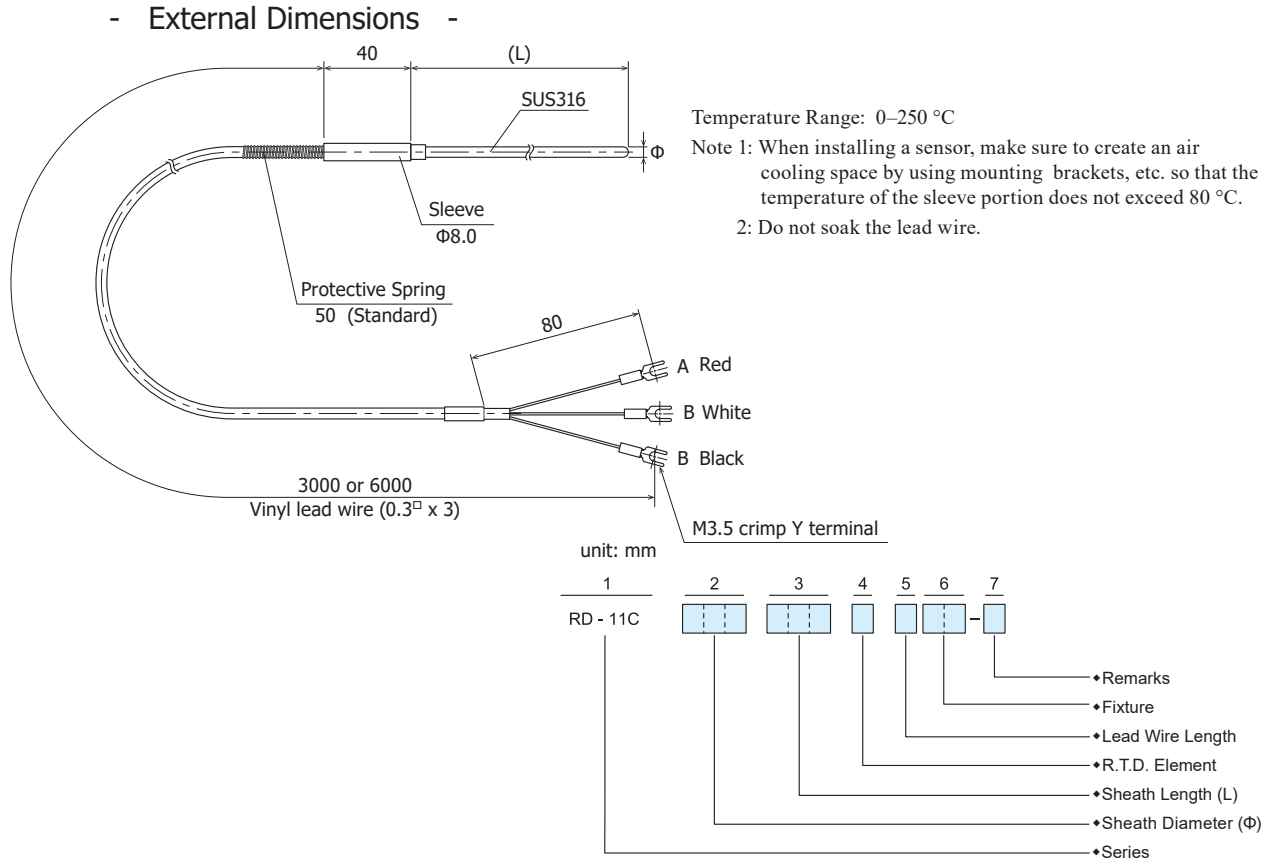
■ Data sheet for TD-18S Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	TD-18S-	G HEAD TYPE THERMOCOUPLE Sheath SENSOR	
2. Sheath Diameter (Φ) & 3. Length (L)	032	250	250 mm J/650 °C MAX, K/750 °C MAX
		350	350 mm J/650 °C MAX, K/750 °C MAX
		500	500 mm J/650 °C MAX, K/750 °C MAX
		□□□	Others (Please consult before ordering.)
	048	250	250 mm J/750 °C MAX, K/800 °C MAX
		350	350 mm J/750 °C MAX, K/800 °C MAX
		500	500 mm J/750 °C MAX, K/800 °C MAX
		□□□	Others (Please consult before ordering.)
	064	250	250 mm J/750 °C MAX, K/800 °C MAX
		350	350 mm J/750 °C MAX, K/800 °C MAX
		500	500 mm J/750 °C MAX, K/800 °C MAX
		□□□	Others (Please consult before ordering.)
4. Element TYPE	J	JIS J 0.75 class 2	
	K	JIS K 0.75 class 2	
5. Lead Wire	N	None	
	C	3000 mm (3 meters) Diameter : 0.3 mm x 7, glass wool coating	
	F	6000 mm (6 meters) Diameter : 0.3 mm x 7, glass wool coating	
	X	Others (Please consult before ordering.)	
6. Fixture	00-	None	
	45-	With compression fitting PT1/8 Φ3.2, 4.8	
	46-	With compression fitting PT1/4 Φ3.2, 4.8, 6.4	
	47-	With compression fitting PT3/8 Φ3.2, 4.8	
	48-	With compression fitting PT1/2 Φ3.2, 4.8	
	49-	With compression fitting PT3/4 Φ3.2, 4.8	
7. Remarks	0	Without	
	9	With (Please consult before ordering.)	

Standard Type Temperature Sensor

Series RD R. T. D. Sensor

■ Series RD-11C R. T. D. Sensor



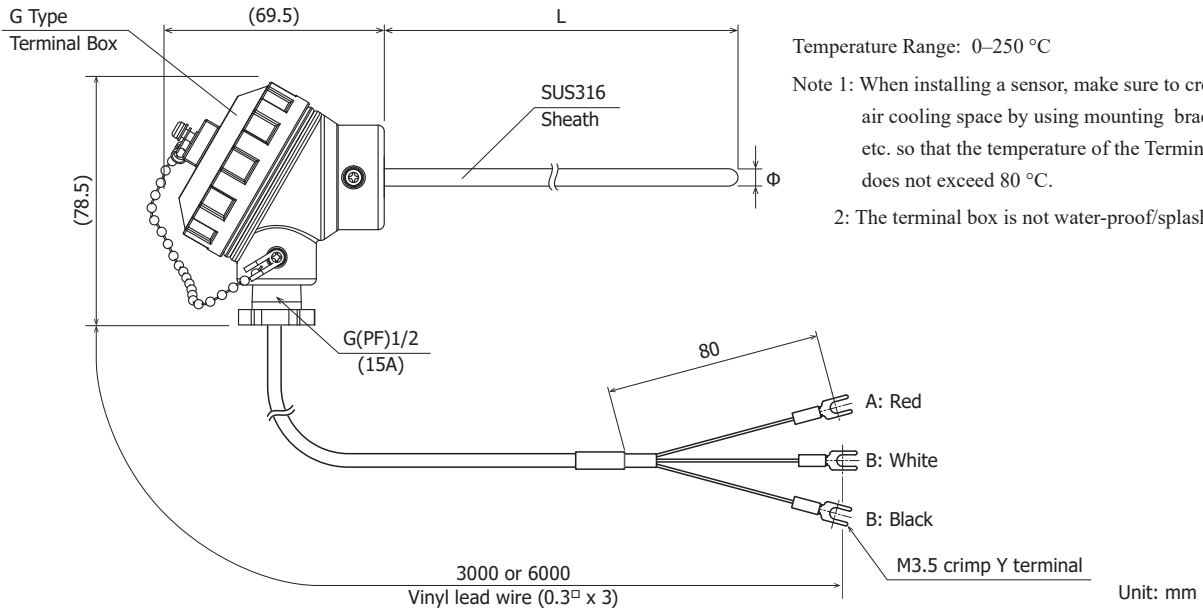
■ Data sheet for RD-11C Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	RD-11C-	SLEEVE TYPE R.T.D. Pt100 JIS SENSOR	
2. Protecting tube Diameter (Φ) & 3. Length (L)	048	150	150 mm
		250	250 mm
	064	350	350 mm
		500	500 mm
		□□□	Others (Please consult before ordering.)
4. R. T. D. Element		F	JIS Pt100 class B
		J	JIS JPt 100 class B
5. Lead Wire		C	3000 mm (3 meters) Vinyl lead wire
		F	6000 mm (6 meters) Vinyl lead wire
		X	Others (Please consult before ordering.)
6. Fixture		00 -	None
		45-	With compression fitting PT1/8 Φ4.8
		46-	With compression fitting PT1/4 Φ4.8, 6.4
		47-	With compression fitting PT3/8 Φ4.8, 6.4
		48-	With compression fitting PT1/2 Φ4.8, 6.4
		49-	With compression fitting PT3/4 Φ4.8, 6.4
		51 -	Sliding Flange Type (FA)
7. Remarks		0	Without
		9	With (Please consult before ordering.)

Standard Type Temperature Sensor

■ Series RD-18C- R. T. D. Sensor

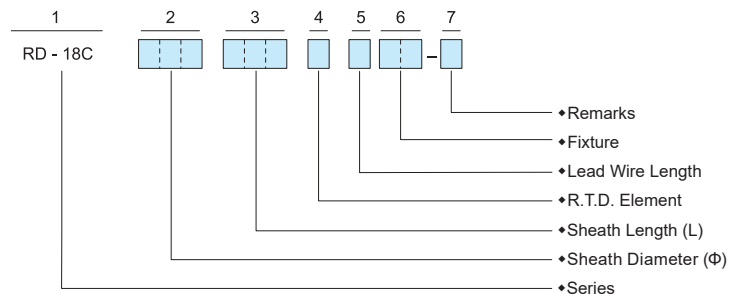
- External Dimensions -



Temperature Range: 0-250 °C

Note 1: When installing a sensor, make sure to create an air cooling space by using mounting brackets, etc. so that the temperature of the Terminal Box does not exceed 80 °C.

2: The terminal box is not water-proof/splash-proof.



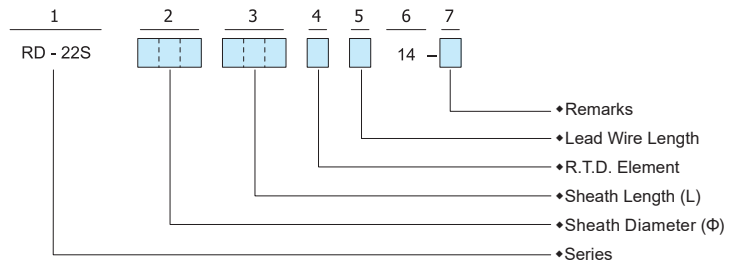
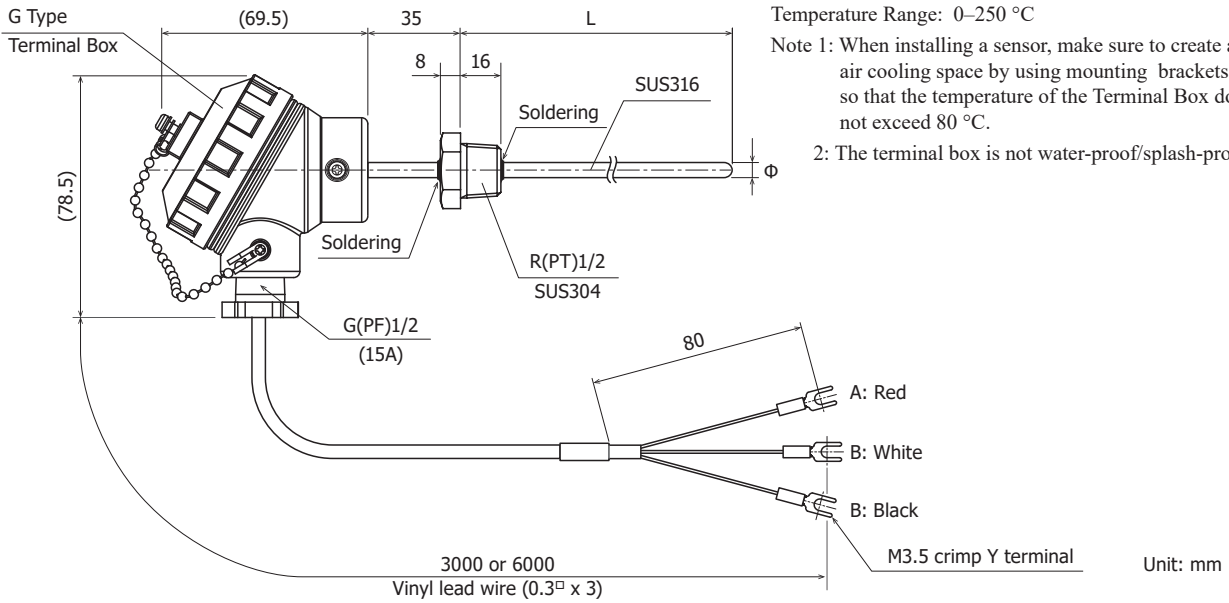
■ Data sheet for RD-18C Sensor

ITEMS	CODE	SPECIFICATIONS		
1. Model	RD-18C-	G HEAD TYPE R. T. D. Pt100 JIS SENSOR		
2. Protecting tube Diameter (Φ)	048	Φ4.8	150	150 mm
			250	250 mm
&	064	Φ6.4	350	350 mm
			500	500 mm
3. Length (L)	□□□		Others (Please consult before ordering.)	
			150	150 mm
	□□□		250	250 mm
			350	350 mm
4. R. T. D. Element		F	JIS Pt100 class B	
		J	JIS JPt100 class B	
5. Lead Wire		N	None	
		C	3000 mm (3 meters) Vinyl lead wire	
		F	6000 mm (6 meters) Vinyl lead wire	
		X	Others (Please consult before ordering.)	
6. Fixture		00 -	None	
		45-	With compression fitting PT1/8 Φ4.8	
		46-	With compression fitting PT1/4 Φ4.8, 6.4	
		47-	With compression fitting PT3/8 Φ4.8, 6.4	
		48-	With compression fitting PT1/2 Φ4.8, 6.4	
		49-	With compression fitting PT3/4 Φ4.8, 6.4	
7. Remarks		51 -	Sliding Flange Type (FA)	
		0	Without	
		9	With (Please consult before ordering.)	

Standard Type Temperature Sensor

Series RD-22C R. T. D. Sensor

- External Dimensions -



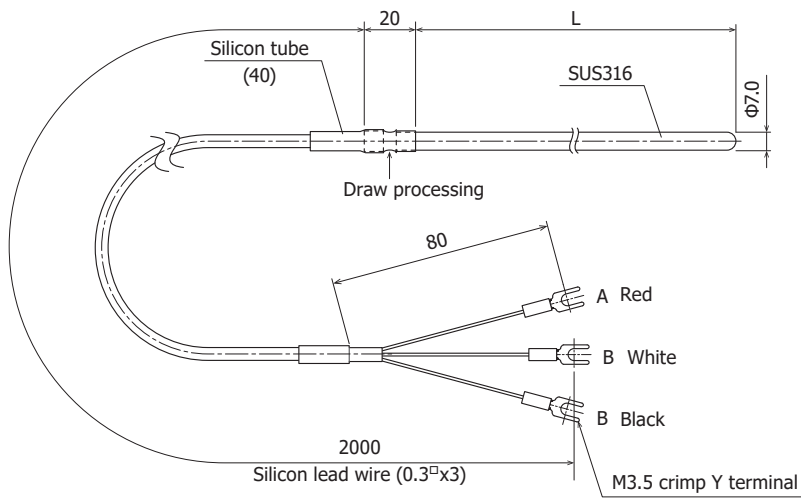
■ Data sheet for RD-22C Sensor

ITEMS	CODE	SPECIFICATIONS		
1. Model	RD-22C-	G HEAD TYPE With Fitting Nipple R. T. D. Pt100 JIS SENSOR		
2. Protecting tube Diameter (Φ)	064	Φ6.4	150	150 mm
			200	200 mm
&	080	Φ8.0	250	250 mm
			300	300 mm
3. Length (L)	□□□		Others (Please consult before ordering.)	
			150	150 mm
4. R. T. D. Element			F	JIS Pt100 class B
			J	JIS JPt100 class B
5. Lead Wire			N	None
			C	3000 mm (3 meters) Vinyl lead wire
6. Fixture			F	6000 mm (6 meters) Vinyl lead wire
			X	Others (Please consult before ordering.)
7. Remarks			14 -	R (PT) 1/2 Fitting Nipple
			0	Without
			9	With (Please consult before ordering.)

Standard Type Temperature Sensor

■ Series RD-10M R. T. D. Sensor

- External Dimensions -

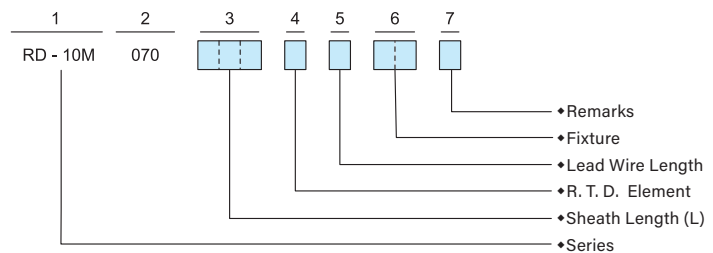


Temperature Range: -50–100 °C

Note: Do not apply water pressure to the lead wires and silicone tubing.

If high drip-proof specification is required, select the SRD series on page 13.

Unit:mm



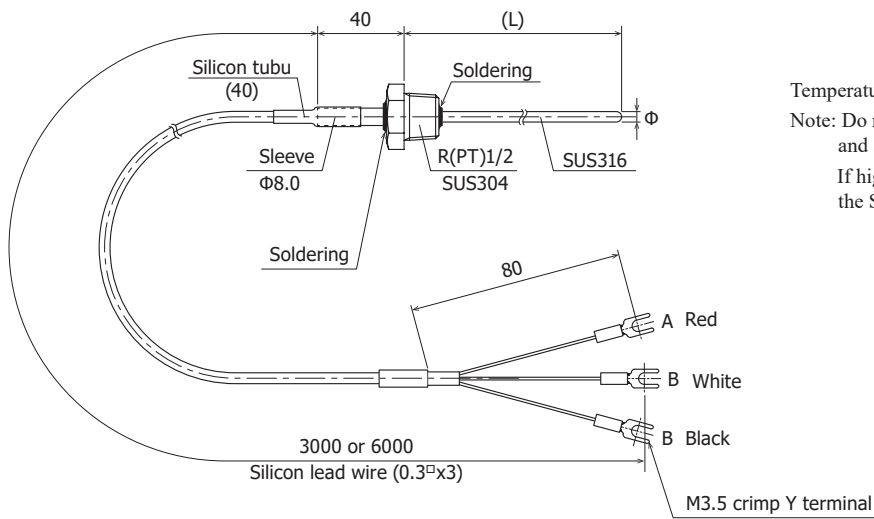
■ Data sheet for RD-10M Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	RD-10M-	DRIP PROOF TYPE R.T.D. Pt100 JIS SENSOR	
2. Protecting tube Diameter (Φ) & 3. Length (L)	070	100 250 □□□	100 mm 250 mm Others (Please consult before ordering.)
4. R. T. D. Element		F J	JIS Pt100 class B JIS JPt100 class B
5. Lead Wire		B X	2000 mm (2 meters) silicon lead wire Others (Please consult before ordering.)
6. Fixture (option)		00 - 46 - 47 - 48 - 49 - 51 -	None With compression fitting PT1/4 (non-standard feature) With compression fitting PT3/8 With compression fitting PT1/2 With compression fitting PT3/4 Sliding Flange Type (FA)
7. Remarks		0 9	Without With (Please consult before ordering.)

Standard Type Temperature Sensor

■ Series RD-12M R. T. D. Sensor

- External Dimensions -

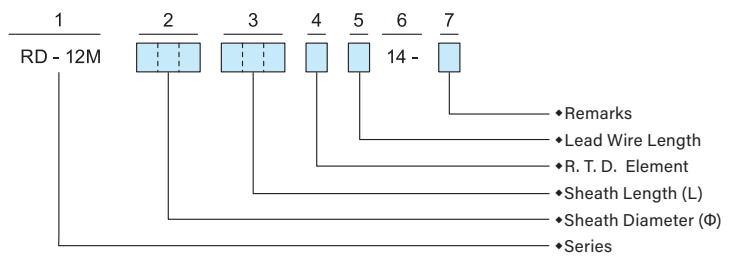


Temperature Range: -50-100 °C

Note: Do not apply water pressure to the lead wires and silicone tubing.

If high drip-proof specification is required, select the SRD series on page 13.

unit: mm



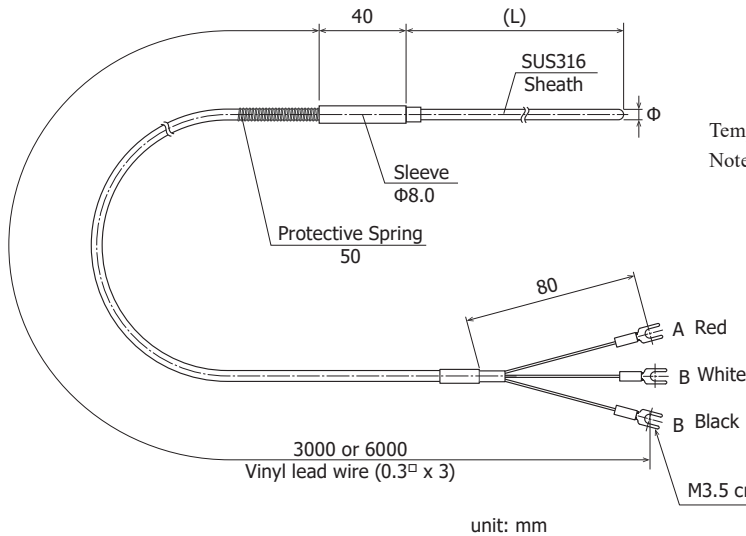
■ Data sheet for RD-12M Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	RD-12M-	DRIP PROOF TYPE R.T.D. Pt100 JIS SENSOR	
2. Protecting tube Diameter (Φ) & 3. Length (L)	048	150	150 mm
		200	200 mm
		250	250 mm
		300	300 mm
		□□□	Others (Please consult before ordering.)
	064	150	150 mm
		200	200 mm
		250	250 mm
		300	300 mm
		□□□	Others (Please consult before ordering.)
	080	150	150 mm
		200	200 mm
250		250 mm	
300		300 mm	
□□□		Others (Please consult before ordering.)	
4. Element Type	F	JIS Pt100 class B 2mA	
	J	JIS JPt100 class B 2mA	
5. Lead Wire	C	3000 mm (3 meters) silicon lead wire	
	F	6000 mm (6 meters) silicon lead wire	
	X	Others (Please consult before ordering.)	
6. Fixture	14 -	R (PT) 1/2 Fitting Nipple	
7. Remarks	0	Without	
	9	With (Please consult before ordering.)	

Standard Type Temperature Sensor

Series RD-11S R. T. D. Sensor

- External Dimensions -

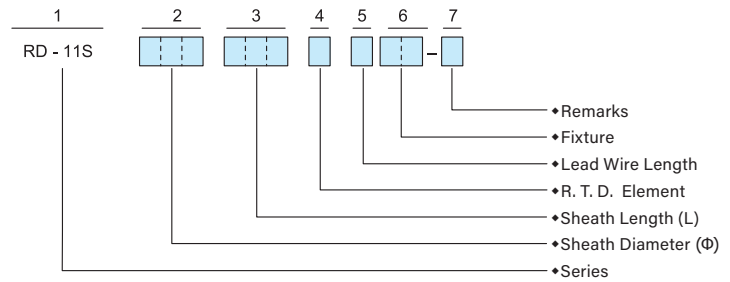


Temperature Range: -200~500 °C

Note 1: When installing a sensor, make sure to create an air cooling space by using mounting brackets, etc. so that the temperature of the sleeve portion does not exceed 80 °C.

2: Do not get wet around the protective spring.

unit: mm



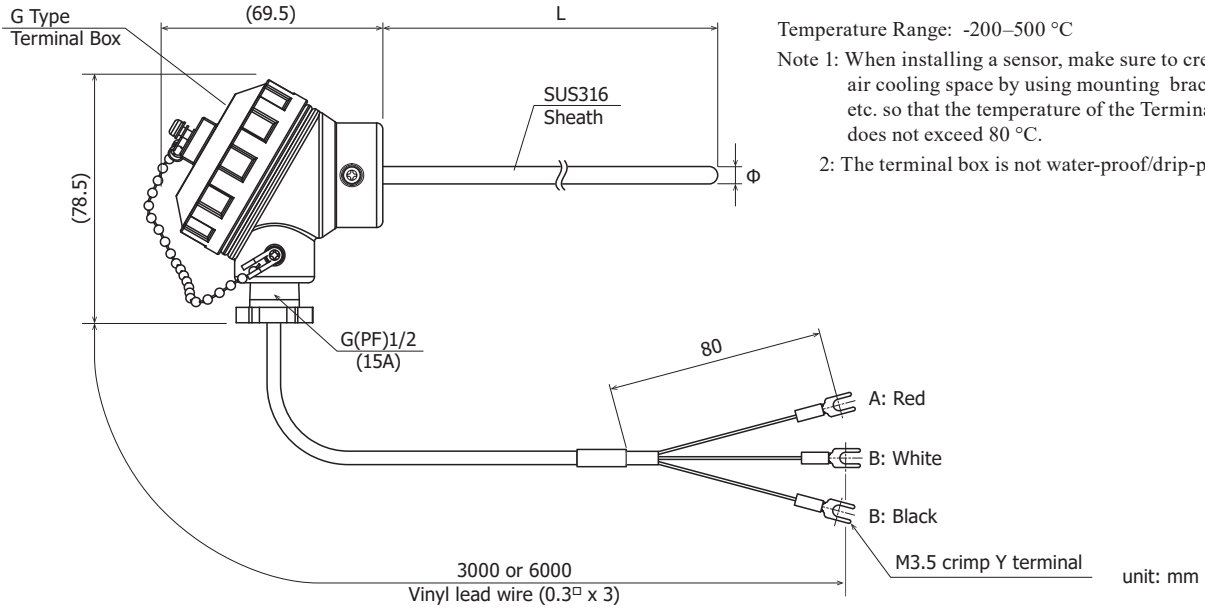
■ Data sheet for RD-11S Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	RD-11S-	SLEEVE TYPE R.T.D. Pt100 JIS SENSOR	
2. Sheath Diameter (Φ) & 3. Length (L)	032	150	150 mm
		250	250 mm
		350	350 mm
		500	500 mm
		□□□	Others (Please consult before ordering.)
	048	150	150 mm
		250	250 mm
		350	350 mm
		500	500 mm
		□□□	Others (Please consult before ordering.)
	064	150	150 mm
		250	250 mm
350		350 mm	
500		500 mm	
□□□		Others (Please consult before ordering.)	
4. Element Type	F	JIS Pt100 class B	
	J	JIS JPt100 class B	
5. Lead Wire	C	3000 mm (3 meters) Vinyl lead wire	
	F	6000 mm (6 meters) Vinyl lead wire	
	X	Others (Please consult before ordering.)	
6. Fixture	00 -	None	
	45-	With compression fitting PT1/8 Φ3.2, 4.8	
	46-	With compression fitting PT1/4 Φ3.2, 4.8, 6.4	
	47-	With compression fitting PT3/8 Φ3.2, 4.8, 6.4	
	48-	With compression fitting PT1/2 Φ3.2, 4.8, 6.4	
	49-	With compression fitting PT3/4 Φ3.2, 4.8, 6.4	
7. Remarks	0	Without	
	9	With (Please consult before ordering.)	

Standard type sensor

■ Series RD-18S R. T. D. Sensor

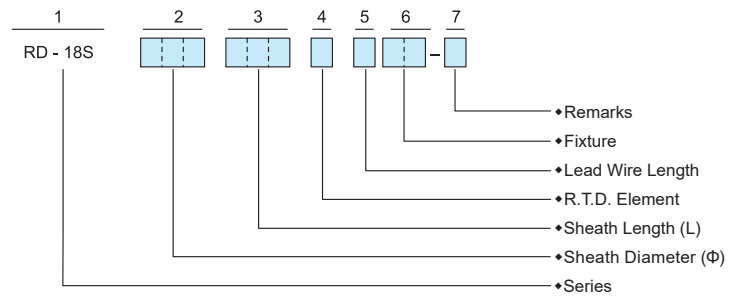
- External Dimensions -



Temperature Range: -200~500 °C

Note 1: When installing a sensor, make sure to create an air cooling space by using mounting brackets, etc. so that the temperature of the Terminal Box does not exceed 80 °C.

2: The terminal box is not water-proof/drip-proof.



■ Data sheet for RD-18S Sensor

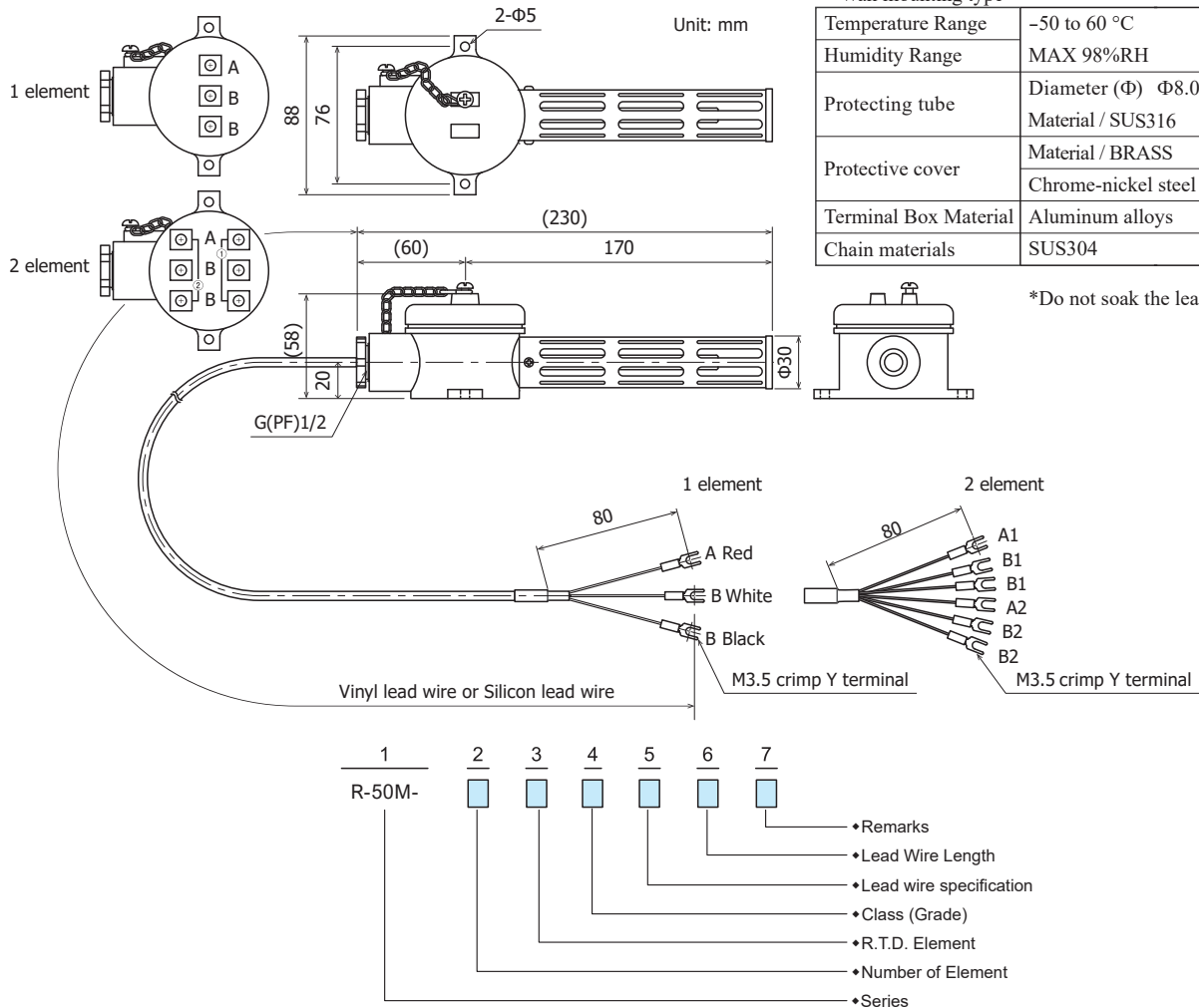
ITEMS	CODE	SPECIFICATIONS	
1. Model	RD-18S-	G HEAD TYPE R. T. D. Pt100 JIS SENSOR	
2. Sheath Diameter (Φ) & 3. Length (L)	032	150	150 mm
		250	250 mm
		350	350 mm
		500	500 mm
		□□□	Others (Please consult before ordering.)
	048	150	150 mm
		250	250 mm
		350	350 mm
		500	500 mm
		□□□	Others (Please consult before ordering.)
	064	150	150 mm
		250	250 mm
350		350 mm	
500		500 mm	
□□□		Others (Please consult before ordering.)	
4. Element Type	F	JIS Pt100 class B	
	J	JIS JPt100 class B	
5. Lead Wire	C	3000 (3 meters) Vinyl lead wire	
	F	6000 (6 meters) Vinyl lead wire	
	X	Others (Please consult before ordering.)	
6. Fixture	00 -	None	
	45-	With compression fitting PT1/8 Φ3.2, 4.8	
	46-	With compression fitting PT1/4 Φ3.2, 4.8, 6.4	
	47-	With compression fitting PT3/8 Φ3.2, 4.8, 6.4	
	48-	With compression fitting PT1/2 Φ3.2, 4.8, 6.4	
	49-	With compression fitting PT3/4 Φ3.2, 4.8, 6.4	
51 -	Sliding Flange Type (FA)		
7. Remarks	0	Without	
	9	With (Please consult before ordering.)	

Standard type sensor

Series R-50M R. T. D. Sensor

■ Series R-50M R.T.D. Sensor

-Terminal Arrangement / External Dimensions -



■ SPECIFICATIONS

- ◆ Freeze/cool/low temperature/high humidity type
- ◆ Wall mounting type

Temperature Range	-50 to 60 °C
Humidity Range	MAX 98%RH
Protecting tube	Diameter (Φ) Φ8.0 × 100mm Material / SUS316
Protective cover	Material / BRASS Chrome-nickel steel plating
Terminal Box Material	Aluminum alloys
Chain materials	SUS304

*Do not soak the lead wire.

■ Data sheet for R-50M Sensor

ITEMS	CODE	SPECIFICATIONS	
1. Model	R-50M-	Freeze/cool/low temperature high humidity type sensor (Temperature)	
2. Number of elements	1	1 element	
	2	2 element	
3. Element Type (*)	F	Pt100	
	J	JPt100	
4. Class (grade)	Q	Class A	
	S	Class B	
	X	Others (Please consult before ordering.)	
5. Lead wire specification	0N	None	
	1E	5 meters Vinyl lead wire (0.3 ^φ × 3)	
	1J	10 meters Vinyl lead wire (0.3 ^φ × 3)	
	3E	5 meters Vinyl lead wire (0.3 ^φ × 6)	
	3J	10 meters Vinyl lead wire (0.3 ^φ × 6)	
	5E	5 meters Silicon lead wire (0.3 ^φ × 3)	
	5J	10 meters Silicon lead wire (0.3 ^φ × 3)	
	7E	5 meters Silicon lead wire (0.3 ^φ × 6)	
	7J	10 meters Silicon lead wire (0.3 ^φ × 6)	
6. Remarks	9X	Others (Please consult before ordering.)	
	0	Without	
	9	With (Please consult before ordering.)	

* When "JPt 100" in item 3 is selected, "Class A" in item 4 can not be selected.

Specially Ordered Temperature Sensor

(STD series is manufactured on special order basis when and if there is no specification found in the standard TD series suitable for your particular requirements.)

STD Series Special Order Thermocouple Model

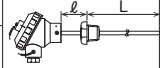
Ordering Information

Usable temperature limit: Limit of temperature that can be used continuously in air.

Note: 1. The terminal box is not water-proof and drip-proof.

2. When installing sensor, set terminal box and sleeve below.

Items	Code	Specifications																
1. Series	STD-	Special order type thermocouple																
2. Type	<input type="checkbox"/>	Select from the shape code selection table shown on page 13																
3. Protecting tube type	C-	General type																
	S-	Sheath type																
4. Sheath & Protecting tube diameter	Code	Outer diameter (mm)	2 pairs	Sheath type						Code	Outer diameter (mm)	2 pairs	General type					
				Working limits (°C)									Working limits (°C)					
				SUS316									Inconel					
				T	J	E	K	N	K									
				005	Φ0.5		300	400	600				600	600	600			
				010	Φ1.0		300	450	650				650	650	650			
				016	Φ1.6		300	450	650				650	650	650			
				023	Φ2.3		300	450	650				650	650	650			
				032	Φ3.2	o	350	650	750				750	750	750			
				048	Φ4.8	o	350	750	800				800	800	900	048	Φ4.8	
																050	Φ5.0	
																060	Φ6.0	o
																064	Φ6.4	o
																080	Φ8.0	o
									100	Φ10	o							
									120	Φ12	o							
									130	Φ13	o							
									150	Φ15	o							
									160	Φ16	o							
									200	Φ20	o							
									220	Φ22	o							
									999	Other								
									999	Other								
5. Material of the protecting tube	Characteristics per material																	
		Material	Working limits	Maximum resistible temperature limit	General characteristics				Available materials for sheath type									
	M	SUS316	850 °C	900 °C	Good corrosion and thermal resistances (superior to SUS304)				o									
	F	SUS304	850 °C	900 °C	Good corrosion and thermal resistances													
	T	Titanium	400 °C	500 °C	Having chemical corrosion resistance													
	N	Inconel	1000 °C	1100 °C	Having thermal and corrosion resistances				Lower than Φ8.0 are possible									
	Q	Quartz	1000 °C	1050 °C	Having strong acid resistance, but no good alkali resistance													
	B	Porcelain PT1	1500 °C	1600 °C	Under good atmosphere such as in an electric furnace													
S	Porcelain PT0	1600 °C	1800 °C	Suitable for oxidation reduction atmosphere														
X	Other																	
6. Length of air cooler (ℓ)	<input type="checkbox"/>	Record in mm unit																
7. Insertion length (L)	<input type="checkbox"/>	Record in mm unit. The values of 999 mm or higher will be recorded with a remark with 999.																
8. Temperature measuring junction	U	Non-grounded																
	G	Grounded																
	E	Tip open																
9. Fixture	00-	None																
	<input type="checkbox"/>	Select from the fixture code selection table shown on page 14																
10. Thermocouple type	<input type="checkbox"/>	T: Thermocouple T, K: Thermocouple K, R: Thermocouple R, J: Thermocouple J, N: Thermocouple N, B: Thermocouple B, E: Thermocouple E, S: Thermocouple S X: Other																
11. Number of wires	1	1 Pair																
	2	2 Pair																
12. Class (grade)	D	Class 2 grade 0.25 (just for S and R)																
	F	Class 1 grade 0.4 (precision type except S, R and B)																
	G	Class 3 grade 0.5 (just for B)																
	H	Class 2 grade 0.75 (generally used T, J, E, K and N)																
	J	Class 3 grade 1.5 (just for temperature below 0 degree for T, E, K and N)																
13. Compensating wire exterior specification (If you select 10, 11, 12, 13, 39 in [2. Type], please select other than "0: None".)	0	None																
	1	Vinyl coating, 7/0.3, -20~90 °C																
	2	Vinyl coating, 7/0.65, -20~90 °C																
	3	Glass wool coating, 7/0.3, 0~150 °C																
	4	Glass wool coating, 7/0.65, 0~150 °C																
	5	Silicon coating, 20/0.18, -50~150 °C																
14. Length of compensation wire (If you select 10, 11, 12, 13, 39 in [2. Shape], please select other than "000: None".) ([13. Compensating lead wire exterior specifications], if "0: None" is selected, it becomes "000: no compensation lead wire".)	000	None																
	<input type="checkbox"/>	Record in cm unit. The values of 999 or higher will be recorded with remark(s)																
15. Compensation wire end treatment (If you select 10, 11, 12, 13, 39 in [2. Shape], please select other than "0: None".) ([13. Compensating lead wire exterior specifications], if "0: None" is selected, it becomes "0: no compensation lead wire".)	0	No compensation wire																
	U	M3.5 crimp Y terminal																
	Y	M4 crimp Y terminal																
	N	No terminal (disconnected)																
	9	Other																
		0	Without															
	9	With																
16. Remarks																		



Specially Ordered Temperature Sensor

(SRD series is manufactured on special order basis when and if there is no specification found in the standard RD series suitable for your particular requirements.)

SRD Series Special Order R.T.D. Model

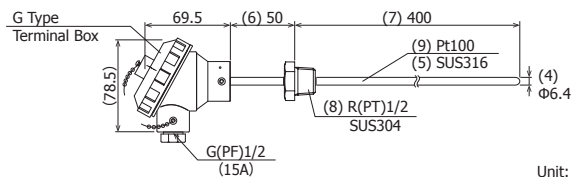
Ordering Information

- Note: 1. The terminal box is not water-proof and drip-proof.
 2. When installing sensor, set terminal box and sleeve below 80 °C
 3. When placing an order, please let us know the temperature zone you actually use.
 3: We will select materials according to the usage conditions and produce them.

Items	Code	Specifications	
1. Series	SRD-	Special order type R.T.D.	
2. Type	<input type="checkbox"/>	Select from the Shape code selection table shown on page 13	
3. Protecting tube type	C-	General type	
	M-	General purpose moisture-proof treatment	
	S-	Sheath type	
	Y-	Moisture-proof treatment of sheath type	
	X-	Other	
04. Sheath & Protecting tube diameter		Diameter (mm) 2-element	
	010	Φ1.0	0-250 °C
	016	Φ1.6	0-250 °C
	032	Φ3.2	0-250 °C
	040	Φ4.0	0-250 °C
	048	Φ4.8	0-250 °C
	050	Φ5.0	0-250 °C
	060	Φ6.0	0-250 °C
	064	Φ6.4	0-400 °C
	070	Φ7.0	0-450 °C
	080	Φ8.0	0-250 °C
	100	Φ10	0-500 °C
	120	Φ12	0-500 °C
	160	Φ16	0-500 °C
	999	Other	
5. Material of the protecting tube	M	SUS316	Good corrosion and thermal resistances (superior to SUS304)
	F	SUS304	Good corrosion and thermal resistances
	T	Titanium	Having chemical corrosion resistance
	Q	Quartz	Having strong acid resistance, but no good alkali resistance
	X	Other	
6. Length of air cooler (t)	<input type="checkbox"/>	Record in mm unit	
7. Insertion length (L)	<input type="checkbox"/>	Record in mm unit. The values of 999 mm or higher will be recorded with a remark with 999.	
8. Fixture	00-	None	
	<input type="checkbox"/>	Select from the fixture code selection table shown on page 14	
9. R. T. D. element	F	Pt100	
	J	JPt100	
	X	Other	
10. Number of elements	1	1 element	
	2	2 element	
11. Class (grade)	P	Amperage specified for class A (Precision type): 1mA	
	Q	Amperage specified for class A (Precision type): 2mA	
	R	Amperage specified for class B (Ordinary type): 1mA	
	S	Amperage specified for class B (Ordinary type): 2mA	
	X	Other	
12. Lead wire exterior specification (*2 This mark is for lead wire for 2 elements.) (If you select 10, 11, 12, 13, 39 for [2. Shape], please select other than "0: None".)	0	None	
	1	3-core wire, vinyl coated 0.3 ^φ ×3, 0.06Ω/m, 0-60 °C	
	2	3-core wire, vinyl coated 0.75 ^φ ×3, 0.03Ω/m, 0-60 °C	
	3	6-core wire, vinyl coated *2 0.3 ^φ ×6, 0.06Ω/m, 0-60 °C	
	4	3-core wire, silicon 0.3 ^φ ×3, 0.06Ω/m, -50-150 °C	
	5	3-core wire, silicon 0.75 ^φ ×3, 0.03Ω/m, -50-150 °C	
	6	6-core wire, silicon *2 0.3 ^φ ×6, 0.06Ω/m, -50-150 °C	
	9	Other	
13. Length of lead wire (If you select 10, 11, 12, 13, 39 for [2. Shape], please select other than "000: none".) ([12. Lead wire exterior specifications], if "0: None" is selected, it becomes "000: without lead wire".)	000	None	
	<input type="checkbox"/>	Record in cm unit. The values of 999 or higher will be recorded with remark(s).	
14. Lead wire end treatment (If you select 10, 11, 12, 13, 39 as [2. Shape], please select other than "0: None".) (When "0: None" is selected in [12. Lead wire exterior specifications], it becomes "0: No lead wire".)	0	No lead wire	
	U	M3.5 crimp Y terminal	
	Y	M4 crimp Y terminal	
	N	No terminal (disconnected)	
	9	Other	
15. Remarks	0	Without	
	9	With	

Code selection example

Code : SRD - 22 C - 064 M 050 400 14 - F 1 S 0 000 0 0
 Items: (1) (2) (3) (4) (5) (6) (7) (8) (9)(10)(11)(12) (13) (14) (15)



The above code shows the code when the RTD of shape code 22 (see the left figure) is selected.

Unit: mm

Specially Ordered Temperature Sensor

Shape code selection table TC / Thermocouple RTD / resistance temperature detector

Shape	Code	Applied element	Applied diameter (mm)
<p>Draw processing</p> <p>Protective tube type "S" and "Y" can not be selected.</p> <p>Connectors are optional.</p>	10	TC	5.0 - 7.0
		RTD	7.0 - 8.0
<p>SLEEVE 40</p> <p>Connectors are optional.</p>	11	TC	0.5 - 6.4
		RTD	1.0 - 6.4
<p>SLEEVE 40</p> <p>Connectors are optional.</p>	12	TC	1.0 - 8.0
		RTD	3.2 - 8.0
<p>BAYONET Type Thermocouple</p> <p>SLEEVE 40</p>	13	TC	3.2 - 4.8
<p>70.5(57.3)</p> <p>53(43)</p> <p>Metal Protection Tube</p> <p>Dimensions shown with in parenthesis are for Small Model (TS).</p>	14	TC	3.2 - 10
<p>Large Model (TL)</p> <p>Dimensions shown with in parenthesis are for Small Model (TS).</p>	15		3.2 - 22
<p>70.5 (57.3)</p> <p>53 (43)</p> <p>Non-metal</p> <p>Dimensions shown with in parenthesis are for Small Model (TS).</p>	16	TC	6.0 - 10
<p>Large Model (TL)</p> <p>Dimensions shown with in parenthesis are for Small Model (TS).</p>	17		13 - 20
<p>94.7(69.5)</p> <p>{101.9 (78.5)}</p> <p>G(PF)1/2 15A</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	18	TC RTD	3.2 - 12
<p>Large Model (M)</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	19		3.2 - 22
<p>94.7(69.5)</p> <p>{101.9 (78.5)}</p> <p>Non-metal</p> <p>G(PF)1/2 15A</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	20	TC	6.0 - 10
<p>Large Model (M)</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	21		6.0 - 20

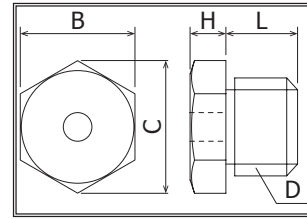
Shape	Code	Applied element	Applied diameter (mm)
<p>94.7(69.5)</p> <p>{101.9 (78.5)}</p> <p>G(PF)1/2 15A</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	22	TC RTD	1.0 - 12
<p>Large Model (M)</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	23		3.2 - 22
<p>94.7(69.5)</p> <p>{101.9 (78.5)}</p> <p>G(PF)1/2 15A</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	24	TC RTD	6.0 - 12
<p>Large Model (M)</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	25		3.2 - 22
<p>74</p> <p>48</p> <p>90</p> <p>G(PF)1/2</p> <p>Lead port twin type terminal box</p>	33	TC RTD	4.8 - 22
<p>94.7(69.5)</p> <p>{101.9 (78.5)}</p> <p>G(PF)1/2 (15A)</p> <p>With sanitary ferrule</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	37	TC RTD	3.2 - 12
<p>Large Model (M)</p> <p>Dimensions shown with in parenthesis are for Small Model (G).</p>	38		
<p>Connector</p>	39	TC RTD	1.6 - 12
			3.2 - 22
<p>105</p> <p>105</p> <p>Lead port double type terminal box</p>	40	TC RTD	3.2 - 22
<p>JFL HEAD TYPE (Phenolic resin materials)</p> <p>93</p> <p>102</p> <p>G(PF)1/2</p>	41	TC RTD	3.2 - 22
Others	99		

Specially Ordered Temperature Sensor

Fixture code selection table

■Fitting Nipple

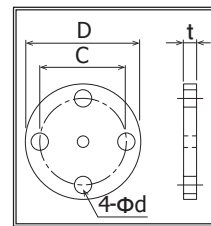
Category	Code	Screw standard	Dimension (unit:mm) / Material:SUS304 (*)				
			Nominal diameter D	B	C	L	H
G(PF) (Straight)	01	G(PF)1/8	1/8	14	16	10	5
	02	G(PF)1/4	1/4	17	19.6	12	7
	03	G(PF)3/8	3/8	21	24	13	7
	04	G(PF)1/2	1/2	26	30	16	8
	05	G(PF)3/4	3/4	32	37	20	10
R(PT) (Taper)	11	R(PT)1/8	1/8	14	16	10	5
	12	R(PT)1/4	1/4	17	19.6	12	7
	13	R(PT)3/8	3/8	21	24	13	7
	14	R(PT)1/2	1/2	26	30	16	8
	15	R(PT)3/4	3/4	32	37	20	10



* Standard material for Fitting Nipple is SUS304.
However, according your request, we may manufacture the nipple with any other material.

■Pressure flange

Withstanding pressure	Nominal diameter (inch)	Code	Dimension (unit:mm) / Material:SUS304 (*)				Applicable pipe diameter
			D	C	d	t	
5K	10 (3/8)	23	75	55	12	9	17.3
	15 (1/2)	24	80	60	12		21.7
	20 (3/4)	25	85	65	12	10	27.2
	25 (1)	26	95	75	12		34.0
10K	10 (3/8)	33	90	65	15	12	17.3
	15 (1/2)	34	95	70	15		21.7
	20 (3/4)	35	100	75	15	14	27.2
	25 (1)	36	125	90	19		34.0



* Standard material for Pressure flange is SUS304.
However, according your request, we may manufacture the nipple with any other material.

■Compression Fitting

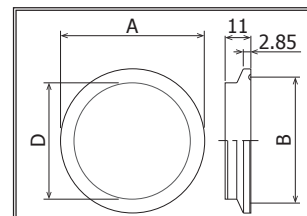
Code	Screw standard	Applicable protecting tube diameter	Refer to page 16 for dimensions.
45	R(PT)1/8	Φ1.6, 3.2, 4.8	Material: Body / SUS304, Cotter / Brass: C3713 We also accept Teflon, SUS, etc. as the material for the cotter. Please contact your sales representative for details.
46	R(PT)1/4	Φ1.6, 3.2, 4.8, 6.4, 8.0	
47	R(PT)3/8	Φ3.2, 4.8, 6.4, 8.0	
48	R(PT)1/2	Φ3.2, 4.8, 6.4, 8.0, 10	
49	R(PT)3/4	Φ3.2, 4.8, 6.4, 8.0, 10, 12	

■Sliding flange

Pressure resistance / nominal diameter	Symbol	Code	Material, screw used	Refer to page 16 for dimensions.
—	FA (Φ50)	51	Material : ZDC (Zinc alloy) Used screw SUS pan head 4 × 12	
JIS5K20A	FB (Φ85)	52	Material : FC200 (Cast iron) Used screw M6×20	

■Ferrule Cap

Nominal diameter	Code	Dimension (unit: mm)			Material
		D	B	A	
1S	65	38.1	43.5	50.5	SUS316L
1½S	66				
2S	67	50.8	56.5	64.0	
2½S	68	63.5	70.5	77.5	
3S	69	76.3	83.5	91.0	

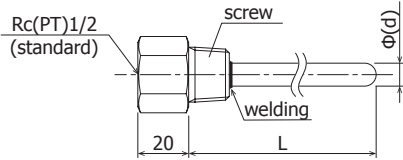


* Standard material for Ferrule is SUS316L.
However, according your request, we may manufacture the Ferrule with any other material.

Double Protection Thermo-well

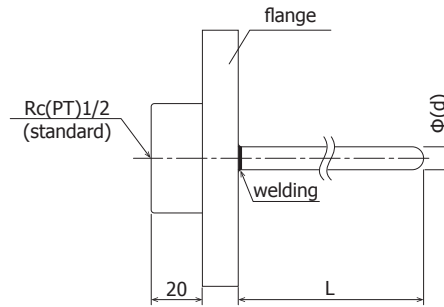
■ WP Series Type Welded

● Nipple type



Unit: mm

● Flange type



Unit: mm

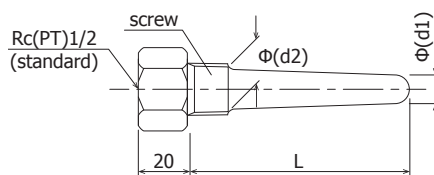
Ordering Information

Items	Code	Specifications
1. Series	WP-	Welded type
2. Type	N	Nipple type
	F	Flange type
3. Fixing bracket size	<input type="checkbox"/> <input type="checkbox"/>	For details, refer to Fixing bracket code selection table (page 14)
4. Protecting tube diameter (d)	080	Outer diameter size $\Phi 8.0$ (inner diameter $\Phi 6.0$)
	100	Outer diameter size $\Phi 10.0$ (inner diameter $\Phi 7.0$)
	120	Outer diameter size $\Phi 12.0$ (inner diameter $\Phi 9.0$)
	150	Outer diameter size $\Phi 15.0$ (inner diameter $\Phi 11.0$)
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Other than those above. Dimension code $\Phi \square \square \square$. Processed with special instructions
5. Insertion length (L) (*)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Enter in mm. If 999 mm or more long length is required, specify 999 and inform your required length.
6. Material of the protecting tube	<input type="checkbox"/>	Refer to the code selection table (pages 11 to 12) for the protective tube material.
7. Remarks	0	Without
	9	With

* When calculating dimension L, make sure that the total length of the Double protection tube is 10.0 mm or more longer than the insertion length of the sensor used.

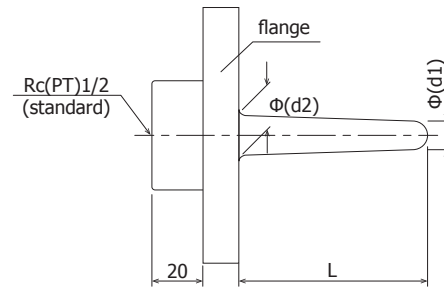
■ WB Series Type Drilled

● Nipple type



Unit: mm

● Flange type



Unit: mm

Ordering Information

Items	Code	Specifications
1. Series	WB-	Drilled type
2. Type	N	Nipple type
	F	Flange type
3. Fixing bracket size	<input type="checkbox"/> <input type="checkbox"/>	For details, refer to Fixing bracket code selection table (page 14)
4. Protecting tube diameter (d1)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dimension code $\Phi \square \square \square$
5. Protecting tube diameter (d2)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Dimension code $\Phi \square \square \square$
6. Insertion length (L) (*)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Enter in mm. If 999 mm or more long length is required, specify 999 and inform your required length.
7. Material of the protecting tube	<input type="checkbox"/>	Refer to the code selection table (pages 11 to 12) for the protective tube material.
8. Protective tube inner diameter	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Inner diameter dimension code $\Phi \square \square \square$
9. Remarks	0	Without
	9	With

* When calculating dimension L, make sure that the total length of the Double protection tube is 10.0 mm or more longer than the insertion length of the sensor used.

Fixing bracket (sold separately)

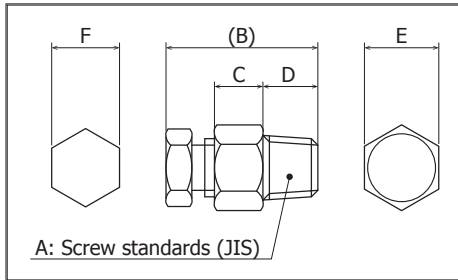
■QTC Series Compression Fitting

●Dimension

Unit: mm

Symbol	A:Screw standards	(B)	C	D	E	F
Code: 45	R(PT)1/8	(30)	12	9	13	13
Code: 46	R(PT)1/4	(38)	14	12	17	17
Code: 47	R(PT)3/8	(40)	15	13	19	17
Code: 48	R(PT)1/2	(47)	15	17	23	21
Code: 49	R(PT)3/4	(61)	21	19.5	29	23

●Material



Body : SUS304

Cotter: C3713 (Brass)

We also accept Teflon, SUS, etc. as the material for the cotter.

Please contact your sales representative for details.

note. There is no confidentiality.

●Ordering Information

Items	Code	Specifications		
1.Series	QTC-	Compression Fitting		
2. Screw standards / Applicable protecting tube diameter	45- (R1/8)	016	For Φ1.6	
		023	For Φ2.3	
		032	For Φ3.2	
	46- (R1/4)	048	For Φ4.8	
		016	For Φ1.6	
		023	For Φ2.3	
		032	For Φ3.2	
		064	For Φ6.4	
	47- (R3/8)	080	For Φ8.0	
		023	For Φ2.3	
		032	For Φ3.2	
		048	For Φ4.8	
	48- (R1/2)	064	For Φ6.4	
		080	For Φ8.0	
		100	For Φ10.0	
		120	For Φ12.0	
		49- (R3/4)	023	For Φ2.3
	032		For Φ3.2	
	048		For Φ4.8	
	064		For Φ6.4	
	080		For Φ8.0	
	120		For Φ12.0	
	3.Remarks		0	With
			9	Without

■QTF Series Sliding Flange

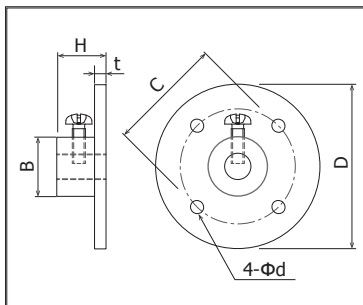
●Dimension

Symbol	B	C	D	d	t	H	Used screw
Code: 51 (Type FA)	18	35	50	4.5	3.5	15	SUS Pan head 4 × 12
Code: 52 (Type FB)	35	65	85	12	10	40	M6 × 20

●Material

Type FA: ZDC (Zinc alloy)

Type FB: FC200 (Cast iron)



●Ordering Information

Items	Code	Specifications			
1. Series	QTF-	Sliding Flange			
2. Flange type /Applicable protective tube outer diameter	51- (type FA)	016	For Φ1.6		
		023	For Φ2.3		
		032	For Φ3.2		
		040	For Φ4.0		
		048	For Φ4.8		
		060	For Φ6.0		
		064	For Φ6.4		
		070	For Φ7.0		
		080	For Φ8.0		
		100	For Φ10.0		
	52- (type FB)	120	For Φ12.0		
		064	For Φ6.4		
		070	For Φ7.0		
		080	For Φ8.0		
		100	For Φ10.0		
		120	For Φ12.0		
		130	For Φ13.0		
		150	For Φ15.0		
		160	For Φ16.0		
		200	For Φ20.0		
		220	For Φ22.0		
		3. Remarks		0	With
				9	Without

SUPPLEMENTARY ITEM

■ TERMINAL BOX

*1: Terminal Box does not exceed 80 °C.

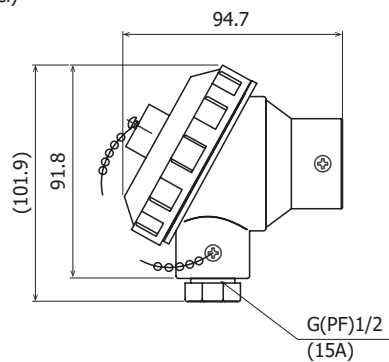
2: The terminal box is not water-proof/splash-proof.

● SPECIFICATIONS

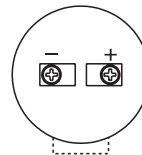
NAME	ITEM	Material	GROUND	Chain
				Material / Appearance
Type M (Large Model)		Aluminum alloys (Both body and cap)	G(PF)1/2 (15A) Inner diameter Φ 14.2	C3713 (Brass) / Chrome-nickel steel plating
Type G (Small Model)		Aluminum alloys (Both body and cap)		C3713 (Brass) / Chrome-nickel steel plating
Lead port double type terminal box (For 2 elements)		Aluminum alloys (Both body and cap)		C3713 (Brass) / Chrome-nickel steel plating
Phenolic resin terminal box		Phenolic resin		C3713 (Brass) / Chrome-nickel steel plating
Open type	Type TL (Large Model)	Body: Aluminum alloy Terminal board: Phenolic resin	M4 x 6	
	Type TS (Small Model)	Body: Aluminum alloy Terminal board: Phenolic resin	M3 x 6	
Lead port twin type terminal box (For 2 elements)		Aluminum alloy (Both body and cap)	G(PF)1/2	C3713 (Brass) / Chrome-nickel steel plating

● OUTLINE DRAWING, TERMINAL INSIDE VIEW

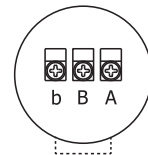
■ Type M (Large Model)



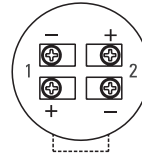
Thermocouple



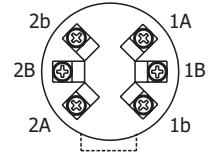
R. T. D.



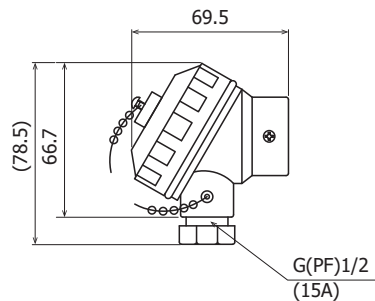
Thermocouple 2 Pair



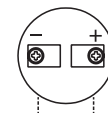
R. T. D. 2 elements



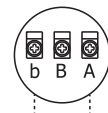
■ Type G (Small Model)



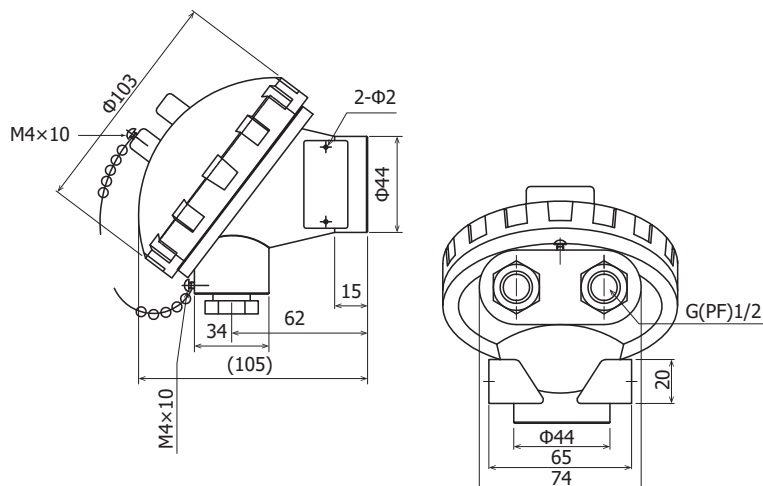
Thermocouple



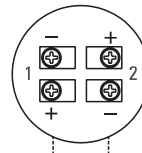
R. T. D.



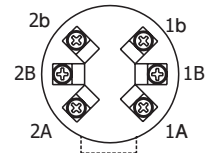
■ Lead port double type terminal box (For 2 elements)



Thermocouple 2 Pair

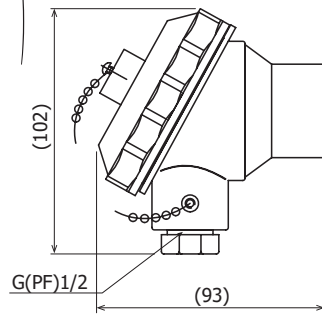


R. T. D. 2 elements

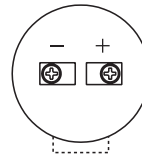


■Phenolic resin (Type JFL) terminal box

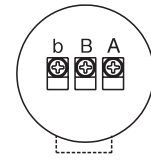
- (Characteristics of phenolic resin)
- High oil resistance and chemical resistance
 - Weak in alkali



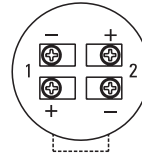
Thermocouple



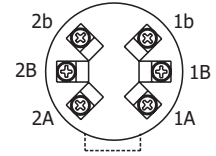
R. T. D.



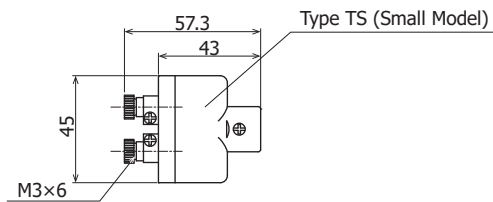
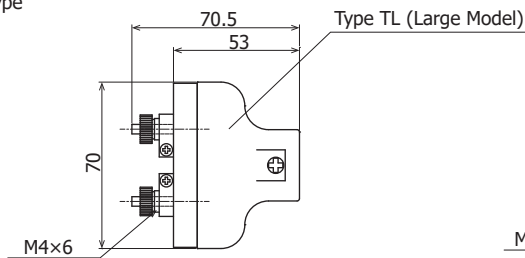
Thermocouple 2 Pair



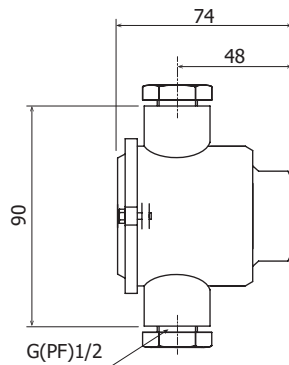
R. T. D. 2 elements



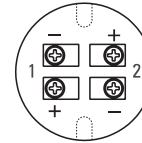
■Open type



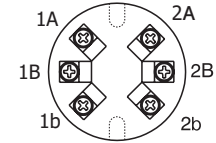
■Lead port twin type terminal box (For 2 elements)



Thermocouple 2 Pair



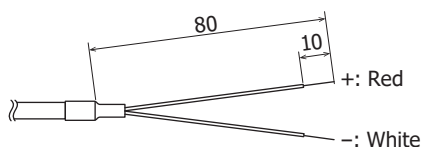
R. T. D. 2 elements



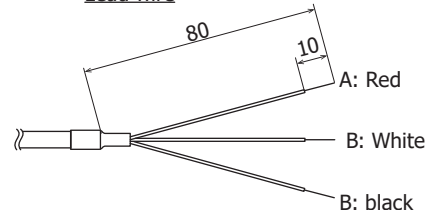
■Additional items

- The specifications of the sleeves and protective springs used in the standard detectors RD and TD are as follows.
Sleeve: $\Phi 8.0 \times 40$ mm Material / SUS304 or SUS303
Protection spring: 50 mm appearance / nickel plating
Special orders such as the STD series and SRD series may differ. Please contact your sales representative for details.
- Compensating lead and lead wire length includes the exposed area (standard 80 mm / center of crimped Y terminal).
The standard size of the crimping Y terminal of the TD / RD / R-50M series is M3.5, but it is possible to change to other sizes and shapes with the custom-made STD / SRD series.
Please contact your sales representative for details.
- About joining of fixed nipple and pressure flange
In the case of the general type: The protective tube outer diameter mm 3.2 mm or less is produced with silver solder, and the larger diameter is produced by argon welding.
In the case of the sheath type: In principle, silver solder is used, but it may differ depending on the specifications and outer diameter.
Please contact your sales representative for details.
- If the sensor with terminal box has an air-cooled part or support and the outer diameter of the protective tube or sheath tube is less than $\Phi 4.8$ mm, the outer diameter of the air-cooled part or support is manufactured as standard $\Phi 8$. For non-standard products, please contact your sales representative.
- In the STD series Compensating lead wire termination (No. 15 on page 12) and SRD series lead wire termination (No. 14 on page 13), "No terminal" is generated as follows.

Compensating wire



Lead wire



Standards for Thermocouple

■Tolerance and Working Limits for Thermocouple

JIS C 1602-1995

Types		Classification of tolerances (New standards)			Diameter of element wire (mm)	Working limit and Overheated working limit	
		Class 1	Class 2	Class 3		Working Limit Temperature (°C)	Overheated Working Limit Temperature (°C)
B	Tolerance for temperature range	---	---	600°C or higher and less than 800°C ±4°C	0.50	1500	1700
	Tolerance for temperature range	---	600°C or higher and less than 1700°C ±0.0025 · t	800°C or higher and less than 1700°C ±0.005 · t			
	Grade (former standard)*	---	-	Grade 0.5			
R, S	Tolerance for temperature range	0°C or higher and less than 1100°C ±1°C	0°C or higher and less than +600°C ±1.5°C	---	0.50	1400	1600
	Tolerance for temperature range	---	600°C or higher and less than 1600°C ±0.0025 · t	---			
	Grade (former standard)*	---	Grade 0.25	---			
N	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	-167°C or higher and less than +40°C ±2.5°C	0.65	850	900
	Tolerance for temperature range	375°C or higher and less than 1000°C ±0.004 · t	333°C or higher and less than 1200°C ±0.0075 · t	-200°C or higher and less than -167°C ±0.015 · t	1.00	950	1000
	Grade (former standard)*	---	---	---	1.60	1050	1100
	Grade (former standard)*	---	---	---	2.30	1100	1150
K	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	-167°C or higher and less than +40°C ±2.5°C	0.65	650	850
	Tolerance for temperature range	375°C or higher and less than 1000°C ±0.004 · t	333°C or higher and less than 1200°C ±0.0075 · t	-200°C or higher and less than -167°C ±0.015 · t	1.00	750	950
	Grade (former standard)*	Grade 0.4	Grade 0.75	Grade 1.5	1.60	850	1050
	Grade (former standard)*	Grade 0.4	Grade 0.75	Grade 1.5	2.30	900	1100
E	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	-167°C or higher and less than +40°C ±2.5°C	0.65	450	500
	Tolerance for temperature range	375°C or higher and less than 800°C ±0.004 · t	333°C or higher and less than 900°C ±0.0075 · t	-200°C or higher and less than -167°C ±0.015 · t	1.00	500	550
	Grade (former standard)*	Grade 0.4	Grade 0.75	Grade 1.5	1.60	550	600
	Grade (former standard)*	Grade 0.4	Grade 0.75	Grade 1.5	2.30	600	750
J	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	---	0.65	400	500
	Tolerance for temperature range	375°C or higher and less than 750°C ±0.004 · t	333°C or higher and less than 750°C ±0.0075 · t	---	1.00	450	550
	Grade (former standard)*	Grade 0.4	Grade 0.75	---	1.60	500	650
	Grade (former standard)*	Grade 0.4	Grade 0.75	---	2.30	550	750
T	Tolerance for temperature range	-40°C or higher and less than +125°C ±0.5°C	-40°C or higher and less than +133°C ±1°C	-67°C or higher and less than +40°C ±1°C	0.32	200	250
	Tolerance for temperature range	125°C or higher and less than 350°C ±0.004 · t	133°C or higher and less than 350°C ±0.0075 · t	-200°C or higher and less than -67°C ±0.015 · t	0.65	200	250
	Grade (former standard)*	Grade 0.4	Grade 0.75	Grade 1.5	1.00	250	300
	Grade (former standard)*	Grade 0.4	Grade 0.75	Grade 1.5	1.60	300	350

Note) ● The tolerance means the allowable maximum limits for the value obtained by subtracting the temperature at the temperature measuring junction from the temperature obtained by converting thermo-electromotive force based on reference table for thermoelectromotive force.

● Class 1 of the tolerance for thermocouple R/S will be applied to the standard thermocouples.

Remark 1. | t | is a modulus value of measured temperature (°C) regardless over or under the freezing point (+/-).

2. * is indicated for reference.

● Working Limits are the limits of temperature within which the thermocouple could be continuously used in the atmosphere.

● Overheated working limit is the temperature limit up to which the thermocouple may be used for short time period when inevitably required.

■Insulation resistance and dielectric strength of the thermocouple (between terminal and protecting tube)

Item	Characteristics
Insulation resistance	500V DC 10MΩ or higher
Dielectric strength	500V AC for 1 minute or longer

Remark 1. Applied to thermocouples with protecting tube

2. For ground mode, or of any structure under which a protecting tube is to be used as a leg of wire for thermocouple, this test will not be conducted.

Standards for Thermocouple

■ Tolerance and Working Limits for Sheath Thermocouples

JIS C 1602-1995

Types		Classification of tolerances			OD of Metal Sheath (mm)	Metal Sheath (°C)	
		Class 1	Class 2	Class 3		A	B
SN	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	-167°C or higher and less than +40°C ±2.5°C	0.5	600	
	Tolerance for temperature range	375°C or higher and less than 1000°C ±0.004 · t	333°C or higher and less than 1200°C ±0.0075 · t	-200°C or higher and less than -167°C ±0.015 · t	1.0, 1.5 (, 1.6) , 2.0	650	
	Grade (former standard)*	---	---	---	3.0 (,3.2)	750	
					4.5 (,4.8)	800	900
SK	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	-167°C or higher and less than +40°C ±2.5°C	6.0 (,6.4)	800	1000
	Tolerance for temperature range	375°C or higher and less than 1000°C ±0.004 · t	333°C or higher and less than 1200°C ±0.0075 · t	-200°C or higher and less than -167°C ±0.015 · t	8.0	900	1050
	Grade (former standard)*	---	Grade 0.75	Grade 1.5			
SE	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	-167°C or higher and less than +40°C ±2.5°C	0.5	600	
	Tolerance for temperature range	375°C or higher and less than 800°C ±0.004 · t	333°C or higher and less than 900°C ±0.0075 · t	-200°C or higher and less than -167°C ±0.015 · t	1.0, 1.5 (, 1.6) , 2.0	650	
	Grade (former standard)*	---	Grade 0.75	Grade 1.5	3.0 (,3.2)	750	
					4.5 (,4.8)	800	900
SJ	Tolerance for temperature range	-40°C or higher and less than +375°C ±1.5°C	-40°C or higher and less than +333°C ±2.5°C	---	6.0 (,6.4)	800	900
	Tolerance for temperature range	375°C or higher and less than 750°C ±0.004 · t	333°C or higher and less than 750°C ±0.0075 · t	---	8.0	900	900
	Grade (former standard)*	---	Grade 0.75	---			
ST	Tolerance for temperature range	-40°C or higher and less than +125°C ±0.5°C	-40°C or higher and less than +133°C ±1°C	-67°C or higher and less than +40°C ±1°C	0.5	300	
	Tolerance for temperature range	125°C or higher and less than 350°C ±0.004 · t	133°C or higher and less than 350°C ±0.0075 · t	-200°C or higher and less than -67°C ±0.015 · t	1.0, 1.5 (, 1.6) , 2.0	300	
	Grade (former standard)*	---	Grade 0.75	Grade 1.5	3.0 (,3.2)	350	
					4.5 (,4.8)	350	
				6.0 (,6.4)	350		
				8.0	350		
Note) The tolerance means the allowable maximum limits for the value obtained by subtracting the temperature at the temperature measuring junction from the temperature obtained by converting thermo-electromotive force based on reference table for thermo-electromotive force.					Remark 1. The series indicated within the parenthesis will be discontinued in future. 2. Material of metal sheath A: Austenitic stainless steel B: Corrosion and thermal resistant super alloy		
Remark 1. t is a modulus value of measured temperature (°C) regardless over or under the freezing point (+/-). 2. * is for reference.							

■ Insulation resistance and withstand voltage of sheath thermocouple (between terminal and metal sheath)

ITEM	Outer diameter of metal sheath (mm)	Characteristic
Insulation resistance	0.5, 1.0, 1.5 (,1.6), 2.0	100V DC 20 MΩ or more
	3.0, (3.2), 4.5, (4.8), 6.0, (6.4), 8.0	500V DC 100 MΩ or more
Withstand voltage (Note)	1.0, 1.5, (1.6)	100V AC 1 minute
	3.0, (3.2), 4.5, (4.8), 6.0, (6.4), 8.0	500V AC 1 minute

(Note)The outer diameter 0.5 mm of the metal sheath does not apply.

Remarks 1. Not applicable to grounded type.

2. For compensation wire attachment, use the smaller of the insulation resistance value specified in JIS C 1610.

3. Series in () will be abolished in the future.

Withstand voltage test is not conducted in our company.

Head Office & Saitama Factory
ISO 9001/ISO 14001 Certification Obtained

(The contents of this brochure are subject to change without notice.)

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