

# T&D Optional Products Catalog

## Temperature Sensors



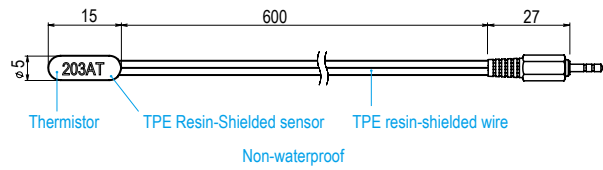
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## TR-0106



Provided with TR-71wf and TR-71nw

### TPE Resin-Shielded Sensor



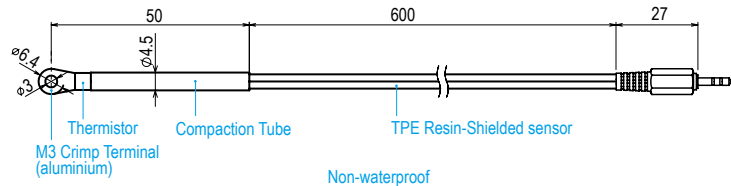
[Unit: mm]

Measurement Range	-40 to 110°C
Temperature Durability	-50 to 115 °C
Accuracy	Avg. ±0.3°C at -20 to 80°C , Avg. ±0.5°C at -40 to -20°C, 80 to 110°C
Response Time (90%)	Approx. 190 sec. ( in air )
Waterproof Capacity	None
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-0206



### Screw-down Sensor



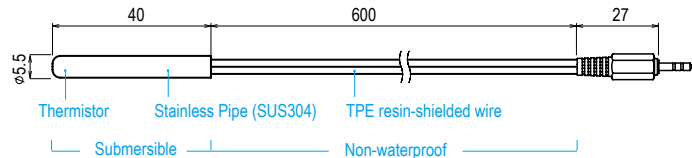
[Unit: mm]

Measurement Range	-40 to 110°C
Temperature Durability	-50 to 115 °C
Accuracy	Avg. ±0.3°C at -20 to 80°C, Avg. ±0.5°C at -40 to -20°C, 80 to 110 °C
Response Time ( 90% )	Approx. 210 sec. ( in air )
Waterproof Capacity	None
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-0306



### Stainless Protection Sensor



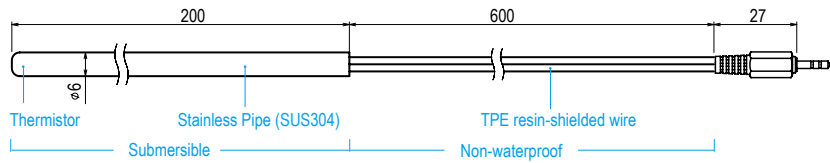
[Unit: mm]

Measurement Range	-40 to 110°C
Temperature Durability	-50 to 115 °C
Accuracy	Avg. ±0.3°C at -20 to 80°C, Avg. ±0.5°C at -40 to -20°C, 80 to 110°C
Response Time ( 90% )	Approx. 11 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube)
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-0406



### Stainless Protection Sensor



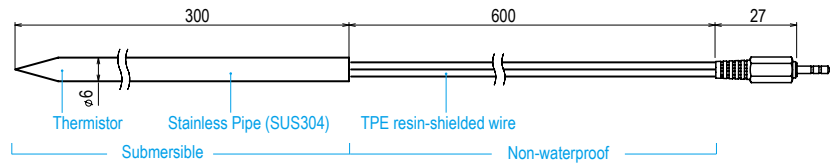
[Unit: mm]

Measurement Range	-40 to 110°C
Temperature Durability	-50 to 115 °C
Accuracy	Avg. ±0.3°C at -20 to 80°C Avg. ±0.5°C at -40 to -20°C, 80 to 110°C
Response Time ( 90% )	Approx. 15 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube)
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30

## TR-0506



### Stainless Protection Sensor



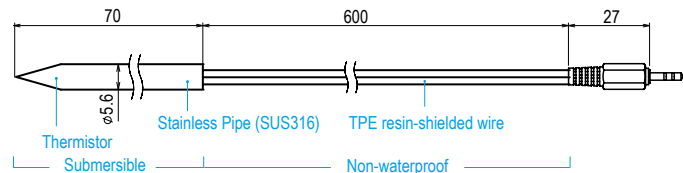
[Unit: mm]

Measurement Range	-40 to 110°C
Temperature Durability	-50 to 115°C
Accuracy	Avg. ±0.3°C at -20 to 80°C, Avg. ±0.5°C at -40 to -20°C, 80 to 110°C
Response Time ( 90% )	Approx. 10 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube)
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-0706



### Stainless Protection Sensor



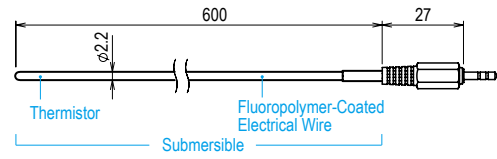
[Unit: mm]

Measurement Range	-40 to 110°C
Temperature Durability	-50 to 115°C
Accuracy	Avg. ±0.3°C at -20 to 80°C, Avg. ±0.5°C at -40 to -20°C, 80 to 110°C
Response Time ( 90% )	Approx. 10 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube)
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-1106



### Fluoropolymer Coated Sensor



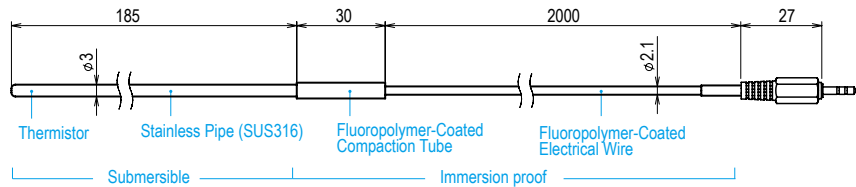
[Unit: mm]

Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ±0.5°C at -40 to 80°C Avg. ±1.0°C at -60 to -40°C, 80 to 100°C Avg. ±2.0°C at 100 to 155°C
Response Time (90%)	Approx. 80 sec. ( in air ) Approx. 7 sec. ( in agitated water )
Waterproof Capacity	Submersible
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-1220



### Stainless Protection Sensor



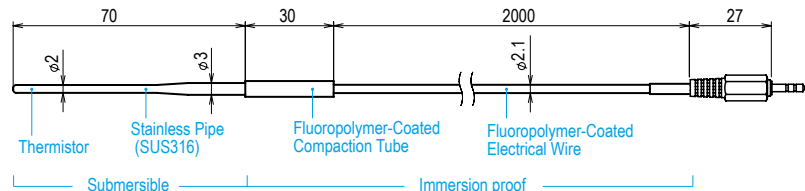
[Unit: mm]

Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ±0.5°C at -40 to 80°C Avg. ±1.0°C at -60 to -40°C, 80 to 100°C Avg. ±2.0°C at 100 to 155°C
Response Time (90%)	Approx. 150 sec. ( in air ) Approx. 7 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-1320



### Stainless Protection Sensor



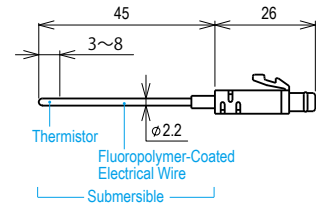
[Unit: mm]

Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ±0.5°C at -40 to 80°C Avg. ±1.0°C at -60 to -40°C, 80 to 100°C Avg. ±2.0°C at 100 to 155°C
Response Time (90%)	Approx. 150 sec. ( in air ) Approx. 7 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

## TR-5101



### Fluoropolymer Coated Sensor



[Unit: mm]

Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ± 0.3°C at -20 to 80°C Avg. ± 0.5°C at -40 to -20°C, 80 to 110°C Avg. ± 1.0°C at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 80 sec. ( in air )
Waterproof Capacity	Cable is waterproof
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

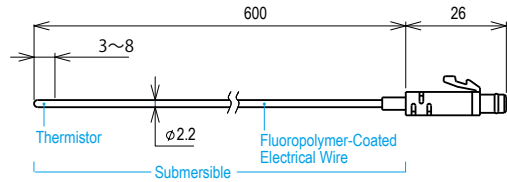
\* Using an extension cable may lead to measurement errors of +0.3°C at room temperature, and +0.5°C at -50°C.

## TR-5106



Provided with TR42, TR-52i, RTR-502 and RTR-502L

### Fluoropolymer Coated Sensor



[Unit: mm]

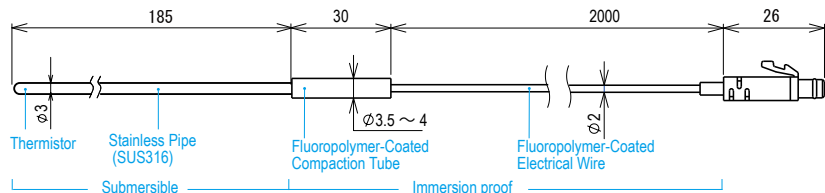
Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ± 0.3°C at -20 to 80°C Avg. ± 0.5°C at -40 to -20°C, 80 to 110°C Avg. ± 1.0°C at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 80 sec. ( in air ) Approx. 7 sec. ( in agitated water )
Waterproof Capacity	Submersible
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

\* Using an extension cable may lead to measurement errors of +0.3°C at room temperature, and +0.5°C at -50°C.

## TR-5220



### Stainless Protection Sensor



[Unit: mm]

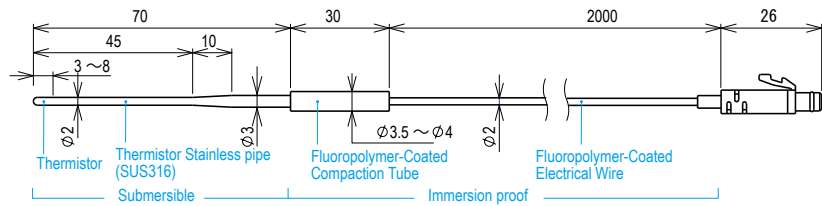
Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ± 0.3°C at -20 to 80°C Avg. ± 0.5°C at -40 to -20°C, 80 to 110°C Avg. ± 1.0°C at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 150 sec. ( in air ) Approx. 7 sec. ( in agitated water )
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

\* Using an extension cable may lead to measurement errors of +0.3°C at room temperature, and +0.5°C at -50°C.

## TR-5320



### Stainless Protection Sensor



[Unit: mm]

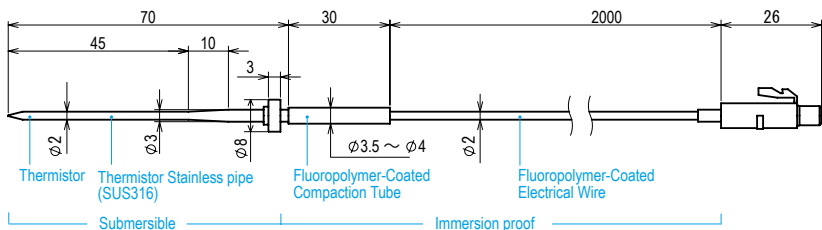
Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. $\pm 0.3^\circ\text{C}$ at -20 to 80°C Avg. $\pm 0.5^\circ\text{C}$ at -40 to -20°C, 80 to 110°C Avg. $\pm 1.0^\circ\text{C}$ at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 90 sec. (in air) Approx. 3 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

\* Using an extension cable may lead to measurement errors of  $+0.3^\circ\text{C}$  at room temperature, and  $+0.5^\circ\text{C}$  at  $-50^\circ\text{C}$ .

## TR-5420



### Stainless Protection Sensor



[Unit: mm]

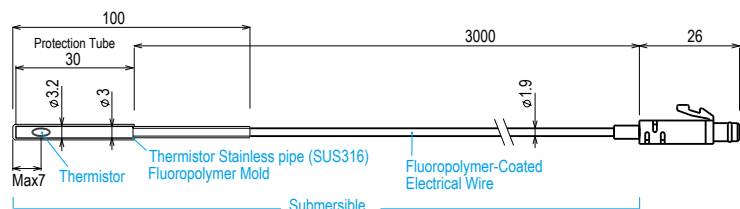
Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. $\pm 0.3^\circ\text{C}$ at -20 to 80°C Avg. $\pm 0.5^\circ\text{C}$ at -40 to -20°C, 80 to 110°C Avg. $\pm 1.0^\circ\text{C}$ at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 90 sec. (in air) Approx. 3 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

\* Using an extension cable may lead to measurement errors of  $+0.3^\circ\text{C}$  at room temperature, and  $+0.5^\circ\text{C}$  at  $-50^\circ\text{C}$ .

## TR-5530



### Underwater Sensor



[Unit: mm]

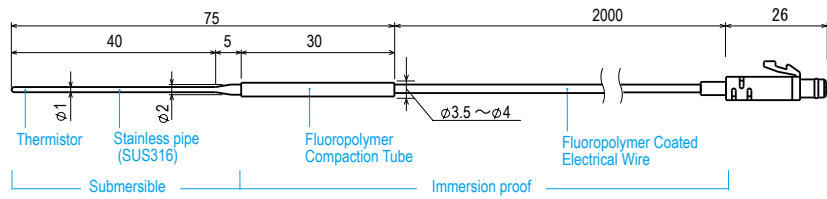
Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. $\pm 0.3^\circ\text{C}$ at -20 to 80°C Avg. $\pm 0.5^\circ\text{C}$ at -40 to -20°C, 80 to 110°C Avg. $\pm 1.0^\circ\text{C}$ at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 90 sec. (in air) Approx. 3 sec. (in agitated water)
Waterproof Capacity	Submersible
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

\* Using an extension cable may lead to measurement errors of  $+0.3^\circ\text{C}$  at room temperature, and  $+0.5^\circ\text{C}$  at  $-50^\circ\text{C}$ .

## TR-5620



### High Sensitivity Ultra-thin Sensor



[Unit: mm]

Measurement Range	-60 to 155°C
Temperature Durability	-70 to 180°C
Accuracy	Avg. ± 0.3°C at -20 to 80°C Avg. ± 0.5°C at -40 to -20°C, 80 to 110°C Avg. ± 1.0°C at -60 to -40°C, 110 to 155°C
Response Time ( 90% )	Approx. 90 sec. (in air) Approx. 3 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30 *

\* Using an extension cable may lead to measurement errors of +0.3°C at room temperature, and +0.5°C at -50°C

# Pt Sensors



Model Number TR-81       -       -             -       M

A    B    C    D

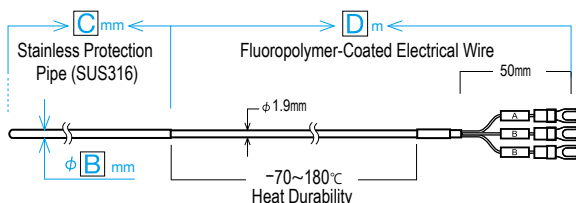
**A** To order, create the model number by selecting A, B, C, and D ( See below ).  
**Sensor Type** ( 2 digits ) **B** **Protection Tube Diameter** ( 2 digits )  
**C** **Protection Tube Length** ( 4 digits ) **D** **Cable Length** ( 2 digits )

Sensor Device	Pt100	Range of Error	$\pm (0.15 + 0.002 \text{ xt}) \text{ } ^\circ\text{C}$ t = absolute value of measurement
Electrical Current	2 mA	Waterproof Capacity	None
Insulation Resistance	DC500V over 10M $\Omega$	only stainless protection pipe is water resistant	
Conductor	3 wire type		

## A Sensor Type (Select from 4 types)

### TR-8100 Economical Type

Measurement Range: -50 to 200°C  
 Thermal Constant Time\* :  
 In agitated water: about 4.5 seconds



## B Protection Tube Diameter

φ B mm		A Sensor Type			
		TR-8100	TR-8110	TR-8120	TR-8130
2.0		-	○	-	-
2.3		×	×	-	-
3.0		×	×	-	-
3.2		◎	◎	◎	◎
4.8		×	×	○	○
6.0		×	×	-	-
6.4		-	-	×	-

◎ Recommended × Available - Not Available

## C Protection Tube Length

The protection tube is available in 50 millimeter units in lengths from 50mm to 2000mm.

## D Cable Length

The sensor cable is available in 1 meter units in lengths from 1 meter to 99 meters.

### Notes:

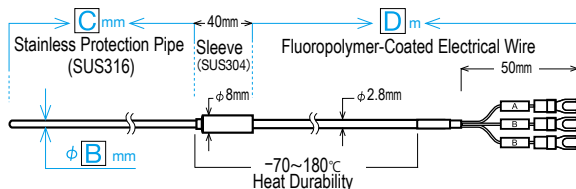
- Our sensors are produced only upon order, therefore please allow four weeks from time of order until shipping.
- The thermistor (temperature detection section) is mounted in the tip of the sensor.

### TR-8110 Regular Type

Measurement Range: -200 to 350 °C  
 Thermal Constant Time\* :  
 In agitated water: about 2 seconds

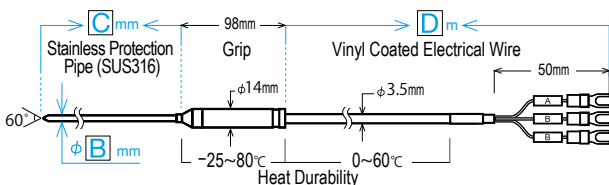
### TR-8120 Low to High Temp Type

Measurement Range: -200 to 600°C  
 Thermal Constant Time\* :  
 In agitated water: about 2 seconds



### TR-8130 Handy Type

Measurement Range: -50 to 200°C  
 Thermal Constant Time\* :  
 In agitated water: about 2.5 seconds



\* Stated thermal constant time is for sensors with a protection tube diameter of φ3.2.

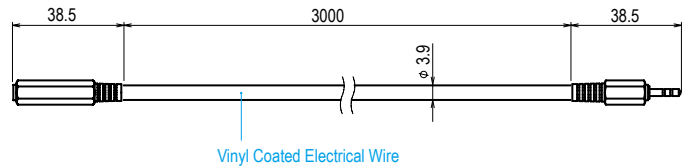


## Sensor Extension Cables

### TR-1C30



### Sensor Extension Cable



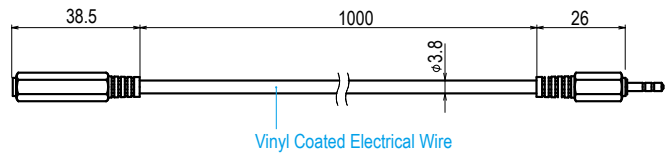
[unit: mm]

Temperature Durability	-25 to 60°C
Waterproof Capacity	None
Compatible Sensors	Temperature Sensor: TR-1106, TR-1220, TR-1320, TR-0106, TR-0206, TR-0306, TR-0406, TR-0506, TR-0706 Temp-Humidity Sensor: THA-3001, THA-3151, SHA-3151 ( Previous Model HHA-3151 ) Illuminance-UV Sensor: ISA-3151 Input Cable: VR-7101, VR-7102, VR-7103
Conditions for Use	Temperature sensors can use up to 3 meters of extension cables. Temp-Humidity sensors and Illuminance-UV sensors can use up to 9 meters of extension cables. Input cables can use multiple extension cables.

### TR-5C10



### Sensor Extension Cable



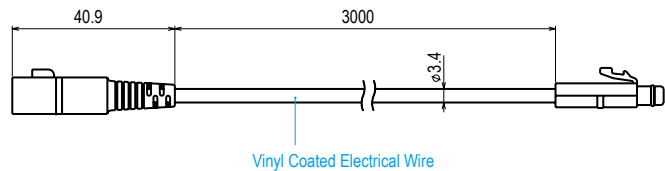
[Unit: mm]

Temperature Durability	-25 to 60°C
Waterproof Capacity	None
Compatible Sensors	Temperature Sensor: TR-1106, TR-1220, TR-1320, TR-0106, TR-0206, TR-0306, TR-0406, TR-0506, TR-0706, Temp-Humidity Sensor: THA-3001, THA-3151, SHA-3151, TR-3100 * ( Previous Model HHA-3151 ) Illuminance-UV Sensor: ISA-3151
Conditions for Use	Temperature sensors can use up to 3 meters of extension cables. Temp-Humidity sensors and Illuminance-UV sensors can use up to 9 meters of extension cables. * Only 1 extension cable for TR-3100

### TR-2C30



### Sensor Extension Cable



[Unit: mm]

Temperature Durability	-25 to 60°C
Waterproof Capacity	Splash proof ( rated for use in daily life )
Compatible Sensors	Temperature Sensor: TR-5101, TR-5106, TR-5220, TR-5320, TR-5420, TR-5530, TR-5620
Conditions for Use	Only one cable per sensor.