T&D Optional Products Catalog
Temperature Sensors

T&D Corporation

TR-0106

Provided with TR71A and TR-71nw

TPE Resin-Shielded Sensor
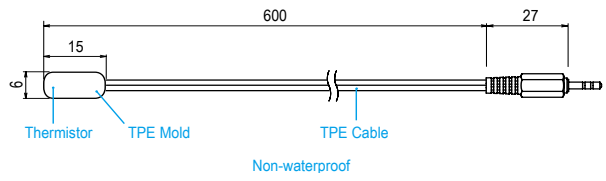
[Unit: mm]

Measurement Range	-40 to 110 °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
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 or TR-5C10

TR-0206
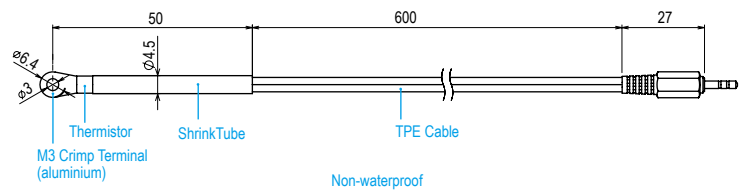
Screw-down Sensor

[Unit: mm]

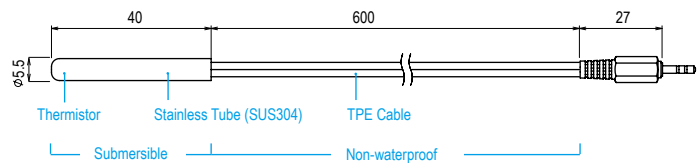| Measurement Range	-40 to 110 °C
Accuracy	Avg. ±0.3 °C at -20 to 80 °C, Avg. ±0.5 °C at -40 to -20 °C, 80 to 110 °C
Response Time (90 %)	Approx. 210 sec. (in air)
Waterproof Capacity	None
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 or TR-5C10

TR-0306

Stainless Protection Sensor

[Unit: mm]

Measurement Range	-40 to 110 °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)
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 / TR-5C10

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TR-0406

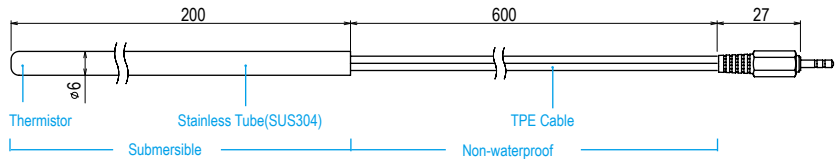### Stainless Protection Sensor

[Unit: mm]

Measurement Range	-40 to 110 °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)
Note	Can be extended by 3 meters with the Extension Cable TR-1C30

TR-0506

Stainless Protection Sensor

[Unit: mm]

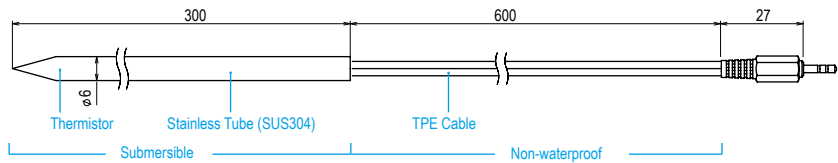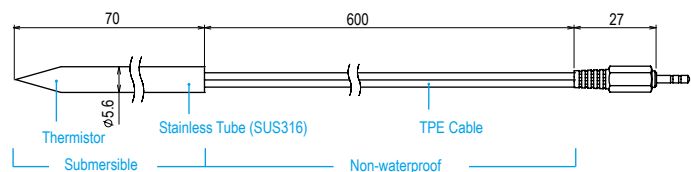| Measurement Range	-40 to 110 °C
Accuracy	Avg. ±0.3 °C at -20 to 80 °C, Avg. ±0.5 °C at -40 to -20 °C, 80 to 110 °C
Response Time (90 %)	Approx. 10 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube)
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 or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

TR-0706

Stainless Protection Sensor

[Unit: mm]

Measurement Range	-40 to 110 °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)
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 or TR-5C10

TR-1106

Fluoropolymer Coated Sensor

[Unit: mm]

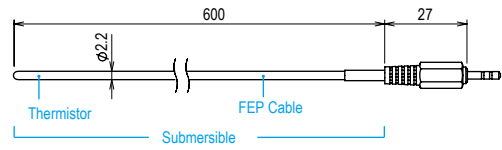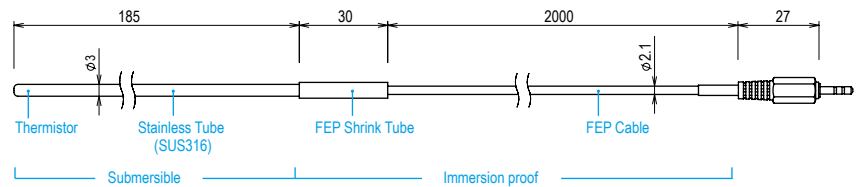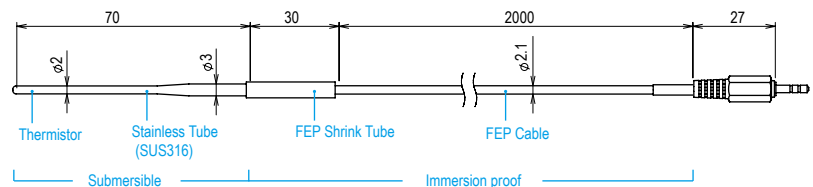| Measurement Range	-60 to 155 °C
Accuracy	Avg. ±0.5 °C at -40 to 80 °C Avg. ±1.0 °C at -60 to -40 °C, 80 to 100 °C Avg. ±2.0 °C at 100 to 155 °C
Response Time (90 %)	Approx. 80 sec. (in air) Approx. 7 sec. (in agitated water)
Waterproof Capacity	Submersible (cable)
Note	Can be extended by 3 meters with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

TR-1220

Stainless Protection Sensor

[Unit: mm]

Measurement Range	-60 to 155 °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)
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 or TR-5C10

TR-1320

Stainless Protection Sensor

[Unit: mm]

Measurement Range	-60 to 155 °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. 90 sec. (in air) Approx. 3 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Note	Can be extended by 3 meters with the Extension Cable TR-1C30 or TR-5C10

TR-5101

Fluoropolymer Coated Sensor

[Unit: mm]

Measurement Range	-60 to 155 ˚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	Waterproof (cable)
Note	Can be extended by 3 meters with the Extension Cable TR-2C30

TR-5106

Fluoropolymer Coated Sensor

Provided with TR42A, TR-52i, RTR502B and RTR502BL

[Unit: mm]

Measurement Range	-60 to 155 ˚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 (cable)
Note	Can be extended by 3 meters with the Extension Cable TR-2C30

TR-5220

Stainless Protection Sensor

[Unit: mm]

Measurement Range	-60 to 155 ˚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)
Note	Can be extended by 3 meters with the Extension Cable TR-2C30

TR-5320
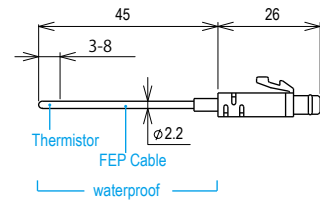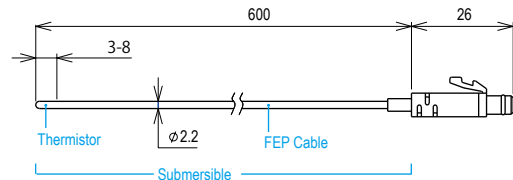
Stainless Protection Sensor

[Unit: mm]

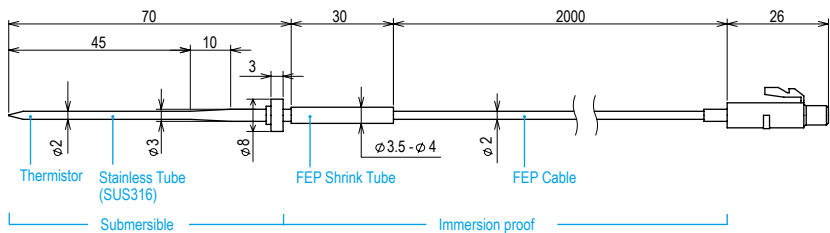| Measurement Range	-60 to 155˚C
Accuracy	Avg. ±0.3 ˚C at -20 to 80 ˚C Avg. ±0.5 ˚C at -40 to -20 ˚C, 80 to 110 ˚C Avg. ±1.0 ˚C at -60 to -40 ˚C, 110 to 155 ˚C
Response Time (90 %)	Approx. 90 sec. (in air) Approx. 3 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube)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

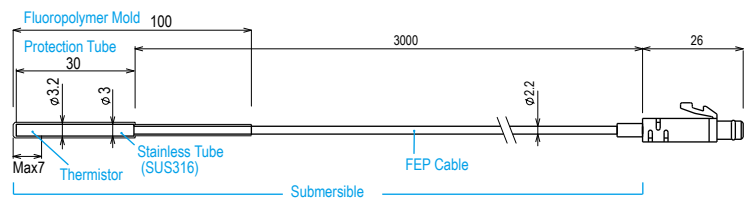## TR-5420

Stainless Protection Sensor for Core Temperature

[Unit: mm]

Measurement Range	-60 to 155 ˚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)
Note	Can be extended by 3 meters with the Extension Cable TR-2C30

TR-5530

Underwater Sensor

[Unit: mm]

Measurement Range	-60 to 155 ˚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. 15 sec. (in agitated water)
Waterproof Capacity	Submersible
Note	Can be extended by 3 meters with the Extension Cable TR-2C30

TR-5620

High Sensitivity Ultra-thin Sensor

[Unit: mm]

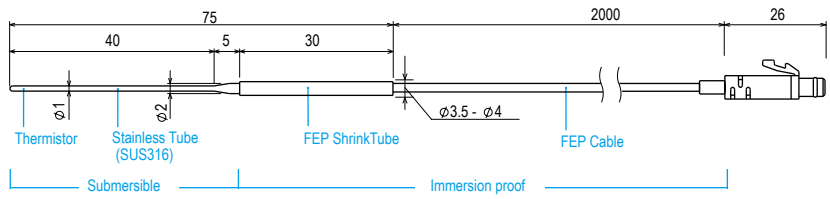| Measurement Range	-60 to 155˚C
Accuracy	Avg. ±0.5 ˚C at -20 to 60 ˚C Avg. ±1.0 ˚C at -60 to -20 ˚C, 60 to 80 ˚C Avg. ±2.0 ˚C at 80 to 155 ˚C
Response Time (90 %)	Approx. 50 sec. (in air) Approx. 1 sec. (in agitated water)
Waterproof Capacity	Submersible (stainless protection tube) Immersion proof (cable)
Notes	Can be extended by 3 meters with the Extension Cable TR-2C30

Pt Sensors

Model Number

TR-8▢▢▢ - ▢.▢ - ▢▢▢▢ - ▢▢M

    A   B   C   D

To order, create the model number by selecting A, B, C, and D (See below).

A Sensor Type (3 digits)

B Protection Tube Diameter (2 digits)

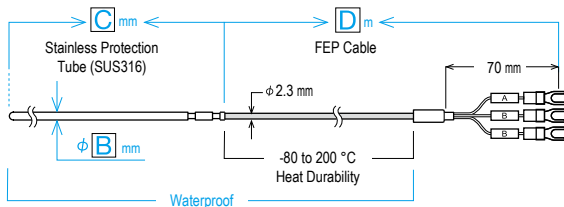C Protection Tube Length (2-4 digits)

D Cable Length (1-2 digits)

Sensor Device	Pt100
Electrical Current	2 mA
Insulation Resitance	DC100 V over 100 MΩ (TR-8130 is over 10 MΩ at DC500 V)
Conductor	3 wire type
Range of Error	$\pm (0.15 + 0.002 \times t)$°C t = absolute value of measurement
Waterproof Capacity	TR-8200: Waterproof Others: Only stainless protection tube is water resistant.

TR45   Input Module

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.

A Sensor Type (Select from 4 types)

TR-8200 Waterproof Type
Measurement Range: -50 to 200 °C
Response Time (90 %)*: Approx. 13 seconds (In agitated water)

TR-8210 Regular Type
Measurement Range: -200 to 300 °C
Response Time (90 %)*: Approx. 6 seconds (In agitated water)

TR-8220 Low to High Temp Type
Measurement Range: -200 to 500 °C
Response Time (90 %)*: Approx. 6 seconds (In agitated water)

TR-8130 Handy Type
Measurement Range: -50 to 200 °C
Response Time (90 %)*: Approx. 6 seconds (In agitated water)

B Protection Tube Diameter
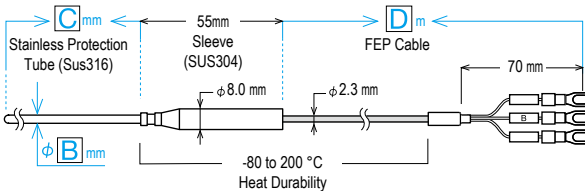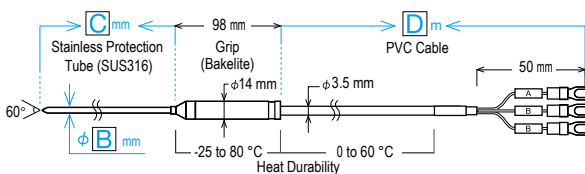
		A Sensor Type			
		TR-8200	TR-8210	TR-8220	TR-8130
φB mm	2.0	-	○	-	-
	2.3	-	○	-	-
	3.0	○	○	-	-
	3.2	◎	◎	◎	◎
	4.8	○	○	○	○
	6.0	○	○	-	-
	6.4	-	-	○	-

◎ Recommended ○ Available - Not Available

C Protection Tube Length

TR-8220: 50 to 2000 millimeters
Others: 50 to 1000 millimeters
Can be specified in 50 mm units.

D Cable Length
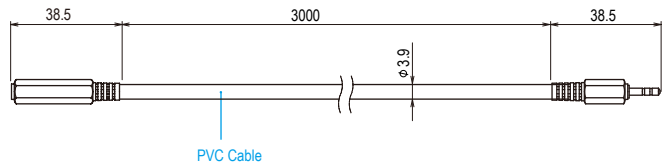
1 to 99 meters
Can be specified in 1 m units.

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* Stated Response Time (90 %) is for sensors with a protection tube diameter of φ3.2.
* Insulation Resistance of TR-8130 is over 10 MΩ at DC 500 V.
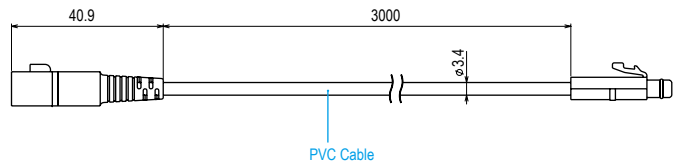
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TR-1C30

Sensor Extension Cable

[Unit: mm]

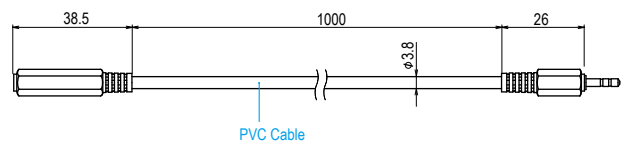| Temperature Durability	-25 to 60 °C
Waterproof Capacity	None

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, HHA-3151 (Discontinued)
	Illuminance-UV Sensor: ISA-3151
	Input Cable (Discontinued): 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-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.

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*,
	  HHA-3151 (Discontinued)
	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