DATASHEET

TR-8220

T&D

Distributed by AKRIBIS

2025. 04

T&D Optional Products Catalog
Temperature Sensors

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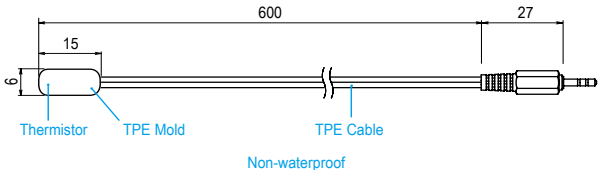
TR-0106

Provided with TR71A2 and TR-71nw

TPE Resin-Shielded Sensor

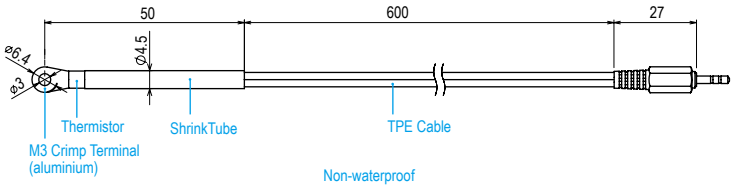


[Unit: mm]

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

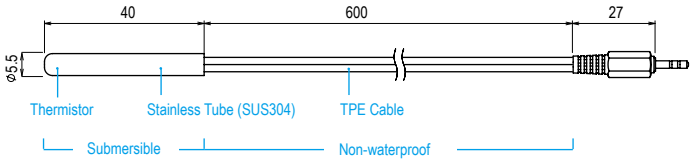


[Unit: mm]

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

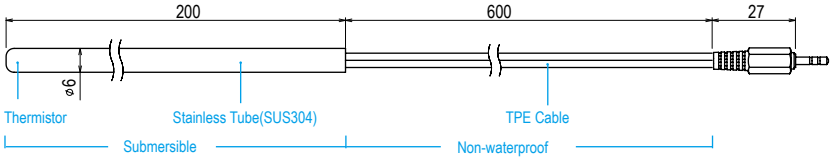


[Unit: mm]

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

TR-0406

Stainless Protection Sensor

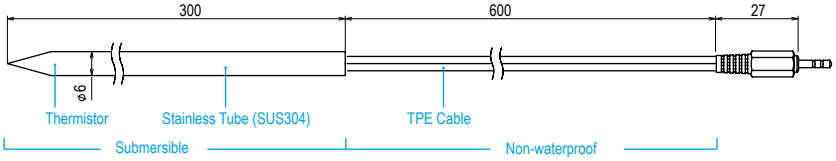


[Unit: mm]

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

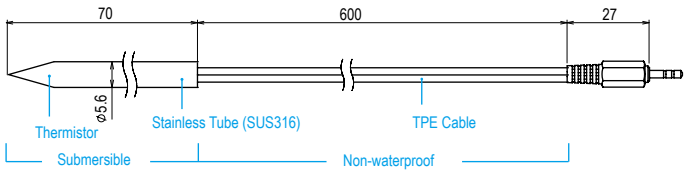


[Unit: mm]

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

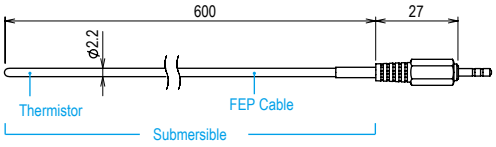


[Unit: mm]

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

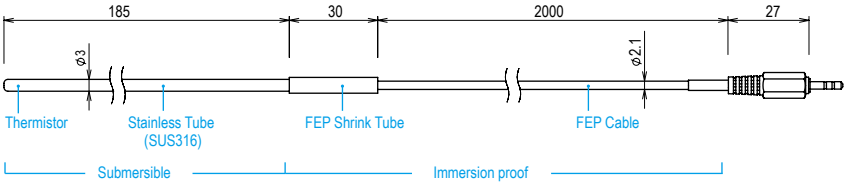


[Unit: mm]

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

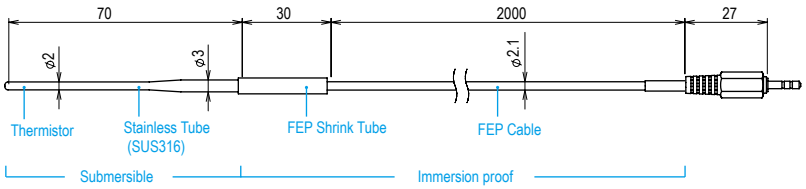


[Unit: mm]

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

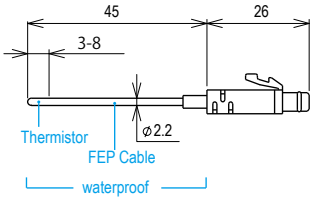


[Unit: mm]

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



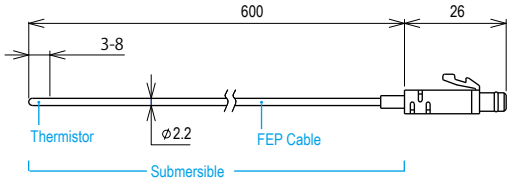
[Unit: mm]

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

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

Fluoropolymer Coated Sensor

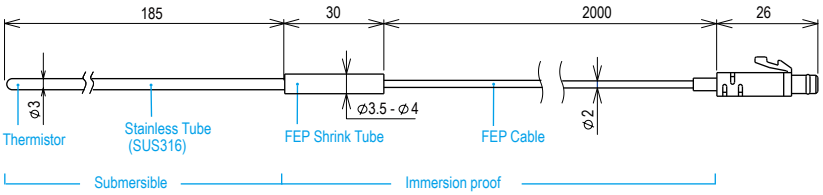


[Unit: mm]

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) 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

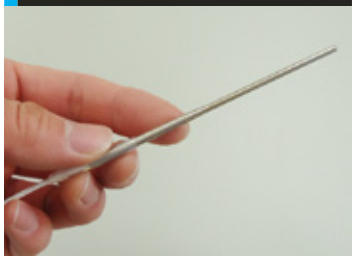
Stainless Protection Sensor



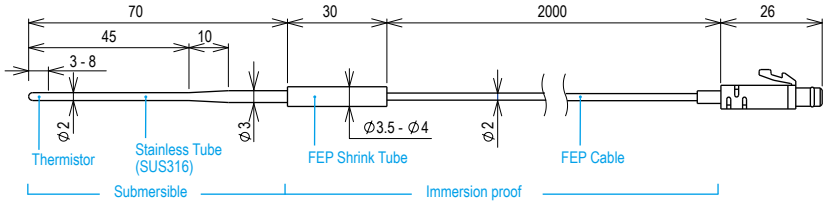
[Unit: mm]

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



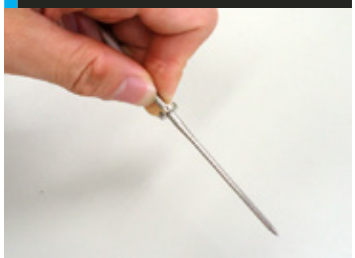
Stainless Protection Sensor



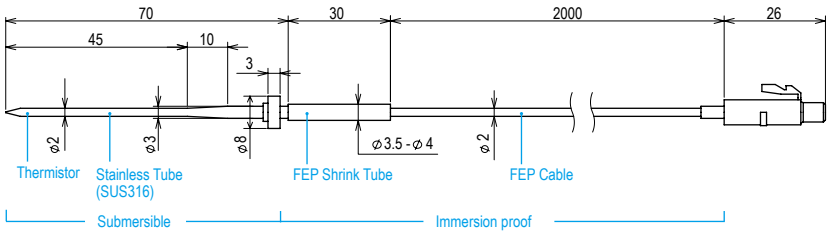
[Unit: mm]

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



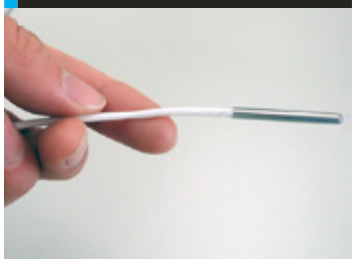
Stainless Protection Sensor for Core Temperature



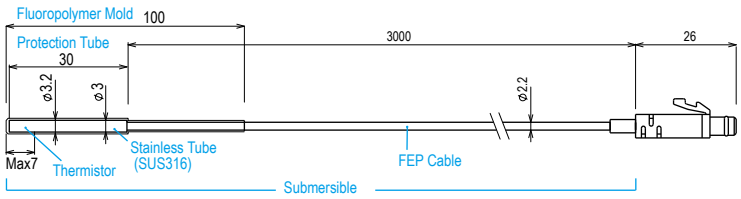
[Unit: mm]

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



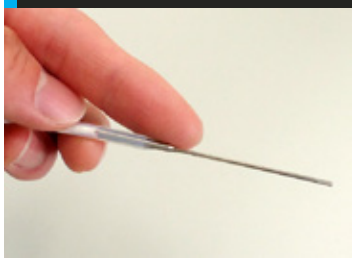
Underwater Sensor



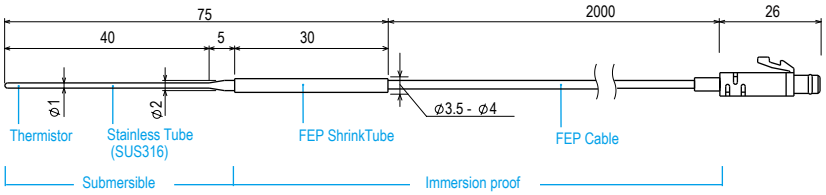
[Unit: mm]

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

Compatible Products **TR45, TR-55i-Pt, RTR505B / 505BL (when using PTM-3010)**

Discontinued: TR-81, RTR-505-Pt / 505-PtL, RTR-52Pt / 52PtL

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)

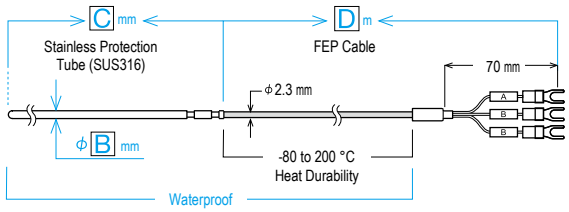
Sensor Device	Pt100
Electrical Current	2 mA
Insulation Resitance	DC100 V over 100 MΩ (TR-8130 is over 10 MΩ at DC500 V)
Conductor	3 wire type
Range of Error	±(0.15 + 0.002 × t)°C t = absolute value of measurement in °C
Waterproof Capacity	TR-8200: Waterproof Others: Only stainless protection tube is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

- Pt100 sensors are produced only upon order, therefore please allow approximately 1.5 months from time of order until shipping. The lead time varies depending on the specifications and quantity.
- 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)

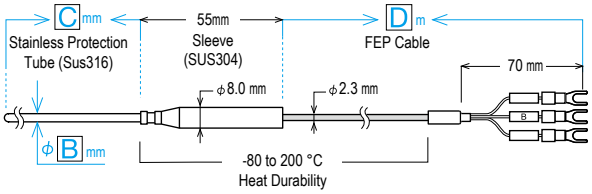


TR-8210 Regular Type

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

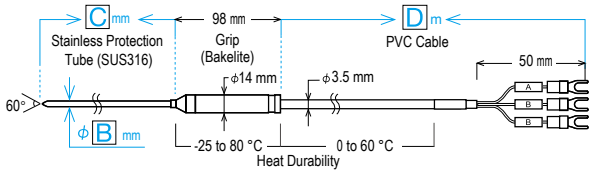
TR-8220 Low to High Temp Type

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)



* Stated Response Time (90 %) is for sensors with a protection tube diameter of ϕ 3.2.
* Insulation Resistance of TR-8130 is over 10 MΩ at DC 500 V.

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

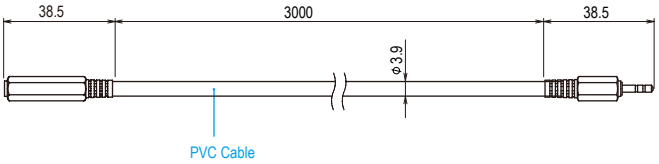
TR-8220: 50 to 2000 millimeters
Others: 50 to 1000 millimeters
Can be specified in 50 mm units.

D Cable Length

1 to 99 meters
Can be specified in 1 m units.

TR-1C30

Sensor Extension Cable

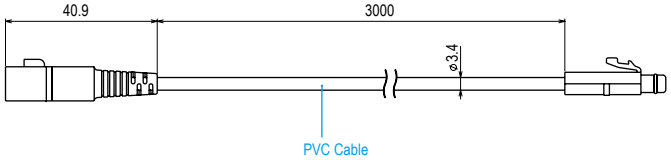


[Unit: mm]

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

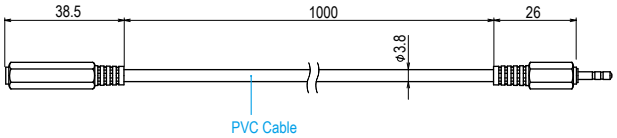


[Unit: mm]

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