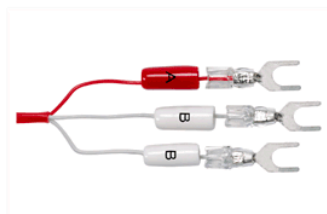


DATASHEET

TR-8200

T&D

Distributed by AKRIBIS



T&D Optional Products Catalog

Temperature Sensors



TR-0106 -----	p.2	TR-5320 -----	p.6
TR-0206 -----	p.2	TR-5420 -----	p.6
TR-0306 -----	p.2	TR-5530 -----	p.6
TR-0406 -----	p.3	TR-5620 -----	p.7
TR-0506 -----	p.3	Pt Sensors -----	p.8
TR-0706 -----	p.3		
TR-1106 -----	p.4		
TR-1220 -----	p.4		
TR-1320 -----	p.4		
TR-5101 -----	p.5		
TR-5106 -----	p.5		
TR-5220 -----	p.5		

Sensor Extension Cables

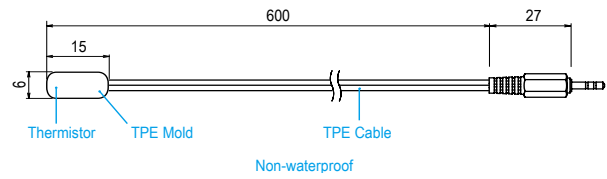
TR-1C30 -----	p.9
TR-2C30 -----	p.9
TR-5C10 -----	p.9

TR-0106



Provided with TR71A2 and TR-71nw

TPE Resin-Shielded Sensor



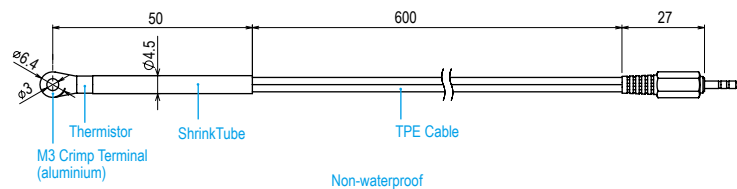
[Unit: mm]

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



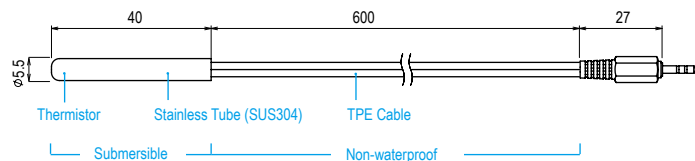
[Unit: mm]

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



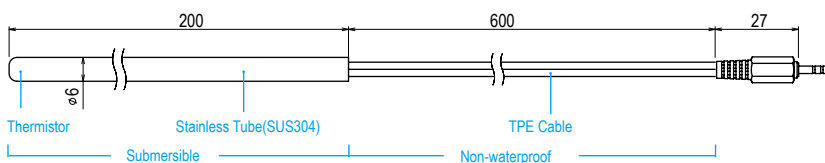
[Unit: mm]

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



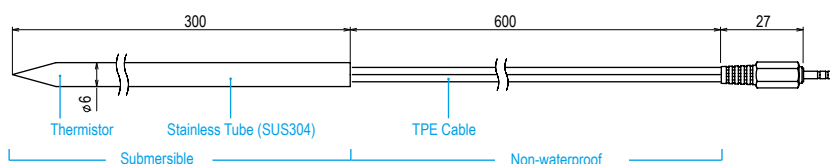
[Unit: mm]

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



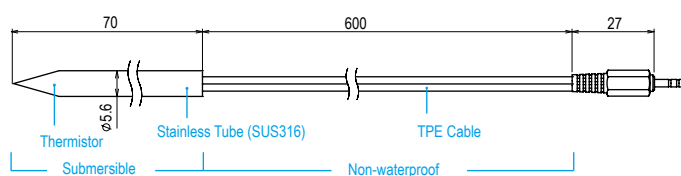
[Unit: mm]

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



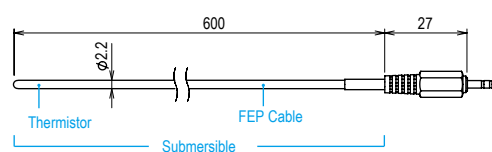
[Unit: mm]

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



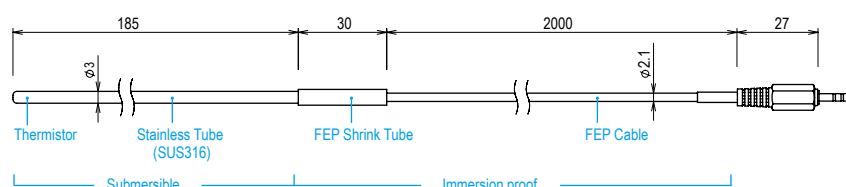
[Unit: mm]

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



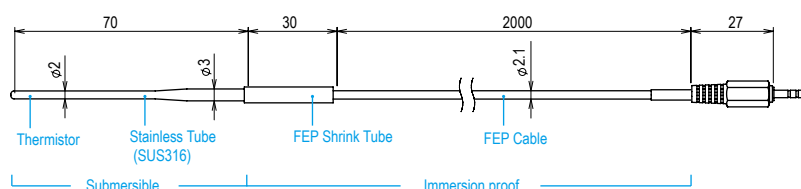
[Unit: mm]

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



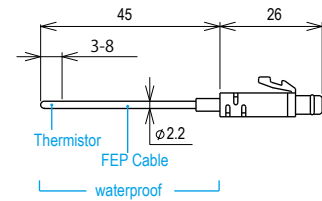
[Unit: mm]

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]

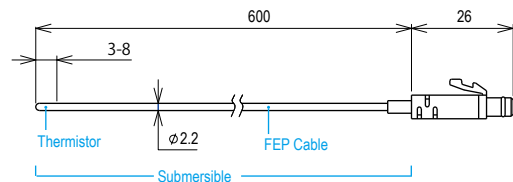
Measurement Range	-60 to 155 °C
Accuracy	Avg. ± 0.3 °C at -20 to 80 °C Avg. ± 0.5 °C at -40 to -20 °C, 80 to 110 °C Avg. ± 1.0 °C at -60 to -40 °C, 110 to 155 °C
Response Time (90 %)	Approx. 80 sec. (in air)
Waterproof Capacity	Waterproof (cable)
Note	Can be extended by 3 meters with the Extension Cable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

TR-5106



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

Fluoropolymer Coated Sensor



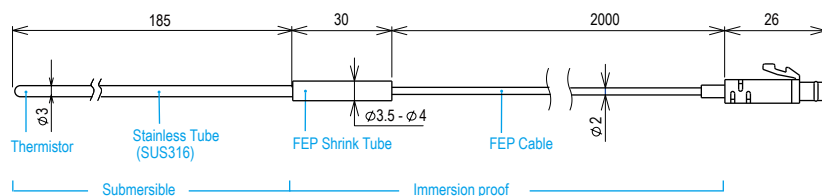
[Unit: mm]

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



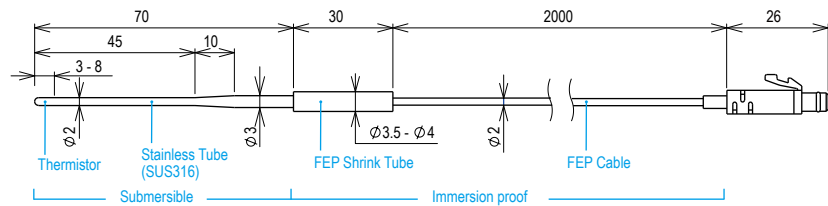
[Unit: mm]

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



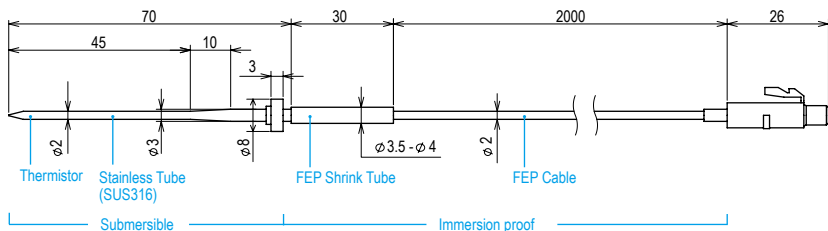
[Unit: mm]

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



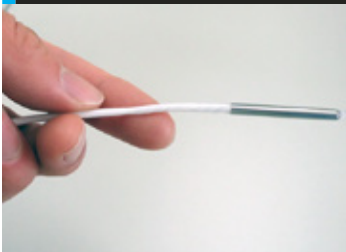
Stainless Protection Sensor for Core Temperature



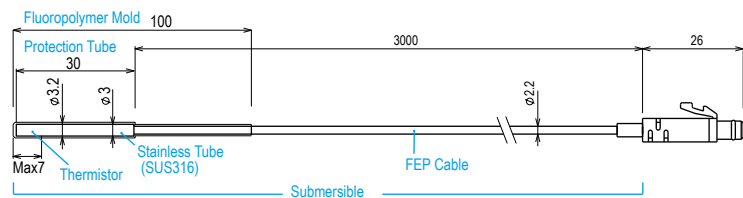
[Unit: mm]

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



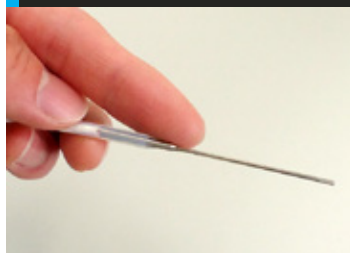
Underwater Sensor



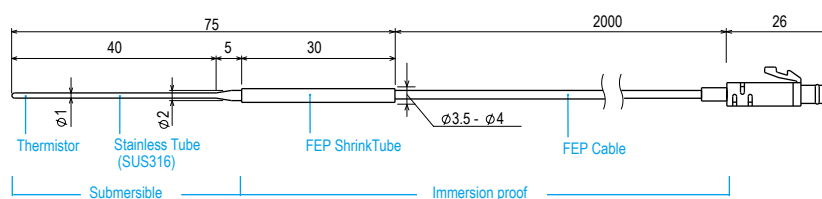
[Unit: mm]

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. $\pm 0.5^{\circ}\text{C}$ at -20 to 60°C Avg. $\pm 1.0^{\circ}\text{C}$ at -60 to -20°C , 60 to 80°C Avg. $\pm 2.0^{\circ}\text{C}$ 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).

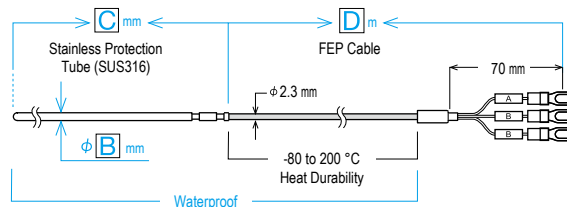
- A** Sensor Type (3 digits)
B Protection Tube Diameter (2 digits)
C Protection Tube Length (2-4 digits)
D Cable Length (1-2 digits)

Sensor Device	Pt100
Electrical Current	2 mA
Insulation Resistance	DC100 V over 100 MΩ (TR-8130 is over 10 MΩ at DC500 V)
Conductor	3 wire type
Range of Error	$\pm(0.15 + 0.002 \times t) ^\circ\text{C}$ t = absolute value of measurement in $^\circ\text{C}$
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 $^\circ\text{C}$

Response Time (90 %)*: Approx. 13 seconds (In agitated water)

**B** Protection Tube Diameter

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

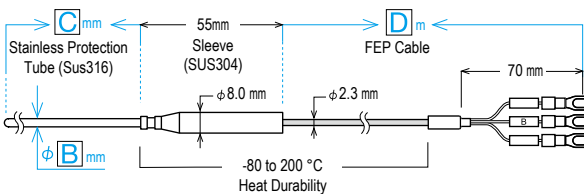
◎ Recommended ○ Available - Not Available

TR-8210 Regular TypeMeasurement Range: -200 to 300 $^\circ\text{C}$

Response Time (90 %)*: Approx. 6 seconds (In agitated water)

TR-8220 Low to High Temp TypeMeasurement Range: -200 to 500 $^\circ\text{C}$

Response Time (90 %)*: Approx. 6 seconds (In agitated water)

**C** Protection Tube Length

TR-8220: 50 to 2000 millimeters

Others: 50 to 1000 millimeters

Can be specified in 50 mm units.

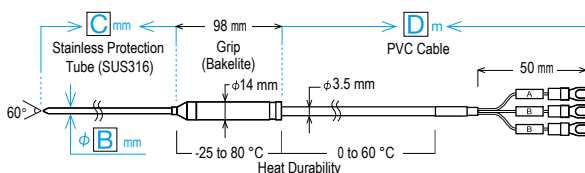
D Cable Length

1 to 99 meters

Can be specified in 1 m units.

TR-8130 Handy TypeMeasurement Range: -50 to 200 $^\circ\text{C}$

Response Time (90 %)*: Approx. 6 seconds (In agitated water)



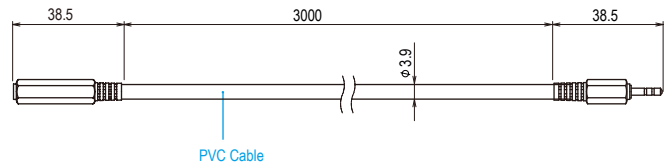
* Stated Response Time (90 %) is for sensors with a protection tube diameter of φ 3.2.

* Insulation Resistance of TR-8130 is over 10 MΩ at DC 500 V.

TR-1C30



Sensor Extension Cable



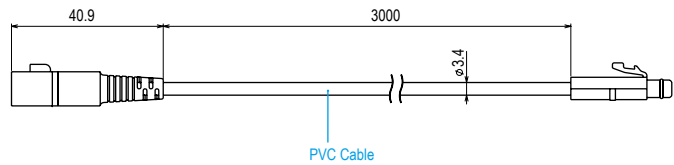
[Unit: mm]

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



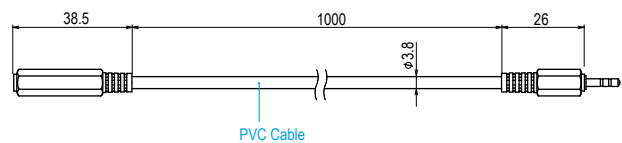
[Unit: mm]

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