DATASHEET

# TR-1106

T&D

Distributed by AKRIBIS

2025. 04

# T&D Optional Products Catalog
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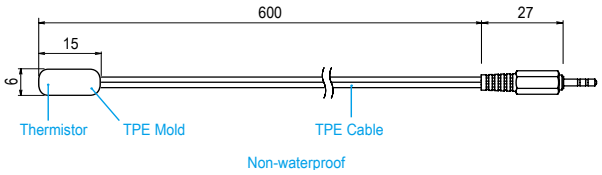
# TR-0106

Provided with TR71A2 and TR-71nw

## TPE Resin-Shielded Sensor

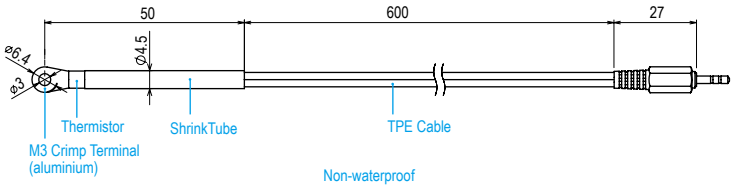



[Unit: mm]

| | |
|---|---|
| Measurement Range | -40 to 110 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C,<br>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

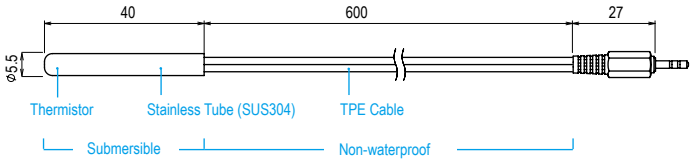



[Unit: mm]

| | |
|---|---|
| Measurement Range | -40 to 110 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C,<br>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

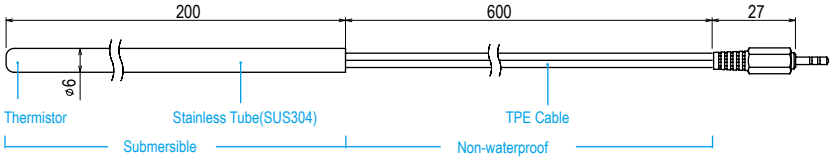



[Unit: mm]

| | |
|---|---|
| Measurement Range | -40 to 110 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C,<br>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

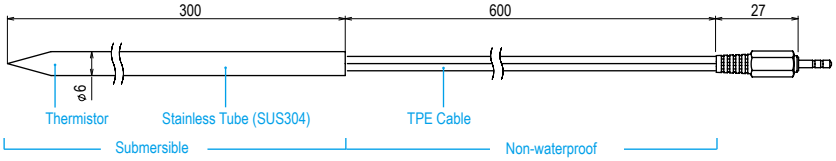



[Unit: mm]

| | |
|---|---|
| Measurement Range | -40 to 110 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C<br>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

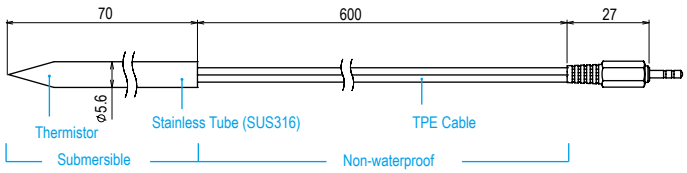



[Unit: mm]

| | |
|---|---|
| Measurement Range | -40 to 110 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C,<br>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

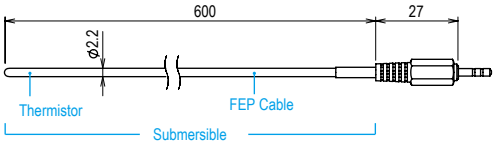



[Unit: mm]

| | |
|---|---|
| Measurement Range | -40 to 110 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C,<br>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

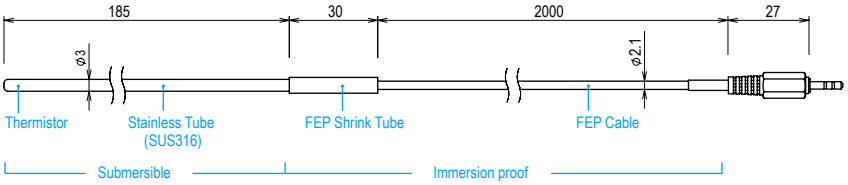



[Unit: mm]

| | |
|---|---|
| Measurement Range | -60 to 155 °C |
| Accuracy | Avg. ±0.5 °C at -40 to 80 °C<br>Avg. ±1.0 °C at -60 to -40 °C, 80 to 100 °C<br>Avg. ±2.0 °C at 100 to 155 °C |
| Response Time (90 %) | Approx. 80 sec. (in air)<br>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

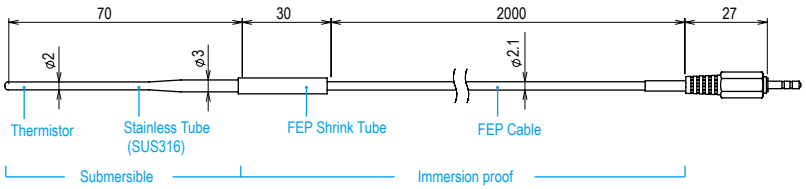



[Unit: mm]

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

# TR-1320

## Stainless Protection Sensor

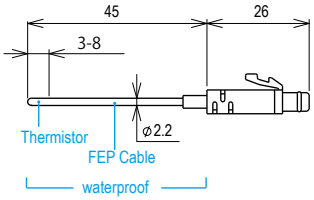



[Unit: mm]

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

# TR-5101

## Fluoropolymer Coated Sensor



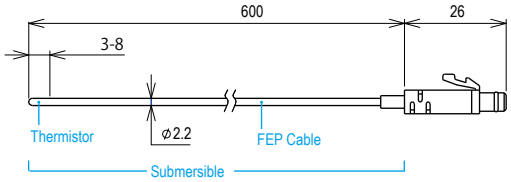

[Unit: mm]

| | |
|---|---|
| Measurement Range | -60 to 155 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C<br>Avg. ±0.5 °C at -40 to -20 °C , 80 to 110 °C<br>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

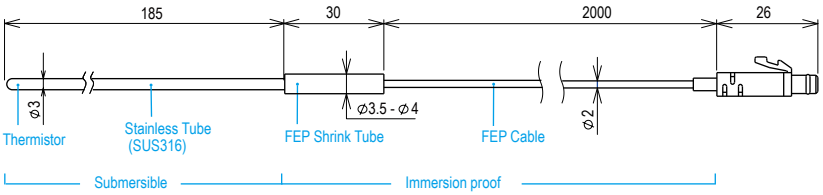



[Unit: mm]

| | |
|---|---|
| Measurement Range | -60 to 155 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C<br>Avg. ±0.5 °C at -40 to -20 °C , 80 to 110 °C<br>Avg. ±1.0 °C at -60 to -40 °C , 110 to 155 °C |
| Response Time (90 %) | Approx. 80 sec. (in air)<br>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

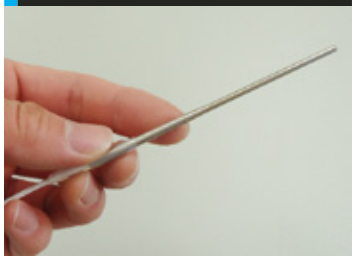
## Stainless Protection Sensor



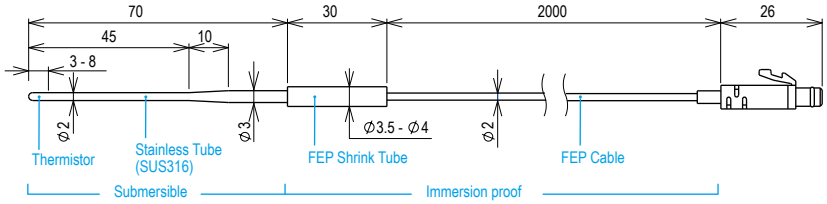

[Unit: mm]

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

# TR-5320



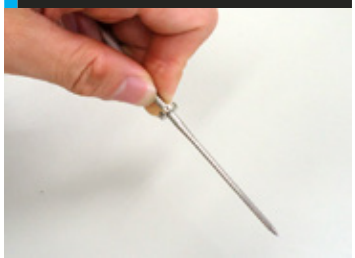
## Stainless Protection Sensor



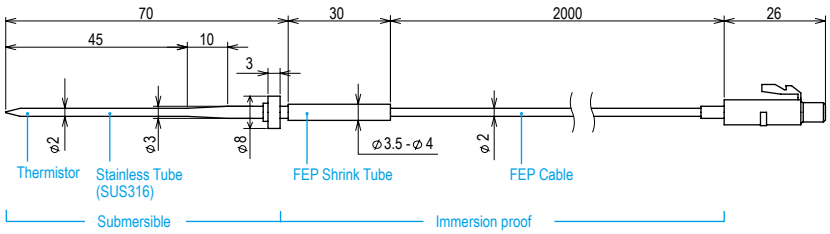

[Unit: mm]

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

# TR-5420



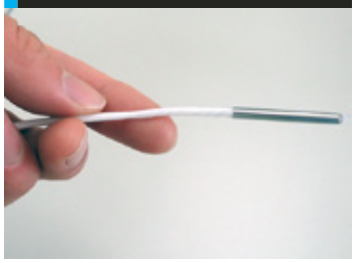
## Stainless Protection Sensor for Core Temperature



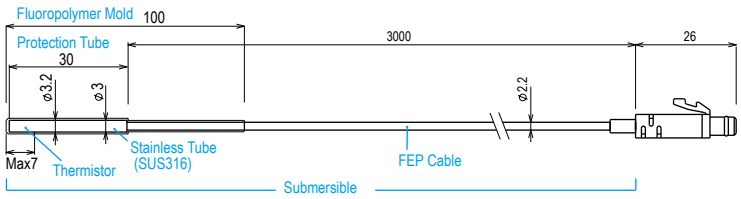

[Unit: mm]

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

# TR-5530



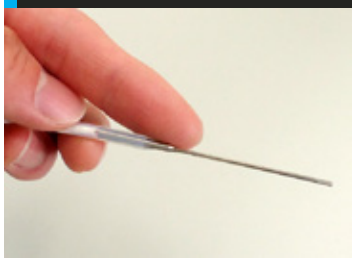
## Underwater Sensor



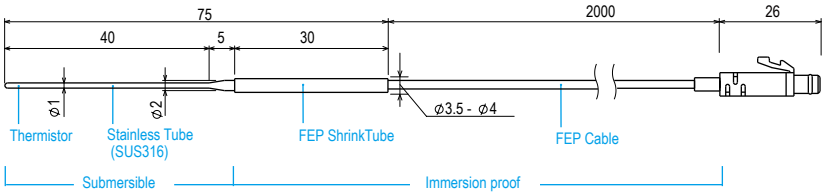

[Unit: mm]

| | |
|---|---|
| Measurement Range | -60 to 155 °C |
| Accuracy | Avg. ±0.3 °C at -20 to 80 °C<br>Avg. ±0.5 °C at -40 to -20 °C , 80 to 110 °C<br>Avg. ±1.0 °C at -60 to -40 °C , 110 to 155 °C |
| Response Time (90 %) | Approx. 150 sec. (in air)<br>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<br>Avg. ±1.0 °C at -60 to -20 °C , 60 to 80 °C<br>Avg. ±2.0 °C at 80 to 155 °C |
| Response Time (90 %) | Approx. 50 sec. (in air)<br>Approx. 1 sec. (in agitated water) |
| Waterproof Capacity | Submersible (stainless protection tube)<br>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)

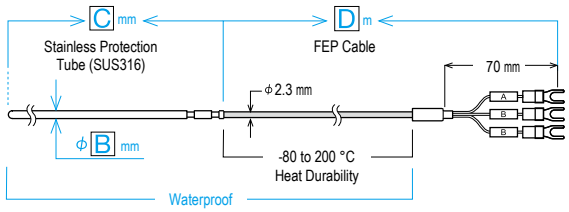
| | |
|---|---|
| Sensor Device | Pt100 |
| Electrical Current | 2 mA |
| Insulation Resitance | DC100 V over 100 MΩ (TR-8130 is over 10 MΩ at DC500 V) |
| Conductor | 3 wire type |
| Range of Error | ±(0.15 + 0.002 × t )°C t = absolute value of measurement in °C |
| Waterproof Capacity | TR-8200: Waterproof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

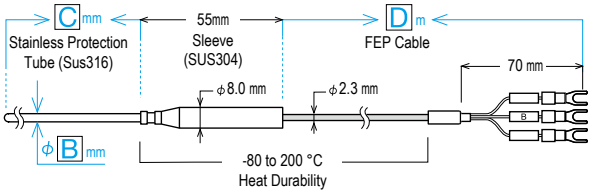



### TR-8210 Regular Type

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

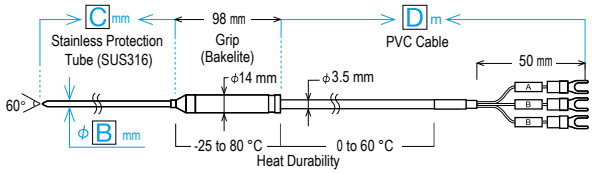
### TR-8220 Low to High Temp Type

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

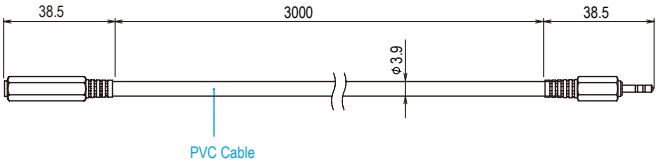
TR-8220: 50 to 2000 millimeters
Others: 50 to 1000 millimeters
Can be specified in 50 mm units.

## D Cable Length

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

## TR-1C30

### Sensor Extension Cable

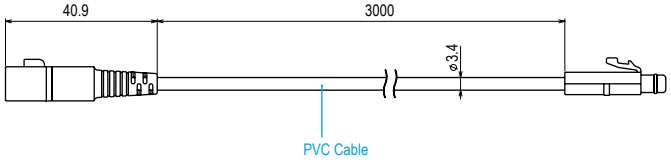



[Unit: mm]

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

## TR-2C30

### Sensor Extension Cable

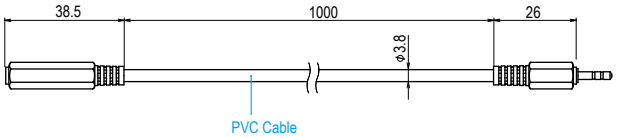



[Unit: mm]

| | |
|---|---|
| Temperature Durability | -25 to 60 °C |
| Waterproof Capacity | Splash proof (rated for use in daily life) |
| Compatible Sensors | Temperature Sensor:<br>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:<br>TR-1106, TR-1220, TR-1320, TR-0106, TR-0206, TR-0306, TR-0406, TR-0506, TR-0706,<br>Temp-Humidity Sensor:<br>THA-3001, THA-3151, SHA-3151, TR-3100*, HHA-3151 (Discontinued)<br>Illuminance-UV Sensor: ISA-3151 |
| Conditions for Use | Temperature sensors can use up to 3 meters of extension cables.<br>Temp-Humidity sensors and Illuminance-UV sensors can use up to 9 meters of extension cables.<br>* Only 1 extension cable for TR-3100 |