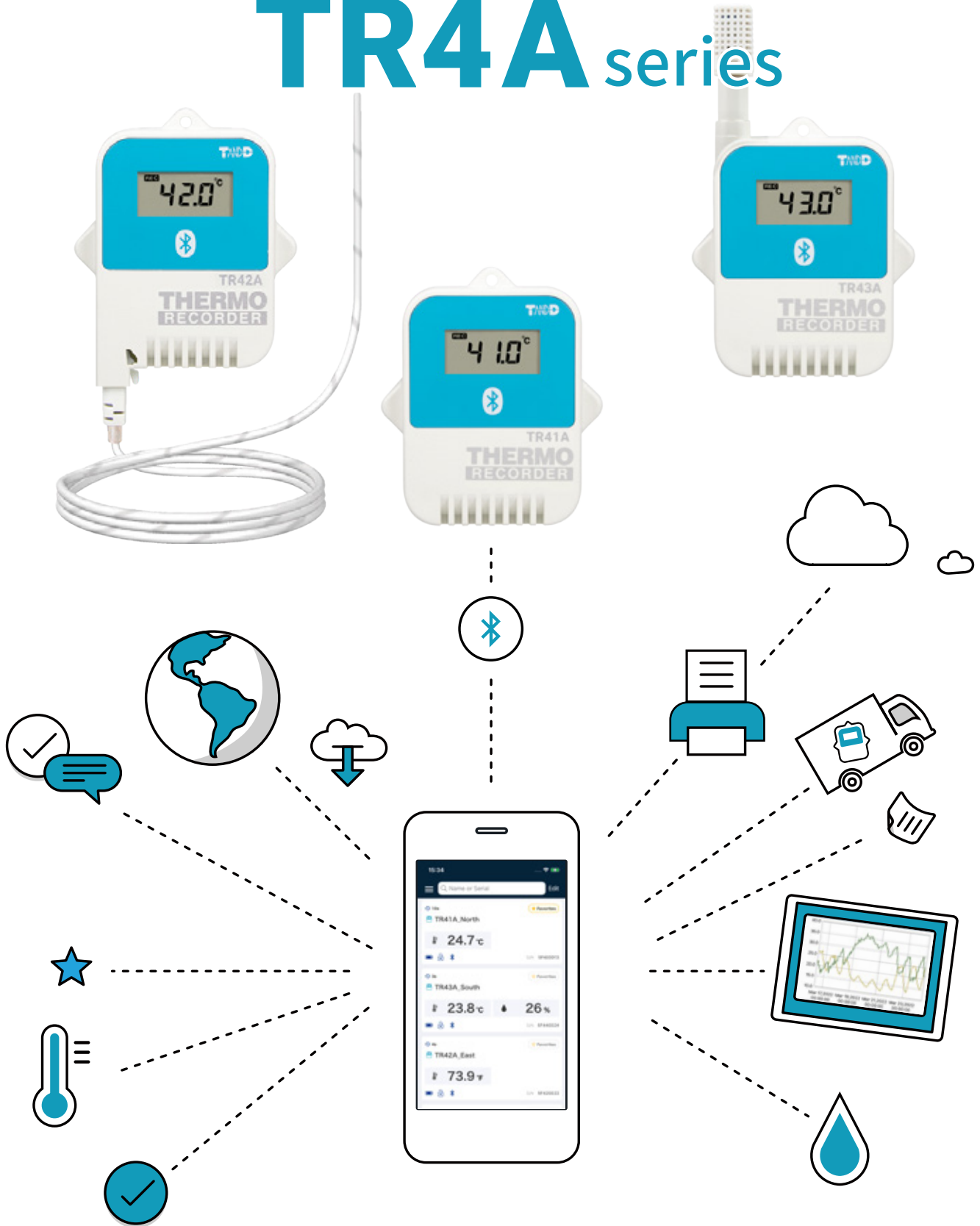


Easy Access to Your Data via Smartphone

Bluetooth® Thermo Recorder TR4A series



TR4A + Mobile Device = Quick Anywhere Anytime Access



Easy Data Management via Bluetooth

Easy Temperature/Humidity Measurement

The battery-powered TR4A series can be used for measurement at any site. Select a model according to your needs such as measurement items, range, and responsiveness.

Easy Data Download with Smartphone

The T&D Thermo App automatically detects your logger via Bluetooth. Once connection is established, recorded data can be downloaded directly with graphic view and configuration using your mobile device.

T&D's Free-of-Charge Cloud Service

T&D WebStorage Service for Anywhere Anytime Access



<https://www.webstorage-service.com/>

Store Data in the Cloud

Recorded data retrieved by the mobile device can be uploaded to the cloud storage (T&D Webstorage Service) for anytime, anywhere access from a smartphone, tablet, or PC.

Data Report Generation

Using the mobile app T&D Thermo or TR4 Report, you can create a data report in PDF format, which can then be printed, shared, or emailed.

Compact, Robust Design for Tough Environments

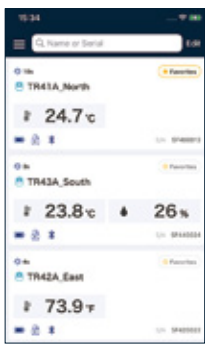
Their palm-sized compact design with robust body expands the possibilities of installation locations. Built-in sensor type for extra durability and water protection (IP67) also available.

Apps and Software for Your Needs

iOS / Android T&D Thermo



Allows for smartphones/tablets to configure logger settings, collect and save data, display graphs, create reports, and upload to the cloud-based T&D WebStorage Service.



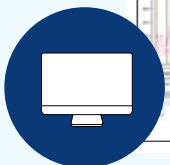
iOS / Android TR4 Report



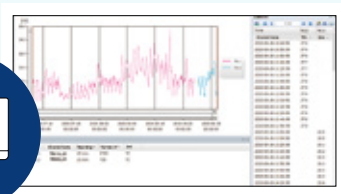
Specialized mobile app for generating PDF reports of recorded data for printing, emailing, saving and sharing.



Windows T&D Graph



Allows access to data stored in the T&D WebStorage Service for data analysis on a Windows PC. Multiple data files can be loaded, graphed, combined and saved.



Line Up Bluetooth[®] Thermo Recorder



TR41A

Internal Sensor for Better Water Protection

Temperature 1ch (Internal Sensor)
-40 to 80 °C
IP67 Immersion Proof



TR42A

External Sensor for Quick Response

Temperature 1ch (External Sensor)
-60 to 155 °C
IP64 Splash proof (rated for use in daily life)
Optional Sensors Available



TR43A

Temperature / Humidity Measurement

Temperature 1ch 0 to 55 °C
Humidity 1ch 10 to 95 %RH
IP64 : Splash proof (rated for use in daily life)
* Note that the temperature-humidity sensor is not water resistant.



TR45

Thermocouple
Pt100/Pt1000

Both TC/PT Sensor Compatible Unit

Temperature 1ch (Thermocouple/PT Sensor)
-199 to 1760 °C (depending on sensor type)
Sensors Not Included

Temperature Sensors for TR42A

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
Note: Can be extended by 3 meters with the Extension Cable TR-2C30.

Fluoropolymer Coated Sensor

TR-5101

Thermistor FEP Cable
Waterproof

[Unit: mm]

Response Time (90 %): Approx. 80 sec. (in air)
Waterproof Capacity: Cable is waterproof

TR-5106

Thermistor FEP Cable
Submersible

[Unit: mm]

Response Time (90 %): Approx. 80 sec. (in air),
Approx. 7 sec. (in agitated water)
Waterproof Capacity: Submersible

Stainless Protection Sensor

TR-5220

Thermistor Stainless Tube (SUS316) FEP Shrink Tube FEP Cable
Submersible Immersion proof

[Unit: mm]

Response Time (90 %): Approx. 150 sec. (in air)
Approx. 7 sec. (in agitated water)
Waterproof Capacity: Submersible (stainless protection tube),
Immersion proof (cable)

TR-5420

Thermistor Stainless Tube (SUS316) FEP Shrink Tube FEP Cable
Submersible Immersion proof

[Unit: mm]

Response Time (90 %): Approx. 90 sec. (in air)
Approx. 3 sec. (in agitated water)
Waterproof Capacity: Submersible (stainless protection tube),
Immersion proof (cable)

TR-5620 High Sensitivity Ultra-thin Sensor

Thermistor Stainless Tube (SUS316) FEP ShrinkTube FEP Cable
Submersible Immersion proof

[Unit: mm]

Response Time (90 %): Approx. 50 sec. (in air)
Approx. 1 sec. (in agitated water)
Waterproof Capacity: Submersible (stainless protection tube),
Immersion proof (cable)

TR-5320

Thermistor Stainless Tube (SUS316) FEP Shrink Tube FEP Cable
Submersible Immersion proof

[Unit: mm]

Response Time (90 %): Approx. 90 sec. (in air)
Approx. 3 sec. (in agitated water)
Waterproof Capacity: Submersible (stainless protection tube),
Immersion proof (cable)

TR-5530 Underwater Sensor

Fluoropolymer Mold Protection Tube Thermistor Stainless Tube (SUS316) FEP Cable
Submersible

[Unit: mm]

Response Time (90 %): Approx. 150 sec. (in air)
Approx. 15 sec. (in agitated water)
Waterproof Capacity: Submersible (stainless protection tube),
Immersion proof (cable)

Extention Cable for Temperature Sensor

TR-2C30

PVC Cable

[Unit: mm]

Temperature Durability: -25 to 60 °C
Waterproof Capacity: Splash proof (rated for use in daily life)
Conditions for Use: Only one cable per sensor.

Pt Sensors for TR45



Model Number

TR-8000 - 0.0 - 0000 - 00M

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)

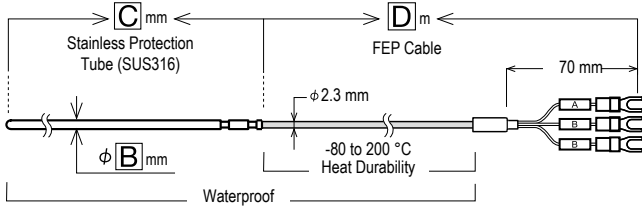
Sensor Device	Pt100
Electrical Current	2 mA
Insulation Resistance	DC100 V over 100 MΩ (TR-8130 is over 10 MΩ at DC500 V)
Conductor	3 wire type
Range of Error	±(0.15 + 0.002 × t) °C t = absolute value of measurement
Waterproof Capacity	TR-8200: Waterproof Others: Only stainless protection tube is water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

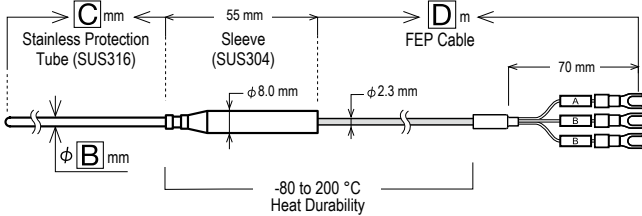


TR-8210 Regular Type

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

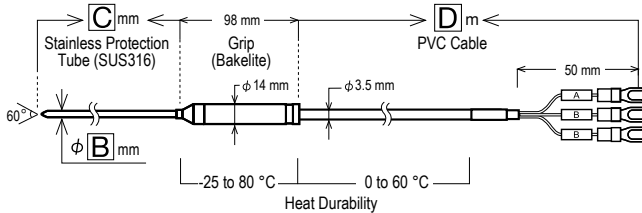
TR-8220 Low to High Temp Type

Measurement Range: -200 to 500 °C
Response Time (90 %) *: Approx. 6 sec. (In agitated water)



TR-8130 Handy Type

Measurement Range: -50 to 200 °C
Response Time (90 %) *: Approx. 6 sec. (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 DC500 V.

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

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

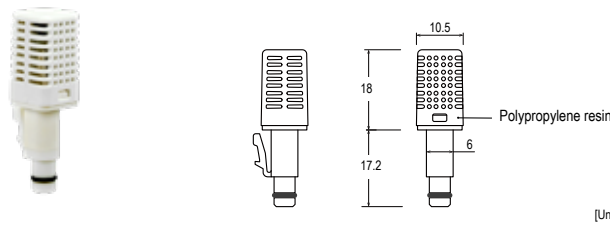
1 to 99 meters
Can be specified in 1 m units.

Temperature-Humidity Sensors for TR43A

Measurement Range: Temperature 0 to 55 °C, Humidity 10 to 95 %RH
Conditions for Use: Do not expose to condensation, dampness, corrosive gases or organic solvents. Continued use may cause a decrease in the sensor's accuracy and sensitivity even under normal operational conditions.

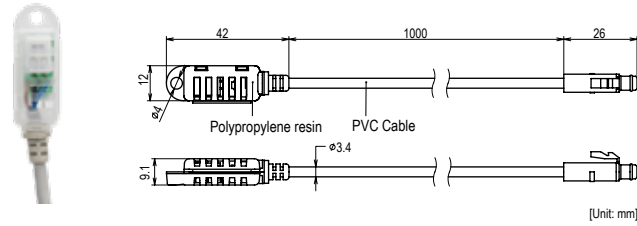
Note: These sensors do not support the use of an extension cable.

THB3001



Accuracy: Temperature ± 0.5 °C,
Humidity ± 5 %RH at 25 °C, 50 %RH
Response Time (90 %): Approx. 11 min.

TR-3310



Accuracy: Temperature Avg. ± 0.3 °C,
Humidity ± 5 %RH at 25 °C, 50 %RH
Response Time (90 %): Approx. 7 min.

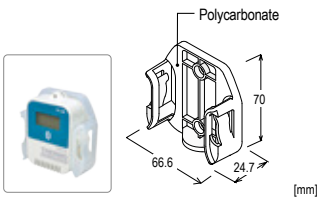
Wall Attachments

Included Items: Lock Screws for fastening to wall, Double-Sided Adhesive Tape

Note: Cracking may occur if polycarbonate is exposed to strong impact at temperatures of -30 °C or lower.

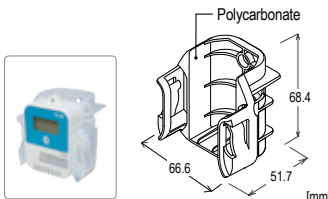
TR-05K3

for TR41A / 42A / 43A



TR-05K3L

for TR41A / 42A / 43A, TR45



Note: TR41A / 42A / 43A Can be used when attaching Large Capacity Battery Kit or External Power Adaptor Kit.

Other Options

TR-00P1

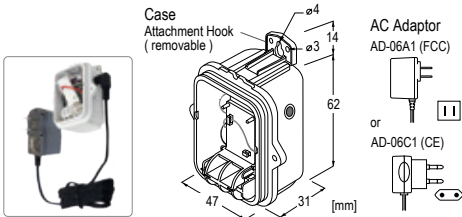
Maintenance Set for TR41A / 42A / 43A



Included Items:
Rubber Packing, Silica Gel,
Double-Sided Adhesive Tape,
Lock Screws

RTR-500A2

External Power Adaptor Kit for TR42A / 43A



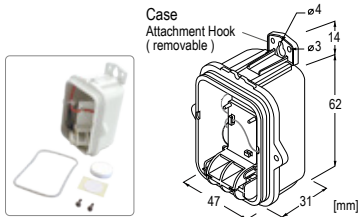
Voltage Input: DC6V
Backup Power: Ni-MH Battery (In case of power loss)
Back-up Time: About 4 days *
Charging Method: Trickle Charge
Operating Temperature: 0 to 60 °C
Waterproof Capacity: None
Weight: About 37 g (without AC Adaptor)
Included Items: AC Adaptor (AD-06A1 or AD-06C1), Case and Attachment Hook, Rubber Packing, Lock Screws, Rubber O-ring

* Varies depending on the amount of charge in the Ni-MH battery.

Note: RTR-500A2 should not be used with the TR41A as it will cause the TR41A to display a higher than actual temperature reading of up to 3 °C.

RTR-500B1

Large Capacity Battery Kit for TR41A / 42A / 43A



Power: Lithium Battery x 1 (LS26500) *1
Battery Life: About 4 years *2
Waterproof Capability: Splash proof
Operating Temperature: -40 to 80 °C *3
Weight: About 75 g (including Lithium Battery)
Included Items: Maintenance Set TR-00P1, Case and Attachment Hook

*1: When using RTR-500B1 it is necessary to purchase Lithium Battery (LS26500). For details, contact your local authorized distributor.

*2: Battery Life varies depending on measuring environment, recording interval, transmission frequency, and ambient temperature. The battery life estimated here is calculated using a new battery under normal operating conditions and in no way should be understood as a guarantee of battery life.

*3: Operating temperature depends on the specifications for the data logger being used.

Specification	TR41A	TR42A	TR43A		TR45	
Measurement Channels	Temperature 1ch	Temperature 1ch	Temperature 1ch, Humidity 1ch		Temperature 1ch	
Sensor	Thermistor (Internal)	Thermistor	Thermistor	Polymer Resistance	Thermocouple: Type K, J, T, S, R *1 (Not provided)	Pt100, Pt1000 3-wire, 4-wire *2 (Available as option)
					Connection Terminal (M3.5)	
Measurement Units	°C, °F	°C, °F	°C, °F	%RH	°C, °F	°C, °F
Measurement Range	-40 to 80 °C	-60 to 155 °C	0 to 55 °C	10 to 95 %RH	Type K : -199 to 1370 °C Type J : -199 to 1200 °C Type T : -199 to 400 °C Type S : -50 to 1760 °C Type R : -50 to 1760 °C	-199 to 600 °C
Accuracy	Avg. ±0.5 °C	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	±0.5 °C	±5 %RH at 25 °C, 50 %RH	Thermocouple Measurement (Sensor inaccuracies not included) Type K, J, T : ±(0.5 °C + 0.3 % of reading) at -100 °C or above Type S, R : ±(1.5 °C + 0.3 % of reading) at 100 °C or above Cold Junction Compensation ±0.5 °C *at 10 to 40 °C ±0.8 °C *at -40 to 10 °C, 40 to 80 °C	±(0.3 °C + 0.3 % of reading) *at 10 to 40 °C ±(0.5 °C + 0.3 % of reading) *at -40 to 10 °C, 40 to 80 °C
					* The temperature range shown above represents the operating environment of the logger.	
Measurement Resolution	0.1 °C	0.1 °C	0.1 °C	1 %RH	Type K, J, T : 0.1 °C Type S, R : Approx. 0.2 °C	0.1 °C
Responsiveness	Response Time (90 %) : Approx. 35 min.	Response Time (90 %) : Approx. 80 sec.(in air) Approx. 7 sec. (in agitated water)	Response Time (90 %) : Approx. 11 min.		-	-
Logging Capacity	16,000 readings	16,000 readings	8,000 data sets (One data set consists of readings for multiple channels.)		16,000 readings	
Recording Interval	Select from 15 choices: 1, 2, 5, 10, 15, 20, 30 sec. or 1, 2, 5, 10, 15, 20, 30, 60 min.					
Recording Mode	Endless (Overwrite oldest data when capacity is full) or One Time (Stop recording when capacity is full)					
LCD Display Items	Measurements (alternating display for multiple channel devices), Recording Status, Battery Life Warning, etc.					
Communication Interfaces	Bluetooth 4.2 (Bluetooth Low Energy)				Bluetooth 4.1 (Bluetooth Low Energy)	
Communication Time	Data Download Time (full logger) : Approx. 15 seconds				Data Download Time (full logger) : Approx. 30 seconds	
Power	Lithium Battery (LS14250) x 1					
Battery Life *3	Approx. 1.5 years *4				Approx. 1 year *4	
Dimensions	H 62 mm x W 47 mm x D 19 mm (excluding protrusions and sensor)				H 62 mm x W 47 mm x D 26.5 mm (excluding protrusions and sensor)	
Weight	Approx. 45 g				Approx. 50 g	
Operating Environment	-40 to 80 °C -30 to 80 °C during wireless communication				Temperature : -40 to 80 °C (-25 to 80 °C during wireless communication) Humidity : 90 %RH or less (no condensation)	
Waterproof Capacity	IP67: Immersion proof	IP64: Splash proof (rated for use in daily life) *5			None	
Included Items	-	Temperature Sensor TR-5106	Temp-Humidity Sensor THB3001		Cable Clamp	
	Lithium Battery LS14250, Registration Code Label, Strap, User's Manual (Warranty Included)					
Software *6	Mobile Applications (iOS, Android) T&D Thermo, TR4 Report PC Software (Windows) T&D Graph				Mobile Applications (iOS, Android) T&D Thermo, ThermoREC, ThermoStorage, TR4 Report PC Software (Windows) T&D Graph	

*1: We do not handle the sale of Thermocouple sensors.

*2: In the case of a 4-wire sensor, one wire will be left unused.

*3: Battery life varies depending upon multiple factors including ambient temperature, recording interval, frequency of communication, and battery performance. All estimates are based on operations carried out with a new battery and are in no way a guarantee of actual battery life.

*4: Estimated battery life when recording data at an interval of more than 10 seconds and collecting data once a day.

*5: This is the waterproof capacity of the data logger with the sensor connected. Note that the temperature-humidity sensor is not water resistant.

*6: Free software download and information on OS compatibility is available on the Software page of our website at <https://tandd.com/software/>.

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