Wireless Data Logging System

RTR500B series

Wireless Brings Freedom

Versatile Next Generation Data Logging System

The RTR500B Series consists of data loggers (Remote Units) designed to measure and record a wide variety of measurements and three types of data collectors (Base Units) to enable wireless collection of recorded data. Automated data collection is performed by using a robust wireless communications protocol, after which the data is sent to a server or cloud storage using various methods depending on the application and environment.
Experience the continuing evolution of the RTR500B Series data logging system.

Collect / Transfer (Base Unit)
The data transfer method varies depending upon the model.

Mobile Base Station
RTR500BM

Network Base Station
RTR500BW

Wireless Base Station
RTR500BC

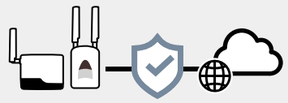
Wireless Communication
Auto-Download

Measure / Record (Remote Unit)
Temp / Humidity / Illuminance / UV / CO2 / Voltage / 4-20mA / Pulse

RTR500B Series Features

Improved Security and Usability

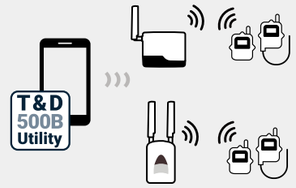
HTTPS Compatibility



Security has been improved with the addition of encrypted communication capability.

Compatible Devices:
RTR500BW, RTR500BM

Setup Utility App for Mobile Devices



The mobile app "T&D 500B Utility" enables you to register devices and make settings without a PC. The User-friendly wizard function leads you step by step through initial setup.

Compatible Devices:
RTR500BW, RTR500BM,
RTR501B / 502B / 503B / 505B / 507B,
RTR500BC (As Repeater)

Auto Wireless Route Settings

When used in conjunction with Repeaters, the Base Unit will automatically select the best route to ensure stable wireless communication with less errors.

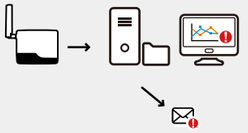
Compatible Devices:
RTR500BW, RTR500BM,
RTR501B / 502B / 503B / 505B / 507B,
RTR500BC (As Repeater)

Cloud Storage Service

By adding your Base Unit to the cloud-based "T&D WebStorage Service", data recorded by the registered Remote Units can be automatically uploaded and managed collectively. It is now also possible to change settings via cloud.

Compatible Devices:
RTR500BW, RTR500BM
Multiple server selection not available

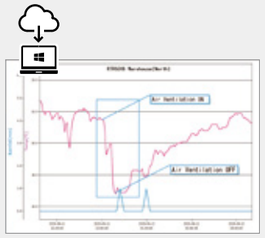
Local Server Storage



By installing the "T&D Data Server" software and setting up the PC as a destination server, recorded data can be automatically sent to the server PC. It is possible to save received data in the specified folder and monitor with a web browser via intranet.

Compatible Devices:
RTR500BW
Multiple server selection not available.

Data Analysis and Graphing Tool



"T&D Graph" is a high performance graph software for effective management and analysis of recorded data. It can also be used in conjunction with T&D WebStorage Service and T&D Data Server.

Variety of Wireless Data Logger Selections to Meet Your Needs

Temperature

RTR501B / 501BL

Internal Sensor for Better Water Protection

Temperature: -40 to 80 °C
IP67: Immersion proof

RTR502B / 502BL

External Sensor for Quick Response

Temperature: -60 to 155 °C
IP64: Splash proof (rated for use in daily life)

Temperature / Humidity

RTR503B / 503BL

Measure Temp and Humidity Simultaneously

Temperature: 0 to 55 °C
Humidity: 10 to 95 %RH
IP64*: Splash Proof (rated for use in daily life)

Temperature / Humidity

RTR507B / 507BL

For High-Precision and Wide-Range Measurement

Temperature: -25 to 70 °C
Humidity: 0 to 99 %RH (above -20 °C)
IP64*: Splash proof (rated for use in daily life)

Temperature / Voltage / 4-20mA / Pulse Count

(Modules Sold Separately)

RTR505B / 505BL

Multi-Functional Logger Selection of Five Modules

Pt100/Pt1000: -199 to 600 °C
Thermocouple: -199 to 1760 °C
Voltage: 0 to 22 V
4-20mA: 0 to 20 mA
Pulse count: 0 to 61,439 (Input Frequency: 0 to 3.5 kHz)
IP64*: Splash proof (rated for use in daily life)

* Please refer to the product specifications (P.18-19) for details.

Illuminance / UV Intensity / Temperature / Humidity

RTR-574 / 574-S

For Measuring TempHumidity plus Illuminance and UV

Illuminance: 0 to 130,000 lx
UV Intensity: 0 to 30 mW/cm^2
Temperature: 0 to 55 °C (574-S: -25 to 70 °C)
Humidity: 10 to 95 %RH (574-S: 0 to 99 %RH)

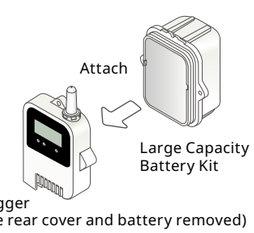
CO2 / Temperature / Humidity

RTR-576 / 576-S

For CO2 Measurement in Living Environment

CO2 Concentration: 0 to 9,999 ppm
Temperature: 0 to 55 °C (576-S: -25 to 70 °C)
Humidity: 10 to 95 %RH (576-S: 0 to 99 %RH)

L Type



L-type models (model names which include "L") are designed with a large capacity battery kit. Battery life of the L type is four times longer than that of the normal type.

Data Collector Features

	Data Transfer	Data View	Power	Warning Notification System	
				Warning Method	Warning Items
RTR500BW **Network Base Station** 	**Wired LAN** **Wireless LAN**	**T&D's Cloud Service** (Refer to P.11) **Internet** **T&D Data Server**	**AC Adaptor** **PoE**	**Web Browser** **E-mail** **External Alarm Output** **Device Alarm** (LED Light)	**Upper / Lower Limits** **Sensor Error** **Remote Unit Battery Level** **Wireless Comm Error**
RTR500BM **Mobile Base Station** 	**Cellular Network** (4G / LTE)	**T&D's Cloud Service** (Refer to P.11) **Internet**	**AC Adaptor** **AA Alkaline Battery x4** (LR6) **External Power Supply** (DC 9-38V)	**Web Browser** **E-mail** **SMS** **External Alarm Input/Output**	**Upper / Lower Limits** **Sensor Error** **Remote Unit Battery Level** **Base Unit Battery Level / External Power Failure** **Contact Input ON** **Wireless Comm Error**
RTR500BC **Wireless Base Station** 	**USB**	**PC** (Software) **T&D's Cloud Service** (Refer to P.11)	**AC Adaptor** * **USB Bus Power** **AA Alkaline Battery x2** (LR6) **External Power Supply** (DC 9-38V)	**Software** **E-mail**	**Upper / Lower Limits** **Sensor Error** **Remote Unit Battery Level** **Wireless Comm Error**

* When using the RTR500BC as a Base Unit, it works on the USB bus power and it is not necessary to use another power source.

Base Unit
Data
Collector

Remote Management via Network

RTR500BW Network Base Station

With Wireless/Wired LAN Capabilities

Improved Security
Communicate with the server via HTTPS

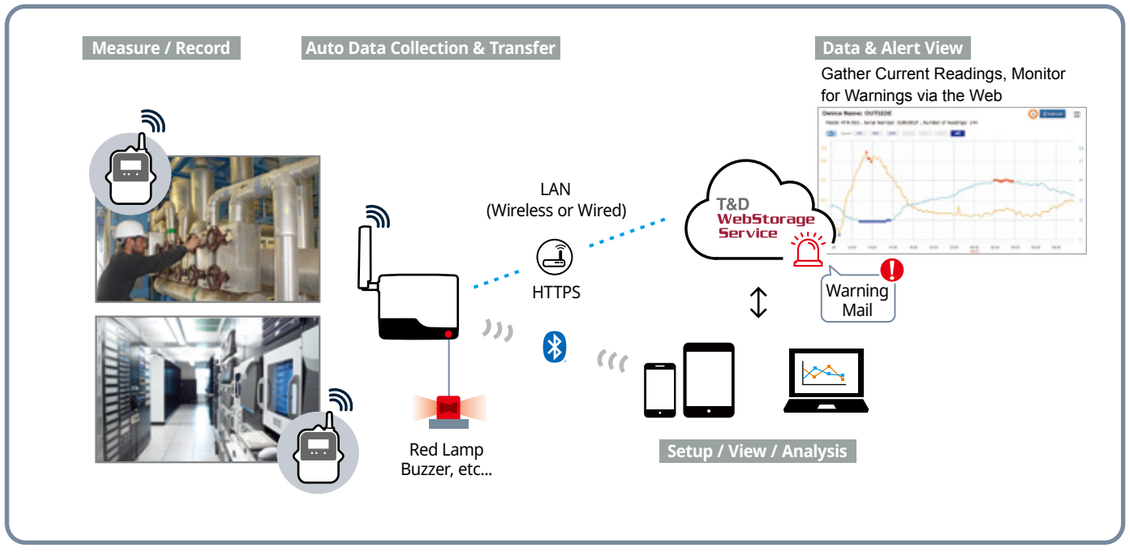
User Friendly Mobile App
Make settings from mobile devices via Bluetooth or cloud; PC software is also available

Open APIs Available
T&D provides APIs for T&D's cloud WebStorage Service, which allows users to retrieve data directly from the service

Automatic Wireless Routings
The best route is automatically selected to ensure stable communication

Number of Possible Registrations

Remote Units: Up to 50
Repeaters: Up to 10 units per Group
Number of Groups : Up to 4 Groups



Base Unit
Data
Collector

Remote and Transport Monitoring Solution

RTR500BM Mobile Base Station

With 4G Connectivity

Data Transmission via Mobile Network
Data collected from data loggers can be automatically uploaded to T&D WebStorage Service or sent by email

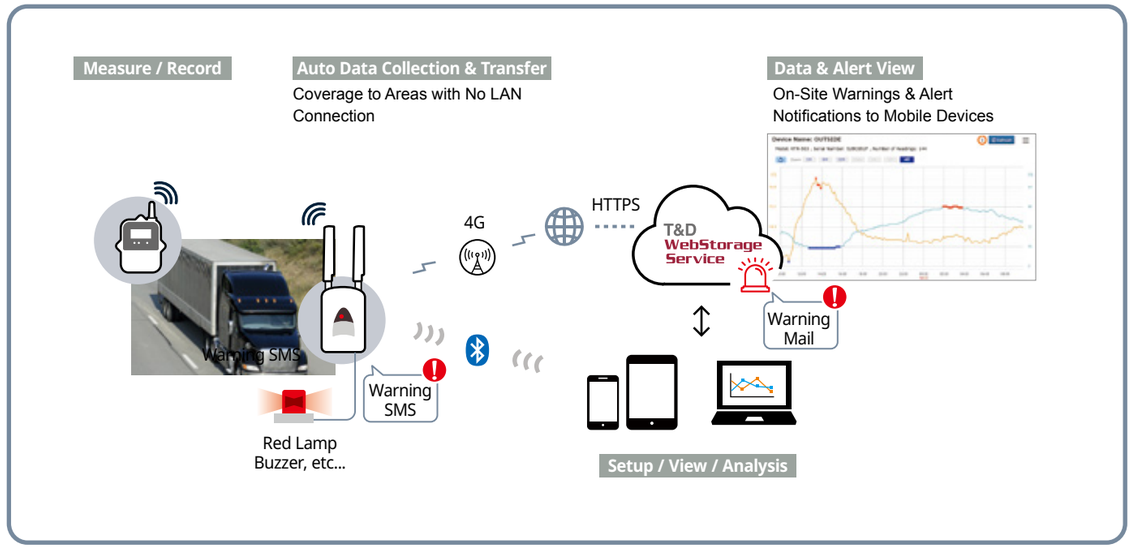
Possible to Connect to 12/24V Battery
An optional external battery connection adaptor enables operation where AC power is not available

Warning Notification via SMS/Email
Messages can be sent via SMS from RTR500BM or email from T&D WebStorage Service when a warning occurs

Automatic Wireless Routings
The best route is automatically selected to ensure stable communication

Number of Possible Registrations

Remote Units: Up to 20
Repeaters: Up to 5 units per Group
Number of Groups : Up to 4 Groups



Base Unit
Data Collector

Direct USB Connection to PC

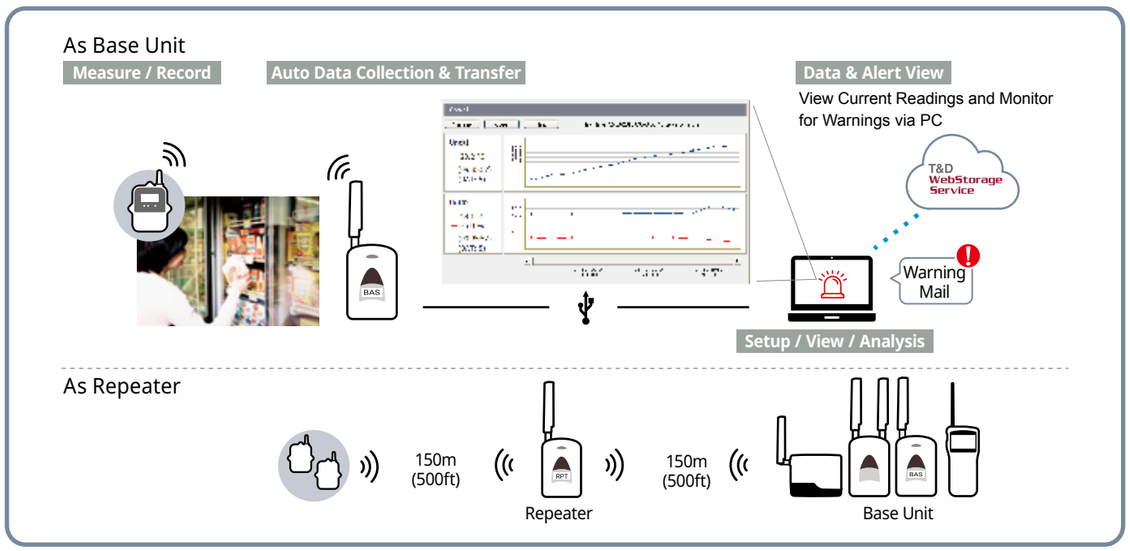
RTR500BC Wireless Base Station
Wireless Repeater

Auto-Download and Monitoring via PC
By using the software running on a PC, RTR500BC monitors registered loggers for out-of-limit conditions and provides email notifications

Upload Data to Cloud or Email
Downloaded data can be sent to email or server at scheduled intervals

As a Wireless Repeater
Can be used as a Repeater to extend the wireless communication range

Number of Possible Registrations
Remote Units: Up to 32 units per Group
(For RTR-574 and RTR-576, registration of one unit will be counted as two units.)
Repeaters: Up to 30 units per Group
Number of Groups : Up to 20 Groups

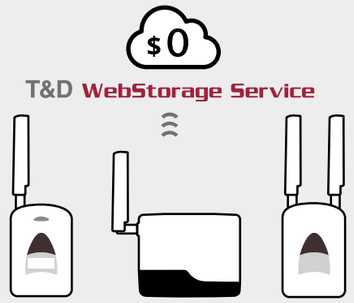


T&D WebStorage Service

Access Data Anytime, Anywhere
Available Free of Charge!

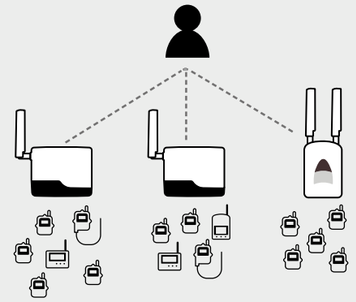
T&D WebStorage Service is a free cloud storage service for T&D data loggers. By making settings in compatible products for the automatic transmission of data, it is possible to access your important data any time, anywhere from PC or mobile devices.
Let our cloud service do the work for you!

Completely Free! Get Started Now



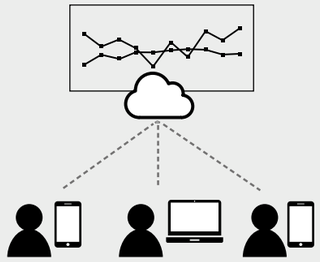
A single email address and password gets you into everything T&D WebStorage Service offers. No cost APIs are also available.

Manage All Your Devices in One Account



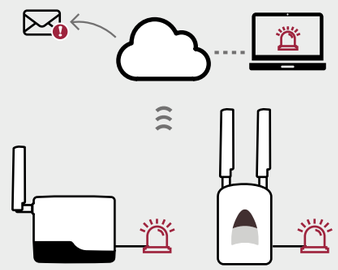
Monitor recorded data of multiple loggers in your account via browser. View and download data in graphical form or in a list.

Share Data on the Cloud



Efficiently share data for analysis and reporting, etc.
A read-only access privilege is also available.

24/7 Alert Monitoring



T&D WebStorage Service monitors your important data and notifies you via alert view on the web browser or via email when a warning event occurs.

TRY NOW!

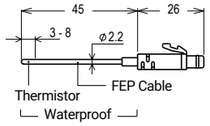
An online demo is available from the website.
https://www.webstorage-service.com/

Temperature Sensors for RTR502B / 502BL

Measurement Range: -60 to 155 °C
Accuracy (TR-5620 excluded): 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

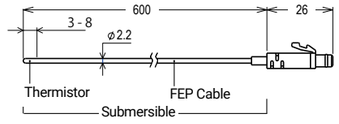
TR-5101 Fluoropolymer Coated Sensor



[Unit: mm]

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

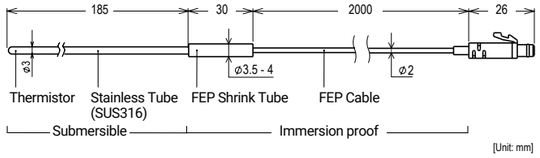
TR-5106 Fluoropolymer Coated Sensor



[Unit: mm]

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

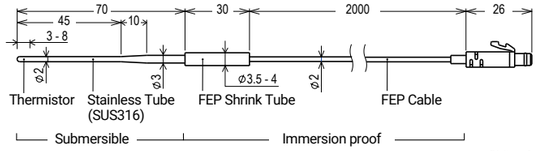
TR-5220 Stainless Protection Sensor



[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)

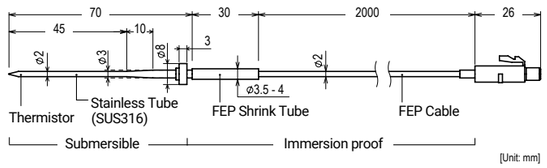
TR-5320 Stainless Protection Sensor



[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)

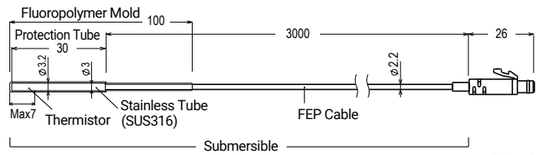
TR-5420 For Core Temperature



[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)

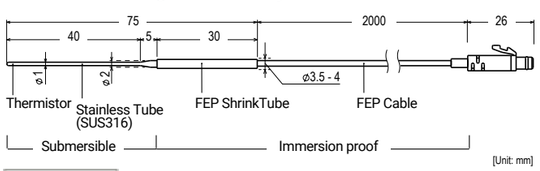
TR-5530 Underwater Sensor



[Unit: mm]

Response Time (90%): Approx. 150 sec. (in air)
Approx. 15 sec. (in agitated water)
Waterproof Capacity: Submersible

TR-5620 High Sensitivity Ultra-thin Sensor



[Unit: mm]

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

Pt Sensors for RTR505B / 505BL

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)

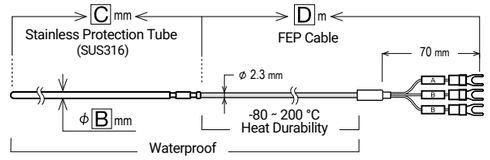
Sensor Device	Pt100
Electrical Current	2 mA
Insulation Resitance	DC100 V over 100 MΩ (TR-8130 is over 10 MΩ at DC500 V)
Conductor	3 wire type
Range of Error	±(0.15 + 0.002 × t) °C t = absolute value of measurement in °C
Waterproof Capacity	TR-8200: Waterproof Others: Only stainless protection tube is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

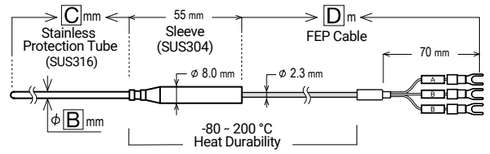


TR-8210 Regular Type

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

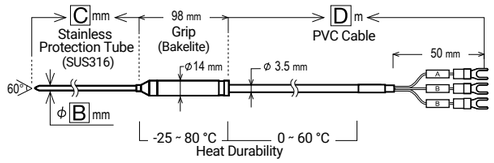
TR-8220 Low to High Temp Type

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 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

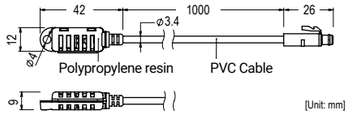
Can be specified in 1 m units.

Temperature-Humidity Sensors

Measurement Range: Temperature 0 to 55 °C, Humidity 10 to 95 %RH
Accuracy (TR-3310 excluded): Temperature: ±0.5 °C, Humidity: ±5 %RH at 25 °C, 50 %RH

Note: 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.

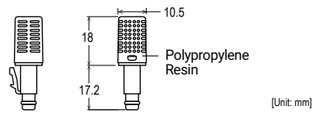
TR-3310 for RTR503B / 503BL



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

Note: This sensor does not support the use of an extension cable.

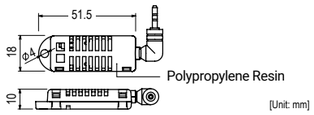
THB3001 for RTR503B / 503BL



Response Time (90%): Approx. 13 min. (RTR503B)
Approx. 16 sec. (RTR503BL)

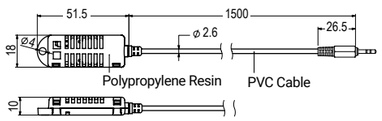
Note: This sensor does not support the use of an extension cable.

THA-3001 for RTR-574 / 574-S / 576 / 576-S



Response Time (90%): Approx. 7 min.

THA-3151 for RTR-574 / 574-S / 576 / 576-S



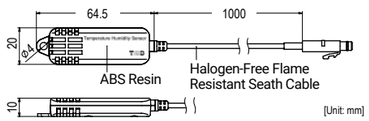
Response Time (90%): Approx. 7 min.

High Precision Type

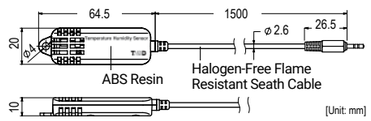
Measurement Range: Temperature: -25 to 70 °C, Humidity*: 0 to 99 %RH
Measurement Resolution: Temperature: 0.1 °C, Humidity: 0.1 %RH
Accuracy:Temperature: ±0.3 °C at 10 to 40 °C, ±0.5 °C all other temperatures, Humidity: ±2.5 %RH at 15 to 35 °C, 30 to 80 %RH
Response Time (90 %): Approx. 7 min.
Long Term Stability: ±1 %RH/yr, ±0.1 °C/yr

Note: 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.

SHB-3101 for RTR507B / 507BL



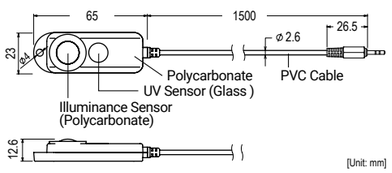
SHA-3151 for RTR-574 / 574-S / 576 / 576-S



* When continually used in environments with temperatures above 60 °C, accuracy of humidity measurements will decrease over time. Also, humidity cannot be measured at temperatures below -20 °C.

Illuminance-UV Sensor

ISA-3151 for RTR-574 / 574-S



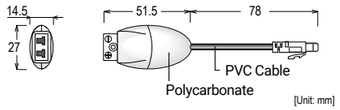
Measurement Range:
Illuminance: 0 lx to 130 klx, UV Intensity: 0 to 30 mW/cm^2
Measurement Resolution:
Illuminance: Minimum of 0.01 lx
UV Intensity: Minimum of 0.001 mW/cm^2
Accuracy: Illuminance: 10 lx to 100 klx: ±5 % at 25 °C, 50 %RH
UV Intensity*: 0.1 to 30 mW/cm^2: ±5 % at 25 °C, 50 %RH
Operating Environment:
Temperature: -10 to 60 °C, Humidity: ±90 %RH or lower

* Compared to the value measured by the T&D standard sensor for calibration under our calibration light source.

Input Modules for RTR505B / 505BL

Operating Environment (PIC-3150 excluded): Temperature -40 to 80 °C, Humidity 90 %RH or less (no condensation)
Note: Input Module is not water resistant.

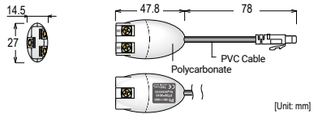
TCM-3010
Thermocouple Module



Compatible Sensors:
Thermocouple: Type K, J, T, S
Measurement Range:
within the sensor heat-durability range only
Measurement Resolution:
Type K, J, T: 0.1 °C
Type S: about 0.2 °C
Measurement Accuracy (*1):
Thermocouple Measurement:
Type K, J, T: ±(0.3 + 0.003 × t) °C
Type S: ±(1.0 + 0.003 × t) °C
t = absolute value of measurement in °C
Cold Junction Compensation:
±0.3 °C at 10 to 40 °C (*2)
±0.5 °C at -40 to 10 °C, 40 to 80 °C (*2)

Note: Make sure to use a thermocouple sensor with a miniature thermocouple plug attached. T&D does not make available these plugs or sensors for sale.

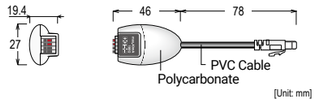
PTM-3010
Pt Module



Compatible Sensors:
Pt100 (3-wire, 4-wire), Pt1000 (3-wire, 4-wire)
In the case of a 4-wire sensor, one wire will be left unused.
Measurement Resolution: 0.1 °C
Measurement Accuracy (*1):
±(0.3 + 0.003 × t) °C at 10 to 40 °C (*2)
±(0.5 + 0.003 × t) °C at -40 to 10 °C, 40 to 80 °C (*2)
t = absolute value of measurement in °C
Input Terminal:
M3.5 Screw Terminal Block with Square Washer (3 terminals)
Included Items: Protection Cover

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

AIM-3010
4-20mA Module



Input Resistance: 0 to 20 mA
(Operational up to 40 mA)
Measurement Resolution: 0.01mA
Measurement Accuracy:
±0.05 mA + 0.3 % of reading at 10 to 40 °C (*2)
±0.1 mA + 0.3 % of reading at -40 to 10 °C, 40 to 80 °C (*2)
Input Resistance: 100 Ω ±0.3 Ω
Input Terminal: Screwless Terminal Block (Push-in Type, 4 terminals)
Compatible Wires: AWG 28 – 22
Single wire: Ø0.32 – Ø0.64 mm,
Twisted wire: 0.08 – 0.32 mm², Ø0.12 mm or more in diameter
Recommended Wire Size: AWG 22

VIM-3010
Voltage Module

Measurement Item: Voltage 0 to 22 V
Measurement Resolution:
Up to 400 mV: 0.1 mV, Up to 800 mV: 0.2 mV,
Up to 999 mV: 0.4 mV, Up to 3.2 V: 1 mV,
Up to 6.5V: 2 mV, Up to 9.999 V: 4 mV,
Up to 22 V: 10 mV
Measurement Accuracy:
±0.5 mV + 0.3 % of reading at 10 to 40 °C (*2)
±1 mV + 0.5 % of reading at -40 to 10 °C, 40 to 80 °C (*2)
Preheat Function:
Voltage Range (Preheating): 3 V to 20 V (up to 100 mA)
Time Range (Preheating): 1 to 999 seconds (in units of one-second)
Capacitor Load: 330 µF or less
Input / Preheat Terminal:
Screwless Terminal Block (Push-in Type, 4 terminals)
Compatible Wires: AWG 28 – 22
Single wire: Ø0.32 – Ø0.64 mm,
Twisted wire: 0.08 – 0.32 mm², Ø0.12 mm or more in diameter
Recommended Wire Size: AWG 22

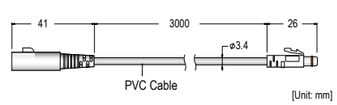
PIC-3150
Pulse Input Cable

Measurement Item: Pulse Count
Input Signal:
Non-voltage Contact Input
Voltage Input (0 to 27 V)
Detection Voltage:
Lo: 0.5 V or less, Hi: 2.5 V or more
Chattering Filter:
ON: 15 Hz or less, OFF: 3.5 kHz or less (when using square wave signals of 0-3V or higher)
Response Polarity:
Select either Lo → Hi or Hi → Lo
Input Impedance: Approx. 100 kΩ pull up
Maximum Count: 61439 / Recording Interval
Input Terminal: M3.5 Y-type Crimp Terminal

*1: Sensor error is not included.
*2: These temperature ranges [°C] refer to the operating environment of the input module.

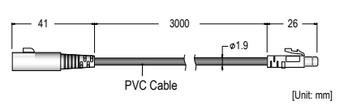
Sensor Extension Cables

TR-2C30
for Temperature Sensors



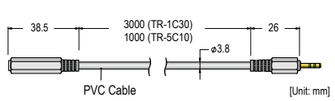
Temperature Durability: -25 to 60 °C
Waterproof Capacity: Splash proof (rated for use in daily life)
Only one extension cable per Temperature sensor.

TR-3C30
for Temp-Humidity Sensor or modules



Temperature Durability: -25 to 60 °C
Waterproof Capacity: Splash proof (rated for use in daily life)
Only one cable per Temp-Humidity sensor (SHB-3101) or module.

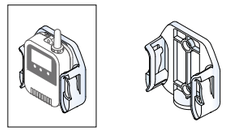
TR-1C30 or TR-5C10
for Temp-Humidity Sensors or Illuminunce-UV Sensor



Temperature Durability: -25 to 60 °C
Waterproof Capacity: None
Temp-Humidity sensors (THA-3001, THA-3151, SHA-3151) and Illuminance-UV sensor can use up to 9 meters of extension cables.

Wall Attachments

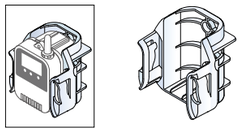
TR-05K3
for RTR501B / 502B / 503B / 505B / 507B



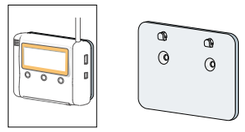
Included Items: Lock Screws, Double-Sided Adhesive Tape
Materials: Polycarbonate
Operational Temperature Range: -40 to 80 °C

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

TR-05K3L
for L Types

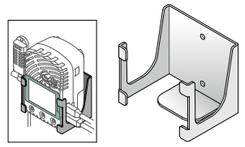


TR-07K2
for RTR-574 / 574-S



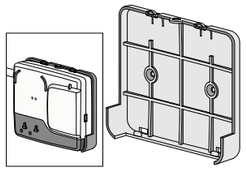
Included Items:
Lock Screws, Double-Sided Adhesive Tape
Materials: Polycarbonate

AT-76K1
for RTR-576 / 576-S



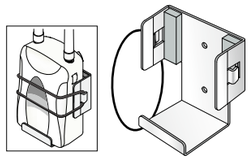
Included Items: Lock Screws
Materials: Aluminum

AT-5WK1
for RTR500BW



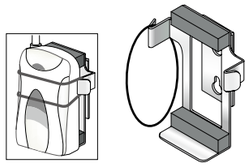
Included Items:
Lock Screws, Double-Sided Adhesive Tape
Materials: Polycarbonate

TR-5GK1
for RTR500BM



Included Items:
Rubber O-Ring, Lock Screws, Double-Sided Adhesive Tape
Materials: Aluminum

AT-50K1
for RTR500BC



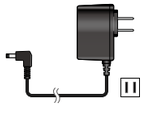
Included Items:
O-Ring, Lock Screws, Double-Sided Adhesive Tape
Materials: Aluminum

AC Adaptors, External Battery Connection Adaptor

for RTR500BC, RTR-576 / 576-S

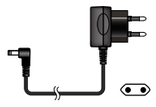
AD-06A1 (Type A Plug)

Cable Length: 1.8 m
Input: AC 100-240 V
Output: DC 6 V 500 mA
Frequency: 50 / 60 Hz



AD-06C1 (Type C Plug)

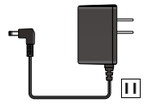
Cable Length: 1.8 m
Input: AC 100-240 V
Output: DC 6 V 1.0 A
Frequency: 50 / 60 Hz



for RTR500BW

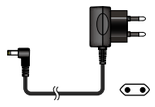
AD-05A4 (Type A Plug)

Cable Length: 1.8 m
Input: AC 100-240 V
Output: DC 5 V 1 A
Frequency: 50 / 60 Hz



AD-05C1 (Type C Plug)

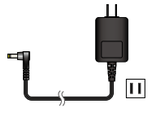
Cable Length: 1.6 m
Input: AC 100-240 V
Output: DC 5 V 2 A
Frequency: 50 / 60 Hz



for RTR500BM

AD-05A3 (Type A Plug)

Cable Length: 1.2 m
Input: AC 100-240 V
Output: DC 5 V 3 A
Frequency: 50 / 60 Hz

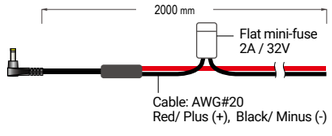


AD-05C1 (Type C Plug)

Cable Length: 1.6 m
Input: AC 100-240 V
Output: DC 5 V 2 A
Frequency: 50 / 60 Hz

for RTR500BM / 500BC

BC-0204

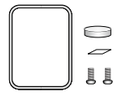


Power Source Conditions:
Voltage: input DC 9-38 V, output DC 5 V
Current: MAX 2 A

Note: Prepare a battery that meets the above conditions

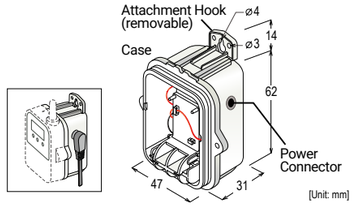
Maintenance Set & Battery Power Supply Accessories

TR-00P1
Maintenance Set
for RTR501B / 502B / 503B / 505B / 507B



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

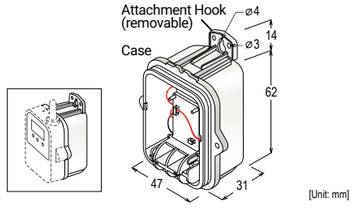
RTR-500A2
External Power Adaptor Kit
for RTR502B / 503B / 505B / 507B



Input Voltage: DC 6 V
Backup Power: Ni-MH Battery (In case of power loss)
Back-up Time:
About 4 days (Varies depending on the amount of charge in the Ni-MH battery)
Charging Method: Trickle Charge
Operational Temperature Range: 0 to 60 °C
Water Resistance: 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

Note: RTR-500A2 should not be used with the RTR501B / 501BL.

RTR-500B1
Large Capacity Battery Kit
for RTR501B / 502B / 503B / 505B / 507B



Power: Lithium Battery (LS26500) (*1)
Battery Life: about 4 years (*2)
Waterproof Capability: Splash Proof
Operational Temperature Range: -40 to 80 °C (*3)
Weight: about 75g (including Lithium Battery)
Included Items: Maintenance Set TR-00P1, Case

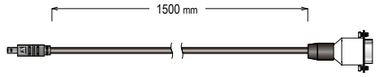
*1: When using RTR-500B1 it is necessary to purchase Lithium Battery (LS26500). For details, contact your local authorized distributor.
*2: Battery Life varies depending on measuring environment, recording interval, transmission frequency, and ambient temperature. The battery life estimated here is calculated 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.

Alarm Connection Cable

AC0101
for RTR500BM, RTR-576 / 576-S

Serial Communication Cable

TR-07C
for RTR500BC



Connecotr: D-sub 9 pin (For Communication with the Computer)
Customers wishing to write their own software, please contact your local distributor for the serial communications protocol specifications.

Software for Purchase

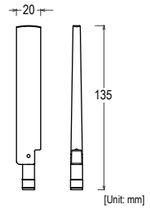
SO-TD1 (T&D Software)

Optional DVD-ROM that contains the Windows software for current T&D products.
RTR500BW for Windows
RTR500BM for Windows
RTR500BC for Windows
RTR-600 Settings Utility (US only)
T&D Data Server
T&D Graph
etc.

Antennas

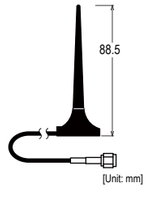
CSR-0011
for RTR500BW / 500BM / 500BC

Connector: RP-SMA



CEL-0151
Extension LTE Antenna
for RTR500BM

Cable Length: 1.5 m
Connector: RP-SMA



Remote Units (Data Logger)

	RTR501B / 501BL	RTR502B / 502BL	RTR503B / 503BL		RTR507B / 507BL	
Measurement Channels	Temperature 1ch	Temperature 1ch	Temperature 1ch, Humidity 1ch		Temperature 1ch, Humidity 1ch (High Precision Type)	
Sensor	Thermistor (Internal)	Thermistor	Thermistor	Polymer Resistance	Thermistor	Polymer Resistance
Measurement Units	°C, °F	°C, °F	°C, °F	%RH	°C, °F	%RH
Measurement Range	-40 to 80 °C	-60 to 155 °C	0 to 55 °C	10 to 95 %RH	-25 to 70 °C	0 to 99 %RH (*1)
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	Avg.±0.3 °C	±5 %RH at 25 °C, 50 %RH	±0.3 °C at 10 to 40 °C ±0.5 °C all other temperatures	±2.5 %RH at 15 to 35 °C, 30 to 80 %RH
Measurement Resolution	0.1 °C	0.1 °C	0.1 °C	1 %RH	0.1 °C	0.1 %RH
Responsiveness	Response Time (90 %): Approx. 35 min. Approx. 47 min. (L Type)	Response Time (90 %): Approx. 80 sec. (in air) Approx. 7 sec. (in agitated water)	Response Time (90 %): Approx. 7 min.		Response Time (90 %): Approx. 7 min.	
Logging Capacity	16,000 readings		8,000 data sets (One data set consists of readings for multiple channels)			
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 (*2)	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 (*3)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: Approx. 150 meters (500 ft) if direct and unobstructed EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: Approx. 150 meters if direct and unobstructed Bluetooth 4.2 (Bluetooth Low Energy) (*4) Optical Communication					
Power	Lithium Battery LS14250 L Type: Large Capacity Battery Kit RTR-500B1 (*5) AC Adaptor used with External Power Adaptor Kit RTR-500A2 (*6)					
Battery Life (*7)	Approx. 10 months L Type: About 4 years					
Dimensions	H 62 mm x W 47 mm x D 19 mm L type: H 62 mm x W 47 mm x D 46.5 mm (excluding protrusions and sensor) Antenna length: 24 mm					
Weight	Approx. 50 g L Type: approx. 65 g					
Operating Environment	-40 to 80 °C -30 to 80 °C during wireless communication					
Waterproof Capacity	IP67: Immersion proof	IP64: Splash proof (rated for use in daily life) (*8)				
Included Items	-	Temperature Sensor TR-5106	Temp-Humidity Sensor TR-3310		High Precision Temp-Humidity Sensor SHB-3101	
	Lithium Battery LS14250 or Large Capacity Battery Kit RTR-500B1, Strap (Not included with L type models), Manual Set (Warranty included)					
Compatible Base Units	RTR500BC, RTR500BW, RTR500BM Other devices (*9)					

*1: When continually used in environments with temperatures above 60 °C, accuracy of humidity measurements will decrease over time. Also, humidity cannot be measured at temperatures below -20 °C.
*2: Only “Endless” is available when using the RTR500BW, RTR500BM, RTR-500NW/AW or RTR500MBS-A as a Base Unit.
*3: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*4: Bluetooth is available when using the RTR500BW or RTR500BM as a Base Unit and making device settings in the mobile app (T&D 500B Utility).
*5: When using RTR-500B1 it is necessary to purchase Lithium Battery (LS26500). For details, contact your local authorized distributor.
*6: RTR-500A2 should not be used with the RTR501B, as it will cause the RTR501B to display a higher than actual temperature reading of up to 3 °C.
*7: The listed battery life is based on the following usage conditions: Recording at 10 second (or longer) intervals, Current Readings Transmission every 10 minutes, and Recorded Data Transmission once a day. Battery life also varies depending on ambient temperature, radio environment, frequency of communication, etc.
*8: This is the waterproof capacity of the data logger with the sensor connected. Note that the temperature-humidity sensor is not water resistant.
*9: Also compatible with the following discontinued products: RTR-500DC, RTR-500, RTR-500NW/AW, and RTR-500MBS-A. Please refer to "Compatibility Info for RTR500B and RTR-500 Series". (https://tandd.com/information/compatible-rtr500b-loggers.html)

The specifications listed above are subject to change without notice.

RTR500B Series - Specifications

Remote Units (Data Logger)

	RTR505B / 505BL
Measurement Item	Temperature, Voltage, 4-20mA, or Pulse Count (*1)
Logging Capacity	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 (*2)	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 (*3)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: Approx. 150 meters (500 ft) if direct and unobstructed EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: Approx. 150 meters if direct and unobstructed Bluetooth 4.2 (Bluetooth Low Energy) (*4) Optical Communication
Power	Lithium Battery LS14250 L Type: Large Capacity Battery Kit RTR-500B1 (*5) AC Adaptor used with External Power Adaptor Kit RTR-500A2
Battery Life (*6)	Approx. 10 months L Type: About 4 years
Dimensions	H 62 mm x W 47 mm x D 19 mm L type: H 62 mm x W 47 mm x D 46.5 mm (excluding protrusions and sensor) Antenna length: 24 mm
Weight	Approx. 50 g L Type: approx. 65 g
Operating Environment	-40 to 80 °C -30 to 80 °C during wireless communication
Waterproof Capacity	IP64: Splash proof (rated for use in daily life) (*7)
Included Items	Lithium Battery LS14250 or Large Capacity Battery Kit RTR-500B1, Strap (Not included with L type models), Manual Set (Warranty included)
Compatible Base Units	RTR500BC, RTR500BW, RTR500BM Other devices (*8)

*1: Measurement item depends on the input module (sold separately). Refer to p.15 for the specifications of each module.
*2: Only "Endless" is available when using the RTR500BW, RTR500BM, RTR-500NW/AW or RTR-500MBS-A as a Base Unit.
*3: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*4: Bluetooth is available when using the RTR500BW or RTR500BM as a Base Unit and making device settings in the mobile app (T&D 500B Utility).
*5: When using RTR-500B1 it is necessary to purchase Lithium Battery (LS26500). For details, contact your local authorized distributor.
*6: The listed battery life is based on the following usage conditions: Recording at 10 second (or longer) intervals, Current Readings Transmission every 10 minutes, and Recorded Data Transmission once a day. Battery life also varies depending on ambient temperature, radio environment, frequency of communication, etc.
*7: Input module (sold separately) is not water resistant.
*8: Also compatible with the following discontinued products: RTR-500DC, RTR-500, RTR-500NW/AW, and RTR-500MBS-A. Please refer to "Compatibility Info for RTR500B and RTR-500 Series". (https://tandd.com/information/compatible-rtr500b-loggers.html)

The specifications listed above are subject to change without notice.

Remote Units (Data Logger)

	RTR-574		RTR-574-S	
	Temperature-Humidity Sensor			
Temperature-Humidity Sensor	THA-3151		SHA-3151 (High-Precision Type)	
	Thermistor	Polymer Resistance	Thermistor	Polymer Resistance
Measurement Channels	Temperature 1ch	Humidity 1ch	Temperature 1ch	Humidity 1ch
Measurement Units	°C, °F	%RH	°C, °F	%RH
Measurement Range	0 to 55 °C	10 to 95 %RH	-25 to 70 °C	0 to 99%RH (*1)
Accuracy	±0.5 °C	± 5 %RH at 25 °C, 50 %RH	±0.3 °C at 10 to 40 °C ±0.5 °C all other temperatures	±2.5%RH at 15 to 35 °C, 30 to 80 %RH
Measurement Resolution	0.1 °C	1 %RH	0.1 °C	0.1 %RH
Responsiveness	Response Time (90%): Approx. 7 min.		Response Time (90%): Approx. 7 min.	
	Illuminance-UV Sensor			
Sensor	ISA-3151			
Measurement Channels	Illuminance: 1 ch UV Intensity: 1 ch			
Measurement Units	Illuminance: lx, klx UV Intensity: mW/cm^2			
Measurement Range	Illuminance: 0 lx to 130 klx UV Intensity: 0 to 30 mW/cm^2			
Units of Cumulative Measurement	Cumulative Illuminance: lxh, klxh, Mlxh Cumulative amount of UV Light: mW/cm^{2}h, W/cm^{2}h			
Display Range of Cumulative Measurement	Illuminance: 0 lxh to 90 Mlxh UV Intensity: 0 mW to 62 W/cm^{2}h			
Accuracy	Illuminance: 10 lx to 100 klx: ±5 % at 25 °C, 50 %RH UV Intensity: 0.1 to 30 mW/cm^2 : ±5 % at 25 °C, 50 %RH (*2)			
Relative Spectral Response	Illuminance: Approximated to the CIE standard response function V (λ) UV Intensity: 260 to 400 nm (UVA / UVB)			
Measurement Resolution	Illuminance: Minimum of 0.01 lx UV Intensity: Minimum of 0.001 mW/cm^2			
Responsiveness	Response Time (90 %): 3 sec. at recording interval of 1 sec. 6 sec. at other intervals			
Logging Capacity	8,000 data sets (One data set consists of readings for all channels in that type of unit.)			
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 (*3)	Endless (Overwrite oldest data when capacity is full) or One Time (Stop recording when capacity is full)			
LCD Display Items	Measurements, Recording Status, Recording Mode, Battery Life Warning, etc. Measurements: Illuminance / UV Intensity / Temperature / Humidity / Cumulative Illuminance / Cumulative amount of UV Light Display Pattern: Alternating or Fixed display Display Digits: Up to 4 digits			
Communication Interfaces (*4)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: Approx. 150 meters (500 ft) if direct and unobstructed EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: Approx. 150 meters if direct and unobstructed USB 2.0 (Mini-B connector)			
Power	AA Alkaline Battery LR6 x 1			
Battery Life (*5)	Approx. 4 months			
Dimensions	H 55 mm x W 78 mm D 18 mm (excluding protrusions) Antenna Length: 60 mm			
Weight	Approx. 45 g			
Operating Environment	Temperature: -10 to 60 °C Humidity: 90 %RH or less (no condensation)			
Included Items	Temperature-Humidity Sensor THA-3151		Temperature-Humidity Sensor SHA-3151	
	AA Alkaline Battery LR6, USB Mini-B Cable US-15C, Illuminance-UV Sensor ISA-3151, Manual Set (Warranty Included)			
Compatible Base Units	RTR500BC, RTR500BW, RTR500BM Other devices (*6)			

*1: When continually used in environments with temperatures above 60 °C, accuracy of humidity measurements will decrease over time. Also, humidity cannot be measured at temperatures below -20 °C.
*2: Compared to the value measured by the T&D standard sensor for calibration under our calibration light source.
*3: Only "Endless" is available when using the RTR500BW, RTR500BM, RTR-500NW/AW or RTR-500MBS-A as a Base Unit.
*4: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*5: The listed battery life is based on the following usage conditions: Recording at 10 second (or longer) intervals, Current Readings Transmission every 10 minutes, and Recorded Data Transmission once a day. Battery life also varies depending on ambient temperature, radio environment, frequency of communication, etc.
*6: Also compatible with the following discontinued products: RTR-500DC, RTR-500, RTR-500NW/AW, and RTR-500MBS-A.
The specifications listed above are subject to change without notice.

RTR500B Series - Specifications

Remote Units (Data Logger)

	RTR-576		RTR-576-S	
	Temperature-Humidity Sensor			
Temperature-Humidity Sensor	THA-3001		SHA-3151 (High-Precision Type)	
	Thermistor	Polymer Resistance	Thermistor	Polymer Resistance
Measurement Channels	Temperature 1ch	Humidity 1ch	Temperature 1ch	Humidity 1ch
Measurement Units	°C, °F	%RH	°C, °F	%RH
Measurement Range (*1)	0 to 55 °C	10 to 95 %RH	-25 to 70 °C	0 to 99 %RH (*2)
Accuracy	±0.5 °C	±5 %RH at 25 °C, 50 %RH	±0.3 °C at 10 to 40 °C ±0.5 °C all other temperatures	±2.5 %RH at 15 to 35 °C, 30 to 80 %RH
Measurement Resolution	0.1 °C	1 %RH	0.1 °C	0.1 %RH
Responsiveness	Response Time (90 %): Approx. 7 min.		Response Time (90 %): Approx. 7 min.	
	CO2 Sensor (Internal)			
Sensor	NDIR			
Measurement Channels	CO2 Concentration 1ch			
Measurement Units	ppm			
Measurement Range	0 to 9,999 ppm			
Accuracy	±(50 ppm + 5 % of reading) at 5,000 ppm or less (*3)			
Measurement Resolution	Minimum of 1 ppm			
Responsiveness	Response Time (90 %): Approx. 1 min.			
Logging Capacity	8,000 data sets (One data set consists of readings for all channels in that type of unit.)			
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 (*4)	Endless (Overwrite oldest data when capacity is full) or One Time (Stop recording when capacity is full)			
LCD Display Items	Measurements, Recording Status, Recording Mode, Battery Life Warning, etc. Measurements: CO2 concentration, Temperature or Humidity (fixed or alternating display)			
Communication Interfaces (*5)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: Approx. 150 meters (500 ft) if direct and unobstructed EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: Approx. 150 meters if direct and unobstructed USB 2.0 (Mini-B connector)			
External Alarm Terminal (*6)	Output Terminal: Open Drain Output (Voltage when OFF: DC less than 30 V / Current when ON: less than 0.1 A / Resistance when ON: about 15 Ω)			
Power	AC Adaptor AD-06A1 or AD-06C1, AA Alkaline Battery LR6 x 4			
Battery Life (*7)	Approx. 2 days (batteries only without AC adaptor)			
Dimensions	H 96 mm x W 66 mm x D 46 mm (excluding protrusions and sensor) Antenna Length: 60 mm			
Weight	Approx. 125 g			
Operating Environment	Temperature: 0 to 45 °C Humidity: 90 %RH or less (no condensation)			
Included Items	Temperature-Humidity Sensor THA-3001		Temperature-Humidity Sensor SHA-3151	
	AA Alkaline Battery LR6 x 4, AC Adaptor AD-06A1 or AD-06C1, USB Mini-B Cable US-15C, Manual Set (Warranty Included)			
Compatible Base Units	RTR500BC, RTR500BW, RTR500BM Other devices (*8)			

*1: Make sure to use the data logger within the operating environment as listed in the specifications.
*2: When continually used in environments with temperatures above 60 °C, accuracy of humidity measurements will decrease over time. Also, humidity cannot be measured at temperatures below -20 °C.
*3: Stated value is the measurement accuracy of the CO2 sensor when Auto Calibration is operating properly. A change in atmospheric pressure directly influences the reading of CO2, which can cause measurement errors; a decrease in pressure by 10 hPa results in a relative decrease in CO2 by 1.6 %. In such a case, we recommend carrying out the "Atmospheric Pressure Correction" function found in the software for the Base Unit.
*4: Only "Endless" is available when using the RTR500BW, RTR500BM, RTR-500NW/AW or RTR-500MBS-A as a Base Unit.
*5: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*6: In order to use the external alarm terminal, please purchase the optional alarm connection cable AC0101.
*7: The listed battery life is based on the following usage conditions: Recording at 10 second (or longer) intervals, Current Readings Transmission every 10 minutes, and Recorded Data Transmission once a day. Battery life also varies depending on ambient temperature, radio environment, frequency of communication, etc.
*8: Also compatible with the following discontinued products: RTR-500DC, RTR-500, RTR-500NW/AW, and RTR-500MBS-A.
The specifications listed above are subject to change without notice.

Base Unit

	RTR500BW
Compatible Devices	Remote Units: RTR500B Series (RTR501B / 502B / 503B / 505B / 507B) Including L Type RTR-500 Series (RTR-574 / 576) Including S Type (*1) RTR-600 Series (RTR-602S / 602L / 602ES / 602EL) (*1) Repeaters: RTR500BC Other devices (*2)
Maximum Number of Registrations	Remote Units: 50 units Repeaters: 10 units x 4 groups
Communication Interfaces (*3)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: About 150 meters (500 ft) if unobstructed and direct (*4) EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: About 150 meters if unobstructed and direct Wired LAN (RJ45 connector 100 Base-TX/10 Base-T) Wireless LAN (IEEE 802.11 a/b/g/n, WEP (128bit) / WPA-PSK(TKIP) / WPA2-PSK (AES) Bluetooth 4.2 (Bluetooth Low Energy) For Settings USB 2.0 (Mini-B connector) For Settings Optical Communication (proprietary protocol)
External Output Terminal	PhotoMOS Relay Output: OFF-State Voltage: AC/DC 50 V or less ON-State Current: 0.1 A or less ON-State Resistance: 35 Ω
Communication Protocol (*5)	HTTP, HTTPS, FTP, SNTP, DHCP, DNS
Power	AC Adaptor AD-05A4 or AD-05C1, PoE IEEE 802.3af
Dimensions	H 83 mm x W 102 mm x D 28 mm (excluding antenna) Antenna Length: 115 mm
Weight	Approx. 130 g
Operating Environment	Temperature: -10 to 60 °C Humidity: 90 %RH or less (without condensation)
Included Items	Antenna CSR-0011, USB Mini-B Cable US-15C, AC Adaptor AD-05A4 or AD-05C1, Registration Code Label, Manual Set (Warranty Included)
Software (*6)	PC Software (Windows) RTR500BW for Windows, T&D Graph, T&D Data Server Mobile Application (iOS) T&D 500B Utility

*1: RTR-500 Series and RTR-600 Series (US model only) do not have Bluetooth capability.
*2: Also compatible with the following discontinued products: RTR-501 / 502 / 503 / 507S / 505, RTR-500, and RTR-601-110 / 130 / E10 / E30. Please refer to "Compatibility Info for RTR500B and RTR-500 Series". (https://tandd.com/information/compatible-rtr500b-loggers.html)
*3: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*4: Transmission range between RTR500BW and RTR-600 Series loggers is about 50 meters.
*5: Client Function. Communication via proxy is not supported.
*6: Free software download and information on OS compatibility is available on the Software page of our website at https://tandd.com/software/ .

The specifications listed above are subject to change without notice.

	RTR500BM
Compatible Devices	Remote Units: RTR500B Series (RTR501B / 502B / 503B / 505B / 507B) Including L Type RTR-500 Series (RTR-574 / 576) Including S Type (*1) Repeaters: RTR500BC Other devices (*2)
Maximum Number of Registrations	Remote Units: 20 units Repeaters: 5 units x 4 groups
Communication Interfaces (*3)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: About 150 meters (500 ft) if unobstructed and direct EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: About 150 meters if unobstructed and direct LTE Communication US Model: LTE-FDD: B2/B4/B12, WCDMA: B2/B5 EU Model: LTE-FDD: B1/B3/B5/B7/B8/B20 LTE-TDD: B38/B40/B41 WCDMA: B1/B5/B8, GSM: 900/1800MHz Bluetooth 4.2 (Bluetooth Low Energy) For Settings USB 2.0 (Mini-B connector) For Settings Optical Communication (proprietary protocol)
External Input/ Output Terminal (*4)	Input Terminal: Contact Input Internal Pull-up: 3V 100 kΩ Maximum Input Voltage: 30 V Output Terminal: PhotoMOS Relay Output OFF-State Voltage: AC/DC 50 V or less ON-State Current: 0.1 A or less ON-State Resistance: 35 Ω
Communication Protocol (*5)	HTTP, HTTPS, FTP, SNTP, SMS, DNS
Power	AA Alkaline Battery LR6 x 4, AC Adaptor (AD-05A3 or AD-05C1), External Battery (DC 9-38V) with the Connection Adaptor (BC-0204)
Battery Life (*6)	Expected battery life with only AA alkaline batteries: Approx. 2 days under the following conditions (only one Remote Unit and no Repeaters, downloading data once a day, sending current readings at 10-min interval)
Dimensions	H 96 mm x W 65.8 mm x D 38.6 mm (excluding antenna) Antenna Length (Cellular/Local): 135 mm
Weight	Approx. 135 g
Operating Environment	Temperature: -10 to 60 °C Humidity: 90 %RH or less (without condensation)
Included Items	AA Alkaline Battery LR6 x 4, Antenna CSR-0011 x 2 (Cellular/Local), USB Mini-B Cable US-15C, AC Adaptor AD-05A3 or AD-05C1, Registration Code Label, Manual Set (Warranty Included)
GPS Interface (*7)	Connector: SMA Female Power Supply: 3.3V
SIM Card (*8)(*9)	nano SIM Card that supports 4G/LTE data communication (with a minimum speed of 200Kbps)
Software (*10)	PC Software (Windows) RTR500BM for Windows, T&D Graph Mobile Application (iOS) T&D 500B Utility

*1: RTR-500 Series does not have Bluetooth capability.
*2: Also compatible with the following discontinued products: RTR-501 / 502 / 503 / 507S / 505, and RTR-500. Please refer to "Compatibility Info for RTR500B and RTR-500 Series". (https://tandd.com/information/compatible-rtr500b-loggers.html)
*3: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*4: In order to use the external alarm terminal, please purchase the optional alarm connection cable (AC0101).
*5: Client Function.
*6: Battery life depends on several factors, including number of warning reports sent, ambient temperature, radio environment, frequency of communication, and quality of the battery being used. All estimates are based on operations carried out with a new battery and are in no way a guarantee of actual battery life.
*7: In order to use the GPS function (to attach geographical positioning info to current readings data), please purchase a compatible GPS antenna (SMA Male Connector).
*8: In order to enable sending of warning messages by SMS, a SIM card with SMS functionality is required.
*9: Please prepare a contracted SIM card separately. For the supported SIM cards, contact your local T&D distributor.
*10: 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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RTR500B Series - Specifications

Base Unit / Repeater

	RTR500BC
Compatible Devices	Remote Units: RTR500B Series (RTR501B / 502B / 503B / 505B / 507B) Including L Type RTR-500 Series (RTR-574 / 576) Including S Type RTR-600 Series (RTR-602S / 602L / 602ES / 602EL) (*1) Repeaters: RTR500BC Other devices (*2)
Maximum Number of Registrations	Remote Units: 32 units (*3) x 20 groups Repeaters: 30 units x 20 groups
Communication Interfaces (*4)	Short Range Wireless Communication US Model: Frequency Range: 902 to 928 MHz RF Power: 7 mW Transmission Range: About 150 meters (500 ft) if unobstructed and direct EU Model: Frequency Range: 869.7 to 870 MHz RF Power: 5 mW Transmission Range: About 150 meters if unobstructed and direct Bluetooth 4.2 (Bluetooth Low Energy) (*5) USB 2.0 (Mini-B connector) Optical Communication (proprietary protocol) Serial Communication (*6)
Communications Protocol (*7)	SMTP (TLS 1.2 supported), FTP
Power (*8)	USB Bus Power, AA Alkaline Battery LR6 x 2, AC Adaptor (AD-06A1 or AD-06C1), External Battery (DC 9-38V) with the Connection Adaptor (BC-0204)
Battery Life (*9)	As a Repeater: Approx. 6 months (When downloading full data once a day with one Repeater)
Dimensions	H 96 mm x W 65.8 mm x D 24.4 mm (excluding antenna) Antenna Length: 135 mm
Weight	Approx. 80 g
Operating Environment	Temperature: -10 to 60 °C (when using AA batteries) -30 to 60 °C (when using AC adaptor) Humidity: 90 %RH or less (no condensation)
Included Items	Antenna CSR-0011, USB Mini-B Cable US-15C, Manual Set (Warranty Included)
Software (*10)	PC Software (Windows) RTR500BC for Windows, T&D Graph

*1: Customers wishing to use the RTR500BC as a Base Unit in conjunction with the RTR-600 series devices, please contact your local distributor for the communications protocol specifications to write your own software.
*2: Also compatible with the following discontinued products: RTR-501 / 502 / 503 / 507S / 505, RTR-500, and RTR-601-110/130 / E10 / E30. Please refer to "Compatibility Info for RTR500B and RTR-500 Series". (https://tandd.com/information/compatible-rtr500b-loggers.html)
*3: For RTR-574 and RTR-576, registration of one unit will be counted as two units.
*4: There are US models and EU models in the RTR500B Series. They cannot be used together because they have different wireless specifications.
*5: Bluetooth is available when using the RTR500BW or RTR500BM as a Base Unit and making device settings in the mobile app (T&D 500B Utility).
*6: Customers wishing to write their own software, please contact your local distributor for the serial communications protocol specifications. (Note: Optional serial communication cable TR-07C is also required.)
*7: Client Function. The protocol is implemented in the software application (RTR500BC for Windows).
*8: When using the RTR500BC as a Base Unit, it works on the USB bus power and it is not necessary to use another power source.
*9: Battery life depends on several factors, including ambient temperature, radio environment, frequency of communication, and quality of the battery being used. All estimates are based on operations carried out with a new battery and are in no way a guarantee of actual battery life.
*10: 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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T&D Corporation

817-1 Shimadachi, Matsumoto, Nagano 390-0852, Japan
Please send your inquiries to:
E-mail : sales@tandd.com
URL : https://tandd.com/

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