Wireless Data Logger System

RTR-5 Series

Process and Manage
your Important Data
····· Anytime from Anywhere

Temperature, Humidity, Voltage, Pulse, Event, Soil Moisture

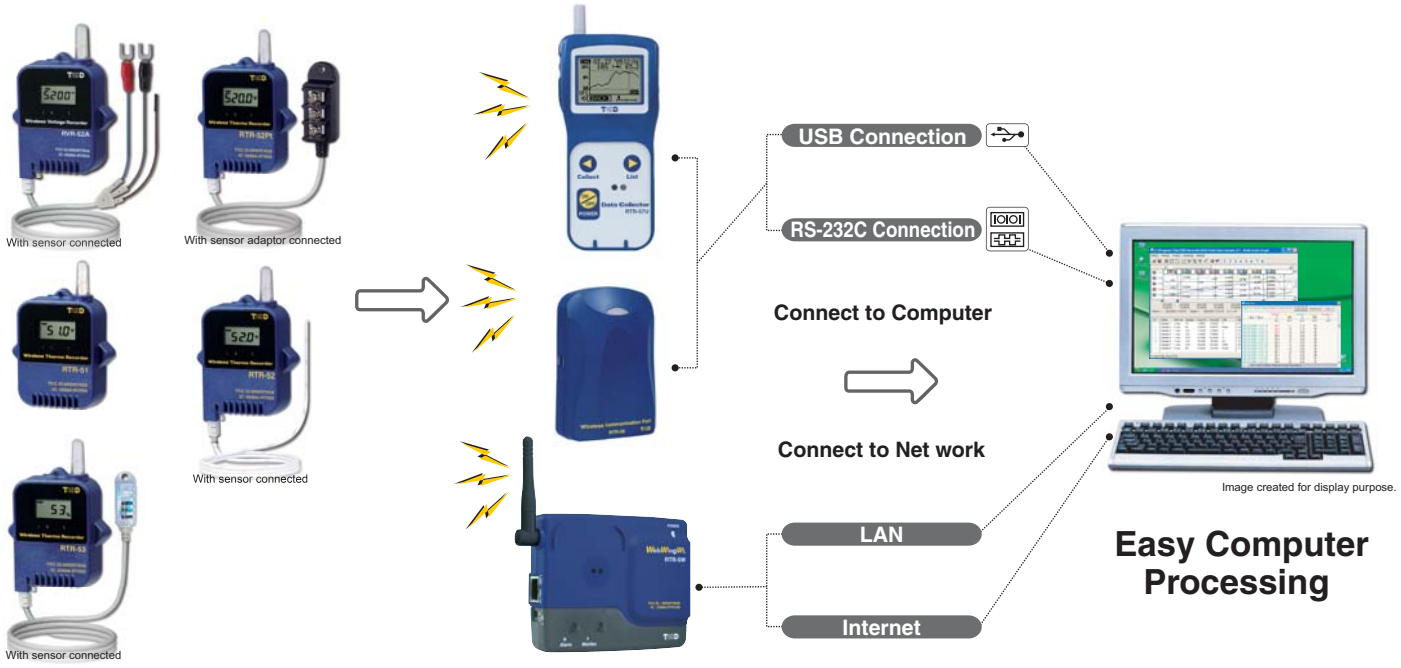
Photo is approximately 85 % of actual size. Display is a composite.

T&D's innovative RTR-5 Series consists of Compact Water-Resistant Data Loggers, a Network-Dedicated Base Station, a Handheld Data Collector, and a Communication Port / Relay Unit which, when coupled together, allow for the starting/stopping of recording, the carrying out of various settings, the monitoring of real time readings and the collection/downloading of recorded data via wireless communication. This versatile Series offers high-performance and high-capacity resources for the management of data without the bother of wiring and the trouble of logger collection.

T&D CORPORATION

Wireless Data Logger

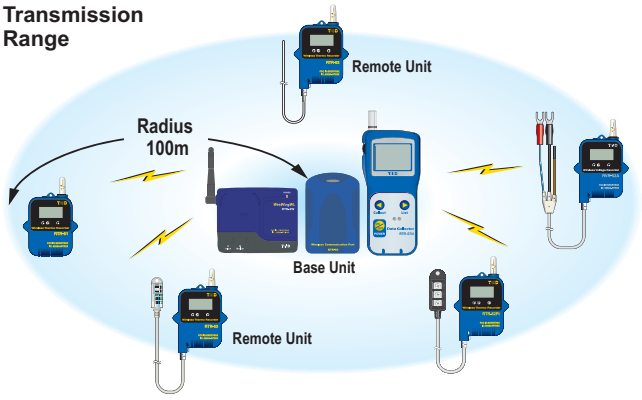
Collect, Manage and Monitor Your Valuable Data via Wireless Communication



Wireless Data Communication Function

Our RTR-51, 52, 52Pt, 53 and RVR-52A data loggers (Remote Units) can be used with each type of Base Unit (RTR-57U, RTR-5W, and RTR-50) to collect recorded data from the units via our exclusive short-wave technology. The wireless communication range, if unobstructed and direct, is about 100 meters (330 ft). Without physically gathering or going to the on-site Data Loggers, it is possible to collect data and make any necessary recording conditions settings and start recording.

Note: If collecting data via wireless communication, it is necessary to register via computer the RTR-51, 52, 52Pt, 53 and RVR-52A as Remote Units and the RTR-57U, RTR-5W, and/or RTR-50 as the Base Unit. Also, the data recorded by the Remote Units can be downloaded and other functions such as recording start settings can be made via optical communication by placing it on the RTR-57U, RTR-5W, and/or RTR-50 Unit.



Compact, Durable, Water Resistant

The lightweight yet durable water resistant construction allows you to use this unit under the harshest of conditions. It can be reliably used in high condensation areas, refrigerated and frozen environments as well as underground.

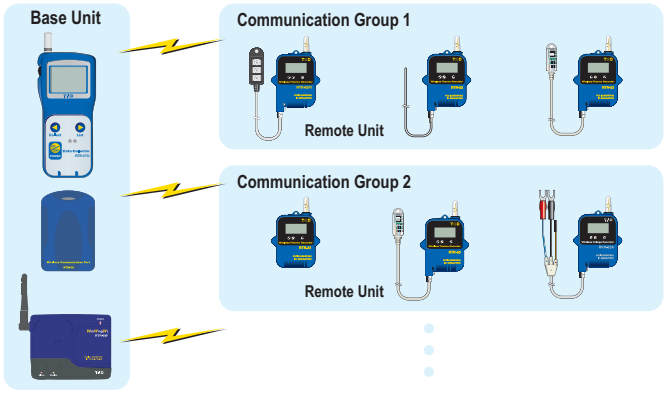
Note: The waterproofing is sufficient for most situations, but is not for continued immersion.

Large Data Capacity: up to 16,000 Readings

With one unit you can record up to 16,000 readings. If set at a one hour recording interval that gives you 666 days or almost two years of readings. One RTR-53 can record up to 8,000 readings x 2 channels of measurement data. If an RVR-52A Unit is set to record event data, it can record up to 8,000 events.

Register and Manage Multiple Remote Units in Group

RTR-57U, RTR-5W, and RTR-50 are designed to manage any combination of RTR-51, 52, 52Pt, 53 and RVR-52A Units in groups. One RTR-57U Unit can be set up to manage up to 60 groups, with each group containing up to 64 units. If being set up via computer each RTR-57U can be set to handle 15 groups with each group containing 250 units. Using the RTR-5W, up to 64 Remote Units can be registered to one RTR-5W. One RTR-50 Unit can be set up to manage up to 250 groups, with each group containing up to 250 units. Multiple numbers of units can be divided into Groups for easy management.



Wireless Communication Possible in Range of -30°C to 80°C

Because wireless communication for all RTR-51, 52, 52Pt, 53 and RVR-52A Units can be made within the wide range of -30 to 80°C, it is possible to use the units to manage temperature in below freezing conditions such as frozen transportation and storage.

Wide Selection of Recording Intervals / Two Recording Methods

The RTR-51, 52, 52Pt, 53 and RVR-52A give you 15 recording intervals (1 second to 1 hour) to choose from. Each unit allows you two choices of recording method:

One Time Method :
When 16,000 readings have been reached recording stops.

Endless Loop Method :
When 16,000 readings have been reached it automatically overwrites oldest data.

Thermo Recorder

Temperature/Humidity Recorder

RTR-51 / 51L

RTR-52 / 52L
With sensor connected

RTR-52Pt / 52PtL
With sensor adaptor connected

RTR-53 / 53L
With sensor connected

Temperature Recording Range: -40 to 80°C (RTR-51), -60 to 155°C (RTR-52)

The RTR-51, with internal sensor, can measure and record temperatures from -40 to 80°C and the RTR-52, with external sensor, is able to measure and record in a range of -60 to 155°C.

Note: The main unit is designed for use in environments with an ambient temperature of between -40 to 80°C, but in an environment with a temperature of below -30°C wireless communication will not be possible.

Temperature Recording Range: -199.9 to 600°C (RTR-52Pt)

Designed to be used with a three-wire Pt100 / Pt1000 Temperature Sensor, the RTR-52Pt enables users to measure and record temperature in the range of -199.9 to 600°C. The RTR-52Pt greatly enhances the measurement range performance and increases the application possibilities of our RTR-5 Logger Series.

Note: Designed for easy compatibility, the RTR-52Pt can be used with any three-wire type Pt100 / Pt1000 temperature sensor. For information concerning which types of Pt100 temperature sensors T&D is releasing, please see our Website.
The main unit is designed for use in environments with an ambient temperature of between -40 to 80°C, but in an environment with a temperature of below -30°C wireless communication will not be possible.

Humidity Recording Range: 10 to 95%RH (RTR-53)

The RTR-53 with its temperature/humidity sensor is able to simultaneously measure and record temperature within a range of 0 to 55°C and humidity within a range of 10 to 95%RH.
The sensor for the RTR-53 has been specially designed to withstand certain amounts of condensation.

Note: The main unit is designed for use in environments with an ambient temperature between -40 to 80°C and is water resistant, but in an environment with a temperature of below -30°C wireless communication will not be possible.

Voltage Recorder

Voltage/Pulse/Soil Moisture Recorder

RVR-52A / 52AL
With cable connected

ECHO(EC-20)
Voltage output proportional to water content.

Soil Moisture Measurement

It is possible to measure soil moisture using Decagon Devices Inc, Soil Moisture Sensor ECHO Probes (EC-10, EC-20). The RVR-52A has a built-in excitation voltage (2.5V) for the ECHO probe that allows for easy direct connection. The output from the ECHO probe is converted directly into moisture volume content by percentage (%) and displayed as such. Moreover, by using the adjustment function in the accompanying software [T&D Recorder for Windows (RTR-5 US)] you can achieve even more accurate readings.

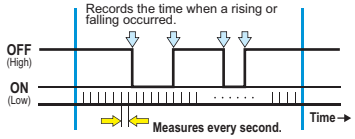
Note: T&D Corporation does not handle or sell the Soil Moisture Sensors ECHO Probe (EC-10, EC-20). All inquires and questions concerning sales of and the operational specifications of the sensors should be made to Decagon Devices Inc. [http://www.decagon.com]

Built-in Pre-heat Function

The RVR-52A includes an internal pre-heat function which sends signals to turn ON / OFF external sensors, etc...in time with the starting of recording.

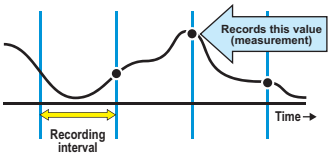
Event Time Recording

RVR-52A can record the time of any event; a rising (Lo to Hi) or falling (Hi to Lo) waveform that occurs for more than 1 second at an input voltage range of between 0-30V.

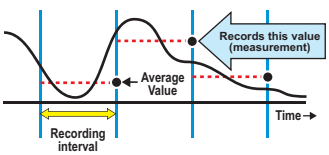


Voltage Measurement Range: 0 to 6.5V

RVR-52A can measure and record input voltage from 0 to 6.5V. You can choose to record the voltage measurement as the instantaneous value for each recording interval span or as the average value for each recording interval span. The average value for recording intervals under 15 seconds. will be calculated as the average of the measurements from every 1 second. The average for intervals over 20 seconds will be calculated as the average of the measurements from every 2 seconds.



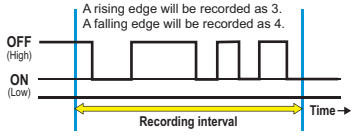
Recording by Instantaneous Value
Records measurements at set recording interval



Recording by Average Value
Records the average value of the measurements taken every second (or every two seconds) within the set recording interval.

Pulse Measurement: 30 Counts per Second

RVR-52A can measure up to 30 counts (30Hz) per second when the input voltage range is between 0-30V and there is a continuous pulse of more than 15 msec. When measuring pulse, the largest number of counts for one recording interval is 32,000 counts. You can select from rising signal (Lo-Hi) or falling signal (Hi-Lo) for counting.



Wireless Base Station

Web Wing WL RTR-5W

Wireless Auto-downloading of Remote Unit Data

The RTR-5W is able to download via wireless communication the current readings and/or recorded data from any RTR-5 / RVR-5 Series Data Logger to your computer. Moreover, all settings for any RTR-5 / RVR-5 Series Unit can be carried out via a network.

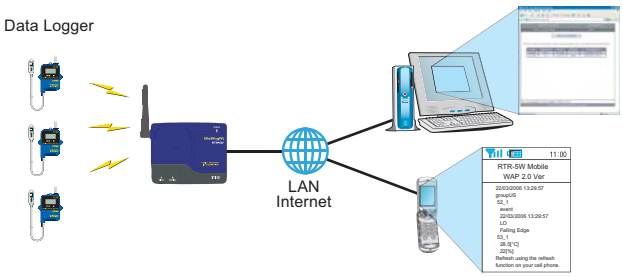
Effective Management of Multiple Remote Units

If there are multiple units, they can be divided into Groups for easy and effective management. Up to 64 groups (groups 1-64) can be registered.

Note: The possible number of Remote Units that can be registered into one RTR-5W is 64 units.

View the Current Readings via Browser

Via the browser it is possible to monitor the current readings of any Remote Unit that has been registered and view the recorded data in the Remote Unit in a simplified graph form. Up to 100 data readings from any one Remote Unit can be viewed with the RTR-5W.



Downloading Recorded Data over the Internet

The software included with the RTR-5W permits for the monitoring and viewing of current readings as well as gathering recorded data.

Note: In order to use this product via the Internet or cell phone you must first make necessary arrangements with a provider for a line and get a global IP address.

Send Warning Report E-mails when a Warning Occurs

If a set upper or lower limit has been exceeded, a warning report E-mail can be sent to up to 5 mail addresses, including test message to cell phones.

RTR-5W for Windows

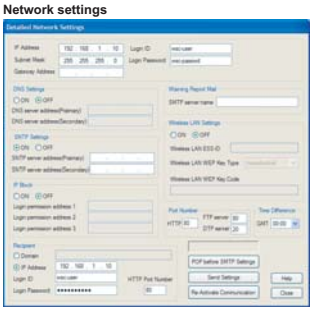
Software Included with RTR-5W

The [RTR-5W for Windows] software has been designed to allow for the carrying out of various tasks such as network settings, downloading of recorded data and graph display of recorded data, as well as the management of Groups of Remote Units. [RTR-5W for Windows] is made up of 5 applications, complete with our Auto-Download feature that allows for the downloading of logged data at either a set interval or at a set time of day. [RTR-5W for Windows] (the main software) allows for the basic management of Groups of Remote Units, the monitoring of current readings and the settings for Remote Units. The [Network Settings Utility] facilitates the setting up of a network. With [Temperature/Humidity Graph], you can view downloaded recorded data in graph form and easily print graphs as displayed. Also included are [Multi-Scale Graph], which enables you to view various axes (different scales) in the same graph and [Event Viewer], which permits for the viewing and printing of event data for RVR-52A data files (*.rp7).

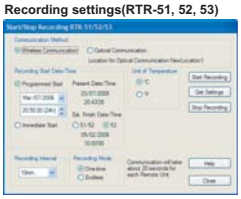
Make Settings for the Controlling of an RTR-5W by PC over a network

Via a network, it is possible to make not only network settings in the RTR-5W, but also recording condition settings and warning settings as well. Even, if there are more than one RTR-5W connected to the network, it is easy to make settings by viewing the list in the Network Settings Utility and make all necessary settings.

Network settings

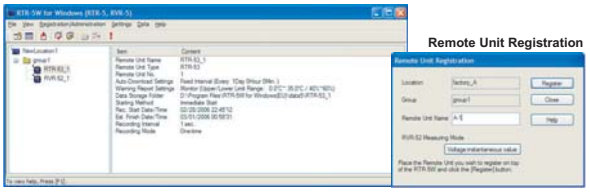


Recording settings(RTR-51, 52, 53)



Register and Make Settings for Remote Units as well as Divide Remotes into Groups

RTR-5W for Windows allows you to register any logger in the RTR-5 Series as a Remote Unit and carry out settings for that Remote.

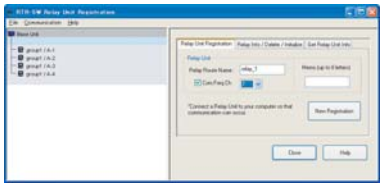


Remote Unit Registration

Also, if you wish to register multiple Remote Units, they can be divided into Groups for easy management.

Relay Unit Registration

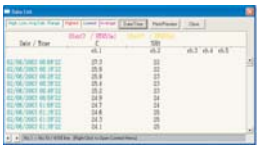
A "Relay Unit" is defined as an RTR-50 Wireless Communication Port that has been registered as a "Relay Unit" to act as a relay for Wireless Communication between a Base Unit and Remote Units from the our RTR-5 Series.



Interpret Data in Graphs and Tables

Recorded data can be displayed in colorful, easy-to-interpret graphs and tables and analyzed by using Temperature / Humidity Graph and Multi-Scale Graph. Full use of the Windows interface makes the operation simple yet dramatic.

Multi-scale Graph

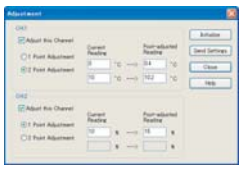


Data List

Event Viewer

View event data recorded by RVR-52A in table form. You can further view info about the data in the viewer or print it out.

Adjustment



Adjustment Settings Window (Ex. RTR-53)

This function allows you to correct or adjust for errors in measurement values.
The Data Logger will record only the adjusted value.

Caution:
We cannot guarantee that after carrying out adjustment the measuring accuracy will improve for all measuring ranges.

Export Data to be Saved or Printed

Recorded data can be easily saved into files or exported for printing. It is possible to convert the data for a specified range (time period) to common text file format, so that it can be exported to spreadsheet software such as Excel or Lotus.

Note: For Event Viewer it is not possible to select the range to be saved.

Specifications

Unit Type	RTR-51/51L	RTR-52/52L	RTR-52Pt/52PtL	RTR-53/53L	RVR-52A/52AL	
Measurement Item	Temperature	Temperature	Temperature	Temperature and Humidity	Voltage, Soil Moisture	Pulse, Event
Measurement Channel	1 Temperature Channel	1 Temperature Channel	1 Temperature Channel	1 Temp and 1 Humidity Channel	1 Channel	1 Channel
Measurement Range	-40 to 80°C	-60 to 155°C	-199.9 to 600°C	0 to 55°C, 10 to 95%RH	Voltage : 0 to 6.5V	Pulse : 0 to 32000Count
Measurement Accuracy	Avg. ±0.3°C	Avg. ±0.3°C (-20 to 80°C) Avg. ±0.5°C (-40 to -20°C / 80 to 110°C) Avg. ±1.0°C (-60 to -40°C / 110 to 155°C)	±0.3°C (-199.9 to 80°C), ±0.5°C (80 to 450°C) ±1.0°C (450 to 600°C) (at 0 to 50°C / Sensor accuracy is not included.)	Avg. ±0.3°C ±5%RH (at 25°C and 50%RH)	±0.5% +5dgt. (at 0 to 40°C)	–
RTR-51 Internal Temp. Sensor Thermal Time Constant	15 minutes (L Series : 25 minutes)	–	–	–	–	
RVR-52A Input Voltage Range	–	–	–	–	0 to 6.5V	Lo: below 0.6V / Hi: above 2V(MAX : 30V)
Measurement Display Resolution	0.1°C	0.1°C	0.1°C	0.1°C ・ 1%RH	Vo: 1mV Moisture: 0.1%	Pulse: 1Count Ev: 1sec
Response Time	–	–	–	–	Pulse: 30Hz / Approx.15msec or more (over 2.5V) Ev: 1 sec.	
Recording Capacity	16,000 Readings (RTR-53:8000 × 2 Readings)				Voltage, Moisture, Pulse : 16000 Readings Event : 8000 Readings	
Recording Interval	1,2,5,10,15,20,30 seconds / 1,2,5,10,15,20,30,60 minutes Total of 15 choices (Excluding Event data)					
Recording Mode	Endless (Overwrite oldest data when capacity is full), One-time (Stop recording when capacity is full)					
LCD Display Items	Current Readings, Recording Settings, Battery Life Warning, Over Measurement Range Warning, Unit of Measurement					
Power	Lithium Battery (LS14250 (SAFT)) × 1 / L Series (Large Capacity Battery Pack) Lithium Battery (LS26500) × 1*1 / AC Adaptor (sold separately) *2					
Battery Life	Approx. 6 months (Battery life depends on measurement environment, recording interval and battery performance)					
Communication Method	Wireless Communication / Optical Communication					
Wireless Method	FCC Part15 Section249 / IC RSS-210					
Dimensions	H 2.48in (62mm) × W 1.88in (47mm) × D 0.76in (19mm). (excluding protrusions / antenna length 20mm) / with Large Capacity Battery Pack : D 2 in (50mm)					
Weight	Approx. 56g (including 1 lithium battery) / with Large Capacity Battery Pack : Approx. 109g					
Unit Temp. Resistance	Temperature：-30 to 80°C (Unit temp resistance and measurement range is -40 to 80°C but wireless communication cannot occur in an environment of less than -30°C.)					
Water Resistance	IP67 (immersion proof)	IP64 (rated for use in daily life)				
Standard Sensor	–	TR-5106 (length: Approx. 24 in (0.6m)) × 1	TR-05P1 (length: Approx. 40 in (1m)) × 1	TR-3310 (length: Approx. 40 in (1m)) × 1	–	
Input Cable	–	–	–	–	RPR-7101 (length: Approx. 60 in (1.5m)) × 1	
Accessories Included	Lithium Battery (LS14250 (SAFT)) × 1, Tube × 1, Strap × 1, User's Manual (Warranty) × 1					
Others	RTR-51/52/52Pt/53, RVR-52A: In order to download data via wireless communication, it is necessary to purchase either an RTR-57U, RTR-5W, and/or RTR-50 unit. -For optical communication, TR-50C can also be used for all types of units. RVR-52A: Possible to measure current with the RVR-7103 4-20mA Probe.					

Unit Type	RTR-50	RTR-57U	RTR-5W
Type	Wireless Communication Port	Data Collector	Wireless Base Station
Compatible Models	RTR-51/52/52Pt/53, RVR-52A	RTR-51/52/52Pt/53, RVR-52A, TR-51A/52, TR-71U/72U, VR-71	RTR-51/52/52Pt/53, RVR-52A, RTR-50 (For Relay Unit)
Functions	Wireless Communication: Download Data, Monitoring, Warning Monitoring, Start / Stop Recording, Wireless Relay Unit Function Optical Communication: Download Data , Start / Stop Recording	Downloading data (possible to display results of upper and lower limit check after downloading) / Display Saved Data Graphs / Display Highest and Lowest Temperature / Set Recording Start for Remote Data Loggers / Delete stored data (one reading / all readings) / Monitor Current Temperature / Search for Remote Units Wave Check (10-level display of radio wave strength for each channel (0-21ch.))	Download recorded data from Data Loggers, Control data loggers devices, Network Connection Functions, Monitor current readings via browser, View recorded data in simplified graph form via browser
Recording Capacity	–	16,000 Readings ×16=256,000 Readings	–
Power	USB bus power, 2 AA batteries, AC Adaptor*2	2 AAA Alkaline Batteries (LR03), Can use rechargeable AAA Ni-Cd or Ni-MH 1.2V batteries, AC Adaptor*2	Specific AC Adaptor (AD-0605) Current Consumption : 300mA (when wired LAN is used)
Battery Life	6 Months of continued use on 2 AA alkaline batteries when used as Relay Unit for five minutes a day.	100 hrs under Continuous Operation	–
Data Backup	–	Approx. 1 year with switch off	–
Communication Method	For Data logger : Wireless Communication / Optical Communication (2400bps) For PC : USB Communication (Full speed) / Serial Communication (19200bps)	For Data logger : Wireless Communication / Optical Communication (2400bps) For PC : USB Communication (Full speed) / Serial Communication (19200bps)	For Data logger : Wireless Communication / Optical Communication (2400bps) For PC : LAN / Wireless LAN
Wireless Method	FCC Part15 Section249 / IC RSS-210	FCC Part15 Section249 / IC RSS-210	FCC Part15 Section249 / IC RSS-210
Dimensions	H 3.84in (96mm) × W 2.64in (66mm) × D 1in (25mm)	H 5in (125mm) × W 2.32in (58mm) × D 0.95in (24mm) (excluding protruding part)	H 3.32in (83mm) × W 4.08in (102mm) × D 1.12in (28mm) (excluding protrusions)
Weight	Approx. 2.12oz (60g) (Batteries not included)	Approx. 4.4oz (125g) (Including 2 AAA Alkaline batteries)	Approx. 4.79oz (135g)
Operating Conditions	Temperature: -10 to 60°C (-30 to 60°C when external powerconnected) Humidity: 20 to 80%RH (No condensation)	Temperature : 0 to 50°C Humidity : Less than 90%RH (Without dew condensation)	Temperature: 0 to 60°C Humidity: 20 to 80%RH (No condensation)
Accessories Included	User's Manual and Warranty × 1, Software (RTR-50 for Windows) × 1 USB Communication Cable × 1	User's Manual and Warranty × 1, Software (T&D Recorder for Windows) × 1 USB Communication Cable × 1, AAA Alkaline Batteries (LR03) × 2	User's Manual and Warranty × 1, Software (RTR-5W for Windows) × 1 AC Adaptor × 1, LAN cable × 1
Others	–	–	External Output (Warning Output) One point photo MOS relay contact 50V / 0.1A
Compatible OS	Windows 98SE / Me / 2000 / XP English	Windows 98SE / Me / 2000 / XP English	Windows 2000 / XP / Vista English

*1: T&D does not supply this battery. Contact your local authorized T&D sales representative.
*2: Contact your local authorized T&D sales representative.

Caution regarding safety **For safe operation carefully read instructions before using this unit.**

Web Site T&D Online Product information, FAQ and software update downloads. **http://www.tandd.com/**

T&D CORPORATION
5652-169 Sasaga, Matsumoto
Nagano 399-0033 Japan
Please send your inquiries to:
E-mail: overseas@tandd.co.jp
Facsimile(+81)263-26-4281

■Distributor

Matec Medición S.R.L.
Av. Olazábal 4074
C1430BQT - Buenos Aires
Tel./Fax.: (011) 4542-4788
info@matecmedicion.com.ar

2007.08 16304350112