

Wireless Data Logger

Accurate
Light Weight

Durable
Compact

Handy
Reliable



**Measure and Record
Temperature , Humidity , Voltage and Pulse.
Transfer Data via Wireless Communication to
Your Computer for Data Management.**

Application Examples

- Temperature management in freezer and refrigerated transportation and storage
 - Recording temperature data of rotors and moving parts on production lines
 - For outside use, such as agriculture, civil engineering, and concrete production
- Recording temperature and humidity in multi-humidity environments such as brewing and agricultural cultivation.
- Recording conditions of instrumentation and measuring instrumentation such as flow meters, wattmeters, and analyzer instrumentation.
 - Recording event signals (ON/OFF) for door openings and closings as well as air-conditioning units.

Collect, Manage and Monitor Your Valuable Data via Wireless Communication.

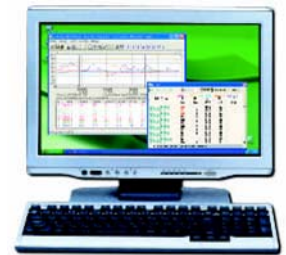
Measurement and Recording



Collect Data via Wireless Communication



Easy Computer Processing

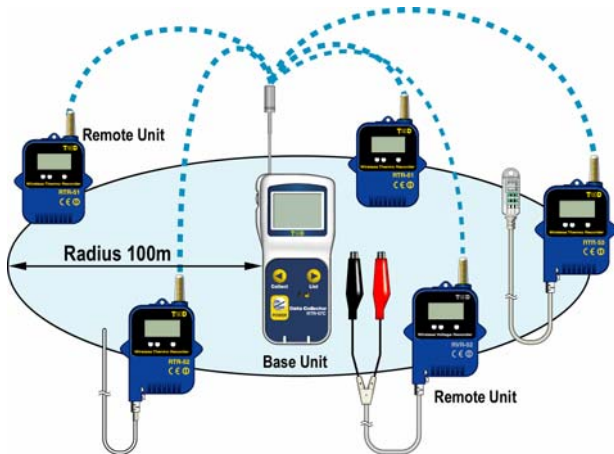


Wireless Data Communication Function

Our RTR-51,52,53 and RVR-52 data logger units utilize the RTR-57C to collect recorded temperature data from the units via our exclusive short-wave wireless technology. The RTR-57C also allows you to wirelessly control recording settings and start recording, as well as other functions of the data loggers. Moreover, the data loggers can wirelessly transmit measurements in the wide range of -30...80°C from distances of up to 100 meters if unobstructed and direct.

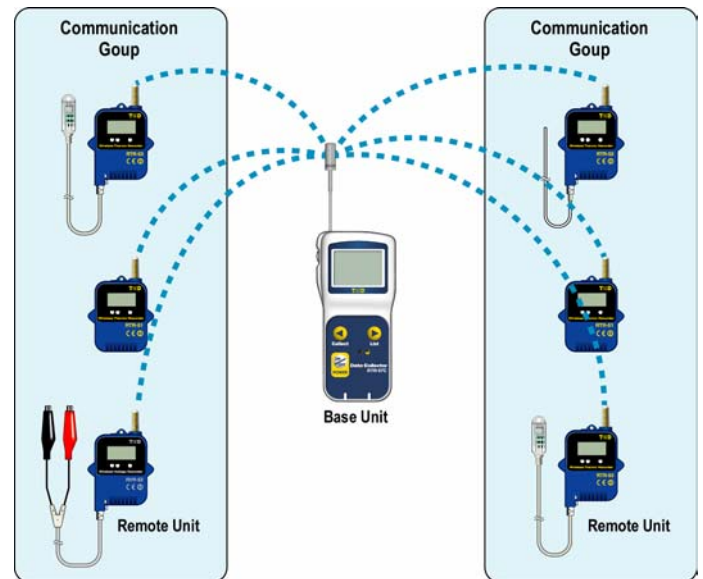
Note :

If collecting data via wireless communication, it is necessary to set up via computer the RTR-51, 52, 53 and RVR-52 as Remote Units and the RTR-57C as the Base Unit. The data recorded by the Remote Units can be downloaded via optical communication by placing it on the RTR-57C communication port.



Register up to 3840 Units on 1 RTR-57C

RTR-57C is designed to manage any combination of RTR-51,52,53 and RVR-52 units in groups. One RTR-57C 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-57C can be set to handle 15 groups with each group containing 250 units.



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

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

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-52 unit is set to record event data, it can record up to 8,000 events.

Wide Selection of Recording Intervals / Two Recording Methods

The RTR-51,52,53 and RVR-52 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 method: when 16,000 readings have been reached, it automatically overwrites oldest data.

Monitoring Function

Our RTR-51,52,53 and RVR-52 units allow you to wirelessly monitor current temperature readings of one group of units, with the readings being sequentially displayed on the handheld RTR-57C unit. Monitoring intervals can be set on the RTR-57C from 1...60 minutes with up to 64 units in one group. The high-speed communication allows you to collect 64 units worth of data in just 20 seconds. Moreover, the downloaded data is sequentially displayed on the handheld unit for 2 seconds. At the same time, if the set temperature has been exceeded a warning will be displayed and an alarm sounded.



Note:

If monitoring is carried out on a regular basis the battery life of the RTR-51, 52, 53 and RVR-52 units will be shortened. For example, if the monitoring interval is set at 1 minute the battery life will be about 4 months.

Remote Control Command

Remote Control Command is possible to set up your computer to enable the control of downloading via wireless communication between an RTR-57C unit connected to your computer and any RTR-51,52,53 and RVR-52 unit(s) within communication range to use this function you will need to input a special command protocol into your computer's software system. For more details about the set up and use of this function please contact the T & D sales office.

About 6 Months of Continuous Use with Lithium Battery/About 2.5 years with our Large Capacity Battery Pack

Using our specially designed low energy consumption circuit this unit can run on one lithium battery for up to six months of continued use. In addition, by using our specially designed optional large capacity battery pack, the unit can used continuously for up to two and a half years. No need to worry about where you place it, as the battery will allow you to measure and record over long periods of time whether the unit is in transit or in a distant place.



Note:

Battery life will depend on the recording environment, recording interval, communication frequency, and ambient temperature. The above battery life test was carried out using brand new batteries and in no way do we guarantee a battery's life. Removing the battery and not replacing it will result in a loss of all recorded data.

Thermo Recorder

Temperature/Humidity Recorder



RTR-51 / 51L



RTR-52 / 52L



RTR-53 / 53L

Temperature Recording Range: -60...155 °C

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

Note:

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

Humidity Recording Range: 10...95%RH

The RTR-53 with its standard temperature/humidity sensor is able to simultaneously measure and record temperature within a range of 0...55 °C and humidity within a range of 10...95%RH. The sensor for the RTR-53 has been specially designed to withstand certain amounts of condensation. It is waterproofed for daily life usage (IP64).

Note:

The main unit is designed for use in environments with an ambient temperature between -40...80 °C and is water resistant.

Voltage Recorder

Voltage/Pulse Recorder



RVR-52 / 52L

Voltage Measurement Range: 0...6.5 V

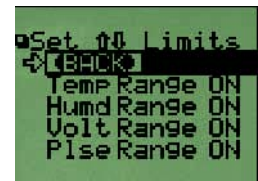
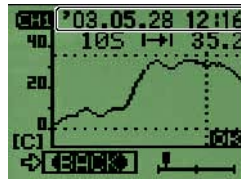
RVR-52 can measure and record input voltage from 0...6.5 V. You can choose to record the voltage measurement as the instantaneous value for the each recording interval span or as the average value for each recording interval span. The average value for recording intervals under 15 seconds will be calculated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

Pulse Measurement: 30 Counts per Second

RVR-52 can measure up to 30 counts (30Hz) per second when the input voltage range is between 0-30 V and there is a continuous pulse of more than 15 seconds. 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) and count when one or the other occurs.

Event Time Recording

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



User Friendly Operation Dial

Our easy to hold operation dial makes menu selection and operation a snap. By simply moving the dial up and down you can scan the menu and easily make a selection by pressing in on the dial.

Data Capacity: 256,000 Readings

The data capacity for the RTR-57C is 256,000 readings. That is a large enough capacity to collect data from 16 units of RTR-51,52,53 or RVR-52 at full capacity (16,000 readings). Moreover, it can collect and manage up to 250 separate data recording sessions.

Over 100 Hours on 2 Alkaline Batteries Energy Saving Auto Power Off Function

The RTR-57C takes advantage of our exclusive circuitry design to bring over 100 operating hours worth of power on only 2 AAA alkaline batteries. Energy efficiency is further enhanced with our Auto Power Off Function that turns off the main unit when not in use.

Note:

Battery Life varies according to type of battery, measuring environment, transmission frequency, and ambient temperature. This estimate of battery life was based on normal use under normal conditions using a new battery. This is in no way a guarantee of battery life.

Easy-to-Read LCD Graph Display

The RTR-57C gives you a high quality graph display of collected data. Each graph displays the data for one channel and can be easily scrolled across by using the handy operation dial or the buttons on the front of the main unit. This function gives you the data you want in an easy-to-understand format.

Monitor Measurements while Downloading

By making upper and lower limit settings on the RTR-57C you can monitor the recorded data as it is collected for irregularities and the results will be displayed. If any RTR-51,52,53 or RVR-52 unit has already been set with its own upper and/or lower limit, those values will take precedence over the values set in the RTR-57C.

Manage Recording Settings No Computer Necessary

Besides controlling the collection of data, the RTR-57C can manage various recording settings such as: Recording Mode, Recording Interval, Programmed Recording Settings and Immediate Record. This enables the user to easily control various recording settings for a variety of models on-site without the need for a computer.

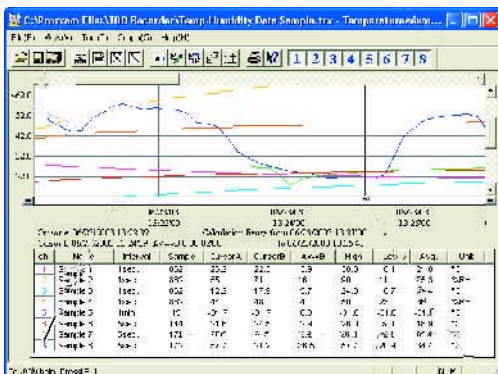
T&D Recorder for Windows

Software included with RTR-57C

Easy-to-use Windows software allows you to control all aspects of set up, recording and downloading as well as printing, creating text files, tables and colorful graphs of the recorded data.

Up to 8 Channels of Data in One Graph

Up to eight channels of temperature and humidity data can be simultaneously viewed in one Temp/Humidity Graph and up to eight channels of voltage, pulse, temperature and humidity data can be viewed in one Multi-scale Graph. Moreover, you can easily hide and view channels, make changes to graph colors and zoom-in and -out on data with the click of a mouse. Color printing of the graph, as you see it on display, is also possible.



Display Data in Table Form

The data in the graph can be viewed in table form with the High in red, the Low in blue and the Average in pink. You can print all of the data in the list or select and print only those pages you desire.

Date / Time	Sample 1	Sample 1 C	Sample 2	Sample 2 C	Sample 3	Sample 3 C	Sample 4	Sample 4 C
03/23/2000 13:21:10	10.0	11	1.0	0.0	35			
03/23/2000 13:21:11	10.3	13	1.0	0.0	35			
03/23/2000 13:21:12	10.3	13	0.0	0.0	35			
03/23/2000 13:21:13	10.2	15	0.0	0.0	35			
03/23/2000 13:21:14	10.2	16	0.0	0.0	36			
03/23/2000 13:21:15	10.2	17	0.0	0.0	36			
03/23/2000 13:21:16	10.2	17	0.0	0.0	36			
03/23/2000 13:21:17	10.1	18	0.0	0.0	36			
03/23/2000 13:21:18	10.1	18	0.0	0.0	36			
03/23/2000 13:21:19	10.1	21	0.0	0.0	36			
03/23/2000 13:21:20	10.1	21	0.0	0.0	37			
03/23/2000 13:21:21	10.0	23	0.0	0.0	37			

Event Viewer

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

Data Collection

Upon downloading, a data collection report is displayed in an easy-to-view list. From there it is possible to change all downloaded data or selected data into graph form or into Text File Format to specify data file(s), while holding down the [Ctrl] button or the [Shift] button click on the files you wish to download in the collected data list.

Save as Text File Function

This function allows you to save data in Text File Format (CSV Format); in order to use the data with spreadsheet applications such as Excel and Lotus.

Remote Unit Registration

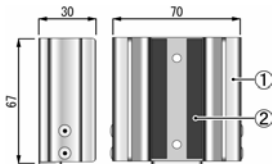
In order to carry out wireless communication, it is first necessary to connect the RTR-57C unit to your computer and register it as the Base Unit. Next you must register RTR-51, 52, 53 and RVR-52 units as Remote Units to register Remote Units, you first create Groups and then register the Remotes to the designated Group. By registering Remotes into Groups, it not only makes management easy, but allows, via the Base unit, to make setting changes and recording start settings by Group. It is also possible to create files of the Remote Unit Registration Info, which can be read by other RTR-57C units.

Options

Common Options

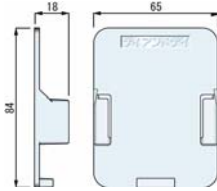
TR-05K1

Wall Attachment
Aluminium



TR-05K2

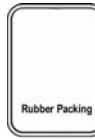
Wall Attachment
ABS Resin



TR-00P1

Maintenance Set

Rubber packing x 1
Silica gel x 1
Double-sided Adhesive tape x 1
Lock screw x 2



TR-00P2

Battery Set for Low-Temperature use

Lithium battery ER3VM x 1
Tube x 1
Maintenance Set x 1set



RTR-05A1

External Power Adaptor

Voltage Input: DC6V
Back-up Power: Ni-MH Battery (In case of power loss)
Back-up Time: 4 days (*1)
Charging Method: Trickle Charge
Operating Temperature: 0...60 °C
Waterproof Capacity: None
Weight: about 37g (without AC Adaptor)
Kit Contents: AC Adaptor (AD-0604) x 1
Attachment hook x 1
Rubber Packing x 1 (for back of main unit)
Rubber Packing (small) x 1 (for AC Adaptor jack)
Silica Gel Pack (drying agent) x 1
Double-sided Adhesive Tape x 1 (for fastening silica gel)
Screws x 2 (extras for fastening back of main unit)
Install by taking off the back cover and removing the battery.



RTR-05B1

Large Capacity Battery Pack

Power: Lithium Battery x 1 (LS26500)
Battery Life: about 2 years and 6 months (*1)
(Monitoring at 1 minute interval = about 20 months)
Waterproof Capability: Splash proof
Operating Temperature: -40...80 °C (*2)
Weight: about 75g (including lithium battery)
Kit Contents: Lithium Battery x 1 (LS26500)
Attachment hook x 1
Rubber Packing x 1 (for back of main unit)
Silica Gel Pack (drying agent) x 1
Double-sided Adhesive Tape x 1 (for fastening silica gel)
Screws x 2 (extras for fastening back of main unit)
Install by taking off the back cover and removing the battery.



RTR-05B2

Battery Set for Large Capacity Battery Pack

Kit Contents: Lithium Battery x 1 (LS26500)
Rubber Packing x 1 (for back of main unit)
Silica Gel Pack (drying agent) x 1
Double-sided Adhesive Tape x 1 (for fastening silica gel)
Screws x 2 (extras for fastening back of main unit)



NOTE:

(*1) 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.

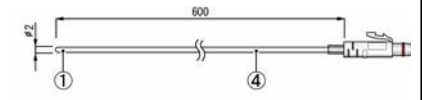
(*2) Operating temperature depends on the specifications for the data logger being used.

For RTR-52

TR-5106

Teflon-Shielded Sensor

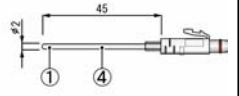
Cable Length: 0.6m, Thermal-Constant Time: Approx. 15 Sec. (in air), Approx. 2 Sec. (in agitated water)



TR-5101

Teflon-Shielded Sensor

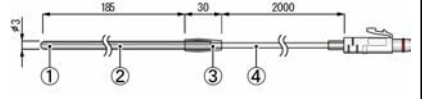
Cable Length: 45mm, Thermal-Constant Time: Approx. 15 Sec. (in air), Approx. 2 Sec. (in agitated water)



TR-5220

Stainless Protection Sensor

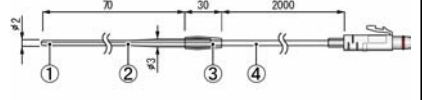
Cable Length: 2.0m, Thermal-Constant Time: Approx. 36 Sec. (in air), Approx. 7 Sec. (in agitated water)



TR-5320

Stainless Protection Sensor

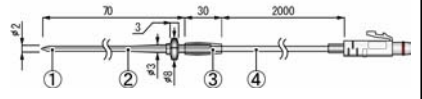
Cable Length: 2.0m, Thermal-Constant Time: Approx. 12 Sec. (in air), Approx. 2 Sec. (in agitated water)



TR-5420

Stainless Protection Sensor

Cable Length: 2.0m, Thermal-Constant Time: Approx. 12 Sec. (in air) Approx. 2 Sec. (in agitated water)



Materials: 1.Thermistor 2.Stainless pipe(SUS316) 3.Teflon Compaction Tube 4.Teflon Resin (FEP)-Shielded

Possible Measurement Range : -60...155 °C Sensor Temperature Durability : -70...180 °C

Water Resistance : Splash Proof (Sensor and Cable)

Measurement Accuracy : Average ± 0.3 °C (-20...80 °C) Average ± 0.5 °C (-40...-20 °C / 80...110 °C)

Average ± 1.0 °C (-60...-40 °C / 110...155 °C)

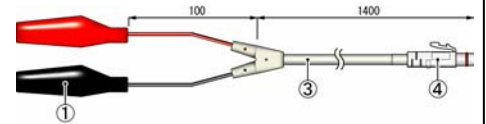
Note: Temperature sensors can not be used with RTR-53 units; the connector is different.

For RVR-52

RVR-7101

Input Cable

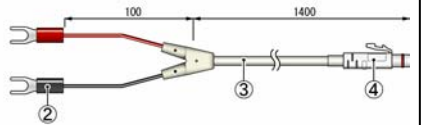
Cable Length: 1.5m



RVR-7102

Input Cable

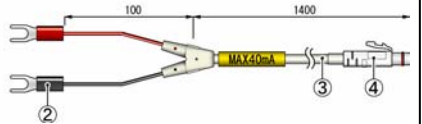
Cable Length: 1.5m



RVR-7103

4-20mA Probe

Maximum Current Input: MAX40mA
Interior Resistance: 100Ω
Output: 2V at 20mA / 0.4V at 4mA
Conversion Accuracy: 0.5%
Cable Length: 1.5 m



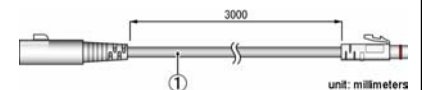
Materials: 1.Clip 2.M3.5 Crimp Terminal 3.Vinyl Coated Electrical Wire 4.Connector

For RTR-52/RVR-52

TR-2C30

Sensor Extension Cable

Cable Length: 3.0m
Splash Resistant (IP64)



Note:

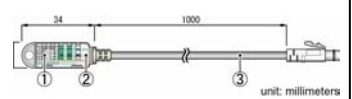
Only one cable per sensor. When using the extension cable there will be a +3.0 °C at normal temperature and at -50 °C a gap of +0.5 °C may occur.

For RTR-53

TR-3310

Temp / Humidity Sensor

Possible Temperature Measurement Range: 0...55 °C
Possible Humidity Measurement Range: 10...95%RH
Sensor Temperature Resistance: -10...60 °C
Temp Measurement Accuracy: Average ± 0.3 °C
Humidity Measurement Accuracy $\pm 5\%$ RH (At 25 °C 50%RH)
Service Life: 1 year (under normal operational conditions)
Operational Conditions: Without dew condensation, water leakage or effect from corrosive gas or organic solvents.



Materials:
1.Temperature/Humidity Sensor
2.Polypropylene Resin
3.Vinyl Coated Electrical Wire

For RTR-57C

AD-0604

AC Adaptor

Cable Length: 1.85m

Please use when monitoring readings with the RTR-57C on a regular basis.



Data Logger Specifications

RTR-51

Measurement Channel: 1 Temperature
Range: -40...+80 °C
Display Resolution: 0.1 °C
Accuracy: Avg. ±0.5 °C
Memory: 16000 Readings x 1 Channel
Water Resistance: IP67
Standard Sensor: Internal

RTR-52

Measurement Channel: 1 Temperature
Range: -60...+155 °C
Display Resolution: 0.1 °C
Accuracy: Avg. ±0.3 °C (-20...+80 °C)
±0.5 °C (-40...-20 °C / +80...+110 °C)
±1.0 °C (-60...-40 °C / +110...+155 °C)
Memory: 16000 Readings x 1 Channel
Water Resistance: IP64
Standard Sensor: TR-5106

RTR-53

Measurement Channel: 1 Temperature and 1 Humidity
Range: 0...+55 °C, 10...95 %RH
Display Resolution: 0.1 °C, 1 %RH
Accuracy: Avg. ±0.3 °C
±5 %RH (at 25 °C and 50 %RH)
Memory: 8000 Readings x 2 Channel
Water Resistance: IP64
Standard Sensor: TR-3310

RVR-52

Measurement Channel: 1 Voltage or 1 Pulse or 1 Event
Voltage Range: 0...+6.5 V DC
Voltage Display Resolution: 1 mV
Voltage Accuracy: ±0.5 % + 5dgt.
Voltage Input Impedance: Approx. 1 MOhm
Voltage Memory: 16000 Readings x 1 Channel

Pulse Range: 0...+30 V DC
Pulse Detection Voltage: Low below 0.6 V, Hi above 2 V
Pulse Response Time: 30 Hz / approx. 15 ms or more (over 2.5 V)
Pulse Response Polarity: Lo->Hi or Hi->Lo
Pulse Number of Counts: max. 32000 Counts
Pulse Input Impedance: Pull Up Resistor Approx. 100 kOhm
Pulse Memory: 16000 Readings x 1 Channel

Event Range: 0...+30 V DC
Event Display Resolution: 1 sec
Event Detection Voltage: Low below 0.6 V, Hi above 2 V
Event Response Time: 1 sec
Event Response Polarity: Lo->Hi and Hi->Lo
Event Input Impedance: Pull Up Resistor Approx. 100 kOhm
Event Memory: 8000 Readings x 1 Channel

Water Resistance: IP64
Standard Sensor: RVR-7101

Common Specs

Recording Interval: 1,2,5,10,15,20,30 sec / 1,2,5,10,15,20,30,60 min
Recording Mode: Endless or One-Time
LCD Display Items: Current Readings, Recordings Settings, Battery Life Warning, Over Measurement Range Warning, Unit
Power: Lithium Battery LS14250 or optional AC Adapter
Battery Life: Approx. 6 months (Battery life depends on measurement environment, recording interval and battery performance)
Wireless Method: ETSI EN 300-220
Transmission Distance: Up to 100 m
Dimension: H62 mm x W47 mm x D19 mm, antenna length 20 mm, with Large Capacity Battery Pack: D50 mm
Weight: Approx. 56 g, with Large Capacity Battery Pack: approx. 109 g

Product Specifications for RTR-57C

Recording Capacity: 16 units at full data, 16000 readings x 16 = 256000 readings
Functions: Downloading Data, Display Saved, Data Graphs, Display Highest and Lowest Temperature, Set Recording Start for Remote Data Loggers, Delete Stored Data, Monitor Current Temperature, Search for Remote Units
LCD Display: Operation Menu, Graph Display, Low Battery Life Warning, Calendar and Clock, Contrast Adjustment, Backlight
Power: Two AAA Alkaline Batteries (LR03) · Can use rechargeable AAA Ni-Cd or Ni-MH 1.2V batteries, Special AC Adaptor (AD-0604)
Battery Life: 100 hrs under Continuous Operation, Auto Power Off Function (Turns unit off after 3 minutes of non-use)
Data Backup: Approx. 1 year with switch off, Data erased if all battery power is lost
Wireless Method: ETSI EN 300-220
Transmission Distance: Up to 100 meters (May vary with conditions)
Interface: Special Short Wave Radio Type: 2048bps (with data logger)
Modular Jack: Serial Communication (RS-232C) 19200bps (with computer), 9600bps (with data logger)
Optical Communication: 2400bps (with data logger)
Communication Time: Data from RTR-57C...Computer: One Full Logger's Data ~ 25 sec.
Data from RTR-51/52/53/RVR-52...RTR-57C via wireless: One Full Data ~ 420sec.
Dimension: H125 x W58 x D25.5mm (excluding protruding part)
Antenna Length: 20mm...105mm (fully extended)
Weight: Approx. 125g (Including 2 AAA Alkaline batteries)
Operating Conditions: Temperature : 0...50 °C Humidity : Less than 90%RH (Without dew condensation)
Accessories Included: Computer Communication Cable (RS-232C:D-Sub9 pin:1.5m) x 1
Data Logger Communication Cable (TR-3C10:1m) x 1; AAA Alkaline Batteries (LR03) x 2
User's Manual and Warranty x 1; Software (T&D Recorder for Windows) x 1



Complies with technical specifications required EN 301 489-3 (with battery and AC Adaptor)
EN 300 220-3 and EN 60950:2000 Allowed for use in: A, B, D, DK, F, I, P, S, SW, UK, N, NL, CH, FIN, AUS, NZ