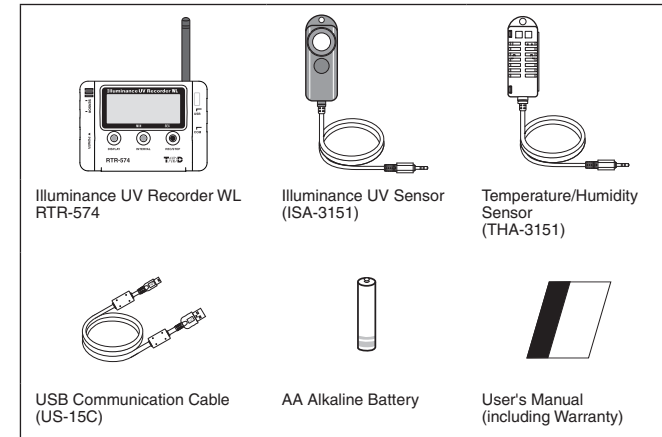




# Illuminance UV Recorder WL RTR-574 User's Manual

Thank you for purchasing our product.  
Carefully read this instruction manual before using this Unit.

## Package Contents



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This is printed using recycled paper.

## Illuminance UV Recorder WL RTR-574 Warranty

Customer's name:  
Address:  
Phone No.:

Dealer's name:  
Address:  
Phone No.:

Guarantee period: 12 months from date of purchase

Date of purchase:

### Statement of Limited Warranty

- This product is warranted to be free from defects in materials and workmanship for a period of one (1) year following the date of purchase. Should the product fail to operate per specification in normal use during this period T&D will repair the Unit or provide a replacement free of charge. T&D will not accept returns for any reason other than defects during the warranty period, and will not accept any product that has been misused, dropped, abused or inappropriately used or mistreated at any time.
- This warranty is strictly limited to repair or replacement-in-kind for defective product. T&D makes no other warranty, either express or implied, and will not accept liability beyond the remedies stated herein. Specifically, T&D will not accept liability for direct, indirect, special, consequential or incidental damages arising from the use of this product.
- Customers wishing to submit a defective product for repair or replacement during the warranty period should first contact the dealer from whom it was originally purchased. After receiving a return authorizing the defective product should then be packaged along with a description of the difficulties being experienced, proof of purchase and all included accessories and materials, and return it to the dealer. In the event of difficulty contacting the original dealer, customers should contact the nearest authorized T&D sales representative. A list of these can be found on the company's web site, [www.tandd.com](http://www.tandd.com), or it can be obtained by contacting T&D directly.
- This limited warranty statement gives the customer specific legal rights. The customer may also have other rights which vary from state to state in the United States, from province to province in Canada, and from country to country elsewhere in the world. To the extent this limited warranty statement is inconsistent with local law, this statement shall be deemed modified to be consistent with such local law.
- For further information relating to product repair or replacement, or for other service questions after the termination of the warranty period, customers should contact their local authorized T&D sales representative.

## T&D Corporation

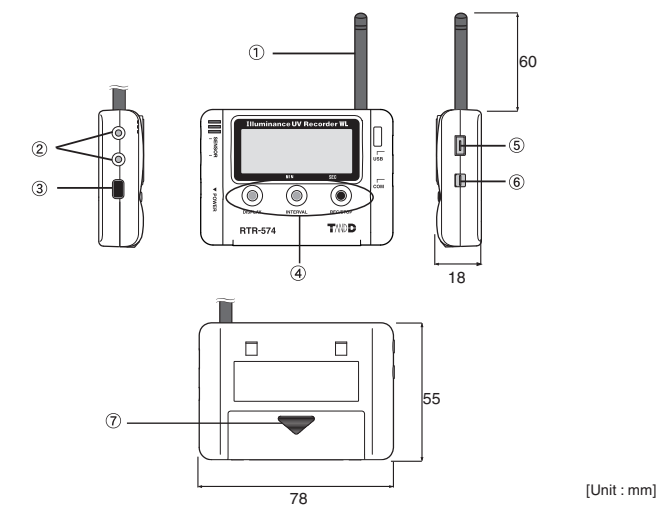
<http://www.tandd.com/>  
817-1 Shimadachi, Matsumoto, Nagano, JAPAN 390-0852  
Fax: +81-263-40-3152 E-mail: support@tandd.com

## Illuminance UV Recorder WL RTR-574 is a Data Logger, with built-in wireless communication capability, designed to measure and record Illuminance, Ultraviolet Light, Temperature and Humidity at a set interval.

Collect the Data not the Logger: Wireless communication with a Base Unit makes it possible to download data from a RTR-574 Data Logger (Remote Unit) without going to the location or collecting the Unit. The downloaded data can then be easily viewed in graph form and saved on your computer to help you analyze the data and/or share over a network.

- From hereafter in this manual, Illuminance UV Recorder WL RTR-574 will be referred to as the "Unit".
- As a Remote Unit, the Unit requires a Base Unit to carry out wireless communication. (Compatible Base Units: RTR-500, RTR-500AW/RTR-500NW)
- Please set it up after getting the Base Unit ready.

## Appearance Diagram and Part Names



- 1 Antenna
- 2 Sensor Jack
- 3 POWER Button
- 4 Operation Buttons (DISPLAY, INTERVAL, REC/STOP)
- 5 USB Communication Cable Jack
- 6 RS-232C (Serial) Communication Cable Jack
- 7 Battery Cover

## Reading the LCD Display

① REC Mark	② DATA	③ COM Mark	④ Recording Mode	⑤ Battery Life Warning Signal	⑥ Current Readings / Messages Area	⑦ Unit of Measurement
The recording status is shown here. ON: Recording in progress. BLINKING: Waiting for programmed start. OFF: Recording has been stopped.	After every 2,000 readings the scale will be marked from left to right. A Unit has the capacity to record and save up to 8,000 data readings.	The communication status is shown here. ON: The Unit is connected to a PC with the USB cable. BLINKING: The Unit is in Wireless/USB/Serial communication.	ENDLESS: Upon reaching capacity of 8,000 readings, the oldest data is overwritten and recording continues. ONETIME: Upon reaching capacity of 8,000 readings, recording will automatically stop.	When it is time for the battery to be replaced, this signal will appear. Not ON: Ample battery power. ON: Time to change the battery.	Normally, the current readings are shown here. Depending on the Unit's status, operational messages may also be displayed.	Humidity: % , Temperature: °C / °F , Illuminance: lx, Klx Cumulative Illuminance: lx·h, Klx·h, Mlx·h UV Intensity : mW/cm <sup>2</sup> Cumulative Amount of Ultraviolet Light: mW/cm <sup>2</sup> ·h, W/cm <sup>2</sup> ·h

## Notices about this User's Manual

In order to properly use this product, please carefully read this manual before using. T&D Corporation accepts no responsibility for any malfunction of and / or trouble with this product or with your computer that is caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair outlined in the attached warranty.

- All rights of this User's Manual belong to T&D Corporation. It is prohibited to use, duplicate and / or arrange a part or whole of this User's Manual without the permission of T&D Corporation.
- "TANDD", "T&D" and the logo of T&D Corporation are all registered property of T&D Corporation.
- Specifications, design and other contents outlined in this manual are subject to change without notice.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the use of measurement results of our unit. Please be fully aware of this before using our product.
- On screen messages in this manual may vary slightly from the actual messages.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in this manual.
- T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.
- This User's Manual cannot be reissued, so please keep it in a safe place.
- Please carefully read this User's Manual and Warranty.

## Safety Precautions and Instructions \* Please carefully observe the following safety measures when using our product.

To prevent any loss or damage to our customers, other people and/or property, and to ensure the proper use of our products we ask that before using our product you carefully read, understand and follow the safety rules and precautions for our products as outlined below.

Explanation of Warning Symbols	Explanation of Picture Symbols
<b>⚠ DANGER</b> These entries are actions that absolutely under no circumstance should be taken. The taking of such an action may cause serious personal physical damage or death.	<b>⚠</b> Denotes an important warning or caution.
<b>⚠ CAUTION</b> These entries are actions that if taken may lead to physical injury or damage to persons or things.	<b>⊘</b> Denotes a forbidden action.
	<b>⚡</b> Denotes an action that must be taken.

- ⚠ DANGER**
- Do not take apart, repair or modify the Unit. Touching them may result in malfunction or unexpected accidents.
- If water or a foreign object enters into the Unit, immediately turn OFF the power, remove batteries, and stop using. Continued use may cause fire or electrocution.
- Do not use this Unit in wet or humid places, such as a bathroom. It may cause a fire or other trouble including malfunction.
- If water or a foreign object enters the case, immediately cease using it.
- Store the Unit and accessories out of the reach of children. Touching them may result in unexpected accidents.
- If any smoke or strange smells are emitted from the Unit, immediately turn OFF the power, remove batteries, and stop using. Continued use may cause fire or electrocution.
- Do not drop the Unit, or expose the Unit to a strong impact. If that happens to the Unit, immediately turn OFF the power, remove batteries, and stop using. Continued use may cause fire or electrocution.
- When installing and using this product, make sure to follow all warnings and directions from your computer manufacturer.

- ⚠ CAUTION**
- This Unit is not waterproof. If the Unit gets dirty, wipe it with a clean cloth.
- Harmful gases or chemicals may cause corrosion and/or other danger to the Unit. Also, by coming in contact with hazardous substances, harm may occur to the people handling the Unit. Therefore, do not use or store the Unit in any environment that is exposed to chemicals and harmful gases.
- Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication.
- Battery terminals may provide insufficient contact due to age or vibration. This may lead to data loss.
- Use the Unit in an environment within the operational range.
- Condensation may occur when a Unit is moved from one environment to another where there is a great difference in temperature.
- To prevent damage to the Unit from static electricity, remove static electricity from your body by touching metal around you (door knob, window frame) before touching the Unit. Static electricity may cause not only damage to the Unit, but may cause breaks in or a loss of data.
- If the Unit is not to be used for a long period of time, for safety reasons please remove the battery. If left in the Unit, it may leak and lead to malfunctioning. Please use a new battery when you use the Unit again.
- Do not store or leave the Unit in any place exposed to high temperature and high humidity. If the Unit is not to be used for a long period of time, store it in a place with a normal temperature and without condensation with other items included.
- Do not disconnect the communication cable during USB communication. This may harmfully affect the Unit or your PC.
- We shall not guarantee the operation of our device if you have connected it to your computer using a USB hub or a USB extension cable.
- Please do not insert your fingers or any foreign objects into the sensor or USB connection jacks.
- Do not use or store the Unit in any of the following places. Doing so may cause electrocution, fire and/or other adverse effects to the device and/or your computer.
  - Areas exposed to direct sunlight
  - Areas prone to strong magnetic fields. This may cause damage including malfunction.
  - Areas exposed to water leakage. This may cause electrocution or other damage including malfunction.
  - Areas exposed to excessive vibration. This may cause injury, malfunction, damage or loss of proper electrical contact.
  - Areas near fire or exposed to excessive heat. This may cause damage including malfunction and deformation.
  - Areas prone to dust and dirt. This may cause damage including malfunction.

## ⚠ Cautions about using the Illuminance UV Sensors

- Do not connect the ISA-3151 sensor to any data logger other than those specified by T&D Corporation.
- Use the Unit in an environment within the operational range.
- When measuring ultraviolet light or other light which may cause damage or injury to your eyes or skin make sure to use protection such as safety glasses or some type of light-proof shield.
- Do not expose the sensor to a strong impact. Cracks or scratches in the Illuminance sensor and / or in the UV sensor will adversely affect the measurement accuracy. Also, a broken sensor may result in injury.
- This sensor is not waterproof. By all means do not allow it to get wet.
- Do not use in any environment that is exposed to corrosive gas and organic solvents. Also, do not use in areas near fire or exposed to excessive heat.
- When the Illuminance UV sensor is not being used, please store at room temperature to prevent condensation.
- If the sensor surface gets dirty, wipe it with a soft cloth.
- If the sensor surface accumulates impurities (dirt), it will cause a decrease in the sensor's accuracy and sensitivity.
- If you wish to extend the length of the sensor cable, please purchase and use our optional sensor extension cable (TR-1C30 / TR-5C10). Do not cut or process the sensor cables.
- Using the "Adjustment Function" in the software supplied with the Base Unit, it is possible to make desired adjustment settings to a sensor; these settings are saved directly into the sensor itself. Therefore, when a sensor is replaced, it is necessary to re-make any desired adjustment settings to be saved into the newly connected sensor.

## ⚠ Cautions about using the Temperature/Humidity Sensors

- Do not connect the ISA-3151 sensor to any data logger other than those specified by T&D Corporation.
- Use the Unit in an environment within the operational range.
- When using the Unit in an environment where the humidity is less than 30%RH, the measurements may sometimes fluctuate. This is not abnormal.
- If extremely severe temperature changes occur, the humidity measurements may appear abnormal. Once the sensor's temperature becomes stable, the measurements will return to normal.
- This sensor is not waterproof. Only use in an environment where there is no condensation or possibility of becoming wet. Do not use in water or near areas where high-pressure water is flowing.
- Do not use in any environment that is exposed to corrosive gas and organic solvents. Also, do not use in areas near fire or exposed to excessive heat.
- When the temperature/humidity sensor is not being used for a long period of time, please place it in the attached vinyl bag with the drying agent included and store at room temperature to prevent condensation.
- We recommend changing the temperature/humidity sensor after about one year of use. During use, the surface of the temperature/humidity sensor will accumulate impurities (dirt) causing a decrease in the sensor's accuracy and sensitivity. If the sensor is being used in an environment where smoke and dust are in abundance, we suggest replacing the sensor even sooner.
- Do not use this sensor on a human body.
- If you wish to extend the length of the sensor cable, please purchase and use our optional sensor extension cable (TR-1C30 / TR-5C10). Do not cut or process the sensor cables.
- Using the "Adjustment Function" in the software supplied with the Base Unit, it is possible to make desired adjustment settings to a sensor; these settings are saved directly into the sensor itself. Therefore, when a sensor is replaced, it is necessary to re-make any desired adjustment settings to be saved into the newly connected sensor.

## ⚠ Wireless Regulations

Radio, EMC and Safety Regulations

This device complies with part 15 of the Federal Communications Commission (FCC) rules and with RSS-210 of the Industry Canada (IC). Operation is subject to the following conditions:  
(1) This device may not cause harmful interference, and  
(2) This device must accept any interference received, including interference that may cause undesired operation.

Changes or Modifications not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:  
- Reorient or relocate the receiving antenna.  
- Increase the separation between the equipment and receiver.  
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.  
- Consult the dealer or an experienced radio/TV technician for help.

## ⚠ Important Notice

We cannot sell these products to distributors or consumers in countries other than where the wireless units have been approved for use. If these wireless products are used outside of the designated areas of the Americas where the devices have been granted approval, T&D Corporation shall in no manner whatsoever take responsibility for the usage of these products, nor be liable in any manner for legal consequences stemming from the usage of these wireless products in unapproved areas.

## Getting the RTR-574 (Remote Unit) Ready to Use

❗ Please get the Base Unit ready first before the RTR-574 (Remote Unit).

### 1. Install the Battery.

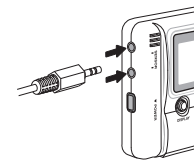
Remove the battery cover and insert the battery, making sure that the + and - are in the correct direction.

Be sure to completely close the cover.



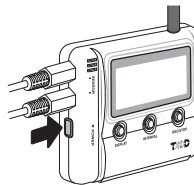
### 2. Connect the included Sensors.

The Sensor Jacks are common for both sensors. The Temperature/Humidity Sensor and the Illuminance UV Sensor can be connected to either jack.



### 3. Turn ON the Power.

Press the POWER button until the LCD display appears.



### 4. Register the Remote Unit by using the software supplied with the Base Unit.

When the direction appears in the software window, connect the Unit to the computer.



## Battery Replacement Mark and Message

When it is time for the battery to be replaced, a battery life warning signal will appear. While this mark is on display, wireless communication may be broken or may be impossible.



If you change the battery while the mark is displayed, recording will continue uninterrupted.



If the battery is not changed, but remains in use, [SLP] will appear in the LCD display. Recording will stop in order to protect recorded data until this point.

- Recording will not be resumed even if the battery is changed at this point.



If the battery is further left unchanged, the display will automatically shut off. All of the recorded data up until that point will be erased.

- If + (plus) and - (minus) are mistaken, or if the battery terminals + and - are shorted, the recorded data that is stored in the Unit will be lost.  
- If the Unit is left without a battery for some time, all data may be lost, so please work quickly when changing the battery.

## Other Messages



### FULL Memory Capacity

When Recording Mode has been set to "One Time" and the Unit reaches its capacity of 8,000 readings, recording will automatically stop and in the LCD the current measurement and the word "FULL" will alternately appear.



### Sensor Unconnected

This will be displayed when a sensor has not been connected or the wire has been broken.

- Measurement and recording will continue so battery power will be consumed.  
- If after re-connecting the sensor and measurements can still not be displayed, it is very possible that the sensor or the Unit are defective or have been damaged.

## Button Operation

❗ If no operations can be performed using buttons on the Unit, it means the buttons have been de-activated via the software supplied with the Base Unit.

### POWER Button

Use this button to turn ON/OFF the Power.

**ON:** Press the POWER button.

**OFF:** Press the POWER button until the LCD displays "OFF".

- During recording, the power cannot be turned off by pressing the POWER button on the Unit. Please stop recording first and then turn off the power.  
- If there is ample battery power remaining in the Unit, even if the power has been turned off, the recorded data will be saved.

### DISPLAY Button

Use this button to change the LCD Display Pattern.

There are two LCD display patterns for readings:

An Alternate Display and A Fixed Display.

The factory default setting is an Alternate Display between Illuminance and UV Intensity.

With each pressing of the button the measurement items will be shown alternately in the following order for a Fixed Display:

→ Illuminance (lx, Klx) → UV Intensity (mW/cm<sup>2</sup>) → Temperature (°C, °F) → Humidity (%) → Cumulative Illuminance (lxh, Klxh, Mlxh) → Cumulative Amount of Ultraviolet Light (mW/cm<sup>2</sup>h, W/cm<sup>2</sup>h) → Back to the Alternate Display

When the desired measurement item for a Fixed Display appears, stop pressing the button.

### Alternate Display:

The LCD display shows all or selected multiple measurement items in turn.

- Make settings for the measurement items to be displayed via the software supplied with your Base Unit.

### Fixed Display:

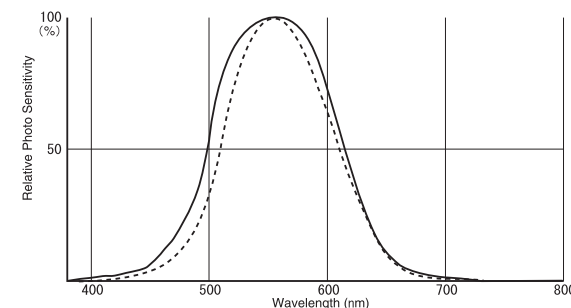
The LCD display shows one measurement item specified by pressing the DISPLAY button.

### Cumulative Illuminance and Cumulative Amount of Ultraviolet Light

Cumulative Illuminance and Cumulative Amount of Ultraviolet Light are the numerical values obtained by accumulating measurement readings from recording start until stop. The timing of accumulation will be the same as when the display is refreshed.

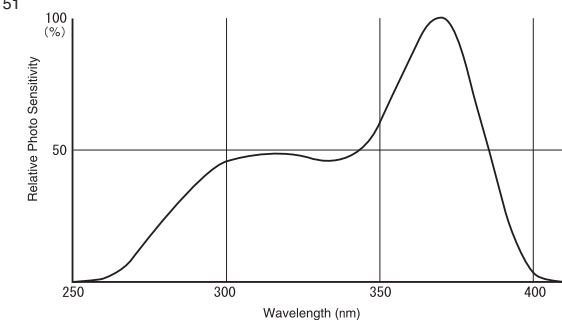
### Relative Spectral Response Characteristics Graph (Illuminance)

Broken line: the CIE standard response function V (λ)  
Solid line: ISA-3151



### Relative Spectral Response Characteristics Graph (UV)

ISA-3151



### INTERVAL Button

Use this button to check and change Recording Interval Setting.

The factory default setting for the recording interval is 10 minutes.



### Checking the Recording Interval:

By holding the INTERVAL button down, the currently set recording interval will appear on the LCD display.

- If no operation is carried out after the recording interval has been displayed, the current measurement readings will return to the LCD display.

### Changing the Recording Interval:

With each pressing of the button while the recording interval is on display, the interval time will change as follows:

1, 2, 5, 10, 15, 20 and 30 seconds /

1, 2, 5, 10, 15, 20, 30 and 60 minutes

When the desired recording interval appears, stop pressing the button.

- Changes can only be made when recording has been stopped.

### REC/STOP Button

Use this button to Start and Stop Recording.

❗ By starting a new recording session, all data currently saved in the Unit will be erased.



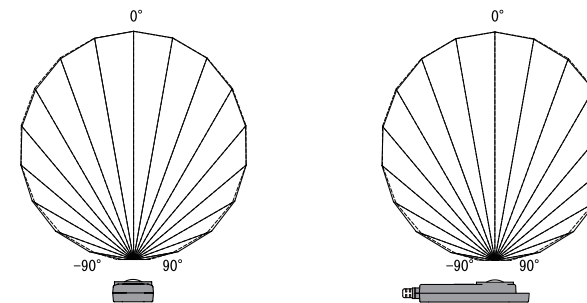
**Start Recording:** Press the REC/STOP button until the [REC] mark appears on the display.

**Stop Recording:** Press the REC/STOP button until the [REC] mark disappears from the display to stop recording.

- Make settings for the recording mode (Endless / Onetime) via the software supplied with the Base Unit.  
- It is possible to start recording even if the Unit is waiting for a programmed recording to start. All programming is done via the software which comes with the Base Unit.

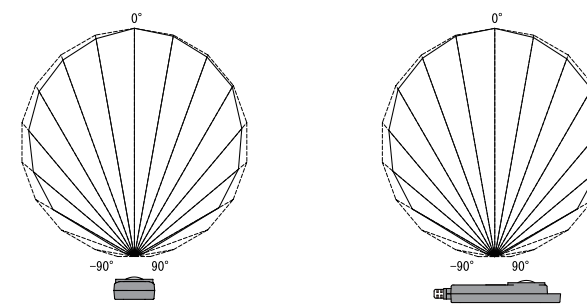
### Cosine Correction Characteristics (Illuminance)

Broken line: cos θ  
Solid line: Measurement Value



### Cosine Correction Characteristics (UV)

Broken line: cos θ  
Solid line: Measurement Values



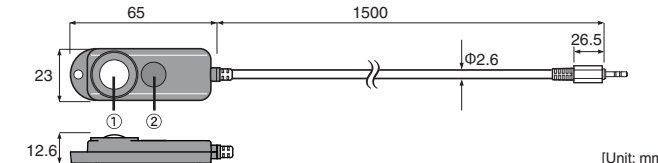
## Specifications

### RTR-574 Unit

Measurement Items	Illuminance	UV Intensity	Temperature	Humidity
Measurement Channels	1 Channel	1 Channel	1 Channel	1 Channel
Unit of Measurement	lx, Klx	mW/cm <sup>2</sup>	°C / °F	%
Display Range of Cumulative Measurement	0 ~ 90,000,000 lxh	0 ~ 62W/cm <sup>2</sup> h	-	-
Unit of Cumulative Measurement	Cumulative Illuminance lxh, Klxh, Mlxh	Cumulative Amount of Ultraviolet Light mW/cm <sup>2</sup> h, W/cm <sup>2</sup> h	-	-
Refresh Interval	1 second (At a recording interval of 1 second) 2 seconds (At a recording interval of 2 seconds or more)			
Recording Intervals	Select from 15 choices: 1, 2, 5, 10, 15, 20 and 30 seconds 1, 2, 5, 10, 15, 20, 30 and 60 minutes			
Recording Capacity	8,000 readings x 4 Ch.			
Recording Modes	Endless / One Time			
LCD Displayed Items (*1)	Recording Status, Amount of Recorded Data, Communication Status, Recording Mode, Battery Life Warning, Current Readings (Illuminance / UV Intensity / Temperature / Humidity), Cumulative Measurements (Cumulative Illuminance and Cumulative Amount of Ultraviolet Light), Unit of Measurement			
Communication Interface	Wireless / USB / RS-232C (Serial) Communication (*2)			
Communication Speed	When downloading 1 Unit of full data: Wireless Communication = about 6 minutes (*3) USB Communication = about 45 seconds			
Wireless Specifications	FCC Part15 Section247 / IC RSS-210(Frequency Range: 902 to 928MHz)			
Wireless Transmission Range	150 meters [500 ft] (May vary with conditions)			
Power	AA Alkaline Battery (LR6) x 1			
Battery Life	About 6 months (*4)			
Dimensions	H55 x W78 x D18 mm (excluding protrusions) / Antenna Length: 60mm			
Weight	about 68g (including AA Alkaline Battery / excluding sensors)			
Operating Environment	Temperature: -10 to 60°C Humidity: 90%RH or less (no condensation)			
Others	In order to download data via wireless communication, it is necessary to purchase a Base Unit: RTR-500W, RTR-500AW, RTR-500NW			

\*1: Up to four digits are valid for the Current Readings and Cumulative Measurements.  
\*2: If necessary, serial communication can be established by using our RTR-574 communication protocol (contact your local dealer) to write a software program. In such a case, an optional serial communication cable (TR-07C) is needed.  
For details please contact the dealer from which you purchased the Unit.  
\*3: The same amount of time will be necessary for each added Repeater.  
\*4: Battery life varies depending upon the type of battery, the battery performance, the measuring environment, and the frequency of communication.

### Illuminance UV Sensor ISA-3151

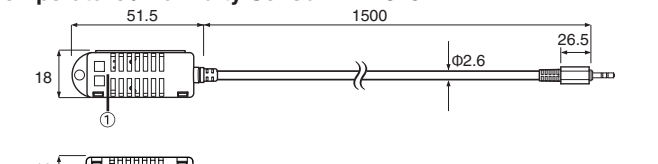


① Illuminance Sensor Area ② Ultraviolet Sensor Area

Measurement Items	Illuminance	Ultraviolet Light
Measurement Range	0 to 130,000 lx	0 to 30 mW/cm <sup>2</sup>
Measurement Resolution	Minimum: 0.01 lx	Minimum: 0.001 mW/cm <sup>2</sup>
Measuring Accuracy	10 to 100,000 lx: +/-5% (At 25°C, 50%RH)	0.1 to 30 mW/cm <sup>2</sup> : +/-5% (At 25°C, 50%RH) (*4)
Relative Spectral Response	Approximated to the CIE standard response function V (λ)	260 to 400 nm
Cosine Correction Characteristics (cos θ)	Within +/-1.5% at 10° Within +/- 3% at 30° Within +/- 10% at 60° Within +/- 30% at 80°	-
Operating / Storage Environment	Temperature: -10 to 60°C Humidity: 90%RH or less (no condensation)	
Conditions for Use	Do not expose to condensation, dampness, corrosive gases or organic solvents	

\*4: Compared to the value measured by the T&D standard sensor for calibration under our calibration light source.

### Temperature / Humidity Sensor THA-3151



① Temperature / Humidity Sensor Area

Measurement Items	Temperature	Humidity
Measurement Range	0 to 55°C	10 to 95%RH
Measurement Resolution	0.1°C	1%RH
Measuring Accuracy	Avg. +/-0.3°C	+/-5% (At 25°C, 50%RH)
Sensor Response Time	About 7 minutes (90%)	
Humidity Hysteresis	-	+/-1%RH (30 to 90%RH)
Operating / Storage Environment	Temperature: 0 to 55°C Humidity: 90%RH or less (no condensation)	
Others	Sensor Life: about 1 year	