### Wireless Thermo Recorder RTR-53A

**User’s Manual**

Thank you for purchasing this product. Carefully read and fully understand these instructions before using this unit.

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**Radio, EMC and Safety Regulations**

- RTR-5 Series complies with technical specifications required under EN 301 489-3 (with battery and AC Adaptor), EN 55022-3 and EN 60950:2000.
- This is printed on recycled paper.

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**Product Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Type</td>
<td>Temperature &amp; Humidity</td>
</tr>
<tr>
<td>Operating Temp/Humidity Range</td>
<td>0°C to +70°C / 10% to 95% RH</td>
</tr>
<tr>
<td>Measurement Accuracy</td>
<td>±0.3°C±0.1%RH / ±0.1°C±0.1%RH</td>
</tr>
<tr>
<td>Recording interval</td>
<td>1.2 to 7.56 minutes</td>
</tr>
<tr>
<td>Battery Life</td>
<td>Approx. 6 months / Approx. 2.5 years with RTR-05B1</td>
</tr>
<tr>
<td>Water Resistance</td>
<td>IP64 (rated for use in water)</td>
</tr>
<tr>
<td>Interface</td>
<td>Wireless Communication</td>
</tr>
<tr>
<td>Dimensions</td>
<td>62 x 47 x 19 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 56g (including 1 lithium battery) / with Large Capacity Battery Pack Option</td>
</tr>
</tbody>
</table>

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**Safety Precautions and Instructions**

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.

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**Notice about this User’s Manual**

- Please read this manual carefully before using the product.
- 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.
- We sincerely hope that the contents of this manual are true and complete. If you find any information to have been omitted, or if the information within is confusing or mistaken, please, contact your retailer or T&D Corporation.
- T&D Corporation accepts no responsibility for any malfunction of and/or trouble caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair of the attached warranty.
- T&D Corporation accepts no responsibility for any result or effects from using this User’s Manual.

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**Explanation of Warning Symbols**

- **DANGER**
  - These entries are actions that absolutely under no circumstances should be taken. The taking of such an action may cause serious personal physical damage or death.

- **CAUTION**
  - These entries are actions that if taken may lead to physical injury or damage to persons or things.

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**Explanation of Picture Symbols**

- **DANGER**
  - If water or a foreign object enters the case, immediately cease using it.

- **CAUTION**
  - Do not drop or expose the unit to strong impact.

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**Battery life**

Battery life depends on the measurement environment, communication frequency, recording interval and battery quality.

- Please use the latest version of our software which can be downloaded free of charge from our Website.
- Remove batteries from any unit that is not to be used for a long period of time.
- Do not use or store the unit in places such as listed below:
  - Areas exposed to excessive dust or smoke.
  - Areas exposed to strong magnetic fields.
  - Areas exposed to static electricity.
  - Areas exposed to fire or overheating.
  - Areas exposed to excessive dust or smoke.

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**About the TR-310, the standard temperature and humidity sensor for RTR-53A.**

- Use the sensor only within the measurable temperature and humidity range (Temperature: 0 to 50°C, Humidity: 10 to 95% RH).
- The Temperature/humidity sensor cable cannot be extended.
- When the sensor is not used, put it in the attached plastic bag with a desiccant and keep it in cool, dark place at 25 ± 5°C and 30% RH or less.
- The service life of humidity sensors can vary greatly depending on operating environment. Periodic calibration may be required.

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**CAUTION**

- Do not take apart, repair or modify the main unit. It may cause fire, electrocution or damage. Ask the shop where you purchased the products or T&D Corporation to carry out any repairs.
- Do not use any batteries other than those that are recommended. It may cause fire or damage.
- Do not put your fingers or foreign matter into the sensor connection. Please be careful when using in overly hot or cold environments, touching the units may cause burns or frostbite.
- Do not use or store the unit in the reach of children. It is dangerous to swallow batteries.

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**Technical Support**

- Tel: +81-263-40-0131 Fax: +81-263-40-3152
- E-mail: support@tandd.com
- Homepage: http://www.tandd.com/
1. Wireless Thermo Recorder RTR-53A

Outline of System

This system makes use of the RTR-53A units to measure and record temperature and humidity data, which can then be downloaded via wireless transmission to our handheld RTR-57U Data Collector Unit. The RTR-53A units are equipped with sensors connected to your computer for data analysis and management with our exclusive software.

Besides the collection of recorded data, it is possible to monitor current temperature and humidity readings, start recording and check data anytime without physically collecting the RTR-53A units. Communication between units can be done via optical communication, as well as wireless communication.

Basic Functions of RTR-53A

Wireless Communication Function
Via serial short-wave radio communication recorded data can be downloaded from an RTR-53A unit and saved to the RTR-57U Data Collector Unit. Recording settings and recording can also be controlled via wireless communication.

Note: In order to collect data via wireless communication, it is necessary to register via computer the RTR-53A unit as a Remote Unit in the RTR-57U Unit you wish to use. For details about making those settings, please see the Help Menu in the software or the User’s Manual for the software.

Humidity Measurement Range: 10 ~ 95%RH
With the included sensor, the RTR-53A can simultaneously measure temperature (0 ~ 55°C) and humidity (115 ~ 95%RH).

We recommend selecting the sensor for environments with a temperature and humidity between -40 ~ 30°C and 95%RH.

If dirt or scratches are present on the rubber packing, water resistance capabilities will be reduced.

2. Getting Started

1. Remove the screws and take off the back case.
2. Insert the battery into its tube and place it in the unit as shown in the diagram.
3. Check the rubber packing for any cuts or scratches and replace the cover as it was when opened.
4. Connect the Temperature and Humidity Sensor.
5. After inserting the Battery.
   - Make sure that the sensor is properly connected by inserting it in the opening, which is sloped.
   - Make sure the cord is not twisted.
   - Make sure no water or foreign objects get inside the case.
   - Make sure no dirt or scratches are present on the rubber packing, water resistance will be reduced.
   - Be sure to tighten the cover tightly.
   - Make sure you are using wireless communication if it is necessary to register the [Group Name] and [Remote Unit Name] information in the RTR-57U Units.

3. Settings and Communication

To start and stop recording, make or change the various recording settings and/or collect data please see the following instructions.

For details about communication please see the Users Manual that comes with the RTR-57U Unit.

3.1. Settings

Recording Settings

Recording Interval


data downloaded to an RTR-57U unit.

Recording Start/Stop

Recording can be started/stopped via computer and started via RTR-57U.

By starting a new recording session, all previously recorded data will be erased from the main unit. If you wish to save the data, make sure to download it to an RTR-57U unit or to your computer before beginning a new recording session.

Recording can be stopped/started via computer and one started via RTR-57U.

Data downloaded to your computer can be processed into graphs, lines, saved to files, changed to text files, and printed out.

Upper and Lower Limit Settings for Temperature and Humidity

By setting upper and lower limits, a check will occur for data exceeding those limits each time data is downloaded to an RTR-57U unit.

4. Part Names and Functions

Part Names

LCD Display

Wireless Transmission

STOP

FULL

Send

CHECK

No Sensor Connected

When a sensor has not been connected, disconnected or the wire has been broken. Measurement and recording will continue and battery power consumed.

4.1. LCD Display

- Use in cold environments may cause difficulty in reading the display: this is not a malfunction.
- Recording Status (REC): LIT UP: displayed during recording or when FULL of data.
- BLINKING: displayed when waiting for a programmed recording to start.
- Low Battery Warning Indicator (BAT): displayed when time to change the battery.

- Measurement Reading and Message Display

5. Changing the Battery

Recording Start/Stop

Recording: NO

Data Download: NO

Recording Start/Stop

Recording: YES

Data Download: YES

If you do not change

Recording: NO

Wireless Communication: NO

Data Download: NO

Recording Start/Stop

Recording: NO

Data Download: NO

Recording Start/Stop

Recording: YES

Data Download: YES

If you do not change

Recording: YES

Wireless Communication: NO

Data Download: NO

Recording Start/Stop

Recording: NO

Data Download: NO

Recording Start/Stop

Recording: YES

Data Download: YES

If you do not change

Recording: NO

Wireless Communication: NO

Data Download: NO

Recording Start/Stop

Recording: YES

Data Download: YES

5.1. Changing the Battery

1. When battery power becomes low, the battery indicator (BAT) will appear in the LCD display.

2. If you do not change the battery and continue using the unit, the measurement display will intermittently display [bat]. Please change the battery at once.

3. If you do not change the battery even under conditions in 2 above, the REC indicator will disappear and measurement display area will display [SLP].

   Recording will stop and recorded data until the point will be saved.

   If at this time a new battery is placed in the unit, downloading of saved data can be done. To start recording again please set the recording conditions via your computer or RTR-57U and begin recording. See [Outline of System].

   If you wish to start recording using the previous recording settings, see the user’s manual for RTR-57U or the TR-50C or the software (Thermo Recorder for Windows) and the Help Menu in the software.

5.2. Changing the Battery

1. If at this time a new battery is placed in the unit, recording will continue and downloading of saved data can be done.

2. If you do not change the battery and continue using the unit, the measurement display will intermittently display [bat]. Please change the battery at once.

3. If you do not change the battery even under conditions in 2 above, the REC indicator will disappear and measurement display area will display [SLP].

   Recording will stop and recorded data until the point will be saved.

   If at this time a new battery is placed in the unit, downloading of saved data can be done. To start recording again please set the recording conditions via your computer or RTR-57U and begin recording. See [Outline of System].

   If you wish to start recording using the previous recording settings, see the user’s manual for RTR-57U or the TR-50C or the software (Thermo Recorder for Windows) and the Help Menu in the software.

5.3. Changing the Battery

1. If at this time a new battery is placed in the unit, recording will continue and downloading of saved data can be done.

2. If you do not change the battery and continue using the unit, the measurement display will intermittently display [bat]. Please change the battery at once.

3. If you do not change the battery even under conditions in 2 above, the REC indicator will disappear and measurement display area will display [SLP].

   Recording will stop and recorded data until the point will be saved.

   If at this time a new battery is placed in the unit, downloading of saved data can be done. To start recording again please set the recording conditions via your computer or RTR-57U and begin recording. See [Outline of System].

   If you wish to start recording using the previous recording settings, see the user’s manual for RTR-57U or the TR-50C or the software (Thermo Recorder for Windows) and the Help Menu in the software.

5.4. Changing the Battery

1. If at this time a new battery is placed in the unit, recording will continue and downloading of saved data can be done.

2. If you do not change the battery and continue using the unit, the measurement display will intermittently display [bat]. Please change the battery at once.

3. If you do not change the battery even under conditions in 2 above, the REC indicator will disappear and measurement display area will display [SLP].

   Recording will stop and recorded data until the point will be saved.

   If at this time a new battery is placed in the unit, downloading of saved data can be done. To start recording again please set the recording conditions via your computer or RTR-57U and begin recording. See [Outline of System].

   If you wish to start recording using the previous recording settings, see the user’s manual for RTR-57U or the TR-50C or the software (Thermo Recorder for Windows) and the Help Menu in the software.