1. Installing the Battery

1. Remove the screws and open the cover.
   - Make sure to use the proper size and type of screwdriver (Phillips head #1 screwdriver is recommended.)

2. Insert the included battery.
   - Do not remove the battery from the type casing.

3. Check the rubber packing for any cuts or scratches and close the cover as it was when opened.
   - Dust or defects on the packing can adversely affect the waterproof capacity; in this case, remove the dust or replace the packing if it is damaged.
   - Note however that all previously recorded data will have been lost.

4. Notes about Battery Installation
   - After inserting the battery for the first time, nothing may appear or occur for about 10 seconds; this is not a malfunction.
   - If a new battery has been installed and nothing appears in the display, please remove and reinsert the battery.
   - When inserting a battery, make sure no water or foreign objects get inside the case.
   - Make sure that + and - are in the correct direction.

5. About Lithium Batteries
   - When using an LS14250 type Lithium battery, even though a new battery has been inserted the battery warning mark may remain on for a short time. This is due to a special characteristic of the battery. Note that the longer the battery has been in storage, the longer the amount of time, from 10 minutes to about 1 hour, the battery warning mark will remain on. If during that time the base Unit is used to get the current status of the Remote Unit, the remote display will still show that the battery level is low.
   - Please store the LS14250 in a place that is 0°C or less.
   - The estimated battery life of the Lithium Battery LS14250 is about ten months if recorded data is downloaded once a day or if about 60°C (140°F).

6. Estimated Battery Life
   - When using lithium batteries other than LS14250, please use the optional Maintenance Kit (T&D-P) to replace the rubber packing and silica gel.

3. How to Read the LCD Display

   - When being used in very hot or cold environments the display may become difficult to read. This is not a malfunction.

Basic LCD Display

1. (REC) Mark
   - The recording status will appear. 
   - Recording in progress
   - BLINKING: Waiting for programmed start time

2. (CONTINUE) Mark
   - When the recording mode is set to “One Time”, this mark will appear. The factory default setting is set to “One Time” in “RTR-505-P”.

Battery Warning Mark

1. The battery warning mark will appear.
   - The battery warning mark will appear sooner than noted above.

Estimated Battery Life

- Battery life will be shortened when: downloading data very often, setting the recording interval at less than 10 seconds, or measuring in an environment below -20°C (-4°F) or above 60°C (140°F).

Notes about Changing the Battery

- Before replacing a battery, please make sure to download any necessary data and program with the changing the battery.

- If (+) and (-) are interchanged, or if the battery terminals + and - are shorted, the recorded data that is stored in the Unit will be lost.

- Downloading of data cannot occur while the battery is removed. The example of Display

Display varies depending upon the model being used.

- The factory default settings are as follows: Recording Interval 10 minutes and Recording Mode: Endless.

- The battery warning mark may appear sooner than noted above.

- Battery life will be shortened when: downloading data very often, setting the recording interval at less than 10 seconds, or measuring in an environment below -20°C (-4°F) or above 60°C (140°F).

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- The battery warning mark may appear sooner than noted above.
3. How to Read the LCD Display (continued from previous page)

### Input Module Unrecognized (factory default)

This message will appear after purchasing the Input Module has never been connected to the Unit. (No unit for display)

Note that a RTR-505-P is has been set to measure Pulse by display. Therefore the unit “P” will be displayed.

### Input Module Unconnected or Damaged

This will appear if the Unit cannot confirm a connection with the Input Module after having recognized it. (with unit of display)

If nothing is displayed after reconnecting the sensor to the Unit, there is a possibility that the sensor or the Unit has been damaged.

### Sensor Unconnected or Damaged

This will be displayed when a sensor has not been connected to the module or the wire has been broken. Recording is in progress and so is battery consumption.

If nothing appears on display after reconnecting the sensor to the Unit, there is a possibility that the sensor or the Unit has been damaged.

### Measurement Range Exceeded

The message “OL” will appear if a measurement exceeds the measurement range.

### Display Range Exceeded

When measuring voltage in “1V range”, the measurement in the LCD display will flash if it exceeds the display range of the Unit.

### Data Transmission via Wireless Communication

The measurement and the word “Send” will alternately appear when data is being sent via wireless communication to the Base Unit. Recording will automatically stop and in the LCD the measurement and the word “FULL” will alternately appear.

### Check

If this appears, all data that was stored in the Unit will have been erased.

This message will appear under the following conditions:

- The first time a battery was inserted after purchase.
- When the battery is replaced after having been taken out for a long period
- When the battery is replaced after the battery power has been lost.

### Recording Period

<table>
<thead>
<tr>
<th>Recording Interval</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 second</td>
<td>About 4 hours</td>
</tr>
<tr>
<td>5 seconds</td>
<td>About 5 days</td>
</tr>
<tr>
<td>10 minutes</td>
<td>About 11 days</td>
</tr>
<tr>
<td>60 minutes</td>
<td>About 1 year and 4 months</td>
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</tbody>
</table>

### Estimation of time until “FULL” is displayed

<table>
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### Display Range

<table>
<thead>
<tr>
<th>Display Range</th>
<th>Memory Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>99,990</td>
<td>About 1 year and 111 days</td>
</tr>
</tbody>
</table>

### Notes about the Input Modules

- The factory default settings are as follows: Recording Interval: 10 minutes, Recording Period: About 5 days. The factory default settings are as follows: Recording Interval: 10 minutes, Recording Period: About 5 days.

4. Registering as a Remote Unit (Communication with a PC)

In order to download data from the Unit via wireless communication or change recording settings in the Unit, it is necessary to register a RTR-505 Unit as a Remote Unit to a Base Unit (sold separately). Remote Unit registration can be carried out by connecting the Base Unit to your PC. Recording will continue during wireless transmission.

Communication with a PC enables the following:

- By using a software included with the Base Unit, it is possible to carry out Remote Unit registration, change recording settings in the Unit, download recorded data to a PC, and view downloaded data.

### Important Notices and Disclaimers

In order properly use this product, please carefully read this manual before using.

- All rights of the manual belong to T&D Corporation. It is prohibited to use, duplicate and/or arrange a part or whole of this Manual without the permission of T&D Corporation.
- The software included with this product is protected by the U.S. copyright law and the copyright laws of other countries. Any unauthorized reproduction of this program or documentation is a violation of the U.S. copyright law and/or international copyright treaty provisions. T&D Corporation will take such legal action as necessary to enforce its rights under such laws. T&D Corporation is not responsible for any damage or loss of income caused by the use of this product.
- This product has been designed for private or industrial use only. It is not for use in situations where strict precautions are necessary such as in connection with medical equipment, where directly or indirectly.
- The User is responsible for any malfunction or trouble caused by the use of this product or any problem caused by the use of measurement results of our unit. Please be fully aware of this before using our product.
- The manual cannot be restored, so please keep it in a safe place.

### 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, understand and follow the safety rules and precautions for your products as outlined below.

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**RTR-505-P (Pulse)**

There are two display methods for the pulse measurement. By using the software included with the Base Unit, you can change the display method.

**Pulse Rate (Max: 61439)**

The most recent pulse count (Unit: P) for the recording interval (at minimum of every 1 second) is displayed. The pulse count will be refreshed every six-tenths of the recording interval (at minimum of every 1 second), 10,000 pulse count will be displayed as “10.00KP”, in units of 10 pulse for display.

**Total Pulse Count**

The cumulative number of pulses (Unit: P) will be displayed from 0 to 9999. The displayed count will be refreshed every 7 seconds, and upon exceeding 9999, the count will start over again from 0.

**Other Marks or Messages on Display**

**Logging Capacity FULL**

When Recording Mode has been set to “One Time” and the Unit reaches its logging capacity of 16,000 readings, recording will automatically stop and in the LCD the measurement and the word “FULL” will alternately appear.

### 3. Recording Interval

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### Recording Time

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### Notes about the Input Modules

- The factory default settings are as follows: Recording Interval: 10 minutes, Recording Period: About 5 days.

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**Notes about the Input Modules**

When making “Adjustment Settings” in the Adjustment Tools application, the adjustment values will be saved to the Input Module. Therefore, when an Input Module is replaced, it is necessary to re-make any desired adjustment settings to be written into the newly connected module.