Thermo Recorder RT/RS-14WB Series
Introductory Manual

The RT/RS-14WB Series thermo recorders can be used in the following ways.

WB : RT-14WB, RS-14WB   N : RT-14N, RS-14N

Via Cloud: Automatic Data Upload

By using wireless LAN (WB) and wired LAN (N), the thermo recorder automatically uploads the recorded data to the cloud. It enables the viewing of uploaded data and the changing of settings on your PC, smartphone and tablet.

Via PC: Setup and Download See reverse side.

Make settings and download data by USB communication between the PC and WB or N.

Via Smartphone: Setup and Download (WB only) See reverse side.

Make settings and download data by connecting WB to a smartphone or tablet via Bluetooth®.

Button Operations

Power ON/OFF	Press-and-hold the <PWR> button. (Cannot power OFF when a recording is in progress.)
Start/Stop Recording	Press-and-hold the <REC/STOP> button.
Recording Interval [**Rec.**] / Upload Interval [**Upload.**]	Press the <INTERVAL> button (display mode) Press-and-hold the <INTERVAL> button (setting mode)
Transmit Data and Settings to "T&D WebStorage Service"	Press the <REC/STOP> button.
Cancel Communication	Press the <PWR> button.
Channel on Display (Fixed or Alternating Display)	Press the <DISPLAY> button to switch the display: Ch1 (fixed) → Ch2 (fixed) → Ch1&2 (alternate)
N Display Last Used IP Address	Press-and-hold <PWR> and <DISPLAY> together. EX: When the IP address was 11.22. 33.44, each part will appear for two seconds as follows: [11 → 22 → 33 → 44]. When DHCP is ON but failed to obtain an IP address, [--- → --- → --- → ---] will appear.
WB Wireless LAN Settings using WPS	Press-and-hold <PWR> and <DISPLAY> together.

• "Press-and-hold" means to hold the button down for about two seconds.

Marks on LCD Screen

(Wireless LAN icon)	Wireless LAN (WB only) ON : Connected to the wireless network. (Signal strength: 1 to 3 bars) BLINKING : Unable to connect to the wireless network. OFF : Wireless LAN settings not made.
Web	ON : Connected to the Internet. BLINKING : Unable to connect to the Internet. OFF : Auto-upload is set to "OFF".
1 2	Displayed Measurement Channel
WPS	ON : Wireless LAN Setup using WPS Possible (WB only)
COM	BLINKING: LAN, Bluetooth or USB communication in Progress
REC	ON : Recording in Progress
ENDLESS ONETIME	ENDLESS : Upon reaching the logging capacity of 8,000 readings, the oldest data is overwritten and recording continues. ONETIME : Upon reaching the logging capacity of 8,000 readings, recording automatically stops. Cannot be set or changed using buttons on the thermo recorder. The factory default setting is "ENDLESS".
DATA	Amount of Recorded Data in Device
(battery icon)	ON : Low Battery When the battery power becomes even lower after the battery warning mark appears, the auto-upload will stop. *Please change the batteries as soon as you see this mark.
Upload.	Auto Upload Interval
Rec.	Recording Interval

Messages on LCD Screen

1 — — — —	Sensor Error: No sensor connected, improper connection, damaged, etc.
FULL	Full Data: Upon reaching capacity of 8,000 readings in "ONETIME" mode, this message appears and recording automatically stops.
SLP	Sleep Mode: If you take no action after a battery warning mark appears and auto-upload stops, the thermo recorder will enter sleep mode and stop all operations to protect data. *If the thermo recorder remains in sleep mode over one week without a change of batteries, all recorded data will be lost.

Recording Interval Setting (Common Operation)

Install the batteries and sensor(s) in the thermo recorder, and make sure the LCD is displaying measurements.
The factory default setting for the recording interval is 1 minute. Follow the procedure below to change this setting.

⚠ • Skip this setting if you don't need to change the recording interval.
• Upon the start of recording, all previously recorded data in the thermo recorder will be deleted.
• Note: When **REC** is ON (recording in progress), the thermo recorder cannot be turned off, nor can the recording interval be changed.

1. When **REC** is ON, press-and-hold the <REC/STOP> button until **REC** turns OFF (recording stops).

2. Press the <INTERVAL> button.

3. While **Rec.** is displayed, press-and-hold the <INTERVAL> button until the interval time flashes.

Rec. SEC
30
Recording Interval

4. Press <INTERVAL> again to select the interval time. Each press changes the interval as follows: Recording Intervals (**Rec.**) 1, 2, 5, 10, 15, 20, 30 SEC / 1, 2, 5, 10, 15, 20, 30, 60 MIN
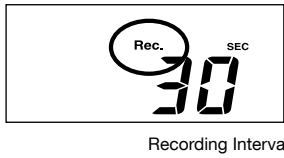
5. When you stop pressing the button, the display will return to the normal measurement mode, confirming that it is set.

Ref: Recording Intervals & Estimated Time until Logging Capacity is Reached

Recording Interval	1 sec	30 sec	5 min	15 min	60 min
Estimated Time	About 2 hours	About 2 days	About 27 days	About 83 days	About 333 days

6. Press-and-hold the <REC/STOP> button until **REC** turns ON (recording restarts).

REC ENDLESS DATA
1 **27.1**°C

Automatic Data Upload to the Cloud

This function enables RT/RS-14WB Series thermo recorders to automatically upload recorded data to "T&D WebStorage Service" where uploaded data is available for viewing and settings can also be changed.

⚠ The following procedure has been written assuming the use of "T&D WebStorage Service" with RT/RS-14WB Series thermo recorders. Please read the "T&D WebStorage Service" License Agreement carefully before making settings. Making Auto-upload Settings indicates your acceptance of this Agreement.

Auto-upload of Recorded Data / Wireless/Wired LAN / Apply Settings / T&D WebStorage Service / Cloud / Graph Display Download Data / Setup / View with a Web Browser
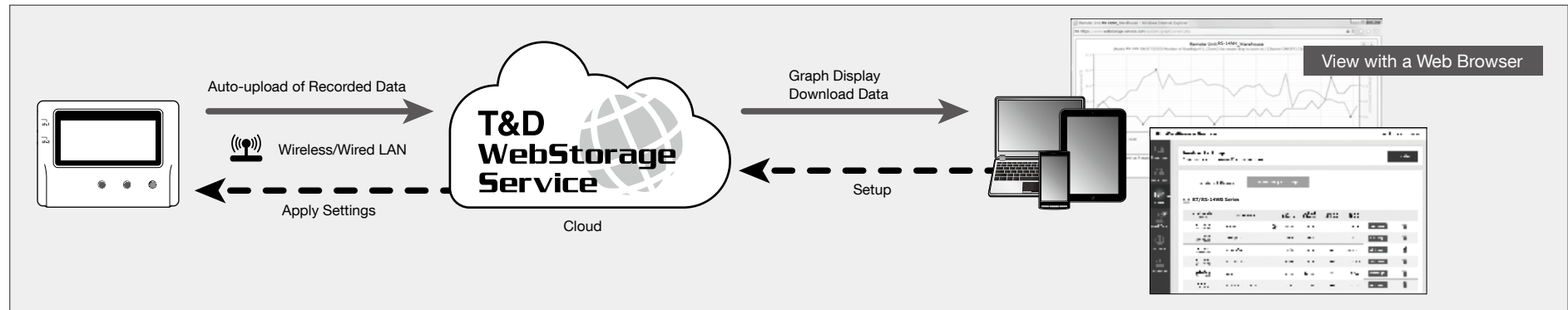
• This procedure requires Internet access via wireless or wired LAN.
• The maximum number of readings which can be stored in "T&D WebStorage Service" is 80,000. When this limit is exceeded, the oldest data will be overwritten.
• If you wish to select a server other than "T&D WebStorage Service" for auto upload of data, please use "THERMO RECORDER DATA SERVER". (See Tips on the reverse side.)

! If you wish to use a static IP address instead of DHCP, make network settings using software. See reverse side.

STEP 1 Auto-Upload Settings

1. Press the <INTERVAL> button twice to display the auto-upload interval.

2. While **Upload.** is displayed, press-and-hold the <INTERVAL> button until the interval time flashes.

Upload. MIN
5
Auto Upload Interval

3. Press <INTERVAL> again to select the interval time. Each press changes the interval as follows:
Auto-upload Intervals (**Upload.**): OFF / 1, 2, 5, 10, 15, 20, 30 MIN / 1, 2, 3, 4, 6, 12, 24 HOUR
The factory default setting is OFF (no auto-upload).

4. The interval time will stop flashing and the display will return to the normal measurement mode, confirming that it is set.

Ref: Auto-Upload Intervals & Corresponding Estimated Battery Life
In general, the shorter the upload interval, the shorter the battery life.

model \ Interval	1 min	10 min	1 hr	12hrs or more
RT-14WB/RS-14WB	About 10 days	About 2 months	About 1 year	About 15 months
RT-14N/RS-14N				About 1.5 years

• All estimates are based on operations carried out with a new battery and are in no way a guarantee of actual battery life.
• When Auto-upload is used frequently on RT-14WB/14N, the measurement of the internal sensor may rise by around 0.3°C.

STEP 2 Wireless LAN Settings

This step is not necessary for N. Plug a LAN cable into a network hub or router, and go to STEP 3.

! Wireless LAN settings using WPS may not be possible depending on the supported features or settings of your wireless LAN access point. In this case, make wireless network settings on PC or smartphone. See reverse side.
The following information is required:
• Network Name (SSID)
• Security (WEP 64bit/128bit, WPA-PSK (TKIP), WPA2-PSK (AES))
• Password (Network Key)

1. Press the <POWER> and <DISPLAY> buttons together until **WPS** appears on the LCD screen.

WPS REC ENDLESS DATA
1 **27.1**°C

2. Set your wireless LAN access point to "WPS" mode.

For details about Wireless LAN Access Point settings, refer to the user manual for that access point.

3. When the setup is successfully completed, the (wireless) mark on the LCD display will turn ON.

STEP 3 Checking Connection Status

Place the thermo recorder in the desired measurement location.
Make sure Internet access is available.

Internet / WB / Wireless LAN Access Point / N / Router / HUB / Connection Status Indicators / Web
REC ENDLESS DATA
27.1°C
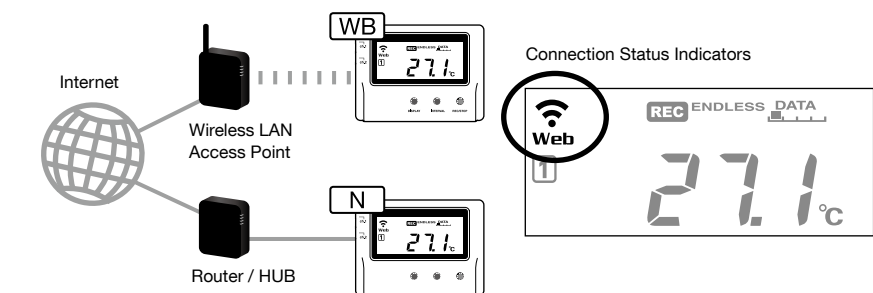
Press the <REC/STOP> button to immediately send the recorded data to "T&D WebStorage Service" without waiting for the next transmission. If the transmission is successful, **Web** will remain ON after **COM** turns OFF.

WB (wireless) is OFF or blinking:	Unable to connect to the wireless network. Try changing the measurement location or adjusting the distance between the thermo recorder and the access point, and make the wireless LAN settings in STEP 2 again.
Web is blinking:	Internet connection failed. Please check the network settings.

STEP 4 Viewing Recorded Data

In order to view the recorded data on a web browser, it is necessary to register devices to "T&D WebStorage Service" in advance.

1. Access "T&D WebStorage Service" from the web browser on your PC or mobile device.

http://www.webstorage-service.com/

2. Click [Create Account] to go to the registration page, and follow the directions to complete the registration. If you already have your User ID, go to the next step.

3. Login by entering the registered User ID and Password.

4. In the [Device Settings] window click [+Device].

5. In the Add a Device page, enter necessary information* and click [Add].

*The registration code can be found on the supplied Registration Code Label.

6. After data is sent to "T&D WebStorage Service" either by auto-upload or by pressing the <REC/STOP> button on the thermo recorder, the added device and its measurements will appear in the [Data View] window.

Troubleshooting Tips

If measurements are not displayed:
Check the screen of the thermo recorder and make sure **REC** is ON; If not, press <REC/STOP> to start recording. See "Recording Interval Setting (Common Operation)" above.

If the display of measurements is not refreshed:
Try making the recording interval shorter. If the recording interval is set to longer than the upload interval, the same measurement is displayed until the next recording occurs and the new data is uploaded.

If you lose your registration code label:
Open the software "RT/RS-14WB for Windows" and connect your thermo recorder via USB to the computer. The connected thermo recorder and its information will appear in the left boxes of the main window. The registration code can be found here.

If you wish to save recorded data to PC:
Use "ESPEC Graph" that is available for download from the T&D Website. See Tips on the reverse side.

STEP 5 Changing Device Settings

It is possible to change device settings by using "T&D WebStorage Service".

! Note that the setting changes will not be actually applied until communication occurs between the thermo recorder and "T&D WebStorage Service". By pressing the <REC/STOP> button on the thermo recorder, however, settings can be applied immediately.

Device Settings / Registered Devices / Watchdog Settings / RT/RS-14WB series
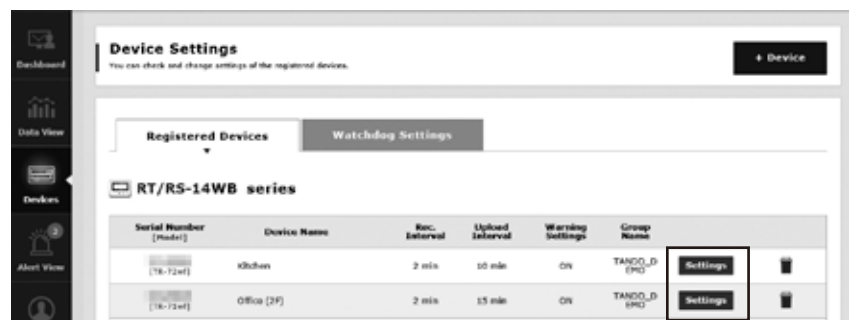
Setting Items which can be set or changed:

Device Info	Device Name, Group Name, Recording Interval, Recording Mode, Auto-upload Interval, Channel Name, Time Difference, Unit of Temperature
Warning Settings	Lower Limit, Upper Limit, Sensor Warning, Judgement Time

Setting via the cloud using the Mobile App
For the thermo recorders that have been registered to "T&D WebStorage Service", the settings can also be changed using the "T&D Thermo" App on your smartphone or tablet. See reverse side.
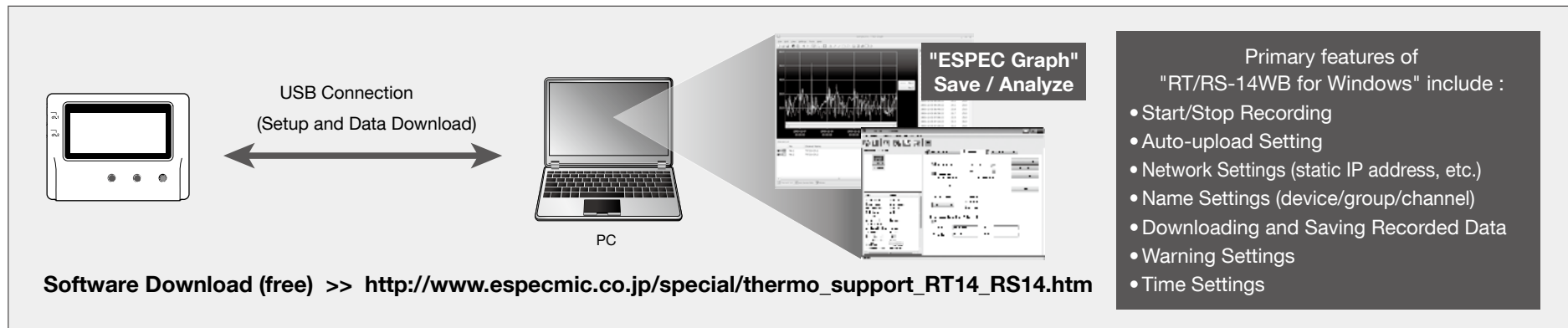
For iOS   For Android

PC over USB: Setup and Download

Using a USB connection between the thermo recorder and PC, make device settings and download recorded data via "RT/RS-14WB for Windows".

⚠ • The software can be downloaded from the ESPEC MIC website.

USB Connection
(Setup and Data Download)

PC

"ESPEC Graph" Save / Analyze

Primary features of "RT/RS-14WB for Windows" include :
• Start/Stop Recording
• Auto-upload Setting
• Network Settings (static IP address, etc.)
• Name Settings (device/group/channel)
• Downloading and Saving Recorded Data
• Warning Settings
• Time Settings

Software Download (free) >> http://www.especmic.co.jp/special/thermo_support_RT14_RS14.htm

STEP 1 Device Settings

1. Download and install "RT/RS-14WB for Windows" from the URL shown above.

2. Connect the thermo recorder via USB to your computer.

   * "RT/RS-14WB for Windows" will open automatically. (If not, please open it manually from the Windows Start Menu or Start Screen.)

3. Make the necessary settings from the tabs in the main window.
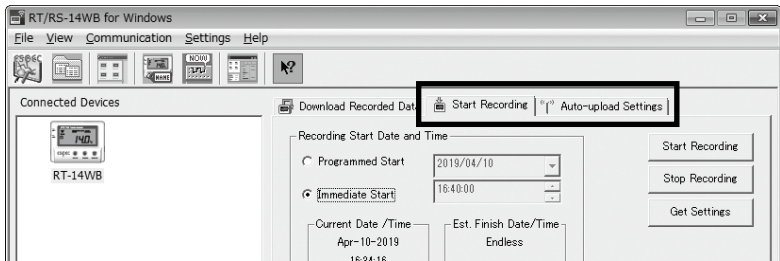
Setting Items which can be set or changed:

| [Start Recording] Tab | Programmed Start, Immediate Start, Recording Interval, Recording Mode, Group Name, Device Name, Channel Name |
| [Auto-upload Settings] Tab | Network Settings, Warning Settings, Time Settings, Data Destination, Upload Interval |

ⓘ **[Auto-upload Settings] Tab**
The settings in this tab can be used when you wish to use the auto-upload feature without WPS or DHCP.
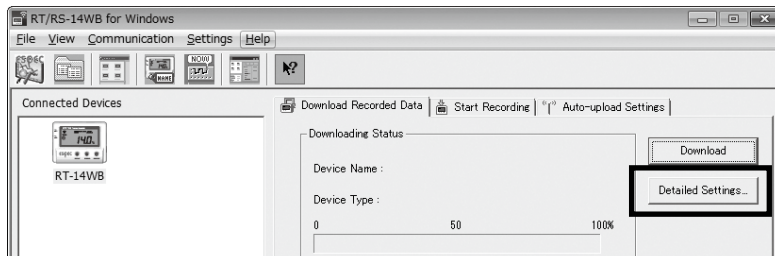
4. After having completed all the settings, click [Start Recording] or [Send Settings] to send the setting contents to the thermo recorder.
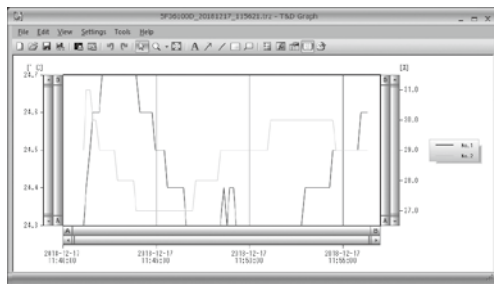
STEP 2 Downloading Data and Viewing in Graph

By using "ESPEC Graph", it is possible to view data downloaded from the thermo recorder in graph form.

1. Download and install "ESPEC Graph" from the URL shown above.

2. Connect the thermo recorder via USB to your computer.

3. Open "RT/RS-14WB for Windows", click the [Download Recorded Data] tab and proceed with the download.

   * Before downloading, settings for "Graph Display" and "File Name" can be viewed and changed under [Detailed Settings].

4. Upon completion of the download, "ESPEC Graph" will open and display the graph.

   * For details about software operations, please see the "Help" menu in each software.

Smartphone over Bluetooth®: Setup and Download RT-14WB/RS-14WB/RS-14WBH

By using the "T&D Thermo" App with WB, it is possible to make device settings, download recorded data, and view recorded data directly from your smartphone or tablet via Bluetooth.

⚠ The app supports Android OS 4.4 or later and iOS 10.0 or later.

Bluetooth
(Bluetooth low energy)

Install

Smartphone Tablet

T&D Thermo

Primary features of "T&D Thermo" include :
• Start/Stop Recording
• Auto-upload Interval Setting
• Name Settings (device/group/channel)
• Warning Settings
• Graph Display
• Downloading, Saving and Uploading Recorded Data
• Network Settings
• Time Settings

STEP 1 Start-up

1. Install "T&D Thermo" to your smartphone or tablet.

   * "T&D Thermo" is available on the Apple Store for iOS devices and the Google Play Store for Android devices.

2. Open the app.

   Upon startup, the app scans for available RT-14WB/RS-14WB in range and displays them in a list.

STEP 2 Graph Display and Device Settings

1. Tap the device in the list to open the device info screen.

2. By tapping the Bluetooth icon in the tab bar, the device settings screen will open and display downloaded data in graph.

| Model Name | RT-14WB |
| Serial Number | |

Beneath the graph is the device settings area where you can change recording settings, name settings, warning settings, network settings, security settings, etc...

Device Info   Graph/Device Settings

Graph Operations

Zooming in and out	Pinch in/out to change the scale of the horizontal axis.
Full screen display	Hold the smartphone horizontally.
Checking time and temperature at the specified point	Tap and hold on the graph (in full-screen mode).

STEP 3 Saving and Sharing Recorded Data

Data downloaded can be saved to a file and shared by using "T&D WebStorage Service" whenever needed.
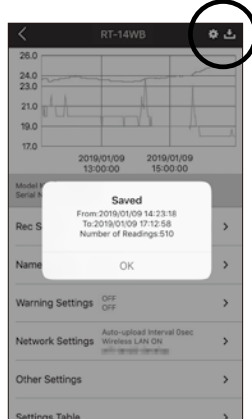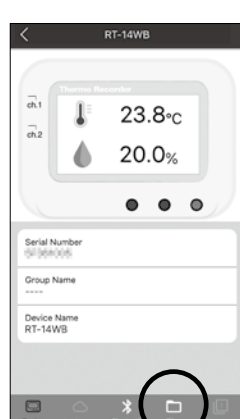
Graph/Device Settings   Device Info   File List
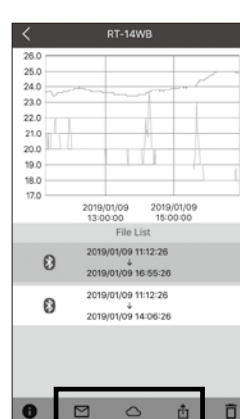
1. Tap the [Save] button at the upper right of the graph to save graph data.

2. Tap [Files] in the tab bar at the bottom of the device info screen to open the file list.

3. Select a file and tap the desired icon in the toolbar.

   * The icons in the toolbar allow you to take actions on the selected data file such as sending to "T&D WebStorage Service", sending via email, sharing in SNS and saving directly to your smartphone.

For details about "T&D Thermo", refer to the online help.
https://www.tandd.com/support/webhelp/tdthermo/

Tips

Sensors

Optional Sensors

We offer a wide range of Temperature and Temperature-Humidity sensors, sensor extension cables, AC adaptors, etc. For details see the Optional Products information on the Product Page.

https://www.especmic.co.jp/download/pdf/ThermoRecorderSeries.pdf

External Power Supply

It is possible to use USB bus power, AC adaptor (AD-05A2 or AD-05C2: sold separately), or PoE (N only) as a power source. When using an external power supply, installing batteries will make it possible to continue recording in the event of a power outage.

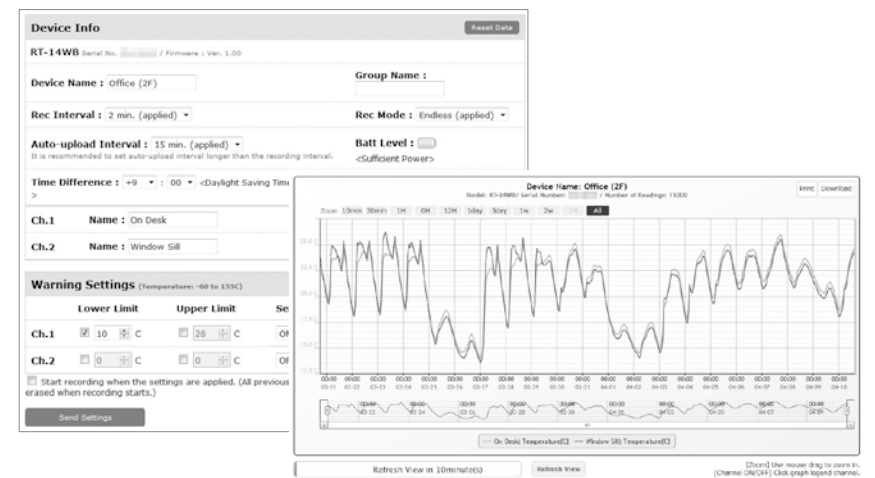ⓘ **Important Notice for Using an External Power Supply**
When using external power, the data thermo recorder itself generates heat and the internal sensor of the RT-14WB/14N will report a higher temperature than actual; we recommend using an external temperature sensor.
Also, when an external sensor is used near the RT/RS-14WB Series, it may be affected by the heat from the thermo recorder.

T&D WebStorage Service

"T&D WebStorage Service" is a free web-based cloud storage service provided by T&D Corporation. By uploading recorded data to "T&D WebStorage Service", it is possible to access your important data from anyplace in the world at any time you wish.

http://www.webstorage-service.com/

Useful features include automatic transmission of current readings & recorded data, graph display, settings, etc.

Time Settings

The time difference setting can be changed via "T&D WebStorage Service", "RT/RS-14WB for Windows", or "T&D Thermo". The default time difference is as follows:
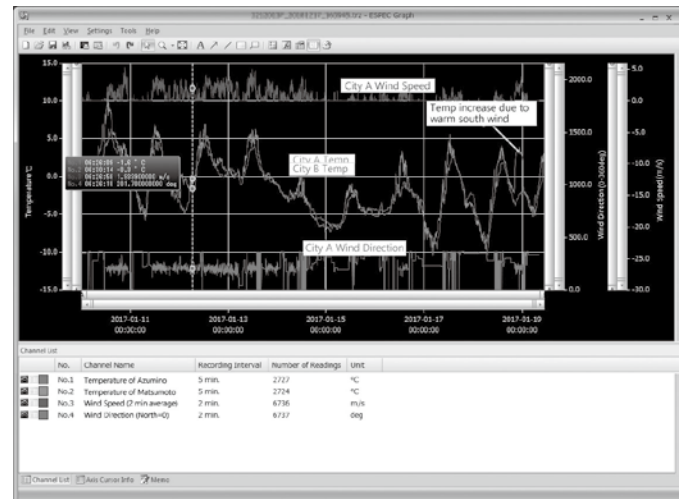
WB GMT +1:00 (for serial number "No.4XXXXXXX")

GMT -8:00 (for serial number "No.3XXXXXXX")

N GMT +0:00 (for all serial numbers)

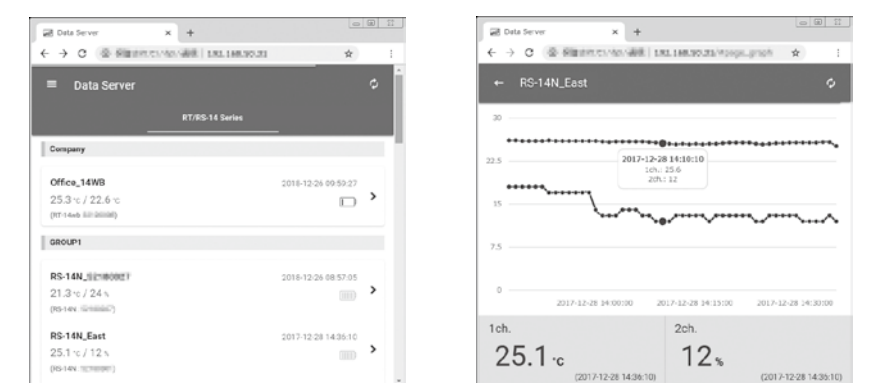## Software for RT/RS-14WB Series

ESPEC Graph

"ESPEC Graph" is a software program which enables the viewing of recorded data in graph form, whether the data is stored on a local computer or at "T&D WebStorage Service". Even if the data you wish to view is divided into multiple files, it is possible to merge them into one graph by specifying the device name and/or time period. The graph data can be saved as a graph file (.trg) or a text file (csv).

THERMO RECORDER DATA SERVER

The PC on which "THERMO RECORDER DATA SERVER" has been installed can act as a server which receives and stores data recorded by RT/RS-14WB Series thermo recorders to the user-specified folders. The stored data can be viewed in graph from using "ESPEC Graph" or monitored using a web browser. When you wish to have recorded data automatically uploaded to your server rather than "T&D WebStorage Service", please use this software.

Monitoring / Graph Window

ESPEC Software and Applications Available for Free Download:
https://www.especmic.co.jp/special/thermo_support.html

Product Support

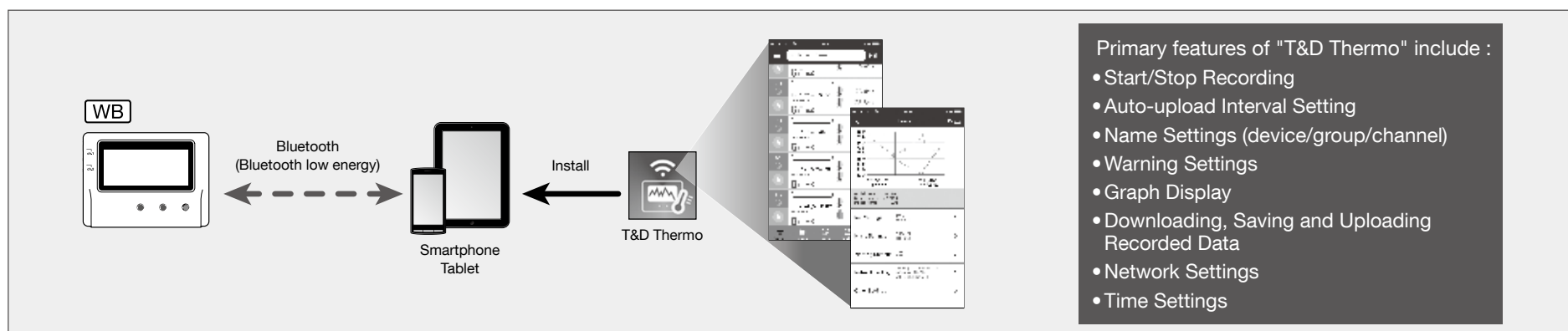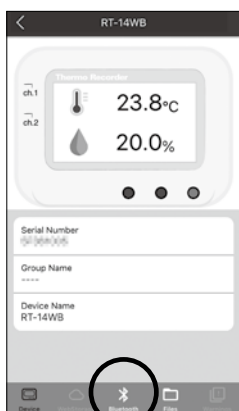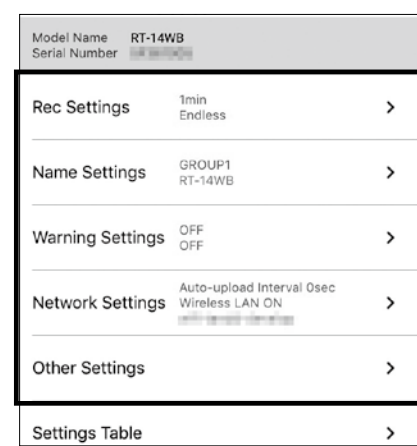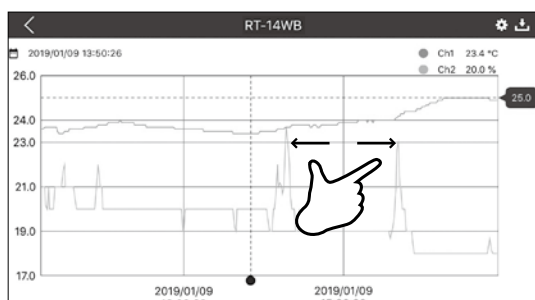**ESPEC MIC CORP.**

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