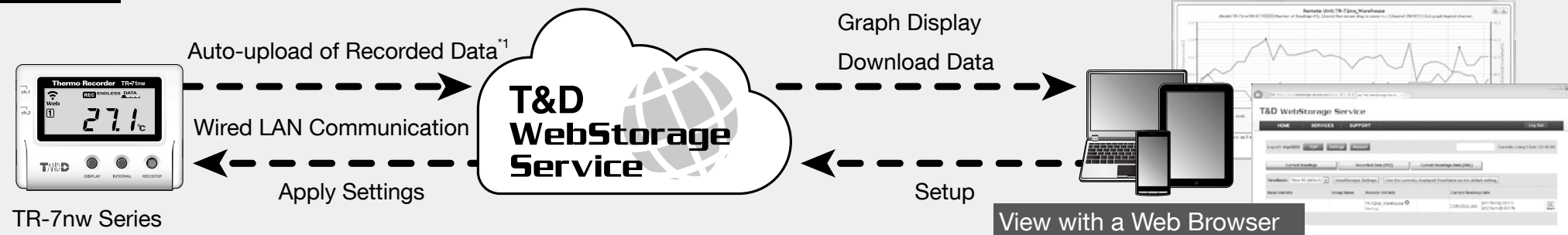


Thermo Recorder TR-7nw Series Introductory Manual

T&D CORPORATION
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<http://www.tandd.com/>

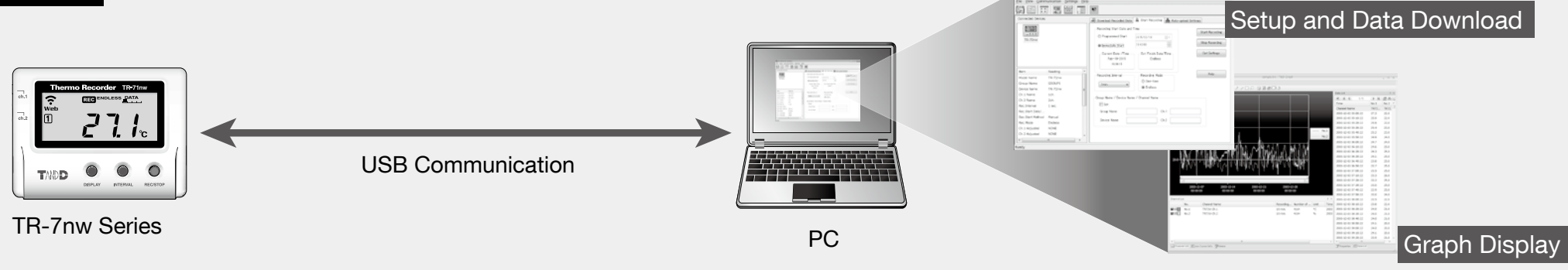
What can the TR-7nw Series devices do?

Via Cloud



*1: To auto upload recorded data to the "T&D WebStorage Service", it is necessary to have Internet access via wired LAN and a T&D WebStorage Service User ID. The "T&D Data Server" application can be used to auto upload data to your own PC rather than "T&D WebStorage Service". (See **Tips** printed on the back of this paper.)

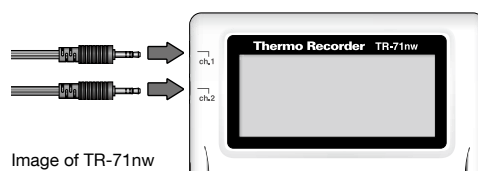
Via USB



Common Operations

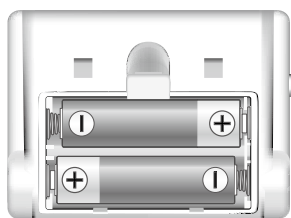
STEP 1 Setting up the Device

1. Connect sensor(s) to the device.



To ensure a proper connection, make sure that the sensor connector is completely inserted.

2. Remove the battery cover and insert batteries.



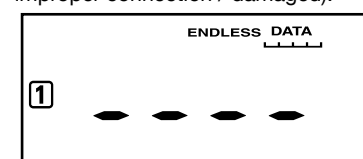
- Make sure not to mistake + / -.
- Always use new batteries.

3. The measurement will be displayed on the LCD screen.

Under Normal Conditions:



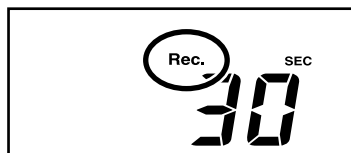
During Sensor Error (no sensor connected / improper connection / damaged):



STEP 2 Starting Recording

- Upon the start of a new recording session all stored data will be deleted from the device.
- Recording Interval settings cannot be changed while a recording session is in progress. Stop recording first and then change settings.
- During recording, the power cannot be turned off.

1. Click the <INTERVAL> button to display the current recording interval.



2. Press the <INTERVAL> button until the display flashes.

3. With each pressing of the <INTERVAL> button the recording interval time will change. When the desired interval appears, stop pressing the button. Within a few seconds, the display will return to measurement mode to indicate the recording interval is set.

4. Start recording by pressing and holding the <REC/STOP> button until the **REC** mark appears in the display.



Below are some examples of recording intervals and maximum recording times.

1 sec.	30 sec.	5 min.	15 min.	60 min.
About 2 hours	About 2 days	About 27 days	About 83 days	About 333 days

In order to stop a recording session, press and hold the <REC/STOP> button until the **REC** mark disappears from the display.

Details about the LCD Display

Other than the measurement display, the following is displayed on the LCD monitor.

Web	COM REC ENDLESS DATA ONETIME Upload, Rec. hour MIN SEC 1 18.8.8.8 °C/°F	Web	Data Transmission in Progress
1 2		Web	Internet Connection Status ON : Connected to the Internet. BLINKING : Unable to connect to the Internet. OFF : Auto-upload is set to "OFF".
		1 2	Displayed Measurement Channel
COM	LAN or USB Communication in Progress		
REC	Recording Status ON: Recording in progress BLINKING: Waiting for programmed start OFF : Recording stopped		
ENDLESS ONETIME	Recording Mode 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, [FULL] appears on the LCD display and recording automatically stops. * Use "TR-7wf/nw for Windows" or "T&D Thermo" to change the recording mode. (Cannot be changed by buttons on TR-7nw.)		
DATA FULL	Amount of Recorded Data in Device		
Battery	Low Battery Level * Please change the batteries as soon as you see this mark. If not, the device enters sleep mode ([SLP] appears on LCD) and stops all operations. If the batteries are further left unchanged, all previously recorded data will be lost.		
Upload.	Indicates Auto-upload Interval when using <INTERVAL> button		
Rec.	Indicates Recording Interval when using <INTERVAL> button		

Operations via Cloud

Auto-upload settings enable this product to automatically upload data to T&D WebStorage Service. Please read the T&D WebStorage Service License Agreement carefully before making settings.
* Making Auto-upload Settings indicates your acceptance of this Agreement.

STEP 1 Making Auto-Upload Settings

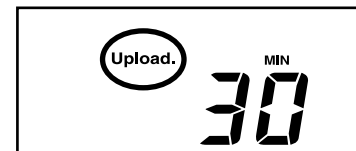
By making settings for auto-upload, it is possible to automatically upload recorded data to the online "T&D WebStorage Service".

- In the auto-upload, 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 and deleted.

1. Connect a LAN cable to the Ethernet port.

If you wish to use a static IP address instead of DHCP, change the network settings on our software "TR-7wf/nw for Windows" by connecting the device to a PC via USB. For details about operations please see the "Help" menu in the software.

2. Click the <INTERVAL> button twice to display the current upload interval.



3. Press the <INTERVAL> button until the display flashes.

4. With each pressing of the <INTERVAL> button the upload interval time will change. When the desired interval appears, stop pressing the button.

If you wish NOT to use the auto-upload feature, select "OFF". Within a few seconds, the display will return to measurement mode to indicate the upload interval is set.

Below are some examples of upload intervals and the corresponding estimated battery life.

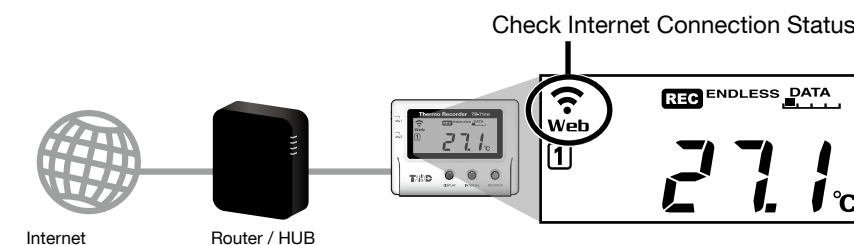
In general, the shorter the upload interval, the shorter the battery life.

Upload Interval	1 min.	10 min.	1 hr.	12 hrs.
Battery Life	About 10 days	About 2 months	About 1 year	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.
- The auto-upload interval can also be changed during a recording session.

STEP 2 Installing the Device

Install the device to the actual place it will be used.



Checking Connection Status

By pressing the <REC/STOP> button, recorded data will be sent to "T&D WebStorage Service". If the transmission is successful, **Web** will still be ON even after communication is complete and **COM** turns OFF.

Web is blinking : Ethernet connection established and data is being transmitted.
Web is ON : Internet connection is successfully established.
Web is blinking : Internet connection failed. Please check the network settings.

STEP 3 Checking Recorded Data

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

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

2. Follow the directions as they appear to get a User ID.

If you already have your User ID, go to the next step.

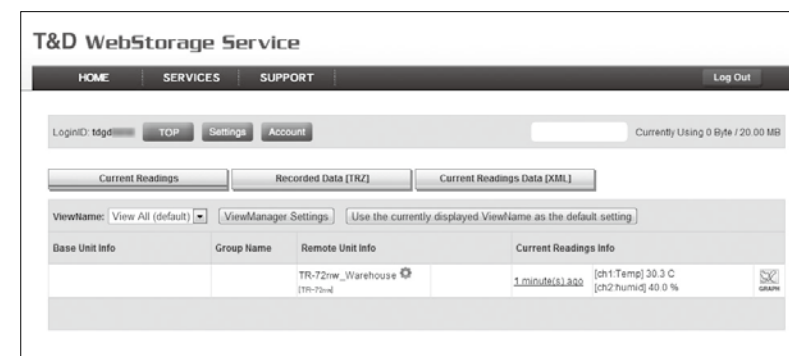
3. Login by entering the registered User ID and Password.

4. Clicking the [Account] button will take you to the Account Management page.

5. Select [Add/Remove Devices] to open the registration page, and enter the registration code for the TR-7nw Series device to be added.

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

6. After data is sent to the "T&D WebStorage Service", either by auto-upload or by pressing the <REC/STOP> button on the device, the added TR-7nw Series device and its measurements will appear in the [Current Readings] tab page.



If measurements are not displayed:

- Check the device screen to make sure **REC** is ON. Recorded data will not be uploaded when recording is not in progress.
- Try sending data to "T&D WebStorage Service" again by pressing the <REC/STOP> button on the device.
- See "Checking Connection Status" in step 2, and check if the device has a LAN connection.

If the display of measurements is not refreshed:

We recommend making the recording interval shorter than the auto-upload interval. 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 cannot find the registration code:

The registration code can also be found by using the software "TR-7wf/nw for Windows" via a USB cable connected to a PC. See **Operations via USB** on the back of this paper.

Viewing Data from other than a Web Browser

Recorded data which was sent to the "T&D WebStorage Service" can also be viewed from "T&D Thermo" and/or "T&D Graph".

See **Tips T&D Thermo** and **Tips T&D Graph** printed on the back of this paper.

Saving Auto-Uploaded Data

Recorded data which has been uploaded to the "T&D WebStorage Service" can be saved to a PC by using "T&D Graph" and accessing "T&D WebStorage Service".

See **Tips T&D Graph** printed on the back of this paper.

STEP 4 Changing the Settings

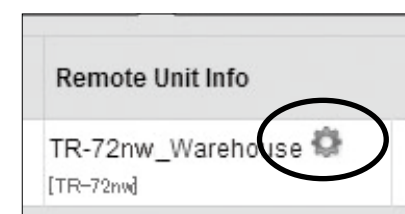
By using the "T&D WebStorage Service", it is possible to change the following settings.

Device Information:

Device Name, Group Name, Recording Interval, Recording Mode, Auto-upload Interval, Channel Name, Time Settings, Temperature Unit

Warning Settings:

Lower Limit, Upper Limit, Sensor Warning, Judgement Time



- The changes in settings will be applied when the device communicates with the "T&D WebStorage Service". To apply the changes immediately, press the <REC/STOP> button on the device after settings are completed.

Operations via USB

It is possible to make device settings and download recorded data by using the software "TR-7wf/nw for Windows". Data downloaded can then be viewed in a graph for analysis by using our software "T&D Graph".

Primary features of "TR-7wf/nw for Windows" include :

- Start / Stop Recording Settings
- Name Settings (Device Name, Group Name, Channel Name), Temperature Unit Settings
- Auto-upload Interval Settings
- Downloading and Saving Recorded Data
- Network Settings (static IP address, etc.), Time Settings
- Warning Settings

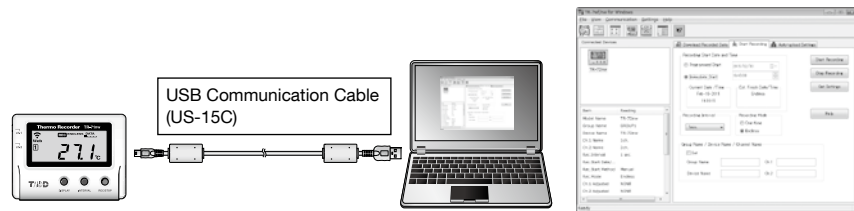
STEP 1 Setting Up

1. Download and install the software "TR-7wf/nw for Windows" from T&D Website.

Download from :

<http://www.tandd.com/support/download/software/>

2. Open "TR-7wf/nw for Windows" and connect your device via USB to the computer.



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

3. After the setup is complete, place the device to the desired measurement location.

STEP 2 Downloading Recorded Data

1. Open "TR-7wf/nw for Windows" and connect your device via USB to the computer.

2. Click on the [Download Recorded Data] tab to start the download.

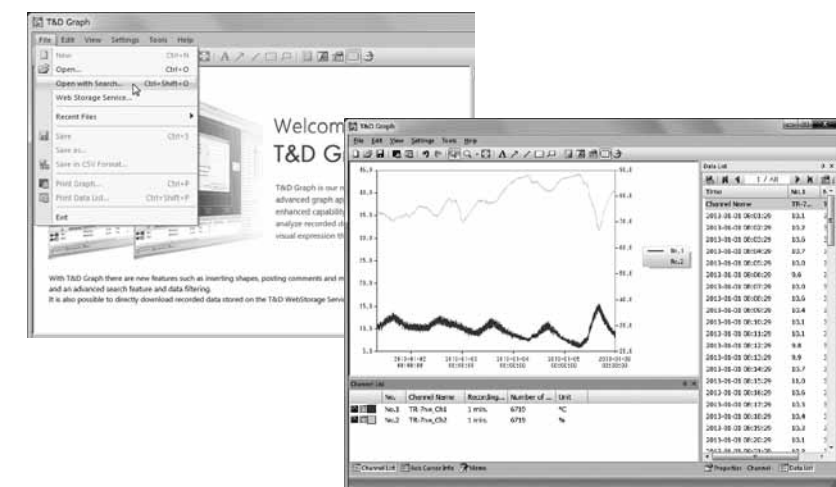
STEP 3 Viewing Recorded Data in Graph

1. Download and install the software "T&D Graph" from T&D Website.

Download from :

<http://www.tandd.com/support/download/software/>

2. Open "T&D Graph" and then access the data you wish to view.



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

Tips Device Button Operations

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

Power ON/OFF	Press-and-hold the <POWER> button.(Cannot power OFF when a recording is in progress.)
Start/Stop Recording	Press-and-hold the <REC/STOP> button.
View and Change Recording and Uploading Intervals	Press the <INTERVAL> button. Each press will cycle the interval selection between the recording interval (Rec.) and the upload interval (Upload.). To change the interval time, press-and-hold the <INTERVAL> button for two seconds or more while the selected interval (Rec. or Upload.) is displayed. Note, however, that it is not possible to change the recording interval during recording (while REC appears).
Transmit Data and Settings to "T&D WebStorage Service"	Press the <REC/STOP> button.
Switch Display Mode	Press the <DISPLAY> button. Each press will change the display mode of the measurement channels in the following sequence: Alternating Display (CH1 and CH2) → Fixed Display (CH1) → Fixed Display (CH2)
Display Last Used IP Address	Press-and-hold the <POWER> button and the <DISPLAY> button 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.

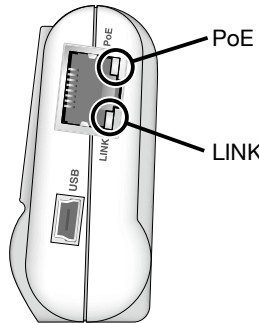
Tips Ethernet Port LEDs

PoE

The LED turns ON or OFF to indicate the power source.

- ON (green): Power supply from PoE or USB bus power (external power supply)
OFF: Power supply from battery only

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 PoE or USB as the power supply, the data logger itself generates heat and internal sensor of the TR-71nw will report a higher temperature than actual; we recommend using an external temperature sensor. Note, that when an external sensor is used close to the TR-7nw Series, it may be affected by the heat from the device.

LINK

The LED flashes green to indicate the device is communicating with a hub or another network device.

* For both the device and the hub, the LINK lamp only turns on while in communication.

Tips T&D Data Server

"T&D Data Server" is a program for your PC, which receives and stores data recorded by TR-7wf/nw Series data loggers to user-specified folders.

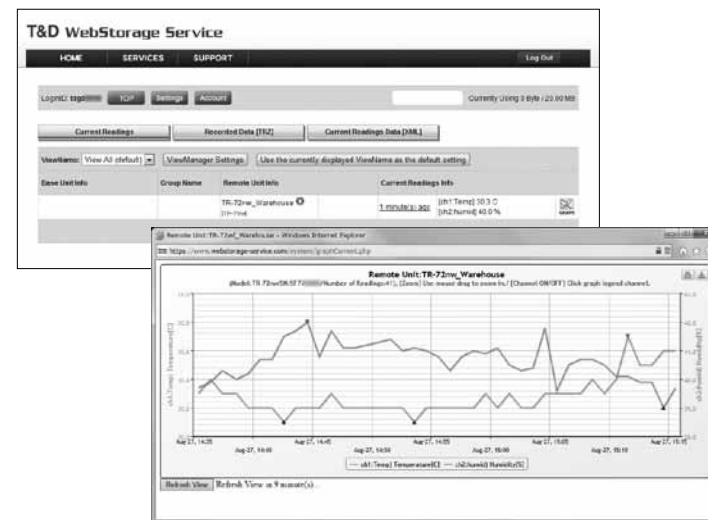
When you wish to have recorded data automatically uploaded to your server rather than "T&D WebStorage Service", please use "T&D Data Server".

Download from :

<http://www.tandd.com/support/download/software/>

Tips T&D WebStorage Service

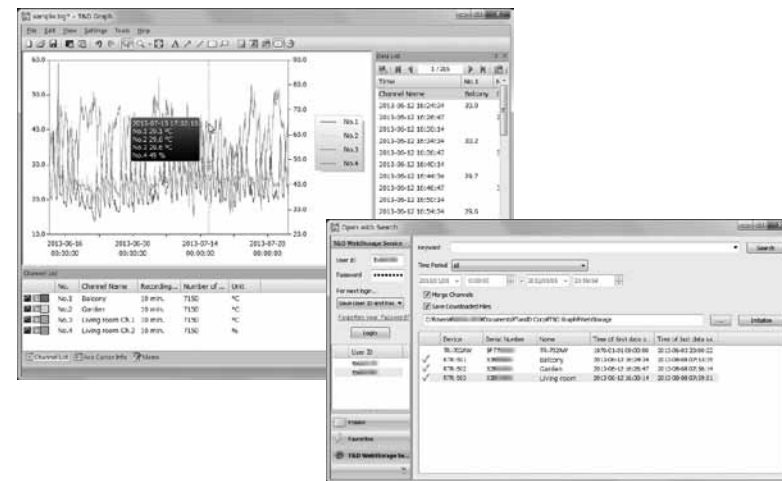
"T&D WebStorage Service" is a free web-based cloud storage service provided by T&D Corporation. By uploading recorded data to "T&D WebStorage Service", it is possible to access your important data from anywhere in the world at any time you wish.



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

Tips T&D Graph

"T&D Graph" is a software program which enables the viewing of recorded data in graph form, no matter 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. It is also possible to save the graph and data info as displayed in "T&D Graph".

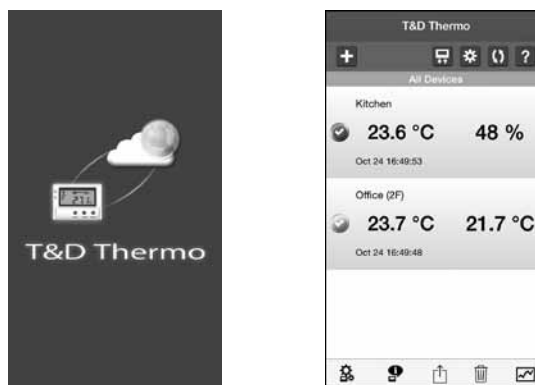


Download from :

<http://www.tandd.com/support/download/software/>

Tips T&D Thermo

"T&D Thermo" is a mobile app that allows easy access to "T&D WebStorage Service" from your mobile device, where you can view data uploaded to the "T&D WebStorage Service" and/or change settings in the TR-7wf/nw Series devices.



The "T&D Thermo" app is available for download from the Google Play or App Store.

Specifications

	TR-71nw	TR-72nw	TR-72nw-H
Measurement Channels	Temperature 2ch (Internal 1ch / External 2ch)	Temperature 1ch, Humidity 1ch (External)	Temperature 1ch, Humidity 1ch (External)
Sensor	Thermistor	Thermistor	Polymer Resistance
Measurement Units	°C, °F	°C, °F	°C, °F
Measurement Range	-10 to 60°C (*1)	0 to 55°C	-30 to 80°C
Accuracy	Avg. ±0.3°C [-20 to 80°C] Avg. ±0.5°C [-40 to -20°C / 80 to 110°C]	±0.5°C	±0.5°C [at 25°C, 50%RH]
Measurement Resolution	0.1°C	0.1°C	0.1°C
Responsiveness	Thermal Time Constant: Approx. 75 sec. Response Time (90%): Approx. 190 sec.	Response Time (90%): Approx. 7 min.	Response Time (90%): Approx. 7 min.
Logging Capacity	8,000 data sets (One data set consists of readings for all channels in that type of unit.)		
Recording Interval	Select from 15 choices: 1, 2, 5, 10, 15, 20, 30 sec. or 1, 2, 5, 10, 15, 20, 30, 60 min.		
Recording Mode	Endless (Overwrite oldest data when capacity is full) or One Time (Stop recording when capacity is full)		
Auto-upload Interval	Select from 15 choices: OFF (No auto-upload), 1, 2, 5, 10, 15, 20, 30 min. or 1, 2, 3, 4, 6, 12, 24 hrs.		
Communication Interfaces	Wired LAN Communication 100BASE-TX/10BASE-T (RJ45 Connector) Protocol: HTTP(*3), DHCP, DNS USB Communication USB 2.0 (Mini-B Connector)		
Power(*4)	AA Alkaline Battery x 2 (AA Ni-MH batteries may also be used), USB Bus Power (5V 200mA), AC Adaptor (AD-05A2 or AD-05C2), PoE IEEE 802.3af		
Battery Life (*5)	With wired LAN communication: Approx. 10 days to 1.5 years (Ex: Approx. 10 days when Auto-upload Interval is 1 min, 1 yr when 1 hr, 1.5 yrs when 12 hrs or more) Without wired LAN communication: Approx. 1.5 years		
Dimensions	H 58 mm x W 78 mm x D 26 mm		
Weight	Approx. 110 g (including batteries)		
Operating Environment	Temperature: -10 to 60°C (*6) Humidity: 90%RH or less (no condensation)		
Software	TR-7wf/nw for Windows / T&D Graph / T&D Data Server / T&D Thermo		
Compatible OS (*7)	TR-7wf/nw for Windows / T&D Graph / T&D Data Server (For PC) Microsoft Windows 10 32 / 64 bit Microsoft Windows 8 32 / 64 bit Microsoft Windows 7 32 / 64 bit Microsoft Windows Vista 32 bit (SP1 or later) T&D Thermo (For Mobile Devices) Android OS, iOS (For the compatible versions, please refer to our website.)		
Display Languages (*8)	English		

- *1: When using the AC adaptor,PoE or USB as the power supply, the data logger itself generates heat and internal sensor will report a temperature much higher than ambient; we recommend using an external temperature sensor in this case.
*2: When used in environments where temperature and humidity are over the values of 50°C 75%, 60°C 50%, 70°C 35%, and 80°C 25%, sensor hysteresis may fluctuate by values greater than ±1.5%RH. Under certain circumstances, it may take some time to return to normal measurement capability.
*3: HTTP client. Proxy supported.
*4: When using the AC adaptor, PoE or USB as the power supply, the internal temperature of the logger rises.
*5: Battery life varies depending upon multiple factors including frequency of communication, LAN environment, ambient temperature, recording interval, and battery performance. All estimates are based on operations carried out with a new battery and are in no way a guarantee of actual battery life.
*6: -10 to 45°C when using external power (PoE or USB).
*7: For installation, it is necessary to have Administrator (Computer Administrator) rights.
*8: We recommend using an operating system in the same language as the display language. Operation in different languages is not guaranteed.
The specifications listed above are subject to change without notice.

Troubleshooting and Detailed Info

Support information is available on the T&D Website. Please access the following URL:

<http://www.tandd.com/support/>

FAQs: <http://www.tandd.com/m/smartdevice/faq/7wf/>



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