T&D Recorder for Windows (TR-5,7xU)

User's Manual

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Considerations when using this software

This manual covers the operation of the current products (TR-73U and TR-5i Series).

For the compatible device list (including discontinued models), please refer to the software page of our website.

https://tandd.com/software/tdrec-trxx.html

Cautions about Data Storage Location

When the storage location of downloaded files is the "Program Files (x86) * " folder, the files may be saved in the user's AppData folder due to the virtual store function of Windows OS.

Example:
Storage Location Setting
C:\Program Files (x86)\T&D Recorder (TR-5,7xU)
Actual Storage Location
C:\Users\(User Name)\AppData\Local\VirtualStore\Program Files (x86)\T&D Recorder (TR-5,7xU)

* If you are running a 32-bit operating system, the "Program Files" folder will be used instead of "Program Files(x86)".

Note: The AppData folder is a hidden folder. If it is not displayed, do the following to make it visible.

1. Right-click the Windows Start button and select [File Explorer].

2. Select the [View] menu > [Show], and check the [Hidden items] option.

Table of Contents

Getting Ready

What is "T&D Recorder for Windows TR-5,7xU"?

An Overview

"T&D Recorder for Windows TR-5,7xU" is a software program that enables you to easily make recording settings for our Data Loggers, download recorded data from the loggers, and then process that data into graphs, tables and/or save that data to files or print. Upon opening "T&D Recorder for Windows TR-5,7xU", a launcher program will appear with several icons lined up. By clicking on an icon, a settings / communication display for the selected type of device or a graph display will appear.

Basic Functions

Recording Settings

Settings can be made for recording conditions such as channel name, recording interval, and recording mode. By making a recording start (date and time) setting in the main unit(s), the unit(s) will begin recording at that time on that date.

Data Download

Recorded data can be downloaded from the loggers to your PC.

Note: For the TR-5i Series, it is necessary to separately purchase a Communication Port TR-50U2.

Possible to use with a mixture of device types (TR-5i Series, TR-73U)

It is possible to process recorded data from a mixture of device types.

This manual has been written using ºC as the standard unit of temperature. User's in the United States and elsewhere who would like to change the unit to Fahrenheit, can easily do so by making changes in the "Shift Unit" under "Editing the Graph".

Basic Procedures

IMPORTANT:

To make sure that the USB driver is properly installed, please follow the correct procedure as outlined here.

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Installing the software
see P.6,
```

Please follow the directions to install "T&D Recorder for Windows TR-5,7xU" .

Information on OS compatibility is available on the Software page of our website at tandd.com/software/.

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Connecting the device
For TR-73U: see P.10, For TR-51i/52i/55i: see P.11
```

Enable communication by connecting the Data Logger / Data Collector or Communication Port to the computer with a USB cable.

Once the USB cable is connected, the USB driver will automatically be installed.

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Making Recording Start Settings
For TR-73U: see P.14, For TR-51i/52i/55i: see P.22
```

IMPORTANT:

Before making [Record Start] Settings make sure that your computer clock settings are correct. If your computer's clock is not correct, it will effect the date and time of the recording start.

▼

```
Downloading Recorded Data
For TR-73U: see P.16, For TR-51i/52i/55i: see P.24
```

Before downloading it is possible to make settings in the [Detailed Settings] to specify the what kind of processing should be done with the data after downloading, i.e. open a Graph or assign a file name and save.

IMPORTANT:

Before making Downloading Data make sure that your computer clock settings are correct. If your computer's clock is not correct, it will effect the date and time of the data being downloaded.

Installing the Software

Download "T&D Recorder for Windows TR-5,7xU" and "T&D Graph" from the T&D Website and install to your PC.

https://tandd.com/software/

After installation, "T&D Recorder for Windows TR-5,7xU" and "T&D Graph" will appear in the Windows Start Screen or Start Menu.

- If you have no internet access or prefer to install using a software DVD, "T&D Software SO-TD1" is also available as an option.
  Please contact your distributor for details. (tandd.com/purchasing/)
- For details about operations please see the "Help" menu in the software.

T&D Graph

T&D Graph is a user-friendly Windows software which brings users effective tools for the management and analysis of data recorded by T&D Data Loggers. It contains a variety of useful functions including the ability to read, merge, display, and save multiple recorded data files* regardless of the model.

* Note: RVR-52 event data is not supported.

If the downloaded data file is not associated with T&D Graph, refer to "Troubleshooting" on P.36.

Operating the Software

Opening the Software
Open the program from "T&D Recorder for Windows TR-5,7xU" in the Windows Start Menu or Start Screen.

Launcher Window
Upon opening "T&D Recorder for Windows TR-5,7xU", a launcher window in which icons are displayed will appear. By clicking an icon, the graph, settings, and/or communication screen for that type of unit will be displayed.

Menu Bar
[Commands are contained in the Start menu, Date Display menu, and Help menu.

Icons
By clicking on an icon, the graph or communication display will appear for that type of unit. The graph and communication displays for each type of unit can also be viewed by clicking on that unit's type name in [Start] of the [Menu] Bar.

Quick Start (TR-73U / TR-50U2)
When Windows is started, the [Quick Start] will be automatically started. When a TR-50U2 or TR-73U Series device is connected to your computer, the Quick Start will make a search and automatically open the application.
Please see below for how to quit the Quick Start function and how to restart it again.

Quitting from the Taskbar

1. Click the Quick Start icon in the Task tray to view the popup menu; in the popup menu click on [Quick Start Settings] .

2. Place a check next to [Do not use "Quick Start] and click the [OK] Button.

Re-start from the Start Menu or Start Screen

In the Window's Start Menu, from the list of programs click on [T&D Recorder for Windows (TR-5,7xU)] - [Quick Start] to restart the application. In the Start Screen, click on [Quick Start] directly. .

Quit / Start from each application

1. Click on one of the icons (TR-73U, TR-51i / 52i or TR-55i) in the Launcher Window.

2. Click [Software Settings] in the [Settings] Menu.

3. Remove the check mark from next to [Upon Connecting a Thermo Recorder, open the software program.]

With no checkmark: Quick Start will be disabled
With a checkmark: Quick Start will be enabled

4. Click the [OK] Button.

Help

Detailed information on the software can be found in the Software Help Menu.

See the [Help] Menu of the software for more detailed information about how to use the software.

To search for unclear words or terms, click the [Help] Menu that appears in the [Menu] Bar and then click on one of the tabs [Contents], [Index] or [Search].
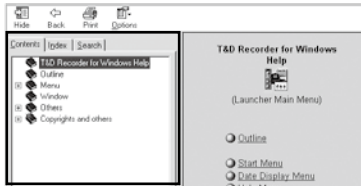
[Contents] Tab

By clicking the mark of the classified topic, an explanation will be displayed.

[Index] Tab

Select a key word from the key word list and by clicking the [Display] Button, the explanation will be displayed.

[Search] Tab

Enter the key word you wish to search for and click the [Start Search] Button and the topic in which the key word is included will be displayed. Then select the topic and click the [Display] Button to have the explanation displayed.

- Click on the [Help] Button in any dialog box and explanations about the dialog box will be displayed.
- In the graph display window, after clicking on the [ ] in the toolbar, you can click on any Menu, any Icon, or any part of the Main window and an explanation will be displayed.

"Help for Unit Recognition Failure"

This contains information about how to check whether the USB driver has been properly installed.

About "T&D Recorder for Windows"

This shows the Version Info for the software.

Date Display Format Settings: [Date Display] Menu

The date format chosen will be applicable for all sections of the software including graphs and setting displays.
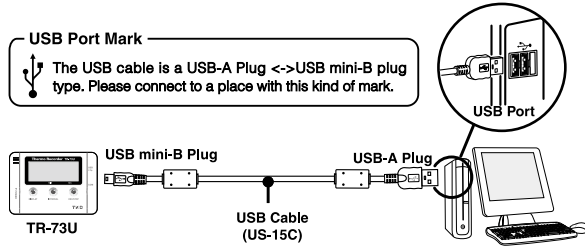
1. In the [Date Display] Menu, select [Format Settings] .

2. Check either [Month / Date / Year] or [Date / Month / Year] .

3. By clicking the [OK] Button, the setting will be completed.

Connecting the Data Logger to the Computer

For TR-73U with USB Communication

Connect the TR-73U to your computer with the USB Communication Cable (US-15C).

If necessary, serial communication can be established by using our TR-73U communication protocol (contact your local distributor) to write a software program. In this case, it will be necessary to connect to your computer using our optional serial communication cable (TR-07C). Please contact your local provider for more details.

USB Port Mark
The USB cable is a USB-A Plug <->USB mini-B plug type. Please connect to a place with this kind of mark.

USB Port

USB mini-B Plug   USB-A Plug

TR-73U   USB Cable (US-15C)

IMPORTANT:
- If the place of connection is incorrect, communication will not occur.
- To ensure proper communication, make sure that the communication cable connection is secure.

For TR-51i/52i/55i with Optical Communication

1. Connect the Communication Port (TR-50U2) to your computer using the provided communication cable.

USB Port Mark
The USB cable is a USB-A Plug / USB mini-B plug type. Please connect to a place with this kind of mark.

USB Port

USB mini-B Plug   USB-A Plug

Communication Port
TR-50U2   USB Cable (US-15C)
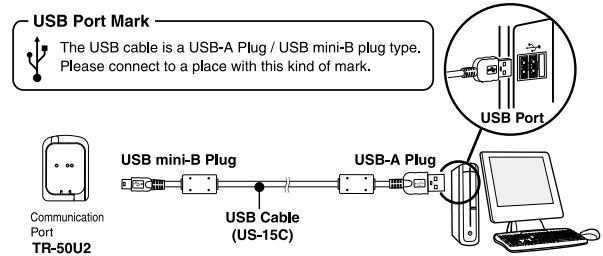
2. Place the Data Logger on top of the Communication Port device as shown in the figure, making sure that the optical communication spots are aligned properly.

Place the Data Logger face down

Communication cable connected to your computer
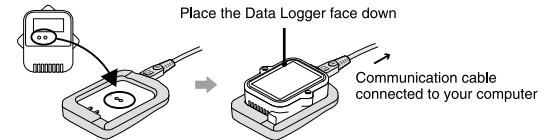
Setting Up the Communication Port
(TR-5i Series)

Settings for both USB and serial port can be made from the same window. It is also possible to confirm current communication settings.

IMPORTANT:
- When using TR-73U, it is not necessary to make COM Port Settings.
- When using USB, the USB driver must be properly installed for USB communication to properly work.

1. Connect the device to your computer via USB cable.

2. Open the appropriate application for the type of device being used.

3. In the [Communication] Menu open [Communication Port Settings].

For an Automatic Search

Check "Communicate via USB", and click the "Auto Detect" button.

Basic Function for TR-73U

TR-73U: Display Names and Functions

Menu Bar

Commands are contained in the File menu, View menu, Communication menu, Settings menu, and Help menu.

Toolbar

The commands that are used most frequently have been arranged as buttons.

Device and Device Propertie

TR-73U connected to the computer by USB cable will be displayed as icons and information here. In order to make recording settings or download recorded data, it is necessary to first select a device from the device list.

Settings Tab

By clicking on the [Download Recorded Data] Tab or the [Start Recording] Tab, you can open the settings display for that function.

TR-73U: Starting Recording

Connect a TR-73U to your computer so that communication can occur. Please make sure that your computer clock settings are correct.

[Start Recording] Tab

IMPORTANT:
- Please see P.10 for more information about how to connect. The first time you connect it is necessary to install the USB device driver.
- Before making [Record Start] Settings make sure that your computer clock settings are correct. If your computer's clock is not correct, it will effect the date and time of the recording start.
- Note: By starting a new recording session, all stored data will be deleted from the device.

Recording Start Date / Time

Selections from: Programmed Start / Immediate Start

Programmed Start: Recording will start on the specified date and time.
Immediate Start: Recording will start immediately upon completion of settings.

Recording interval

Select from: 1, 2, 5, 10, 15, 20, 30 seconds 1, 2, 5, 10, 15, 20, 30, 60 minutes

Recording Mode

Selections from: One-time / Endless

One-time: When the possible number of recorded data readings (8,000 readings per channel) is reached, recording stops.
Endless: When the possible number of recorded data readings is reached, the oldest data is overwritten and recording continues.

Device Name / Channel Name

Make settings for each data logger concerning the device names and channel names.

Device Name: Up to 32 characters
Channel Name: Up to 16 characters

[Start Recording] Button

Click to send the settings to the data logger and start recording. Once the recording has started, disconnect the device from the PC and place it at the measurement location.

[Stop Recording] Button

Clicking this Button will stop a recording session already in progress.

[Receive Settings] Button

Clicking this will allow you to view recording condition settings and recording status information from the data logger.

TR-73U: Downloading Recorded Data

Connect a TR-73U to your computer so that communication can occur.

[Download Recorded Data] Tab

IMPORTANT:

Before making Downloading Data make sure that your computer clock settings are correct. If your computer's clock is not correct, it will effect the date and time of the data being downloaded.

[Download] Button

Click the [Download] Button to begin downloading data.

[Detailed Settings] Button

Make settings about how to process downloaded recorded data. If you wish to automatically display the graph upon the completion of downloading, click the [Detailed Settings] Button to make such a setting.

Graph Display Settings

By checking here, the graph for the downloaded data will automatically appear after downloading is completed.

If the number of channels exceeds 8, it cannot be displayed automatically.

Please open from a data file or use T&D Graph.

File Name Settings

You can choose to save downloaded data using a default file name or by assigning a name each time.

You can specify the type of default file name under [File] – [File Names and Folders]. For more information about [Detailed Settings] see next page.

TR-73U: Other Functions

[File] Menu

Open Temp / Humidity Graph

Opens the Temperature / Humidity Graph.

File Names and Folders

Specify how you wish the files to be named upon downloading recorded data. Also you can select in which folder to use to save data for each device.

1. Check which type of file name you wish to use to save data.

   Default File Name Settings

   Example:

   Device Name: Refrigerator / Serial No.: 00001234 / Date and Time: 2023/05/12(yyyy,mm,dd)at 14:30:15 / with Data Format Extension: TRX

Device Name+Date / Time:	Refrigerator_20230512_143015.trx
Internal ID+Date / Time:	00001234_20230512_143015.trx
Device Name+ Internal ID+Date / Time:	Refrigerator_00001234_20230512_143015.trx
Date / Time+Device Name:	20030512_143015_Refrigerator. trx
Date / Time+Internal ID:	20230512_143015_00001234.trx
Date / Time+Device Name + Internal ID:	20230512_143015_Refrigerator_00001234.trx

2. Click the name of the device and then click the [Select Folder] Button.

3. The [Browse Folders] dialog box will appear where in you can select the folder into which you wish to save the data, then click [OK].

4. A [Data Folder] will then appear under Device Properties in the Main Window.

   The default setting will create and save data to a folder with the device's serial number in the same folder where T&D Recorder for Windows was installed.

[View] Menu
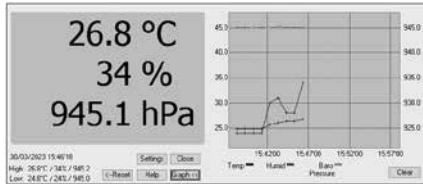
Large Icon / Small Icon:

Changes the icon size in the Device List between large and small.

[Communication] Menu

Monitor Current Readings

You can monitor at set intervals the current readings of Data Logger or loggers selected from the device list and have those readings displayed.

[Settings] Button
This opens a window where settings can be made for the display colors and the monitoring interval for current readings.

[Close] Button
Quit the Monitoring of Current Readings.

[Reset] Button
Click to reset the display for highest and lowest measurements; the new display will show highest and lowest measurements from the time of resetting.

[Graph] Button
Click this to hide or view the graph.

[Clear] Button
Clicking this will clear the graph and a new graph will be drawn from that point.

Search for TR-73U

If a TR-73U is connected, but does not show up in the Device List, click this to search for Thermo Recorders by scanning the USB ports.

[Settings] Menu

Device Name Settings

Device Name and Channel Name can be changed without starting recording.

1. Enter a name.
   Device Name: up to 32 characters
   Channel Name: up to 16 characters

2. By clicking the [Send Settings] Button, the changes will be completed.

LCD Display Settings

Settings can be made for the Thermo Recorder's LCD display, such as, changing the temperature unit and turning the display on or off.

Temp. Unit in Display
Check either Celsius or Fahrenheit.
By clicking the [Send Settings] Button, the changes will be completed.

LCD Display Pattern
You can select from 4 patterns:
Alternate display among Ch.1, Ch.2 and Ch.3, Display Ch.1 only, Display Ch.2 only or Display Ch.3 only.

Adjustment Settings

By setting adjustment values beforehand, you can record and display the post- adjusted measurement values.

> *IMPORTANT:*
> - We cannot guarantee that after carrying out adjustment the measuring accuracy will improve for all measuring ranges.
> - If you want to make adjustments to a sensor that has already been adjusted, initialize the setting first.
> - When a sensor is replaced, it is necessary to re-make any desired adjustment settings before using the new sensor.
> - When you are carrying out adjustments and formulating equations, please take care with the settings and take personal responsibility for the process.

1. Open Adjustment Settings from the [Settings] menu. Check the channel you wish to adjust.

Note: The recording needs to be stopped first.

2. Place a checkmark next to either [1 Point Adjustment] or [2 Point Adjustment] and enter the [Before] and [After] values.

Refer to the Adjustment Guidelines on P.34.

3. By clicking the [Send Settings] Button, the adjustment settings will be completed.

You can check the settings log at the bottom of the settings window. The current Adjustment setting values will also appear in the main window in the TR-73U's properties box.

[Initialize] Button

This returns the control settings back to their original factory default settings.

[Save File] Button

Assign a name to the adjustment setting values and save them to a file.

[Read File] Button

Read adjustment setting values from a saved file.

Software Settings

General software settings for TR-73U can be made here.

Upon connecting a Thermo Recorder, open the Software Program

This setting opens the software program upon the connection of a TR-73U unit via USB cable. If the setting is ON, the Quick Start Program will periodically communicate with the device driver and upon the detection of a USB connection will open the main software program.

For more details about [Quick Start] and how to quit it, see P.7.

1. Place a check next to [Upon connecting a Thermo Recorder, open the Software Program].

With no checkmark: Quick Start will be disabled
With a checkmark: Quick Start will be enabled

2. Click [OK] to complete the setting.

Temp. Unit to be displayed in Software Program

Select whether to use Celsius or Fahrenheit as the displayed unit of temperature when monitoring current readings and using the adjustment function.

1. Check either unit of temperature (Celsius or Fahrenheit).

2. Click [OK] to complete the setting.

3. After completing settings, please close the TR-73U program and reopen it to make settings effective.

Basic Function for TR-5i Series

TR-51i/52i/55i: Starting Recording

Connect the Data Logger you wish to make settings for to your computer.
For details about connecting to your computer, see P.11.

[Start Recording] Tab

IMPORTANT:
- If the computer system clock is incorrect, a programmed recording start may not start properly. Please make sure that your computer clock settings are correct.
- By starting a new recording session, all stored data will be deleted from the device.

Recording Start Method

Selections from: Programmed Start / Immediate Start.

Programmed Start: Recording will start on the specified date and time.
Immediate Start: Recording will start immediately upon completion of settings.

Recording Interval

Select from: 1, 2, 5, 10, 15, 20, 30 seconds 1, 2, 5, 10, 15, 20, 30, 60 minutes
(Default setting is 10 min.)

Recording Mode

One-time: Upon reaching the storage capacity of 16,000 readings, the word [FULL] will appear on the LCD display and recording will automatically stop.
Endless: Upon reaching the storage capacity of 16,000 readings, the oldest data is overwritten and recording continues.

The estimated finish date and time of recording in One-time mode will be automatically calculated from the set recording interval and starting time.

Channel Name

By placing a check in the [Set] box, you can enter a channel name with up to 8 characters.

Unit of Temperature

Selections from: Celsius (ºC) or Fahrenheit (ºF) .

Change the display of temperature on the data logger between ºC and ºF.

Infrared Comm.

Forbid: Infrared Communication will not be possible.
Permit: Infrared Communication will be possible.

- If you are using TR-57DCi (Discontinued) and do not wish to use infrared communication, we suggest selecting "Forbid". (Battery life will be longer.)
- Forbid / Permit settings for infrared communication can also be made from [Infrared Communication Settings] in the [Communication] menu.

[Start Recording] Button

Use this button to send the settings to the data logger and start recording. Once the recording has started, disconnect the device from the PC and place it at the measurement location.

[Receive Settings] Button

Use this button to read the settings from the connected Logger.

[Stop Recording] Button

Use this button to stop recording.

[Warning Settings] Button (TR-51i/52i)

Use this button to make warning settings on the TR-51i or TR-52i. (See P.25).

[Detailed Settings] Button (TR-55i)

Use this button to configure the TR-55i detailed settings such as the sensor type, recording method, etc. (See P.26)

TR-51i/52i/55i: Downloading Recorded Data

Connect the logger to your computer to download the recorded data. If the warning LED flashes on the device, you can check when the warning was issued.

For details about connecting to your computer, see P.11.

[Download Recorded Data] Tab

IMPORTANT:

Before making Downloading Data make sure that your computer clock settings are correct. If your computer's clock is not correct, it will effect the date and time of the data being downloaded.

[Download] Button

Click the [Download] button to start downloading.
If necessary, you can specify the range of data to be downloaded by checking the [Specify Data by time] checkbox.

[Detailed Settings] Button

Settings can be made for the data processing method after downloading.

After downloading, automatically show graph.
Downloaded data will be automatically saved into a file, and the graph will appear.
File names cannot be specified.

After downloading, specify file in which to save data.
The [Save File] dialog box will appear after downloading, where you can assign a name to the file to be saved.
Graph will not be displayed.

After downloading, specify file name and automatically show graph.
Downloaded data will be saved into a specified file, which can then be automatically viewed in graph form.

Automatically save file.
Downloaded data will be automatically saved into a specified folder.
Click the [Browse for Folder] button to select the folder you wish to save the data into.
If the folder has not been specified, the file will automatically be stored to the same folder into which the application was installed.

[Warning Times] Button

Check the warning occurrence time of the device with the warning LED indication. (See P.29)

TR-51i/52i: Warning Monitoring Settings

By clicking the [Warning Settings] button in the [Start Recording] tab, the settings window will appear. Place a check in the [Set Limits] box after entering the Upper and Lower Limits and the Judgment Time.

IMPORTANT:

If these settings are made in an environment where one of the limits is being exceeded and recording is started, the monitoring function will enter "wait" mode. Once a measurement returns to within the set limits, the monitoring function will begin to operate.

Upper Limit / Lower Limit

The Upper / Lower Limits can be set in a range from -60 ºC to 155 ºC.

When you wish to change the unit of temperature, go to the [Settings] Menu, open the [Software Settings], and edit temp. unit.

Judgment Time

Selections from: 10, 15, 20, 30 seconds or 1, 2, 5, 10, 15, 20, 30, 60 minutes.

A warning occurs when a measurement exceeds one of the set Upper / Lower Limits for longer than the time set as the Judgment Time. The warning LED will flash and a warning message will appear on the LCD screen.

TR-55i: Detailed settings and Warning Monitoring Settings

The [Detailed Settings for Recording Start] window will appear with different setting items depending on the measurement item.

After having made the necessary settings, click the [OK] button. You will be returned to the [Start Recording] Tab Window. By clicking the [Start Recording] button, the settings will be transmitted to the Data Logger.

Sensor Type (TR-55i-TC / 55i-Pt)

Select the type of sensor to be used for the measurement.

When you replace with a different type of sensor, make sure to change this setting before starting the measurement/recording.

Recording Method (TR-55i-V / 55i-mA)

Select the recording method to be used by the Data Logger.

Instantaneous Value:
> Records the instantaneous value at the set recording interval.

Average Value:
> Records the value as the average of the measurements taken during the set recording interval.

Measurement Range (TR-55i-V)

Select the range to be used for measurement and in the display of the Data Logger.

V: Measurement range for the Input Module is set to V Range. The LCD for the TR-55i-V can display from 0.000V to 22.00V (auto decimal point).

mV: Measurement range for the Input Module is automatically switched from "mV Range" to "V Range" depending on the measurement. Input voltage range in the TR-55i-V LCD is 0.0mV to 999.9mV (fixed decimal point).
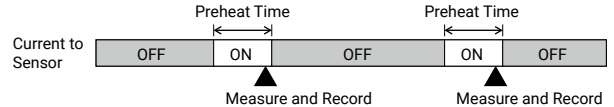
Preheat / Preheat Time (TR-55i-V)

Select whether to use the preheat function or not. For details about the preheat function, see below. When using the preheat function, make settings for the length of time to send current to the sensor. See below for details.

What is the Preheat Function?

Preheat is a function which allows the Data Logger to control power to the connected sensor. It transmits a preheat signal that is synchronized with the recording interval to turn sensors ON before and OFF after measuring and recording.

What is the Preheat Time?

When using the preheat function, this stands for the length of time to send current to the sensor before measurement and recording is set to occur. Setting the preheat time to a value that is equivalent to or longer than the recording interval will supply current to the sensor at all times.

IMPORTANT:
- When using the preheat function, the LCD display will be refreshed based on the recording interval set in the Data Logger (because sensors only carry out measurement at the set recording time).
- The necessary preheat time varies depending upon the sensor to be used; please check the specifications of the sensor before making settings for the preheat time.

Pulse Signal Type (TR-55i-P)

Make settings for the pulse signal type to be recorded.

Rising: Records the number of rising pulses during the set recording interval.

Falling: Records the number of falling pulses during the set recording interval.

LCD Display (TR-55i-P)

Make settings for the display method for what value is to be shown in the LCD of the Data Logger.

Pulse Rate: Displays the most recent pulse count in the amount of time set as the recording interval. The display will be refreshed every one-sixtieth of the recording interval. (When the recording interval is less than one minute, the refresh interval will be one second.)

Total Pulse Count:
> Displays the cumulative number of pulses from 0 to 9999. The displayed count will be refreshed every one second, and upon exceeding 9999, the count will start over again from 0.

Chattering Filter (TR-55i-P)

Select whether or not to use the filter circuit for the chattering which occurs due to changes in polarity.

Warning Monitoring

The setting items vary depending upon the measurement item.

If these settings are made in an environment where one of the limits is being exceeded and recording is started, the monitoring function will enter "wait" mode. Once a measurement returns to within the set limits, the monitoring function will begin to operate.

Upper Limit / Lower Limit
The possible setting range varies for each sensor. If the entered value is outside the acceptable range, a warning message will appear.

Warning Judgment Time
Selections from: 10, 30 sec. or 1, 2, 5, 10, 15, 20, 30, 45, 60 min.

A warning occurs when a measurement exceeds one of the set Upper / Lower Limits for longer than the set Judgment Time. The warning LED will flash and a warning mark will appear on the LCD screen.
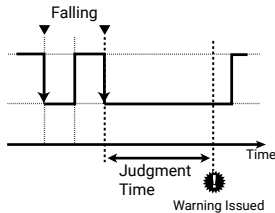
Target Item for Warning Monitoring (TR-55i-P)
Select the target item from Pulse or Event (rising or falling) and Judgment time for warning monitoring.

TR-51i/52i/55i: Checking and Clearing Warning
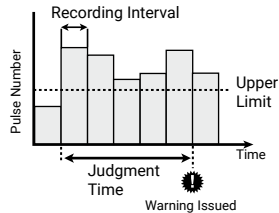
By clicking the [Warning Time] button in the [Download Recorded Data] tab, the Warning Time window will appear where you can check the time of the warning or clear the warning.

The Warning Time window can also be opened from the [Communication] menu.

IMPORTANT:

Even if more than one warning occurred, only the first one will be shown in the most recent list.

[Receive most recent time] Button
It is possible to check warning times in the [Warning Occurrence Times] Column.

[Clear Occurrence Times from Main Unit] button
It is possible to complete the removal.

The warning LED can also be cleared by downloading the recorded data or by starting recording on the device.

TR-51i/52i/55i: Adjustment Settings

Adjustment is a function used to make adjustments to Remote Unit measurements. By making adjustments to measurements, the adjusted measurements will be displayed and recorded.

IMPORTANT:

- We cannot guarantee that after carrying out adjustment the measurement, accuracy will improve for all measuring ranges.
- If you remove a sensor that was connected when adjustment was carried out and then connect a different sensor, make sure to make new adjustment settings to reflect the actual situation.
- When making "Adjustment Settings" for the TR-55i, 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.
- If new adjustment settings are made on already adjusted values, the probability of measurement errors will increase. Make sure to click the [Initialize] button before making any new adjustment settings on already adjusted values.
- When you are carrying out adjustments and formulating equations, please take care with the settings and take personal responsibility for the process.

1. Connect the Data Logger to your computer. (See P.11)

2. In the [Communication] Menu, click [Adjustment Settings] to open the settings window.

3. Check the Method of Adjustment: [1 Point Adjustment] or [2 Point Adjustment].
1 Point Adjustment: Use when measuring in a range of ±20ºC.
2 Point Adjustment: Use when measuring in a wide range.

4. Enter the actual measurement before adjustment in the [Before] box and the desired measurement after adjustment in the [After] box.
For "Adjustment Guidelines", see p.34.

5. By clicking the [Send Settings] button, a confirmation message will appear. Then click the [OK] button to transmit the adjustment settings.

[Initialize] Button

Clears any previous adjustment equation(s) and initializes the device.

[History] Column

The latest 4 adjustment history records will be displayed. The records show the date and time that adjustment settings were made, the adjustment point(s), and the values for "Before" and "After" adjustment.

TR-55i-V/mA/P: Scale Conversion

Settings can be made here when measuring Voltage, 4-20mA, or Pulse with the TR-55i.

This is the equation to be used for scale conversion. If desired, a string of characters can be input directly to show the "Unit of Measurement" for the value after scale conversion.

Connect the device to your computer and open [Scale Conversion] from the [Communication] menu.

IMPORTANT:

The TR-55i LCD will not reflect changes in the value or unit of measurement after conversion.

Convert by using the equation: y=ax+b

Select this when the values for both the slope (a) and intercept (b) for the conversion equation are already known.

Enter these values in the equation where "x" is the actual input value (in V, m-A, or Pulse) from the sensor and "y" is the result of the conversion (in the specified unit).

IMPORTANT:

Make sure that the slope and intercept are values between –9,999 and +9,999. It is possible to enter decimals or minus values, but "zero" cannot be entered as the slope.

Convert by specifying 2 points:

Select this when both the input values from the sensor (in V, m-A, or Pulse) and the post-conversion values (in the specified unit) are known at two points. Please make settings after having consulted your sensor manual for details.

IMPORTANT:

- Make sure to enter values for the two points so that the slope and the y-intercept of the conversion equation fall within the range of –9999 to +9999.
- It is possible to enter decimals or minus values, but the slope cannot be zero. Also, make sure to make settings such that the value for "y" will fall between –80,000 and + 80,000.

TR-51i/52i/55i: Software Settings

[Settings] Menu

Upon Connecting a Thermo Recorder, open the Software Program

This setting opens the software program upon the connection of a TR-51i/52i/55i unit via USB cable. If the setting is ON, the Quick Start Program will periodically communicate with the device driver and upon the detection of a USB connection will open the main software program.

Place a check next to [Upon Connecting a Thermo Recorder, open the Software Program].

  With no checkmark: Quick Start will be disabled
  With a checkmark: Quick Start will be enabled
For more details about [Quick Start] and how to quit it, see P.7.

Temp. Unit to be displayed in Software Program

Select whether to use Celsius or Fahrenheit as the displayed unit of temperature when monitoring current readings and using the adjustment function.

After completing settings, please close the TR-51i/52i/55i program and reopen it to make settings effective.

Up to 8 channels of data can be viewed in the same graph window. Moreover, if you save the graph window using "Save As" command, it is possible to save multiple sets of data into one file.

If you want to display more than 8 channels of data or temperature/humidity/voltage/ pulse data in the same graph, install the T&D Graph software.

Graph

T&D Graph

T&D Graph is a Windows software that can be downloaded from T&D Website and used in place of Temperature / Humidity Graph and Multi-scale Graph. It contains a variety of useful functions including the ability to read, merge, display, and save multiple recorded data files regardless of the model*.

  * Note: RVR-52 event data is not supported.

Download
https://tandd.com/software/td-graph.html

For details about the functions and operations of T&D Graph, refer to the Help below.

T&D Graph Help
https://cdn.tandd.co.jp/glb/html_help/tdgraph-help-eng/

Other Graphing Tools

The following graphing tools are included in the "T&D Recorder forWindows (TR-5,7xU)" software.

For details about their functions and operations, refer to the Help for each tool. (Open the target tool and click Help in the menu bar.)

Temperature / Humidity Graph

For viewing a graph of the downloaded temperature, humidity and Barometric- Pressure data.

Multi-scale Graph

It can display graph channels with different scales simultaneously.

Other

Adjustment Guidelines

By setting adjustment values beforehand, you can record and display the post- adjusted measurement values. You can choose from two adjustment methods: 1-point and 2-point. Adjustment will be carried out using an adjustment equation of y=ax+b; where x is the pre-adjusted measurement value and y is the post-adjusted value.

1 Point Adjustment

This adjustment method changes only the offset (b) where the slope (a) is considered 1.

For example, the Data Logger is measuring 10 ºC, but the standard says the actual measurement should be 10.2 ºC. Enter 10 in the Before Adjustment box and 10.2 in the After Adjustment box. The conversion equation will be y=x+0.2 and for all measurements an adjustment to the offset of +0.2 will be made.
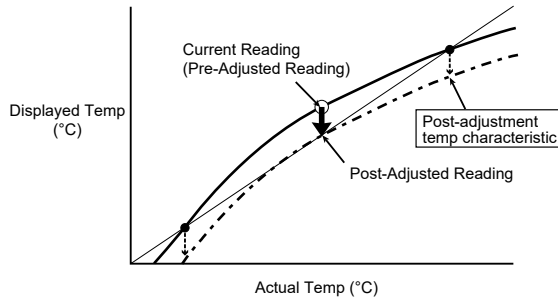
2 Point Adjustment

The adjustment equation will be calculated from two points: the slope (a) and the offset(b).

For example, the Data Logger reads 0 ºC when the standard thermometer reads 0.4 ºC, and Data Logger reads 10 ºC when the standard says the true measurement is 10.2 ºC. In this case the slope(a)is 10.2-0.4-10-0=0.98. The offset is 0.4, so the conversion equation becomes y=0.98x+0.4. The range of the slope is 0 < a ≦ 2. Entries are valid to one decimal point, but after calculation up to four digits are valid for the slope and offset.
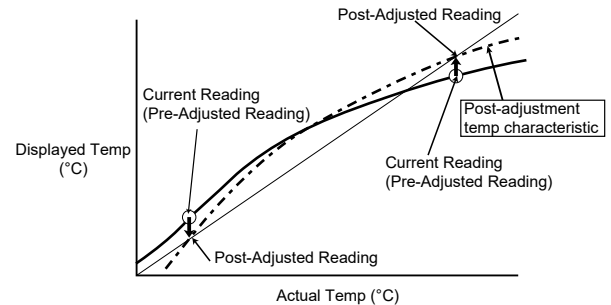
Adjustment Entries

The adjustment equation (y=ax+b) is determined by the adjustment entries. An equation with a slope (a) and/or an intercept (b) exceeding the following ranges cannot be set.

		Temp-Humidity	Voltage	4-20mA
Slope (a)	Range	0 < a ≦ 2		
	Significant Digits	4 decimal places		
Intercept (b)	Range	within ±30 °C within±30 %	within ±3 V	within ±30 mA
	Significant Digits	same as that of the data logger's measurement resolution		

Troubleshooting

Q: **The date and the time of the recorded data are different from the actual date and time of recording. Why?**

A: The Thermo Recorder has no internal clock. When you set up a programmed recording start or when you download data, the date and time that are shown are taken from your computer's clock. If your computer's clock is not correct, it will affect the recorded data.

When recording mode has been set to [Endless] and Recording Start was carried out via PC, the time for recorded data is calculated from the recording start date and time and will appear correctly in the Graph as long as recording capacity has not reached its limit. However, once data capacity has become full and the oldest data is overwritten, the date and time for downloaded data in the Graph will be calculated using the PC's clock for the latest recorded data and subtracting backward. Hence the time for the displayed data will be different from the actual time the data was recorded.

Q: **I installed T&D Graph, but the downloaded file is associated with another program and cannot be opened with T&D Graph. What should I do?**

A: Follow the steps below to change file associations.

1. In the data storage location, right-click on the graph file (.trz) and select [Properties].

2. In the General tab of the Properties window, click the [Change] button.

3. Select "T&D Graph" from the list that appears and click [OK].

If "T&D Graph" is not in the list, select "TandDGraph.exe" in the installation folder.
Default Installation Folder: C:\Program Files (x86)\T&D Graph

Caution:

For TR-73U, the recorded data cannot be automatically opened in T&D Graph even if you change file associations.

In the [Download Recorded Data] tab - [Detailed Settings] menu of this software, remove the checkmark for "After downloading, automatically display graph". Then use one of the following methods

to open data in T&D Graph.

- Double-click the file directly in the storage folder on your computer.
- After opening T&D Graph, select the desired file from the [File] menu.
- After opening T&D Graph, drag and drop the file into the graph display area.

T&D Corporation

Product Support

For support, please contact the distributor from which you purchased the
product.
A list of distributors can be found at:
tandd.com/purchasing/

Product Information

Product information can be found at:
tandd.com/product/