



T&D Recorder for Windows®

TR-5,7xU

User's Manual

Thank you for purchasing our product.
Carefully read this instruction manual
before using this unit.

Notices about this User's Manual

In order to properly use this product, please carefully read this manual before using. T&D Corporation accepts no responsibility for any malfunction of and/or trouble with this product or with your computer that is caused by the improper handling of this product and will deem such trouble or malfunction as falling outside the conditions for free repair outlined in the attached warranty.

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- Lotus® is a registered trademark of the Lotus Development Corporation.
- Specifications, design and other contents outlined in this manual are subject to change without notice.
- On screen messages in this manual may vary slightly from the actual messages.
- Please notify the shop where you purchased this product or T&D Corporation of any mistakes, errors or unclear explanations in this manual. T&D Corporation accepts no responsibility for any damage or loss of income caused by the use of our product.
- This product has been designed for private or industrial use only. It is not for use in situations where strict safety precautions are necessary such as in connection with medical equipment, whether directly or indirectly.
- We are not responsible for any malfunction or trouble caused by the use of our product or by any problem caused by the use of measurement results of our unit. Please be fully aware of this before using our product.
- Some of our products, which come under the category of strategic goods in foreign trade law, need the permission of the Japanese government to be exported outside of Japan.
- The Warranty that comes with this Manual can not under any circumstance be reissued, so please keep it in a safe place.
- The Manual itself can be downloaded from our Home Page: <http://www.tandd.com>

Software User Agreement

Escape Clauses

- Although T&D Corporation has made operational tests on our software T&D Recorder for Windows®, we cannot guarantee that all operations will work properly under all conditions.
- T&D Corporation shall not accept any responsibility for any damage, whether direct or indirect, that results from the usage of T&D Recorder for Windows.
- Specifications of T&D Recorder for Windows® may be subject to change and service may be terminated without advance notice to the user. In such a case, T&D Corporation shall not be responsible for any damages, whether direct or indirect, from the inability to use T&D Recorder for Windows®.
- T&D Corporation has no obligation to correct any defects found in T&D Recorder for Windows®.

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What is T&D Recorder for Windows®?

An Overview

T&D Recorder for Windows 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, 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.

In order to use the software, the following operational environment is necessary.

OS: Microsoft Windows® 98SE / Me (English)
Microsoft Windows® 2000 / XP (English)

PC/CPU: PC/CPU: IBM Compatible equipped with more than Pentium
90MHz or NEC 98 Series
USB Port / Serial Port (RS-232C D-sub 9pin)

Software: Microsoft Internet Explore 5.01 or higher

RAM: More than 32MB

Operating Environment: A Stable Windows Operating Environment

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.

Graph Display / Printing

- Simultaneous Display of 8 Ch. of Data
It is possible to display up to 8 channels of downloaded data in 1 graph.
- Zoom-in on Data by Mouse
By simple mouse operations, you can easily zoom in and out on data as well as change the display.
- View the High, Low, and Average Calculations for any Specified Period
Make settings to specify the calculation range you desire and view the high, low and average value for that range in each channel displayed in the graph.

Graph Printing

It is possible to print in full-color the graph as you see it on display.

Data List Display / Printing

You can view the data displayed in the graph window as a list and then choose to print.

View in Easy to Distinguish Colors

In the data list, the highest value will appear in red, the lowest in blue, and the average in pink.

Printing the Data List

It is possible to print the entire list as displayed or to select pages for printing.

Creating Text File

It is possible to convert the data for a specified range (time period) to common text file format (CSV type format), so that it can be exported to spreadsheet software such as Excel or Lotus.

Possible to use with a mixture of device types (TR-5S, TR-5 and TR-7xU)

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

This manual has been written using °C as the standard unit of temperature. Users 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".

Getting Started: Basic Operations

TR-7xU / TR-5S Series

Connecting the Unit to your Computer

Connect the USB cable and set up so that the data logger and your computer can communicate.



Installing the USB Device Driver

By installing the USB device driver, your computer will be able to recognize a TR-7xU / TR-5S unit when it is connected. For more details about how to install the driver, see the Data Loggers Hardware Manual.



Installing the Accompanying Software

After installing T&D Recorder for Windows, each time Windows is opened the [TR-71U/72U/73U/50U Quick Start] will automatically be activated. If you do not wish to use TR-71U/TR-72U/TR-73U/TR-50U either close or delete the Quick Start program. (see page 9)



Making Recording Start Settings

Before making Recording Start settings, make sure that your computer's date and time are correct. If your computer's date and time are incorrect it will have adverse effects on the starting time for recording.



Downloading Recorded Data

By making settings in [Detailed Settings] before downloading, you can specify whether or not you wish to display a graph upon downloading, as well as, specify file names for saving files.

TR-5 Series

Installing the Accompanying Software

If Quick Start is enabled, by placing a TR-5 Series Logger on top of a TR-50U to make recording settings or download data, the software will automatically be opened.

If Quick Start has been disabled, please open TR-5S from the launcher menu and carry out the desired settings and/or communication.



Connect the Main Unit to the Computer

Place the data logger in a position to enable communication with your computer.



Communication Port Settings



Making Recording Start Settings

Before making Recording Start settings, make sure that your computer's date and time settings are correct. If the date and time settings are incorrect, it will have an effect on the recording start time.



Download Recorded Data

By making detailed settings before downloading data, it is possible upon the downloading of data to automatically open the Graph or assign file names for saving.

NOTE:

- Before downloading data, make sure that your computer's date and time settings are correct. If the date and time settings are incorrect, it will have an effect on the downloading date and time.

Installing the Software

Is Windows® operating properly?

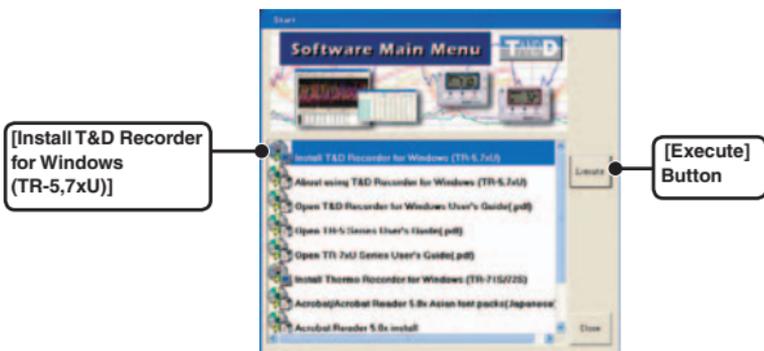
If Windows is not operating properly, T&D Recorder for Windows may not be installed correctly or it may not operate properly.

Please quit all other applications.

If other programs are open, please close and quit all of them, making sure to quit all Quick Start programs such as a virus checker.

1. Open Windows.
2. Place the accompanying CD-ROM into your CD-ROM drive. In a few seconds, the [Install Program] window will appear.

If that window does not automatically open, please open it by double clicking the CD-ROM icon in [My Computer] on your desktop.



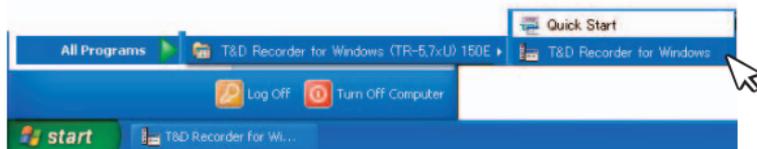
3. Select [Install T&D Recorder for Windows] and click the [Execute] button to start the installation.
4. To continue installation, follow the directions as they appear.

After installation has been completed the program [T&D Recorder for Windows] should appear in the [Start] Menu will be registered in the [Start] Menu's [Start up] Program.

Using the Software

How to Open

To open, in the Windows Start Menu, under Programs, click [T&D Recorder for Windows®].



A Launcher Program

Upon opening [T&D Recorder for Windows], a launcher program will appear with several icons lined up. By clicking on an icon, a graph display or a settings /communication display for the selected type of device will appear.



Menu Bar

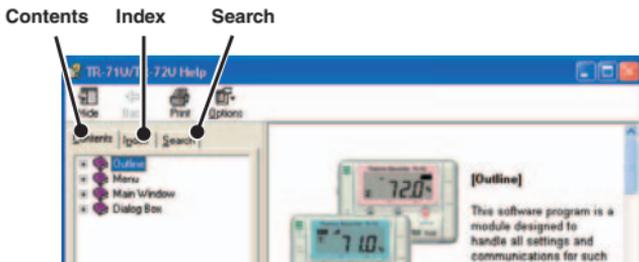
The menus along the bar contain various helpful commands. From each menu, you can select commands to view or make settings for each of the device types.

Icons

By clicking TR-71U/72U, TR-73U, TR-51A/52, TR-51S/52S and Graph icon, you can open the Settings and Communication Display. You can also open the Settings and Communication Display from the [Start] Menu in the Menu Bar.

HELP

For more detailed assistance on using the software, see the Help menu contained in the software. By clicking on [Help] in the Menu Bar and then [Search by Topic] you will find three tabs (Contents, Index, and Search) to click on to help you search for the topic you are unsure about or have questions about.



[Contents]

By clicking on the classified topic  mark you will find explanations concerning that topic.

[Index]

Select a keyword from the keyword list and by clicking the [Display] button, the explanation for that topic will appear.

[Search]

Enter the keyword you wish to search for and click [Start Search]. All topics containing that keyword will be displayed. Select a topic and click the [Display] button to display the explanation for that topic.

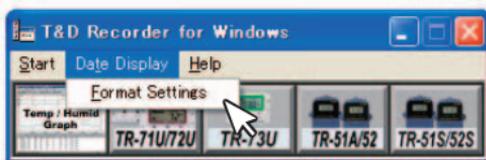
NOTE:

- By clicking on the [] button in any dialog box, the explanation for that dialog box will appear.
- By clicking the [] Toolbar in the Graph Display, you can then view explanations for menus, icons, and objects in the Main Window by clicking the question mark arrow on those items.

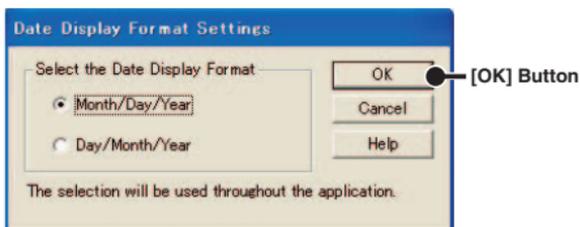
Date Display Format Settings: from the [Date Display] Menu

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.

Quick Start (TR-7U / TR-50U)

When Windows is started, the "TR-71U/TR-72U/TR-73U/TR-50U Quick Start Program" (from here "Quick Start") will be automatically started. When a TR-50U or TR-7U Series device is connected to your computer, the Quick Start will make a search and automatically open the application.

Quitting Quick Start / How to Restart Again

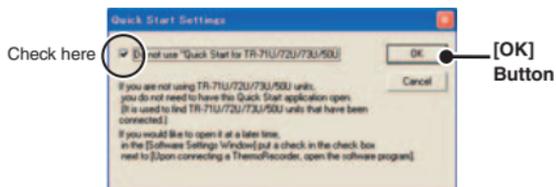
Please see below for how to quit the Quick Start function and how to restart again.

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 "TR-71U/TR-72U/TR-73U/TR-50U Quick Start"] and click the [OK] button.



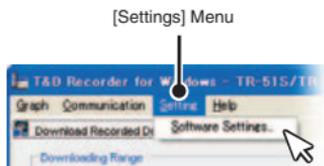
Re-start from the "Start Menu".

From the list of programs in the Window's Start Menu, click on [T&D Recorder for Windows] – [Quick Start] to restart the application.



Quit / Start from each application

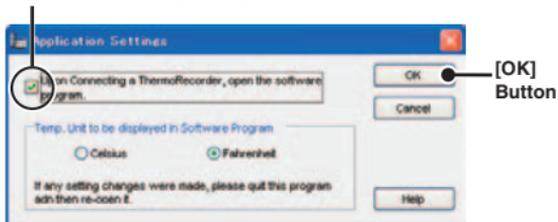
1. Click on one of the icons (TR-51S/52S, TR-71U/72U, or TR-73U) in the Launcher Window.
2. Click [Software Settings] in the [Settings] Menu.



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

With no checkmark: Quick Start will be disabled

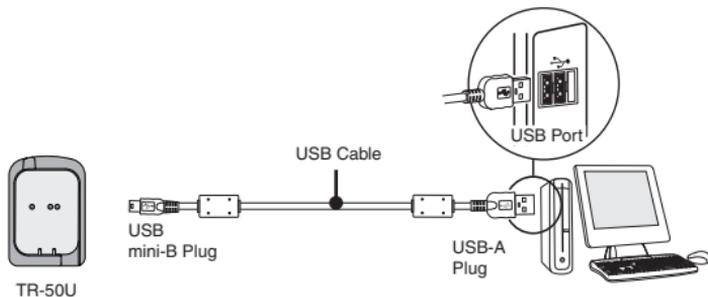
With a checkmark: Quick Start will be enabled



Connecting a Data Collection Device to the Computer

Connecting with a USB Cable

Connect the USB cable (US-15C) to your computer.



USB Port Mark



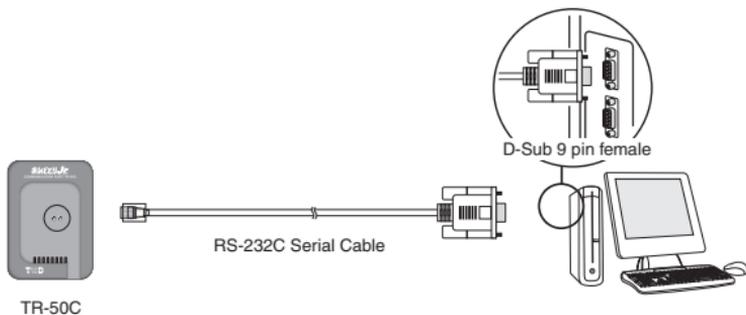
The USB cable is a USB-A Plug ⇔ USB mini-B plug type. Please connect to a place with this kind of mark.

NOTE:

- Before using, it is necessary to have installed the USB device driver. For details about the driver installation, see the User's Manual that came with the product.
- Make sure that the USB cable is inserted fully, so as not to cause an improper connection.
- Make all necessary Communication Port Settings in the Settings / Communication window for the Data Logger you are using. For details, see "Communication Port Settings" p.15-. (TR-5S has no communication port settings).

Connecting with an RS-232C Serial Cable to the Computer

Connect the serial (RS-232C) communication cable to your computer.



Examples of serial port marks



The communication cable connector is a D-Sub 9 pin female.
Connect to a place with a mark as such.

NOTE:

- Make sure to connect it to the correct place to ensure communication.
- Make sure that the cable is inserted fully, so as not to cause an improper connection.
- Make all necessary Communication Port Settings in the Settings / Communication window for the Data Logger you are using. For details, see "Communication Port Settings" p.15. (TR-5S has no communication port settings) .

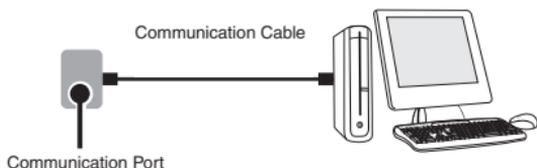
Connecting the Data Logger to the Computer

Connect the Data Logger to the computer using the appropriate method for that type of Data Logger.

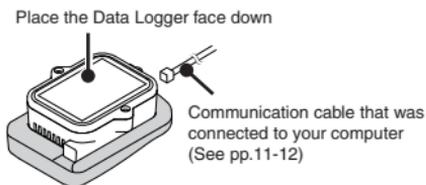
When using a Data Logger with Optical Communication

Compatible Loggers: TR-51S/52S, TR-51A/52/51

1. Connect the Communication Port to your computer using the provided communication cable.



2. Place the Data Logger on top of the Data collection device as shown in the figure, making sure that the optical communication spots are aligned properly.



When using TR-71U/72U/73U^{*1}

Connect the TR-71U/72U/73U unit to your computer with the USB Communication Cable (US-15C).

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

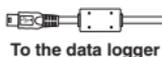
USB Port Mark



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



USB mini-B plug



To the data logger

USB A-plug



To your computer



It is necessary to install a USB device driver. Please see the Hardware User's Manual for details about installation.

NOTE:

- To ensure proper communication, make sure that the USB cable connection is secure.
- This software is designed to operate TR-71U/72U/73U units with USB connections and cannot operate the units via serial communication cables. If you wish to use serial cables to communicate with TR-71U/72U units, please install [Thermo Recorder for Windows 4.11 (E) from the CD-ROM menu and treat the units as TR-71S/72S units.* Note that communication with TR-73U via serial cable is not supported by the software.
- For more details about the use of [Thermo Recorder for Windows 4.11 (E)] please refer to the PDF file contained in the CD-ROM.

USB cable already connected to computer.



NOTE:

- To communicate with a TR-71U/72U unit via serial communication cable, please use our optional serial communication cable TR-07C.
- If the place of connection is incorrect, communication will not occur.
- To ensure proper communication, make sure that the communication cable connection is secure.

Communication Port Settings

Setting Up the Communication Port for USB Communication or RS-232C Communication. From the Main Window, open the Settings and Communication window for TR-51A/52, and click on the [Communication Port Settings] Tab.



Click

Select Serial Port

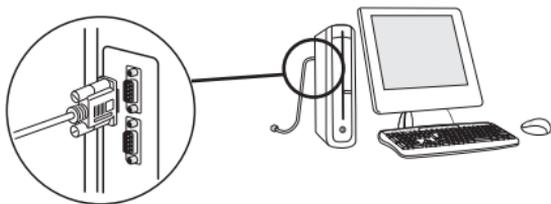
When wishing to carry out communication using a serial communication cable, please make serial port settings. Set which serial port you would like to use to communicate with the data logger. There are two methods to make the settings: [Auto-Detect] and [Select Serial Port].

Connect the serial cable to port you wish to use and then connect it to the logger.

Examples of serial port marks



The communication cable connector is a D-Sub 9 pin female. Connect to a place with a mark as such.



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

Using Auto Detect

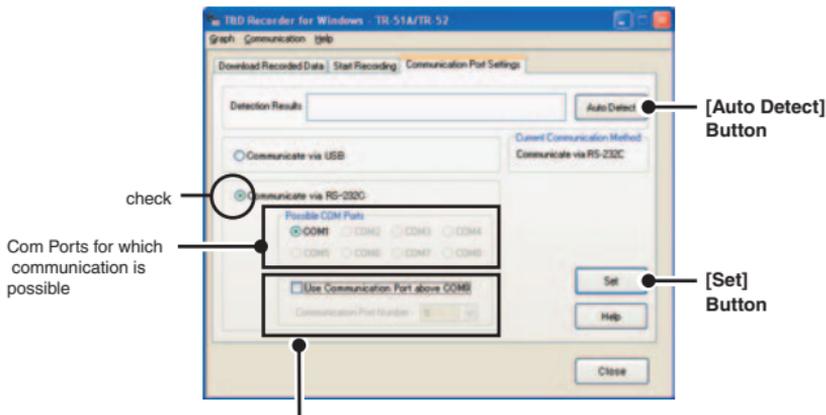
1. Click the [Auto Detect] button and searching will begin.
2. After the search has finished, a Search Results message will appear.
By clicking the [Set] button the setting will be finalized as the port to which the data logger is connected.

NOTE:

- If Auto detection does not work properly, please see [Troubleshooting] for advice.

Select Serial Port

1. Open the Settings and Communication window for the data logger you are using, and click on the [Communication Port Settings] Tab.
2. Check the COM Port you wish to use for T&D Recorder for Windows in the [Possible COM Ports] list.
3. By clicking the [OK] button the setting will be finalized.



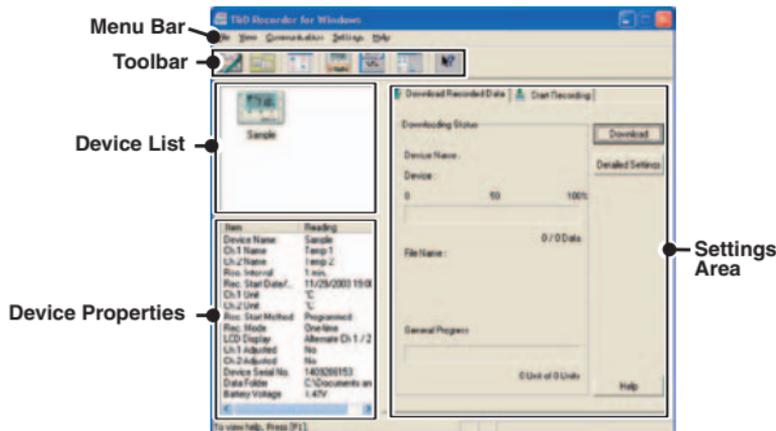
Check here, when using Communication Port above COM9

NOTE:

- When using TR-50U to make recording settings or download data, first open TR-5S and then carry out the desired settings and/or communication.
- If you are using a Data Collecting Device which has a USB interface (other than TR-50U), please place a check next to "Communicate via USB" as shown in the above screen.

TR-71U/72U/73U:Basic Functions

Display Names and Functions



[Menu Bar]

The menus along the bar contain various helpful commands. From each menu, you can select commands to view or make settings for each of the device types.

[Toolbar]

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

[Device List]

TR-71U/72U/73U units connected to the computer by USB cable will be displayed as icons here. In order to make recording settings or download recorded data, it is necessary to first select a device from the device list. The type of icon used in the display can be changed in the [View] Menu.

[Device Properties]

Information about the device selected in the device list will be displayed here. If more than one data logger has been selected no information will be displayed.

[Settings Area]

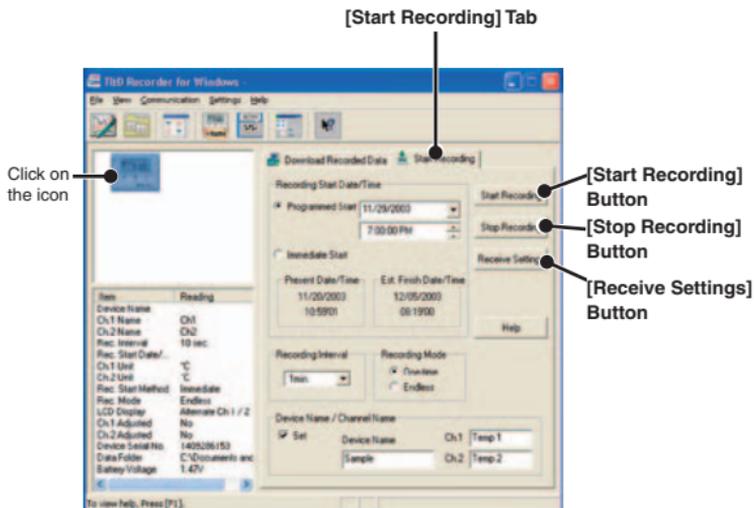
By clicking on the [Download Recorded Data] tab or the [Start Recording] tab, you can open the settings display for that function.

TR-71U/72U/73U: Starting Recording

Connect a TR-71U/72U/73U unit to your computer so that communication can occur. Please make sure that your computer clock settings are correct.

- Please see p.14 for more information about how to connect.
The first time you connect it is necessary to install the USB device driver. For information about how to install the device driver please see the TR-71U/72U/73U User's Manual.

1. In the Main Window, click on the [TR-71U/72U] or [TR-73U] icon.
2. Click on the icon of the data logger you wish to make settings for.
3. Click the [Start Recording] tab, and make the necessary settings.



Recording Start Date/Time

(Selections: 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)

Click on [▼] and select the desired recording interval from the drop-downlist.

Recording Mode

Selections: One-time/Endless

- One-time:

When the possible number of recorded data readings(8000 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 16 characters

Channel Name: Up to 8 characters

4. After having completed the recording conditions settings, transmit the settings to the data logger by clicking the [Start Recording] button.
5. After the transmission has been completed, a message will appear; click the [OK] button to activate the settings.

[Stop Recording] Button

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

[Receive Settings] Button

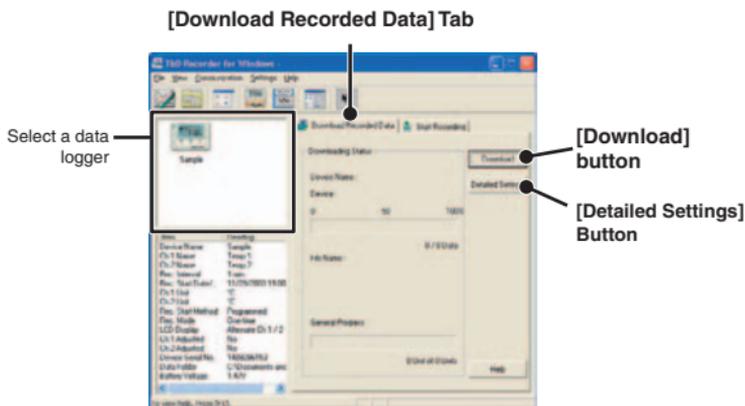
Clicking this will allow you to view recording condition settings and recording status information from the data logger.

TR-71U/72U/73U: Downloading Recorded Data

Connect a TR-71U/72U/73U unit to your computer so that communication can occur.

- Please see p.14 for more information about how to connect. The first time you connect it is necessary to install the USB device driver. For information about how to install the device driver please see the TR-71U/72U/73U User's Manual.

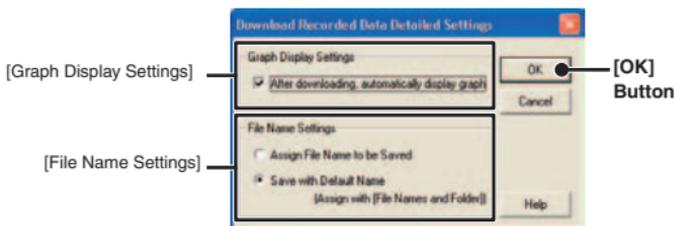
1. In the Main Window, click on the [TR-71U/72U] or [TR-73U] icon.
2. Click on the icon of the data logger you wish to download data from.
3. Click the [Download Recorded Data] tab.



4. If you wish to automatically display the graph upon the completion of downloading, click the [Detailed Settings] button to make such a setting.
- For more information about Detailed Settings see p.22.
5. Click the [Download] button to begin downloading data.
 6. After downloading has been completed a graph will be displayed.

Detailed Settings

Make settings about how to process downloaded recorded data.



[Graph Display Settings]

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

Up to 8 channels of data can be simultaneously displayed.

NOTE:

- If there are more than 8 channels of data, that data cannot be displayed automatically and must be opened from the data file.

[File Name Settings]

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

1. Choose the type of processing you desire.

2. By clicking the [OK] button the setting will be completed.

- You can specify the type of default file name under [File]– [File Names and Folders].

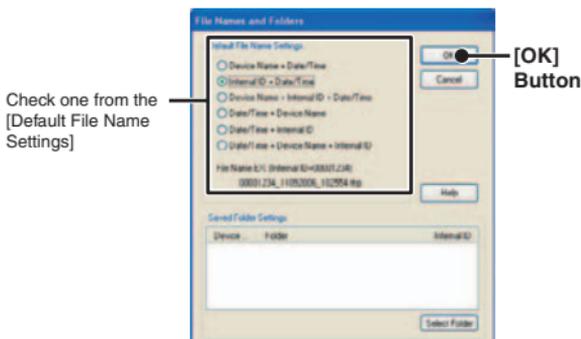
TR-71U/72U/73U: Other Functions

Open Temp/Humidity Graph: from the [File] Menu

Opens the Temperature / Humidity Graph.

File Names and Folders: from the [File] Menu

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.

Example:

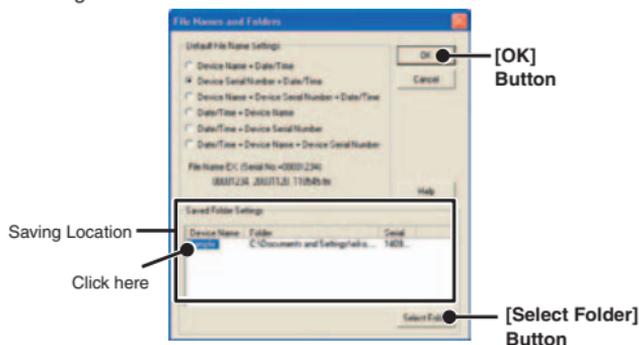
Device Name:Refrigerator/Serial No.:00001234/Date and Time:2003/05/12(yyyy,mm,dd)at 14:30:15/with Data Format Extension:TRX

- Device Name+Date/Time : Refrigerator_20030512_143015.trx
- Internal ID +Date/Time : 00001234_20030512_143015.trx
- Device Name+ Internal ID +Date/Time :
Refrigerator_00001234_20030512_143015.trx
- Date/Time+Device Name : 20030512_143015_Refrigerator.trx
- Date/Time+Internal ID : 20030512_143015_00001234.trx
- Date/Time+Device Name + Internal ID :
20030512_143015_Refrigerator_00001234.trx

2. By clicking the [OK] button, the settings will be completed.

[Saved Folder Settings]

Assign a saving location for the data file.

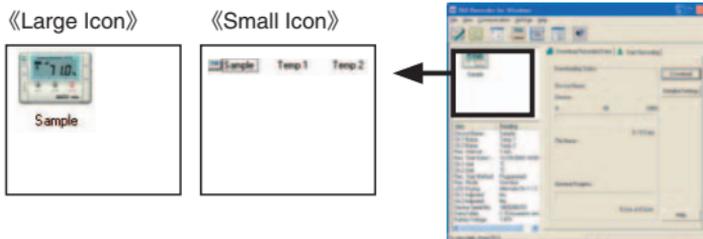


1. The TR-71U/TR-72U/TR-73U unit(s) connected by USB cable to your computer will appear in the list.
2. Click the name of the device and then click the [Select Folder] button.
3. The [Browse Folders] dialog box will appear where in you can select the folder into which you wish to save the data, then 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.

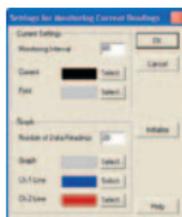
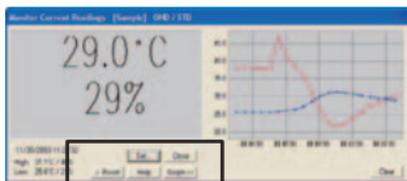
Large Icon/Small Icon: from the [View] Menu

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



Monitor Current Readings:from the [Communication] Menu

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 Display»

[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.

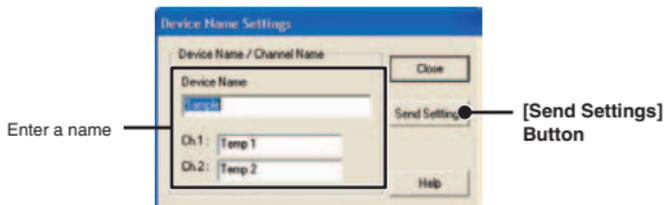
Search for TR-71U/TR-72U/TR-73U: from the [Communication] Menu

If a TR-71U, TR-72U or 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.

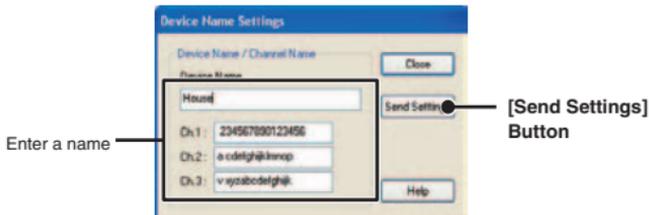
Device Name Settings:from the [Settings] Menu

Settings can be made for Device Names and Channel Names.

[TR-71U/72U]



[TR-73U]

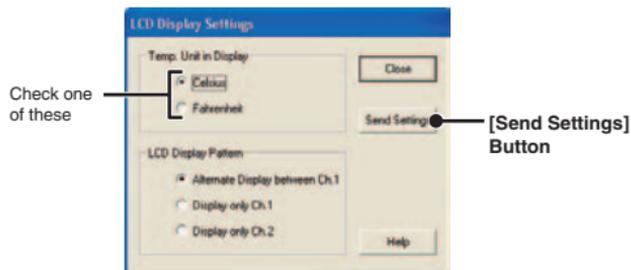


1. Enter a name.
 - Device Name: up to 16 characters
 - Channel Name: up to 8 characters.
2. By clicking the [Send Settings] button, the changes will be completed.

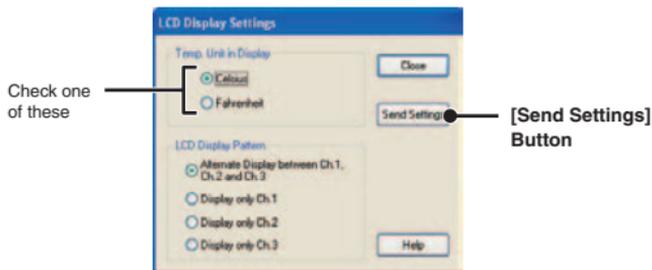
LCD Display Settings:from the [Settings] Menu

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

[TR-71U/72U]



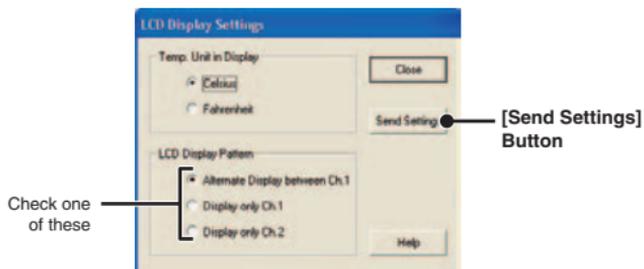
[TR-73U]



1. Check either Celsius or Fahrenheit.
2. By clicking the [Send Settings] button, the changes will be completed.

[LCD Display Pattern] TR-71U/72U

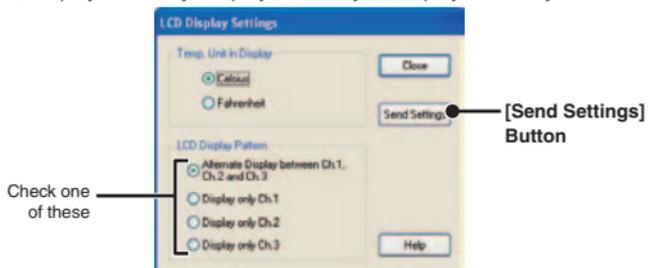
You can select the LCD display from 3 patterns: Alternate display between Ch.1 and Ch.2, Display Ch. 1 only, or Display Ch. 2 only.



1. Check one of the patterns.
2. By clicking the [Send Settings] button, the changes will be completed.

[LCD Display Pattern] TR-73U

You can select the LCD display 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.



1. Check one of the patterns.
2. By clicking the [Send Settings] button, the changes will be completed.

Adjustment Settings:from the [Settings] Menu

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.

Rough Guidelines for Adjustment

1 point Adjustment: Use when measuring in a range of $\pm 20^{\circ}\text{C}$.

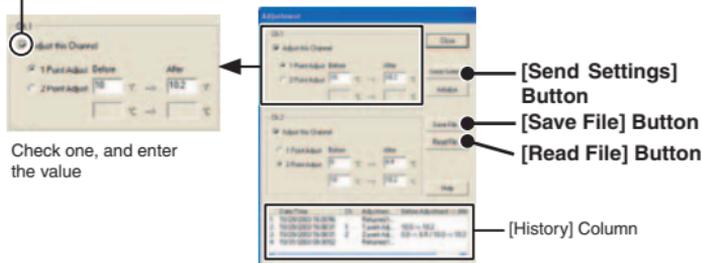
2 point Adjustment: Use when measuring in a wide range.

NOTE:

- When adjusting at 2 points, make sure the difference in points is at least 10°C .
- When measuring in a wide range and adjusting at 2 points, make sure that the adjustment values reflect the range you are measuring.
- We cannot guarantee that after carrying out adjustment the measuring accuracy will improve for all measuring ranges.

1. Check the channel you wish to adjust.

Check here



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

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

- The data logger can store up to 4 adjustment values, the adjustment history will display up to 4 channels at one time.

[1 Point Adjustment]

This adjustment method changes only the offset (b) where the slope (a) is considered 1. For example, TR-71U is measuring 10°C , but the standard says the actual measurement should be 10.2°C . 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 TR-71U reads 0°C when the standard thermometer reads 0.4°C , and TR-71U reads 10°C when the standard says the true measurement is 10.2°C . 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.

[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:from the [Settings] Menu

General software settings for TR-71U/TR-72U/TR-73U can be made here.

[Upon connecting a Thermo Recorder, open the Software Program]

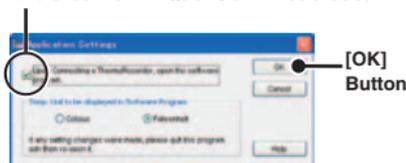
This setting opens the software program upon the connection of a TR-71U/TR-72U/TR-73U unit via USB cable. If the setting is ON, the Quick Start Program will periodically communicate with the device driver and upon the detection of a USB connection will open the main software program.

- For more details about [Quick Start] and how to quit it, see P. 9.

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

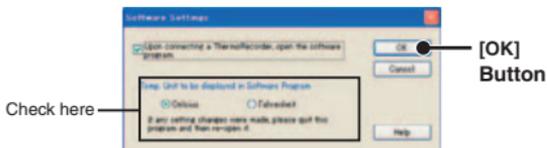


2. Click [OK] to complete the setting.

[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-71U/72U or TR-73U program and reopen it to make settings effective.

TR-51A/52: Basic Functions

Connect the TR-51A/52 to your computer to enable communication. Please make sure that your computer clock settings are correct.

- See P.13 for details about how to connect.

Before Using...

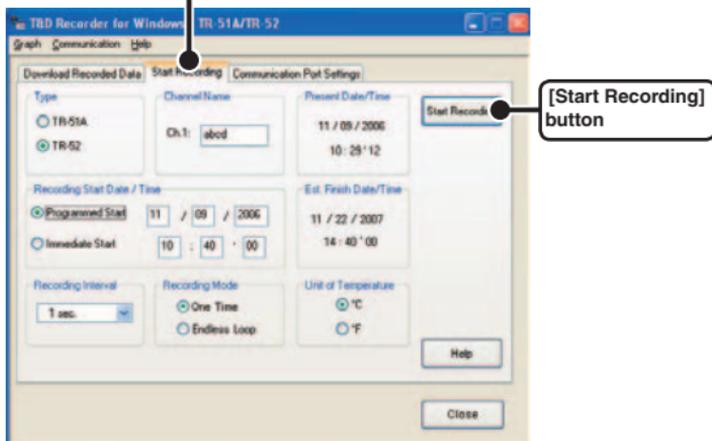
This section explains operations for when using with either Communication Port TR-50C. When using with Communication Port TR-50U, please take note of the following:

- ① Although the Settings window layout is different, the contents are the same.
- ② The communication speed for downloading and other communications will be the same as with our older models.
- ③ If Quick Start is enabled, by placing a TR-5 Series Logger on top of a TR-50U to make recording settings or download data, the software will automatically be opened. If Quick Start has been disabled, please open TR-5S from the launcher menu and carry out the desired settings and/or communication.

Set the Recording Conditions

1. In the Main Window, click the [TR-51A/52] icon.
2. Click the [Start Recording] Tab and make any necessary settings.

[Start Recording] Tab



Type

(Select:TR-51A / TR-52)

Select depending on the device you wish to make settings for.

Channel Name

Channel names can be entered with up to 8 letters.

Recording Start Date / Time

Select: Programmed Start / Immediate Start

- Programmed Start

Recording will begin on the day and time entered.

- Immediate Start

Recording will begin as soon as settings are completed.

Recording Interval

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

By clicking [▼] you can select from the recording interval list.

- TR-51A cannot be set using seconds.

Recording Mode

Select from: One-time / Endless

- One-time:

When the number of readings has reached 16,000, the unit display will read FULL and recording will automatically stop.

-Endless:

When the number of readings reaches 16,000, the next one will overwrite the oldest or first reading.

Unit of Temperature

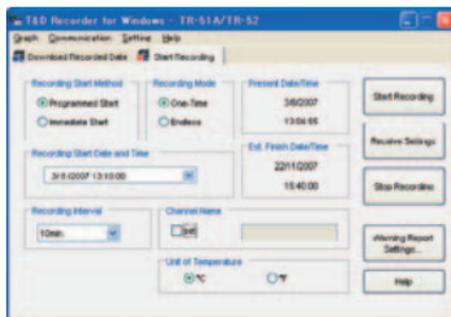
Select from: Celsius [°C] or Fahrenheit [°F] .

Change the display of temperature on the data logger between [°C] and [°F] .

3. After making all the desired settings, click the [Start Recording] button to transmit them.
4. After transmission has been completed the communication result will appear. By clicking [OK], the set-up process will be finished. By clicking [OK], you can close the window.

*Recording Start Settings Display for TR-50U

When making settings via a TR-50U, the layout for the Settings display will be as below:
The contents of the settings and the procedure are the same.



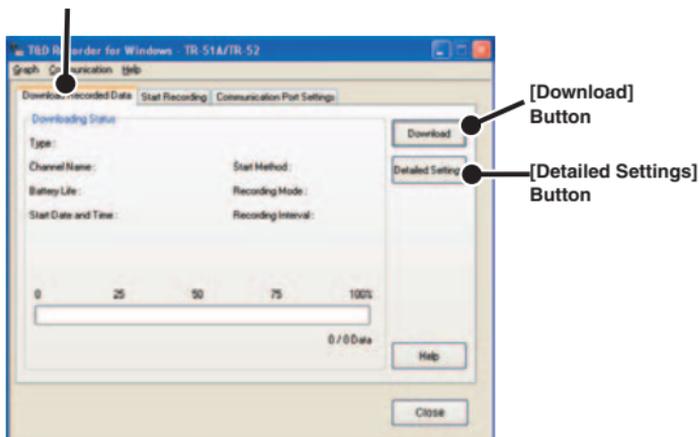
TR-51A/52: Downloading Recorded Data

Connect the TR-51A/52 to your computer to enable communication.

- See P.13 for details about how to connect.

1. In the main window, click the [TR-51A/52] icon.
2. Click on the [Download Recorded Data] tab.

Download Recorded Data

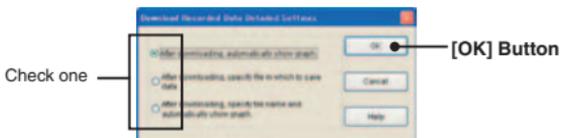


3. If you wish to automatically view the graph after downloading, click the [Detailed Settings] button and make the appropriate detailed settings.
- See P.36 for more info about [Detailed Settings].
4. Click the [Download] button to start downloading.
 5. After downloading has been completed, the graph will be displayed.

Detailed Settings

You can make settings for the processing of the downloaded recorded data.

1. Select the desired processing method.
2. Click [OK] button to complete the setting.



[After downloading, automatically show graph]

After data has been downloaded it will automatically be displayed in the Temp / Humidity graph Window. The File is not saved and if necessary should be done separately.

[After downloading, specify file in which to save data]

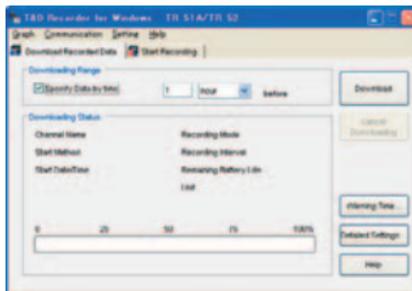
After data has been downloaded, the [Save File] dialog box will appear wherein you can save the data to a specified file.

[After downloading, specify file name and automatically show graph]

The data is saved to the specified file and the graph for that file is automatically opened in the Temp / Humidity Graph Window.

*Download Settings Display for TR-50U

When downloading data via a TR-50U, the layout for the Settings display will be as below: The downloading procedure is the same



When using a TR-50U, it is possible to specify which data to download by time.

TR-51S/52S : Basic Functions

Here all settings and communication for TR-51S/52S (Data Loggers) can be carried out. Connect the Data Logger to the Computer so communication can be carried out. Please make sure that your computer clock settings are correct.

- For details about connecting the data logger, see p. 13.

Before Using...

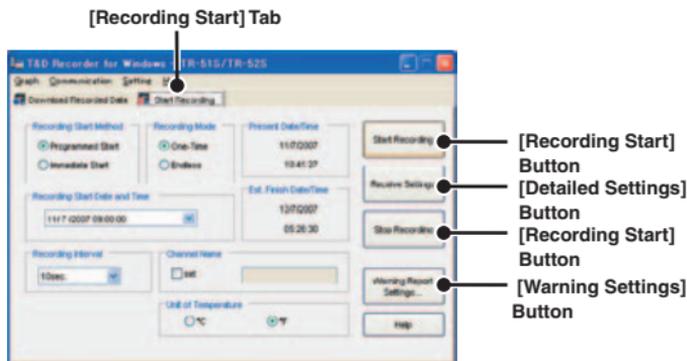
In order to make optimum use of the TR-51S/52S Data Logger's features, we strongly suggest using in conjunction with TR-50U. This section explains operations when using with Communication Port TR-50U.

When using with either Communication Port TR-50C, please take note if the following:

- ① TR-51S will be recognized as TR-51A and TR-52S will be recognized as TR-52; for more details about operations see from p.32.
- ② Some functions, such as "Warning Settings" and "Adjustment", cannot be used.
- ③ The communication speed for downloading and other communications will be the same as with our older models.

Set the Recording Conditions

1. Click the [Start Recording] tab, and make the necessary recording condition settings. For details about the various items and buttons, please see the next page.



2. Click the [Start Recording] button to transmit the settings.
3. After the transmission result message appears; click the [OK] button to complete the setting procedure.

[Recording Start Date / Time]

- Programmed Start
Recording will begin on the set date and time.
- Immediate Start
Recording will begin once settings have been completed

[Recording Interval]

Selections: 1, 2, 5, 10, 15, 20, 30 seconds or 1, 2, 5, 10, 15, 20, 30 minutes. (Default setting is 10 min.)

[Recording Mode]

- One-time
Upon reaching capacity of 16000 readings, "FULL" will appear on the LCD display and recording will automatically stop.
- Endless
Upon reaching capacity of 16000 readings, the oldest data is overwritten and recording continues.

NOTE:

- *The start date and time for a programmed recording start is based upon your computer system clock. If your computer clock is not set correctly, a programmed recording start may not start properly.*
- *The estimated finish date and time of recording in one time mode will be automatically calculated from the set recording interval and starting time.*

[Recording Start] Button

After making the necessary recording condition settings, click the [Recording Start] button and the settings will be transmitted to the Data Logger. If you have selected a programmed recording start, the unit will be put into recording wait status. If you have selected immediate start, recording will begin.

[Get Settings] Button

Reads the settings from the connected Logger.

NOTE:

- *When using Communication Port TR-50C, it is not possible to use the "Get Settings" function.*

[Stop Recording] Button

Recording will stop.

[Warning Settings] Button

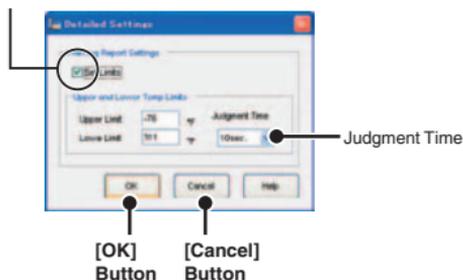
Opens the "Warning Settings" window wherein settings for "Upper and Lower Limits" and "Judgment Time" can be made.

Making Warning Settings: from the [Warning Settings] button

Under the [Start Recording] tab, click on the "Warning Settings" button to open the "Warning Settings" window.

1. Place a check next to [Set Limits].
2. Settings can be made for the Upper and Lower Limits as well as the Judgment Time.
 - The Upper-Lower Limits must be set in a range from -60°C to 155°C
 - The judgment time can be set from the following selections: 10, 15, 20, 30 seconds or 1, 2, 5, 10, 15, 20, 30, 60 minutes.

By placing a checkmark, the settings for that item will become active.



3. By clicking the [OK] button, a confirmation message will appear.
4. By clicking the [OK] button, you will be returned to the [Start Recording] Tab window

- Judgment Time

A warning occurs when either the set upper or lower limit has been exceeded or when the judgment time has been exceeded. Upon a warning, the warning LED on the TR-51S/52S will flash and a warning mark will appear in the display.

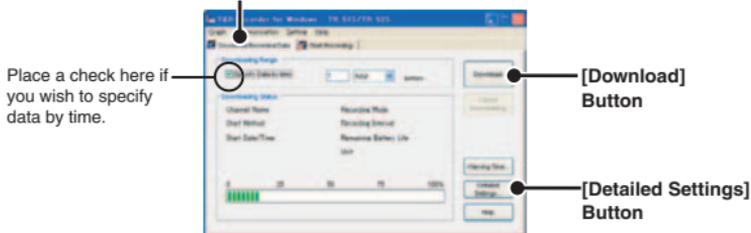
- Starting the Warning Monitoring Function...

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 the current measurement falls within the set limits, the monitoring function will begin to operate.

TR-51S/52S : Downloading Recorded Data

1. Set the Data Logger so that communication can be carried out with the Computer.
2. Open the [Download Recorded Data] Tab Display.
3. With [Detailed Settings], it is possible to make settings for what type of processing you wish to occur after downloading.

[Download Recorded Data] Tab



4. If you wish to download all of the data, simply click the [Download] button.
5. If you wish to specify data by time for downloading, choose the time range and click the [Download] button.

[Detailed Settings] Button

This opens the window in which settings for the processing of data after it has been downloaded can be made. Select from the four processing methods.



Selecting the Data Processing Method

[A Graph will automatically be shown]

[Assign a File Name for the saved data]

[Assign a File Name for the saved data and automatically show graph]

[Automatically save file]*

* Click the [Destination Folder Settings] button to specify the file saving location. A file with the name [download date and time_channel name.trx] will be saved in the specified folder.

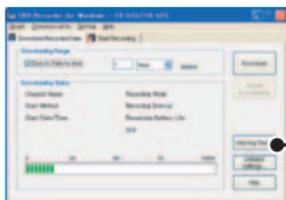
TR-51S/52S : Other Functions

Checking for Warning Occurrences: from the [Warning Times] Button

Here it is possible to check the time(s) of warning occurrences.

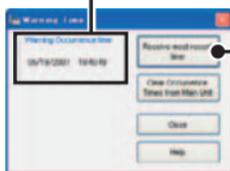
1. Set the Data Logger so that communication can be carried out with the Computer.
2. In the [Download Recorded Data] Tab Window, click the [Warning Times] Button.

[Download Recorded Data] Tab



[Warning Times]
Button

[Warning Occurrence Time] Column



[Receive most
recent time]
Button

3. By clicking the [Receive most recent time] Button, it is possible to check warning times in the [Warning Occurrence Time] Column.

NOTE:

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

Removing a Warning Mark from the Data Logger Display

A warning mark can be removed from the Data Logger display by one of the following three methods:

Download Data

Once data downloading has been successfully completed, the warning mark will disappear.

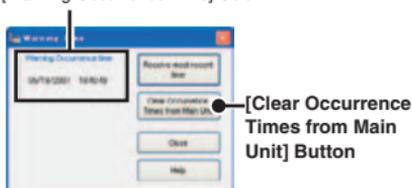
Re-start a Recording Session

The mark will disappear whenever a new recording session is started.

Remove from the [Warning Times] Display

1. Open the [Warning Times] Display by clicking the [Warning Times] Button in the [Download Recorded Data] Tab Window.

[Warning Occurrence Time] Column



2. Click the [Clear Occurrence Times from Main Unit] button to complete the removal.
 - This will have no effect on the already recorded data; measurement and recording will continue without interruption.
 - Confirm that in the Warning Occurrence Time Column, [None] appears.

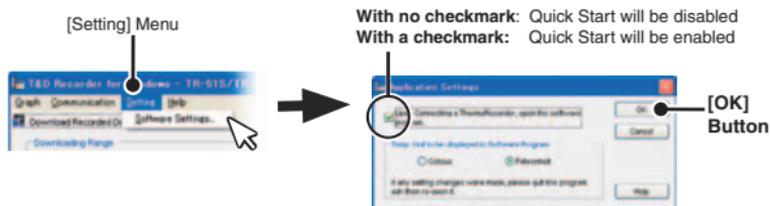
Software Settings: from the [Setting] Menu

[Upon Connecting a Thermo Recorder, open the Software Program]

This setting opens the software program upon the connection of a TR-51S/52S 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. 9.

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

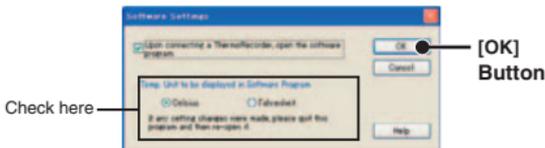


2. Click [OK] to complete the setting.

[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).

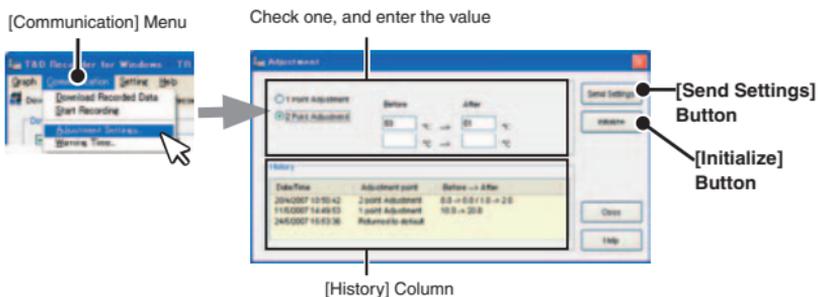


2. Click [OK] to complete the setting.
3. After completing settings, please close the TR-51S/52S program and reopen it to make settings effective

Adjustment Settings: from the [Communication] Menu

Here it is possible to record data after applying an adjustment formula to the measurement.

1. Set the Data Logger so that communication can be carried out with the Computer.
2. In the [Communication] Menu, click [Adjustment Settings] to open the settings window.



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

-For more about guidelines for adjustment, see p. 30.

4. By clicking the [Send Settings] button, a confirmation message will appear.
5. Click the [OK] button to transmit the settings to the Data Logger.

[Default] Button

This will return to settings with no adjustment applied.

[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.

Temperature / Humidity Graph

Open the Graph display by clicking the icon [Temp/Humid Graph] in the Main Window.



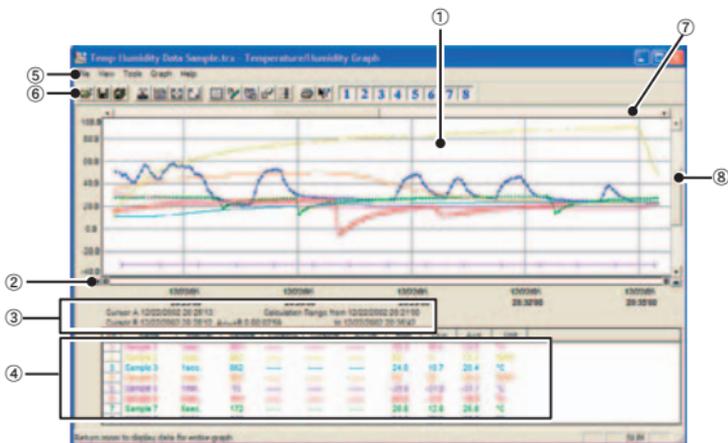
Click

- Open by selecting [Open Temp/Humidity Graph] in the [File] Menu of the TR-71U/72U/73U, TR-51A/52, TR-51S/52S Settings and Communication Window.
- If you have checked [After downloading, automatically display graph] in the detailed settings, the graph program will automatically open.

NOTE:

- *When viewing a Graph, small differences in time may occur. For details see "Troubleshooting" on p.64.*

Display Names and Functions



① Graph Area

The area in which the Graph is displayed. The horizontal axis shows time and the vertical axis shows temperature / humidity data.

② A and B Cursor Bars

By clicking the arrow buttons at the left and right of the bar, you can simultaneously move the A/B cursors. Click and drag the A or B button on the bar to move the cursor to the left or right.

③ A and B Cursor Position Information

The approximate date and time for the A and B cursor positions and the time difference between the A cursor and the B cursor is displayed.

④ Channel Info Display

The detailed data info for each channel 1 to 8 is displayed below the Graph Display.

⑤ Menu Bar

Menus are lined up which contain various commands. They are used to view data or to make settings for the various functions in each menu.

⑥ Toolbar (Icons)

Buttons appear for frequently used commands.

⑦ Horizontal Gauge Bar and Button for Moving Horizontal Axis

The time axis moves by clicking the [◀ ▶] buttons at the left and right of the bar. By dragging the gauge you can move left and right to the data you want to be displayed.

⑧ Horizontal Gauge Bar and Button for Moving Horizontal Axis

The vertical axis moves up or down by clicking the [▼ ▲] buttons at the upper and lower sides of the bar. By dragging the gauge you can move up and down to the data you want to be displayed.

Channel Info Display Items

ch Drag the channel name / number you wish to move to the newly desired channel name / number position and drop it.

Name	Channel Data Name	Interval	Recording Interval
Sample	Number of data	Max.	Highest Reading
CursorA	Cursor A position data	Min.	Lowest Reading
CursorB	Cursor B position data	Avg.	Average Value
A<->B	Calculated Temp / Humidity Difference between Cursor A and B	Unit	Unit of measurement

When opening data recorded in TR-73U units into a graph

When opening a file containing barometric pressure data ("thp" format file), the window is different from the standard, with the scale for barometric pressure appearing on the right side.

*For details, see Temperature/Humidity Graph [Help]-[Keyword]-[About Barometric Pressure].

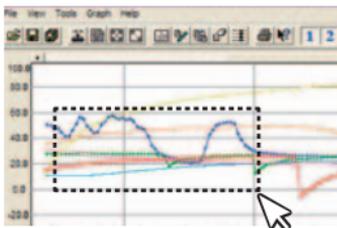
Scale for Barometric Pressure



Zooming In and Out on the Graph

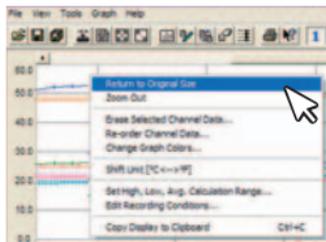
[Enlarged]

With the left button drag the mouse to outline the area you want to zoom in on.



[Reduce]

With the mouse, right click on the graph and select [Return to Original Size] in the pop-up Menu that appears.



By right clicking on the graph, the Menu will be displayed. With [Return to Original Size] or [Step-by-Step Return to Original] you can return both the vertical and horizontal axis back to show the entire graph.

* These operations can be carried out via commands in the [Graph] Menu or by clicking icons in the Toolbar as above.

- About the Horizontal Axis

The entire graph shows in the horizontal axis the nearest data to the recording start time and the latest data nearest the recording finish time for each channel 1- 8. This represents the full scale of the horizontal axis.

- About the Vertical Axis

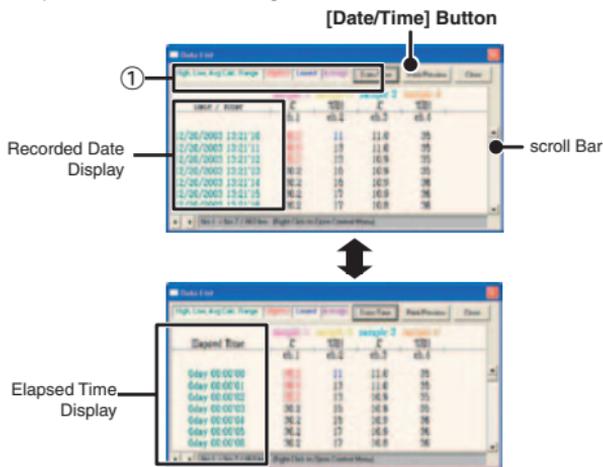
The entire graph shows in the vertical axis the lowest possible measurement value and the highest possible measurement value for channels 1- 8. This represents the full scale of the vertical axis.

Data List Display : from the [View] Menu

This is a list of the data that was displayed in graph form.

[Date/Time] Button:

By clicking this button, you can shift the display between the recorded date and the amount of elapsed time since recording started.



Color Coded Display

Green: Dates and times for data which fall within the calculation range for determining high, low and average measurements.

Black: Dates and times outside the calculation range for determining high, low and average measurements

RED: Highest Value

BLUE : Lowest Value

PINK : Average Value

Menu Display Using the Mouse

By right clicking on the list, the Menu will be displayed.

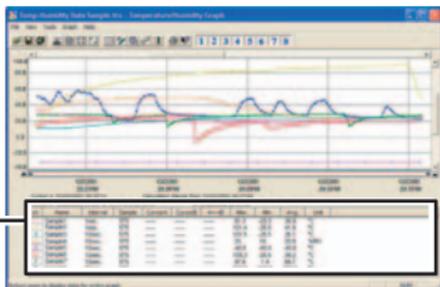


Graph Maintenance

Changing graph display colors: from the [View] Menu

You can change the letters used in the data list display for each channel between monochrome and channel color.

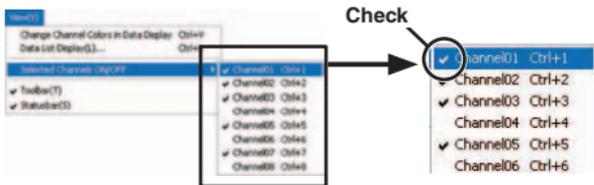
[View] Menu



The letter colors will be changed.

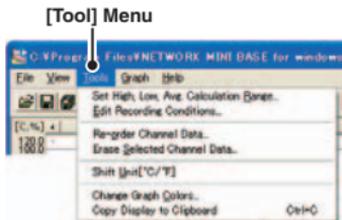
Selected Channels ON/OFF: from the [View] Menu

1. By moving the mouse to [Selected Channels ON/OFF], the channel numbers are displayed.
2. Click the channel number you wish to view or hide.

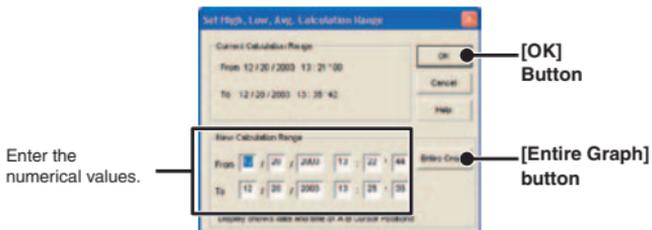


- The same operation can be done by clicking on the channel number icons in the Toolbar.

Set High, Low, Average Calculation Range: from the [Tools] Menu



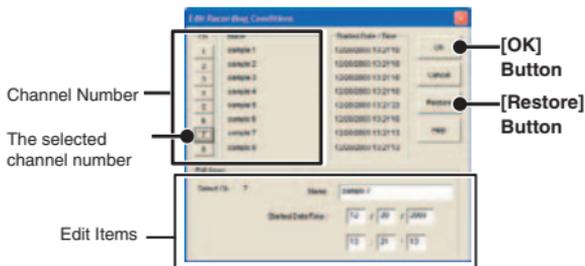
1. Set the calculation range in the [Set High, Low, Avg. Calculation Range] box.



- By clicking the [Entire Graph] button, the dates and times for the entire graph will be displayed.
 - If in the graph display, you place the A cursor at the position for the beginning of the calculation range and the B cursor at the end of the range, those dates and times will appear as the new range in the [Set High, Low, Average Calculation Range] Display when it is opened.
2. By clicking the [OK] button, the high, low, and average values for each channel of data in the list will be changed. In the graph display, the data for the calculation range that you have set will be displayed.

Edit Recording Conditions: from the [Tools] Menu

1. By clicking the [Ch.] button of the channel you wish to edit, the [Name] and [Started Date/Time] in the "Edit Items" display will show info for that channel number.



- Name: Up to 32 letters can be entered.
- Starting Date/Time: The month, day, year, hour, minute and second can be changed.

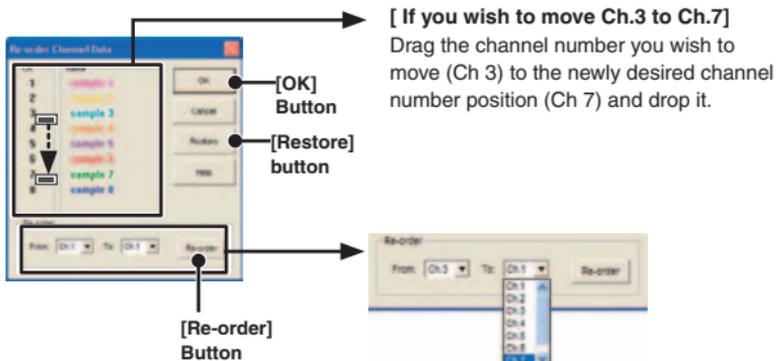
2. By clicking the [OK] button after changing, the setting will be completed.

- If you wish to continue to change other channels, repeat the process as in 1.
- The [Restore] button is only effective while making changes. After clicking the [OK] button the settings cannot be restored to the original settings.

Re-order Channel Data: from the [Tools] Menu

You can re-order the data during graph display. There are two methods to use when re-ordering channels:[Re-order by Dragging a Channel Number] and [Specify the Channel Numbers to be Moved].

EX:Re-order by Dragging a Channel Number



[Specify the Channel Numbers to be Moved]
Set as such: "From" → Ch.3 (original position), "To" → Ch.7 (desired position); then click the [Re-order] button. Click the [OK] button to complete the settings. position (Ch 7) and drop it.

[OK] Button

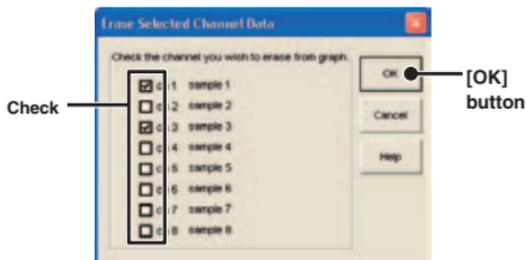
After make the necessary settings, by clicking the [OK] button, the channels will be re-ordered and the graph will be re-drawn.

[Restore] Button

This command will become invalid after the settings procedure has been completed and the [OK] button has been clicked. If you wish to restore channels, please re-order channels again by following the above procedures.

Erase Selected Channel Data : from the [Tools] Menu

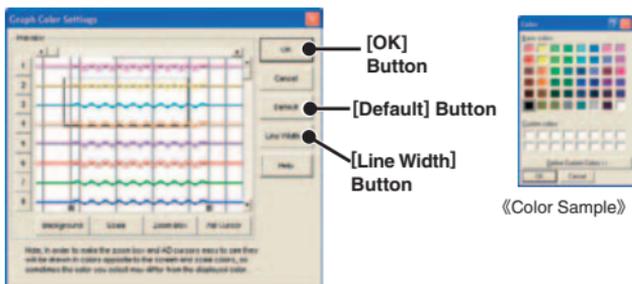
1. Put a check on the channel number you wish to erase.
2. By clicking on the [OK] button, the deletion will be completed.



Shift Unit (°C / °F):From the [Tools] Menu

By clicking on [Shift Unit(°C / °F)], you can automatically change the temperature unit scale in the graph display and in the channel info list.

Change Graph Colors: from the [Tools] Menu

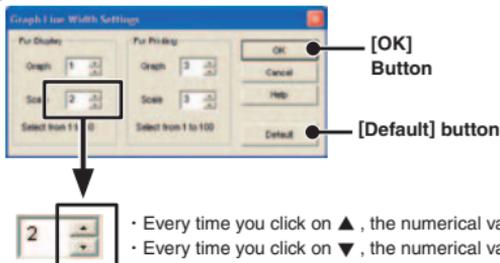


1. Click the channel number of which you wish to change the color.
2. By clicking each button, color samples will be displayed. Choose the color you want and click the [OK] button.
3. After confirming the color, by clicking the [OK] button the change will be completed.

* By clicking the [Return to Default] button, you will return to the color settings when the software was opened.

[Line Width] Button

Change the width of the data lines and/or the scale lines.

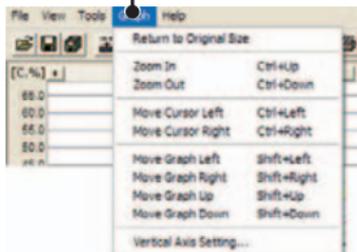


Copy Display to Clipboard: From the [Tools] Menu

By clicking [Copy Display to Clipboard], you can copy the currently displayed window to the clipboard and make use of the graph by pasting to other software.

Operating the Graph: from the [Graph] Menu

[Graph] Menu



Return to Original Size

Clicking here will return the graph to its original size.

Zoom In/Zoom Out

Zooms in or out one step at a time

Move Cursor Right/Left

Simultaneously move the AB Cursors to the right or left.

Move Graph Right/Left

Move the Graph Display to the right or left.

Move Graph Up/Down

Move the Graph Display up or down.

Vertical Axis Settings (AUTO in Default Settings)

Set the vertical axis scale (temperature)

Vertical Axis Settings (AUTO in Default Settings) : from the [Graph] Menu

1. Check either [Auto] or [Manual].

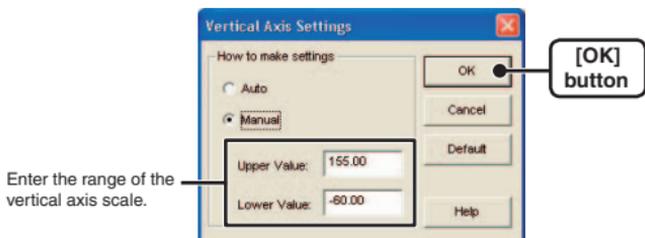
AUTO:

The vertical axis will automatically be changed according to the values of the data.

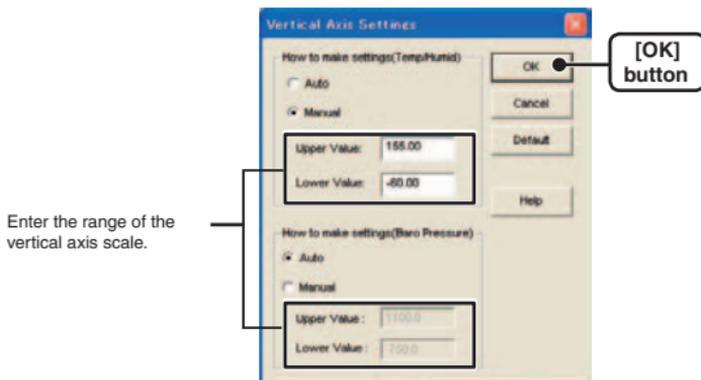
MANUAL:

You can set the upper and lower values of the vertical axis scale.

[TR-5, TR-5S, TR-71U/72U]



[TR-73U]



2. Click [OK] to complete the settings.

Saving Recorded Data

If you have checked [After downloading, automatically show graph.], make sure to save data after displaying the graph or editing any data.

3 Ways to Save Files : from the [File] Menu

[Overwrite All Data]

Will save any changes to file without changing File Name and Saving Location. The same operation can be carried out from [Save] in the Toolbar.

[Save All Data as...]

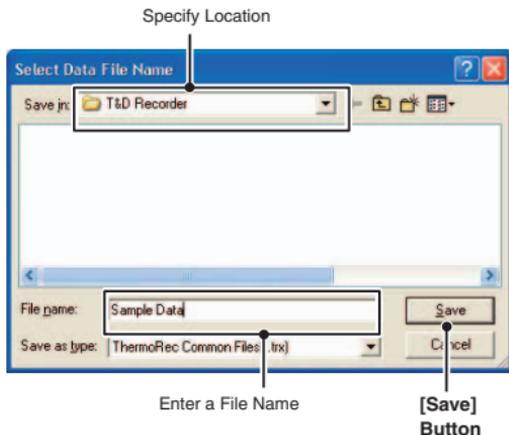
Save with a new File Name.

[Save Display Data as]

Save only that data in the current display. This is handy when you wish to save only the desired data.

EX: [Save All Data as...]

1. Click [Save All Data as...] in the [File] Menu.
2. Specify the [Location] and enter a [File Name].



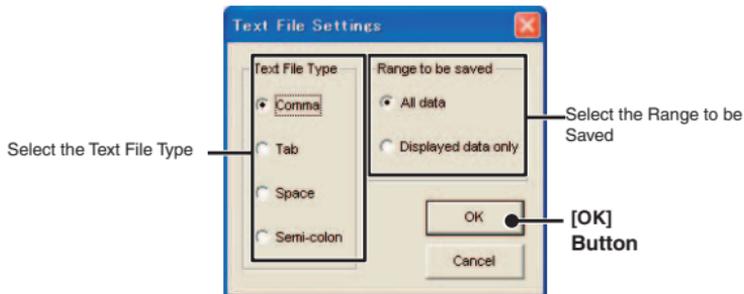
3. Click [Save] to complete the saving process.

Creating Text File

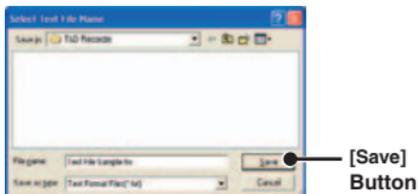
By saving the recorded data as text file, you can create a file type that can be read by common spreadsheet software.

1. Click [Save Data in Text File] in the [File] Menu.
2. Select the [Text File Type] and [Range to be saved], and click [OK].

- Comma, Tab, Space, and Semi-colon are codes used by common spreadsheet software, such as Excel and Lotus, when reading Text File to divide cells.



3. Designate the location to which the file should be saved and click [Save] to create and save the data as a Text File document.



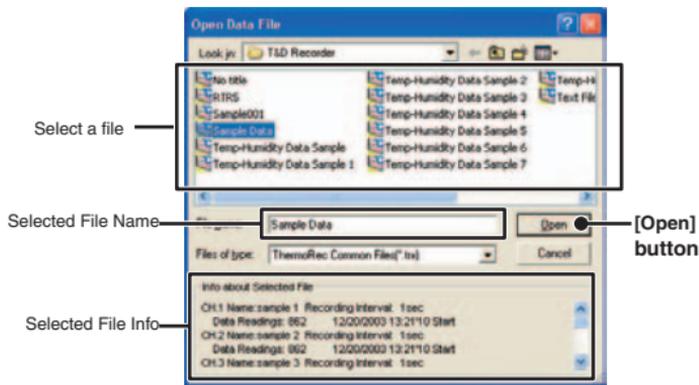
NOTE:

- The extension for the created file will be [.txt].
- Text File cannot be read into T&D for Windows graphs.

Opening Saved Files

To open a previously saved file, designate the file name to open it.

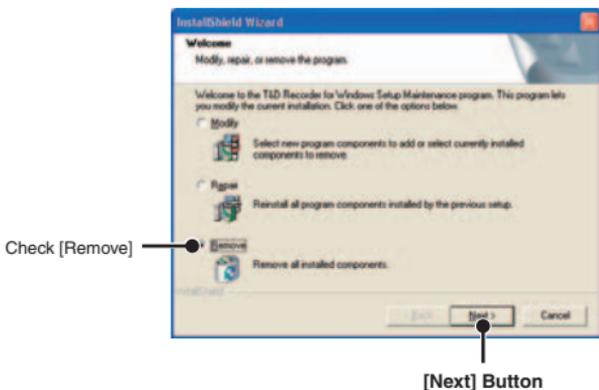
1. Click [Open] in the [File] Menu.
2. Select the name of the data you wish to open and click [Open] to view the data in graph form.



Reinstalling the Software

Before reinstalling or updating the software, make sure to carry out the uninstall program first. Before you begin the uninstall program, first make sure to quit all T&D Recorder for Windows programs.

1. In the Windows Control Panel, click on [Add/Remove Programs].
2. From the list of currently installed programs, select [T&D Recorder for Windows] and click the [Change / Remove] button.
3. The [Install Shield Wizard] will appear. Check [Remove], and click [Next].



4. Follow the directions to Uninstall.
5. To reinstall, follow the directions to [Install].

- Even after uninstalling, saved data files will still remain in the folders and locations they were saved in.

Also, saved Remote Unit registration info may still remain. If you wish to delete all of these data and registration files, make sure to delete all of the relevant folders after uninstalling but before reinstalling.

Troubleshooting

Q : The computer won't communicate via the Serial Port. What should I do?

- A : Try two or three times to find the port connection by using the Auto-detect function.
- A : Check to make sure that the power of the main unit is ON.
- A : Check to make sure that the connection is proper. Communication will take place only through the serial port (RS-232C) and will not work through the printer port or any other port.
- A : Check to make sure that you can control the Thermo Recorder via the software.
- A : If you have access to another computer, try seeing if communication works with the other computer.
- A : If you have a computer with energy saving function settings, make sure that the serial port has not been turned off. Especially on NEC brand PC98 notebook computers the default setting maybe such.
- A : Check to make sure that the serial port has not been rendered unusable by the BIOS setting.
- A : Make sure that the serial port setting has not been made to render the port unusable. With some computers, especially all-in-one computers the serial port serves as the modem jack.

How to check

1. View in the Device Manager Window.

For Windows XP or 2000

1. On the Desktop, right click on [My Computer] and click on [Properties].
2. In the System Properties Window, click on the [Hardware] Tab, then click on the [Device Manager] button to view the Device Manager Window.

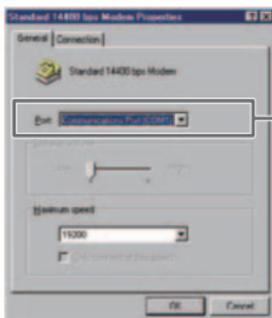
For Windows 98SE or ME

1. Open the [Control Panel] and double click on [System] to display the [System Properties].
2. Click the [Device Manager] Tab to view the Device Manager Window.

2. In the [Device Manager], click on [Port (COM&LPT)] and check to see if under that appears [Com Port (COM1)] or [Com Port (COM2)].

- If a port appears, it should be usable.
- If a mark [!] or [×] appears next to the port, this communication port is unusable. If you cannot use a communication port please contact your computer company.
- To find out more details about an unusable communication port:
Select the port with a [!] mark, and then click on [Properties] to view the details about that port.

A : If your computer has an internal modem, make sure that the communication port is not being used by it. When the communication port is being used as the modem port, that port cannot be used. Either quit using the modem or use another port.



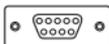
Port: Communications Port (COM1)

An example of the modem using a communication port (COM 1).

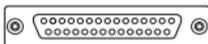
- A : If your computer has no serial port, use a Serial-USB conversion cable and carry out communication via USB connection. We recommend [I.O DATA USB-RSAQ3] , [ELECOM UC-SGT] and [IOGEAR UC-232A] Serial-USB conversion cables. If you are using an NEC Lavie J Notebook Computer (NEC LJ-500), please use [I.O DATA USB-RSAQ3].
- A : Sometimes communication will not work if a switch has been added to the serial port (RS-232C) or an extension cable has been added to the communication cable.
- A : Check to see if some other communication software is in use.
- A : If your desktop computer has two serial ports, try connecting the communication cable to the other port and try communicating again.

**Q : I can't get the communication cable connected to the computer.
What should I do?**

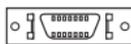
A : Please connect the communication cable provided with the Thermo Recorder into the serial port of your computer (D-SUB 9 pin male connector). If for some reason you cannot connect directly, please use an appropriate adapter (gender changer plug) as explained below.



《D-SUB 9 pin male》



《D-SUB 25 pin female》



《Half pitch 14 pin female》

- If the connector on your computer is a D-SUB 9 pin male then there is no need for an adapter.
- If the connector on your computer is a D-SUB 25 pin female then use an adapter (D-SUB 25 pin male to a D-SUB 9 pin male).
- If the connector on your computer is a Half pitch 14 pin female then use the adapter (Half pitch 14 pin male to a D-SUB 9 pin male) or a combination (Half pitch 14 pin male to D-SUB 25 pin male) and (D-SUB 25 pin female to a D-SUB 9 pin male).

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.

A : 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.

Specifications

Compatible Devices

Data Logger: TR-71U/TR-72U/TR-73U, TR-51S/TR-52S, TR-51A/TR-52
Data Comm. Devices TR-50U / TR-50C

*To properly use a Data Logger in the TR-5 / TR-5S Series, it is necessary to use in conjunction with one of our Data Communication Devices.

Communication Functions

TR-7U Series: Start Recording (Immediate Start/Programmed Start) ,
Stop Recording, Get Unit Settings (Channel Names, Recording Interval
and Recording Mode. also possible to make settings) ,
Download Recorded Data, Gather Current Readings, Adjustment,
Application Settings

TR-5 Series: Start Recording (Immediate Start / Programmed Start) ,
Download Recorded Data

TR-5S Series: Start Recording (Immediate Start / Programmed Start),
Stop Recording, Get Unit Settings, Download Recorded Data,
Warning Settings, Adjustment, Application Settings

Temp/Humidity Graph

Graph: Temp/Humidity Graphs for Each Channel (Zoom out / in and scroll),
Change Channel Colors, Turn ON and OFF Channel Display

Data Display: Channel Name, Recording Interval, Number of Readings,
Highest / Lowest and Average Reading, Unit of Measurement,
AB Cursor Dates / Times and Data Readings,
Calculated Difference between Cursor A and B

Number of Channels: 8 Channel Simultaneous Display and Processing

Others: Data List Display, Calculation Range Settings, Data Maintenance,
Edit Recording Conditions, Delete Data by Channel,
Re-order Data by Channel

File Output

TR-Series Common Data Files (*.trx) / Text File (CSV, etc) ,
Selected Range: (File for selected time period)

Printing

Graphs / Tables

Compatible

OS: Microsoft Windows[®] 98SE / Me (English)
Microsoft Windows[®] 2000 / XP (English)

PC/CPU: PC/CPU: IBM Compatible equipped with more than Pentium 90MHz
or NEC 98 Series
USB Port / Serial Port (RS-232C D-sub 9pin)

Software: Microsoft Internet Explore 5.01 or higher

RAM: More than 32MB

Operating Environment: A Stable Windows Operating Environment

For product information or questions contact us at:

T&D CORPORATION

5652-169 Sasaga, Matsumoto, Nagano JAPAN 399-0033

Tel :+81-263-27-2131 Fax:+81-263-26-4281

E-mail:overseas@tandd.co.jp

Office Hours: Monday to Friday 9:00-12:00 / 13:00-17:00(GMT +9:00 Tokyo Time)

[Home Page]

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

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T&D Recorder for Windows (TR-5,7xU) User's Manual

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