
**User's
Manual**

**Application Software
WTVIEWERfree**

This user's manual explains the handling precautions, features, and operating procedures of WTVIEWERefree. To ensure correct use, please read this manual thoroughly before beginning operation.

After reading this manual, keep it in a safe place.

For the handling precautions, features, and operating procedures of the WT, see the user's manual that came with the instrument.

For information on how to use Windows, see the relevant manuals.

Notes

- The contents of this manual are subject to change without prior notice as a result of improvements to the product's performance and functionality. Refer to our website to view our latest manuals.
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Notes about Using This Software

Notes on Using the Software

- To allow a WT to communicate with a PC through the WT's USB interface, a USB driver must be installed in the PC. When you install the software in the PC, the USB driver can also be installed.
- You can connect one WT to a PC and use the software to control the WT.
- When you connect a WT to the PC and use the software to control the WT, you cannot use multiple types of communication interface at the same time.
- Do not perform the following operations while using the software. Doing so may cause errors.
 - Use another software application to operate the WT
 - Operate the WT directly
- The software may not be able to continue if the PC enters standby or hibernation mode. Disable standby and hibernation modes when you use the software.
- If a connection error occurs, turn off the WT and then turn it back on.

How to Use This Manual

Structure

This manual contains 10 chapters and an index.

Chapter	Title	Description
1	Product Overview	Describes the features of the product and the system requirements for using the product.
2	Configuring WT's Communication Control Settings	Describes how to connect the WT to a PC.
3	Installation and Starting and Exiting the Software	Describes how to install and start the software.
4	WT-PC Communication	Describes how to configure the settings for WT-PC communication.
5	WT Configuration	Describes how to configure the WT measurement conditions and other settings.
6	Displaying Measured Data	Describes how to display measured data.
7	Saving and Loading Setup Parameters	Describes how to save and load setup parameters.
8	Other Features	Describes the help feature and how to view the software version information.
9	Troubleshooting	Describes error messages.
10	Specifications	Provides the software specifications.
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Description

The display example, setting items, and setting range of this user's manual vary depending on the following factors.

- The WT model
- The number of elements installed in the WT and the presence or absence of options

Units

k: Denotes 1000. Example: 100 kHz (frequency)

K: Denotes 1024. Example: 720 KB (file size)

Software Version That This Manual Covers

This manual describes WTVIEWERfree software version 1.71.

For instructions on how to view the software version, see section 8.2.

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Yokogawa Test & Measurement Corporation WTViewerEfree Software License Agreement

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1.1 Product Overview

You can use the software to connect the WT series (hereafter referred to as the WT) to a PC and use the following features.

- Retrieve, display, and save data that the WT has measured and setup parameters.
- Remotely control the WT.

You can connect one WT to a PC and use the software to control the WT.

Compatible Measuring Instruments

You can use the software with the following YOKOGAWA measuring instruments.

- Precision Power Analyzer WT5000
(Must be firmware version 2.01 or later)
- Precision Power Analyzer WT3001E/WT3002E/WT3003E/WT3004E
- Precision Power Analyzer WT3000 (760301/760302/760303/760304)
(Must be firmware version 6.11 or later and in advanced mode)
- Precision Power Analyzer WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
- Precision Power Analyzer WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
- Precision Power Analyzer WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
(Must be firmware version 2.31 or later)
- Power Analyzer WT500 (760201/760202/760203)
(Must be firmware version 1.21 or later)
- Digital Power Meter WT310E/WT310EH/WT332E/WT333E
- Digital Power Meter WT310/WT310HC/WT332/WT333

For the handling precautions, features, and operating procedures of the WT, see the relevant user's manuals.

Menus

The software has the following menus.



Connection: Used to configure the communication between the WT and PC.



Setting: Used to set WT's measurement conditions.



Measure: Used to display measured results in bar graphs, trend graphs, etc.



File: Used to save and load setup parameters.



Exit: Used to close the software.

1.1 Product Overview

You can use the following menus of the software to process data.
The details of each feature are provided below.

Connection



You can connect a WT to the PC in which the software is installed through a communication interface.
You can select any of the four available interfaces and search for devices to view the WTs that you can connect to.

Setting



You can configure the WT settings, such as the voltage range, current range, and wiring system.

Measure



Use this menu to display data that the WT has measured in the following manner.

Types of Display Screens

The following types of display screens are available.

Numeric

Displays WT's measurement data or harmonic measurement data¹ numerically.

Numeric List¹

Lists harmonic measurement data for each harmonic order.

Numeric Matrix

Displays WT's measurement data for each element.

Waveform²

Displays waveform display data that has been collected from the WT.

Trend

Displays changes in measured data over time on a trend graph.

Bar Graph¹

Displays measured harmonic components for each harmonic order.

Vector¹

Displays vectors of the phase differences and amplitudes (rms values) of the fundamental signals, U(1) and I(1), in each element in the wiring unit.

1 Can be displayed when the WT is equipped with the following option

- Harmonic measurement (/G5)
- Simultaneous dual harmonic measurement (/G6)
- Advanced computation (/G6)

On the WT5000, this can be displayed on the standard model.

- 2 Can be displayed when the harmonic measurement (/G5) is equipped with the following models
 - WT310E/WT310EH/WT332E/WT333E
 - WT310/WT310HC/WT332/WT333
- 3 The vector window cannot be displayed on the following models.
 - WT310E/WT310EH/WT332E/WT333E
 - WT310/WT310HC/WT332/WT333

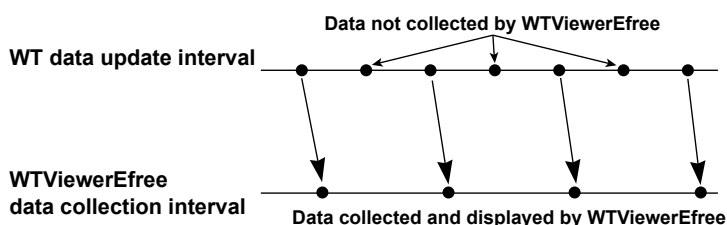
WT Data Update Interval and the Software's Data Collection Interval

The operation window of the software has a start button for starting measured data collection, a stop button, and a update button for updating measured data.

When you click the start button, the software starts collecting measured data. When it finishes collecting the data, it waits for data to be updated on the WT. When the WT finishes updating the data, the software starts collecting data from the WT again. The software repeats this operation until you click the stop button.

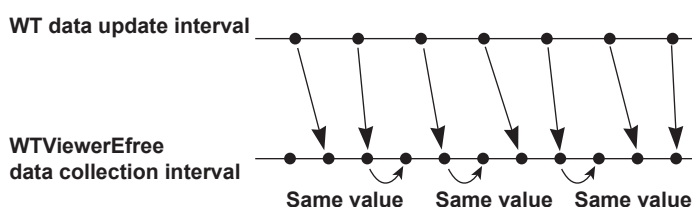
WT Data Update Interval < Software's Data Collection Interval

When the WT data update interval is shorter than the time it takes for the software to collect one set of measured data, there will be pieces of data that the software will not collect.



WT Data Update Interval > Software's Data Collection Interval

When the WT data update interval is longer than the time it takes for the software to collect one set of measured data, the software collects data after the data on the WT is updated, so the data displayed on the software will appear to be in sync with the WT data update interval.



If you click the stop button while data is being collected, the software will collect the entire data before it stops. Therefore, there will be a time lag until the display on the software stops after you click the stop button.

If you click the update button, the software will update the measured data once. The measured data is collected when the displayed data on the PC is updated. It is not when the data on the WT is updated. The display update interval on the PC depends on the CPU, memory, and the number of data values you want to display.

Saving Measured Data

You can save numeric data and waveform display data to a CSV file.

To save WT setup parameters and the software setup parameters, use the Save menu, which is described later.

File



You can save and load WT setup parameters and the software setup parameters.

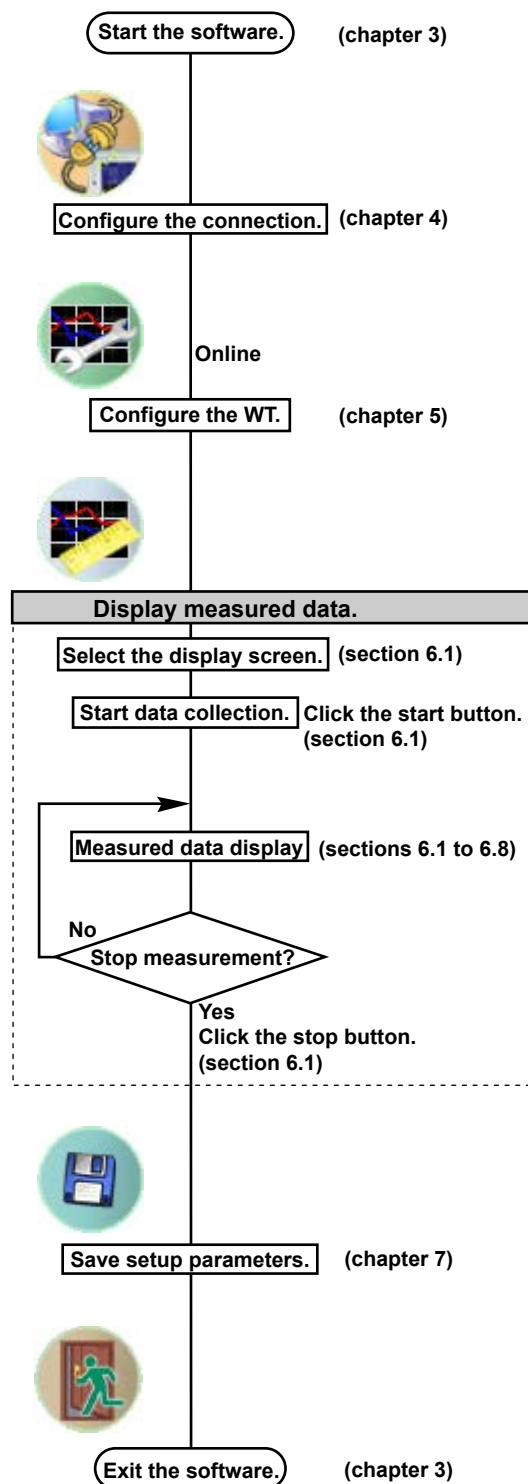
Exit



Use this menu to close the software.

1.2 Workflow

The following figure shows the software workflow.



1.3 System Requirements

PC

- CPU: Equivalent to Intel Core i5-2430M or better
- Memory: 4 GB or more recommended
- Storage: 10 GB free space or more

Operating System

English version of Windows 10, or Windows 11

Communication Card

- **GP-IB**
 - Driver NI-488.2 Version 15.5.0 and later
 - NI (National Instruments)
 - PCI-GPIB
 - PCI-GPIB+
 - PCIe-GPIB
 - PCIe-GPIB+
 - GPIB-USB-HS
 - GPIB-USB-HS+
- **RS-232**
 - An available PC COM port
- **Ethernet**
 - An Ethernet port that supports 10BASE-T, 100BASE-TX, or 1000BASE-T
- **USB**
 - A USB port that supports USB Revision 1.1 or higher

Display, Printer, and Mouse

- Screen Resolution: 1366×768 dots or higher
- Operating System: Operating system mentioned above

WT Main Unit

- Precision Power Analyzer WT5000
(Must be firmware version 2.01 or later)
- Precision Power Analyzer WT3001E/WT3002E/WT3003E/WT3004E
- Precision Power Analyzer WT3000 (760301/760302/760303/760304)
(Must be firmware version 6.11 or later and in advanced mode)
- Precision Power Analyzer WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
- Precision Power Analyzer WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
- Precision Power Analyzer WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
(Must be firmware version 2.31 or later)
- Power Analyzer WT500 (760201/760202/760203)
(Must be firmware version 1.21 or later)
- Digital Power Meter WT310E/WT310EH/WT332E/WT333E
- Digital Power Meter WT310/WT310HC/WT332/WT333

2.1 Connecting the WT to a PC

CAUTION

Be sure to turn off the PC and the WT before you connect or remove communication cables. Otherwise, erroneous operation may result, or the internal circuitry may break.

When Using the USB Interface

Connect the USB port for PCs (type B connector) on the rear panel of the WT to the PC.

When Using the GP-IB Interface

The WT is equipped with an IEEE St'd 488-1978 24-pin GP-IB connector. Use a GP-IB cable that conforms to this standard.

Connect the cable to the GP-IB connector on the rear panel of the WT.

Use an appropriate connector to connect the other end of the cable to the PC.

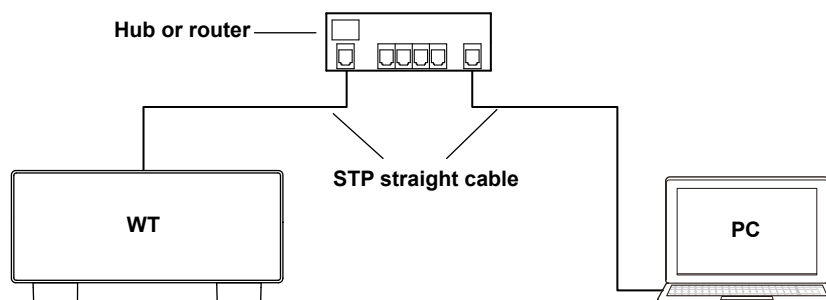
When Using the Serial (RS-232) Interface

Before connecting the WT to the PC using a cable, open Device Manager on your PC to check the communication port that you can use. Connect the interface cable to the COM port that you can use.

Use an appropriate connector to connect the cable to the PC.

When Using the Ethernet Interface

To connect the WT to the PC, use a straight STP (Shielded Twisted-Pair) cable through a hub or similar device. Connect the cable to the ETHERNET port on the rear panel of the WT. The data rate varies depending on the product. Use a hub and cables that are appropriate for the data rate.



Note

- Use a cable, hub, or router that supports the data rate of your network.
- Do not connect the WT to the PC directly. Direct communication is not guaranteed to work.

2.2 Setting USB Control Parameters

Procedure

Set the USB control according to the procedures given in following manuals.

With the WT3001E/WT3002E/WT3003E/WT3004E

(for Products with the /C12 Suffix Code)

- Section 3.4 in the Communication Interface User's Manual (IM WT3001E-17EN)

With the WT3000 (760301/760302/760303/760304)

(for Products with the /C12 Suffix Code)

- Section 3.4 in the Communication Interface User's Manual (IM 760301-17E)

With the WT5000,

WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R,

WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E,

WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806),

WT500 (760201/760202/760203),

WT310E/WT310EH/WT332E/WT333E,

or WT310/WT310HC/WT332/WT333

The USB control setting item is not present.

Explanation

Each device that is connected through USB has its own unique ID in the USB system. This ID is used to distinguish between different devices. When you connect the WT to the PC, make sure that the WT ID does not overlap with those of other devices.

Note

- When you connect a WT to the PC and use the software to control the WT, you cannot use multiple types of communication interface at the same time.
 - You can connect one WT to a PC and use the software to control the WT.
 - The WT may not operate properly if the WT is connected to the PC through converters (such as a GP-IB to USB converter or RS-232 to USB converter). For more details, contact your nearest YOKOGAWA dealer.
-

2.3 Setting GP-IB Control Parameters

Procedure

Set the GP-IB control according to the procedures given in following manuals.

With the WT5000

- Section 3.4 in the Communication Interface User's Manual (IM WT5000-17EN)

With the WT3001E/WT3002E/WT3003E/WT3004E

- Section 1.5 in the Communication Interface User's Manual (IM WT3001E-17EN)

With the WT3000 (760301/760302/760303/760304)

- Section 1.5 in the Communication Interface User's Manual (IM 760301-17E)

With the WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R

- Section 3.4 in the Communication Interface User's Manual (IM WT1801R-17EN)

With the WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E

- Section 3.4 in the Communication Interface User's Manual (IM WT1801E-17EN)

With the WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)

- Section 3.4 in the Communication Interface User's Manual (IM WT1801-17EN)

With the WT500 (760201/760202/760203)

(for Products with the /C1 Suffix Code)

- Section 2.5 in the Communication Interface User's Manual (IM 760201-17E)

With the WT310E/WT310EH/WT332E/WT333E

(for Products with the /C1 Suffix Code)

- Section 2.4 in the Communication Interface User's Manual (IMWT310E-17EN)

With the WT310/WT310HC/WT330(WT332/WT333)

(for Products with the /C1 Suffix Code)

- Section 2.4 in the Communication Interface User's Manual (IMWT310-17EN)

Explanation

Setting the Address

Set the WT address within the following range.

1 to 30

Each device that is connected in a GP-IB system has its own unique address. This address is used to distinguish between different devices. Therefore, you must assign a unique address to the WT when you connect it to a PC or other device.

Note

- When the controller (PC) is using the GP-IB bus, do not change the address of any connected devices.
- When you connect a WT to the PC and use the software to control the WT, you cannot use multiple types of communication interface at the same time.
- You can connect one WT to a PC and use the software to control the WT.
- On the PC end, use a GP-IB board (or card) made by NI (National Instruments). For details, see section 1.3.
- The WT may not operate properly if the WT is connected to the PC through converters (such as a GP-IB to USB converter or RS-232 to USB converter). For more details, contact your nearest YOKOGAWA dealer.

2.4 Setting RS-232 Control Parameters

Procedure

Set the RS-232 control according to the procedures given in following manuals.

With the WT3001E/WT3002E/WT3003E/WT3004E

(for Products with the /C2 Suffix Code)

- Section 2.6 in the Communication Interface User's Manual (IM WT3001E-17EN)

With the WT3000 (760301/760302/760303/760304)

(for Products with the /C2 Suffix Code)

- Section 2.6 in the Communication Interface User's Manual (IM 760301-17E)

With the WT310E/WT310EH/WT332E/WT333E

(for Products with the /C2 Suffix Code)

- Section 3.4 in the Communication Interface User's Manual (IMWT310E-17EN)

With the WT310/WT310HC/WT330(WT332/WT333)

(for Products with the /C2 Suffix Code)

- Section 3.4 in the Communication Interface User's Manual (IMWT310-17EN)

Explanation

Setting RS-232 Control Parameters

To use the software through the RS-232 interface, set the handshaking method, data format, baud rate, and terminator.

Recommended settings

- Handshaking method: CTS-RTS
- Data format: 8-NO-1
- Baud rate: 38400
- Terminator: Lf

If the handshaking method, data format, and terminator are not set as shown above, online connection will not be possible with the software.

Note

- When the controller (PC) is using the RS-232 interface, do not change the above settings of any connected devices.
- When you connect a WT to the PC and use the software to control the WT, you cannot use multiple types of communication interface at the same time.
- You can use the software to control a single WT that is connected to the PC. Do not connect multiple WTs to the PC.
- The WT may not operate properly if the WT is connected to the PC through converters (such as a GP-IB to USB converter or RS-232 to USB converter). For more details, contact your nearest YOKOGAWA dealer.

2.5 Setting Ethernet Control Parameters

Procedure

Set the ethernet control according to the procedures given in following manuals.

With the WT5000

- Section 13.2 in the User's Manual (IM WT5000-02EN)
- Section 1.4 in the Communication Interface User's Manual (IM WT5000-17EN)

With the WT3001E/WT3002E/WT3003E/WT3004E

(for Products with the /C7 Suffix Code)

- Section 5.2 in the Expansion Function User's Manual (IM WT3001E1-51EN)
- Section 4.3 in the Communication Interface User's Manual (IM WT3001E-17EN)

With the WT3000 (760301/760302/760303/760304)

(for Products with the /C7 Suffix Code)

- Section 5.2 in the Expansion Function User's Manual (IM 760301-51E)
- Section 4.3 in the Communication Interface User's Manual (IM 760301-17E)

With the WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R

- Section 20.2 in the User's Manual (IM WT1801R-02EN)
- Section 1.4 in the Communication Interface User's Manual (IM WT1801R-17EN)

With the WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E

- Section 20.2 in the User's Manual (IM WT1801E-02EN)
- Section 1.4 in the Communication Interface User's Manual (IM WT1801E-17EN)

With the WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)

- Section 20.2 in the User's Manual (IM WT1801-02EN)
- Section 1.4 in the Communication Interface User's Manual (IM WT1801-17EN)

With the WT500 (760201/760202/760203)

(for Products with the /C7 Suffix Code)

- Section 11.3 and 11.4 in the User's Manual (IM 760201-17E)

With the WT310E/WT310EH/WT332E/WT333E

(for Products with the /C7 Suffix Code)

- Section 4.4 in the Communication Interface User's Manual (IMWT310E-17EN)

With the WT310/WT310HC/WT330(WT332/WT333)

(for Products with the /C7 Suffix Code)

- Section 4.4 in the Communication Interface User's Manual (IMWT310-17EN)

Explanation

Setting Ethernet Control Parameters

To use the software over a network, set the TCP/IP parameters.

Note

- When the controller (PC) is using the Ethernet interface, do not change the TCP/IP settings of any connected devices.
 - When you connect a WT to the PC and use the software to control the WT, you cannot use multiple types of communication interface at the same time.
 - You can connect one WT to a PC and use the software to control the WT.
 - The WT may not operate properly if the WT is connected to the PC through converters (such as a GP-IB to USB converter or RS-232 to USB converter). For more details, contact your nearest YOKOGAWA dealer.
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3.1 Installation and Uninstallation

Installation




Before installing the software, close all programs that are currently running.

If an older version of WTVIEWERfree is installed, uninstall it (see page 3-6).

The following procedure explains how to install the software on Windows 11. The windows that appear will vary depending on the operating system.

Note

A dialog box regarding administrator privileges may appear during the installation. If this happens, follow the message in the dialog box.

1. Turn on the PC and start Windows.
2. From the YOKOGAWA Web page indicated below, access the WTVIEWERfree product information page.
<https://tmi.yokogawa.com/library/>
3. Select the  **Software** or **Documents & Downloads** tab, and click  **WTVIEWERfree** under Software.
The download page (Yokogawa Membership Site "Customer Portal") will appear.
Sign in to the Customer Portal site.
4. On the search page, select **WTVIEWERfree [tmi-XXXXXXXXXX].***
A download page appears.
* [tmi-XXXXXXXXXX] is the file control number.
5. On the download page, click **WTVIEWERfree_XXX** * to start downloading.
* XXXXX is the file control number.
6. Unzip the downloaded file.

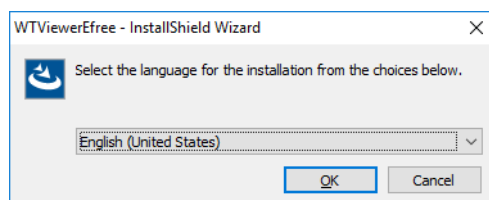
Installing WTVIEWERfree

7. Double-click **WTVIEWERfreeSetup.exe**. The installer starts.

If the "User Account Control" window appears during the installation, click **Yes** to continue the installation.

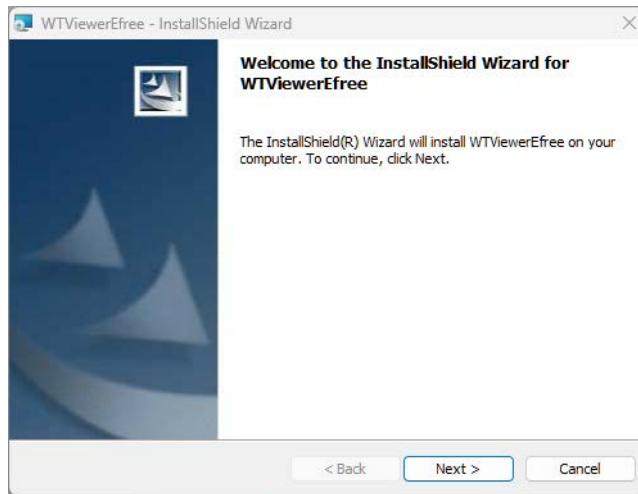


8. Select the language to use during the installation, and click **OK**.



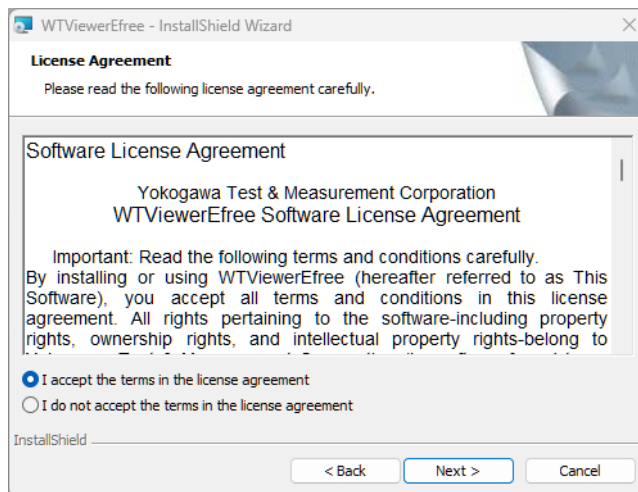
3.1 Installation and Uninstallation

9. Follow the instructions on the screen, and then click **Next**.



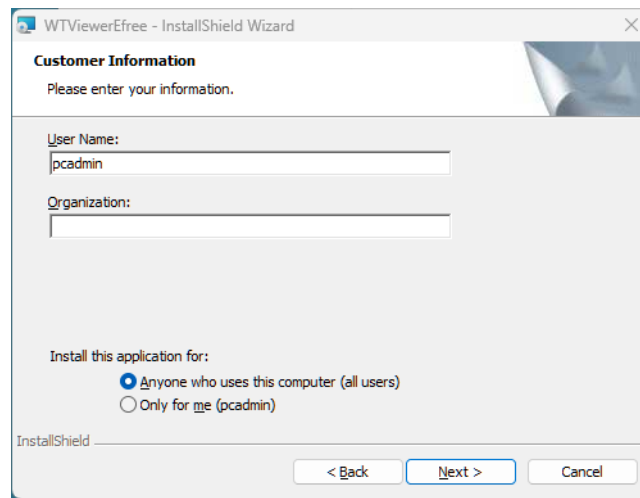
10. If you agree with the license agreement, select **I accept the terms in the license agreement**, and click **Next**.

Otherwise, select **I do not accept the terms in the license agreement**. The installation will be canceled.



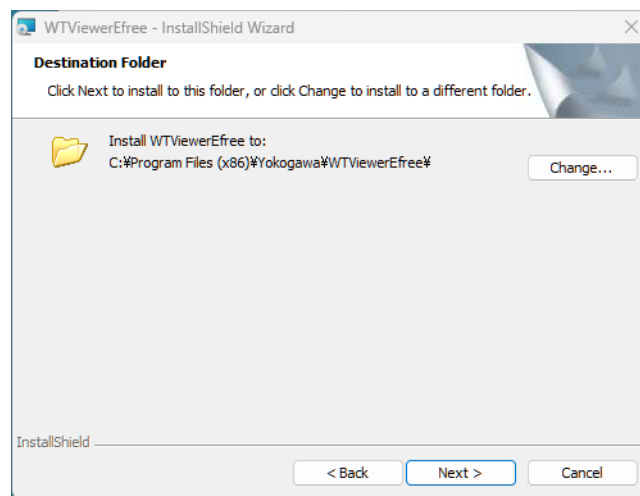
11. Enter the user name and organization.

Select the user installing this application, and then click **Next**.

**12.** Select the installation destination, and click **Next**.

Click **Change...** to specify the destination. The default installation destination is as follows:

- Windows 32-bit version
C:\Program Files\Yokogawa\WTVIEWERFree\
- Windows 64-bit version
C:\Program Files (x86)\Yokogawa\WTVIEWERFree\

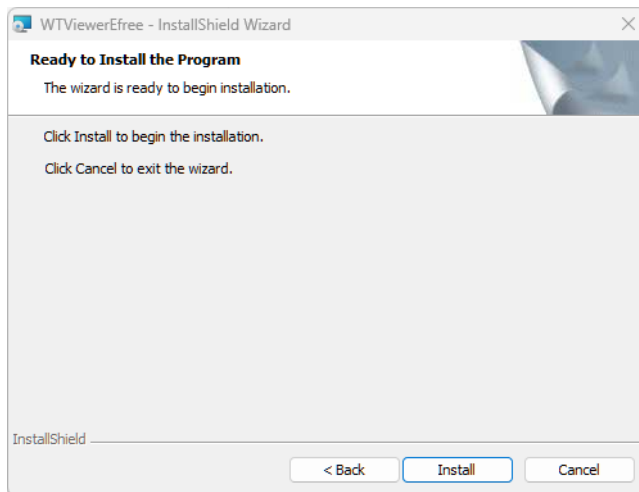


3.1 Installation and Uninstallation

- 13.** A screen prompting you to start the installation appears. If the installation settings are okay, click **Install**. The software is installed.

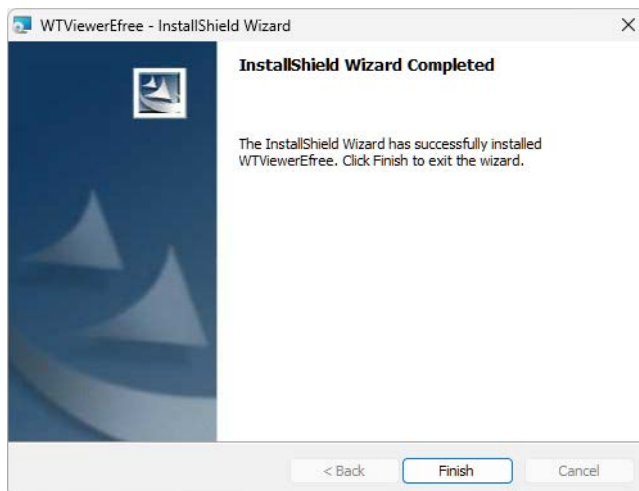
Click **Back** if you want to change the installation settings.

Click **Cancel** to cancel the installation.



- 14.** When the software installation finishes normally, the following screen appears. WTVIEWERFree will be added to the Windows.

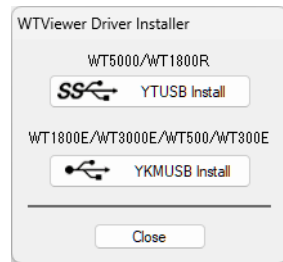
Click **Finish** to complete the installation.



Next, the USB driver (YTUSB/YKMUSB) installation wizard starts automatically.

Installing USB driver (YTUSB/YKMUSB)

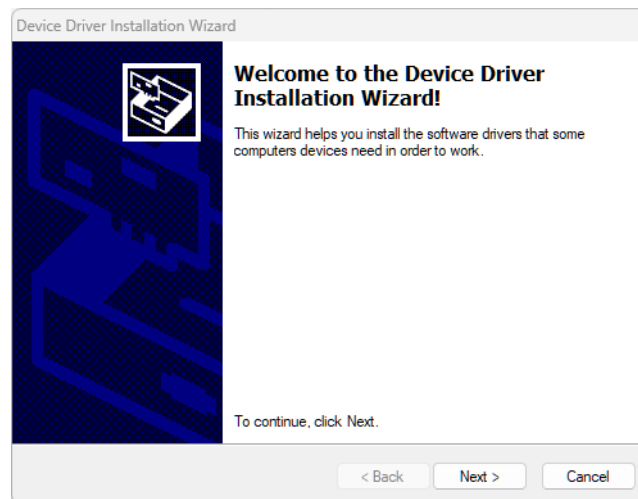
1. Click the USB driver to install according to the WT model you will connect to.
You can also install both.



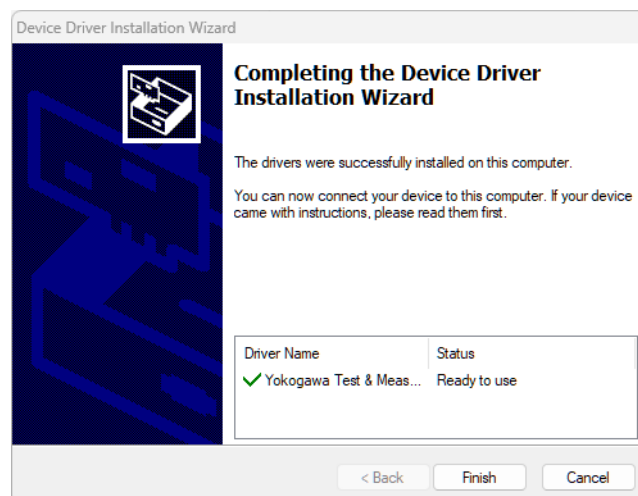
If the “User Account Control” window appears during the installation, click **Yes** to continue the installation.

Installing YTUSB/YKMUSB

1. Follow the instructions on the screen, and then click **Next**.

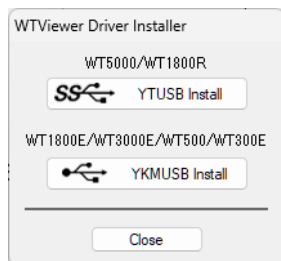


2. When the software installation finishes normally, the following screen appears. Click **Finish** to complete the installation.




Closing the USB Driver (YTUSB/YKMUSB) Installer

1. Click **Close** to complete the installation.



Uninstallation


On Windows 11

1. Click the Windows  (Start button), and click **Settings**.
2. Select **Apps** on the left side of the Setting window and **Installed apps** on the right.
A list appears showing the installed applications.
3. In the Search box of the application, enter the keyword you want to search for. The search results are displayed.

Keyword	Name of the application
WTVIEWERefree	WTVIEWERefree
YTUSB	Windows Driver Package - Yokogawa Test & Measurement Corporation (WinUSB) YTUSB (mm/dd/yyyy x.x.x.x)
YKMUSB	Windows Driver Package - Yokogawa Test & Measurement Corporation (WinUSB) YKMUSB (mm/dd/yyyy x.x.x.x)

4. In the displayed search results, click ... (More options) shown to the right of the application you want to uninstall.
5. From the drop-down list, select **Uninstall**. A uninstallation confirmation dialog box appears.
6. Click **Uninstall** to uninstall the application selected in step 3.
The "User Account Control" window will appear during the uninstallation. Click **Yes** to continue the installation.
The uninstallation will continue.

On Windows 10

1. Click  (start button) in the lower left of the window. Then, from Windows System, select **Control Panel**.
2. Click **Programs and Features** in the Control Panel.
3. On the Programs and Features window, select **WTVIEWERefree** to uninstall this software or select **YTUSB**, **YKMUSB**, or **YKMUSB64** (64-bit version) to uninstall the USB driver. Then, click **Uninstall**.
A confirmation dialog box appears.
4. Click **Yes**. The software is uninstalled.
Click **No** to cancel the uninstallation.
The "User Account Control" window will appear during the uninstallation. Click **Yes** to continue the installation.
The uninstallation will continue.

3.2 Starting and Exiting the Software


Preparation before Starting the Software

Do the following before you start the software.

- Turn on the WT.
- Connect communication cables, and set communication interface parameters. (See chapter 2.)

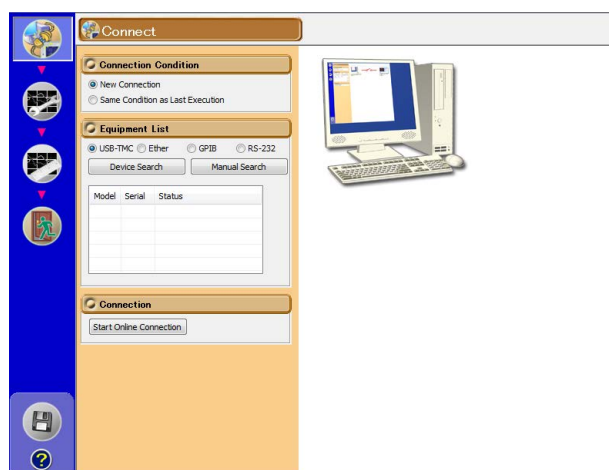
Starting the Software

The following procedure explains how to start the software on Windows 11.


1. Click the Windows  (Start button), and click **All apps**.
An All apps menu appears.
2. Select **YOKOGAWA** and then **WTViewerEfree** to run this software.

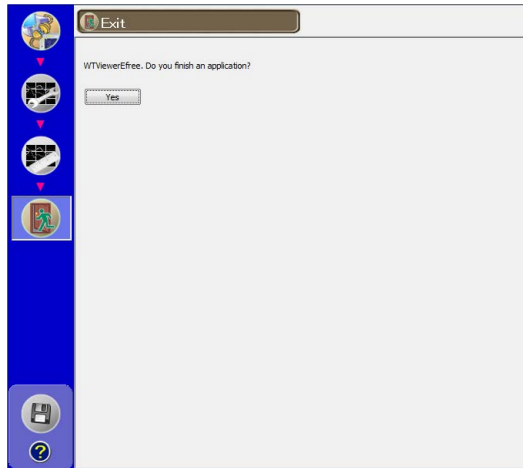
When the software starts, the Connection menu will appear.

Proceed to chapter 4, "WT-PC Communication."



Exiting the Software


1. Click  in the menu area. The exit screen appears.



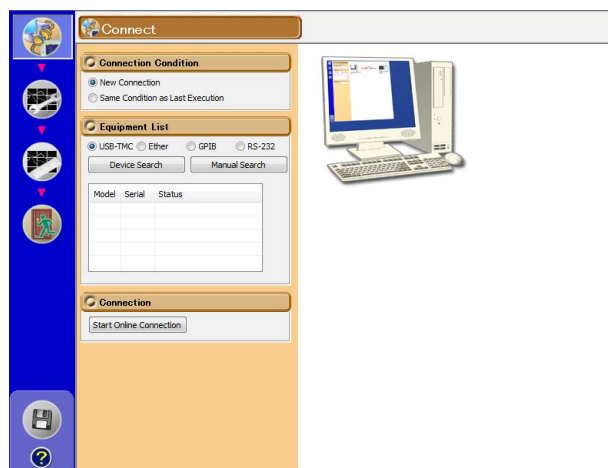
2. Click **Yes**. The software will close.



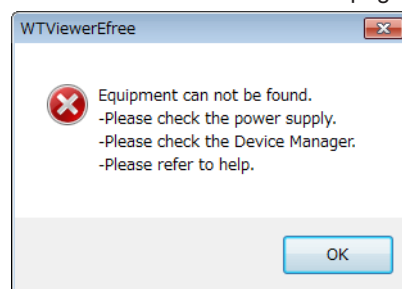
4.1 Configuring a New Set of WT-PC Communication Parameters (New connection)

1. Click  in the menu area. The Connection screen appears.

When you start the software, this screen appears automatically.



If no connectable WT is found, the following message appears.
Use manual search on the next page to perform another search.

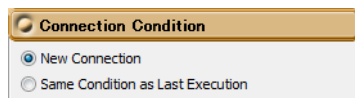


If the above message appears even after the manual search, check the following items.

- Is the WT turned on?
- Is the communication interface cable connected?
- Are the communication settings (GP-IB address, IP address, etc.) of each WT unique?

Connection Condition

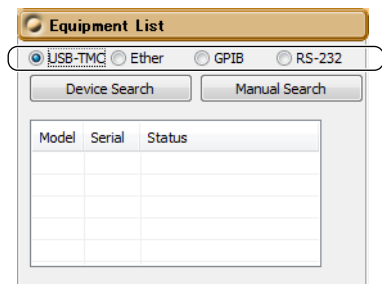
2. To create a new connection, click **New Connection**.



4.1 Configuring a New Set of WT-PC Communication Parameters (New connection)

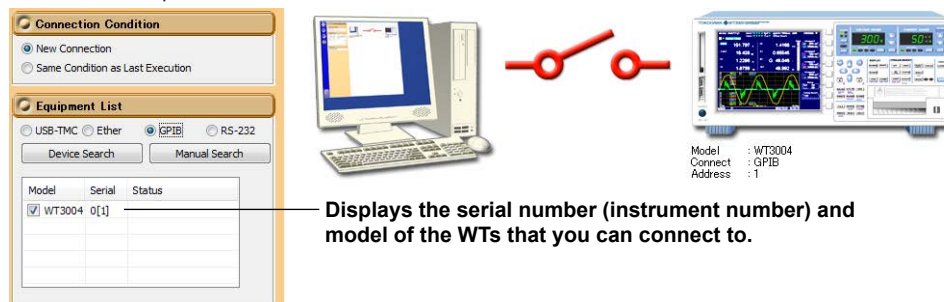
Equipment List

3. Select how to connect the WT to the PC from USB-TMC, Ether, GPIB, and RS-232.



4. Click **Device Search**.

The serial number (instrument number) and model of the WTs that you can connect to appear. Proceed to step 7.



Note

If you connect the WT to the PC through the USB, GP-IB, or ethernet interface, turn on the WT, and then start the software, a list of connectable WTs will appear.

- For a USB connection, device ID 1 to 4 can be connected through device search. For ID 5 to 127, manual search is used to make the connection.
- For a GP-IB connection, WTs whose GPIB address is 1 to 30 are searched for.
- For an Ethernet connection, WTs whose IP address is xxx.xxx.xxx.1 to xxx.xxx.xxx.255 are searched for. xxx.xxx.xxx. denotes the IP address of the PC in which this software is running. However, with the WT3000/WT3000E when an Ethernet connection is in use, connect using a manual search explained later.
- If a connectable WT is found, searching is not performed on other interfaces.

Manual Search

You can also specify conditions to search for the WT you want to connect to.

5. Click **Manual Search**. A Manual Search dialog box appears.

The Manual Search dialog box contains the following sections:

- Communication:** Checkboxes for USB-TMC, Ether, GPIB, and RS-232.
- Model:** Checkboxes for various WT models: WT5000, WT3000, WT1800, WT500, WT330, WT310, WT3000E, WT1800E, WT330E, and WT310E.
- USB-TMC:** Radio buttons for Direct Setting and Range Setting. Direct Setting has a dropdown for 1. Range Setting has dropdowns for 1 and 127.
- Ether:** Radio buttons for Direct Setting and Range Setting. Direct Setting has a text input for IP address (10.10.134.23). Range Setting has dropdowns for 10, 10, 134, and 1, and a dropdown for 10, 10, 134, 255.
- GPIB:** Radio buttons for Direct Setting and Range Setting. Direct Setting has a dropdown for 1. Range Setting has dropdowns for 1 and 30.
- RS232:** Radio buttons for Direct Setting and Range Setting. Direct Setting has a dropdown for COM1. Range Setting has dropdowns for COM1 and COM3.
- Buttons:** Device Search and Close.

6. Set the search conditions, and click **Device Search**. A Search Result dialog box appears.

The Search Result dialog box contains the following sections:

- Communication:** Checkboxes for USB-TMC, Ether, GPIB, and RS-232.
- Model:** Checkboxes for various WT models: WT5000, WT3000, WT1800, WT500, WT330, WT310, WT3000E, WT1800E, WT330E, and WT310E.
- Table:** A table with columns: Model, Serial, Communication, Address, and Remote. It lists two results: WT1806R (Ether, 10.10.134.56) and WT5003 (USB-TMC, TEMP01).
- Buttons:** OK and Cancel.

Select the display conditions of the search results.

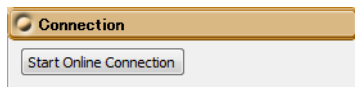
WT remote on/off button
When remote is set to ON, the WT remote LED (green) lights.
This enables you to determine and check the WT that you are trying to establish an online connection with.

7. Select the check box of the WT you want to connect to, and click **OK**.

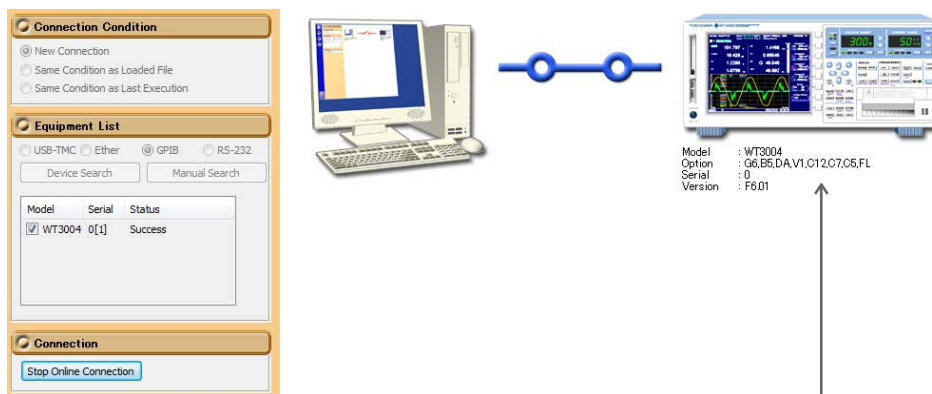
4.1 Configuring a New Set of WT-PC Communication Parameters (New connection)

Starting the Connection

8. Click **Start Online Connection**. The communication with the peer WT begins.



When the connection is established and the WT and PC are online, an illustration indicating this state appears.



With the WT500



With the WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R



With the WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E or WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)



With the WT3001E/WT3002E/WT3003E/WT3004E or WT3000 (760301/760302/760303/760304)



With the WT500 (760201/760202/760203)



With the WT332E/WT333E or WT330(WT332/WT333)




With the WT310E/WT310EH or WT310/WT310HC

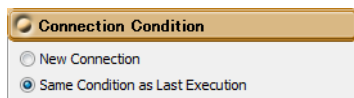


Note

- You cannot proceed to Setting, Measure, or File until an online connection is established.
- If any of the following circumstances apply when you click Start Online Connection, a communication error will occur.
 - The peer WT is not ready to measure.
 - The GP-IB address, IP address, user name, or password is incorrect.
 - There is no response from the peer WT.

4.2 Using the Same Communication Settings as the Last Time

1. Click  in the menu area. The Connection screen appears.
2. In the Connection Condition dialog box, click **Same Condition as Last Execution**.

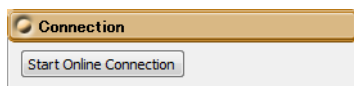


Note

You cannot select "Same Condition as Last Execution" the first time you start the software.

Starting the Connection


3. Click **Start Online Connection**. The communication with the peer WT begins.

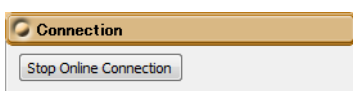


Note

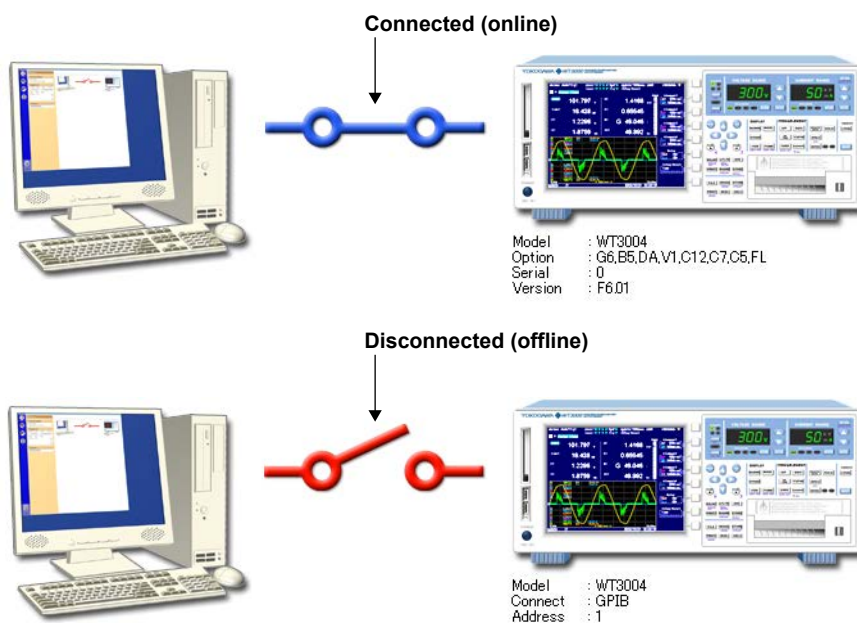
- You cannot proceed to Setting, Measure, or File until an online connection is established.
- If any of the following circumstances apply when you click Start Online Connection, a communication error will occur.
 - The peer WT is not ready to measure.
 - The GP-IB address, IP address, user name, or password is incorrect.
 - There is no response from the peer WT.
 - You are trying to connect to a different WT from the last time.

4.3 Switching to Offline

1. Click  in the menu area. The Connection screen appears.
2. While online, click **Stop Online Connection**. The connection between the WT and PC is disconnected.

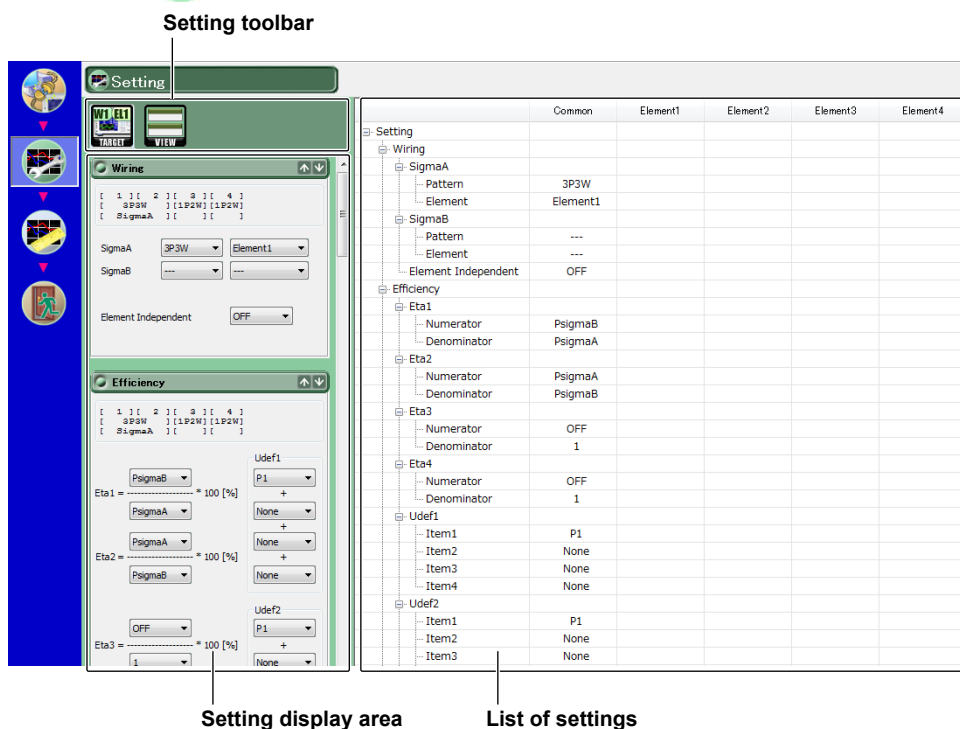


When the connection is cut and the WT and PC are offline, an illustration indicating this state appears.



5.1 WT Configuration

1. Click  in the menu area. The Setting screen appears.



Notes on Operation

Note the following points when you use the software to configure the WT.

- For details on settings, see the WT User's Manual.

WT5000

- Features Guide IM WT5000-01EN*
- User's Manual IM WT5000-02EN*

WT3001E/WT3002E/WT3003E/WT3004E

- User's Manual IM WT3001E-01EN*
- Expansion Function User's Manual IM WT3001E-51EN*

WT3000 (760301/760302/760303/760304)

- User's Manual IM 760301-01E
- Expansion Function User's Manual IM 760301-51E

WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R

- Features Guide IM WT1801R-01EN*
- User's Manual IM WT1801R-02EN*

WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E

- Features Guide IM WT1801E-01EN
- User's Manual IM WT1801E-02EN

5.1 WT Configuration

WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)

- Features Guide IM WT1801-01EN
- User's Manual IM WT1801-02EN

WT500 (760201/760202/760203)

- User's Manual IM 760201-01E*

WT310E/WT310EH/WT332E/WT333E

- User's Manual IM WT310E-01EN*

WT310/WT310HC/WT330(WT332/WT333)

- User's Manual IM WT310-01EN

* The above user's manuals can be viewed using the help function (see section 8.1).

- To display the waveform, bar graph, or trend display, set the measurement function and element on the numeric or harmonic list screen beforehand.

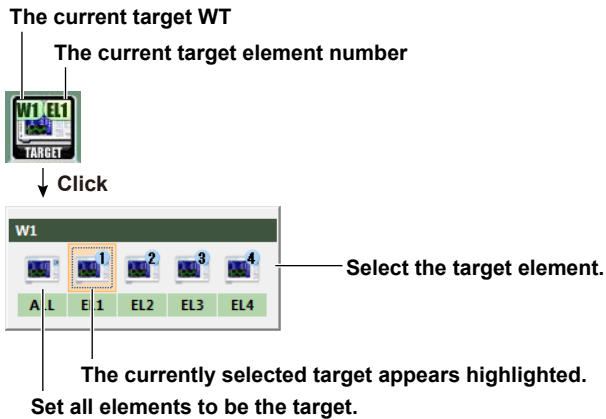
Examples of Setting screens are provided in the remainder of this section.

Setting Toolbar



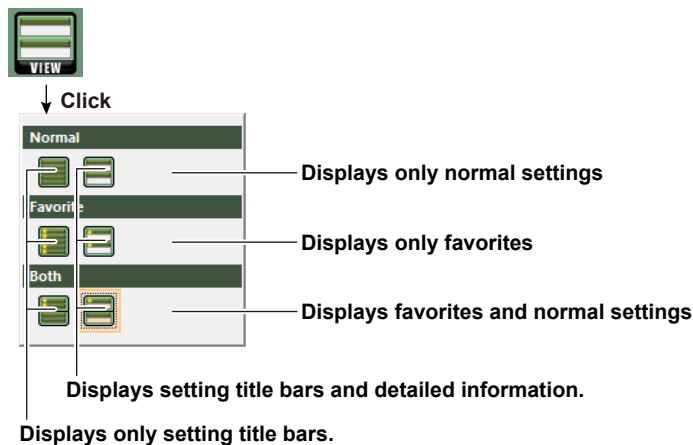
Selecting the Target Element

Click the TARGET icon to select the element that you want to change the settings on.



Selecting the Display Format of the Setting Display Area

Click the VIEW icon, and select the display format of the setting display area (see the next page).



Note

If no favorites are registered, nothing is displayed for favorites.

Setting display area

The display format of the setting display area can be set as follows.

Favorites button

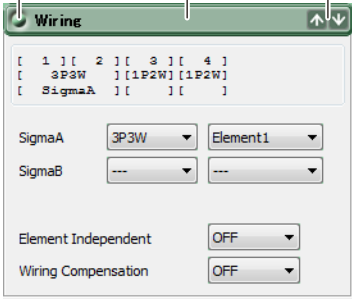
Switch whether to register or remove from favorites.
★ is displayed when it is registered in favorites.

Title bar

Click to show or hide detailed setting information.

Jump button

Jumps to the next setting above or the next setting below.



Detailed setting information

Change settings using radio buttons and drop-down menus.

Favorites appear in the top half of the setting display area.



Favorites display area

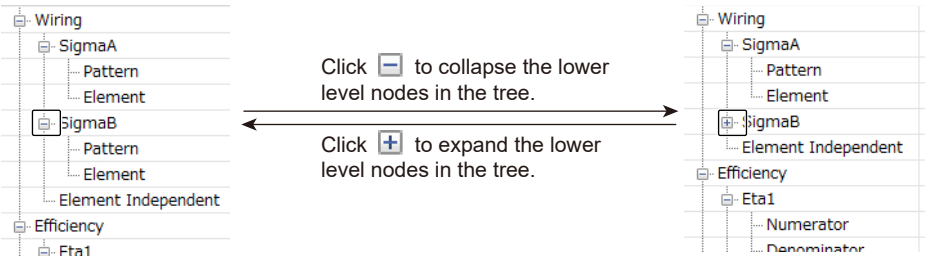
Setting display area

List of settings

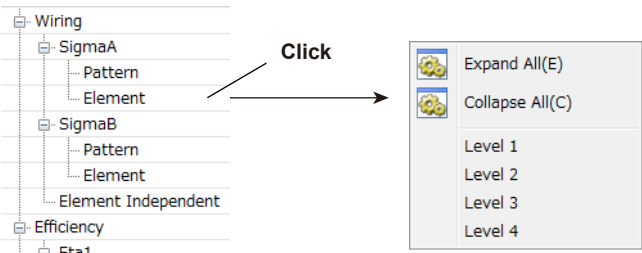
The current settings are listed in a tree structure. When you change a setting in the setting display area, the change is reflected for the target element in the list of settings. You can also change the settings from the list. However, you cannot collectively change the settings from the list. Change them individually.

Setting	Description				
	Common	Element1	Element2	Element3	Element4
Wiring					
SigmaA					
Pattern	3P3W				
Element	Element1				
SigmaB					
Pattern	3P3W				
Element	Element3				
Element Independent	OFF				
Wiring Compensation					
Efficiency					
η1	PsigmaB				
Numerator	PsigmaA				
Denominator					
η2	PsigmaA				
Numerator	PsigmaB				

Expanding and Collapsing the List of Settings

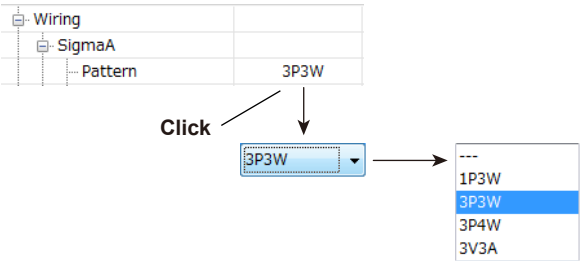


You can also right-click on the list of settings, and use the shortcut menu to expand and collapse the list.



Changing Settings

1. Click the cell containing the setting you want to change.
2. Change the setting in the box that appears or type the value.



Details of Settings

Examples of the various settings in setting display areas and the corresponding settings in the list of settings are provided below. The settings and the contents in the list of settings vary depending on the following factors.

- The WT model
- The number of elements installed in the WT and the presence or absence of options

Wiring System

Wiring

[1] [2] [3] [4]

[3P3W] [1P2W] [1P2W]

[SigmaA] [] [] []

SigmaA

3P3W

Element1

SigmaB

Element Independent

OFF

Wiring Compensation

OFF

Wiring

SigmaA

Pattern

Element

SigmaB

Pattern

Element

Element Independent

Wiring Compensation

Efficiency Equation

Efficiency

[1] [2] [3] [4]

[3P3W] [3P3W]

[SigmaA] [SigmaB]

PsigmaB

Eta1 = ----- * 100 [%]

PsigmaA

Eta2 = ----- * 100 [%]

PsigmaA

Eta3 = ----- * 100 [%]

PsigmaB

Eta4 = ----- * 100 [%]

Udef1

P1

None

None

None

Udef2

P1

None

None

None

Efficiency Compensation

Efficiency

Eta1

Numerator

Denominator

Eta2

Numerator

Denominator

Eta3

Numerator

Denominator

Eta4

Numerator

Denominator

Udef1

Item1

Item2

Item3

Item4

Udef2

Item1

Item2

Item3

Item4

Efficiency Compensa...

5-6

IM 760131-01EN

Measurement Range

Sets the maximum available range.

Increases the range by one level.

Lists the available ranges for direct entry.

Decreases the range by one level.

Sets the minimum available range.

Sets the valid voltage measurement range.

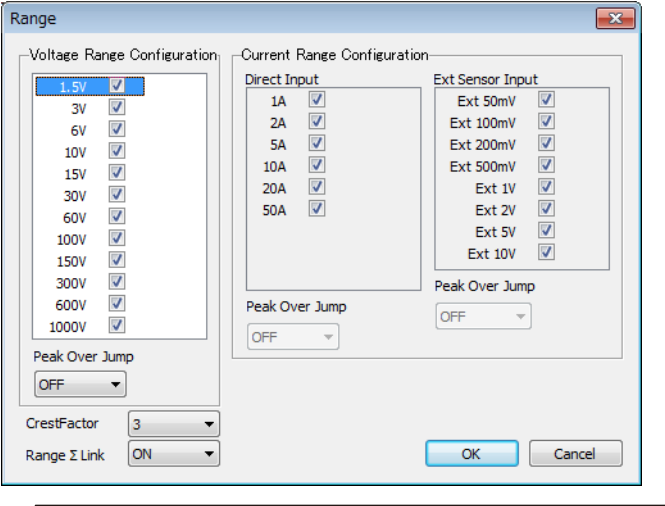
Voltage mode

Current mode



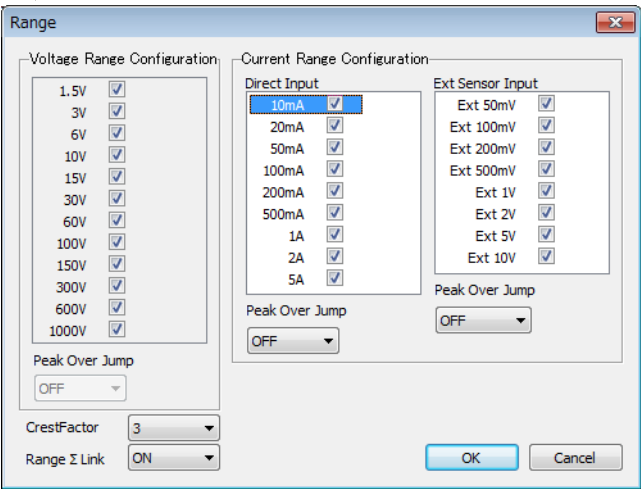
Range
Voltage
Voltage Mode
Auto Range
Voltage
Current
Current Mode
Auto Range
Current
Ext Sensor
Sensor Ratio(mV...

Appears when elements with different input ranges are installed and the target element is ALL



Range Configuration
Voltage Range
1000V
600V
300V
150V
100V
60V
30V
15V
10V
6V
3V
1.5V
Peak Over Jump
Current Range
Input Element(50A)
50A
20A
10A
5A
2A
1A
Peak Over Jump
Input Element(5A)
5A
2A
1A
500mA
200mA
100mA
50mA
20mA
10mA
Peak Over Jump
Input Element(Ext)
10V
5V
2V
1V
500mV
200mV
100mV
50mV
Peak Over Jump

Sets the valid current measurement range.



Scaling

Scaling

Scaling ☒ OFF ☐ ON

VT Ratio 1.0000

CT Ratio 1.0000

Scaling Factor 1.0000

Scaling
... Scaling
... VT Ratio
... CT Ratio
... Scaling Factor

Synchronization Source

SyncSrc

SyncSrc I1

SyncSrc
... SyncSrc

Filter

Filter

LineFilter OFF

FreqFilter OFF

Detail Setting

Appears only for the WT5000

Filter Detail Setting

LineFilter

☐ Advanced Settings

Line Filter Type (Cutoff:0.1kHz~100.0kHz) Butterworth

OFF

U

I

LPF

Normal Measurement

Harmonic Measurement

FreqFilter(Sync Source/Freq Measurement)

☐ Advanced Settings

0.1Hz

OFF

U

I

HPF

LPF

Sync Src FreqU

Sync Src FreqI

Freq2 Measurement

OFF

0.0%

U

I

HPF

Level

Level

Freq2U

Freq2I

0.0%

OK

Cancel

Apply

Filter
... LineFilter
... Advanced Settings
... Type
... AAF(1MHz)
... DLF(Normal)
... DLF(Harmonics)
... FreqFilter(Sync Source/...
... Advanced Settings
... High Pass Filter
... Rectifier Voltage
... Rectifier Current
... Level Voltage
... Level Current
... Freq2 Measurement
... High Pass Filter
... Level Voltage
... Level Current

Data Update Interval

UpdateRate

UpdateRate 500ms

UpdateRate
UpdateRate

Averaging

Averaging

Averaging ☒ OFF ☐ ON

Type Exponent

Count 2

Averaging
Averaging
Type
Count

Integration

Integrate

Mode Normal

AutoCal ☒ OFF ☐ ON

Timer 00000:00:00

Reserve Time Current Time

Start 2006/01/01 0:00:00

End 2006/01/01 1:00:00

WpType Charge

QMode DC

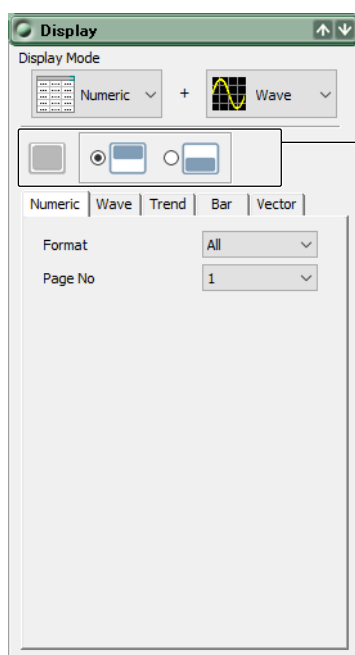
D/A Out Timer 00001:00:00

Integrate
Mode
AutoCal
Timer
Start Date
Start Time
End Date
End Time
WpType
QMode
D/A Out Timer

5.1 WT Configuration

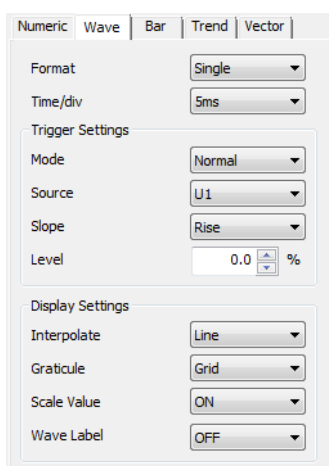
Display

Display with the
WT5000,
WT3001E/WT3002E/WT3003E/WT3004E,
WT3000 (760301/760302/760303/760304),
WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R,
WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E,
WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806),
WT500 (760201/760202/760203)

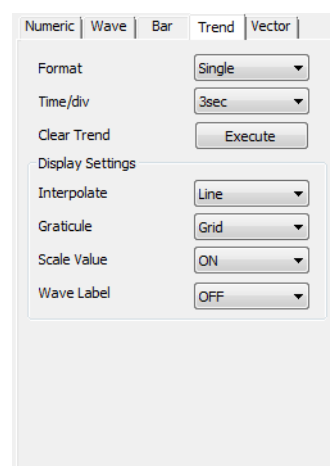


Numeric data

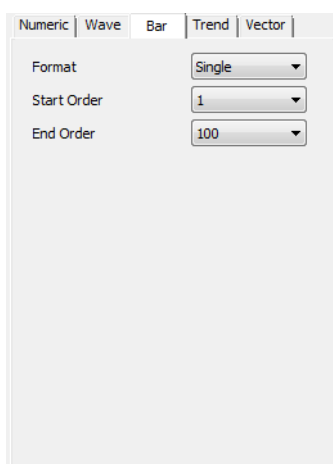
Appears only for the WT5000
Set the target to single screen, top half of the split screen,
or bottom half of the split screen



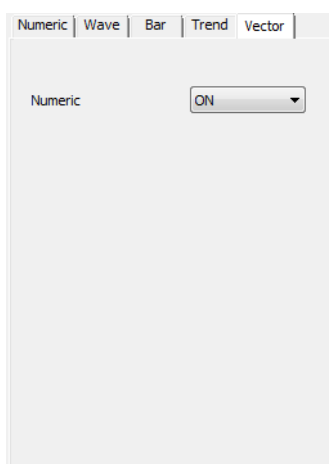
Waveform



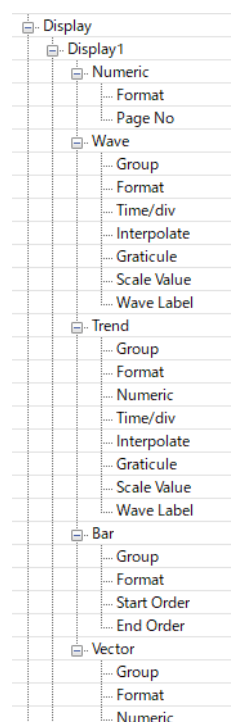
Trend



Bar graph



Vector



Display with the
WT310E/WT310EH/WT332E/WT333E or
WT310/WT310HC/WT330(WT332/WT333)

Display

DisplaySettings ☒ Normal ☐ Harmonics

	Function	Element	Order
A	U	1	1
B	I	1	
C	P	1	
D	FreqU	1	

Resolution ☒ High ☐ Low

Numeric Measurement

Measure

S Formula

Urms*Irms

S,Q Formula

Type1

Phase

180 Lead/Lag

PC

IEC76-1(1976)

P1

0.5000

P2

0.5000

Sampling Frequency

Auto

MaxHold

☒ OFF ☐ ON

Measure
S Formula
S,Q Formula
Phase
PC
P1
P2
Sampling Frequency
MaxHold

Utility

Utility

CrestFactor ☒ CF3 ☐ CF6 ☐ CF6A

Initialize Settings

Execute

Utility
CrestFactor

Appears only for the WT5000 and
WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R

User-Defined Function

User Define Function

Function

Function1

Function2

Function3

Function4

Function5

Function6

Function7

Function8

Function9

Function10

Function11

Function12

Function13

Function14

Function15

Function16

Function17

Function18

Function19

Function20

Expression

WH(E1)/(ITIME(E1)/3600)

P(E1)-P(E2)

(UPPK(E1)-UMPK(E1))/2/JDC(E1)*

(IPPK(E1)-IMPK(E1))/2/IDC(E1)*10

DELTAU1RMS(SA)

DELTAU2RMS(SA)

DELTAU3RMS(SA)

DELTAU1MN(SA)

DELTAU2MN(SA)

DELTAU3MN(SA)

360-PHIU1U3(SA)+PHIU1U2(SA)

PHIU1I2(SA)-PHIU1I1(SA)

PHIU3I3(SA)-PHIU2I2(SA)-F11()

(360-PHIU3I3(SA))+PHIU1I1(SA)+

PPPK(E1)-PMPK(E1)

DELTAU1RMN(SA)

DELTAU2RMN(SA)

DELTAU3RMN(SA)

DELTAU1DC(SA)

DELTAU2DC(SA)

User Define Function

Function1

State

Expression

Name

Unit

Function2

State

Expression

Name

Unit

Function3

State

Expression

Name

Unit

Function4

State

Expression

Name

Unit

Function5

State

Expression

Name

Unit

Function6

State

Expression

Name

Unit

Function7

State

Expression

Name

Unit

Function8

State

Expression

Name

Unit

Function9

State

Expression

Name

Unit

Function10

State

Expression

Name

Unit

Function11

State

Expression

Name

Unit

Function12

State

Expression

Name

Unit

Function13

State

Expression

Name

Unit

Function14

State

Expression

Name

Unit

Function15

State

Expression

Name

Unit

Function16

State

Expression

Name

Unit

Function17

State

Expression

Name

Unit

Function18

State

Expression

Name

Unit

Function19

State

Expression

Name

Unit

Function20

State

Expression

Name

Unit

Calculator

WH(E1)/(ITIME(E1)/3600)

WH(E1)/(ITIME(E1)/3600)

Constant

K11

K21

K31

K41

K51

Item

E1

ORT

Function

K

(

)

C

7

8

9

/

4

5

6

*

1

2

3

-

,

0

.

+

Detail Setting

OK

Cancel

Apply

Detail Setting

Property

Value

Detail Setting

Constant

K1

K2

K3

K4

K5

1

1

1

1

1

OK

Cancel

Apply

Note
SIN, COS, TAN, ASIN, ACOS, and ATAN operators are available only on the WT5000 and WT1801R/ WT1802R/WT1803R/WT1804R/WT1805R/WT1806R.

D/A Output

You can configure the D/A output if the /DA option is installed in the WT.

D/A Output				
Ch	Function	Element	Order	RangeMode
1	U	Element1	---	Fixed
2	I	Element1	---	Fixed
3	P	Element1	---	Fixed
4	S	Element1	---	Fixed
5	Q	Element1	---	Fixed
6	PF	Element1	---	Fixed
7	Phi	Element1	---	Fixed
8	FreqU	Element1	---	Fixed
9	FreqI	Element1	---	Fixed
10	None	---	---	Fixed
11	None	---	---	Fixed
12	None	---	---	Fixed
13	None	---	---	Fixed
14	None	---	---	Fixed
15	None	---	---	Fixed
16	None	---	---	Fixed
17	None	---	---	Fixed
18	None	---	---	Fixed
19	None	---	---	Fixed
20	None	---	---	Fixed

D/A Output	
Ch1	Function Element Order RangeMode Max Min
Ch2	Function Element Order RangeMode Max Min
Ch3	Function ...

Waveform

Wave

Time/div

5ms

Trigger Settings

Mode

Normal

Source

U1

Slope

Rise

Level

0.0

%

Wave	
Time/div	
Mode	
Source	
Slope	
Level	

Harmonic Measurement

You can configure harmonics in the following situations.

- WT5000
- The /G5 or /G6 option is installed in any of the following models.
 - WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
 - WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
 - WT1800(WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)

Harmonics

Harmonics Group Select

	Harmonics 1	Harmonics 2
Element1	<input checked="" type="radio"/>	<input type="radio"/>
Element2	<input checked="" type="radio"/>	<input type="radio"/>
Element3	<input checked="" type="radio"/>	<input type="radio"/>
Element4	<input checked="" type="radio"/>	<input type="radio"/>
Element5	<input checked="" type="radio"/>	<input type="radio"/>
Element6	<input checked="" type="radio"/>	<input type="radio"/>

	Harmonics 1	Harmonics 2
PLL Source	U1	I1
Min Order	1	1
Max Order	500	500
Thd Formula	1/Total	1/Total

Harmonics

Harmonics Group

Element1

Element2

Element3

Element4

Element5

Element6

Harmonics1

PLL Source

Min Order

Max Order

Thd Formula

Harmonics2

PLL Source

Min Order

Max Order

Thd Formula

- The /G5 or /G6 option is installed in a model other than the above.

Harmonics

PLL Source

I1

Min Order

1

Max Order

100

Thd Formula

1/Total

Harmonics

PLL Source

Min Order

Max Order

Thd Formula

Delta Computation

You can set delta computation in the following cases.

- WT5000
- The /DT option is installed in any of the following models.
 - WT3000 (760301/760302/760303/760304)
 - WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
 - WT500 (760201/760202/760203)

Delta

[1] [2] [3] [4]
[3P3W] [1P2W] [1P2W]
[SigmaA] [] [] []

SigmaA

3P3W

3P3W->3V3A

SigmaB

Delta Measure Mode

RMS

Delta

SigmaA[3P3W]

Delta Measure Type

SigmaB[---]

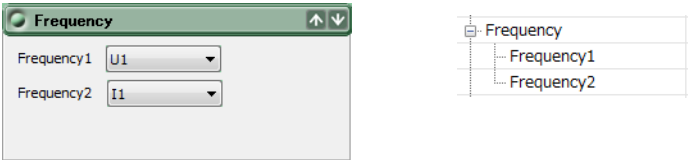
Delta Measure Type

Delta Measure Mode

Frequency Measurement

On the following models, you can configure frequency measurement if the /FQ option is not installed.

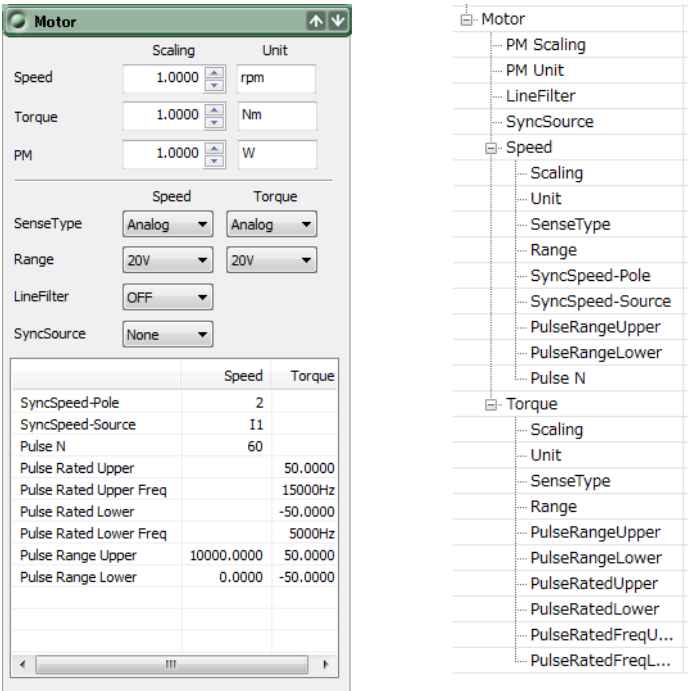
- WT3001E/WT3002E/WT3003E/WT3004E
- WT3000 (760301/760302/760303/760304)
- WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
- WT500 (760201/760202/760203)



Motor

You can configure motor settings in the following situations.

- An /MTR option is installed in the WT3001E/WT3002E/WT3003E/WT3004E.
- The WT3000 (760301/760302/760303/760304) suffix code is -MV.
- The /MTR option is installed in any of the following models.
 - WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
 - WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
 - WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)



Note

On the WT5000, set the motor using Motor/AUX explained later.

AUX

AUX can be configured on the following models if they are equipped with the /AUX option.

- WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
- WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
- WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)

AUX

Aux1

Aux2

Name

AUX1

AUX2

Scaling

1.0000

1.0000

Unit

kW/m2

kW/m2

Auto Range

OFF

OFF

Range

20V

20V

LineFilter

OFF

	Aux1	Aux2
A	1.000E+00	1.000E+00
B	0.000E+00	0.000E+00
P1[X]	1.000E+00	1.000E+00
P1[Y]	1.000E+00	1.000E+00
P2[X]	-1.000E+00	-1.000E+00
P2[Y]	-1.000E+00	-1.000E+00

AUX

LineFilter

Aux1

Name

Scaling

Unit

Auto Range

Range

A

B

P1[X]

P1[Y]

P2[X]

P2[Y]

Aux2

Name

Scaling

Unit

Auto Range

Range

A

B

P1[X]

P1[Y]

P2[X]

P2[Y]

5-16

IM 760131-01EN

Motor/AUX

If the /MTR1 or /MTR2 option is installed in the WT5000, you can set Motor/AUX.

Motor/AUX

MTR1MTR2

ModeSingle(Pulse)Single(Pulse)

Electrical AngleOFFOFF

Detail SettingDetail Setting

MTR1MTR2

Motor 1T1Ch ACh BCh CCh D

Motor 3T3Ch ECh FCh GCh H

Motor/AUX

MTR1

Mode

Motor1

Speed

Scaling

Unit

SenseType

Analog Aut...

Analog Range

LineFilter

NoiseFilter

SyncSpeed-...

SyncSpeed-...

A

B

P1[X]

P1[Y]

P2[X]

P2[Y]

Pulse N

PulseRange...

PulseRange...

Torque

Scaling

Unit

SenseType

Analog Aut...

Analog Ran...

LineFilter

NoiseFilter

A

B

P1[X]

P1[Y]

P2[X]

P2[Y]

PulseRatedU...

PulseRatedF...

PulseRatedL...

PulseRatedF...

PulseRange...

PulseRange...

PM

PM Scaling

PM Unit

SyncSource

Motor2

Next page

5.1 WT Configuration

Detail Setting (MTR Detail Setting)

- **Ch Settings**

MTR Detail Setting

Ch Settings

Electrical Angle

Motor1

Motor2

Speed

Scaling

1.0000

Unit

rpm

Torque

Scaling

1.0000

Unit

Nm

PM

Scaling

1.0000

Unit

W

Speed

Scaling

1.0000

Unit

rpm

Torque

Scaling

1.0000

Unit

Nm

PM

Scaling

1.0000

Unit

W

Speed

Torque

Speed

Torque

SenseType

Pulse

Analog

Pulse

Analog

Analog Auto Range

OFF

OFF

OFF

OFF

Analog Range

20V

20V

20V

20V

LineFilter

OFF

OFF

OFF

OFF

NoiseFilter

OFF

OFF

OFF

OFF

SyncSource

None

None

Speed

Torque

Speed

Torque

SyncSpeed-Pole

2

SyncSpeed-Sou...

11

A

1.000E+0

B

0.000E+0

P1[X]

1.000E+0

P1[Y]

1.000E+0

P2[X]

-1.000E+0

P2[Y]

-1.000E+0

Pulse N

60

PulseRatedUpper

PulseRatedFreq...

PulseRatedLower

PulseRatedFreq...

PulseRangeUpper

10000.0000

PulseRangeLower

0.0000

Motor3

Motor4

Speed

Scaling

1.0000

Unit

rpm

Torque

Scaling

1.0000

Unit

Nm

PM

Scaling

1.0000

Unit

W

Speed

Scaling

1.0000

Unit

rpm

Torque

Scaling

1.0000

Unit

Nm

PM

Scaling

1.0000

Unit

W

Speed

Torque

Speed

Torque

SenseType

Pulse

Analog

Pulse

Analog

Analog Auto Range

OFF

OFF

OFF

OFF

Analog Range

20V

20V

20V

20V

LineFilter

OFF

OFF

OFF

OFF

NoiseFilter

OFF

OFF

OFF

OFF

SyncSource

None

None

Speed

Torque

Speed

Torque

SyncSpeed-Pole

2

SyncSpeed-Sou...

11

A

1.000E+0

B

0.000E+0

P1[X]

1.000E+0

P1[Y]

1.000E+0

P2[X]

-1.000E+0

P2[Y]

-1.000E+0

Pulse N

60

PulseRatedUpper

PulseRatedFreq...

PulseRatedLower

PulseRatedFreq...

PulseRangeUpper

10000.0000

PulseRangeLower

0.0000

OK

Cancel

Apply


- **Electrical Angle**

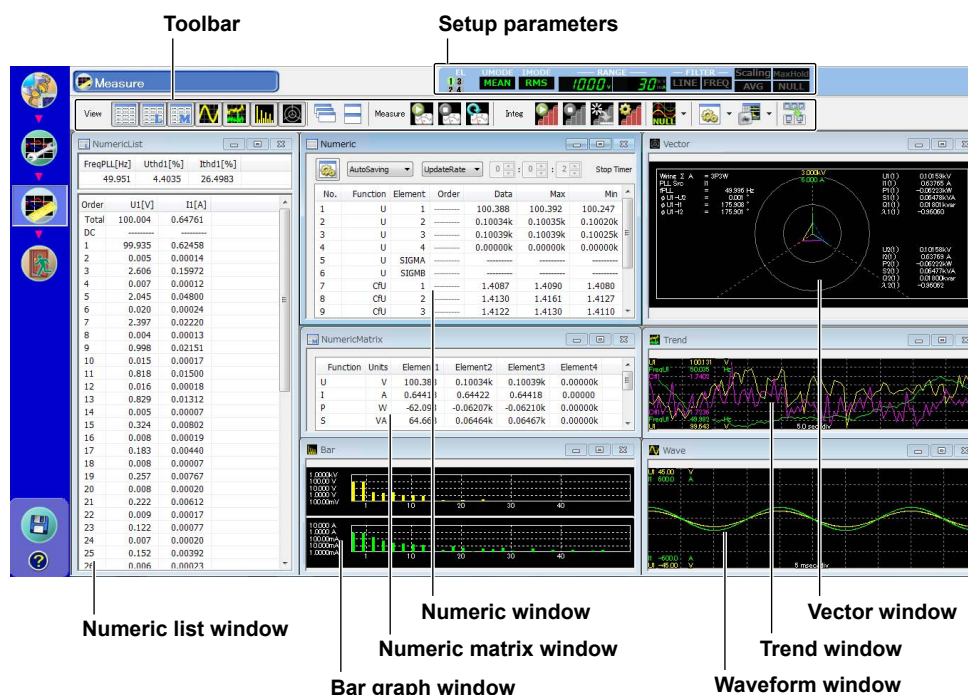
[illegible]

6.1 Measurement Screen

The display example, setting items, and setting range of the description vary depending on the following factors.

- The WT model
- The number of elements installed in the WT and the presence or absence of options

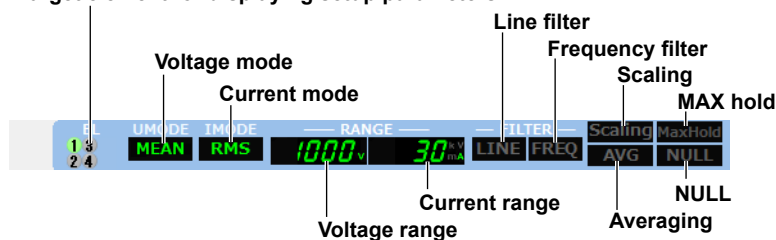
1. Click  in the menu area. The measurement screen appears.



Unavailable icons, setting boxes, and setup parameters appear dimmed.

Setup Parameters

Target element for displaying setup parameters



Target element for displaying setup parameters

You can select the target element for displaying setup parameters.

Voltage Mode, Current Mode, Voltage Range, and Current Range

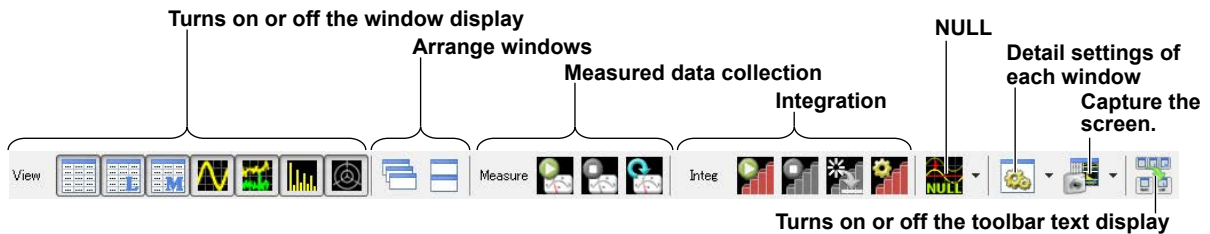
The current settings are displayed. For details on changing the settings, see chapter 5.

Line Filter, Frequency Filter, Scaling, MAX Hold, Averaging, and NULL

- ON: Displayed in green
- OFF: Displayed in gray

For details on changing the settings, see chapter 5.

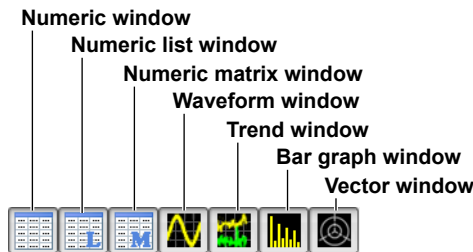
Toolbar



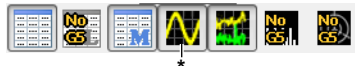
Turning On and Off the Window Display (View Icons)

Turns on or off each window display.

- WT5000
- Models with the harmonic measurement (/G5), simultaneous dual harmonic measurement (/G6), or advanced computation (/G6) option



- Models without the harmonic measurement (/G5), simultaneous dual harmonic measurement (/G6), and advanced computation (/G6) option



- If harmonic measurement (/G5) is not installed in the following models, a “No G5” icon is displayed in place of the waveform window icon, and the waveform window cannot be displayed.
 - WT310E/WT310EH/WT332E/WT333E
 - WT310/WT310HC/WT330(WT332/WT333)

Arranging Windows



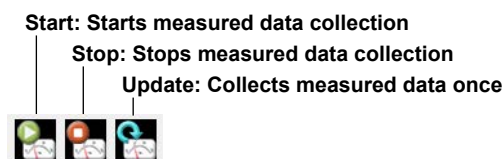
Cascade

- Displayed windows are cascaded so that all the window titles can be seen.
- The active window will be shown in front of all cascaded windows.
- The order in which the windows are cascaded varies depending on the types of windows that are being displayed.

Tile

- All displayed windows are tiled.
- The order in which the windows are arranged varies depending on the types of windows that are being displayed. The numeric list window is always shown vertically in the left edge.

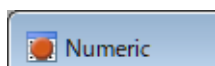
Collecting Measured Data (Measurement Icons)



Starting Measured Data Collection

The software collects data from the WT after the data on the WT is updated and then displays the data. While data is being collected, the Integ-Setup icon, View-Set icon, and Snapshot icon are unavailable.

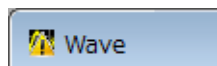
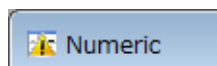
While data is being acquired from the WT, a icon blinks in the title bar of the numeric window.



Note

Low measured data communication performance icon

If the communication performance declines and there is a possibility that problems are occurring in the acquisition of measured data, a icon appears. The icon appears on the title bar of the numeric window and waveform window.



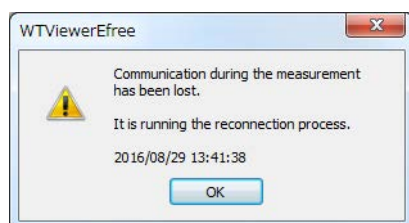
If this icon appears, the measured data acquired from the WT and saved in a CSV file may have dropouts. To avoid this problem, the following measures can be taken.

- Change to a high-speed interface (see section 9.1).
- Make the update rate longer (see section 5.1).
- Turn the waveform display off (see section 6.5.)
- Increase the PC performance (specs).

Cutoff and resume action of communication

While acquiring data, if there is no response from the peer WT for the following reasons, a message will be displayed.

- The power to the peer WT or hub is cut off (e.g., power failure).
- The communication cable is disconnected.



If communication is restored after the message is displayed, the software automatically resumes waveform data acquisition.

On the following models, the integration resume action that is taken when the power recovers can be selected with the "integration resume function at power failure recovery" setting.

- WT5000
- WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
- WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
- WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)

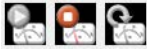
Collecting Measured Data Once

The software collects data from the WT once and then displays the data.

Before collection is started or when Stop is clicked



When Start is clicked



When Update is clicked



All icons are unavailable until the data collection is complete.

Note

To collect measured data for windows other than those that are currently shown, click the relevant viewer icons to show the windows, and then start data collection.

Stopping Measured Data Collection

Stops collecting measured data from the WT.

Integration

Start: Starts integration

Stop: Stops integration

Reset: Resets integration

Setting: Set integration parameters.



Starting Integration

Integration on all elements installed in the WT will start.

Check the following points before starting integration.

- Set measurement functions and elements so that integrated values appear in the numeric window.
- The software must collect values integrated on the WT; otherwise integrated values will not appear even if you start integration. Therefore, start data collection first, and then start integration.

Pausing and Stopping Integration

Integration on all elements installed in the WT will be paused.

- If you click Stop before the specified integration time is reached, integration is paused. If you click Start in this condition, integration will resume.
- If integration is paused or if the specified integration time has been reached and integration is finished, click Reset and then Start to reset and start integration from the beginning.


Resetting Integration

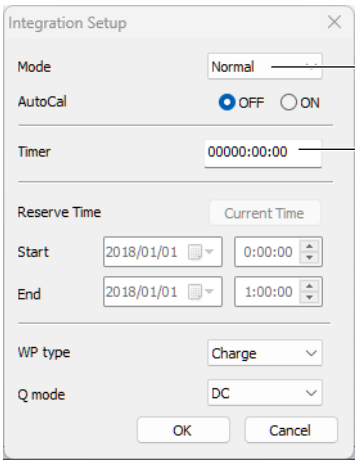
Integration on all elements installed in the WT will be reset.

- If you click Reset, the integrated data in the WT will be cleared, but the integrated values of this software will remain.
- If integrated values are displayed in the numeric window of the software, the integrated values will remain displayed. If you start integration again, the integrated values will be updated.

Setting Integration Parameters

The integration setting dialog box appears.


 Click



Integration mode

Integration timer (hour:minute:second)

NULL




Click here to show a menu for setting NULL On and Off.

Off

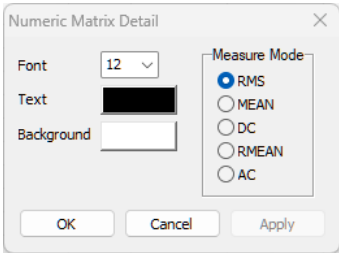
✓ On

Click here to switch between NULL On and Off.

Detail Settings of Each Window (View-Set icon)



Click here to show the detail setting dialog box for the active window. The example below is the numeric matrix setting dialog box.



Click here to show a menu for selecting the detail setting dialog box.

Numeric - Detail

Numeric - Item Setting

NumericList

NumericMatrix

Wave

Trend

Bar

Vector

Save Layout...

Load Layout

Section 6.2

Section 6.3

Section 6.4

Section 6.5

Section 6.6

Section 6.7

Section 6.8

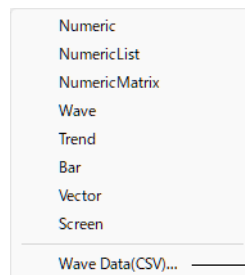
Save the layout of each measurement window to a file. File name extension: mvl
Saved layout information can also be loaded.

Capturing the Screen (Snapshot icon)



Click here to capture the entire screen in BMP format.

Click here to select the window to capture in BMP format.



Save waveform display data in CSV format.

Location Where Files Are Saved In

The files are saved to the following folder. You cannot change the location.

C:\Users\<user name>\Documents\YOKOGAWA\WTViewerEfree\DATA

File Names

The following file names are used. You cannot change them.

- Entire screen
Screen_All_yyyymmddhhmmss.bmp
- A specific window

Numeric:	Screen_Numeric_yyyymmddhhmmss.bmp
Numeric list:	Screen_NumericList_yyyymmddhhmmss.bmp
Numeric matrix:	Screen_NumericMatrix_yyyymmddhhmmss.bmp
Waveform:	Screen_Wave_yyyymmddhhmmss.bmp
Trend:	Screen_Trend_yyyymmddhhmmss.bmp
Bar graph:	Screen_Bar_yyyymmddhhmmss.bmp
Vector:	Screen_Vector_yyyymmddhhmmss.bmp

yyymmddhhmmss is a 14-digit number consisting of the year, month, day, hour, minute, and second. The year is four digits; the hour is based on a 24-hour clock.

Saving Waveform Data (CSV)

You can save the waveform data shown in the waveform window to a CSV file.*

After selecting an item from the menu, you can set the file save destination folder and file name as you like.

- * Peak-to-peak compressed waveform data is displayed in the waveform window. Peak-to-peak (p-p) compression is the compression method used to derive waveform display data from waveform sampling data. The WT divides the entire measured data into fixed intervals and uses the maximum and minimum values for each interval. As such, peak-to-peak compressed data is saved here.

Turning On or Off the Toolbar Text Display (Toolbar icon)

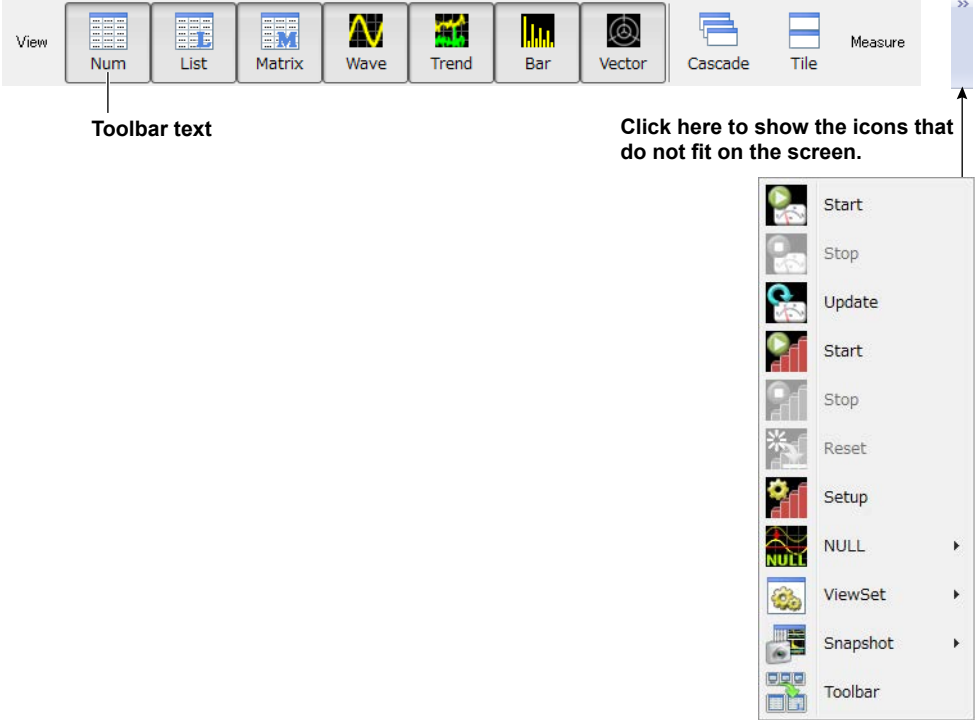


The toolbar text display toggles on and off every time you click the icon.

Text display: OFF

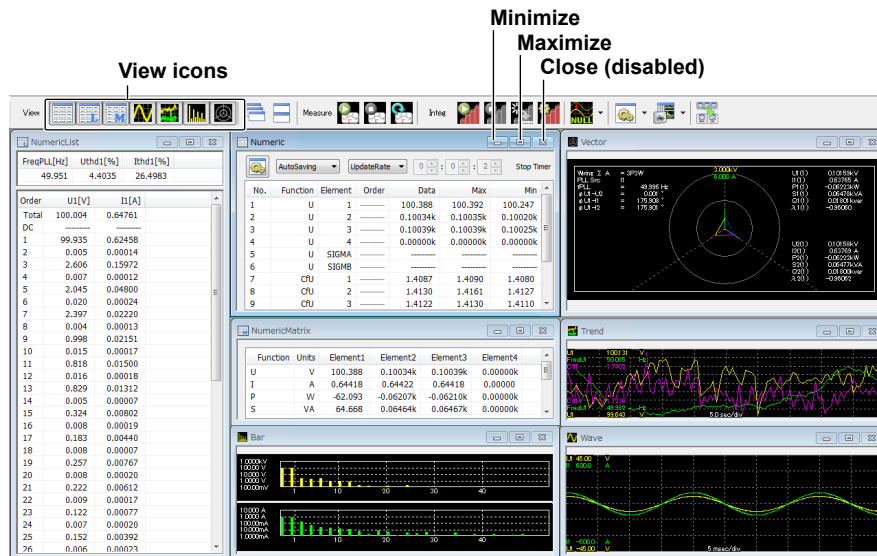


Text display: ON



Measurement Screen

When you start the software for the first time, all possible windows are displayed tiled.



- You can maximize or minimize any measurement window.
- After you maximize a window, you can click a window arrange icon (Cascade or Tile) to clear the maximization and arrange the windows as specified.
- To close a measurement window, click the corresponding view icon. The close button at the upper right of each measurement window is disabled.
- Right-click the measurement window to display the detail setting dialog box of the window. This is not possible when measured data collection is in progress.
- The numeric list window, bar graph window, and vector window can be displayed in any of the following cases.
 - WT5000
 - When any of the following options is installed in the WT
 - Harmonic measurement (/G5)
 - Simultaneous dual harmonic measurement (/G6)
 - Advanced computation (/G6)
- The following models can display a waveform window if the harmonic measurement (/G5) option is installed.
 - WT310E/WT310EH/WT332E/WT333E
 - WT310/WT310HC/WT330(WT332/WT333)
- The vector window cannot be displayed on the following models.
 - WT310E/WT310EH/WT332E/WT333E
 - WT310/WT310HC/WT330(WT332/WT333)

Note

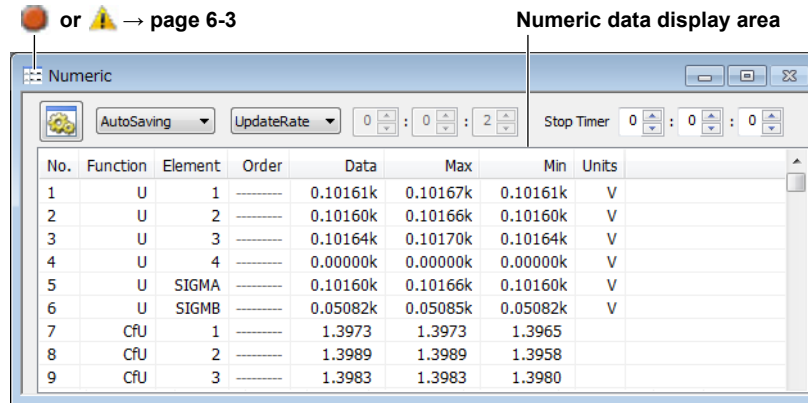
Display Sampling on the Measurement Screen

This software adjusts the display updating of the PC screen by automatically changing the display update interval between 100 ms and 1 s. This is to prevent hindering the acquisition of measured data through communication as a result of high load placed on the CPU when the PC screen update interval is too short. For example, if the data update interval on the WT is 50 ms, measured data is acquired from the WT every 50 ms, but the PC screen update interval is 100 ms.

6.2 Numeric Display

The numeric display shows measured data numerically. You can customize the types of functions to display, the display order, the font size, the color, and so on.

Numeric Data Display Area



Function

Displays the functions.

For the function symbols and definitions, see the WT User's Manual.

Element

Displays the elements.

Order

Displays the harmonic order of numeric data.

"-----" is displayed for functions that harmonic orders cannot be specified.

Max and Min

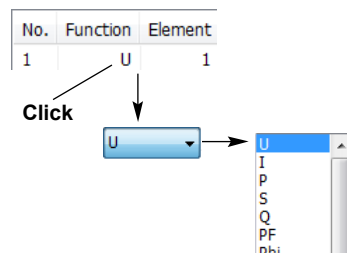
Displays the maximum and minimum values of each display item, obtained through the comparison of numeric data that has been collected from the WT. When a measurement is started, these values are initialized with the first measured data.

Setting the Display Items

You can change the function, element, and harmonic order display items by following the procedure below. You cannot change them while measured data collection is in progress.

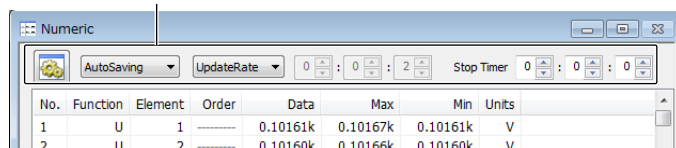
You can also set the display items using the item setting dialog box, which is described on page 6-13.

1. Click the target cell. A combo box appears.
2. Select the item you want to display.



Saving Measured Data

Save measured data.

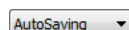


The items set in the numeric display are saved.

You cannot save measured data on the numeric list display, numeric matrix display, trend display, bar graph display, or vector display. To do so, use this window (numeric display window).

Save Method

Set how to save measured data.

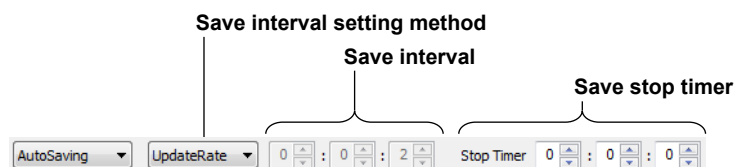


- OFF: Measure data is not saved.
- AutoSaving: Measured data is saved automatically at a fixed period.
- ManualSaving: Save measured data manually.

If you select AutoSaving or ManualSaving, the displayed measured data are saved to CSV files. You can open these files using a spreadsheet program (such as Excel).

Set the save destination and file name using the detail setting dialog box (see next page).

AutoSaving



Save Interval Mode

- UpdateRate: Measured data is saved at the WT data update interval.
This function operates in the following manner depending on the waveform trigger setting.
 - When waveform trigger is set to off, measured data is saved continuously every update interval.
 - When waveform trigger is set to Auto or Normal, one update interval of measured data is saved after a trigger detection. When waveform trigger is set to Normal and no trigger is detected, data saving does not take place, and save operation remains paused.
- Custom: Measured data is saved at the interval that you specify.

Save Interval

This setting is enabled if you set the save interval mode to Custom.

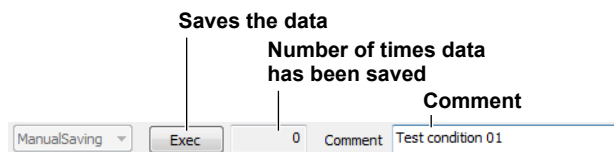
Selectable range: 1 seconds to 23 hours 59 minutes 59 seconds

Save Stop Timer

Set the length of time to run auto saving.

- **When the Timer Is Set to 0:0:0**
Auto saving of measured data continues until you stop the collection of measured data.
- **When the Timer Is Not Set to 0:0:0**
Auto saving of measured data continues for the specified length of time. The timer counts down as time elapses. When the save stop timer reaches 0:0:0, auto saving of measured data stops.

Manual Saving



Saving Data

While measured data collection is in progress, click this button to save measured data.

Number of Times Data Has Been Saved

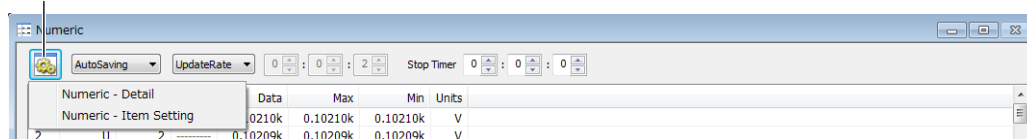
Shows the number of times data has been saved.

Comment

Set a comment that you want to include in the saved files.

Detail Setting Dialog Box

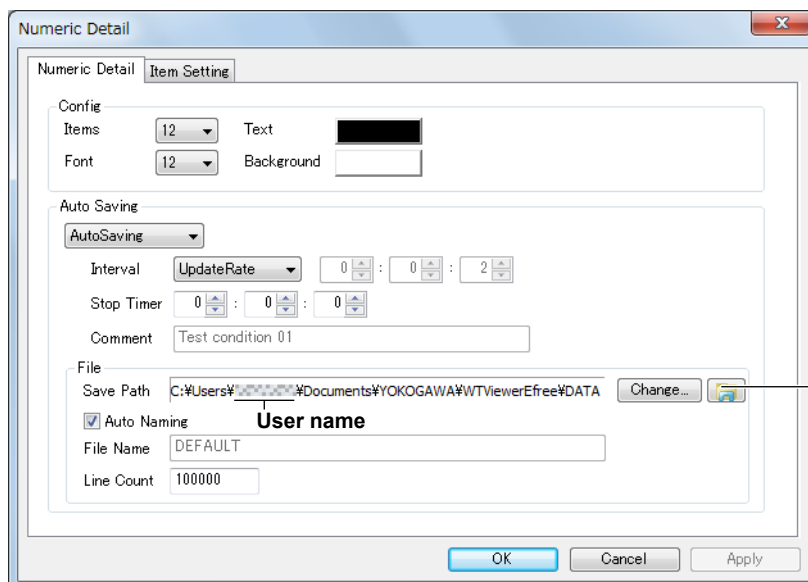
Detail setting dialog box display button



A detail setting dialog box appears when you perform any of the following operations.

- Click the detail setting dialog box display button at the upper left of the numeric window.
- Right-click the numeric window.
- Click the window detail setting button when the numeric window is selected (active).
- Select Numeric-Detail or Numeric-Item Setting in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.



Items

Select the number of numeric data items to display from 12, 24, 48, 200 and 900.*

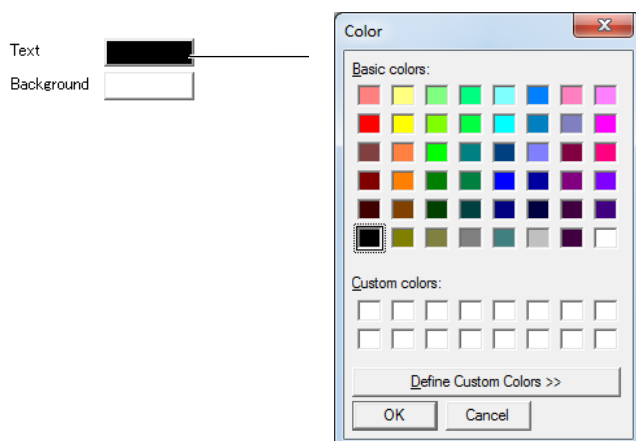
- * The number 900 can be selected when connected to any of the following models.
 - WT5000
 - WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R
 - WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
 - WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
(Must be firmware version 2.33 or later)

Font

Set the font size to a value between 6 to 40 in steps of 2.

Text and Background

Select the text and background colors.



Auto Naming

If you select the Auto Naming check box, files are saved with the name Auto_yyyymmddhhmmss.csv. yyyymmddhhmmss is a 14-digit number consisting of the year, month, day, hour, minute, and second. The year is four digits; the hour is based on a 24-hour clock.

File Name

To specify the file name, clear the Auto Naming check box, and enter the file name.



- File Name: You can assign any name that is allowed on your PC.
- Extension: .csv

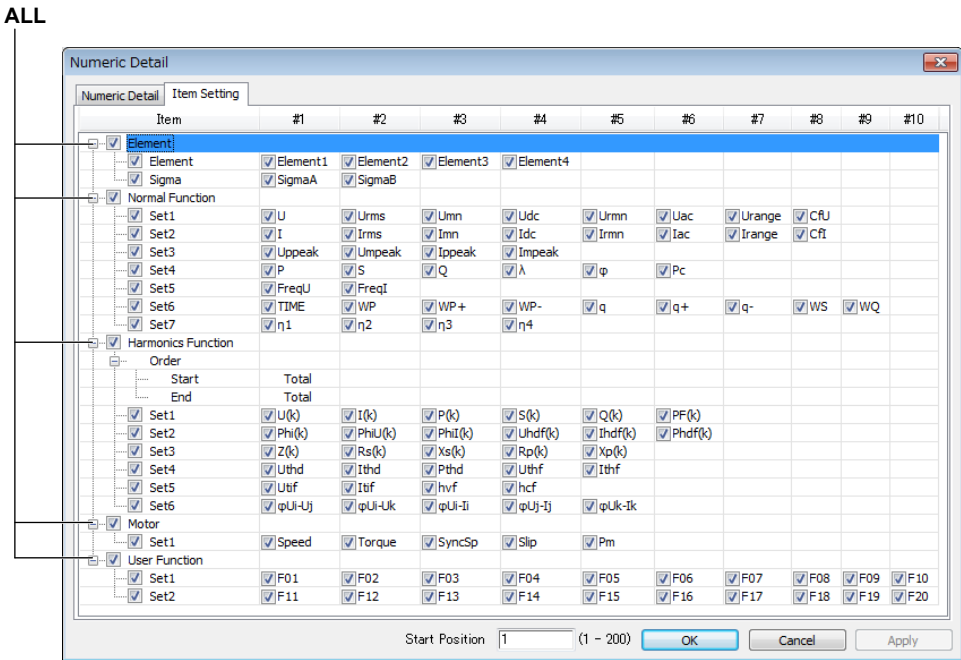
Line Count

If the number of numeric data entries saved to a file reaches the number specified by Line Count, a new file is created with a name whose number at the end of the name is incremented. This process is repeated (e.g., DEFAULT_0001.csv, DEFAULT_0002.csv, . . ., DEFAULT_9999.csv).

Item Setting Dialog Box

You can select which items to display in the numeric window in this dialog box.
The current settings are listed in a tree structure.

- Click  to collapse the lower level nodes in the tree.
- Click  to expand the lower level nodes in the tree.



Element

- If you select **All**, all elements will be selected. The check boxes of each elements will remain unchanged and will appear dimmed.
- If you select the left most check box of each line, the all the elements in that line are selected. Click it again, to unselect all the elements in that line.
- You can also select individual check boxes to select each element separately.

Normal Function / Harmonics Function / Motor / AUX / Delta Computation / WT Time / User-defined Function

- If you select **All**, all functions will be selected. The check boxes of each function will remain unchanged and will appear dimmed.
- If you select the left most check box of each line, the all the functions in that line are selected. Click it again, to unselect all the functions in that line.
- You can also select individual check boxes to select each function separately.

Order

You can select the start and end harmonic orders.

Note

Functions, elements, and harmonic orders that cannot be selected depending on the WT specifications, options, or other conditions will not be displayed.

Start Position

Set the line number in the numeric data display that you want to start applying the above settings to.
Selectable range: 1 to the value specified in the Items box.

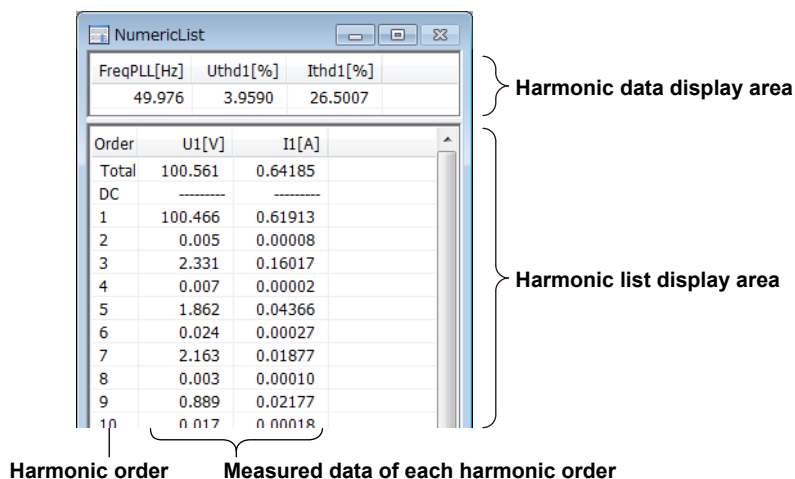
Applying the Settings

Click **OK** or **Apply** to apply the settings to the numeric display. Items that cannot be set are not displayed (skipped).

6.3 Numeric List Display

The numeric list display lists harmonic measurement data for each harmonic order. The numeric list window can be displayed in any of the following cases.

- WT5000
- When any of the following options is installed in the WT
 - Harmonic measurement (/G5)
 - Simultaneous dual harmonic measurement (/G6)
 - Advanced computation (/G6)



Detail Setting Dialog Box

A detail setting dialog box appears when you perform any of the following operations.

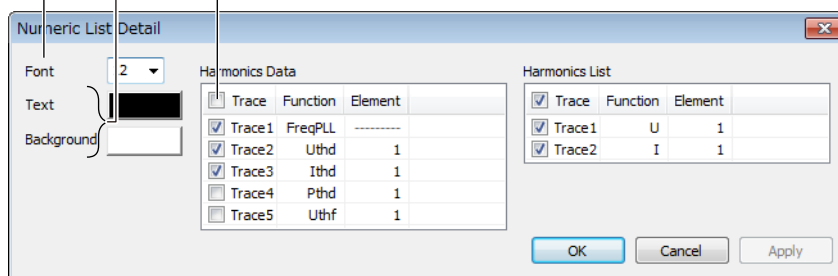
- Right-click the numeric list window.
- Click the window detail setting button when the numeric list window is selected (active).
- Select Numeric List in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.

Font: see page 6-12.

Text color and background color: see page 6-12.

Select all/clear all



Setting the Display Items

Click the Function and Element cells, and set each item using the combo box that appears.

You cannot change them while measured data collection is in progress.

Saving Measured Data

You can save measured data on the numeric display window. See section 6.2, "Numeric Display."

6.4 Numeric Matrix Display

The numeric matrix display shows measured data of each element in a matrix.

[illegible]

Function

The functions are displayed in the following fixed order.

U, I, P, S, Q, λ , ϕ , FreqU, FreqI

Detail Setting Dialog Box

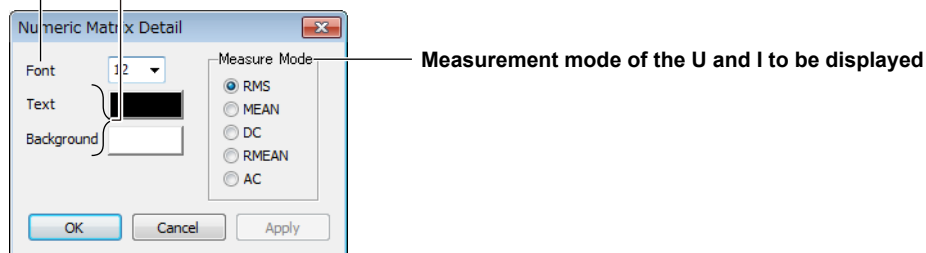
A detail setting dialog box appears when you perform any of the following operations.

- Right-click the numeric matrix window.
- Click the window detail setting button when the numeric matrix window is selected (active).
- Select Numeric Matrix in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.

Font: see page 6-12.

Text color and background color: see page 6-12.



Saving Measured Data

You can save measured data on the numeric display window. See section 6.2, “Numeric Display.”

6.5 Waveform Display

The waveform display shows waveform display data that has been collected from the WT.

The following models can display a waveform window if the harmonic measurement (/G5) option is installed.

- WT310E/WT310EH/WT332E/WT333E
- WT310/WT310HC/WT330(WT332/WT333)



Note

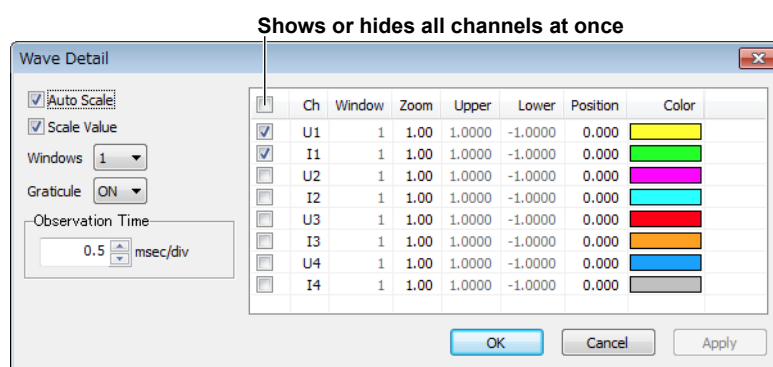
When connected to the WT500, waveform is displayed when the integration has been started or stopped. It is not displayed when the integration has been reset.

Detail Setting Dialog Box

A detail setting dialog box appears when you perform any of the following operations.

- Right-click the wave window.
- Click the window detail setting button when the wave window is selected (active).
- Select Wave in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.



Auto Scale

- When the check box is selected, the scale values change automatically.
- When the check box is not selected, you can click upper or lower limit cells to set the upper and lower limits of the display range for each channel.

Scale Value

Select whether to show the upper and lower limits on the left edge of the waveform display area.

Windows

Set the number of waveform windows to show in the range of 1 to 6. If you set this value to 2 or more, you can click the Window cells to display combo boxes where you can specify which waveform display area (counted from the top) to display the waveform in.

Graticule

Select whether to show the graticule in the waveform display area.

Observation Time

Set the X-axis (time axis) in the waveform display area.

Ch

Select the waveforms to display using the check boxes.

Window

When you divide the waveform display into windows, select which area (counted from the top) to display the waveform in.

Zoom

Set the vertical zoom factor of the waveform.

Upper and Lower

If the Auto Scale check box is not selected, set the upper and lower limits of the display range.

Position

Set the vertical display position of the waveform in the waveform display area. The vertical center of the window is 0. The upper limit is 100%; the lower limit is –100%.

Color

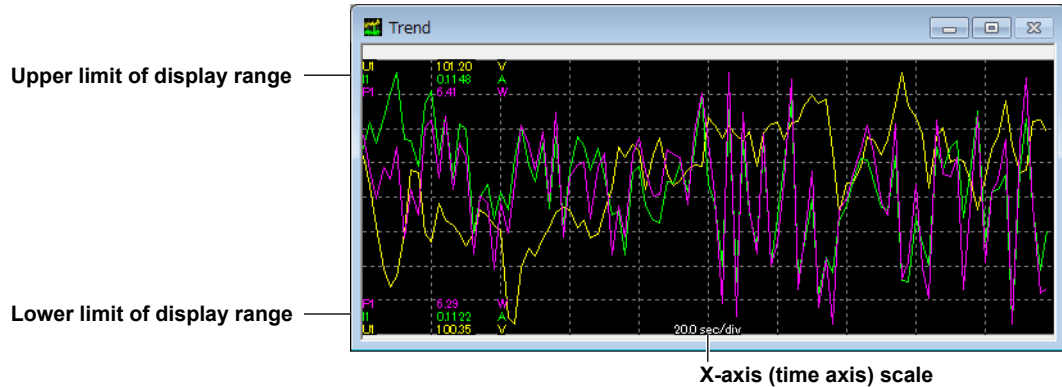
Select the waveform color.

Configuring Settings

- Window, Zoom, and Color
Click the cells, and set each item using the combo box that appears.
- Upper, Lower, and Position
Click the cells, and set each item.

6.6 Trend Display

The trend display shows changes in measured data over time on a trend graph.

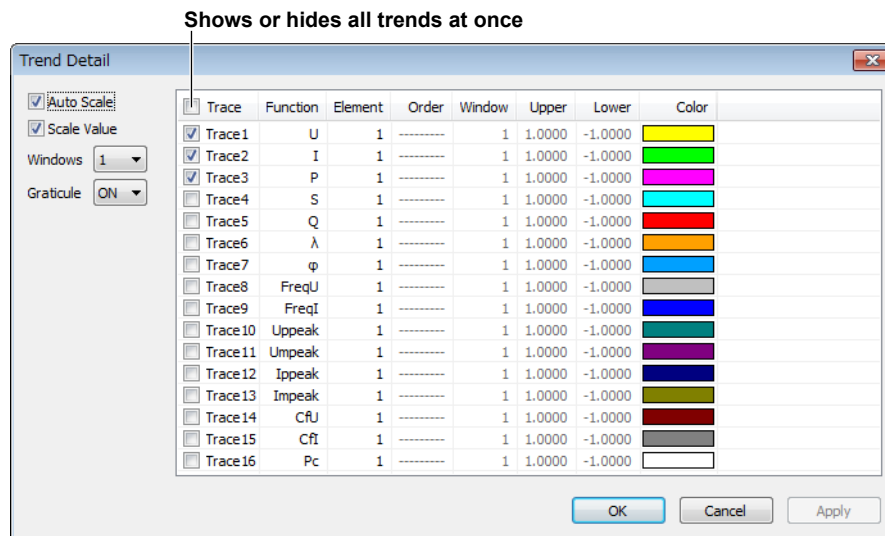


Detail Setting Dialog Box

A detail setting dialog box appears when you perform any of the following operations.

- Right-click the trend window.
- Click the window detail setting button when the trend window is selected (active).
- Select Trend in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.



Auto Scale

- When the check box is selected, the scale values change automatically.
- When the check box is not selected, you can click upper or lower limit cells to set the upper and lower limits of the display range for each channel.

Scale Value

Select whether to show the upper and lower limits on the left edge of the trend display area.

Windows

Set the number of trend windows to show in the range of 1 to 6. If you set this value to 2 or more, you can click the Window cells to display combo boxes where you can specify which trend display area (counted from the top) to display the trend in.

Graticule

Select whether to show the graticule in the trend display area.

Trace

Select the trends to display using the check boxes.

Function

Select which function to display the trend of.

Element

Select which element to display the trend of.

Order

Select the harmonic order of numeric data to display the trend of.

“-----” is displayed for functions that harmonic orders cannot be specified.

Window

When you divide the trend display into windows, select which area (counted from the top) to display the trend in.

Upper and Lower

If the Auto Scale check box is not selected, set the upper and lower limits of the display range.

Color

Select the trend color.

Configuring Settings

- Function, Element, Order, Window, and Color
Click the cells, and set each item using the combo box that appears.
- Upper and Lower
Click the cells, and set each item.

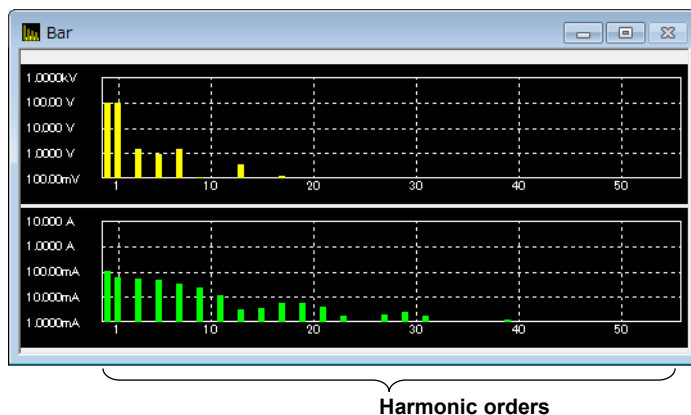
Saving Measured Data

You can save measured data on the numeric display window. See section 6.2, “Numeric Display.”

6.7 Bar Graph Display

The bar graph display shows harmonic measurement data for each harmonic order in a bar graph. The bar graph window can be displayed in any of the following cases.

- WT5000
- When any of the following options is installed in the WT
 - Harmonic measurement (/G5)
 - Simultaneous dual harmonic measurement (/G6)
 - Advanced computation (/G6)



Note

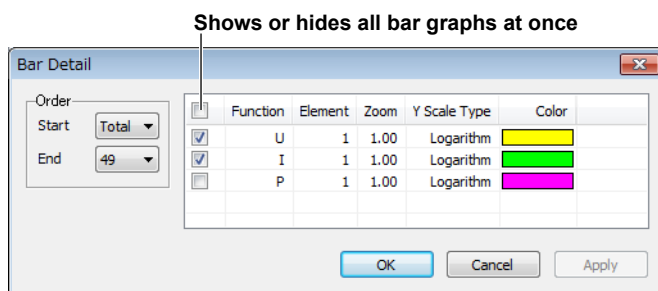
When logarithmic coordinates are used (Log Scale), if a value is negative, its absolute value is displayed with a red bar graph.

Detail Setting Dialog Box

A detail setting dialog box appears when you perform any of the following operations.

- Right-click the bar graph window.
- Click the window detail setting button when the bar graph window is selected (active).
- Select Bar in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.



Start and End

Select the harmonic order of the numeric data to display.

The difference between the start and end harmonic orders must at least be 10.

Function

Select the bar graph to display using the check boxes.
The bar graph is displayed for the combination of the functions and elements that you select.
Up to three bar graphs can be displayed.

Element

Select which element to display the bar graph of.

Zoom

Set the vertical zoom factor of the bar graph.

Y Scale Type

The vertical scale of the bar graph is automatically set depending on the function.

Function	Y Scale Type
U, I, P, S, Q	Log
PF (λ), Phi (ϕ), PhiU (ϕ U), Phil (ϕ I), Z, Rs, Xs, Rp, Xp	Linear

Configuring Settings

Click the Function, Element, and Zoom cells, and set each item using the combo box that appears.

Saving Measured Data

You can save measured data on the numeric display window. See section 6.2, “Numeric Display.”

6.8 Vector Display

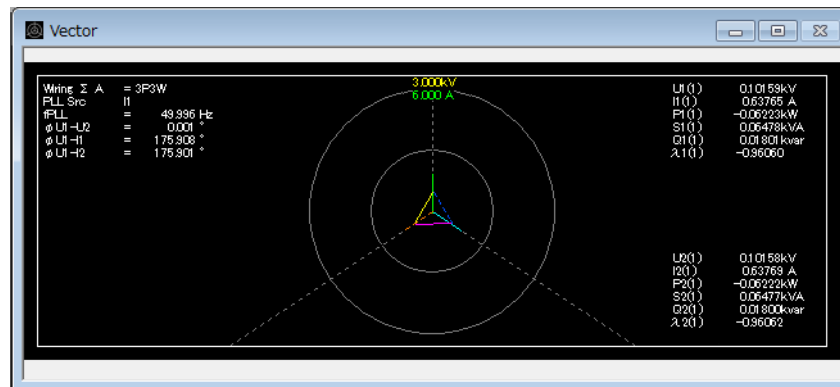
You can select a wiring unit to display vectors of the phase differences and amplitudes (rms values) of the fundamental signals, U(1) and I(1), in each element in the unit. The positive vertical axis is set to zero (angle zero), and the vector of each input signal is displayed.

The vector window can be displayed in any of the following cases.

- WT5000
- When any of the following options is installed in the WT
 - Harmonic measurement (/G5)
 - Simultaneous dual harmonic measurement (/G6)
 - Advanced computation (/G6)

The vector window cannot be displayed on the following models.

- WT310E/WT310EH/WT332E/WT333E
- WT310/WT310HC/WT330(WT332/WT333)

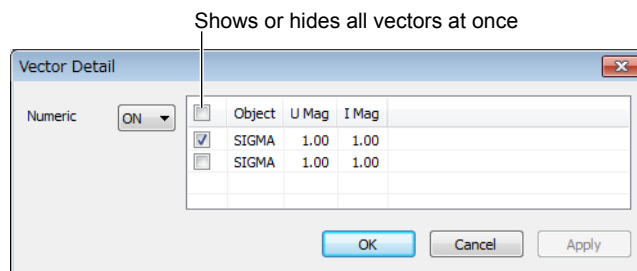


Detail Setting Dialog Box

A detail setting dialog box appears when you perform any of the following operations.

- Right-click the vector window.
- Click the window detail setting button when the vector window is selected (active).
- Select Vector in the shortcut menu of the window detail setting button.

This is not possible when measured data collection is in progress.



Numeric

Select whether to show numeric data (on or off).

Object

Select the wiring unit to display.

U Mag/I Mag

Set the zoom factor of fundamental wave U(1) and I(1). When you zoom the vectors, the value that indicates the size of the vector display's peripheral circle changes according to the zoom factor.


Configuring Settings

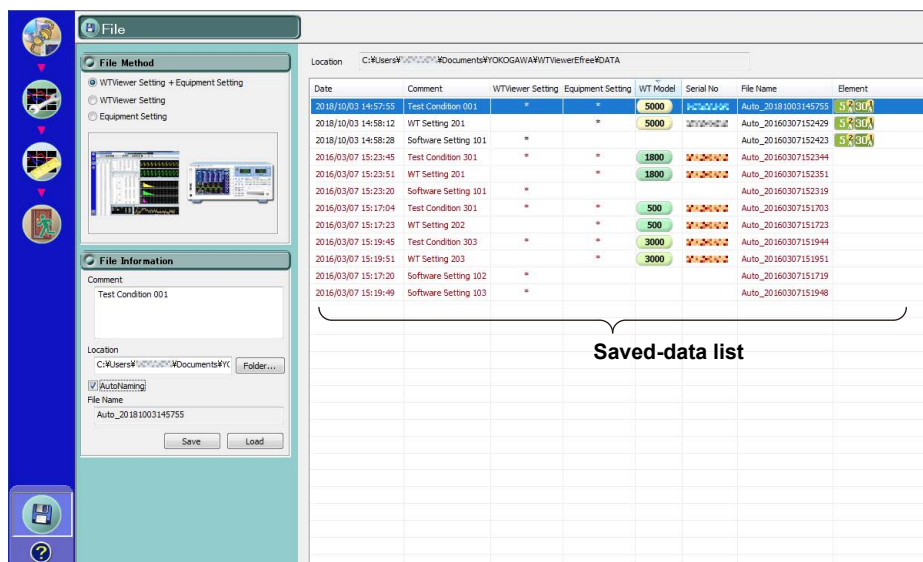
- Object
Click the cells, and set each item using the combo box that appears.
- U Mag and I Mag
Click the cells, and set each item.

Saving Measured Data

You can save measured data on the numeric display window. See section 6.2, "Numeric Display."

7.1 Saving and Loading Setup Parameters

1. Click  in the menu area. The File screen appears.

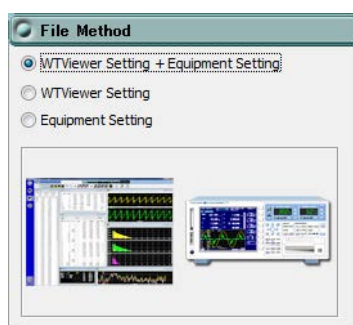


Selecting the Type of File to Save

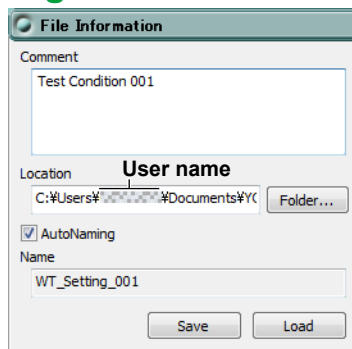
Select the type of data to save from the following:

- WTViewer Setting + Equipment Setting
- WTViewer Setting: The software setup parameters will be saved.
- Equipment Setting: The WT setup parameters will be saved.

The illustration will change depending on the item that you select.



Setting the Save Conditions



The screenshot shows a dialog box titled "File Information". It contains the following fields and controls:

- Comment:** A text area containing "Test Condition 001".
- Location:** A text field containing "C:\Users\%USER%\Documents\%USER%", with a "Folder..." button to its right.
- User name:** A label positioned above the Location field.
- AutoNaming:** A checked checkbox.
- Name:** A text field containing "WT_Setting_001".
- Buttons:** "Save" and "Load" buttons at the bottom.

Comment

You can enter a comment if you like. You can enter up to 100 characters.

Location

Specify the folder to save the file.

AutoNaming

If you select the Auto Naming check box, files are saved with the name Auto_yyyymmddhhmmss.csv. yyyymmddhhmmss is a 14-digit number consisting of the year, month, day, hour, minute, and second. The year is four digits; the hour is based on a 24-hour clock.

Name

To specify the file name, clear the Auto Naming check box, and enter the file name.

- File Name: You can assign any name that is allowed on your PC.
- Extension: .cfg

Save Button

Executes the saving of data.

Load Button

Loads the data that is selected in the saved-file list.

If a file that cannot be loaded is selected, a warning will appear.

Conditions Necessary for Loading Files

The following conditions must match those of the WT.

- Model
- Suffix code

Saved-File List

Date and time when the file was saved

Path to the file save destination folder

An asterisk appears when the file data type is set to WTVIEWER Setting.

An asterisk appears when the file data type is set to Equipment Setting.
If multiple WTs are connected, an asterisk is displayed for each WT.

Model of the WT that was connected when the file was saved

Instrument number of the WT that was connected when the file was saved

Appears for the WT5000 The WT5000 element configuration is displayed in order from the left end starting with element 1.

User name

Location	C:\Users\%User%\Documents\YOKOGAWA\WTVIEWER\%WT%\DATA						
Date	Comment	WTVIEWER Setting	Equipment Setting	WT Model	Serial No	File Name	Element
2024/01/18 19:06:16	Test Condition 001	*	*	5000	WT 5000	Auto_20240118...	30A 3 3 3 3
2024/05/28 14:36:06	WT Setting 201	*	*	5000	WT 5000	Auto_20240528...	30A 3 3 3 3
2024/10/30 12:19:25		*	*	5000	WT 5000	Auto_20241030...	5A 30A 3
2024/03/15 10:58:53		*	*	330E	WT 330E	Auto_20240315...	
2024/10/08 17:34:33		*	*	1800R	WT 1800R	Auto_20241008...	


In the saved-file list, files that cannot be loaded are displayed in red.

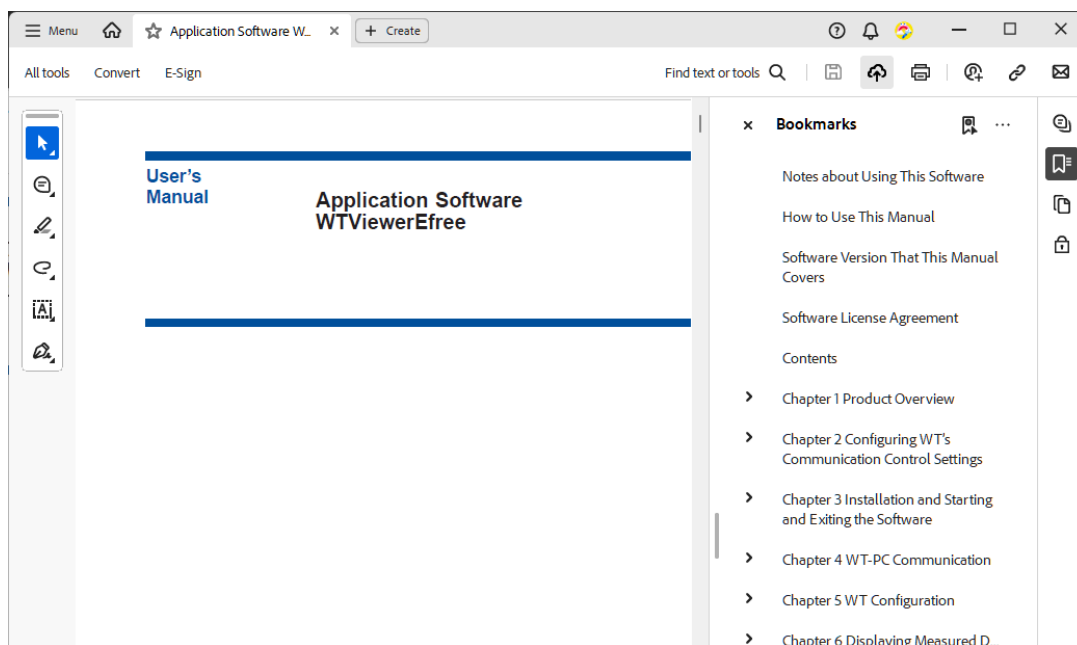
Moving the mouse pointer over a line in the element configuration shows the detailed element information (model, instrument number).

Element1 : 760902, "WT 5000"
Element2 : 760901, "WT 5000"
Element3 : 760903, "WT 5000"

8.1 Help Feature


Displaying Help

Click the help  button. If Adobe Acrobat Reader is installed on your PC, it will start, and the PDF of the software user's manual will open. You can look up how to use the software and terminology.



Displaying Alteration Notices

If alteration notices are available, you can view them by following the procedure below.


1. Right-click the help  button.
2. Click **Alterations of User's Manual**.



Obtaining the Latest User's Manual and Alteration Notices

Obtaining the Latest User's Manual and Alteration Notice (PDF file) of This Software

1. Sign in to Customer Portal at the following website.
<https://myportal.yokogawa.com/>
2. On the home page, click **Documents**. A Documents page appears.
3. On the Documents page, enter a keyword or model, or select a category. Select the **User Manual** check box under Document Type, and click **SEARCH DOCUMENTS**.

Keyword: 760131
Model: WTVIEWERefree
4. From the list of search results, select the **Application Software WTVIEWERefree User's Manual** check box, and click  **DOWNLOAD SELECTED FILES**.
5. A zip file containing the manual is downloaded to your download folder.
6. Unzip the downloaded file.


Updating the User's Manual and Alteration Notice File of This Software

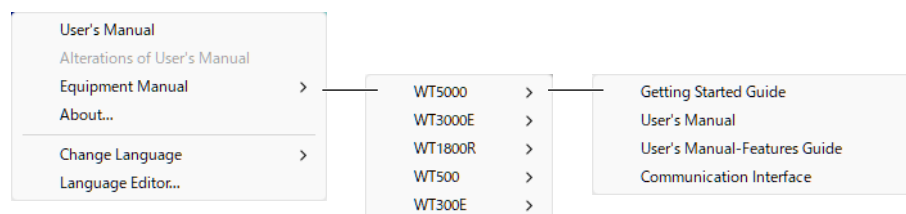
7. Rename the downloaded file to the following file name.
User's manual file name: EN_WTVIEWERefree Users Manual.pdf
Alteration notice file name: EN_WTVIEWERefree Alterations.pdf
8. Overwrite the files in the Manuals folder in the installation folder of this software.*
* The installation folder is the folder specified in step 12 on page 3-3.
Then, you will be able to view the file by clicking **User's Manual** or **Alteration of User's Manual** on the **Help** menu.

Note

- You can download Adobe Acrobat Reader from the Adobe website.
 - The latest user's manual and alteration notice that you can download from the YOKOGAWA Customer Portal correspond to the latest version of this software. If necessary, update the software. You can download updates to the software from the YOKOGAWA Customer Portal indicated above.
-

View the WT User's Manual

1. Right-click the help  button.
2. Click **Equipment Manual**.
3. Click the WT you want to view.
3. Click the manual you want to view.




Note

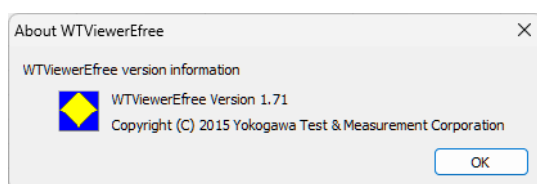
The help function does not show the user's manual for the following models.

View the user's manuals that are included with the instrument.


- WT3000 (760301/760302/760303/760304)
- WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
- WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
- WT310/WT310HC/WT332/WT333

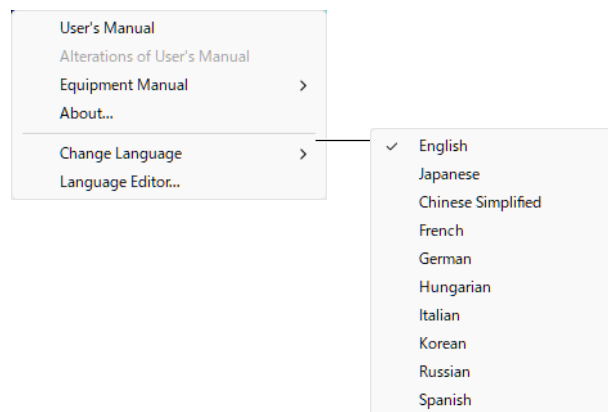
8.2 Viewing the Version Information

1. Right-click the help  button.
2. Click **About**.



8.3 Setting the Displayed Language

1. Right-click the help  button.
2. Click **Change Language**.
3. Select the language you want to use.



Note

Depending on the operating system, some language fonts may not be installed. In such cases, if you change the language, text will not be displayed properly. To display the text properly, you need to install appropriate fonts in the operating system.

Customizing the Displayed Language

To customize the displayed language, edit the language file by following the procedure in section 8.4.

If there is a language file that you create (custom file), the submenu will appear as follows:




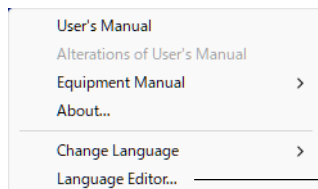
Select **Custom** to load the custom file.

8.4 Editing the Displayed Language

You can edit the text that is displayed in the dialog boxes and windows of the software.

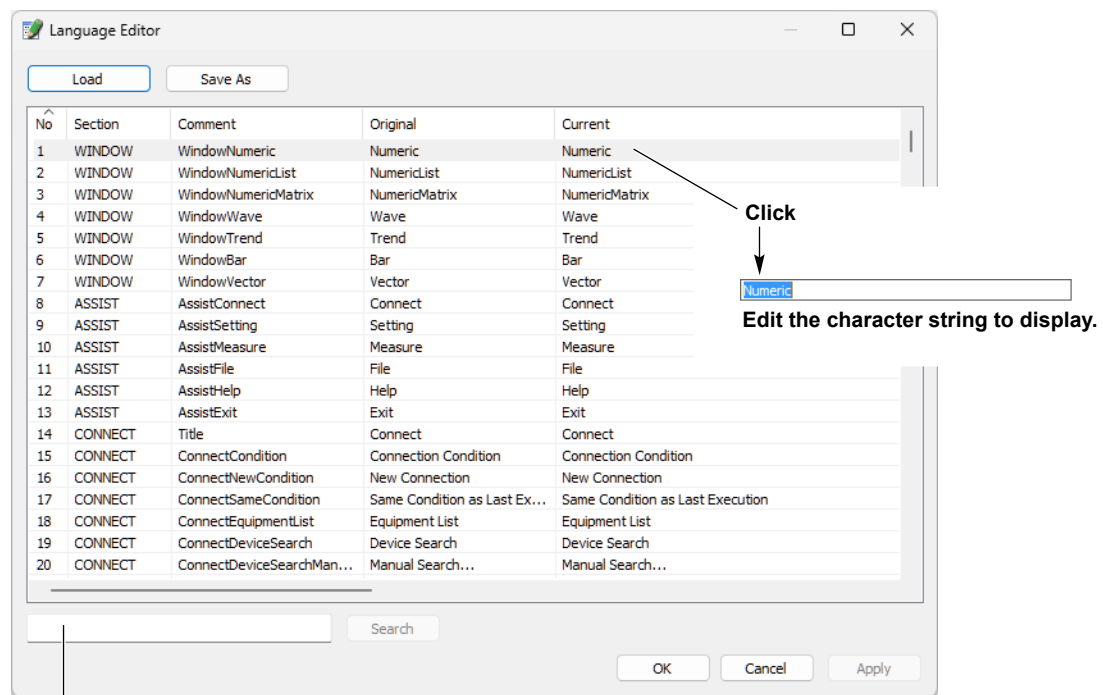
Editing the Displayed Language

1. Right-click the help  button.
2. Click **Language Editor**.



Edit the displayed language

3. In the Language Editor dialog box, click the cells in the Current column to edit the text to display.



You can search for a character string by entering the string here and clicking Search.

Saving the Edited Language Information

Click **Save As** to save the edited language information to a file. The file name extension is .lang.

Note

The English and Japanese language information files are in the following folder.
C:\Users\<user name>\Documents\YOKOGAWA\WTVviewerEfree\Language

Loading Saved Language Information

Click **Load** to load a language information file into the Language Editor dialog box.

9.1 If a Problem Occurs

If a message appears on the screen, see section 9.2, “Error Messages.” If servicing is necessary, or if the instrument does not operate properly even after you have attempted to deal with the problem according to the instructions in this section, contact your nearest YOKOGAWA dealer.

Problems and Solutions

Unable to communicate with the WT using USB.

Using Device Manager, check whether the USB driver is appropriate for the WT series. If the driver is not appropriate, switch to the appropriate USB driver (see page 3-5).

Unable to communicate with the WT using GP-IB.

Communication may not work properly on GP-IB cards other than those of NI (National Instruments). Use a GP-IB card by NI (see section 1.3).

Unable to change the Function, Element, and Order settings in the dialog boxes.

Click a Function, Element, or Order cell to show a combo box.
Then select the appropriate item.

Waveforms, bar graphs, or trends do not appear even when data collection is started.

Stop data collection (see section 6.1), select the items you want to show using the view buttons on the toolbar, open the relevant windows, and start data collection.

Waveforms are not displayed.

Change the **VZoom** and **Position** values in the detail setting dialog box (see section 6.5).

Waveform or trend traces overflow from the screen.

In the detail setting dialog box, select the **Auto Scale** check box, or change the **Upper**, **Lower**, and **VZoom** values to appropriate values (see section 6.5 or 6.6).

Even when the **UpdateRate** on the Setting screen is changed, the display update interval of the software does not change.

The display update interval of the software is not synchronized to the display update interval of the WT. It is dependent on the performance of your PC and the communication interface (USB, GP-IB, RS-232, or Ethernet). If the WT data update interval is set to a short value such as 100 ms, the software cannot keep up, and some of the data points that the WT is measuring will not be collected. If you want to synchronize the display update interval between the WT and software, configure your environment by referring to the items below.

- The less number of data points that the software has to collect from the WT, the shorter the display update interval.
- The communication interfaces listed in descending order by data rate are as follows.
 - WT5000
Ethernet = USB > GP-IB
 - WT3001E/WT3002E/WT3003E/WT3004E, WT3000 (760301/760302/760303/760304)
Ethernet > GP-IB > USB > RS-232
 - WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R,
WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E,
WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
Ethernet = USB > GP-IB
 - WT500 (760201/760202/760203)
Ethernet = USB = GP-IB
 - WT310E/WT310EH/WT332E/WT333E, WT310/WT310HC/WT332/WT333
Ethernet = USB > GP-IB > RS-232
- Use a faster PC.

Example:

The display update interval of the WT and that of the software may match if you use the GP-IB, Ethernet, or USB interface and set the WT display update interval to 100 ms.

Continuous measured data for each display update interval cannot be saved.

Set the save interval (see section 6.2) to UpdateRate and waveform trigger (see section 5.1) to OFF.

9.2 Error Messages

Message	Corrective Action
Equipment can not be found. <ul style="list-style-type: none">• Please check the power supply.• Please check the Device Manager.• Please refer to help.	Check the following items. <ul style="list-style-type: none">• Is the WT turned on?• Is the GP-IB, RS-232, Ethernet, or USB cable connected properly?• If you are using GP-IB, are the GP-IB addresses in the same system all unique? Is the GP-IB address set on the WT the same as the GP-IB address set in WTVIEWERefree? Is the GP-IB driver installed correctly in your PC?• If you are using RS-232, are the communication parameters, such as the baud rate, set to the same values on the WT and WTVIEWERefree?• If you are using Ethernet, are the IP address, user name, and password set to the same values on the WT and WTVIEWERefree?• If you are using USB, are the ID used in the same system all unique? Is the ID set on the WT the same as the ID set in WTVIEWERefree? Is the USB driver installed correctly in your PC?• If you are using USB, is the USB driver is appropriate for the WT series?
Integrate timer is out of range Updaterate is out of range Stop timer is out of range Rated time is out of range Wave observe is out of range Please input a value from 0.001 to 9999.	The value that you tried to set is outside the allowed range. Set a value within the allowed range.

10.1 Specifications

Item	Specifications								
Data formats that the software can save to	<p>The following table lists the data formats (extensions) that the software can save to. Note that CSV files cannot be loaded into the software.</p> <table> <tr> <td>Setup parameters¹</td><td>CFG format (.cfg)</td></tr> <tr> <td>Numeric data</td><td>CSV format (.csv)</td></tr> <tr> <td>Waveform display data</td><td>CSV format (.csv)</td></tr> </table> <p>1 Setup parameters cannot be saved to CSV files.</p>	Setup parameters ¹	CFG format (.cfg)	Numeric data	CSV format (.csv)	Waveform display data	CSV format (.csv)		
Setup parameters ¹	CFG format (.cfg)								
Numeric data	CSV format (.csv)								
Waveform display data	CSV format (.csv)								
Data formats that the software can load from	<p>The following table lists the data formats that the software can load from. Data saved with the auto saving feature explained in section 4.1 cannot be loaded into the software.</p> <table> <tr> <td>Model</td><td> WT5000 WT3001E/WT3002E/WT3003E/WT3004E WT3000 (760301/760302/760303/760304) WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806) WT500 (760201/760202/760203) WT310E/WT310EH/WT332E/WT333E WT310/WT310HC/WT332/WT333 </td></tr> <tr> <td>Setup Parameters</td><td>CFG format (.cfg)</td></tr> <tr> <td>Numeric data²</td><td>—</td></tr> <tr> <td>Waveform display data²</td><td>—</td></tr> </table> <p>2 Numeric data and waveform display data cannot be loaded into the software.</p>	Model	WT5000 WT3001E/WT3002E/WT3003E/WT3004E WT3000 (760301/760302/760303/760304) WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806) WT500 (760201/760202/760203) WT310E/WT310EH/WT332E/WT333E WT310/WT310HC/WT332/WT333	Setup Parameters	CFG format (.cfg)	Numeric data ²	—	Waveform display data ²	—
Model	WT5000 WT3001E/WT3002E/WT3003E/WT3004E WT3000 (760301/760302/760303/760304) WT1801R/WT1802R/WT1803R/WT1804R/WT1805R/WT1806R WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806) WT500 (760201/760202/760203) WT310E/WT310EH/WT332E/WT333E WT310/WT310HC/WT332/WT333								
Setup Parameters	CFG format (.cfg)								
Numeric data ²	—								
Waveform display data ²	—								
Data display update interval	Depends on the PC processing speed, the communication interface in use, and the number of data points that the software is collecting from the WT.								
Screens	<p>Numeric</p> <p>Displays the numeric data that the software collects from the WT</p> <p>Numeric list³</p> <p>Lists the harmonic data that the software collects from the WT</p> <p>Numeric Matrix</p> <p>Displays the numeric data that the software collects from the WT for each element in a table</p> <p>Waveform⁴</p> <p>Displays the waveform display data that the software collects from the WT</p> <p>Bar Graph³</p> <p>Displays bar graphs of the harmonic components for each harmonic order during harmonic measurement</p> <p>Trend</p> <p>Displays the numeric data that the software collects from the WT as trend graphs</p> <p>Vector^{3,5}</p> <p>Displays vectors of the phase differences and amplitudes (rms values) of the fundamental signals, U(1) and I(1), in each element in the wiring unit</p> <p>3 Harmonic measurement option must be installed in the WT. (Can be displayed on the standard model for the WT5000)</p> <p>4 Harmonic measurement option must be installed in the WT310E/WT310EH/WT332E/WT333E or WT310/WT310HC/WT332/WT333.</p> <p>5 A vector window cannot be displayed on the WT310E/WT310EH/WT332E/WT333E or WT310/WT310HC/WT332/WT333.</p>								
WT Configuration	All functions that are available as communication commands								
System Requirements	See section 1.3.								

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