
**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 continuing improvements to the instrument's performance and functionality. The figures given in this manual may differ from those that actually appear on your screen.
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Revisions

- June 2015 1st Edition
- March 2016 2nd Edition
- September 2016 3rd Edition
- February 2018 4th Edition
- November 2018 5th Edition
- April 2019 6th Edition
- May 2020 7th Edition

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 1.51.

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 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 data^{*1} numerically.

Numeric List^{*1}

Lists harmonic measurement data for each harmonic order.

Numeric Matrix

Displays WT's measurement data for each element.

Waveform^{*2}

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

Trend

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

Bar Graph^{*1}

Displays measured harmonic components for each harmonic order.

Vector^{*1}

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

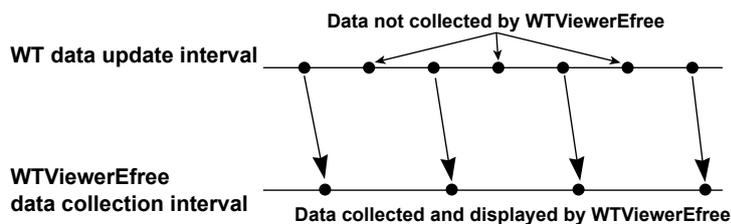
WT Data Update Interval and the Software's Data Collection Interval

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

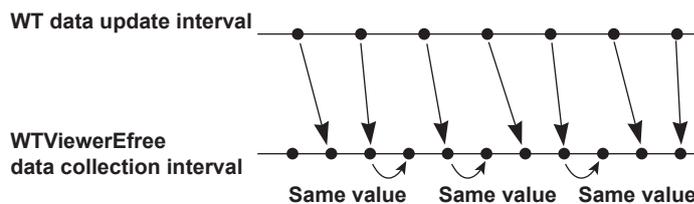
WT Data Update Interval < Software's Data Collection Interval

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.

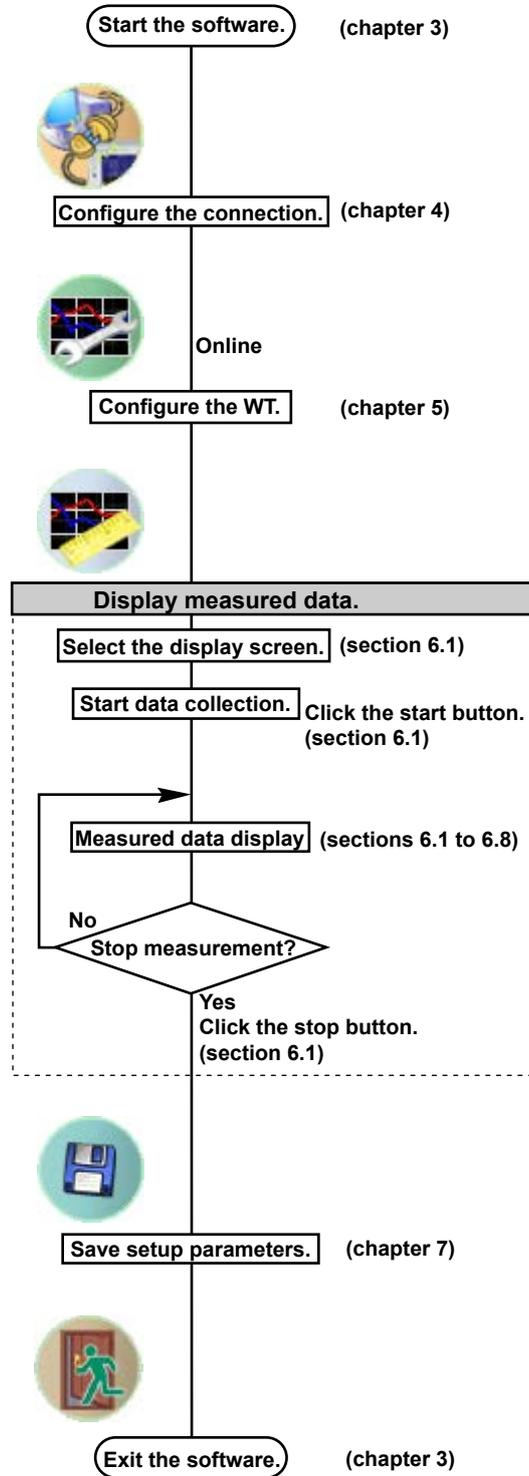
Exit



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 8.1, or Windows 10

Communication Card

- **GP-IB**

NI (National Instruments) (but, Windows 10 is not supported)

	OS	
	Windows 8.1	Windows 10
	Version of the driver NI-488.2	
PCI-GPIB	3.1.0 or later	15.5.0 or later
PCI-GPIB+		
PCIe-GPIB		
PCIe-GPIB+		
GPIB-USB-HS		
GPIB-USB-HS+	14.0 or later	

- **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 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.

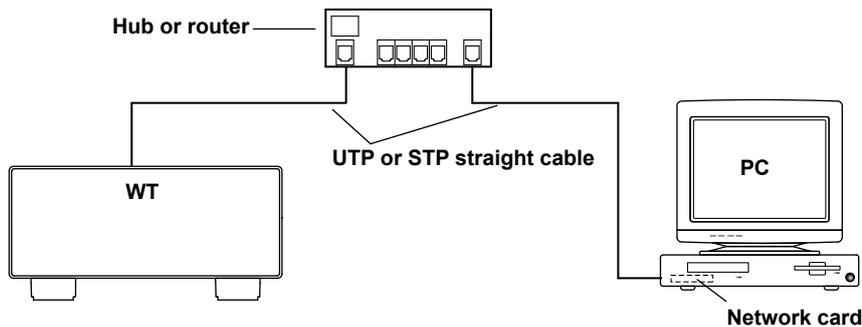
When Using the Serial (RS-232) Interface

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 UTP (Unshielded Twisted-Pair) or 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, cables, and network card 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,

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 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 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.
-

3.1 Installation and Uninstallation

Installation

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

If an older version of WTVIEWERefree is installed, uninstall it from Control Panel (see page 3-8).

The following procedure explains how to install the software on Windows 10. 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. Download the software from the following YOKOGAWA Web page.
<https://tmi.yokogawa.com/support/download-software-drivers-firmware/>
3. Unzip the downloaded file.

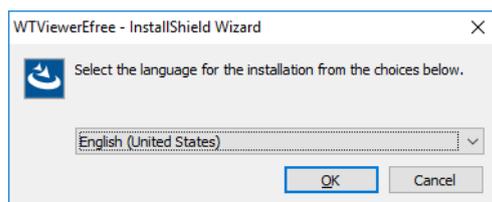
Installing WTVIEWERefree

4. Double-click **WTVIEWERefreeSetup.exe**. The installer starts.

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

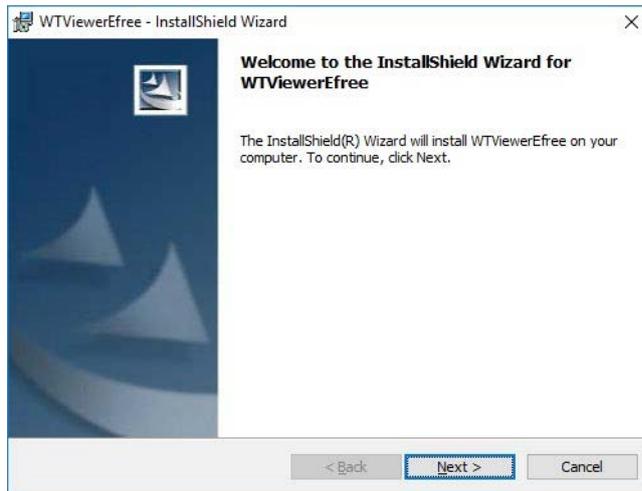


5. Select the language to use during the installation, and click **OK**.

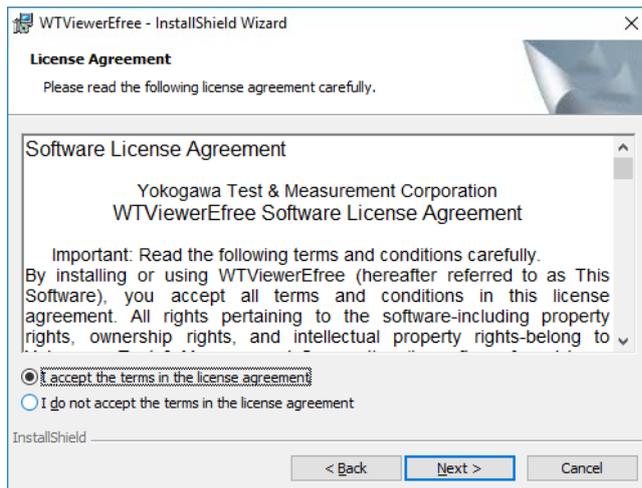


3.1 Installation and Uninstallation

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

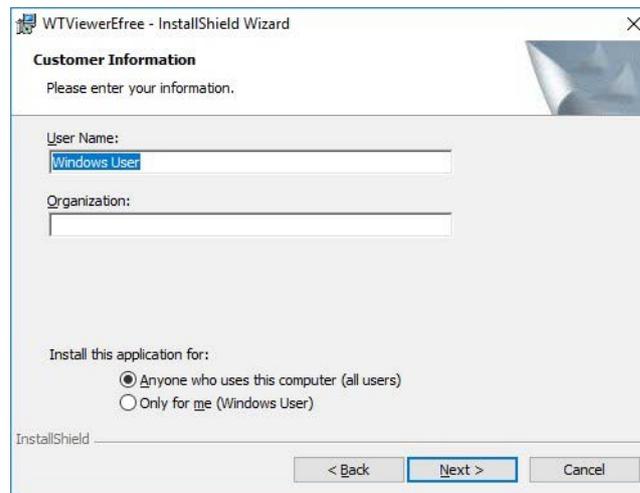


7. If you agree with the license agreement, select **I Agree**, and click **Next**. Otherwise, select **I Do Not Agree**. The installation will be canceled.



8. Enter the user name and organization.

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



WTVIEWERefree - InstallShield Wizard

Customer Information
Please enter your information.

User Name:
Windows User

Organization:

Install this application for:

Anyone who uses this computer (all users)
 Only for me (Windows User)

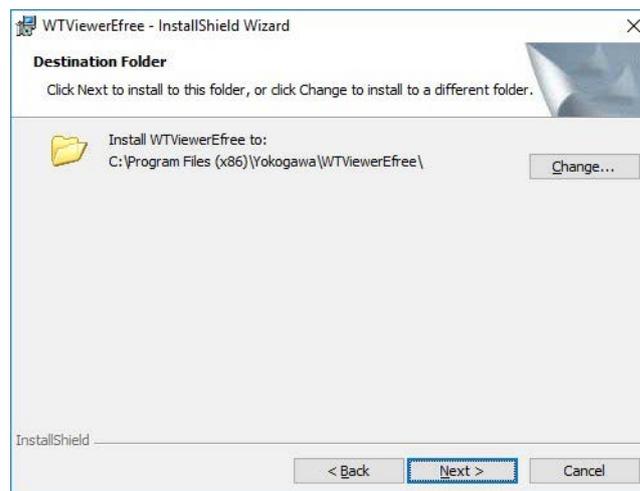
InstallShield

< Back Next > Cancel

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

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

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



WTVIEWERefree - InstallShield Wizard

Destination Folder
Click Next to install to this folder, or click Change to install to a different folder.

Install WTVIEWERefree to:
C:\Program Files (x86)\Yokogawa\WTVIEWERefree\ Change...

InstallShield

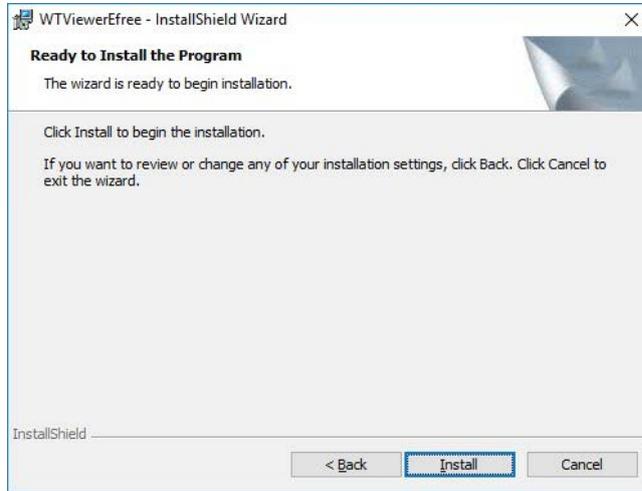
< Back Next > Cancel

3.1 Installation and Uninstallation

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

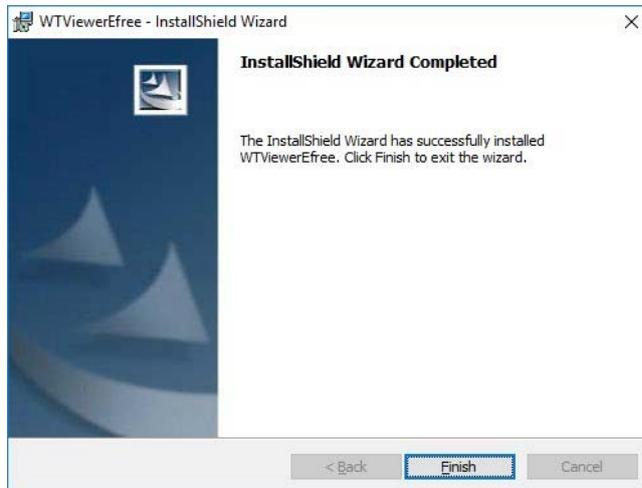
Click **Back** if you want to change the installation settings.

Click **Cancel** to cancel the installation.



- 11.** When the software installation finishes normally, the following screen appears. WTVIEWERefree will be added to the Windows Start menu.

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 **Allow** or **Yes** to continue the installation.

Installing YTUSB

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



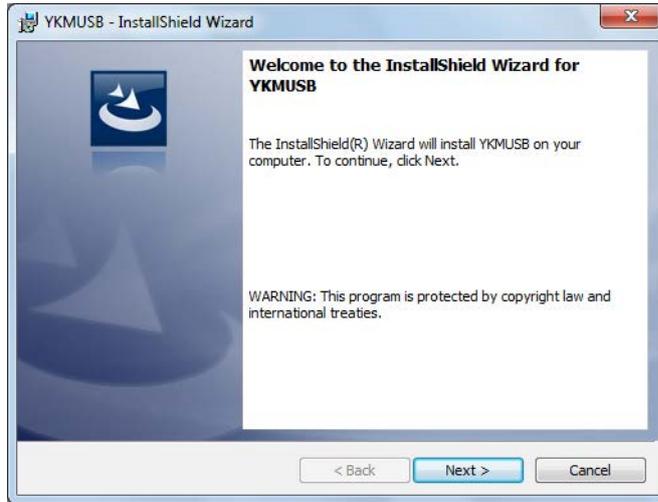
2. When the software installation finishes normally, the following screen appears. Click Finish to complete the installation.



3.1 Installation and Uninstallation

Installing YKMUSB

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



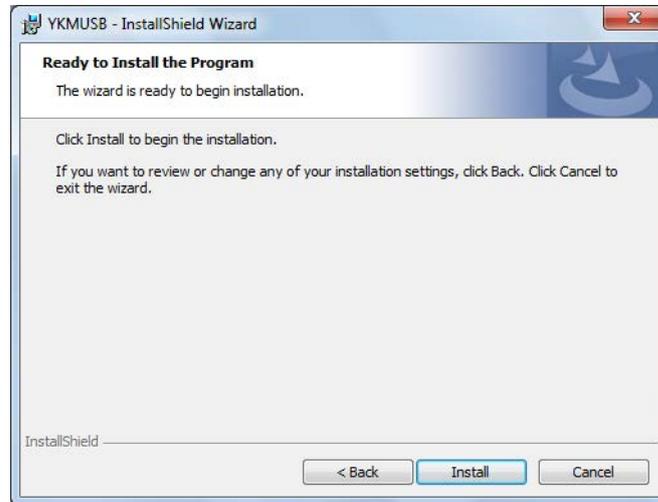
2. If the USB cable is connected to the PC, remove the cable, and click **Next**.



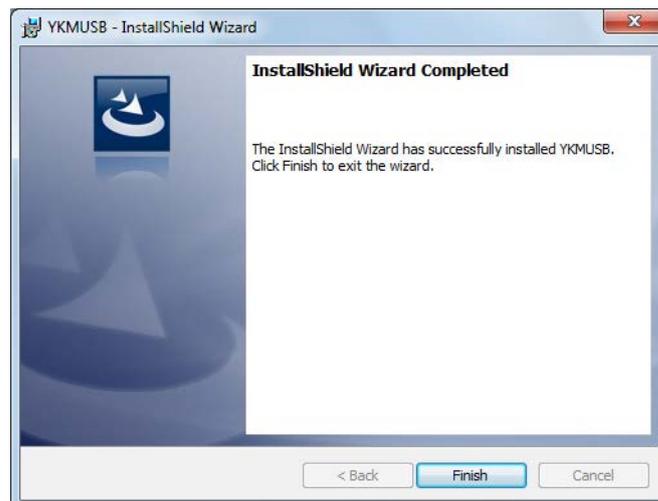
3. A screen prompting you to start the installation appears. If the installation settings are okay, click **Install**. The software is installed.

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

Click **Cancel** to cancel the installation.



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



3.1 Installation and Uninstallation

Closing the USB Driver (YTUSB/YKMUSB) Installer

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



Uninstallation

This section explains how to uninstall the software on Windows 10.

1. On the Windows Start menu, click **System Tools** and then **Control Panel**.
2. Click **Programs and Features** in the Control Panel.

Uninstalling WViewerEfree

3. Right-click **WViewerEfree**, and then click **Uninstall**.
4. A uninstallation confirmation screen appears.
Click **Yes** to uninstall WViewerEfree.
Click **No** to cancel.
5. If the "User Account Control" window appears during the uninstallation, click **Allow** or **Yes** to continue the uninstallation.

Uninstalling YTUSB (USB Driver)

6. On the Programs and Features window, select **Windows Driver Package - Yokogawa Test & Measurement Corporation (WinUSB) YTUSB (mm/dd/yyyy x.x.x.x)**, right-click it, and click **Uninstall/Change**. The uninstallation will proceed in a similar manner as described above.

Uninstalling YKMUSB (USB Driver)

7. On the Programs and Features window, select **YKMUSB64**, right-click it, and select **Uninstall/Change**. The uninstallation will proceed in a similar manner as described above.

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.)

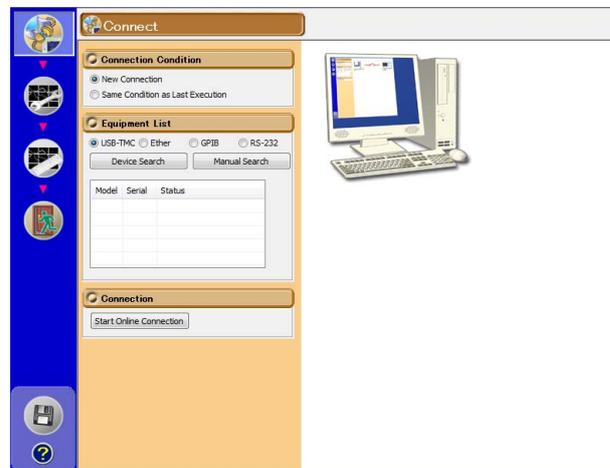
Starting the Software

The following procedure explains how to start the software on Windows 10.

1. To start the software, click the **Start** button, **Yokogawa**, and then **WTViewerEfree**.

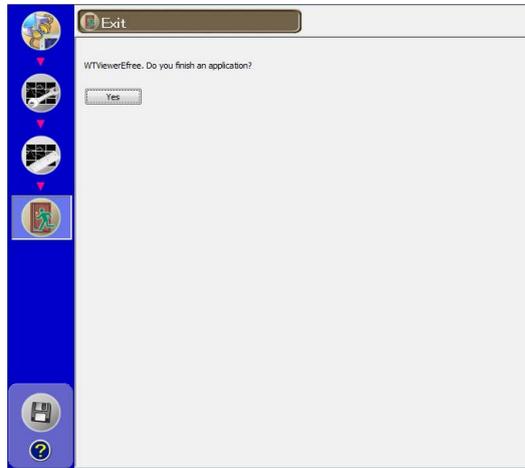
When the software starts, the Connection menu will appear.

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



Exiting the Software

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



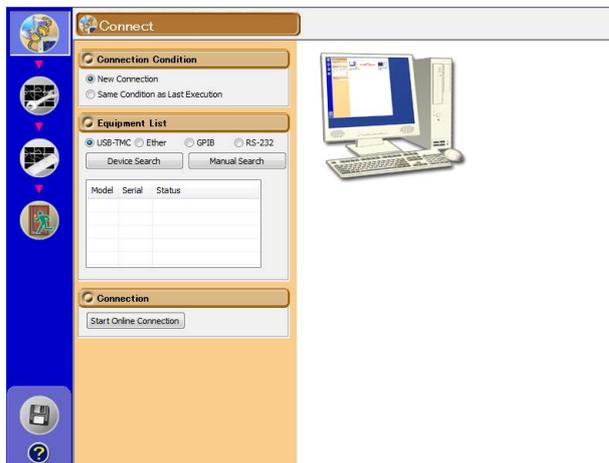
2. Click **Yes**. The software will close.



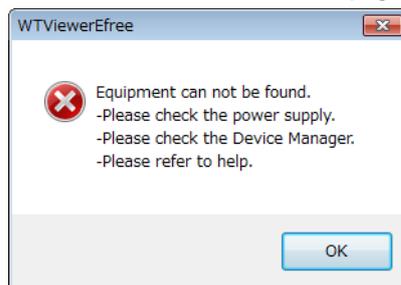
4.1 Configuring a New Set of WT-PC Communication Parameters (New connection)

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.

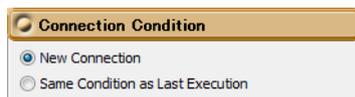


If the above message appears even after the manual search, check the following items.

- 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

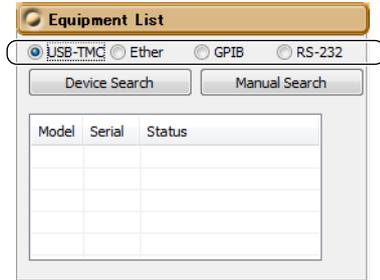
2. To create a new connection, click **New Connection**.



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

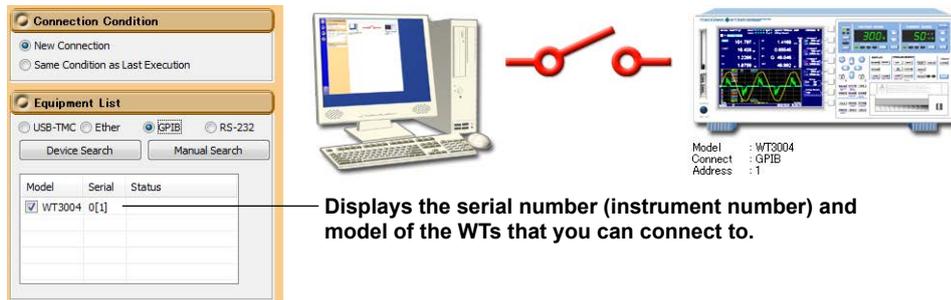
Equipment List

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

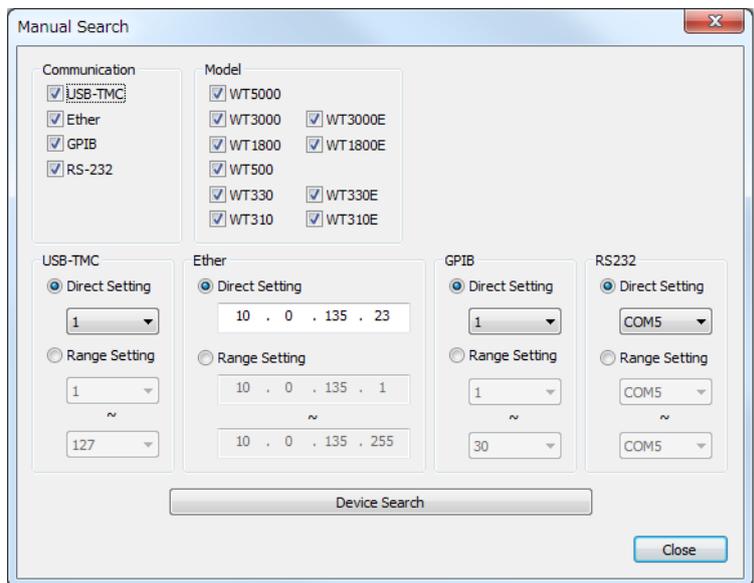
If you connect the WT to the PC through the USB, GP-IB, or ethernet interface, turn on the WT, and then start the software, a list of connectable WTs will appear.

- 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.

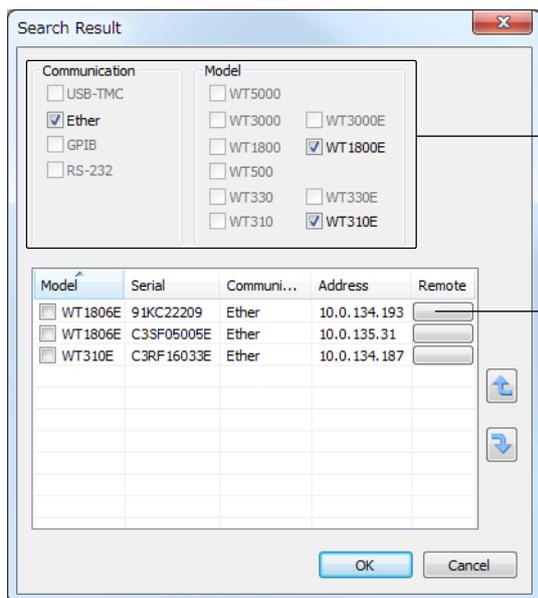
Manual Search

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.



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



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**.

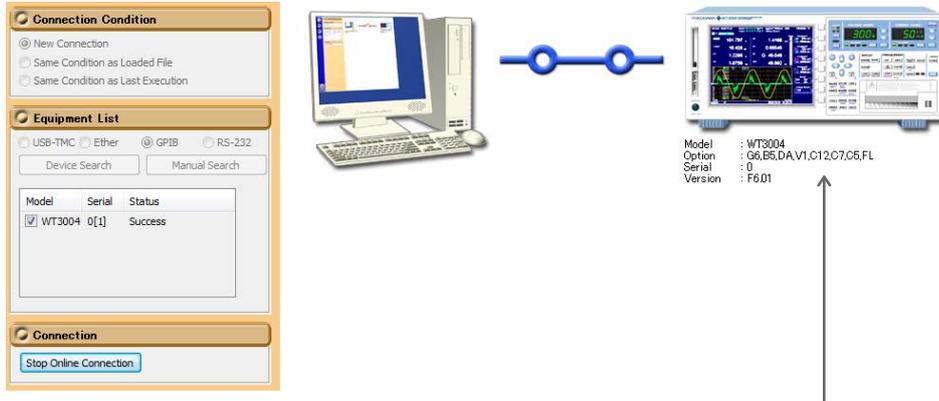
4.1 Configuring a New Set of WT-PC Communication Parameters (New connection)

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.

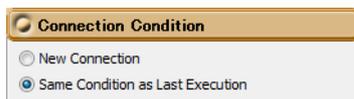


Note

- 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.

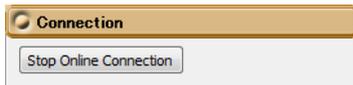


Note

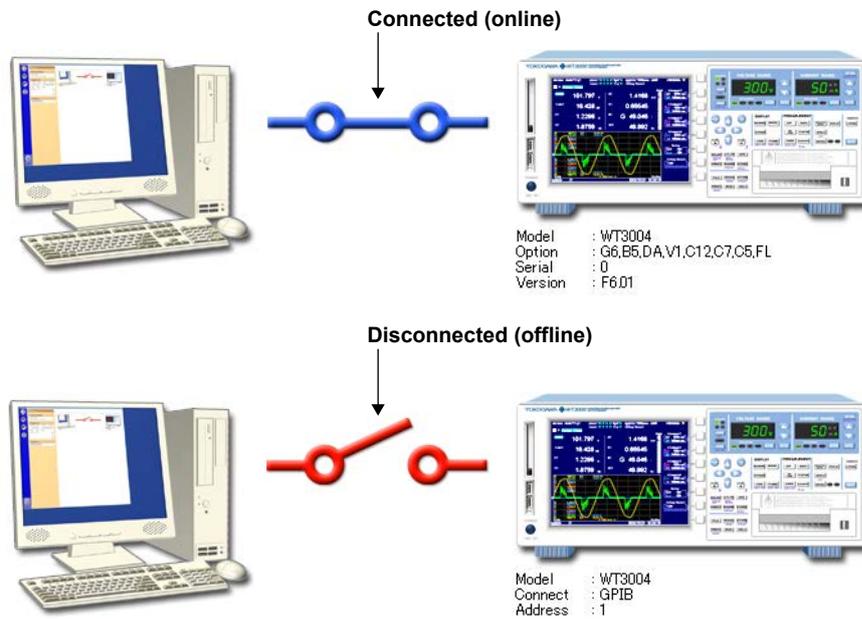
- You cannot proceed to Setting, Measure, or File until an online connection is established.
- If any of the following circumstances apply when you click Start Online Connection, a communication error will occur.
 - The peer WT is not ready to measure.
 - The GP-IB address, IP address, user name, or 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.



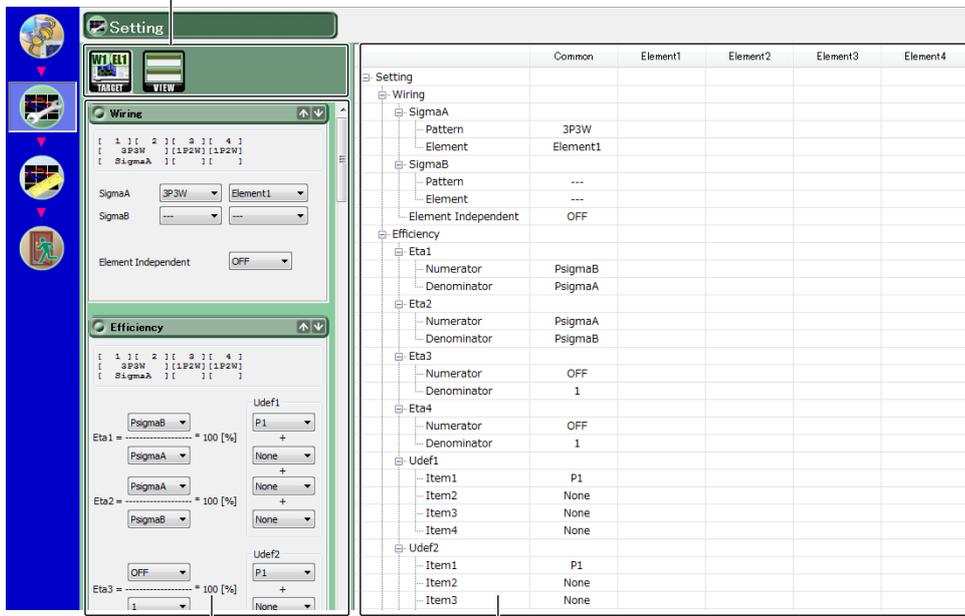
When the connection is cut and the WT and PC are offline, an illustration indicating this state appears.



5.1 WT Configuration

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

Setting toolbar



Setting display area **List of settings**

	Common	Element1	Element2	Element3	Element4
Setting					
Wiring					
SigmaA					
Pattern	3P3W				
Element	Element1				
SigmaB					
Pattern	---				
Element	---				
Element Independent	OFF				
Efficiency					
Eta1					
Numerator	PsigmaB				
Denominator	PsigmaA				
Eta2					
Numerator	PsigmaA				
Denominator	PsigmaB				
Eta3					
Numerator	OFF				
Denominator	1				
Eta4					
Numerator	OFF				
Denominator	1				
Udef1					
Item1	P1				
Item2	None				
Item3	None				
Item4	None				
Udef2					
Item1	P1				
Item2	None				
Item3	None				

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

WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E

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

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*

5.1 WT Configuration

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.

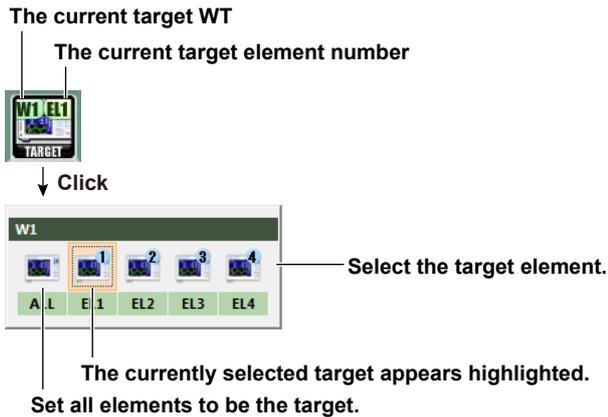
Examples of Setting screens are provided in the remainder of this section.

Setting Toolbar



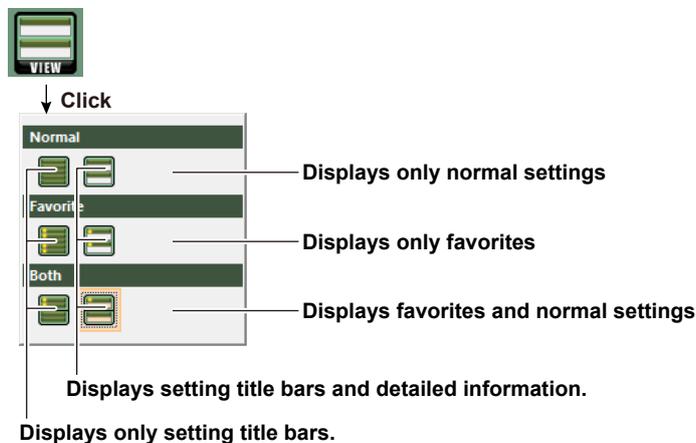
Selecting the Target Element

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.

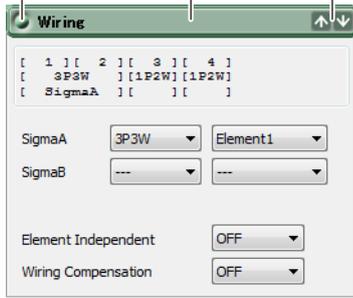
 is displayed when it is registered in favorites.

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

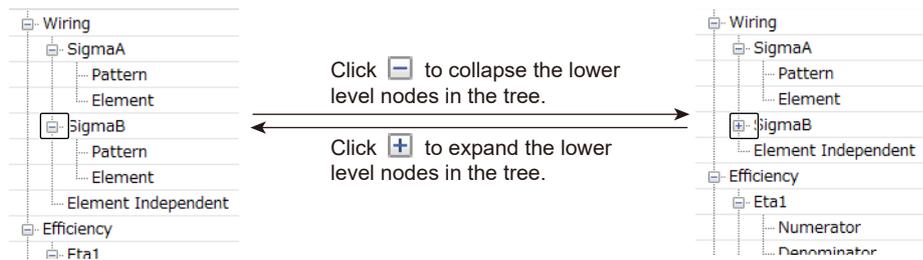
List of settings

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.

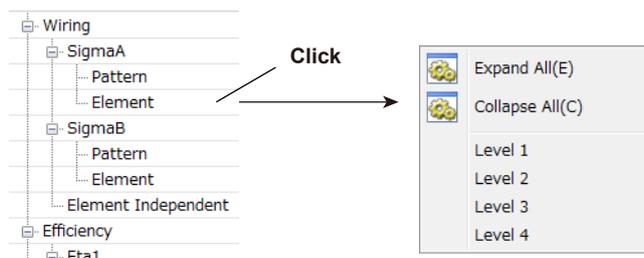
You can also change the settings from the list. However, you cannot collectively change the settings from the list. Change them individually.

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

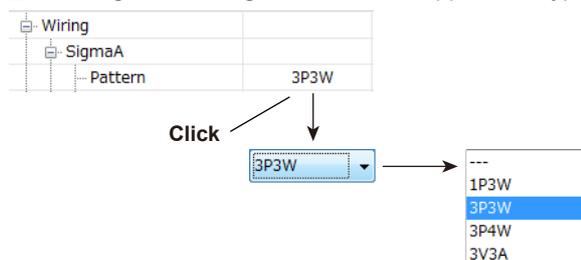


You can also right-click on the list of settings, and use the shortcut menu to expand and collapse the list.



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.

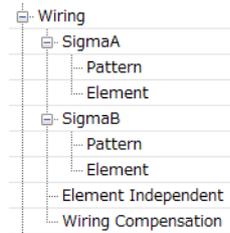


Details of Settings

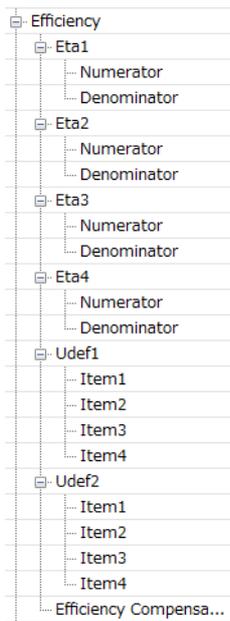
Examples of the various settings in setting display areas and the corresponding settings in the list of settings are provided below. The settings and the contents in the list of settings vary depending on the following factors.

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

Wiring System



Efficiency Equation



Measurement Range

Sets the maximum available range.

Increases the range by one level.

Lists the available ranges for direct entry.

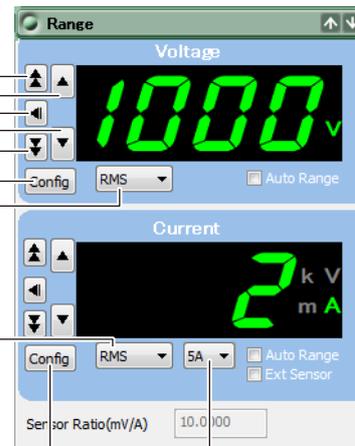
Decreases the range by one level.

Sets the minimum available range.

Sets the valid voltage measurement range.

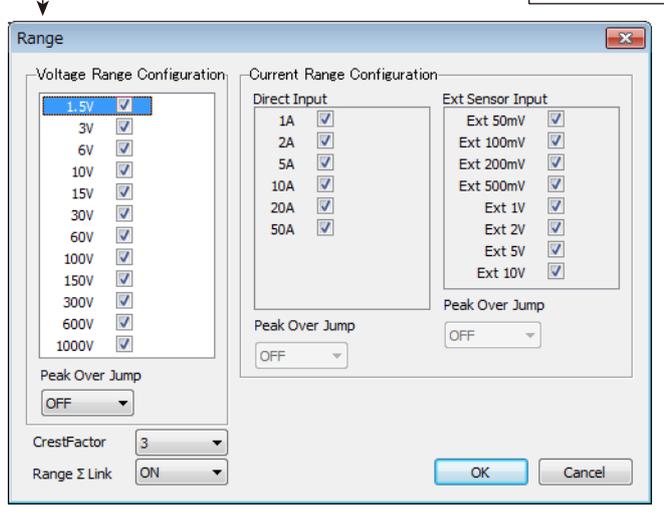
Voltage mode

Current mode

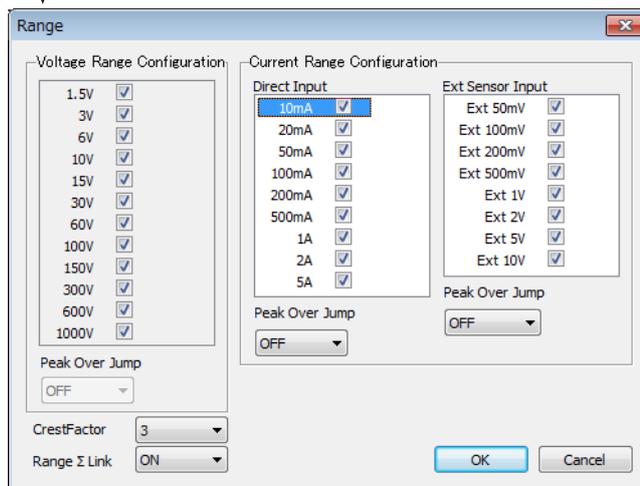


- Range
 - Voltage
 - Voltage Mode
 - Auto Range
 - Voltage
 - Current
 - Current Mode
 - Auto Range
 - Current
 - Ext Sensor
 - Sensor Ratio(mV/...

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



Sets the valid current measurement range.

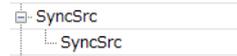
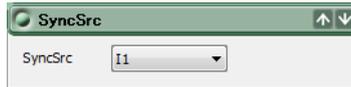


- Range Configuration
 - Voltage Range
 - 1000V
 - 600V
 - 300V
 - 150V
 - 100V
 - 60V
 - 30V
 - 15V
 - 10V
 - 6V
 - 3V
 - 1.5V
 - Peak Over Jump
 - Current Range
 - Input Element(50A)
 - 50A
 - 20A
 - 10A
 - 5A
 - 2A
 - 1A
 - Peak Over Jump
 - Input Element(5A)
 - 5A
 - 2A
 - 1A
 - 500mA
 - 200mA
 -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

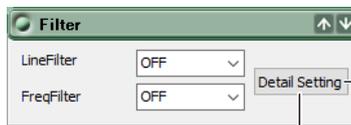
Scaling



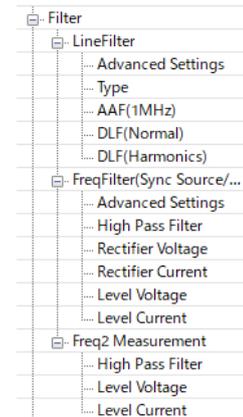
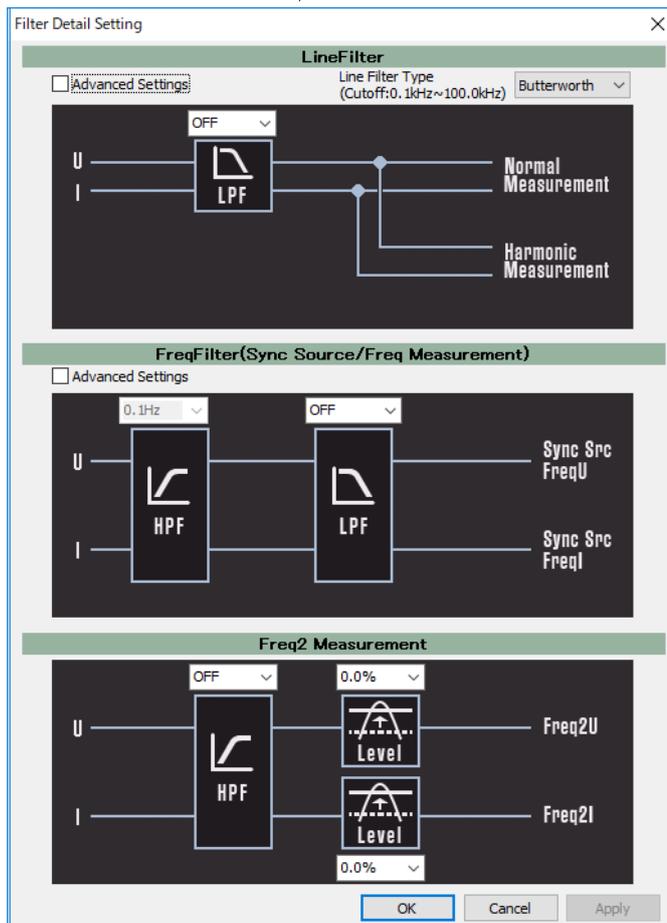
Synchronization Source



Filter



Appears only for the WT5000



Data Update Interval

UpdateRate
UpdateRate

Averaging

Averaging
Averaging
Type
Count

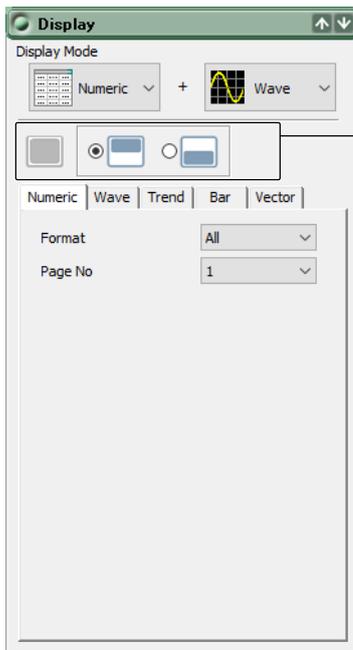
Integration

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

5.1 WT Configuration

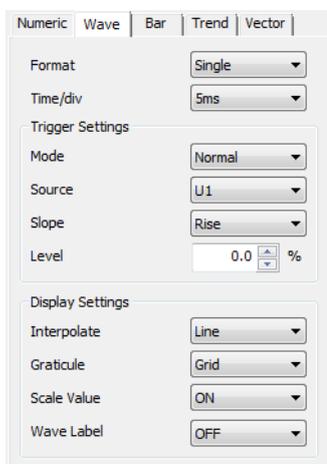
Display

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

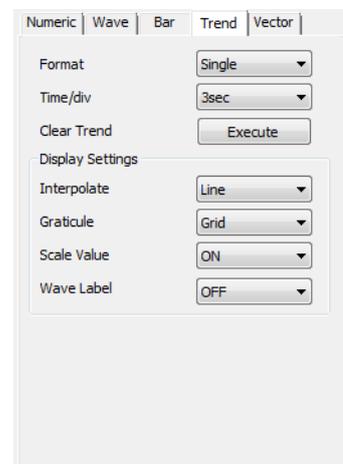


Numeric data

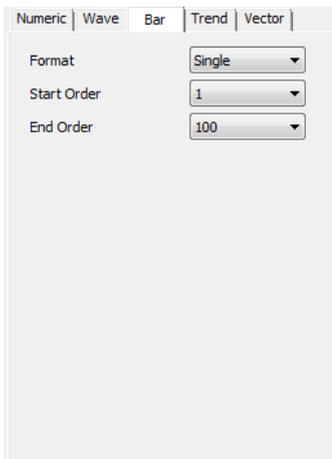
Appears only for the WT5000
 Set the target to single screen, top half of the split screen,
 or bottom half of the split screen



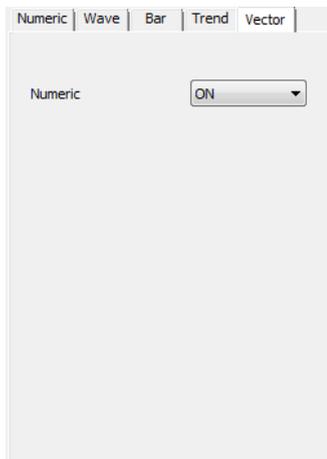
Waveform



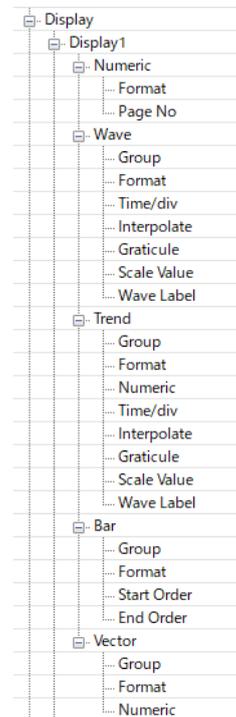
Trend



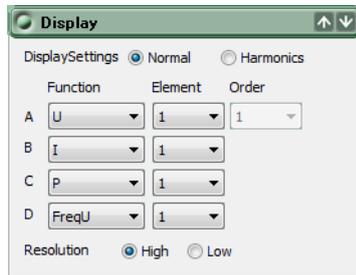
Bar graph



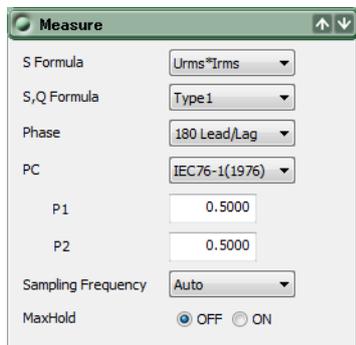
Vector



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

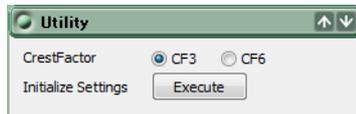


Numeric Measurement



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

Utility



Utility
CrestFactor

User-Defined Function

The process of defining a user function involves three main steps:

- User Define Function Dialog:** A list of functions is shown. The first function is selected:

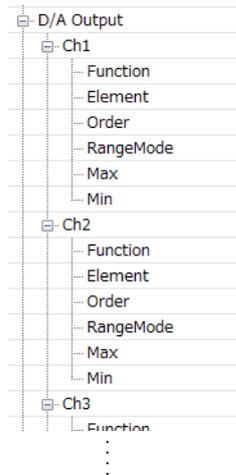
Function	Expression
Function1	WH(E1)/(ITIME(E1)/3600)
Function2	P(E1)-P(E2)
Function3	(LPPK(E1)-LMPK(E1))/2/JDC(E1)*
Function4	(IPPK(E1)-IMP(E1))/2/IDC(E1)*10
Function5	DELTAU1RMS(SA)
Function6	DELTAU2RMS(SA)
Function7	DELTAU3RMS(SA)
Function8	DELTAU1MN(SA)
Function9	DELTAU2MN(SA)
Function10	DELTAU3MN(SA)
Function11	360-PHIU1U3(SA)+PHIU1U2(SA)
Function12	PHIU1I2(SA)-PHIU1I1(SA)
Function13	PHIU3I3(SA)-PHIU2I2(SA)-F11()
Function14	(360-PHIU3I3(SA))+PHIU1I1(SA)+
Function15	PPPK(E1)-PMPK(E1)
Function16	DELTAU1RMN(SA)
Function17	DELTAU2RMN(SA)
Function18	DELTAU3RMN(SA)
Function19	DELTAU1DC(SA)
Function20	DELTAU2DC(SA)
- Calculator Dialog:** The expression $WH(E1)/(ITIME(E1)/3600)$ is entered into the calculator. The interface includes a numeric keypad and dropdown menus for 'Item' (set to E1) and 'Function' (set to K).
- Detail Setting Dialog:** A table of constant values is shown:

Property	Value
Detail Setting	
Constant	
K1	1
K2	1
K3	1
K4	1
K5	1

D/A Output

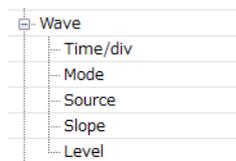
You can configure the D/A output if the /DA option is installed in the WT.

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



Waveform

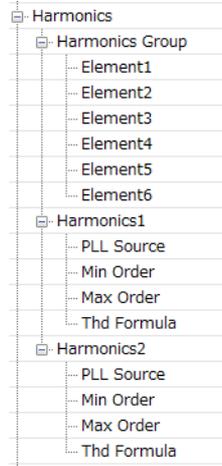
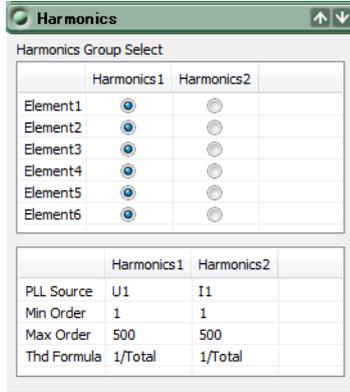
Wave	
Time/div	5ms
Trigger Settings	
Mode	Normal
Source	U1
Slope	Rise
Level	0.0 %



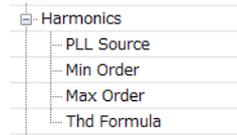
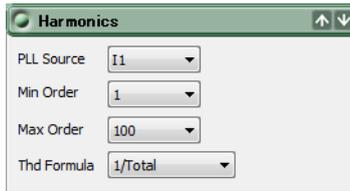
Harmonic Measurement

You can configure harmonics in the following situations.

- WT5000
- The /G6 option is installed in the WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E.
- The /G6 option is installed in the WT1800(WT1801/WT1802/WT1803/WT1804/WT1805/WT1806).



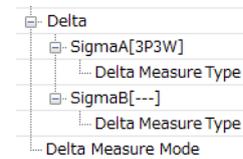
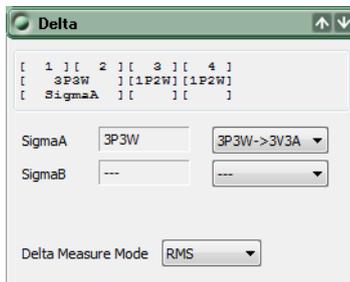
- The /G5 or /G6 option is installed in a model other than the above.



Delta Computation

You can set delta computation in the following cases.

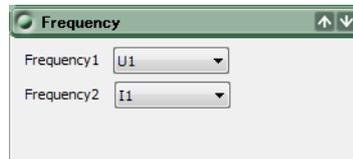
- WT5000
- The /DT option is installed in any of the following models.
 - WT3000 (760301/760302/760303/760304)
 - WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
 - WT500 (760201/760202/760203)



Frequency Measurement

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

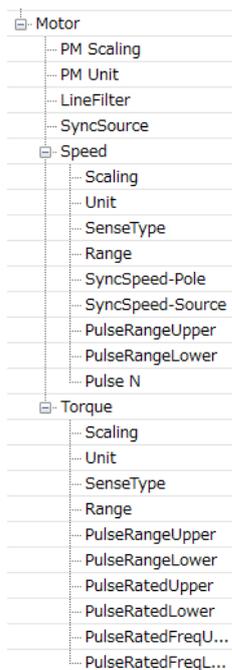
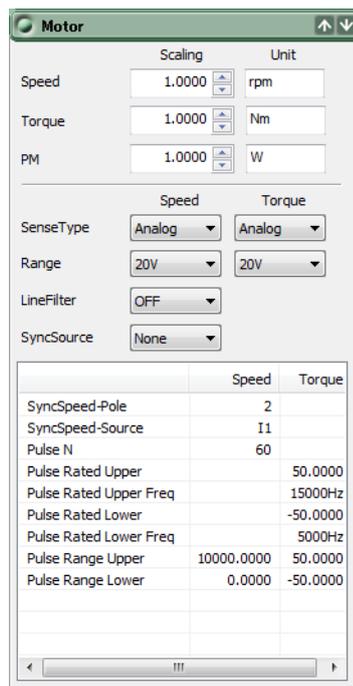
- WT3001E/WT3002E/WT3003E/WT3004E
- WT3000 (760301/760302/760303/760304)
- WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
- WT500 (760201/760202/760203)



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.
- An /MTR option is installed in the WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E.
- An /MTR option is installed in the WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806).



Note

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

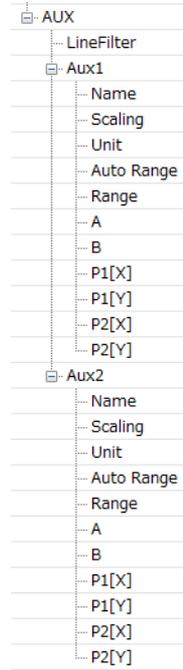
5.1 WT Configuration

AUX

You can configure AUX settings in the following situations.

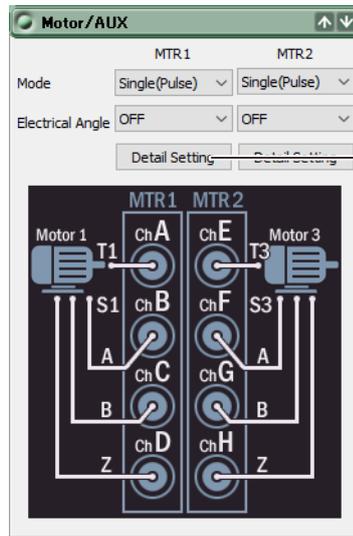
- An /AUX option is installed in the WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E.
- An /AUX option is installed in the WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806).

	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	



Motor/AUX

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



Next page

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

5.1 WT Configuration

Ch Settings

MTR Detail Setting

Ch Settings | Electrical Angle

Motor1

Speed: Scaling 1.0000, Unit rpm

Torque: Scaling 1.0000, Unit Nm

PM: Scaling 1.0000, Unit W

SenseType: Speed Pulse, Torque Analog

Analog Auto Range: OFF

Analog Range: 20V

LineFilter: OFF

NoiseFilter: OFF

SyncSource: 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	----	----	----

Motor2

Speed: Scaling 1.0000, Unit rpm

Torque: Scaling 1.0000, Unit Nm

PM: Scaling 1.0000, Unit W

SenseType: Speed Pulse, Torque Analog

Analog Auto Range: OFF

Analog Range: 20V

LineFilter: OFF

NoiseFilter: OFF

SyncSource: 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

Speed: Scaling 1.0000, Unit rpm

Torque: Scaling 1.0000, Unit Nm

PM: Scaling 1.0000, Unit W

SenseType: Speed Pulse, Torque Analog

Analog Auto Range: OFF

Analog Range: 20V

LineFilter: OFF

NoiseFilter: OFF

SyncSource: 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	----	----	----

Motor4

Speed: Scaling 1.0000, Unit rpm

Torque: Scaling 1.0000, Unit Nm

PM: Scaling 1.0000, Unit W

SenseType: Speed Pulse, Torque Analog

Analog Auto Range: OFF

Analog Range: 20V

LineFilter: OFF

NoiseFilter: OFF

SyncSource: 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	----	----	----

Electrical Angle

MTR Detail Setting

Ch Settings | Electrical Angle

Electrical Angle Correction

Electrical Angle Measurement: Motor1 OFF, Motor3 OFF

Correction Value: Motor1 0.00, Motor3 0.00

Auto Enter Target: U1

Auto Enter Correction: Execute

Harmonics Trigger

Hrm 1:Z Phase1(CHD)
Hrm 2:Z Phase1(CHD)

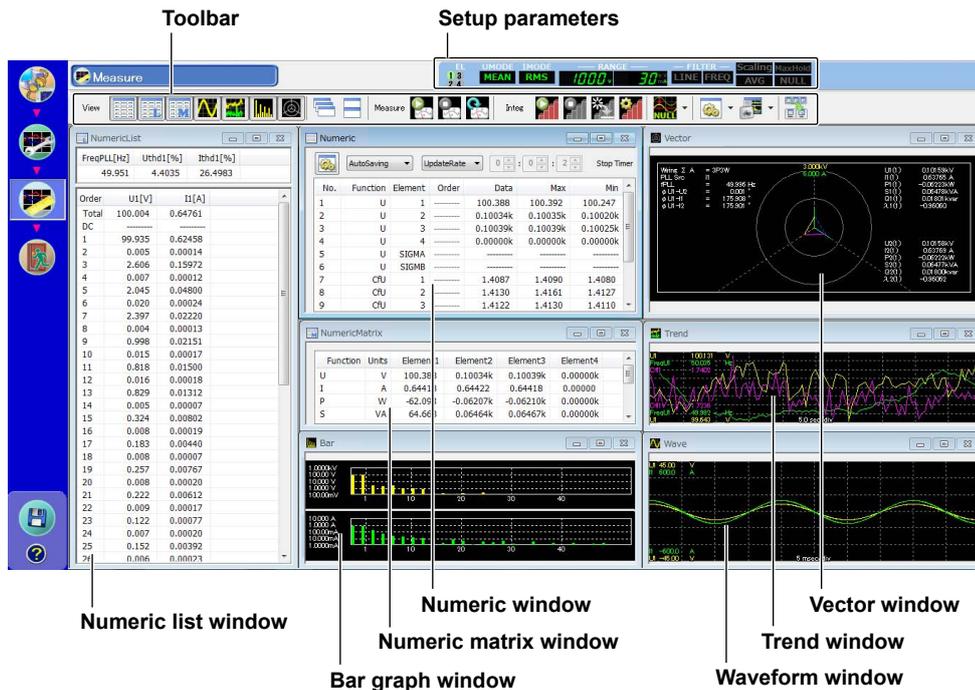
	Hrm Element Group	Valid EA Items
Element1	Hrm 1	
Element2	Hrm 1	

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

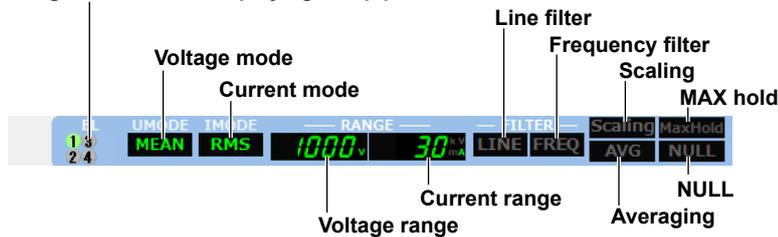
1. Click  in the menu area. The measurement screen appears.



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

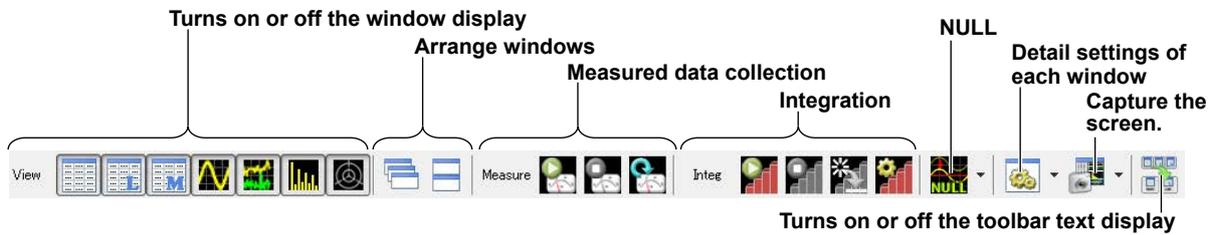
The current settings are displayed. For details on changing the settings, see chapter 5.

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.

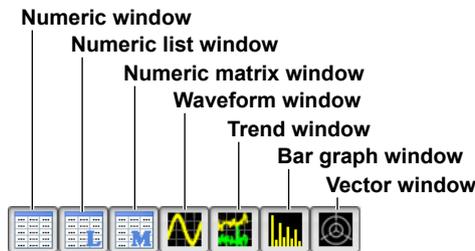
Toolbar



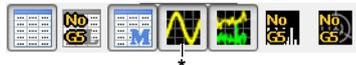
Turning On and Off the Window Display (View Icons)

Turns on or off each window display.

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

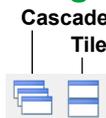


- Models without the harmonic measurement (/G5), simultaneous dual harmonic measurement (/G6), and advanced computation (/G6) option



- 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



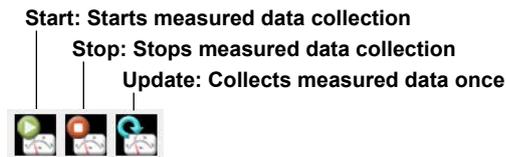
Cascade

- 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.

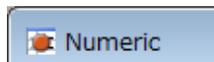
Collecting Measured Data (Measurement Icons)



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
- 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.

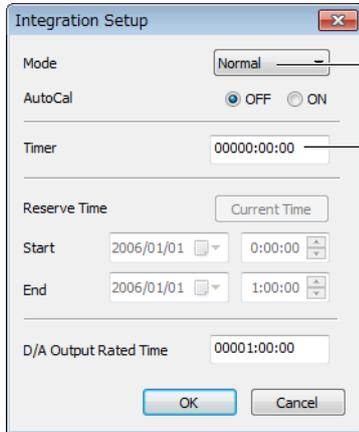
- If you click Reset, the integrated data in the WT will be cleared, but the integrated values of this software will remain.
- If integrated values are displayed in the numeric window of the software, the integrated values will remain displayed. If you start integration again, the integrated values will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

Setting Integration Parameters

The integration setting dialog box appears.



Click



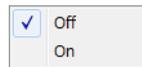
Integration mode

Integration timer (hour:minute:second)

NULL



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

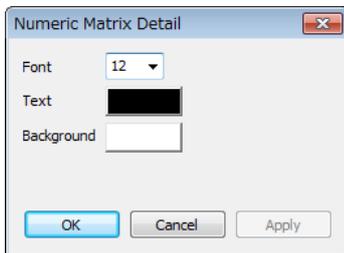


Click here to switch between NULL On and Off.

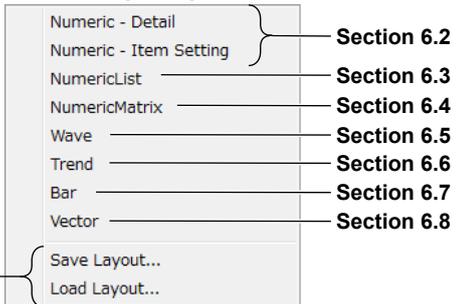
Detail Settings of Each Window (View-Set icon)



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

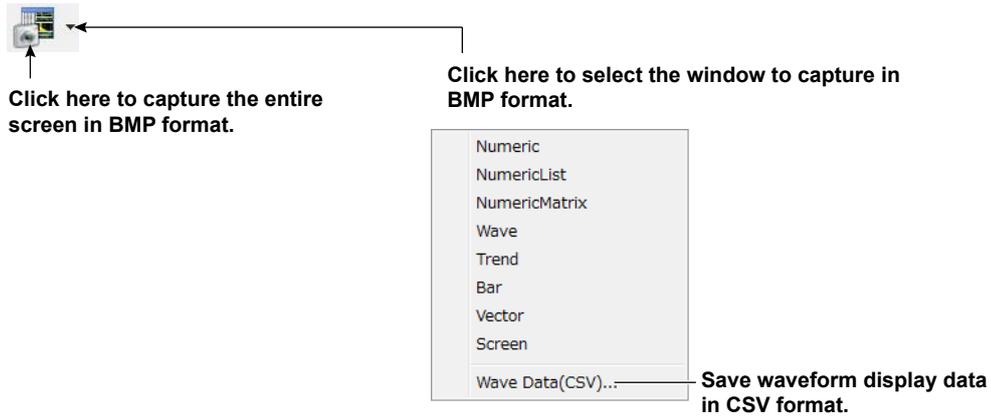


Click here to show a menu for selecting the detail setting dialog box.



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)



Location Where Files Are Saved In

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

C:\Users\\My 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 export 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.

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

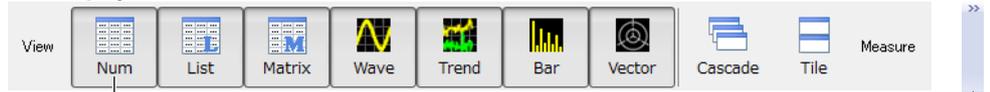


The toolbar text display toggles on and off every time you click the icon.

Text display: OFF

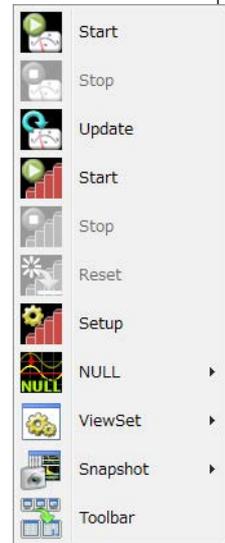


Text display: ON



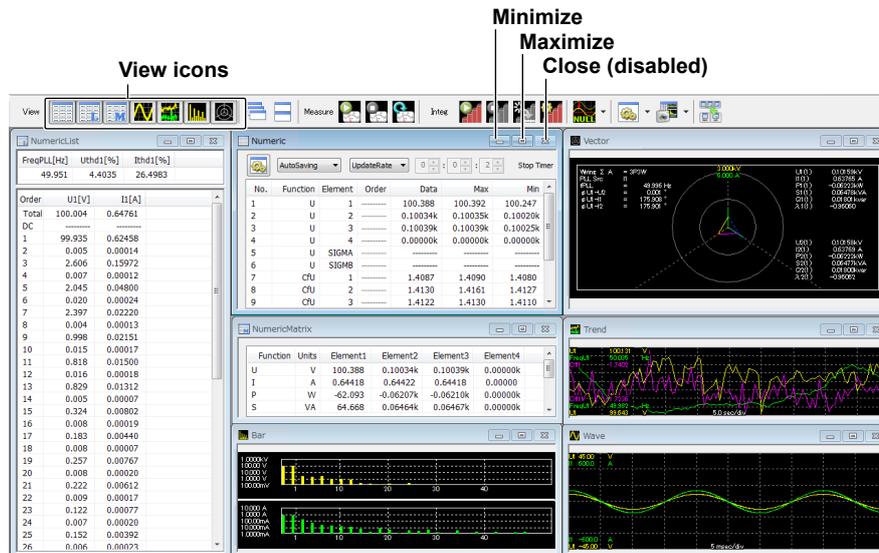
Toolbar text

Click here to show the icons that do not fit on the screen.



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

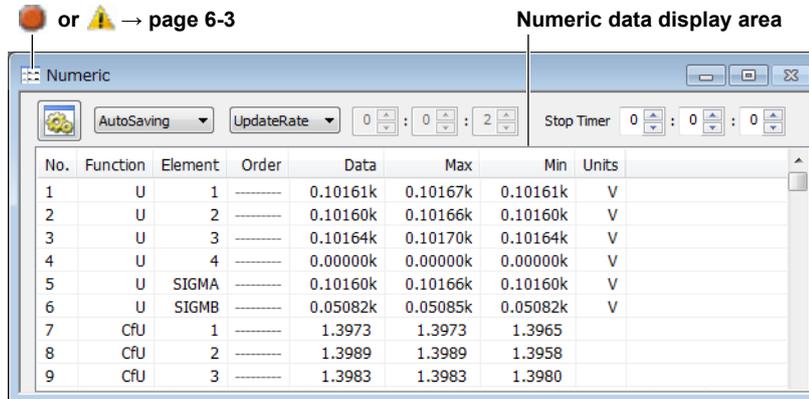
Display Sampling on the Measurement Screen

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

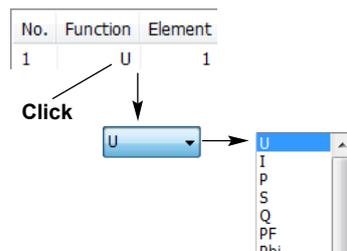
Displays the maximum and minimum values of each display item, obtained through the comparison of numeric data that has been collected from the WT. When a measurement is started, these values are initialized with the first measured data.

Setting the Display Items

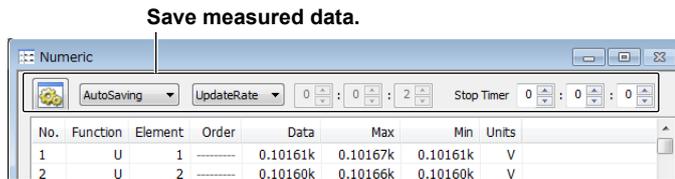
You can change the function, element, and harmonic order display items by following the procedure below. You cannot change them while measured data collection is in progress.

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



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.

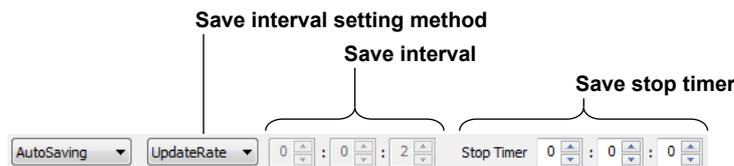


- OFF: Measure data is not saved.
- AutoSaving: Measured data is saved automatically at a fixed period.
- ManualSaving: Save measured data manually.

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.

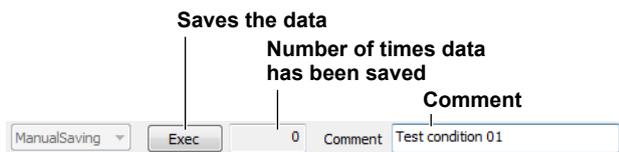
Selectable range: 1 seconds to 23 hours 59 minutes 59 seconds

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.

ManualSaving



Saving Data

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

Number of Times Data Has Been Saved

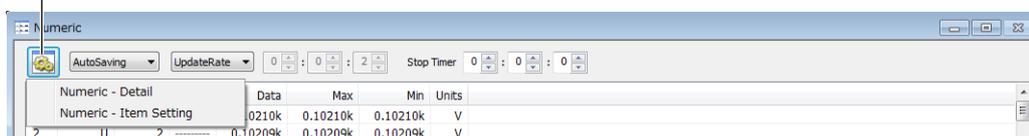
Shows the number of times data has been saved.

Comment

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

Detail Setting Dialog Box

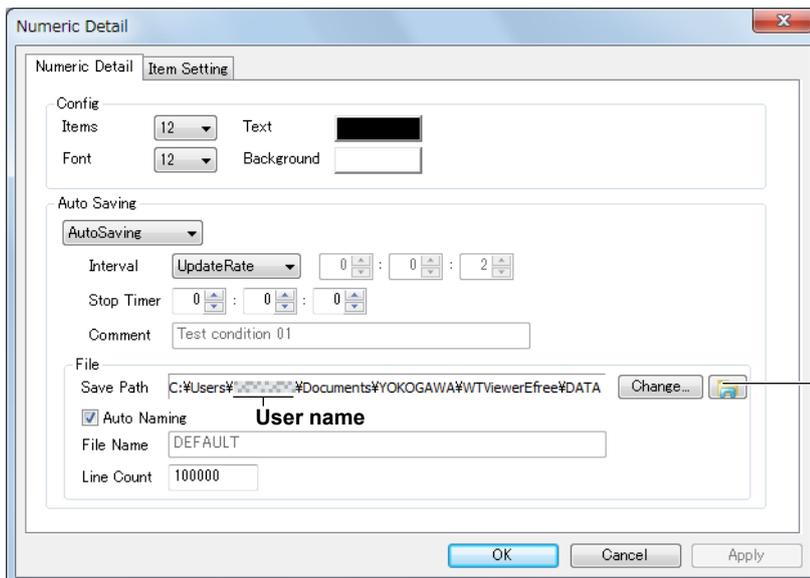
Detail setting dialog box display button



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.



Opens the save path using Explorer

6.2 Numeric Display

Items

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

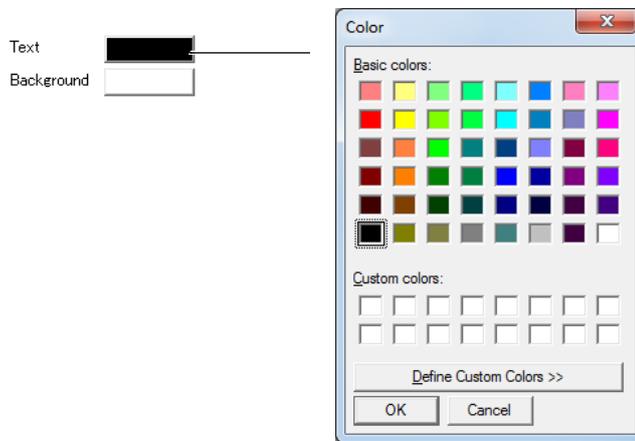
- * The number 900 can be selected when connected to any of the following models.
 - WT5000
 - WT1801E/WT1802E/WT1803E/WT1804E/WT1805E/WT1806E
 - WT1800 (WT1801/WT1802/WT1803/WT1804/WT1805/WT1806)
(Must be firmware version 2.33 or later)

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

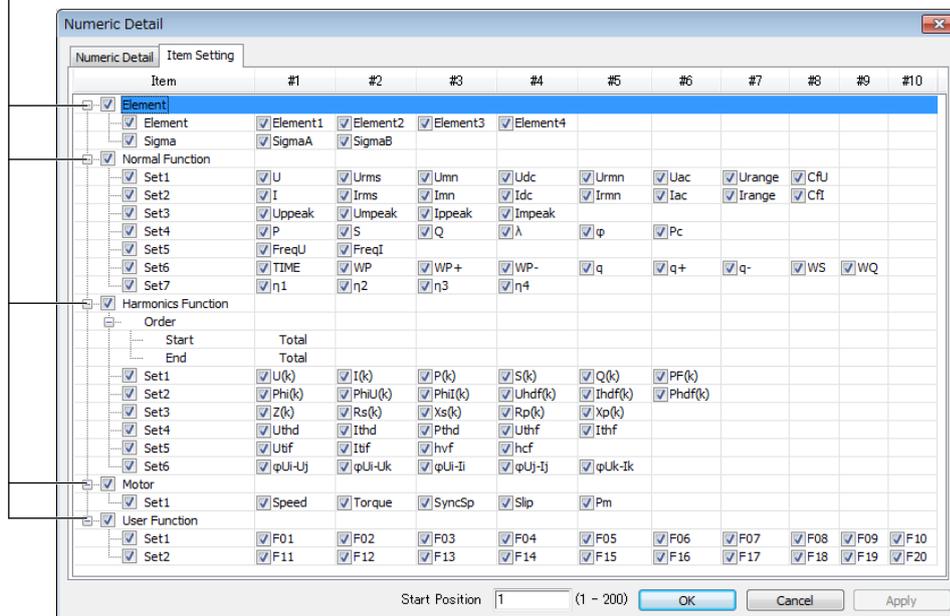
If the number of numeric data entries saved to a file reaches the number specified by Line Count, a new file is created with a name whose number at the end of the name is incremented. This process is repeated (e.g., DEFAULT_0001.csv, DEFAULT_0002.csv, . . . , DEFAULT_9999.csv).

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.

ALL



Element

- If you select **All**, allelements 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.

6.2 Numeric Display

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)

The screenshot shows a window titled "NumericList" with two main sections:

Harmonic data display area:

FreqPLL[Hz]	Uthd1[%]	Ithd1[%]
49.976	3.9590	26.5007

Harmonic list display area:

Order	U1[V]	I1[A]
Total	100.561	0.64185
DC	-----	-----
1	100.466	0.61913
2	0.005	0.00008
3	2.331	0.16017
4	0.007	0.00002
5	1.862	0.04366
6	0.024	0.00027
7	2.163	0.01877
8	0.003	0.00010
9	0.889	0.02177
10	0.017	0.00018

Labels in the image indicate that the "Order" column represents the harmonic order and the "U1[V]" and "I1[A]" columns represent the measured data for each harmonic order.

Detail Setting Dialog Box

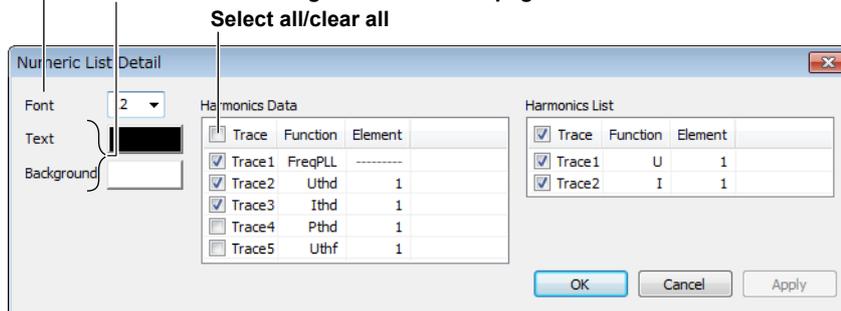
A detail setting dialog box appears when you perform any of the following operations.

- 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.



Setting the Display Items

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

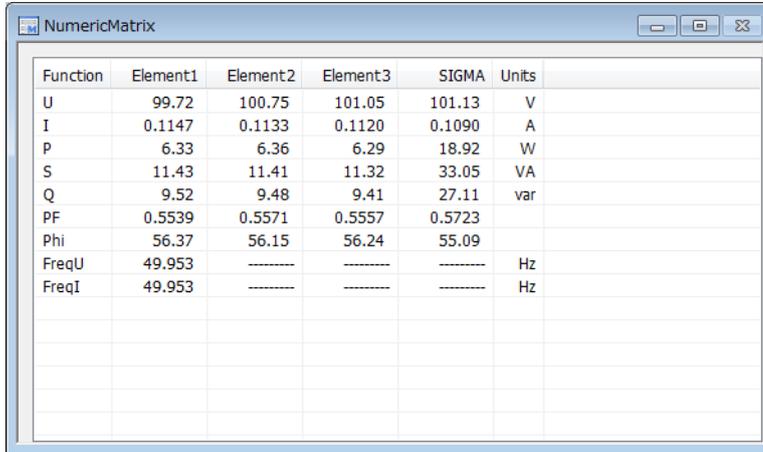
You cannot change them while measured data collection is in progress.

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.



Function	Element1	Element2	Element3	SIGMA	Units
U	99.72	100.75	101.05	101.13	V
I	0.1147	0.1133	0.1120	0.1090	A
P	6.33	6.36	6.29	18.92	W
S	11.43	11.41	11.32	33.05	VA
Q	9.52	9.48	9.41	27.11	var
PF	0.5539	0.5571	0.5557	0.5723	
Phi	56.37	56.15	56.24	55.09	
FreqU	49.953	-----	-----	-----	Hz
FreqI	49.953	-----	-----	-----	Hz

Function

The functions are displayed in the following fixed order.

U, I, P, S, Q, λ , ϕ , FreqU, FreqI

Detail Setting Dialog Box

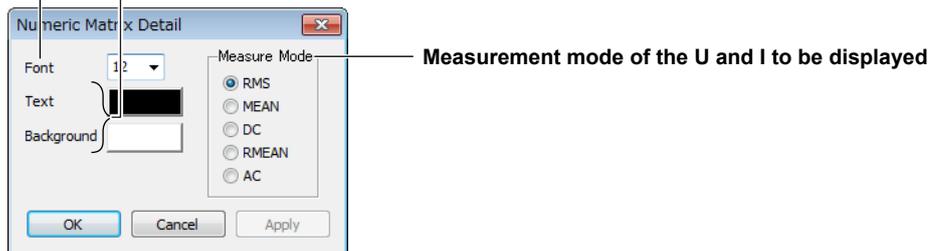
A detail setting dialog box appears when you perform any of the following operations.

- 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

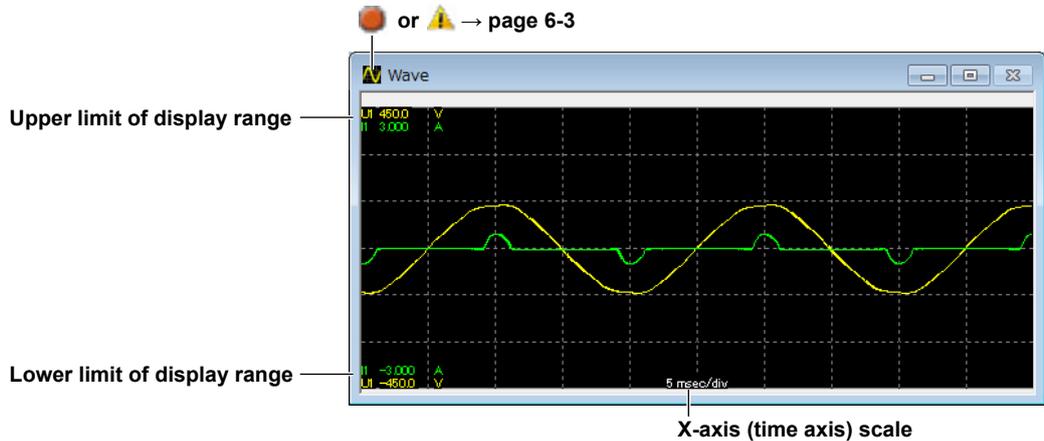
You can save measured data on the numeric display window. See section 6.2, "Numeric Display."

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

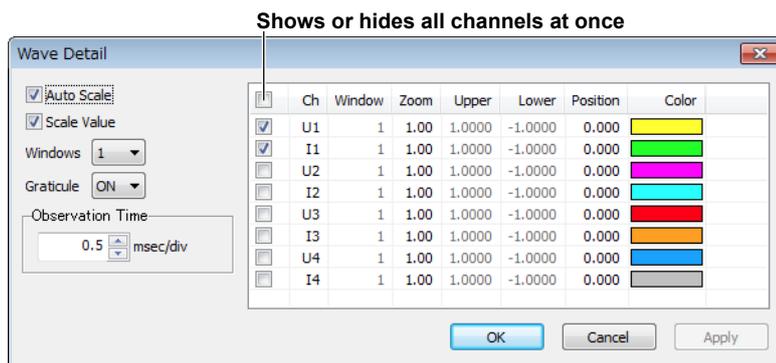
When connected to the WT500, waveform is displayed when the integration has been started or stopped. It is not displayed when the integration has been reset.

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

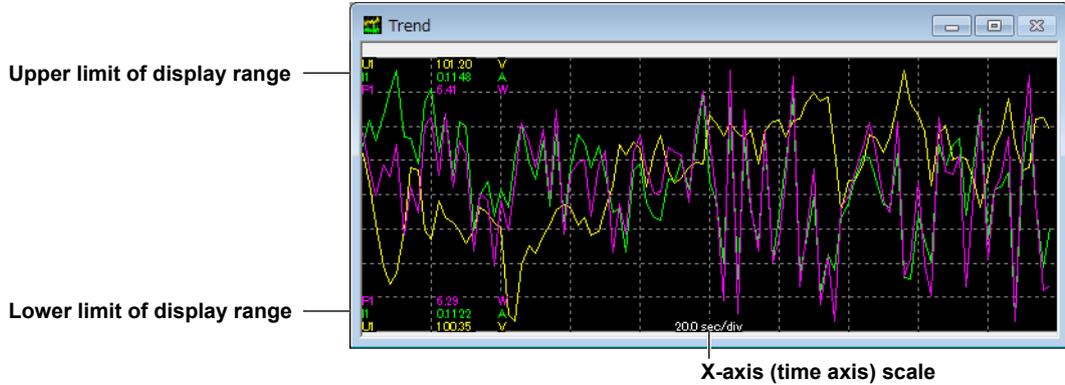
Select the waveform color.

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.

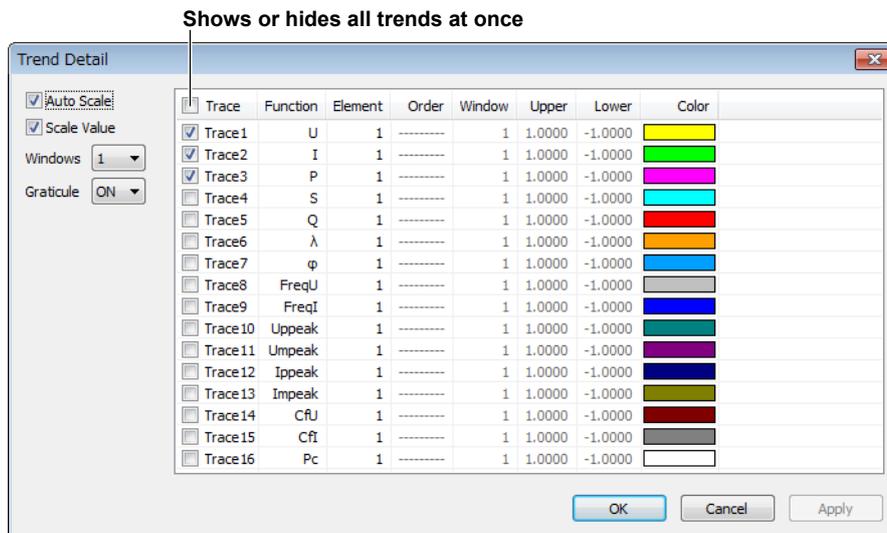


Detail Setting Dialog Box

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.

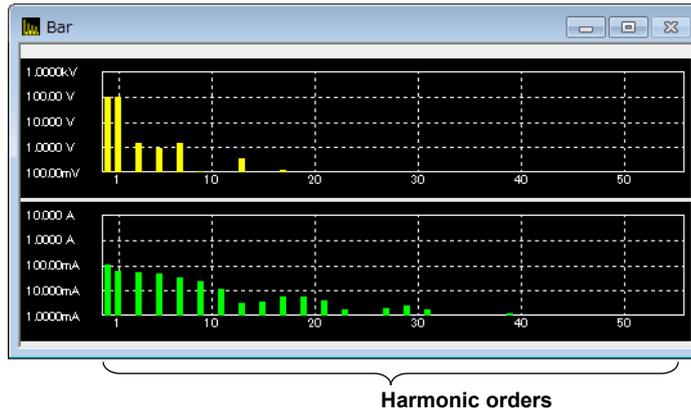
Saving Measured Data

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

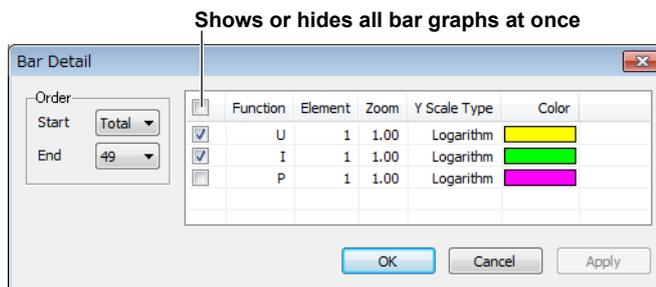
When logarithmic coordinates are used (Log Scale), if a value is negative, its absolute value is displayed with a red bar graph.

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.

6.7 Bar Graph Display

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 (ϕU), Phil (ϕl), 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

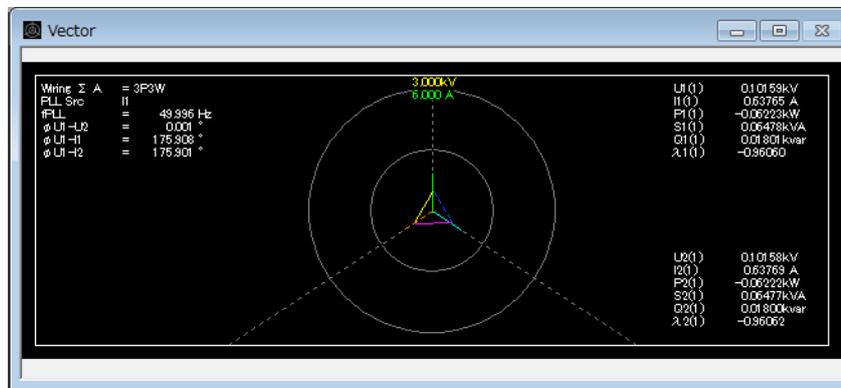
You can select a wiring unit to display vectors of the phase differences and amplitudes (rms values) of the fundamental signals, U(1) and I(1), in each element in the unit. The positive vertical axis is set to zero (angle zero), and the vector of each input signal is displayed.

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)

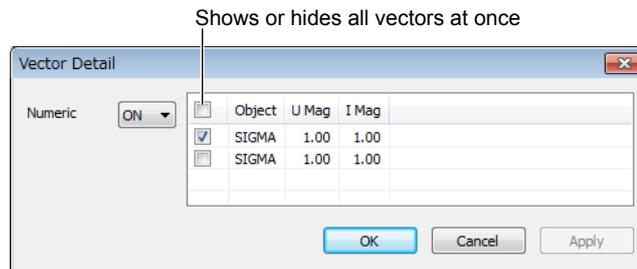


Detail Setting Dialog Box

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

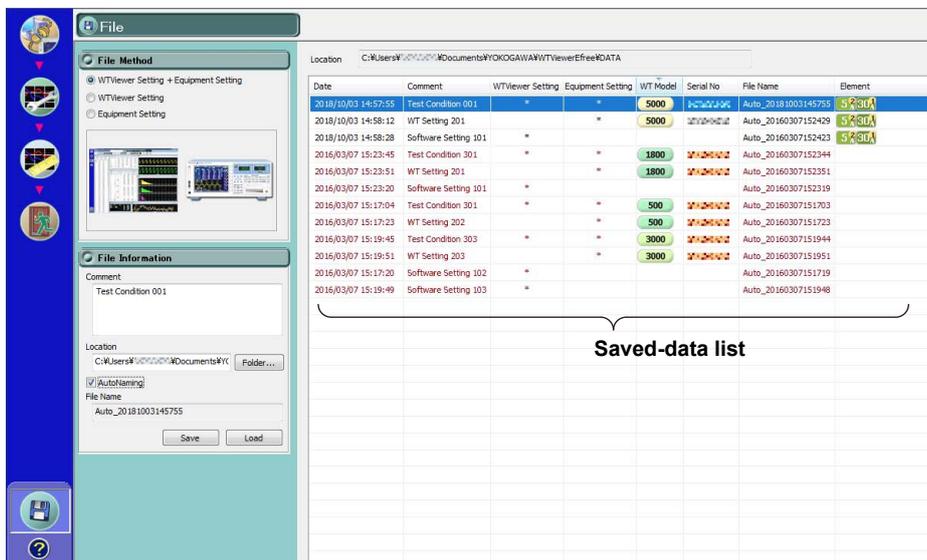
- Object
Click the cells, and set each item using the combo box that appears.
- U Mag and I Mag
Click the cells, and set each item.

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.

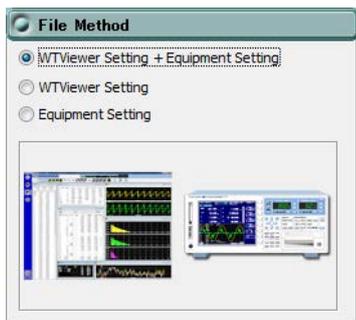


Selecting the Type of File to Save

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



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#\Documents\YOKO(AWA)\WTViewer\Efree\DATA

Date	Comment	WTViewer Setting	Equipment Setting	WT Model	Serial No	File Name	Element
2018/10/03 14:57:55	Test Condition 001	*	*	5000	760902	Auto_20181003145755	5, 30
2018/10/03 14:58:12	WT Setting 201		*	5000	760901	Auto_20160307152429	5, 30
2018/10/03 14:58:28	Software Setting 101	*				Auto_20160307152423	5, 30
2016/03/07 15:23:45	Test Condition 301	*	*	1800	760902	Auto_20160307152344	
2016/03/07 15:23:51	WT Setting 201		*	1800	760902	Auto_20160307152351	
2016/03/07 15:23:20	Software Setting 101	*				Auto_20160307152319	
2016/03/07 15:17:04	Test Condition 301	*	*	500	760902	Auto_20160307151703	
2016/03/07 15:17:23	WT Setting 202		*	500	760902	Auto_20160307151723	
2016/03/07 15:19:45	Test Condition 303	*	*	3000	760902	Auto_20160307151944	
2016/03/07 15:19:51	WT Setting 203		*	3000	760902	Auto_20160307151951	
2016/03/07 15:17:20	Software Setting 102	*				Auto_20160307151719	
2016/03/07 15:19:49	Software Setting 103	*				Auto_20160307151948	

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

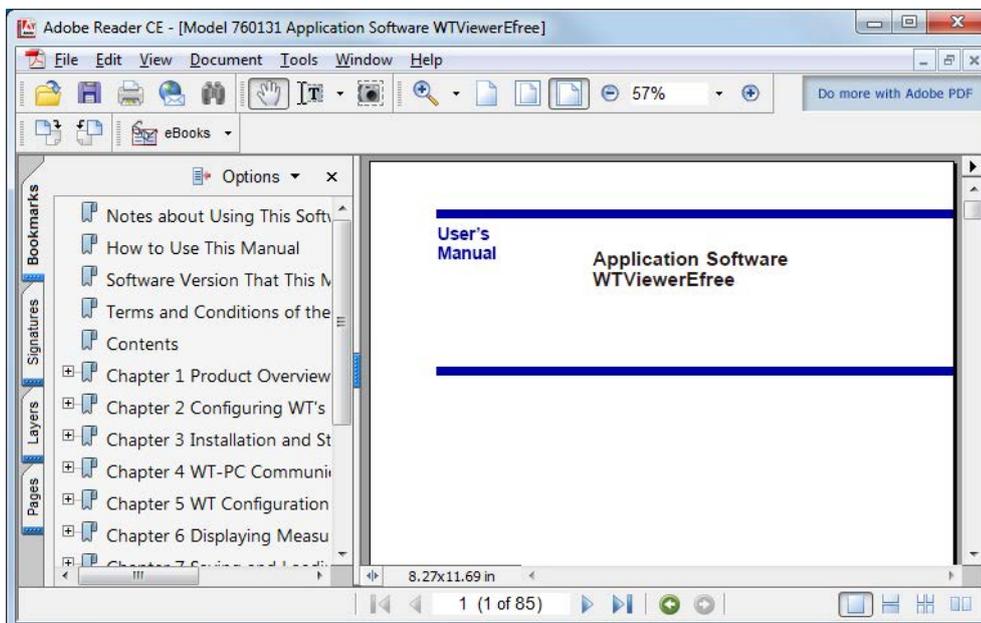
Moving the mouse pointer over a line in the element configuration shows the detailed element information (model, instrument number).

Element1 : 760902, "76090202"
 Element2 : 760901, "76090102"

8.1 Help Feature

Displaying Help

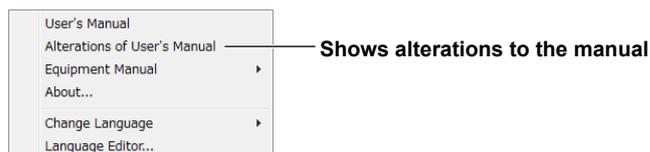
Click the help  button. If Adobe Acrobat Reader is installed on your PC, it will start, and the PDF of the software user’s manual will open. You can look up how to use the software and terminology.



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

To obtain the PDFs of the latest user's manual and alteration notices, visit the YOKOGAWA website indicated below, click **Y-LINK** to show the manual download page. Download the user's manual and alteration notices for the software from this page.

<https://tmi.yokogawa.com/support/download-software-drivers-firmware/>

Change the file name of the manual or alteration notice to that shown below, and overwrite the existing file in the Manuals folder in the software installation folder that you specified in the procedure described on page 3-2. Then, you will be able to view the file by clicking User's Manual or Alteration of User's Manual on the Help menu.

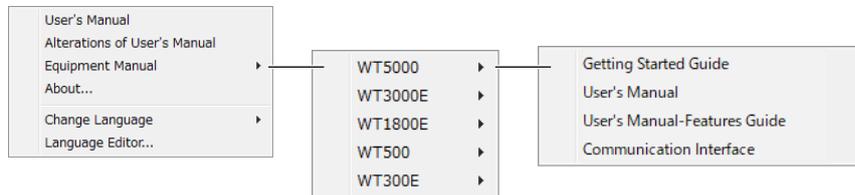
- User's manual file name: EN_WTViewerEfree Users Manual.pdf
- Alteration notice file name: EN_WTViewerEfree Alterations.pdf

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 website correspond to the latest version of this software. If necessary, update the software. You can download updates to the software from the YOKOGAWA website 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

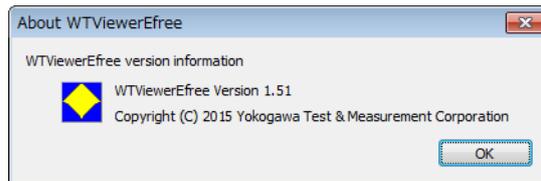
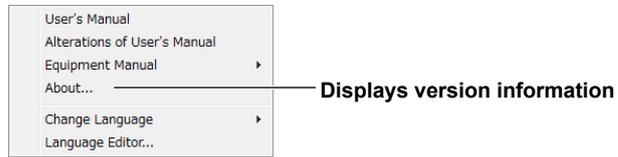
The help function does not show the user's manual for the following models.

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

- WT3000 (760301/760302/760303/760304)
 - 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.



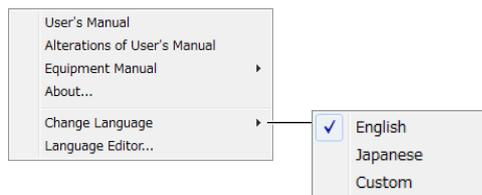
Note

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:



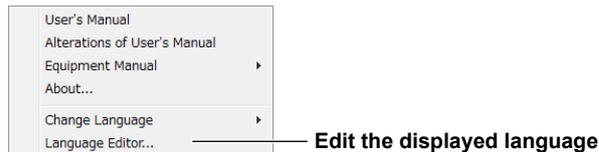
Select **Custom** to load the custom file.

8.4 Editing the Displayed Language

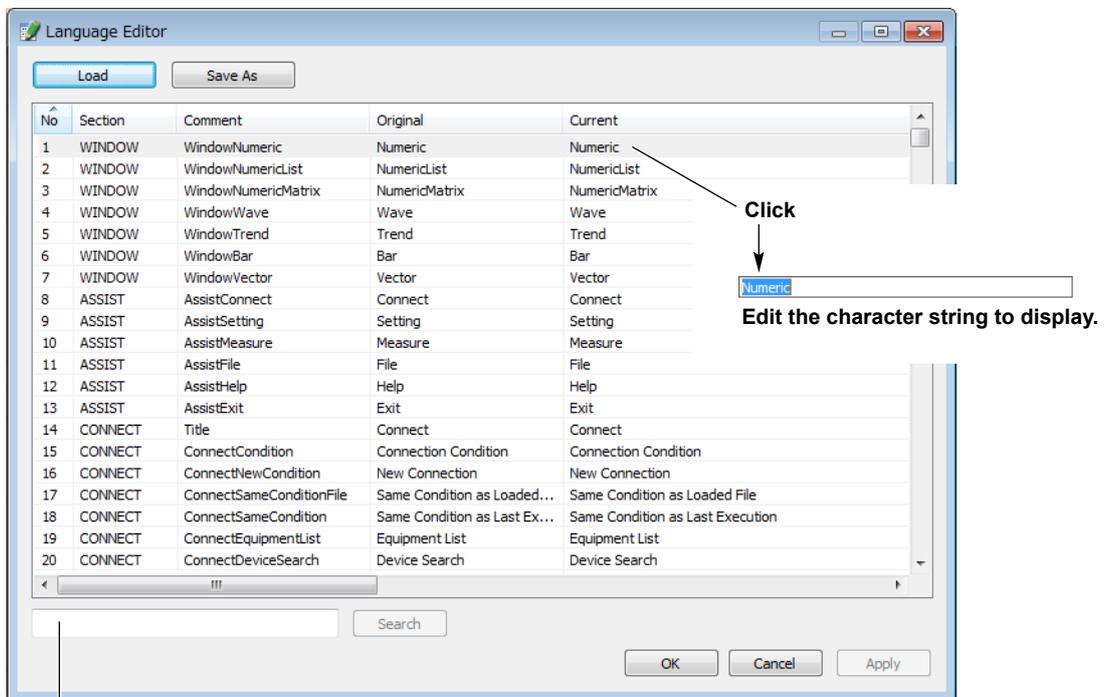
You can edit the text that is displayed in the dialog boxes and windows of the software.

Editing the Displayed Language

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



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\\My 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 3-6).

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
 - 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 Updatarate 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 border="1"> <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 border="1"> <tr> <td>Model</td> <td> WT5000 WT3001E/WT3002E/WT3003E/WT3004E WT3000 (760301/760302/760303/760304) 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) 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) 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 Displays the numeric data that the software collects from the WT</p> <p>Numeric list³ Lists the harmonic data that the software collects from the WT</p> <p>Numeric Matrix Displays the numeric data that the software collects from the WT for each element in a table</p> <p>Waveform⁴ Displays the waveform display data that the software collects from the WT</p> <p>Bar Graph³ Displays bar graphs of the harmonic components for each harmonic order during harmonic measurement</p> <p>Trend Displays the numeric data that the software collects from the WT as trend graphs</p> <p>Vector^{3,5} 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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