HIOKI

SF4300

Instruction Manual

GENNECT SPACE



EN

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Contents

1 Introduction

1.1 Introduction 4
1.2 Notation 5

2 Installation

2.1 Installation 7

3 Overview

3.1 Product Overview 11
3.2 Features 13
3.3 Names and Functions of Each Part 15

4 Preparation for Setup

4.1 Connecting the Measuring Instruments 19

5 Measurement and Data Logging

5.1 Logging Settings Data 24
5.2 Names and Functions of Each Part 26
5.3 Measurement Procedure 32
5.4 Logging Settings 34
5.5 Panel 54
5.6 Start and Stop Monitoring 85
5.7 Start and Stop Recording 90

6 Analyzing Measurement Data

6.1 Logging Recorded Data 95
6.2 Names and Functions of Each Part 97
6.3 Panel 104
6.4 Report 111
6.5 Data Playback 115

7 Managing Measurement Data

7.1 Data Screen 118
7.2 Names and Functions of Each Part 119

8 Instrument Operation and Management

8.1 Measuring Instrument Screen 126
8.2 Names and Functions of Each Part 127

8.3 Remote Control 131
8.4 Instrument Settings 133
8.5 Update 135

9 Additional Functions

9.1 Login 138
9.2 Menu Structure 144
9.3 File 145
9.4 Settings 148
9.5 Display 153
9.6 Information 155
9.7 Help 158

10 Maintenance and Support

10.1 Frequently Asked Questions 159

1 Introduction

1.1 Introduction

Thank you for choosing Hioki's GENNECT Space SF4300. This product is an application for collecting and analyzing data in combination with Hioki measuring instruments.

The following instruction manual is available. Refer to it as relevant to your purpose.

Type	Contents	Supply form
SF4300 GENNECT Space Instruction Manual (This document)	This manual contains an overview of this application, operating instructions, function descriptions, and specifications. https://manual.hioki.com/en/SF4300/manual You can also view this manual from the help menu of the Gennect Space application.	HTML, PDF

Information on download site

For details on the product application, the update file for the instrument, and the instruction manual, please check Hioki's website:
https://cloud.gennect.net/dl

Request for product user registration

We kindly request that you visit the following link to register your product to receive critical updates and information about the product:
https://www.hioki.com/us-en/support/myhioki/login

Trademarks

- Windows is a corporate trademark of the Microsoft Group.
- Intel is a trademark of Intel Corporation or its subsidiaries in the United States and/or other countries.
- Other product and company names are trade names, registered trademarks, or trademarks of their respective owners.

1.2 Notation

Notation of terms for this piece of application software

Notation	Explanation
Panel	Indicates a separate area (a panel whose size and position can be adjusted) used to display the information of the **logging** function on the screen. You can use multiple **panels** to display separate information at the same time.
Widget	Indicates a UI component whose placement and size can easily be changed. Examples include text boxes, images, and figures. In this application, widgets are used as the UI components of the **report** function.
Logging settings data	The **settings data file** that stores the settings of the **logging** function that performs measurement and recording. It includes setting data such as the recorded measuring instrument and its settings, the channels, the recording settings, and the screen layout. It does not include recorded data.
Logging recorded data	The **record data file** that stores the data recorded with the **logging** function. Basically, settings related to the setting data are read-only.
Channel	As a generic term, the measurement channels of the logger and the measurement items of the wattmeter (the voltage, current, power, etc. of each measurement channel) are referred to as **channels** in this manual.
Gauge	**Gauge** refers to the scales on the numerical value axis (vertical axis) used to read the measured values of each measurement channel on the waveform display. To allow for visual analysis, a separate gauge is displayed for each channel, making it easier to grasp the measured value scale and the fluctuation range.
Channel label	**Channel label** refers to the labels displayed on the right edge of the waveform of each measurement channel on the waveform display. There is a function for identifying waveforms with mouse operations on the channel labels. This function makes it easier to determine the waveforms of multiple channels.

Safety notations

This manual classifies the seriousness of risks and hazard levels as described below.

Notation	Explanation
⚠ CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury or potential risks of damage to the supported product (or to other property).
IMPORTANT	Provides important information and content necessary for operating or maintaining the product.

Other notations

Notation	Explanation
Tips	Provides useful capabilities and advice you should be aware of.
*	Indicates that additional information is described below.
See: (title)	Indicates a reference.
Logging (bold)	This formatting is used to highlight and thereby indicate the names of functions and similar information.
[ ]	Indicates the names of user interface elements on the screen.
Windows	Unless otherwise specified, “Windows” indicates Windows 10 and Windows 11.

2 Installation

2.1 Installation

Downloading the installer

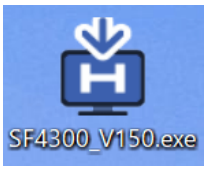
The latest edition of Gennect Space can be downloaded from the URL below.

- **Global**: https://www.hioki.com/us-en/support/download/software
- **Korea**: https://www.hiokikorea.com/support/software_search.html
- **Taiwan**: https://hioki.tw/software-download.php

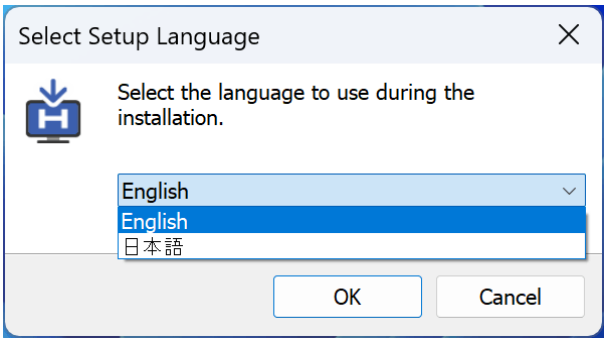
On the download page, please search for this application using “GENNECT Space” or “SF4300”.

Installing the software

1 **Double-click [SF4300_VXXX.exe].**



2 Select the display language of the installer, and then click [OK].



3 Follow the on-screen instructions of the installer, clicking [Next] to proceed with the installation.

4 When you reach the [Completing the GENNECT Space Setup Wizard] screen, click [Finish] to finish the installation.



Uninstalling the software

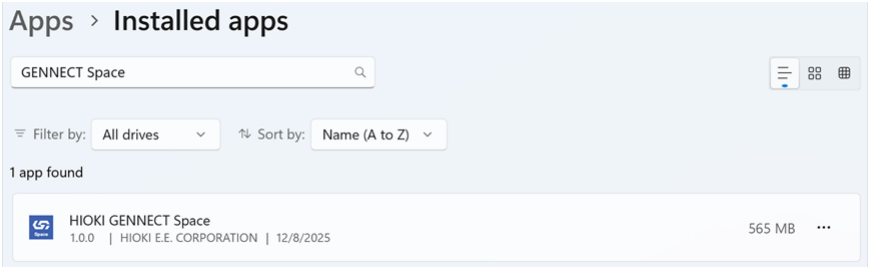
This explanation shows the operations in Windows 11.

1 Click or right-click the Windows [Start] button, and then select [Settings].

2 Select [Apps] from the sidebar menu on the Settings screen.

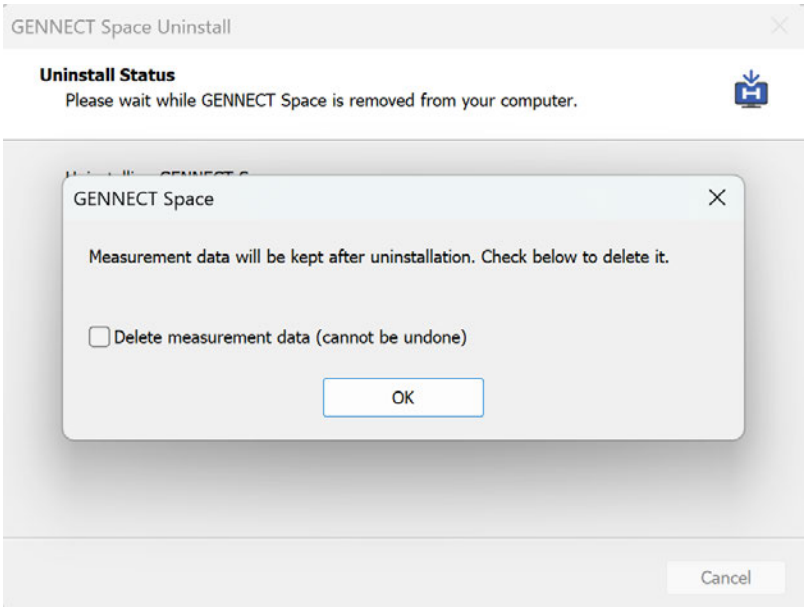
3 Select [Installed apps], and then enter “GENNECT Space” in the search box.

4 Expand the three-point leader (•••) to the right of the GENNECT Space app, and then click [Uninstall].



5 During uninstallation, a confirmation dialog like the following will appear.

- To **keep measurement data**, click **[OK]**.
- To **delete measurement data**, select the **[Delete measurement data (cannot be undone)]** check box, and then click **[OK]**.



Tips

- To uninstall the software from the **[Start]** screen, use the search box on this screen to search for **GENNECT Space**, and then uninstall it.
- To uninstall from **[Control Panel]**, search for **GENNECT Space** from **[Programs]** > **[Programs and Features]** > **[Uninstall a program]**, and then uninstall the software.

3 Overview

3.1 Product Overview

This is an application for collecting and analyzing data in combination with Hioki measuring instruments.

Compatible measuring instruments

	Model number	Model name	Supported version
	LR8450	Memory HiLogger	V3.00 or later
	LR8101 LR8102	Data Logger	V1.60 or later
	PW8001	Power Analyzer	V2.60 or later
	PW4001	Power Analyzer	V1.01 or later

Operating environment (recommended)

Item	Details
OS	Windows 11, Windows 10 (64 bit, 21H2 or later)
Processor	Intel Core i7 10th generation (or equivalent) or better
Memory	32 GB or more
Storage	SSD
Display	Full Hi-Vision (1920 × 1080) or better

Operating environment (minimum)

Item	Details
OS	Windows 11, Windows 10 (64 bit, 21H2 or later)
Processor	Intel Core i3 10th generation (or equivalent) or better
Memory	16 GB or more
Storage	SSD
Display	Hi-Vision (1366 × 768) or better

3.2 Features

Reduces the effort when building systems

- You can build measurement systems that cover the monitoring, recording, visualization, and analysis of measurement data with no coding required.

Compact and inexpensive measurement systems

- You can easily build inexpensive measurement systems just by combining the compatible measuring instruments and this application.

Links multiple types of measuring instruments

- You can seamlessly combine multiple measuring instruments such as wattmeters and loggers for use.

High-speed data acquisition and visualization

- High-speed sampling (at intervals as short as 1 ms) is supported, allowing for the real-time acquisition and display of various analog signals, power parameters, and values calculated between channels.

Multiple simultaneous measurements

- The simultaneous measurement of up to 3,000 points is supported.

Reproduces past measurements

- Measurement details including the display layout, view settings, measurement settings, and instrument settings can be saved and loaded.

Intuitive waveform viewer

- With intuitive operations such as high-speed drawing, display settings that are easy to understand and customizable, and the ability to display multiple waveforms at the same time, this software is easy to use.

Diverse data views

- Waveforms, measured values, video from a camera, GPS data, channel control views, and more can all be displayed on a single screen.

Flexible layout system

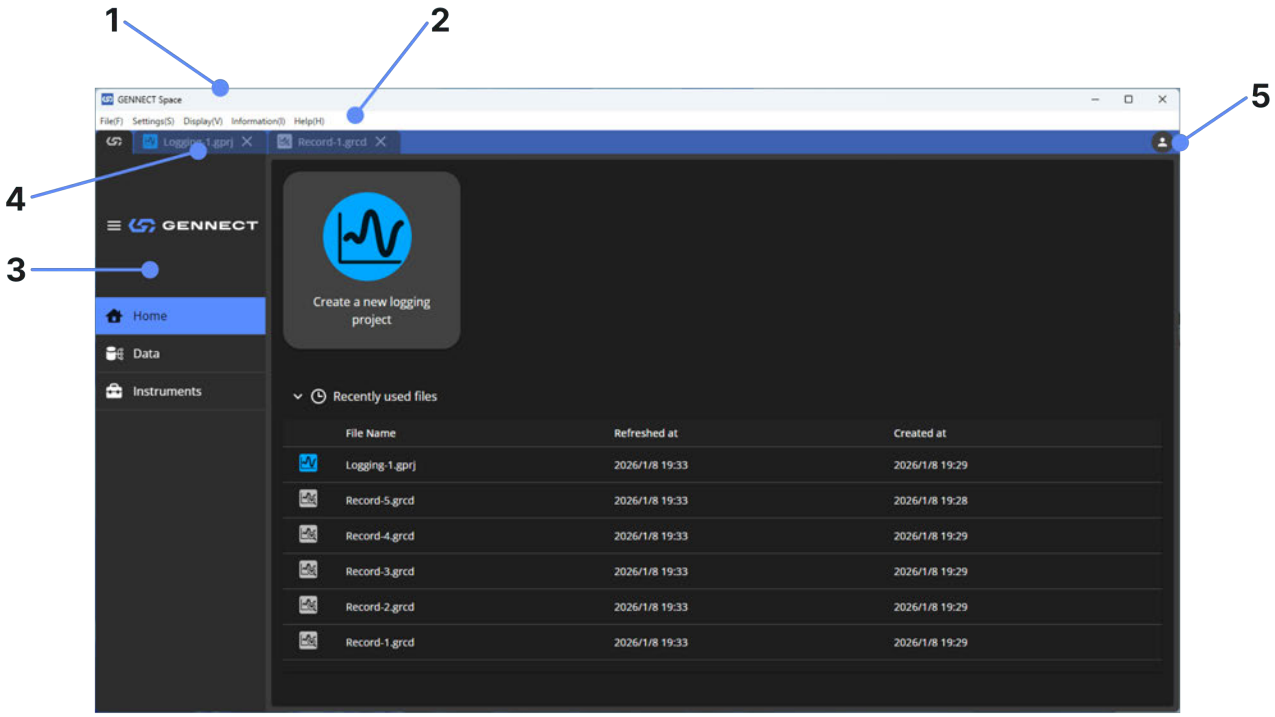
- The panel view, whose size and position can be adjusted, allows you to freely place the required information.

Linking with the Gennect Cloud service

- Log in to Gennect Cloud to ensure that your measuring instrument is always updated to the latest firmware.

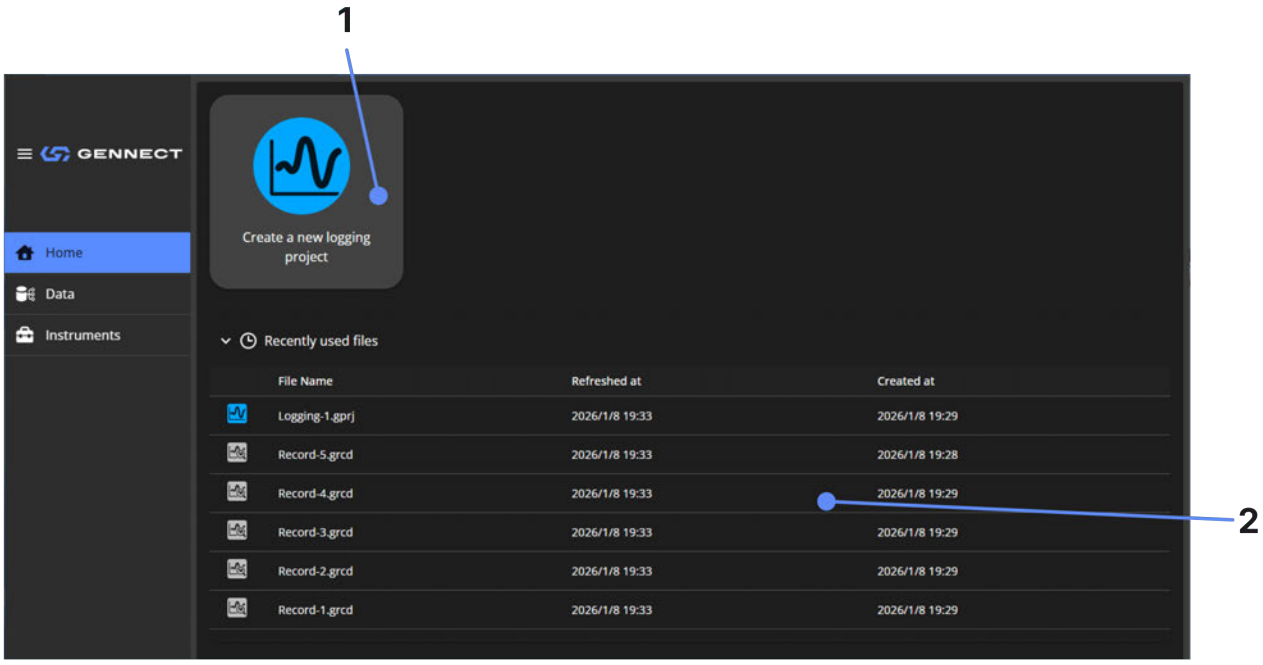
3.3 Names and Functions of Each Part

Overall screen



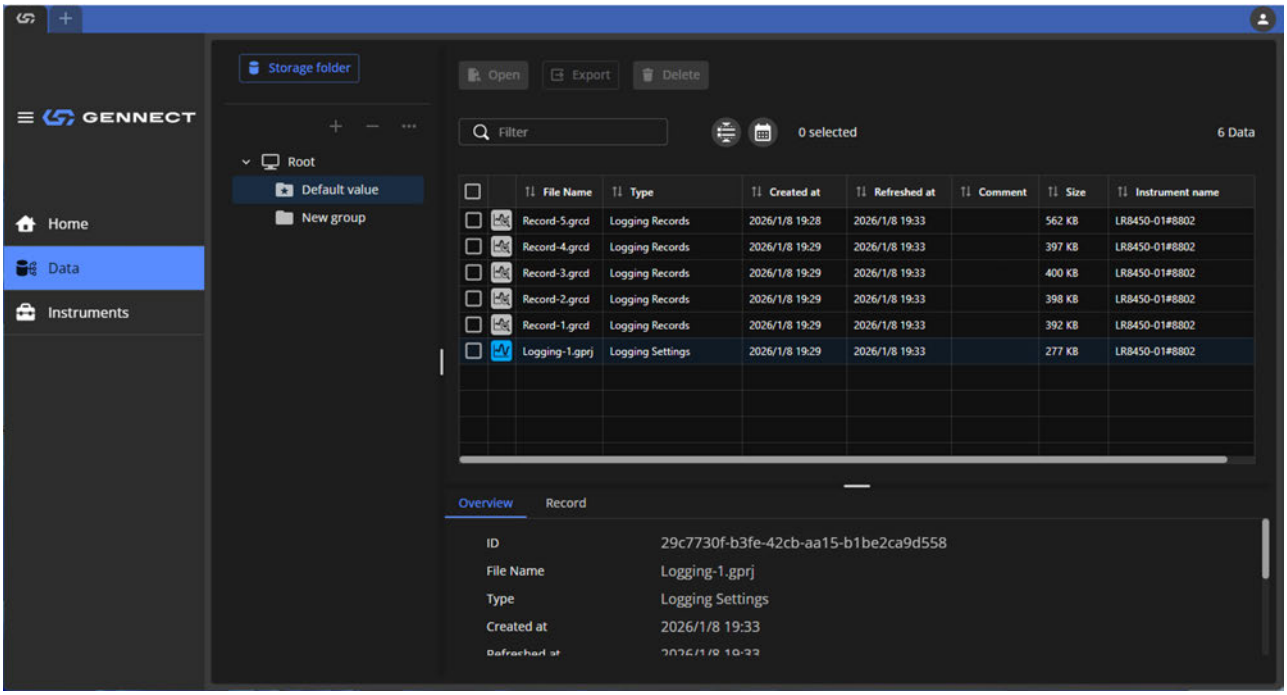
No.	Name	Function	Refer to
1	Title bar	Displays the name and icon of the application and provides buttons for minimizing, maximizing, and closing the window.	–
2	Menu bar	Provides access to all the functions, which are grouped into categories such as **[File]**, **[Settings]**, **[View]**, **[Information]**, and **[Help]**.	–
3	Side menu	Provides access to application-common functions such as **[Home]**, **[Data]**, and **[Measuring instrument]**. You can click the ☰ button to change the width of the side menu display.	–
4	Tab	Settings data such as **logging settings data** and recorded data such as **logging recorded data** are displayed as tabs.	→ →
5	Login	Logs you in to/out from Gennect Cloud.	→

Home screen



No.	Name		Function
1	Start buttons	Create new logging project	• Creates a new logging settings data entry. • If the logging settings data tab is not open, a new logging settings data entry will be opened in a new tab. • If the logging settings data tab is open, a new logging settings data entry will be opened in that tab.
2	List of recently used files		Settings data and recorded data such as the recently used logging settings data and logging recorded data are displayed in a list. Double-click a piece of settings data or recorded data to open it.

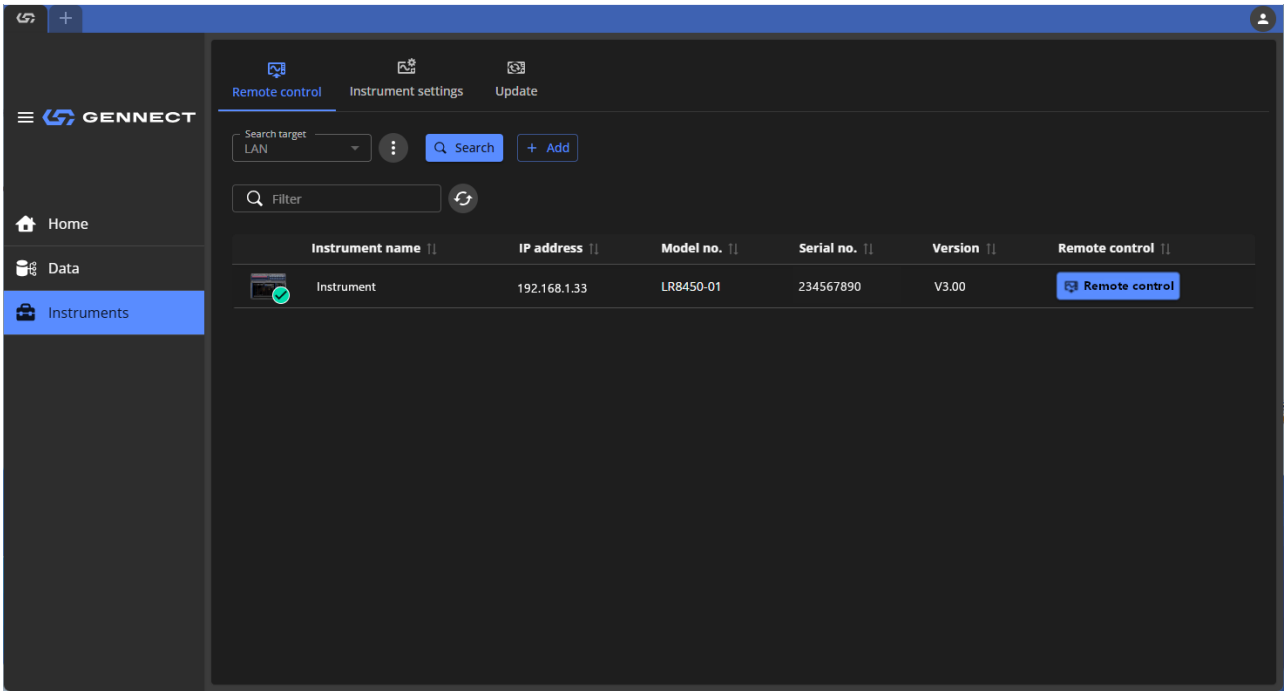
Data screen



Splits data such as **logging settings data** and **logging recorded data** into **groups** and **displays this data in a list**. You can **display information for**, **open**, **delete**, **output**, **move**, and perform similar operations on the listed data. For more information on the functions, see the following pages.

- See: Data screen
- See: Names and Functions of Each Part

Measuring Instrument Screen



Provides access to operations such as **[Remote control]**, **[Instrument settings]**, and **[Update]** for the measuring instruments. For more information on the functions, see the following pages.

- See: Measuring Instrument Screen
- See: Names and Functions of Each Part

4 Preparation for Setup

4.1 Connecting the Measuring Instruments

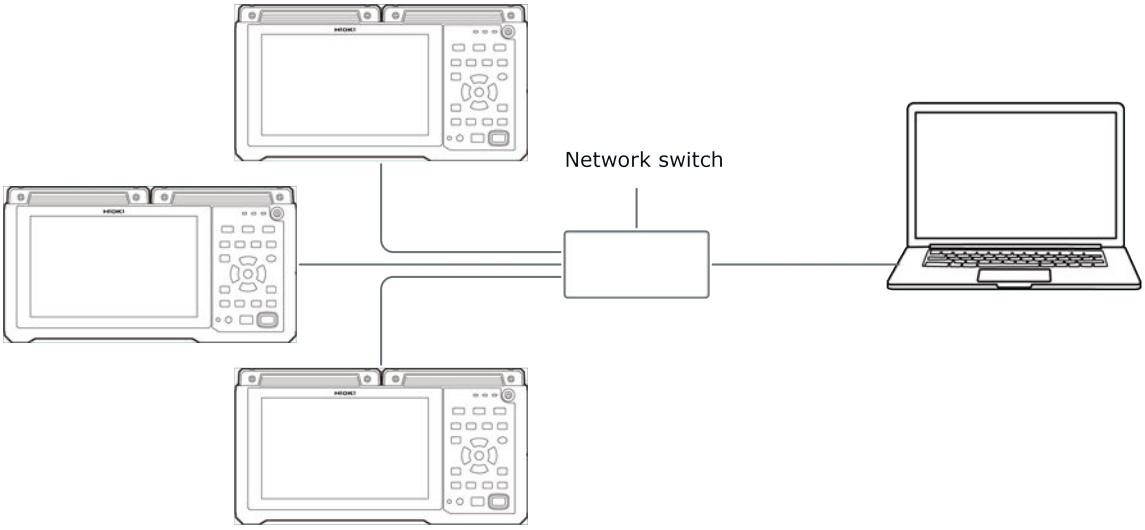
Connecting the measuring instruments to the computer

This section explains how to connect this application and the measuring instruments.

- Connect the measuring instruments and the computer with LAN cables, creating a structure in which communication is possible over a wired network (Ethernet).
- The measuring instruments and the computer must be on the same local network.
- For more information on how to set the network of the measuring instruments, see the instruction manual of each product.
- For more information on how to set the network of the computer, see this section.
- To ensure the stability and speed of the communication, use category 5e or higher straight cables.

Connecting to an independent network

Connect the measuring instruments and the computer to a dedicated local network that is isolated from other devices. This method reduces the risk of network interference and makes it easier to configure settings and handle problems. As shown in the setting example, when connecting multiple measuring instruments to the computer, exercise caution when configuring the settings to ensure that each device has a unique IP address.

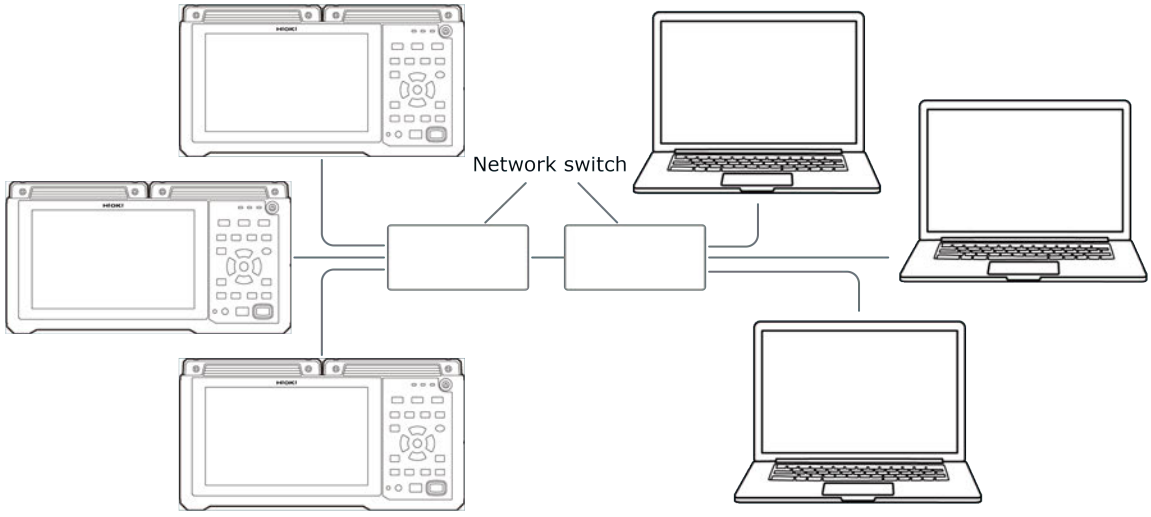


Setting example: configuring the 192.168.1.0/24 network

IP address	Computer	192.168.1.1
	Measuring instrument (first instrument)	192.168.1.2
	Measuring instrument (second instrument)	192.168.1.3
	Measuring instrument (third instrument)	192.168.1.4
Subnet mask		255.255.255.0
Default gateway	Computer	
	Measuring instruments	0.0.0.0

Connecting to an existing network

Connect the measuring instruments and the computer to a corporate LAN or another local network that already exists. It is necessary to have the administrator (department) of the local network assign the network settings (such as the IP addresses) in advance. When connecting multiple measuring instruments to the computer, ensure that each device has a unique IP address. Write down the assigned information in the Setting Memo section and use it to configure the measuring instruments.



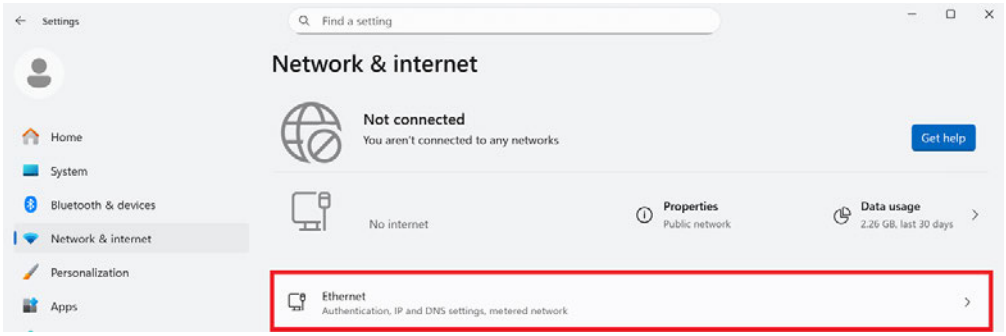
Setting Memo:

IP address	Measuring instrument (first instrument)	___.___.___.___
	Measuring instrument (second instrument)	___.___.___.___
	Measuring instrument (third instrument)	___.___.___.___
Subnet mask		___.___.___.___
Default gateway		___.___.___.___

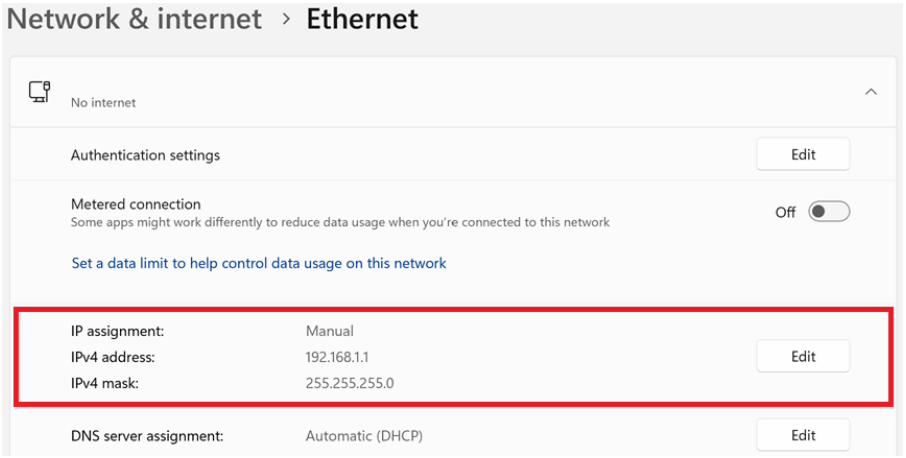
Checking/changing the network settings of the computer

This explanation shows the operations in Windows 11.

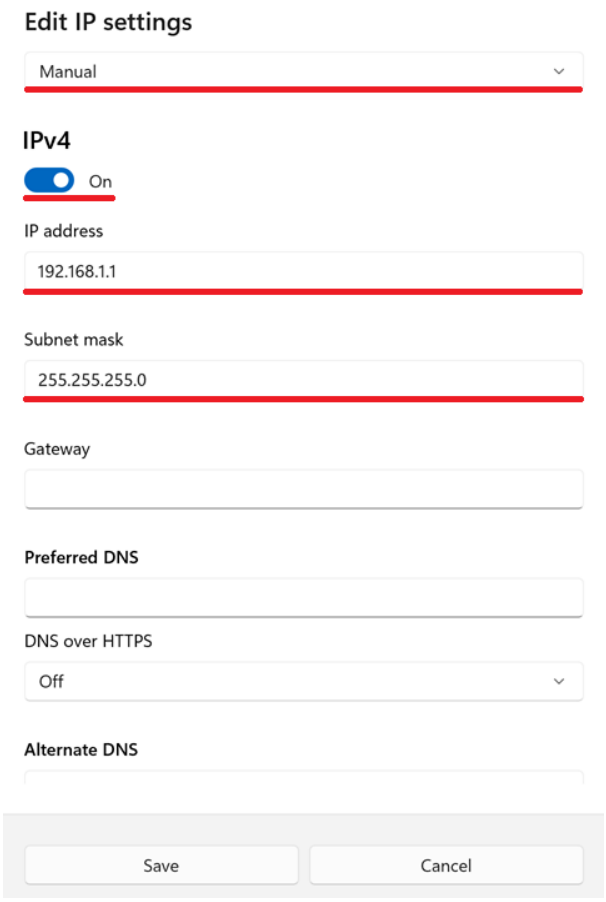
1. Click or right-click the Windows **[Start]** button, and then select **[Settings]**.
2. Select **[Network and Internet]** from the sidebar menu on the Settings screen.
3. Select **[Ethernet]**.



4. Check the properties of the connected Ethernet. The IP address, subnet mask, default gateway, and other information are displayed. To edit these settings, click **[Edit]**.



5. Edit the IP address setting, and then click **[Save]**.



Tips

- To change the IP address setting from **[Control Panel]**, select **[Network and Internet]** > **[Network and Sharing Center]** > **[Change adapter settings]** to open the properties of the connected Ethernet.
- On the **[Ethernet Properties]** screen, select **[Internet Protocol Version 4 (TCP/IPv4)]** and click **[Properties]** to open the IP address setting screen.

5 Measurement and Data Logging

5.1 Logging Settings Data

Overview

Logging settings data is settings data that combines all the setting information for monitoring, recording, and visualizing the measured values of measuring instruments with this application. You can use this application to save and load logging settings data. By loading saved logging settings data, you can reproduce past measurement settings (including the display details and the layout) to measure again under the same conditions. Logging settings data maintains the following configuration information to ensure the reproducibility and consistency of measurements.

Item	Explanation
Measuring instrument list	Maintains the details and identification information of the measuring instruments registered for monitoring and recording.
Instrument settings	Maintains the settings used by each measuring instrument.
Channel list	Maintains the information of the channels (examples include the voltage, current, and temperature measurement item channels) selected for monitoring and recording by each measuring instrument.
Calculation channel list	Maintains information related to items such as the identification of and equations with calculation channels for which inter-channel calculations have been defined.
Recording conditions	Maintains information related to recording conditions such as the monitoring/recording interval, the period, and the file format for saving.
Display settings	Maintains information related to the display settings, layout placement, etc. of panels, which are screen components used to visually check measured values and waveforms.

Measurement tab

Logging settings data is opened in a tab called the measurement tab. The measurement tab has the following characteristics.



- The measurement tab is always displayed at the far left. The tab cannot be moved.
- **Only one** measurement tab can be open within the application.
  - If the measurement tab is not open, a new logging settings data entry will be opened in a new tab.
  - If the measurement tab is open, a new logging settings data entry will be opened in that tab.

Opening logging settings data

You can use one of the following methods to open a logging settings data entry.

1. Opening a logging settings data entry with the button

- Click the button located to the right of the button in the upper-left corner of the application. A new logging settings data entry is opened. The button is only displayed when the logging settings data tab is not open.

2. Opening a logging settings data entry from the [Home] screen

See: Overall screen - Home screen

- Click **[Create new logging project]**. A new logging settings data entry is opened.
- In the **[List of recently used files]**, double-click the data of the **[Logging settings data]**. The existing logging settings data entry is opened.

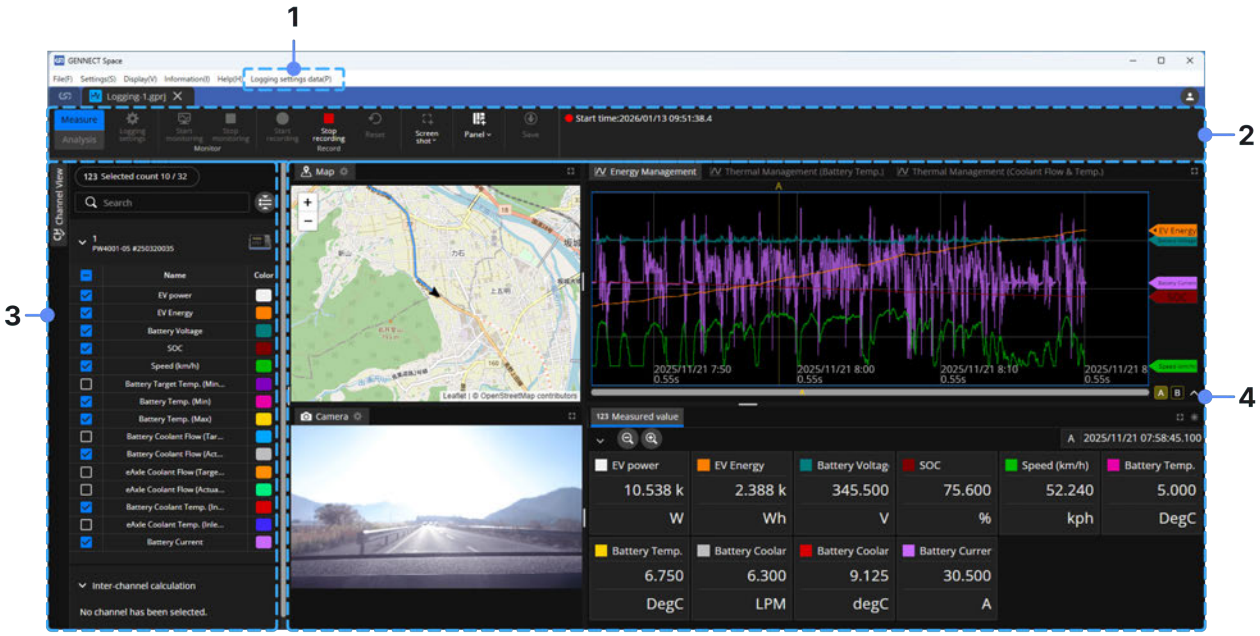
3. Opening a logging settings data entry from the [Data] screen

See: Data screen - Operation button section

- In the file list of the data screen, select the data of a **[Logging settings data]** entry, and then click **[Open]**. The existing logging settings data entry is opened.
- In the file list of the data screen, double-click the data of a **[Logging settings data]** entry. The existing logging settings data entry is opened.

5.2 Names and Functions of Each Part

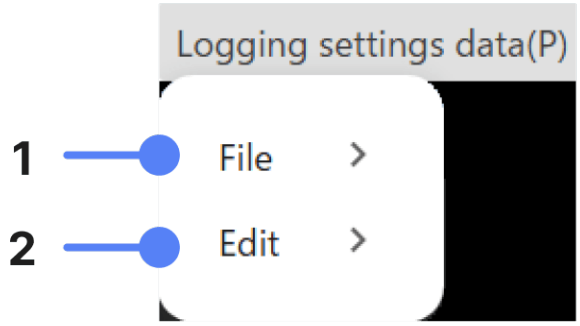
Overall



No.	Name	Function	Refer to
1	Logging settings data menu	The menu for the logging settings data. It is displayed when the logging settings data is open.	→
2	Toolbar	The toolbar for the logging settings data. It provides access to the primary operations related to logging settings data such as settings, monitoring, recording, taking screenshots, adding panels, and saving.	→
3	Channel View	Provides access to operations related to the channels handled by the logging settings data. You can use this view to select the channels displayed by each panel, change the channel display settings, apply settings to the instrument, and do similar things.	→
4	Panel View	Displays the panels, which are the components that visualize the waveforms and measured values. You can use mouse operations to move and resize each panel.	→

Details

1. Logging settings data menu



1. [File] menu

The file menu has the following functions.

Name	Function
Save	Saves (overwrites) the logging settings data. The corresponding logging settings data in the list on the [Data] screen is saved (overwritten).
Save as	Saves the logging settings data as new data with the specified name. The logging settings data is added to the list on the [Data] screen.

2. [Edit] menu

The edit menu has the following function.

Name	Function
Rename	Changes the name of the logging settings data.

2. Toolbar



No.	Name	Function
1	Measure/Analysis	Switches between measurement mode and analysis mode*1. Measurement mode: You can use this mode to monitor and record measured values. Analysis mode: Use this mode to view/analyze the results last recorded in measurement mode.
2	Logging settings	Configures the logging settings data settings. You can register measuring instruments, configure measuring instrument settings, select channels, configure recording settings, and perform similar operations. Configure the settings before starting monitoring and recording.
3	Start monitor Stop monitor	Starts/stops the monitoring of measured values.
4	Start recording Stop recording Reset	Starts/stops/resets*2 the recording of measured values.
5	Screenshot	Takes a screenshot of the panel view and panels during recording. You can switch between the following two modes for taking screenshots. Take a screenshot of one panel Take a screenshot of all panels
6	Panel	Adds a panel to the panel view. The new panel is added to the group of the tab that belongs to the selected panel.
7	Save	Saves (overwrites) the logging settings data. The corresponding logging settings data in the list on the [Data] screen is saved (overwritten).

- *1: You cannot select the analysis mode until the first recording in the measurement mode finishes.
- *2: **[Reset]** is only enabled when the measuring instruments targeted for recording include at least one wattmeter (PW4001 or PW8001). Use this button when resetting an integrated value such as power after recording stops.

3. Channel view



1. Tab

Click the tab to show/hide the channel view.

2. Measuring instrument bar

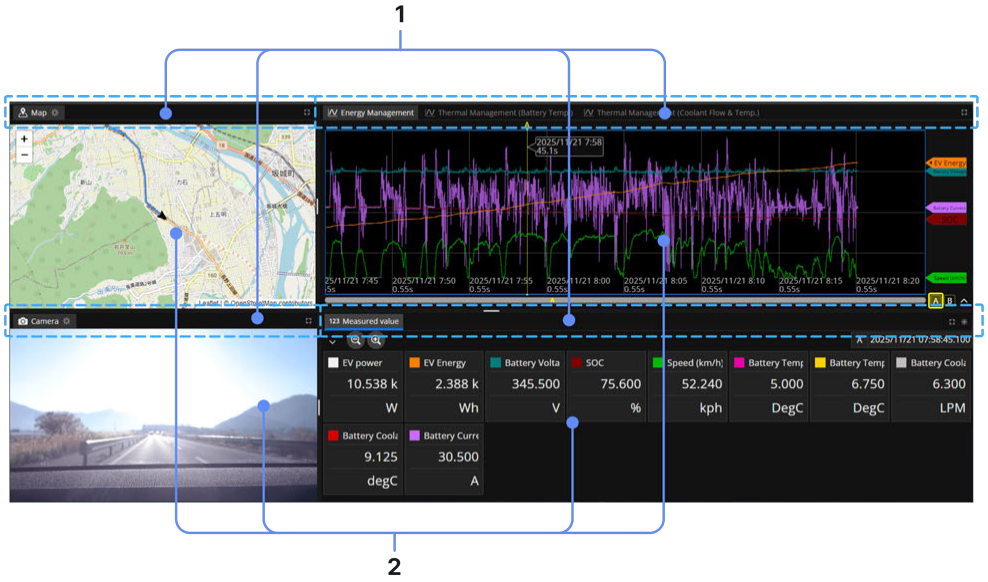
Displays the name of the measuring instrument. Click the measuring instrument bar to show/hide the channel list of the measuring instrument. Calculation channels for inter-channel calculation are displayed as **[inter-channel-calc]** .

3. Channel list display

Measuring instrument channel list.The list of channels selected with **[Logging settings]** > **[Channel selection]** is displayed. The display name and display color of each channel are displayed as information for identifying the channels. You can perform the following operations on each channel.

Name	Function
Select display channels	You can select the channels to display in each panel and clear these selections.
Change display settings	You can select **[Display Settings]** from the right-click menu to change the display name, display color, display mode, and other settings of each channel.
Change instrument settings	You can select **[Measurement Settings]** from the right-click menu to change the range, scaling, and other settings of the channels.

4. Panel view



1. Tab bar

In a tab bar, a **panel** is displayed as a tab. The following functions are available.

Name	Function
Move	You can move a panel by dragging its tab within the panel view. When you drag a panel, the area of its movement destination is displayed.
Settings	Click ⚙ to configure the settings of the panel. For the setting details of each panel, see the following section. See: Panel
Maximize/minimize	Click the ⛶ / ⛶ button to maximize/minimize (respectively) the panel.
Rename	Select **[Rename]** from the right-click menu of each tab to change the panel name.
Close	Select **[Close]** from the right-click menu of each tab to close the panel.

2. Panel display

Displays the details of the panel. For the list of panels and the details of each panel, see the following section.
See: Panel

5.3 Measurement Procedure

This section explains the basic flow of measurement with a logging settings data entry.

Measuring with a new logging settings data entry

Connecting the measuring instruments to the computer↗

↓

Creating a new logging settings data entry↗

↓

Configuring logging settings *1↗

↓

Setting panels (adding, layout, settings)↗

↓

Selecting the display channels of each panel *2↗

↓

Starting monitoring *3↗

↓

Adjusting channels (range, scaling, etc.) *3↗

↓

Stopping monitoring *3↗

↓

Starting/stopping recording↗

*1: If no measuring instruments or channels have been registered in the logging settings data, be sure to carry out **[Measuring instrument registration]** and carry out **[Channel selection]** on the **[Logging settings]** screen.
*2: You can change the channels displayed in each panel during monitoring and during recording.
*3: During recording, you cannot change the channel settings, measuring instrument settings, or recording conditions. Start **monitoring**, check the measured values and the waveform status, and then check whether preparation for starting recording is complete.

Measuring with an existing logging settings data entry

Connecting the measuring instruments to the computer *1↗

↓

Opening an existing logging settings data entry↗

↓

Starting/stopping monitoring↗

↓

Starting/stopping recording↗

*1: To quickly start measuring, it is recommended to check in advance whether the measuring instruments registered in the logging settings data are connected to the computer.

⚠ CAUTION

Do not perform the following operations on the measuring instrument after confirming the **[Logging settings]** or after opening an existing logging settings data entry, and before starting monitoring or recording.

- Changing the output channel selection, channel range, unit settings, input type, scaling settings, or other settings
- Changing the module configuration
- Changing the wiring settings of a power meter

Gennect Space starts monitoring and recording based on the following channel configuration.

- After confirming the settings: the channel configuration at the time the logging settings were confirmed
- After opening an existing logging settings data entry: the channel configuration saved in the logging settings data

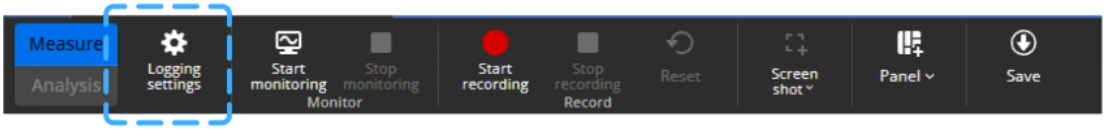
If you perform any of the above operations, the correspondence between the channels and measured values in the recorded data will be incorrect. In addition, the data layout of the binary data may be corrupted, and data may be recorded as incorrect measured values.

5.4 Logging Settings

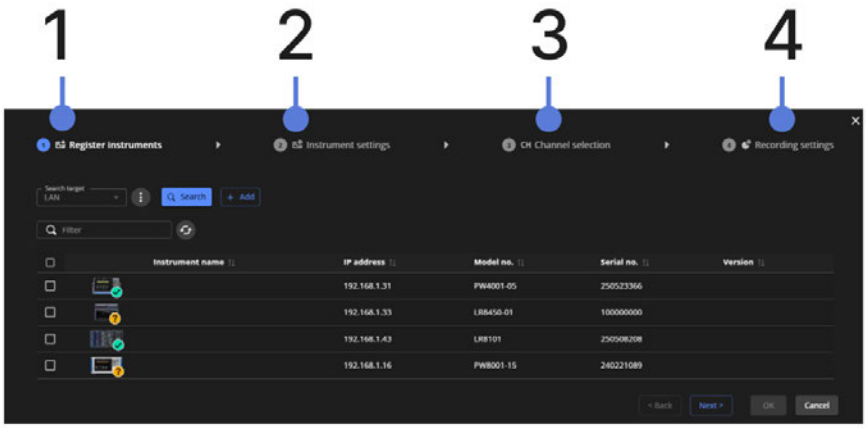
Overview

This screen is used to set the logging settings data. You can register measuring instruments, configure measuring instrument settings, select channels, configure recording settings, and perform similar operations.

- To open the logging settings screen, click the [Logging settings] button on the toolbar of the logging settings data tab.



- To confirm the changes you have made to the settings and close the screen, click [OK] in the lower-right corner of the logging settings screen.
- To discard the changes you have made to the settings and close the screen, click the close button ([×]) in the upper-right corner of the logging settings screen or [Cancel] in the lower-right corner of the screen. *2
- To move between setting pages, click the items with numbers displayed in the following figure or click [< Back] or [Next >] in the lower-right corner of the screen.



No.	Name	Function	Refer to
1	Register instruments	Registers measuring instruments to monitor and record. The measuring instruments registered here are the setting targets for [Channel selection] and [Instrument settings] and are targeted by all measurement operations in the logging settings data. Be sure to configure these settings with new logging settings data.*3	→
2	Instrument settings	Configures the settings of registered measuring instruments. After changing the measuring instrument settings, check the [Channel selection]. *1, *2	→
3	Channel selection	Selects the channels of registered measuring instruments. Each channel selected here will be an object under measurement in the logging settings data. Be sure to configure these settings with new logging settings data.	→
4	Recording settings	Configures the recording settings of the logging settings data. The details set here are applied to the recording of the logging settings data.	→

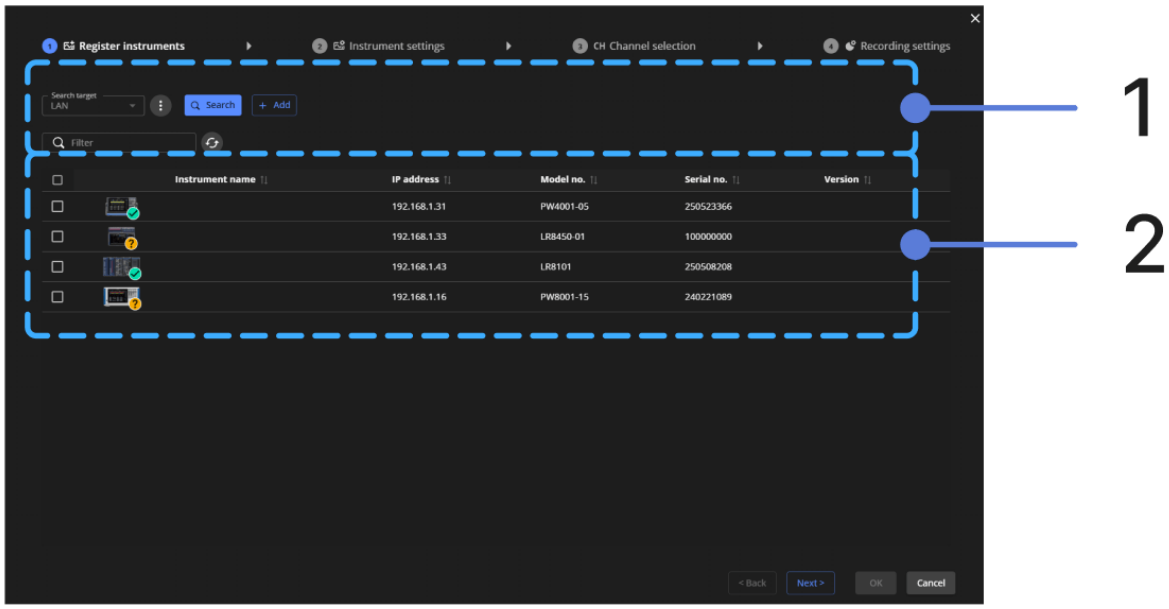
IMPORTANT

*1: Depending on the details of the changes to the measuring instrument settings in [Instrument settings], the channels selected with [Channel selection] may already have been removed from the objects under measurement of this application. Examples of such changes include changing the hard wiring of a wattmeter and turning measurement with logger channels on/off. Therefore, after changing the measuring instrument settings, check the [Channel selection] to make sure that the channels that are the objects under measurement are selected.
*2: Changes made in the [Instrument settings] screen are immediately applied to the measuring instrument. These changes cannot be undone even by clicking the [Cancel] button. Please be careful.
*3: If you change the module configuration or wiring configuration after registering the instrument, [Refresh] the measuring instrument list. If an error is displayed, check the details in the [Error details] dialog and follow the instructions displayed.

Register measuring instruments

- Registers measuring instruments to monitor and record.
- The measuring instruments registered here are the setting targets for **[Channel selection]** and **[Instrument settings]** and are targeted by all measurement operations in the **logging settings data**.
- Be sure to configure these settings with new logging settings data.
- The compatible measuring instruments are as follows.
  See: Compatible measuring instruments

Overall

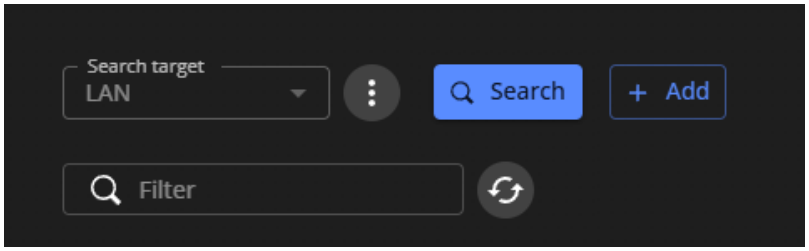


No.	Name	Function
1	**Operation panel**	Use this section to perform measuring instrument operations such as **[Search]**, **[Add]**, **Filter**, and **Update**.

No.	Name	Function
2	**Measuring instrument list section**	Displays information such as the status, name, IP address, model number, serial number, and version of the measuring instruments registered in the logging settings data and the measuring instruments found by the computer. Click the checkbox to select the measuring instrument for registration to the **logging settings data**. You can also use the right-click menu to delete measuring instruments from the list and to display detailed information on measuring instruments and modules.

Details

1. Operation panel section



Name	Function
Other functions (communication settings)	Displays communication settings related to measuring instrument operation.
Search	Automatically searches for measuring instruments on the computer's network and adds them to the list. • Depending on PC settings, such as security software, measuring instruments may not be detected. In that situation, manually add measuring instruments.
Add	Manually adds measuring instruments to the list. Specify the • **[IP address]** and **[Port number]** to add a measuring instrument. Select the • **[Model number]** from the drop-down list to automatically enter the default port number of the measuring instrument.

Name	Function
Filter	Filters the measuring instruments according to the items displayed in the list. • The measuring instruments displayed in the list are filtered to those that partially match the entered text.
Update	Updates the list of measuring instruments. • The list is updated to display the latest information.

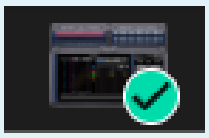
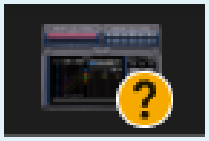
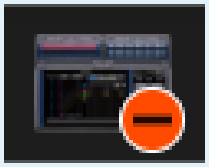
2. Measuring instrument list section



Name	Function
Measuring instrument list	Displays information such as the status***1**, name, IP address, model number, serial number, and version of the measuring instruments registered in the logging settings data and the measuring instruments found by the computer. Click the checkbox to select the measuring instrument for registration to the **logging settings data**. You can also use the right-click menu to delete measuring instruments from the list and to display detailed information on measuring instruments and modules.

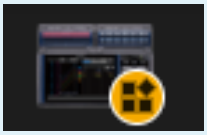
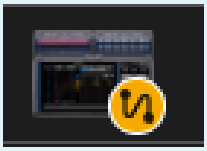
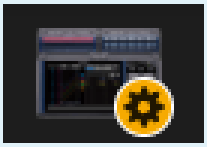
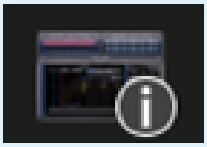
IMPORTANT

- ***1**: The following statuses are displayed according to the state of the measuring instrument.

	Description	Solution
	Logging is available.	-
	The measuring instrument cannot be accessed.	Check that the measuring instrument is powered on. Also check the communication settings between the PC and the measuring instrument. See: Connecting the Measuring Instruments
	The measuring instrument is occupied by logging function and cannot be used.	Restart the application. Alternatively, right-click the target measuring instrument and select **[Delete]**, then use the **[Search]** or **[Add]** button to register it to the application again.

IMPORTANT

- ***1**: The following statuses are displayed according to the state of the measuring instrument.

	Description	Solution
	The current module configuration of the measuring instrument differs from the configuration saved in the logging settings data.	Make the module configuration of the measuring instrument the same as the configuration saved in the logging settings data. Then, **[Refresh]** the measuring instrument list. Note: If the **[Reregister]** button is displayed, click it to use the current module configuration.
	The current wiring configuration of the measuring instrument differs from the configuration saved in the logging settings data.	Make the wiring configuration of the measuring instrument the same as the configuration saved in the logging settings data. Then, **[Refresh]** the measuring instrument list. Note: If the **[Reregister]** button is displayed, click it to use the current wiring configuration.
	The current settings of the measuring instrument differ from the settings saved in the logging settings data.	Make the settings of the measuring instrument the same as the settings saved in the logging settings data. You can right-click the target measuring instrument in the measuring instrument list and open the **[Error details]** dialog to overwrite the measuring instrument settings with the configuration saved in the logging settings data.
	The measuring instrument is a version that cannot be used for logging.	Please update the measuring instrument to the latest version. See: Update

Instrument settings

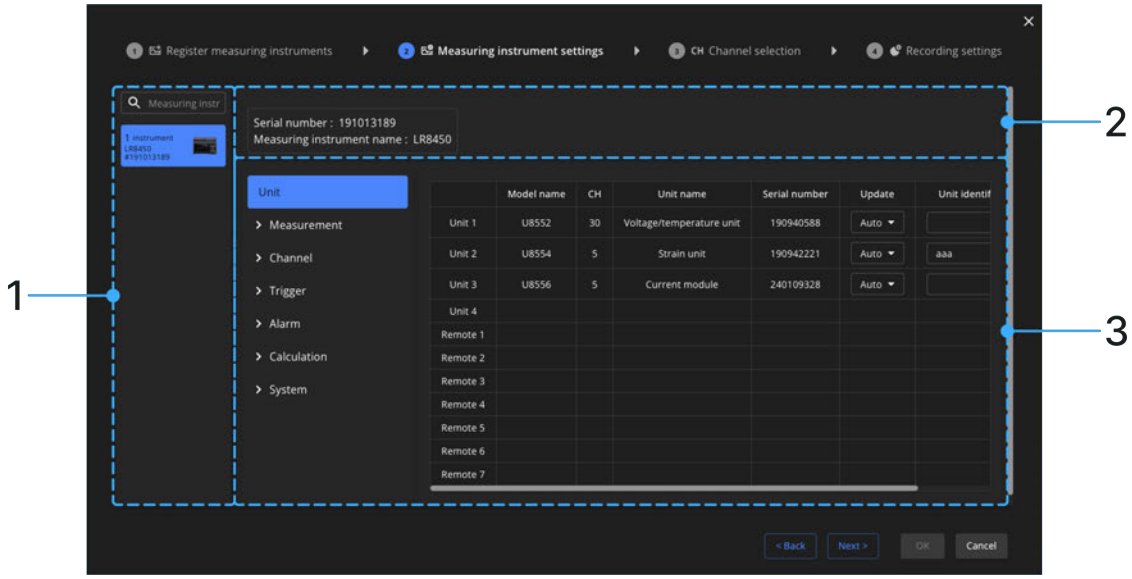
- Configures the settings of registered measuring instruments. The compatible measuring instruments are as follows.

Model number	Model name	Supported version
LR8450	Memory HiLogger	V3.00 or later
LR8101, LR8102	Data Logger	V1.60 or later
PW8001	Power Analyzer	V2.60 or later
PW4001	Power Analyzer	V1.01 or later

- After changing the measuring instrument settings, check the **[Channel selection]**.

IMPORTANT

Depending on the details of the changes to the measuring instrument settings in **[Instrument settings]** , the channels selected with **[Channel selection]** may already have been removed from the objects under measurement of this application. Examples of such changes include changing the hard wiring of a wattmeter and turning measurement with logger channels on/off. Therefore, after changing the measuring instrument settings, check the **[Channel selection]** to make sure that the channels that are the objects under measurement are selected.

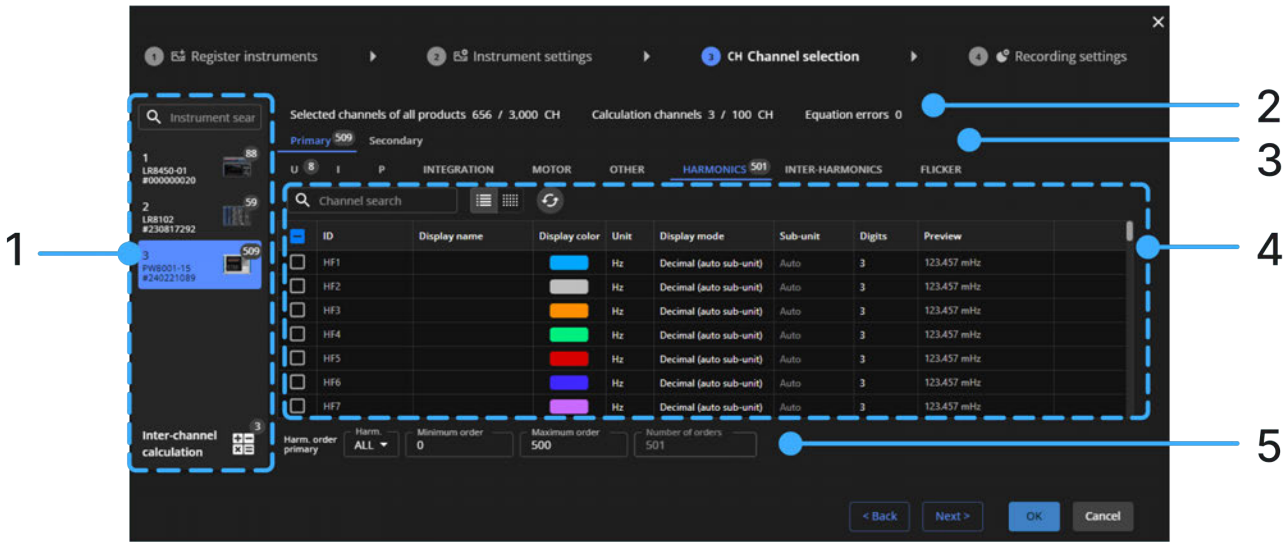


No.	Name	Function
1	**Measuring instrument switching section**	Switches the measuring instrument displayed in the **setting screen section**.
2	**Information display section**	Displays information such as the serial number and name of the measuring instrument selected with the **measuring instrument switching section**.
3	**Setting screen section**	• Displays the setting screen of the measuring instrument selected with the **measuring instrument switching section** and provides access to these settings. • Changes to the settings made on this screen are applied immediately to the measuring instrument. • The settings available on this screen vary depending on the measuring instrument. For more information on the setting items, see the instruction manuals for the measuring instruments.

Channel selection

- Selects the channels of registered measuring instruments.
- Only the measuring instruments registered with **Register measuring instruments** are displayed.
- Each channel selected here will be an object under measurement in the **logging settings data**. Be sure to configure these settings with new logging settings data.

Overall



No.	Name	Function	Refer to
1	**Measuring instrument switching section**	Switches the measuring instrument to display. You can also filter the measuring instruments to display to those that partially match the text for the displayed item. Inter-channel calculation is displayed as **[Inter-CH operation]** at the bottom of the list. The setting method for inter-channel calculation is described later.	→
2	**Information display section**	Displays information related to items such as the number of channels selected as the **logging settings data**. Examples of the information displayed include the **[Total number of channels selected for all products]**, **[Number of calculation channels]**, and **[Number of equation errors]**.	-

No.	Name	Function	Refer to
3	**Group switching section**	• The channels are separated into groups for each built-in module and measurement item of the measuring instrument. • Click this section to switch the displayed contents of the channel list section to a list of the items that belong to the corresponding group.	-
4	**Channel list section**	• Click a checkbox to select the channel as an object under measurement in the **logging settings data**. • You can also change the display name, display color, display mode, and other display settings of each channel.	→
5	**Harmonic order section*1**	• This is only displayed when a list of channels (such as **harmonic** and **intermediate harmonic**) is displayed for the harmonic group of a wattmeter or a power measurement module. • Specify the harmonic order (all/odd/even), the minimum order, and the maximum order to specify the order to set as the object under measurement for the harmonic item.	-

• ***1.** When you select a harmonic item, all the order items according to the settings of the **harmonic order section** for the selected harmonic item become objects under measurement of the **logging settings data**. As an example, if you configure the settings as “Harmonic: ODD, Minimum order: 0, Maximum order: 4,” the “first order and third order” items of the selected harmonic item are the objects under measurement.

• The maximum number of **Total number of channels selected for all products** is 3000, and the maximum number of **Number of calculation channels** is 100.
• When **Save as text** is set to **On**, the number of selectable channels is limited by the recording interval.
See: Text saving settings

Recording interval	Total number of channels selected for all products	Number of calculation channels
1ms, 2ms	50ch	10ch
5ms	250ch	50ch
10ms, 20ms	500ch	100ch
50ms	2500ch	
≥100ms	3000ch	

Channel list section

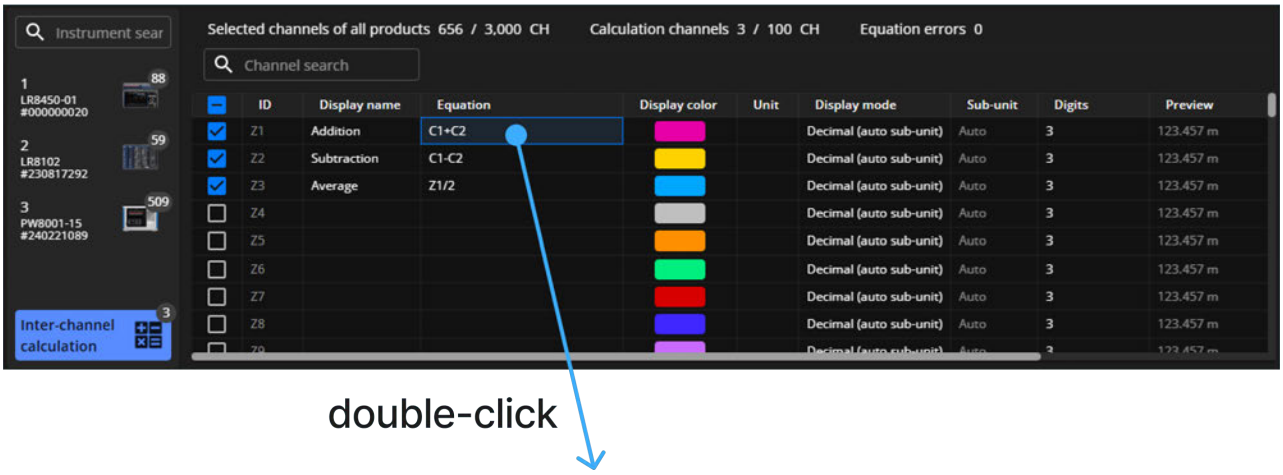


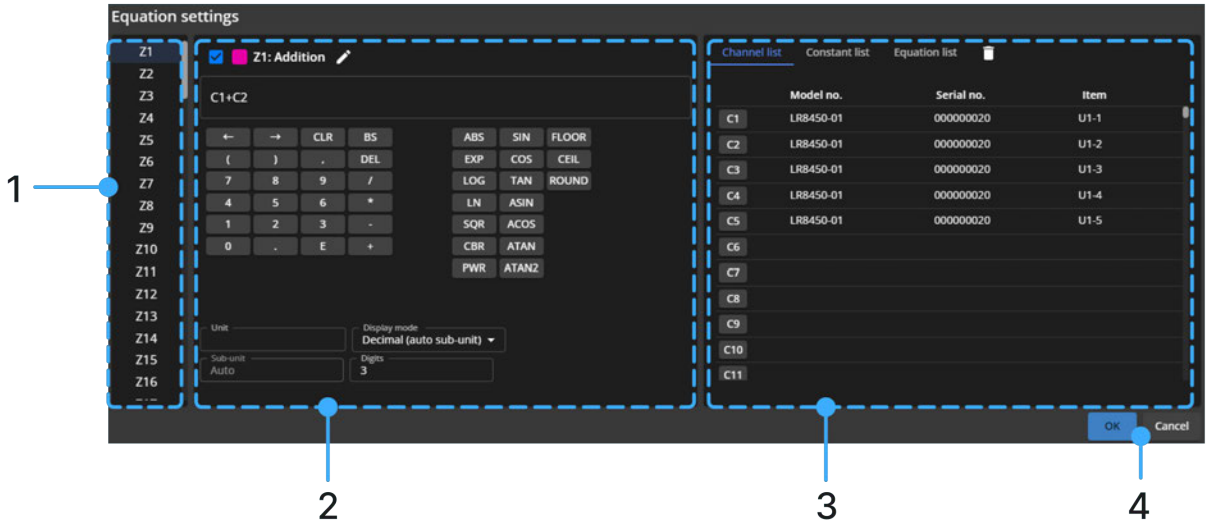
No.	Name	Function
1	**Filter**	Filters the channels to display in the channel list by partial text matches against the ID and display name.
2	**Display format**	Switches the display format of the channel list. The following formats are available. • **List**: Displays the channel list section as a list of channels. • **Matrix**: Displays the channel list section as a matrix with an item axis and a channel axis for a total of two axes. You can only switch to this display format with a wattmeter or the power measurement module of the LR8100 series.
3	**Update**	Updates the status of channels.
4	**Channel list**	• Click a checkbox to select the channel as an object under measurement in the **logging settings data**. • You can change the display name, display color, display mode***1**, supplemental unit, and number of displayed digits***2**. • You can use the preview to check the details set with the display mode, supplemental unit, and number of displayed digits.

- ***1.** The display modes have the following differences.
  - **Exponent**: Measured values are displayed in exponential format. The supplemental unit cannot be changed from “None.” Example (number of displayed digits: 3): 1.235E-01 V
  - **Exponent (multiple of 3)**: Measured values are displayed in exponential format. The exponent is displayed as a multiple of 3. The supplemental unit cannot be changed from “None.” Example (number of displayed digits: 3): 123.457E-03 V
  - **Decimal (auto sub-unit)**: Measured values are displayed as floating point numbers. The supplemental unit is determined automatically according to the measured value. Example (number of displayed digits: 3): 123.457 mV
  - **Decimal (specified sub-unit)**: Measured values are displayed as floating point numbers. The supplemental unit is specified with **[Supplemental unit]** . Example (supplemental unit: none, number of displayed digits: 3): 0.123 V
- ***2.** The number of displayed digits specifies the number of decimal places in measured values. Measured values are rounded within the specified number of digits and displayed.

Inter-channel calculation

- You can use **[Inter-CH operation]** at the bottom of the measuring instrument selection section to set a channel calculated from the channels of a measuring instrument as the object under measurement in the **logging settings data**.
- The identification names Z1, Z2, etc. are given to channels calculated with **inter-channel calculation**.
- Click a checkbox to select the calculation channel as an object under measurement in the **logging settings data**.
- You can also change the display name, display color, display mode, unit, and other display settings of each calculation channel.





- Double-click the **[Equations]** cell to open the **[Equation settings]** screen where you can set the equation of each calculation channel.
- The names and functions of each part of the **[Equation settings]** screen are as follows.

No.	Name	Function
1	**Calculation channel switching section**	Switches the calculation channel to edit in the calculation channel editing section.
2	**Calculation channel editing section**	Edits the calculation channel selected in the calculation channel switching section. • To edit the channel, enter the details by clicking **[1]**, **[2]**, ..., **[+]**, **[−]**, ..., **[ABS]**, **[PWR]**, and other such numerical value/operator buttons. You can also use a keyboard to enter details directly. • To enter the measuring instrument channels to use in the equation, click **[C1]**, **[C2]**, and similar buttons in the channel/constant/calculation channel list section. You can also use a keyboard to enter details directly. For more information on how to set channels in the **channel list**, see this section. • You can also change the display name, display color, display mode, unit, and other display settings of each calculation channel.
3	**Channel/constant/calculation channel list section**	Displays the measuring instrument channels and constants to use in the equation. On the • **[CH list]** tab, click buttons such as **[C1]** and **[C2]** to insert those channels into the equation being edited. For more information on how to set channels in the **channel list**, see this section. On the • **[Constants list]** tab, click buttons such as **[A1]** and **[A2]** to insert those constants into the equation being edited. You can double click a row to enter a constant. On the • **[Z list]** tab, click buttons such as **[Z1]** and **[Z2]** to insert those calculation channels into the equation being edited. You cannot enter calculation channels whose numbers are larger than that of the calculation channel being edited.
4	**Button section**	Click **[OK]** to apply the changes you have made on the **[Equation settings]** screen and close it. Click **[Cancel]** to cancel the changes you have made on the **[Equation settings]** screen and close it.

- Double-click a row in the list on the **[CH list]** tab to open the **[Added item settings]** screen where you can add measuring instrument channels to use in the equations of inter-channel calculations.
- If you select multiple channels on the **[Added item settings]** screen, one row for each selected channel is added to the list on the **[CH list]** tab from the position of the list row that you double-clicked.
- Click the trash can icon in the upper-right corner to delete all assigned channels.



- The operators that can be used in inter-channel calculations are as follows.

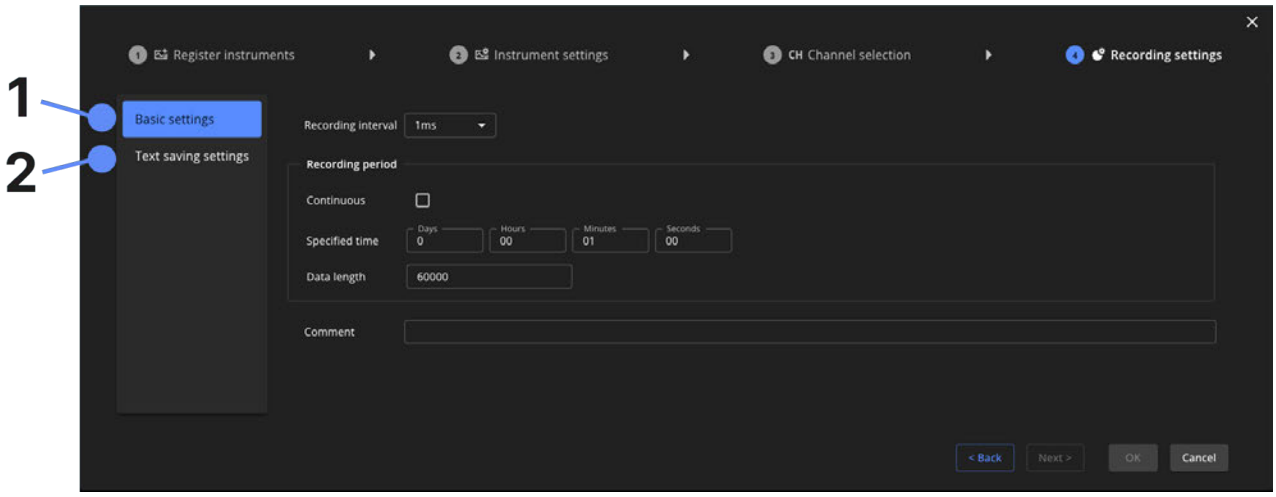
Operator	Name	Usage example	Description
+ - * /	Four arithmetic operations	a+b a-b a*b a/b	Performs addition/subtraction/multiplication/division between parameters 1 and 2.
()	Parentheses	(a+b)*c	Calculations within parentheses are evaluated before other operators. Use parentheses to clarify the order of calculations.
ABS	Absolute value	ABS(a)	Returns the absolute value of parameter 1. (Changes negative values to positive ones.)
EXP	Exponential function	EXP(a)	Returns the exponentiation of parameter 1 with the natural logarithm e used as the base.
PWR	Exponentiation	PWR(a, b)	Returns the exponentiation of parameter 2 with parameter 1 used as the base. ^ cannot be used.
LOG	Common logarithm	LOG(a)	Returns the logarithm of parameter 1 with 10 used as the base. Parameter 1 must be a positive value.
LN	Natural logarithm	LN(a)	Returns the natural logarithm of parameter 1. Parameter 1 must be a positive value.

Operator	Name	Usage example	Description
SQR	Square root	SQR(a)	Returns the square root of parameter 1. Parameter 1 must be a positive value.
CBR	Cube root	CBR(a)	Returns the cube root of parameter 1.
SIN	Sine	SIN(a)	Returns the sine of parameter 1. (Degree specification)
COS	Cosine	COS(a)	Returns the cosine of parameter 1. (Degree specification)
TAN	Tangent	TAN(a)	Returns the tangent of parameter 1. (Degree specification)
ASIN	Arcsine	ASIN(a)	Returns the arcsine of parameter 1 in the range of −90 to 90 degrees. Parameter 1 must be between −1 and 1.
ACOS	Arccosine	ACOS(a)	Returns the arccosine of parameter 1 in the range of −90 to 90 degrees. Parameter 1 must be between −1 and 1.
ATAN	Arctangent	ATAN(a)	Returns the arctangent of parameter 1 in the range of −90 to 90 degrees.
ATAN2	Arctangent	ATAN2(a, b)	Returns the arctangent of a/b in the range of −180 to 180 degrees.
FLOOR	Floor	FLOOR(a, b)	**Rounds down** parameter 1 according to the number of decimal places specified with parameter 2.
CEIL	Ceiling	CEIL(a, b)	**Rounds up** parameter 1 according to the number of decimal places specified with parameter 2.
ROUND	Round	ROUND(a, b)	**Rounds** parameter 1 according to the number of decimal places specified with parameter 2.

Recording settings

- Configures the recording settings of the logging settings data.
- The details set here are applied to the recording of the logging settings data.

Overall



Details

1. Basic settings

Name	Function	Default value
Recording interval	Sets the monitoring and recording interval. Select from 1ms / 2ms / 5ms / 10ms / 20ms / 50ms / 100ms / 200ms / 500ms / 1s / 2s / 5s / 10s / 30s / 1min. For logging projects that include the PW8001 or PW4001, all 15 options are also available. However, 2ms cannot be selected in any of the following cases. • When using the LR8101 or LR8102 • When using the LR8450 (without high-speed unit) • When HARMONICS mode is enabled • When using the U8557 or LR8537	1ms

Name		Function	Default value
Recording period	Continuous	Sets the recording period to Continuous (turns continuous recording on/off).	On
	Specified time	Specifies the recording period with the number of days, hours, minutes, and seconds. You can specify this time when [Recording period] > [Continuous] is turned off.	0 days, 00 hours, 01 minute, 00 seconds
	Data length	Specifies the recording period with the data length. You can specify this time when [Recording period] > [Continuous] is turned off.	Data length equivalent to 60 seconds
Comment		Specify a comment as a string for the logging settings data.	None

2. Text saving settings

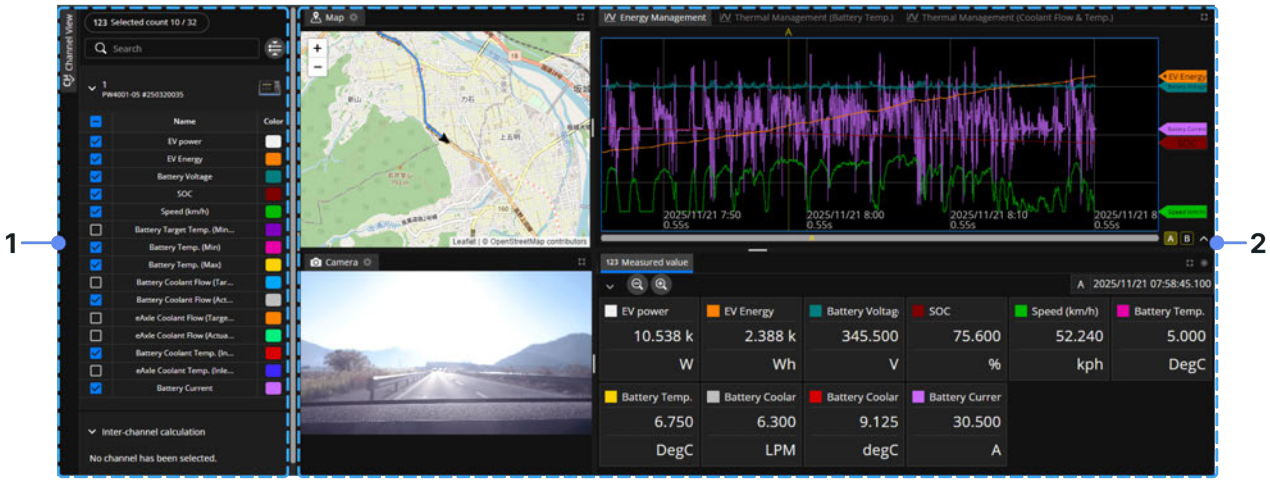
Name	Function	Default value
Save as text	Specifies whether to save the logging recorded data as text (On/Off).	Off
Save destination	Specifies as a folder path the destination in which to save the logging recorded data as text. Click [Select folder] to select the folder. You can specify this item when Save as text is set to On.	C:\\Users\\<UserName>\\Desktop\\GennectSpace
File name	Specifies the file name of the logging recorded data to save as text. You can specify this item when Save as text is set to On.	YYYY-MM-DD_hh-mm-ss
Newline code	Selects the newline code of the logging recorded data to save as text. You can specify this item when Save as text is set to On.	CR+LF

Name	Function	Default value
File division	Specifies whether to perform file division for the logging recorded data to save as text (On/Off). If you select On, specify the number of divisions as a numerical value. You can specify this item when Save as text is set to On. Even when this setting is Off, the data will be divided every 1,000,000 rows.	Off
Output channel information	Specifies whether to add channel information to the logging recorded data to save as text (On/Off). You can specify this item when Save as text is set to On.	On
Output header	Specifies whether to add a header to the logging recorded data to save as text (On/Off). You can specify this item when Save as text is set to On.	On
Output time axis	Specifies whether to display the time axis for the logging recorded data to save as text (On/Off). You can specify this item when Save as text is set to On.	On

5.5 Panel

Overview

A **panel** indicates a separate area (a panel whose size and position can be adjusted) used to display the information of the **logging** function on the screen. You can use multiple **panels** to display separate information—such as waveforms, measured values, and camera images—at the same time.



No.	Name	Function
1	Channel View	Changes the **display channels** of the panel selected with the **panel view**. You can also change the display settings and instrument settings of each channel of the measuring instrument.***1** See: Channel View
2	**Panel View**	Displays multiple panels. You can resize panels by dragging their boundary lines. You can move panels by dragging the tab bar at the top of each panel. To add a new panel to the panel view, click **[Panels]** on the **toolbar**. See: Panel view See: Toolbar

- ***1**: **During recording** , you cannot change the instrument settings of the channels of the measuring instrument.

Panel list

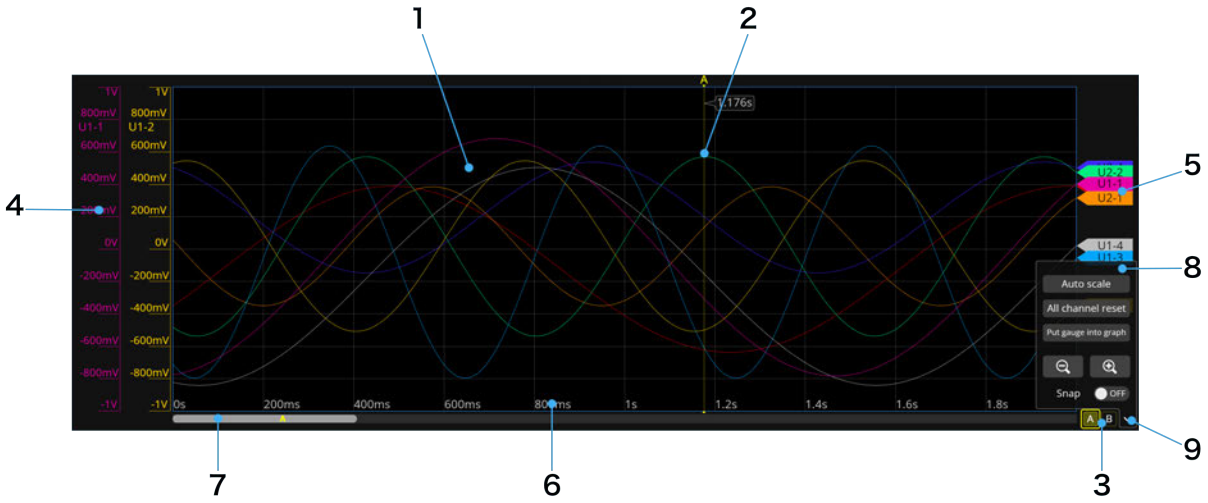
This is the list of the panels that can be displayed in the **panel view**.

No.	Name	Function	Refer to
1	Waveform panel	Displays and operates waveforms during monitoring, during recording, and after recording. Also changes the display settings of waveforms.	→
2	Measured value panel	Displays measured values during monitoring, during recording, and after recording. Also changes the display settings of measured values.	→
3	Event panel	Displays and operates events during recording, and after recording. Also changes the event settings.	→
4	Camera panel	Displays camera images during monitoring, during recording, and after recording. Also changes the connections and display settings of cameras.	→
5	Map panel	Displays maps and GPS paths during monitoring, during recording, and after recording. Also changes the connections and display settings of GPS devices.	→
6	Instrument waveform panel	Uses the remote control function of the measuring instrument to display waveform information shown on the instrument screen. The instrument cannot be controlled directly from this panel.	→
7	Analog meter panel	Displays measured values in analog meter format during monitoring, during recording, and after recording.	→
8	Level bar panel	Displays measured values in level bar format during monitoring, during recording, and after recording.	→
9	Stats panel	Displays statistical values of measurement data during monitoring, during recording, and after recording. Also changes the statistical range, statistical items, and thresholds.	→

Waveform panel

Displays and operates waveforms during monitoring, during recording, and after recording.

Function



No.	Name	Function	Refer to
1	**Waveform**	Displays the waveforms. Use the **Channel View** to select the channels to display. You can scroll through the waveforms by dragging the mouse or by operating the mouse wheel. You can magnify/demagnify in the horizontal direction by turning the mouse wheel while holding down the Ctrl key.	→
2	**Cursor**	Moves the waveforms horizontally. The measured values at the cursor positions are displayed on the measured value panel. You can use two cursors (A and B).	→
3	**Cursor buttons**	Use these buttons to show/hide the cursors.	→
4	**Gauges**	Numerical value axes for the channels. You can use the gauges to change the display ranges of the channels in the vertical direction.	→

No.	Name	Function	Refer to
5	**Channel labels**	Labels used to identify the channels. You can also select these labels by clicking them with the mouse.	→
6	**Time axis**	Displays the time value of the position on the vertical grid. You can change the display format of the time axis with the settings.	→
7	**Scroll bar**	Moves the waveforms horizontally.	→
8	**Waveform operation panel**	Performs operations such as magnifying/demagnifying waveforms.	→
9	**Waveform operation panel button**	Use this button to show/hide the waveform operation panel.	→

1. Waveforms

Displays the waveforms. Use the **Channel View** to select the channels to display.

> **Tips**
>
> During monitoring and during recording, the waveforms are drawn according to the latest measured values. Moving the waveforms to the left with the scroll bar or by dragging the mouse stops the tracking of these values. To resume tracking, click ▶▶▶ displayed on the right side of the waveform area.

2. Cursors

The cursors allow for the following operations.

Operations	Description
Select	Click a cursor or start dragging it to select it. The measured value panel displays the measured value at the position where the last selected cursor was placed.
Move	You can drag the mouse to move cursors and turn the mouse wheel to move the selected cursor.
Magnify/Demagnify	You can magnify/demagnify waveforms centered on the cursor position by moving the mouse vertically while dragging cursors. When you stop dragging, the original magnification is restored.
Jump	If the selected cursor goes off the screen, the “Jump to cursor position” and “Move cursor onto screen” buttons appear.

Tips

You can also move the cursor from the right-click menu of the waveforms.

3. Cursor buttons

There is one button for the A cursor and one button for the B cursor. Clicking these buttons shows/hides the corresponding cursor.

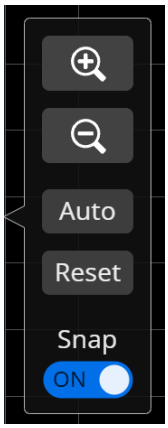
A frame is displayed around the button of the selected cursor. 

If you hover the mouse cursor over one of the displayed cursor buttons, that cursor will be selected.

4. Gauges

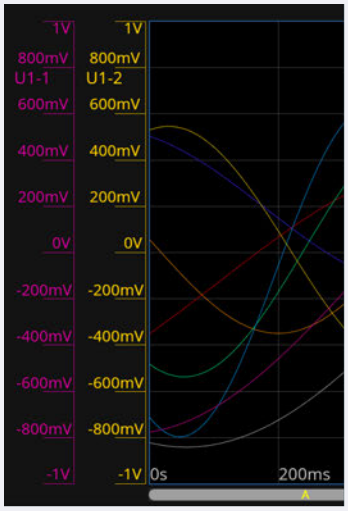
Gauges allow for the following operations.

Operations	Description
Select	Click a gauge to select it, allowing you to change its channel assignment and its channel display range. Click outside of the gauge area to return to the normal status.
Assign channels	Assigns a channel to a gauge. Click a gauge to select it, and then click the channel label of the channel you want to assign to the gauge. With a channel selected, click outside of the gauge area to return to the normal status.

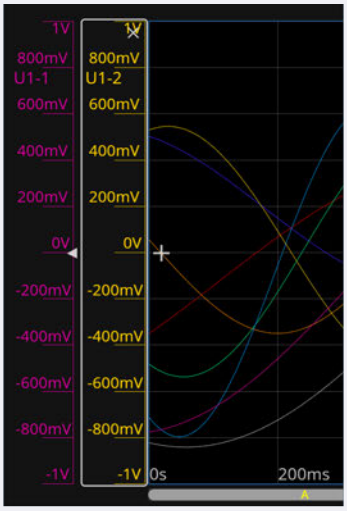
Operations	Description
Change range	You can use the following operations to change the display range in the vertical direction for the channel of the selected gauge. • Drag up and down in the gauge to move the display range. • Turn the mouse wheel in the gauge to magnify/demagnify the display range centered on the position of the mouse pointer. • Drag the top or bottom edge of the gauge to magnify/demagnify the display range centered on the opposite edge.  • You can use the magnifying glass button on the panel displayed next to the gauge to magnify/demagnify the display range. • Click **Auto** in the panel to automatically adjust the display range so that the channel fits within the screen. • Click **Reset** in the panel to return the channel display range to its initial position. • If **Snap** is turned on in the panel, the display range is automatically adjusted so that its upper and lower limits are positioned neatly when the display range is changed.
Add	Adds a gauge. To do so, hover the mouse cursor over the rightmost gauge in the gauge area to highlight this gauge, and then click the ➕ button. The added gauge is selected.
Move	Switches the positions of neighboring gauges. To do so, hover the mouse cursor over a gauge to highlight it, and then click the ◀ button or the ▶ button.
Delete	Deletes a gauge. To do so, hover the mouse cursor over a gauge to highlight it, and then click the ✖ button.

Tips

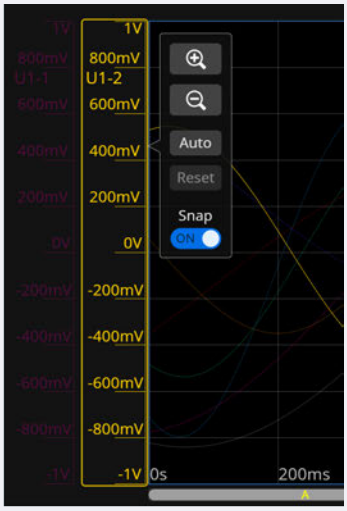
The display varies as shown below when a gauge is in the normal status, is highlighted, or is selected.



Normal status



Highlighted



Selected

5. Channel labels

Labels used to identify the channels.
Click a label to emphasize the channel for display. If there is a gauge to which that channel is assigned, that gauge is also emphasized for display. If no such gauge exists, a temporary gauge is displayed at the right edge of the waveform area.
Click something other than the channel label and the gauge area to stop the emphasized display.
When channel labels overlap, the label that is emphasized for display changes in order each time you click the location where the labels overlap.

6. Time axis

Displays the time value of the position on the vertical grid. You can use the settings to select the display format of the time value from **Absolute time**, **Relative time**, **Number of seconds**, and **Points**.

7. Scroll bar

The scroll bar allows for the following operations.

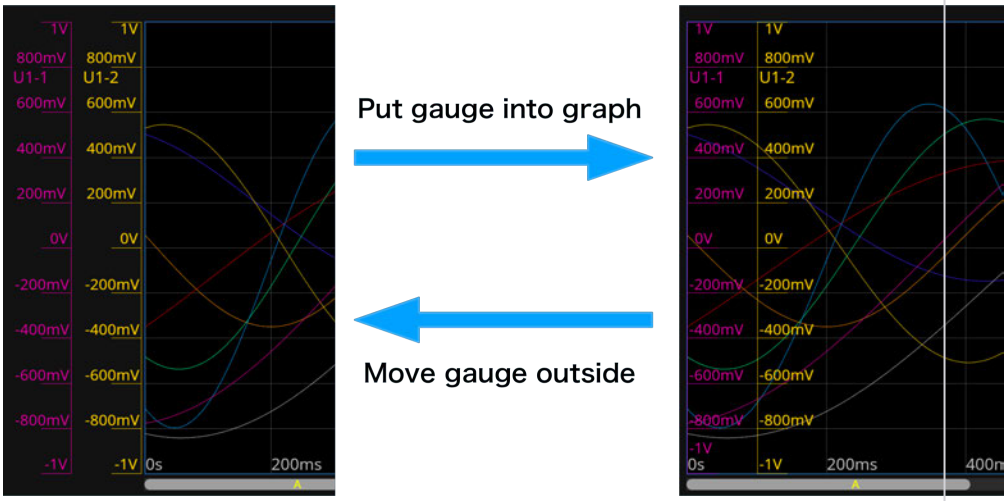
Operations	Description
Move	Drag the scroll box to move the waveforms horizontally.

Operations	Description
Jump	Click a location on the scroll bar to jump to that position, centering the display there.
Scroll continuously	If you hold down the left button of the mouse on a part of the scroll bar other than the scroll box, the display will continue to scroll toward that position at a constant speed. You can change the scrolling speed by turning the mouse wheel during continuous scrolling.

8. Waveform operation panel



Operations	Description
Auto scale	Click Auto Scale to automatically adjust the vertical scale so that all displayed channels fit within the screen.
Reset scale	Click All channel reset to return the vertical scale of all displayed channels to their initial positions.

Operations	Description
Change gauge position	Click **Put gauge into graph** or **Move gauge outside** to switch the gauge display position. 
Magnify/Demagnify	You can use the magnifying glass button to magnify/demagnify the display range in the horizontal direction.
Snap	**Snap** is a function that automatically adjusts the position and magnification so the grid is positioned neatly. When this function is turned on, automatic adjustments are performed when the waveforms are scrolled or magnified/demagnified.

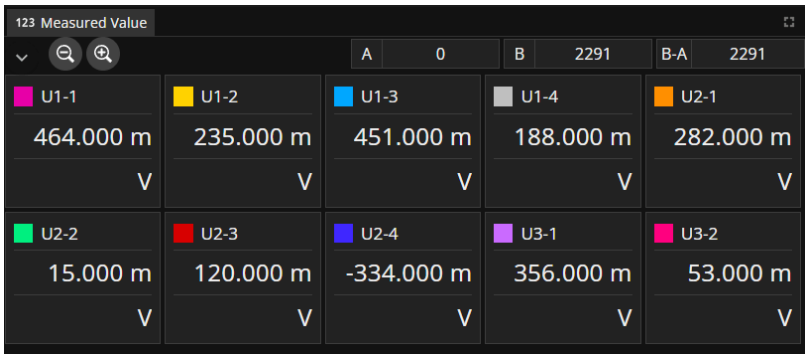
9. Waveform operation panel button

Click this button to show/hide the waveform operation panel.

Measured value panel

Displays measured values during monitoring, during recording, and after recording. During cursor operation, the measured value at the cursor position and the cursor time information are displayed.

Function



Function	Description
Resize	Click the demagnify or magnify button at the top of the measured value panel to decrease or increase the display size of measured values.

Event panel

Displays and operates events during recording and after recording. Also changes the event settings.

Tips

The event panel cannot be operated during monitoring or after monitoring ends.

Events

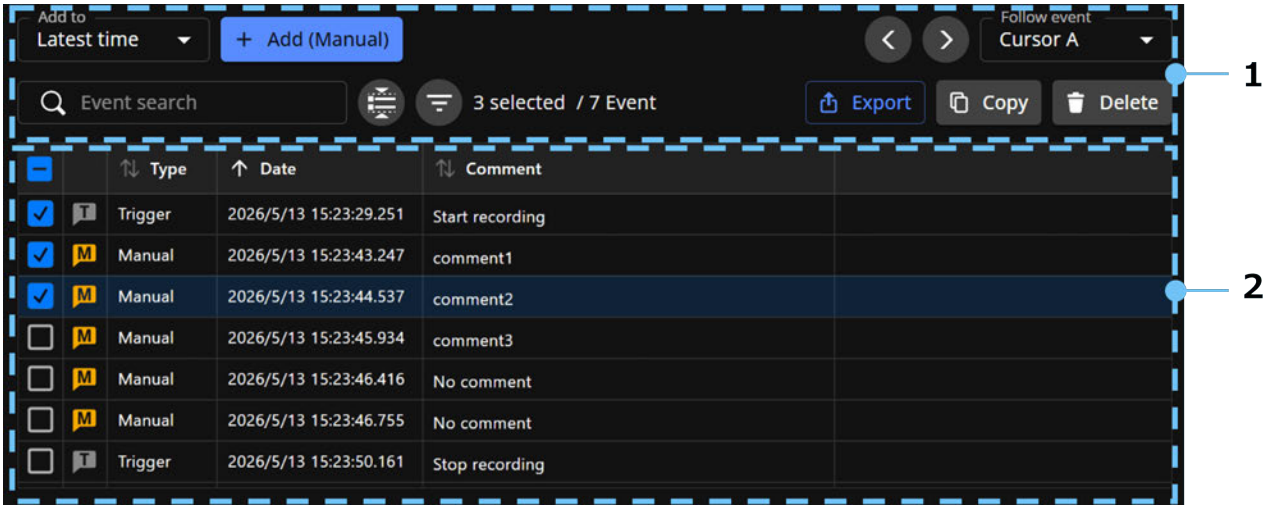
An **event** is a mark that can be added at any time where recorded measurement values exist. By adding events, you can check measured values or comments at specific times.

Type	Description
Trigger event	An event added when recording starts or stops. For instrument waveform files, a trigger event is added at the time of the trigger information, if available.
Manual event	An event added manually by specifying a time. After adding, the comment can be edited. Multiple manual events cannot be added at the same time.

IMPORTANT

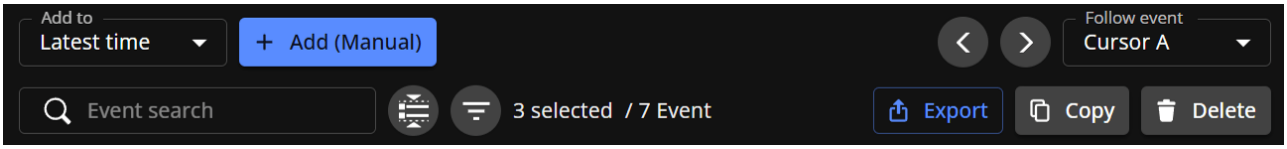
Up to 1,000 events can be added. No further events will be added after that.

Function

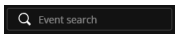


No.	Name	Function	Refer to
1	**Operation button section**	Performs operations such as **[Add]**, **[Export]**, **[Delete]**, and **Filter** for events.	→
2	**List section**	Displays event information. Also selects the events to operate on.	→

1. Operation button section



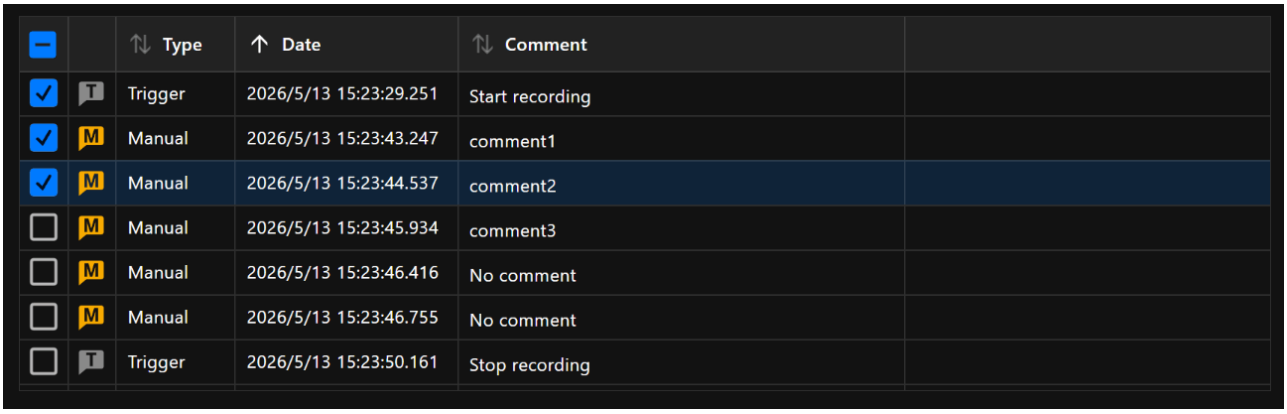
Name	Function
Add to	Specifies the position where the manual event will be added. • **Latest time**: The position of the last recorded measured value • **Cursor A**: The position of cursor A • **Cursor B**: The position of cursor B

Name	Function
Add (manual)	Adds a manual event at the specified position. If there is already a manual event at the specified position, it cannot be added.
Move to previous	Changes the selected event. The event before the currently selected event is selected. If no event is selected, the first event is selected.
Move to next	Changes the selected event. The event after the currently selected event is selected. If no event is selected, the first event is selected.
Follow event	Specifies the cursor to follow the position of the selected event. By following the event with the cursor, you can check the measured value at the event position on the measured value panel. • Cursor A: Follow with cursor A • Cursor B: Follow with cursor B • None: Do not follow
 Event search	• Filters events by the content of items displayed in the list. • The events displayed in the list are filtered to items that partially match the entered text.
Filter (checked)	The events displayed in the list are filtered to checked items.
Filter (event type)	• Specifies the event types to display in the list. • The events displayed in the list are filtered to items of enabled event types.
XX selected	Displays the number of checked events in the list section.
XX piece(s) of event	Displays the total number of events in the list section.
Export	Exports the checked events in the list section to the PC in CSV format.
Copy	Copies the checked events in the list section to the clipboard in CSV format.
Delete	Deletes the checked events in the list section. Trigger events cannot be deleted.

Tips

- In the waveform panel, you can also add a manual event from the right-click menu of the waveform.
- You can also use the right-click menu of the list section to output, copy, and delete checked events.

2. List section



Type	Date	Comment
Trigger	2026/5/13 15:23:29.251	Start recording
Manual	2026/5/13 15:23:43.247	comment1
Manual	2026/5/13 15:23:44.537	comment2
Manual	2026/5/13 15:23:45.934	comment3
Manual	2026/5/13 15:23:46.416	No comment
Manual	2026/5/13 15:23:46.755	No comment
Trigger	2026/5/13 15:23:50.161	Stop recording

Name	Function
Displayed items	• Displays the event type, date and time, comment, and other information. • Comments can only be edited for manual events.
Operations	• Click a checkbox to select the events to be targeted by **Export**, **Copy**, **Delete**, and similar operations. • You can also perform operations on events from the right-click menu. • When you highlight an event, its position is displayed in the waveform panel.

Interaction with the waveform panel

Events can also be checked from the waveform panel. An event marker is displayed at the time when an event exists. When an event is highlighted, the waveform is drawn to follow the time of the event.



Tips

By specifying a cursor with **Follow Event**, you can make the cursor follow the time of the selected event.

Camera panel

Displays camera images (video) during monitoring, during recording, and after recording. Also changes the connections and display settings of cameras.

Function



Settings

To change the display settings of the panel, click the button on the tab at the top of the camera panel. The following setting items are available.

Name	Description
Camera	Selects the camera whose image is displayed in the camera panel. Select from the devices recognized by **[Device Manager]** > **[Cameras]** in the OS.
Resolution	Selects the resolution of the camera. The selectable resolutions vary depending on the selected camera.
Frame rate	Selects the frame rate of the camera. The selectable frame rates vary depending on the camera.

IMPORTANT

- Use the camera within its specifications and the usage environment (temperature, humidity, vibration, etc.). Using it outside specifications may cause the camera image to become distorted or recording to stop.
- When recording for a long time, it is recommended to lower the resolution and frame rate. Recording for a long time at high resolution or high frame rate can result in very large storage capacity, and recording may stop due to insufficient storage.

Operation confirmed devices

The camera devices whose operation has been confirmed in combination with this application are as follows.

Brand name/Company name	Model number/Model name	Interface
Logitech(Logicool)	C270 HD Webcam(webcam)	USB
ELECOM	UCAM-CF20FBBK(webcam)	USB
FLIR	C8(Thermographic camera)	USB

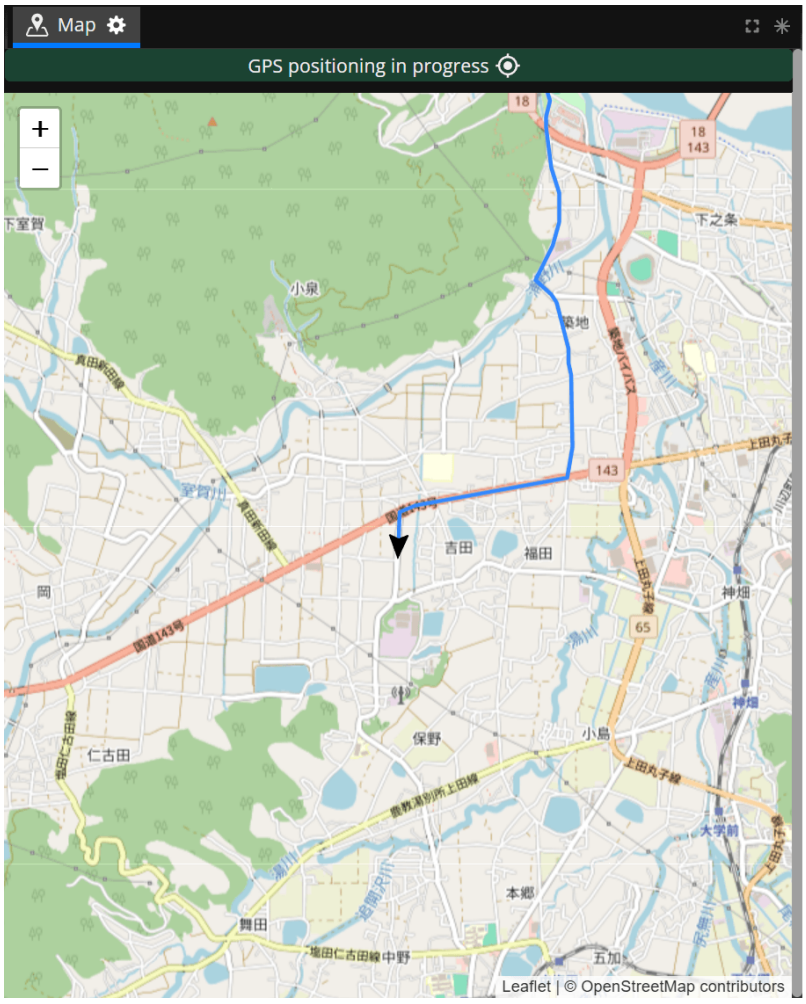
Connecting a camera to the PC

1. Connect the camera to a USB port on the PC.
2. Check that the camera is recognized by **[Device Manager]** > **[Cameras]** in the OS.

Map panel

Displays maps and GPS paths during monitoring, during recording, and after recording. Also changes the connections and display settings of GPS devices.

Function



Function	Description
Status display	The status of the GPS device is displayed at the top of the map panel. The status differs as follows.  : Indicates that the GPS device is enabled and is acquiring position information.  : Indicates that the GPS device is enabled but is not acquiring position information.  : Indicates that the GPS device is disabled.
Magnify/Demagnify	Click the **[+]** or **[−]** button in the upper-left corner of the map to change its magnification. You can also change the magnification with the mouse wheel.
Move	Drag the mouse on the map to move it. You can also move the map by pressing the **[↑]**, **[↓]**, **[←]**, and **[→]** arrow keys.

Settings

To change the settings of the panel, click the  button on the tab at the top of the map panel. The following setting items are available.

Name	Description
Displaying GPS paths	Sets whether to display GPS paths. Set this to **on** to display the paths.
Displaying current position in center	Sets whether to display the current position in the center of the map at all times. Set this to **on** to display the current position in the center at all times.
Enable Dark Mode	Set the map display mode. Set this to **on** to invert the map colors to a darker theme.
COM port	Selects the COM port connected to the GPS device. COM ports for devices other than GPS devices are also displayed. Use the information displayed under **[Device Manager]** > **[Ports (COM & LPT)]** in the OS to check and select the COM port of the GPS device to connect.
Baud rate	Selects the baud rate of the GPS device. There are some GPS devices that only operate with specific baud rates. After selecting the baud rate, use **[Connection test]** to check that the position information can be obtained correctly from the GPS device.
Connection test	This button tests whether connection to the GPS device is possible with the specified GPS device COM port and baud rate. When the acquisition of the GPS information is confirmed, the GPS log information is displayed to the right of the button.

Operation confirmed devices

The GPS devices whose operation has been confirmed in combination with this application are as follows. ※Devices compatible with the NMEA-0183 communication protocol

Brand name/Company name	Model number/Model name	Interface
VFAN	UB 6010	USB
SOCOCO	VK-162	USB
HiLetgo	VK172	USB

Connecting a GPS device to the PC

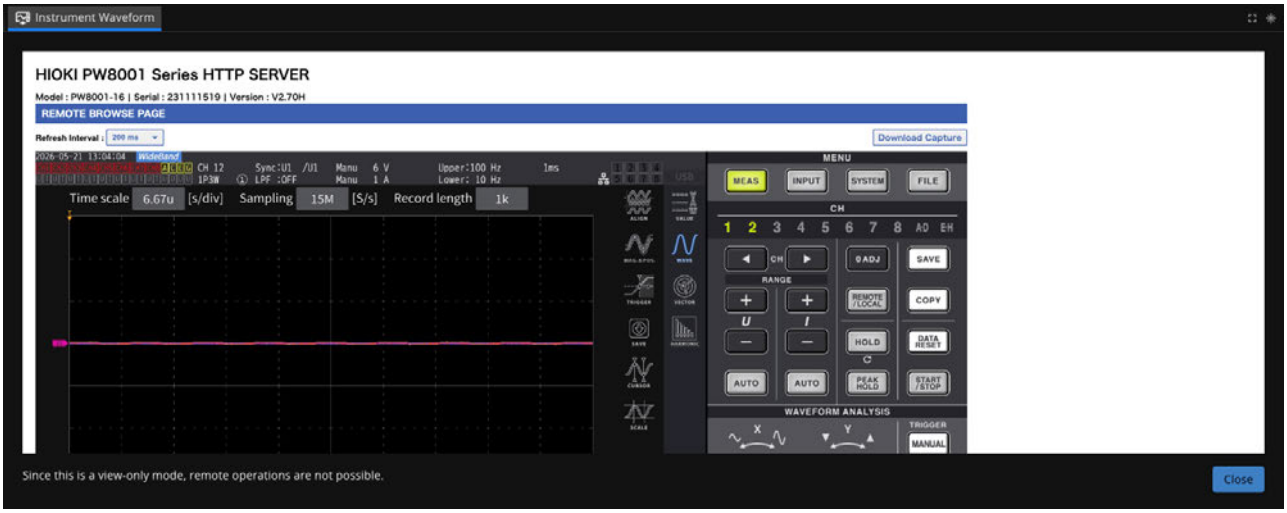
1. Connect the GPS device to a USB port on the PC.
2. Check that the GPS device is recognized by **[Device Manager]** > **[Ports (COM & LPT)]** in the OS.

Instrument waveform panel

Uses the remote control function of the measuring instrument to display waveform information shown on the instrument screen. The instrument cannot be controlled directly from this panel.

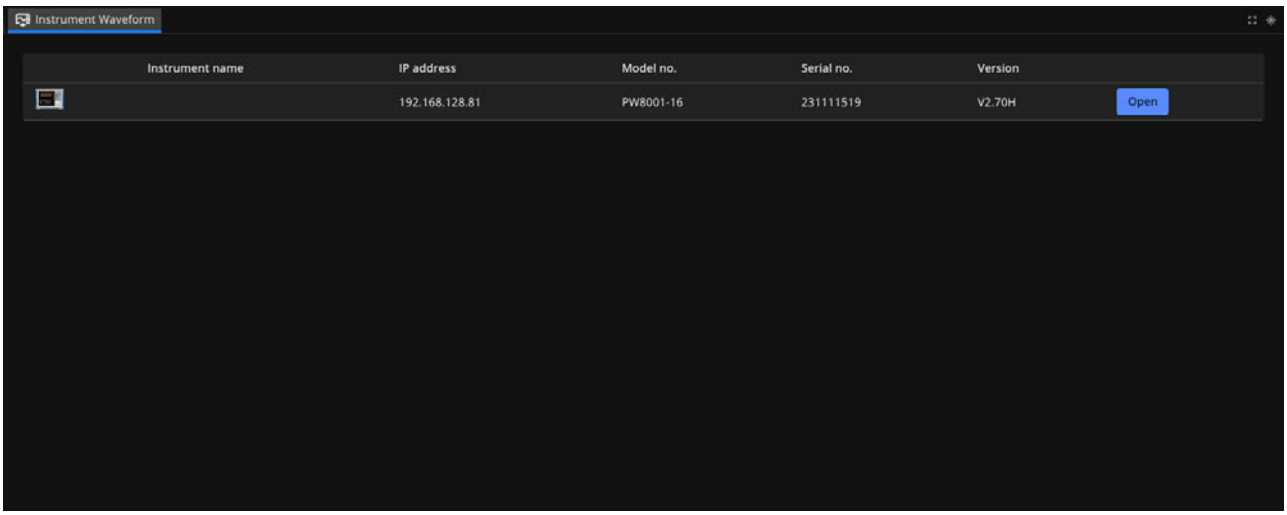
- If authentication is required, the setting screen will open after authentication.
- The update interval can be changed.
- The instrument screen can be saved to a PC (power meters only).

Function



Settings

Settings	Description
Instrument selection	Selects the instrument whose waveform you want to display.



Supported instruments

Model number	Model name	Supported version
LR8450	Memory HiLogger	V3.00 or later
PW8001	Power Analyzer	V2.60 or later
PW4001	Power Analyzer	V1.01 or later

Analog meter panel

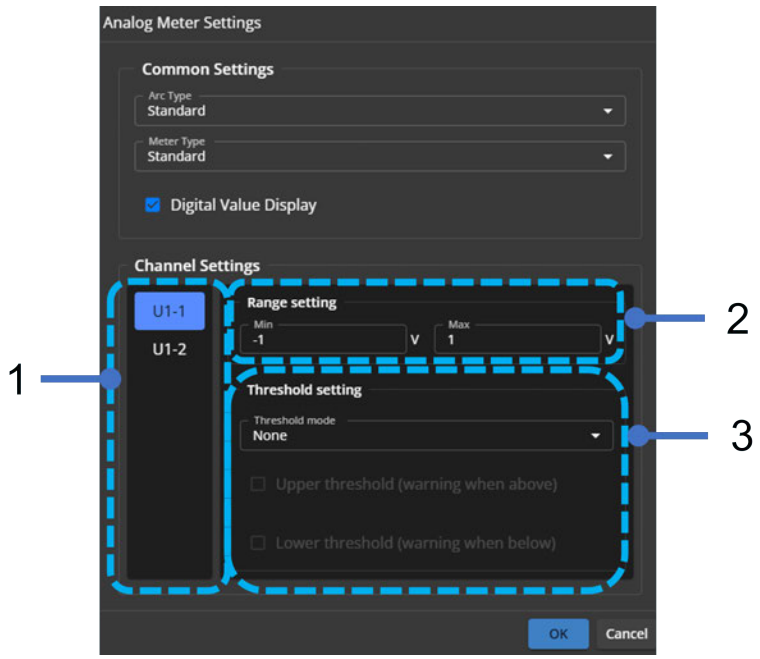
Displays measured values in analog meter format during monitoring, during recording, and after recording.

Function



Settings

To change the display settings of the panel, click the ⚙ button on the tab at the top of the analog meter panel.



Common settings

Name	Description
Arc type	Selects from Standard and Quarter Arc.
Meter type	Selects from Standard and Inverted.
Digital value display	Selects whether to also display measured values as digital values.

Channel settings

Select a channel from the list on the left and configure the range and threshold for the selected channel.

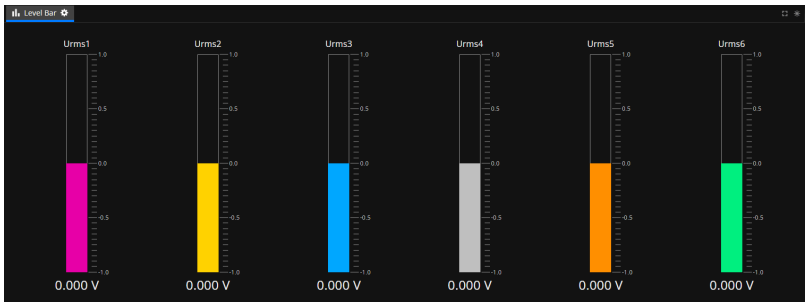
No.	Name	Description
1	**Channel switching section**	Selects the channel for configuring range and threshold settings.

No.	Name	Description
2	**Range setting section**	Sets the display range of the analog meter.
3	**Threshold setting**	Selects the **threshold mode**. When thresholds are enabled, configure the mode and value for each of the **upper threshold** and **lower threshold**.

Level bar panel

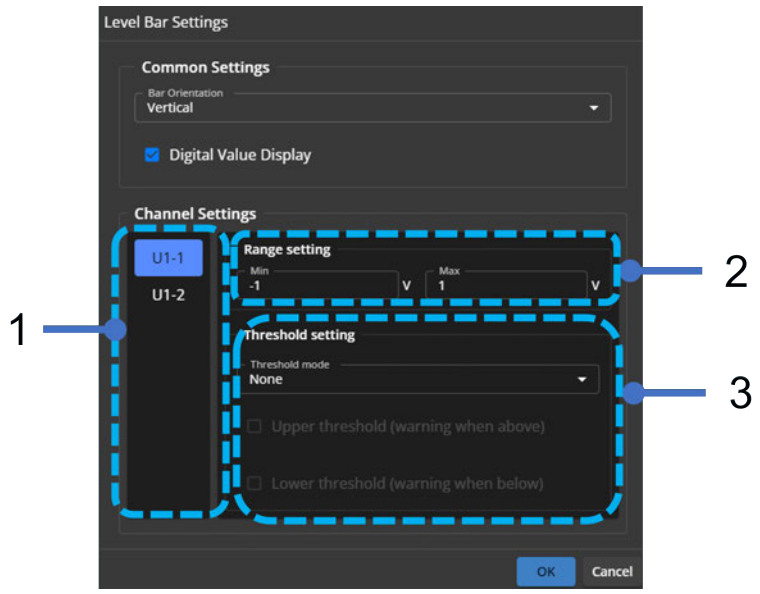
Displays measured values in level bar format during monitoring, during recording, and after recording.

Function



Settings

To change the display settings of the panel, click the ⚙ button on the tab at the top of the level bar panel.



Common settings

Name	Description
Bar orientation	Selects the bar orientation from vertical or horizontal.
Digital value display	Selects whether to also display measured values as digital values.

Channel settings

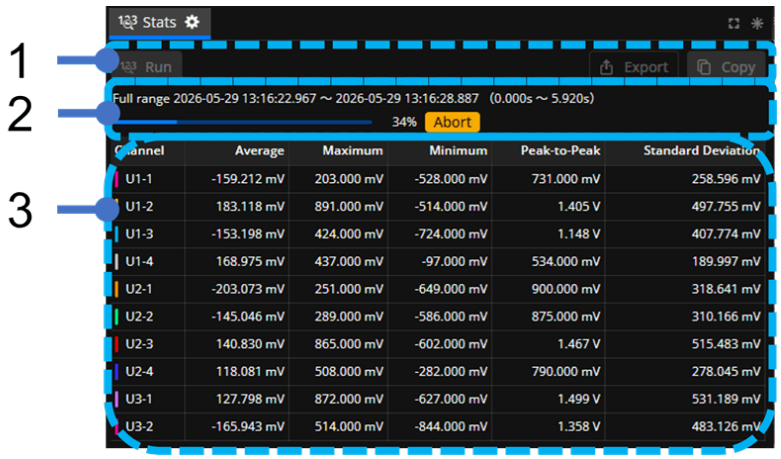
Select a channel from the list on the left and configure the range and threshold for the selected channel.

No.	Name	Description
1	**Channel switching section**	Selects the channel for configuring range and threshold settings.
2	**Range setting section**	Sets the display range of the level bar.
3	**Threshold setting**	Selects the **threshold mode**. When thresholds are enabled, configure the mode and value for each of the **upper threshold** and **lower threshold**.

Stats panel

Calculates and displays statistics of measurement data during recording and after recording.

Function



No.	Name	Function
1	**Toolbar**	Executes calculation, exports calculation results to a file, and copies to clipboard.
2	**Calculation range bar**	Displays the type and time of the calculation range. During calculation, the calculation can be interrupted using the **[Abort]** button.
3	**Statistics table**	Displays statistical results for each channel. Select the channels to calculate statistical values in the **Channel View**.

- When recording stops, calculation is automatically executed with the current settings.

1. Toolbar

Name	Function
[Run]	Executes calculation for the selected calculation range and statistical items. Not available during monitoring, recording, or calculation execution.
[Export]	Saves the calculation results as a CSV file to the PC. Not available when there are no calculation results, or during monitoring, recording, or calculation execution.

Name	Function
[Copy]	Copies the calculation results to the clipboard in CSV format. Not available when there are no calculation results, or during monitoring, recording, or calculation execution.

2. Calculation range bar

Displays the type and time of the calculation range used for calculation.

Display content	Description
Calculation range type	Displays the set calculation range (Full range or Between A-B cursors).
Time	Displays the start time and end time used for calculation.
Progress bar	Displays calculation progress (0 to 100%) during calculation execution.
[Abort]	Interrupts the calculation during calculation execution. Available when the progress bar is displayed.

- If Between A-B cursors is selected for the calculation range, calculation cannot be executed when the A or B cursor is hidden or out of range.

3. Statistics table

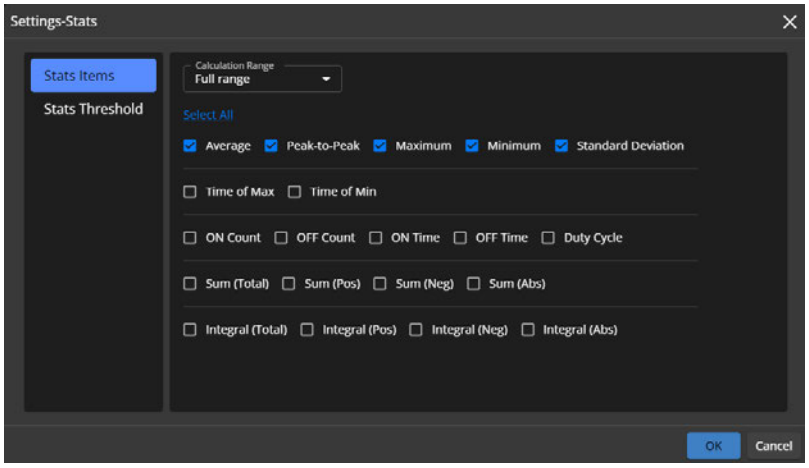
Displays statistical calculation results for each channel in table format. Statistical items are arranged in columns and channels in rows. "—" is displayed before calculation or when no calculation results are obtained.

Settings

To change the panel settings, click the ⚙ button on the tab at the top of the panel. The following pages can be selected from the menu on the left side of the settings dialog.

No.	Page name	Description
1	Stats Items	Sets the calculation range and statistical items to display.
2	Stats Threshold	Sets the threshold used in the calculation of ON/OFF count, ON/OFF time, and operating rate, for each channel.

1. Stats Items



Name	Description
Calculation Range	Selects the range of data to use for calculation. • Full range: Calculates using all recorded data. • Between A-B cursors: Calculates using data between the A cursor and B cursor in the waveform panel.
Select all / Deselect all	Selects or deselects all statistical item checkboxes.
Statistical items	Selects statistical items to display in the statistics table using category checkboxes. For details on statistical items, see the following. See: Stats Items

2. Stats Threshold



Sets the threshold for each channel. The threshold is used in the calculation of **ON Count**, **OFF Count**, **ON Time**, **OFF Time**, and **Duty Cycle**.

Name	Description
Channel	Displays the name of the channel for which the threshold is being set.
Threshold	Enters the threshold value for the channel. Cannot be changed during monitoring, recording, or calculation execution.

- The unit of the threshold is the same as the unit of the channel.

Stats Items

Stats Item Descriptions

N: Number of valid data points (excluding special values), d_i: Measured value at each point, Δt: Recording interval

Type	Description
Average	Calculates the average of the measured values. $\frac{1}{N}\sum_{i=1}^{N} d_i$
Peak-to-Peak	Calculates the difference between the maximum and minimum values.

Type	Description
Maximum	Finds the maximum measured value.
Minimum	Finds the minimum measured value.
Standard Deviation	Calculates the standard deviation of the measured values. $\sqrt{\frac{1}{N}\sum_{i=1}^{N}(d_i - m)^2}$ m : Average
Time of Max	Finds the elapsed time from the start of recording when the measured value reaches its maximum. If there are multiple occurrences, the first time is adopted.
Time of Min	Finds the elapsed time from the start of recording when the measured value reaches its minimum. If there are multiple occurrences, the first time is adopted.
ON Count	Calculates the number of times the threshold is crossed upward.
OFF Count	Calculates the number of times the threshold is crossed downward.
ON Time	Calculates the duration during which the measured value is at or above the threshold.
OFF Time	Calculates the duration during which the measured value is below the threshold.
Duty Cycle	Calculates the proportion of time during which the measured value is at or above the threshold.
Sum (Total)	Calculates the cumulative sum of all measured values. $\sum_{i=1}^{N} d_i$
Sum (Pos)	Calculates the cumulative sum of positive measured values. $\sum_{i=1,\ d_i>0}^{N} d_i$
Sum (Neg)	Calculates the cumulative sum of negative measured values. $\sum_{i=1,\ d_i<0}^{N} d_i$
Sum (Abs)	Calculates the cumulative sum of the absolute values of all measured values. $\sum_{i=1}^{N} \lvert d_i \rvert$

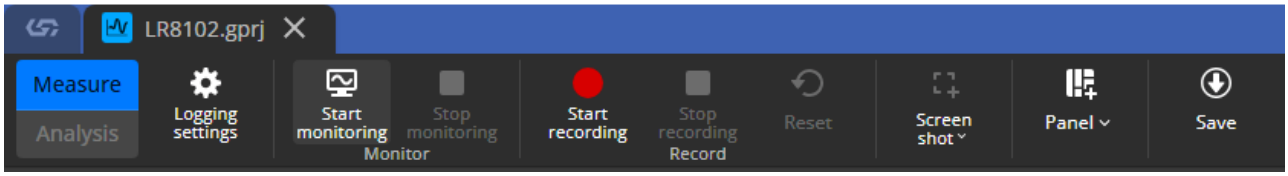
Type	Description
Integral (Total)	Calculates the difference between the area enclosed by the zero position and the positive part of the measured values, and the area enclosed by the zero position and the negative part. $\sum_{i=1}^{N} d_i \times \Delta t$
Integral (Pos)	Calculates the area enclosed by the zero position and the positive part of the measured values. $\sum_{i=1,\ d_i>0}^{N} d_i \times \Delta t$
Integral (Neg)	Calculates the area enclosed by the zero position and the negative part of the measured values. $\sum_{i=1,\ d_i<0}^{N} d_i \times \Delta t$
Integral (Abs)	Calculates the area enclosed by the zero position and the measured values. $\sum_{i=1}^{N} \mid d_i \mid \times \Delta t$

5.6 Start and Stop Monitoring

Overview

When you start **monitoring**, the measuring instrument and channels set as the objects under measurement in the **logging settings data** are measured in real time, allowing you to visually check the status of the waveforms and measured values. Measured values are not recorded on the measuring instrument or in this application. During monitoring, you can adjust settings related to the measurement range, scaling, and recording conditions (recording interval) in real time. **Monitoring** can be used in applications for making sure that the **logging settings data** has been set appropriately before starting recording.

Starting monitoring



1 Click [Start monitor].

- Check that the measured value and the waveform are updated at the interval set with [Logging settings] > [Recording settings] > [Recording interval].



- Use [Logging settings] > [Register measuring instruments] to check that the measuring instrument set as the object under measurement in the logging settings data is selected.
- Use [Logging settings] > [Channel selection] to check that the channel set as the object under measurement in the logging settings data is selected.
- After confirming the logging settings (or after opening existing logging setting data), do not make any of the following changes on the instrument itself until monitoring has started: output channel selection, range, unit, input type, scaling, module configuration or wiring settings of the power meter. Making such changes may cause the correspondence between channels and measured values to become incorrect.

Changing the channel displayed in each panel

1 Click the waveform panel (or the measured value panel).



2 Open the Channel View, and then select the checkboxes of the measuring instrument channels you want to display.

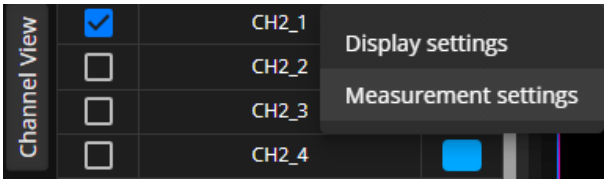
- Check that the selected channel waveforms (or measured values) are displayed in the selected waveform panel (or measured value panel).

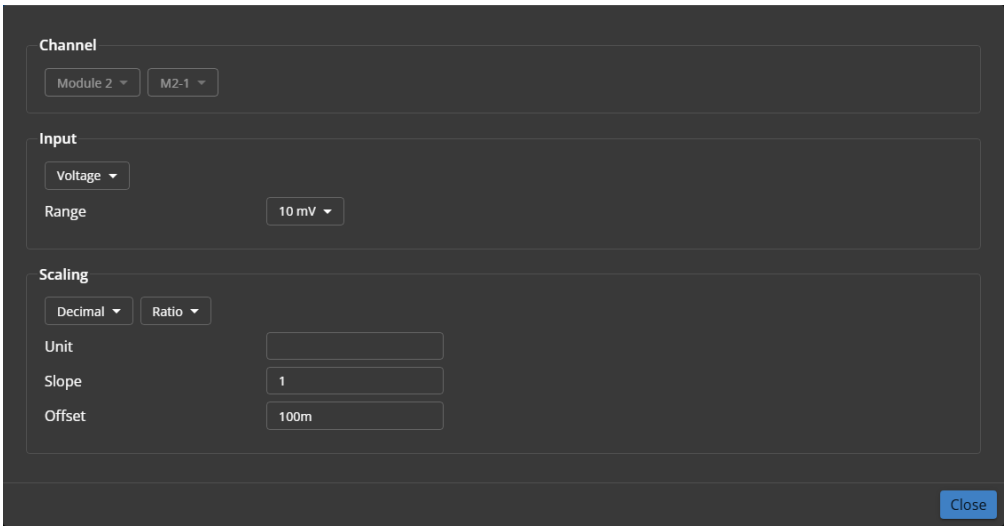


Changing the channel scaling settings

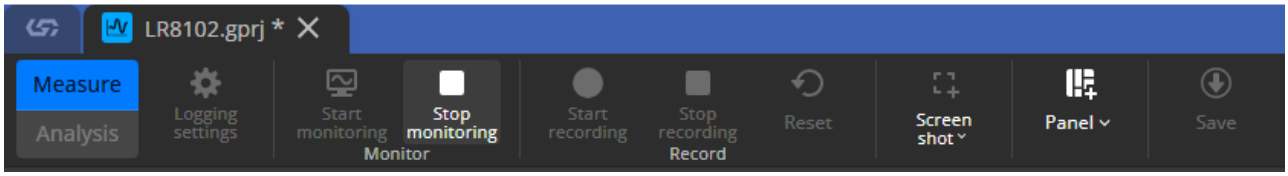
1 **Open the Channel View, right-click the measuring instrument channel, and select [Measurement Settings] from the context menu. On the screen that appears, change the scaling settings.**

- Wait some time, and then check that the changed settings are applied to the monitor display of the waveform panel (or measured value panel).





Stopping monitoring



1 Click [Stop monitor].

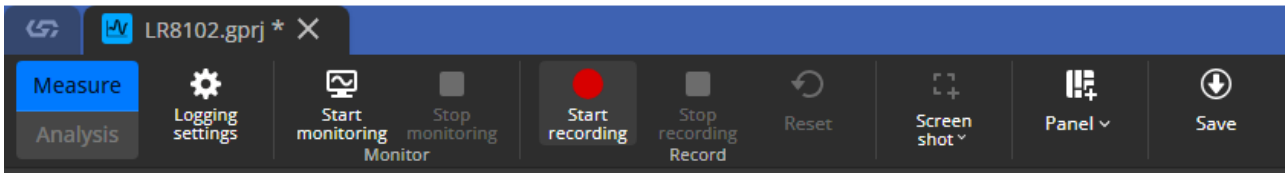
- The updating of the measured value and the waveform stops.

5.7 Start and Stop Recording

Overview

When you start **recording**, the application starts recording the measured values for the measuring instrument and channels set as the objects under measurement in the **logging settings data**. During recording, measured values are recorded on the measuring instrument and in the storage in the application while waveforms and measured values are displayed on the screen of the application. During recording, you cannot change the channel settings, measuring instrument settings, or recording conditions. Start **monitoring**, check the measured values and the waveform status, and then check whether preparation for starting recording is complete.

Starting recording



1 Click [Start recording].

- Check that the measured value and the waveform are updated at the interval set with [Logging settings] > [Recording settings] > [Recording interval].



- Use [Logging settings] > [Register measuring instruments] to check that the measuring instrument set as the object under measurement in the logging settings data is selected.
- Use [Logging settings] > [Channel selection] to check that the channel set as the object under measurement in the logging settings data is selected.
- After confirming the logging settings (or after opening existing logging setting data), do not make any of the following changes on the instrument itself until recording has started: output channel selection, range, unit, input type, scaling, module configuration or wiring settings of the power meter. Making such changes may cause the correspondence between channels and measured values to become incorrect.

Changing the channel displayed in each panel

1 Click the waveform panel (or the measured value panel).

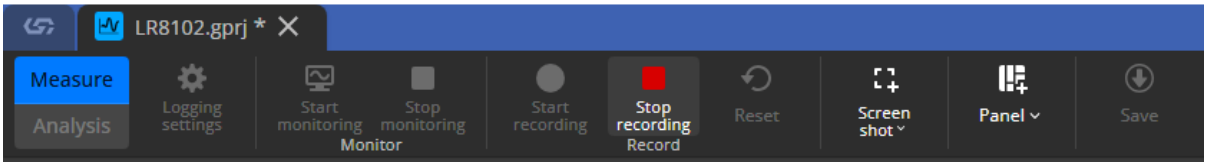


2 Open the Channel View, and then select the checkboxes of the measuring instrument channels you want to display.

- Check that the selected channel waveforms (or measured values) are displayed in the selected waveform panel (or measured value panel).



Stopping recording

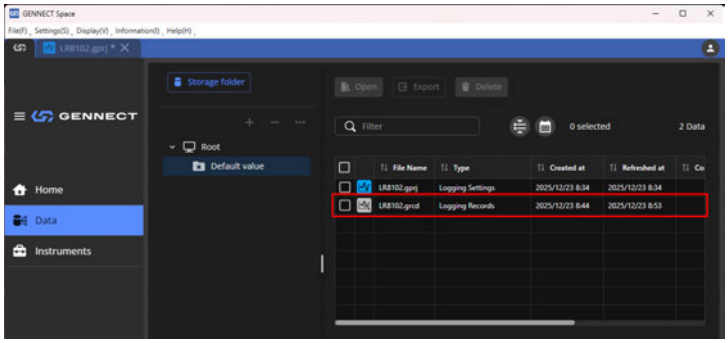


1 Click [Stop recording].

- The recording of the measured value and the waveform stops.

2 Check that the recording record is saved as logging recorded data.

- The recording record is saved in the list on the [Data] screen as logging recorded data.



- You can also switch [Measure/Analysis] on the toolbar to [Analysis] to check the recording record of the logging recorded data.



6 Analyzing Measurement Data

6.1 Logging Recorded Data

Overview

Logging recorded data is data that stores measurement results recorded on the basis of the settings of **logging settings data**. It is saved to this application when recording ends. You can load saved logging recorded data to check past measurement results and to analyze while changing between panels and display channels and altering the way the data is visualized. You can also create new logging settings data modeled on existing logging recorded data. Logging recorded data includes the following configuration information.

Item	Explanation
Logging settings data	A snapshot is stored in the logging settings data. This information is read-only in logging recorded data.
Waveform data	The waveform data of measured values is stored as a binary file.
Event data	Event information is stored as a text file.
Camera video data	Camera images are stored as video data with a timestamp.*1
GPS log data	GPS position data is stored as log data with a timestamp.*2

- *1: This is recorded when a camera is connected and recording is started in the **camera panel**.
- *2: This is recorded when a GPS device is connected and recording is started in the **map panel**.

Analysis tab

Logging recorded data is opened in a tab called the analysis tab. The analysis tab has the following characteristics.



- **Multiple** analysis tabs can be opened within the application.
- The analysis tab can be displayed in a new window using either of the following operations.
  - Drag and drop the tab outside the window
  - In the context menu that appears when you right-click the tab, click **[Move to new window]**
- The analysis tab in the new window can be returned to the original window using the following operation.
  - In the context menu that appears when you right-click the tab, click **[Move to original window]**
- The analysis tab can be moved to any position by dragging and dropping.

Opening logging recorded data

You can use one of the following methods to open a logging recorded data entry.

1. Opening a logging recorded data entry from the [Home] screen

See: Overall screen - Home screen

- In the **[List of recently used files]**, double-click the data of the **[Logging recorded data]**.

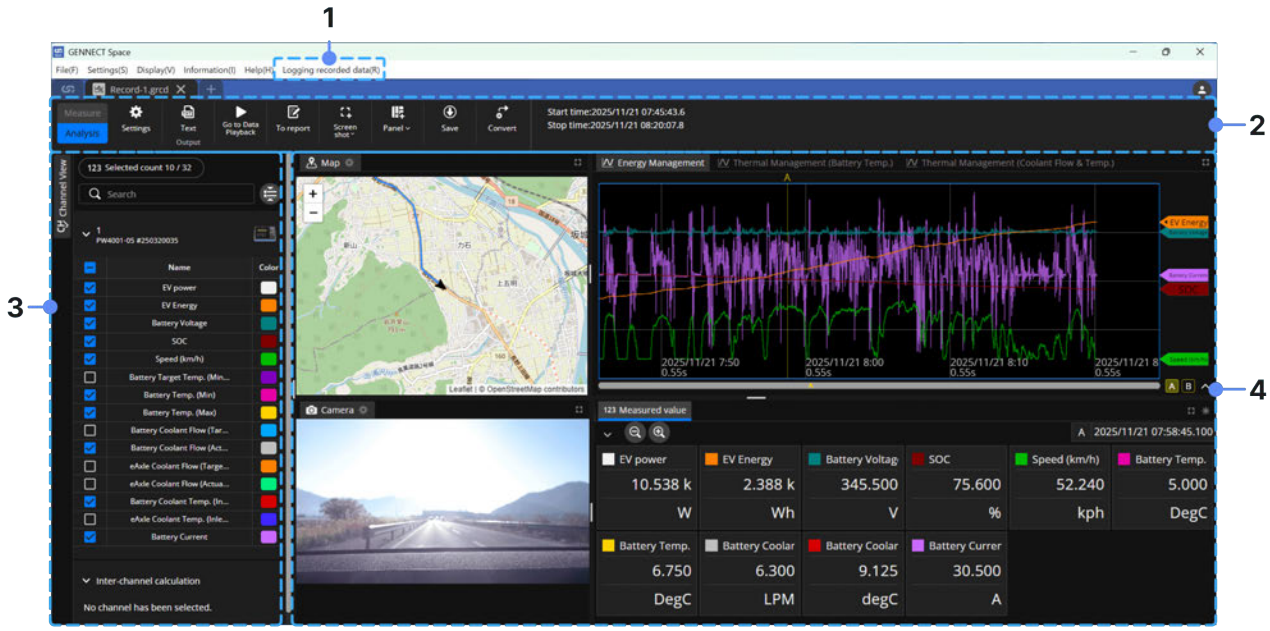
2. Opening a logging recorded data entry from the [Data] screen

See: Data screen - Operation button section

- In the file list of the data screen, select the data of a **[Logging recorded data]** entry, and then click **[Open]**.
- In the file list of the data screen, double-click the data of a **[Logging recorded data]** entry.

6.2 Names and Functions of Each Part

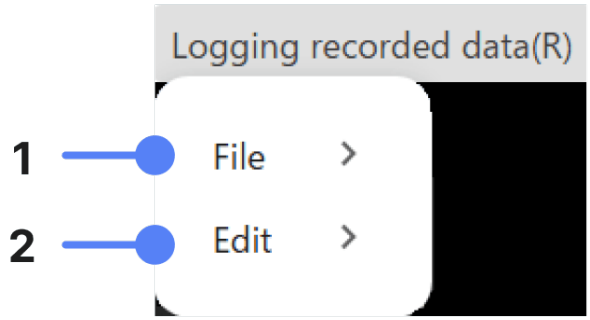
Overall



No.	Name	Function	Refer to
1	Logging recorded data menu	The menu for the logging recorded data. It is displayed when the logging recorded data is open.	→
2	Toolbar	The toolbar for the logging recorded data. It provides access to the primary operations related to logging recorded data such as checking settings, taking screenshots, adding panels, and saving.	→
3	Channel View	Provides access to operations related to the channels handled by the logging settings data. You can use this view to select the channels displayed by each panel and to change the channel display settings.	→
4	Panel View	Displays the panels, which are the components that visualize the waveforms and measured values. You can use mouse operations to move and resize each panel.	→

Details

1. Logging recorded data menu



1. [File] menu

The file menu has the following functions.

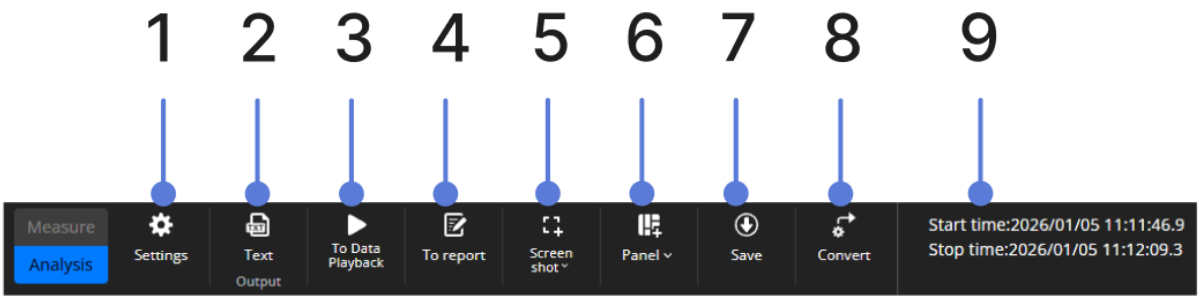
Name	Function
Save	Saves (overwrites) the logging recorded data. The corresponding logging recorded data in the list on the [Data] screen is saved (overwritten).
Convert to logging settings data...	Converts the logging recorded data to logging settings data. Use this function when you want to measure again using the same logging settings included in the logging recorded data. Waveform data is not included in the logging settings data after conversion. Cannot be used with logging recorded data converted from an instrument waveform file.
Output to text file...	Outputs the waveform data of the logging recorded data (full range/between cursors) as a text file.
Output to MDF (MF4)...	Outputs the waveform data of the logging recorded data (full range/between cursors) as an MDF file (extension: .mf4). The file format supports ASAM MDF 4.2. The output files can be opened with third-party analysis tools. •imc FAMOS (imc Test & Measurement) •DIAdem (National Instruments) •CANape (Vector Informatik) •MDA/INCA (ETAS)

2. [Edit] menu

The edit menu has the following function.

Name	Function
Rename...	Changes the name of the logging recorded data. You can also add a comment for the logging recorded data.

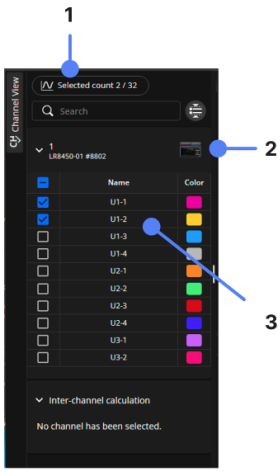
2. Toolbar



No.	Name	Function
1	Logging settings	Checks the settings of the logging settings data. These settings are read-only.
2	Output	Saves the waveform data of the logging recorded data to a file. The save settings screen is displayed, so configure the settings and output the data. • Text: Outputs the waveform data of the logging recorded data (full range/between cursors) as a text file.
3	To Data Playback	Displays the data playback screen.
4	To report	Displays the screen for creating reports.
5	Screenshot	Takes a screenshot of the panel view and panels. You can switch between the following two modes for taking screenshots. Take a screenshot of one panel Take a screenshot of all panels

No.	Name	Function
6	Panel	Adds a panel to the panel view. The new panel is added to the group of the tab that belongs to the selected panel.
7	Save	Saves (overwrites) the logging recorded data. The corresponding logging recorded data in the list on the [Data] screen is saved (overwritten).
8	Convert	Converts the logging recorded data to logging settings data. Use this function when you want to measure again using the same logging settings included in the logging recorded data. Waveform data is not included in the logging settings data after conversion. Cannot be used with logging recorded data converted from an instrument waveform file.
9	Start time/Stop time	Displays the start date and time and the stop date and time.

3. Channel view



1. Tab

Click the tab to show/hide the channel view.

2. Measuring instrument bar

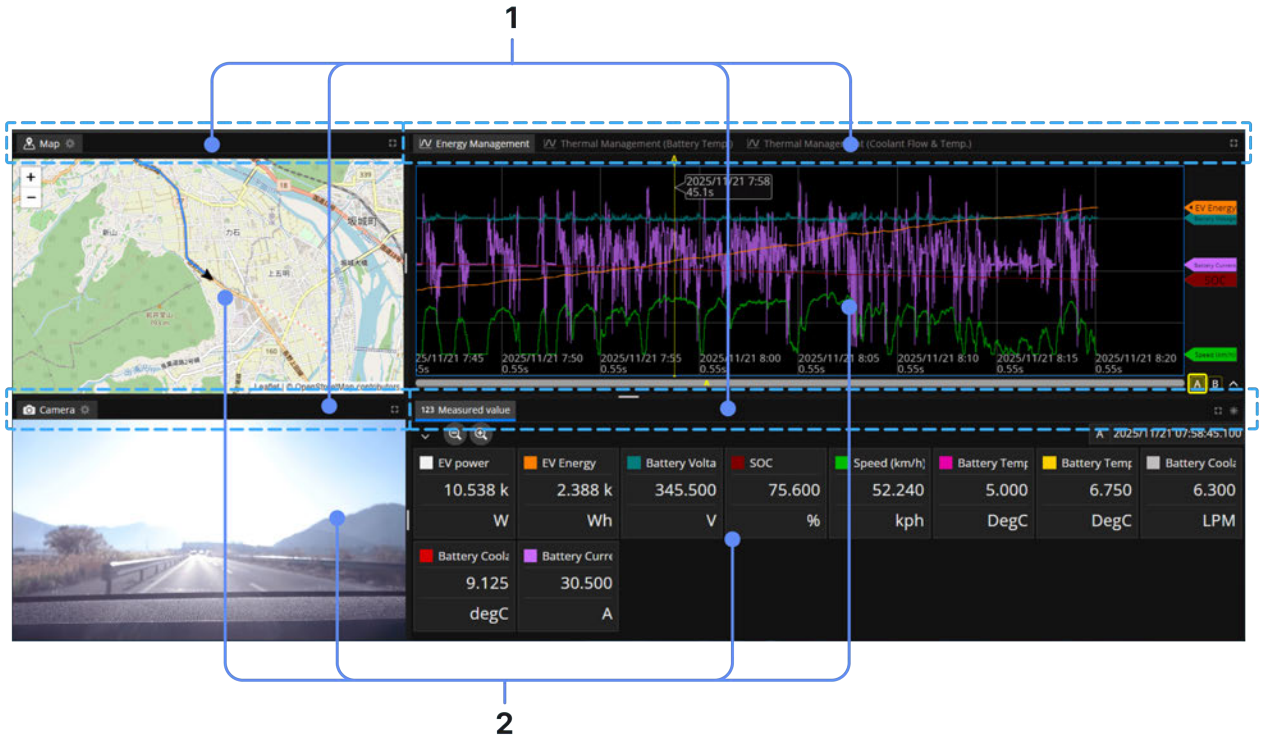
Displays the name of the measuring instrument. Click the measuring instrument bar to show/hide the channel list of the measuring instrument. Calculation channels for inter-channel calculation are displayed as **[inter-channel-calc]** .

3. Channel list display

Measuring instrument channel list. The list of channels selected with **[Logging settings]** > **[Channel selection]** is displayed. The display name and display color of each channel are displayed as information for identifying the channels. You can perform the following operations on each channel.

Name	Function
Select display channels	You can select the channels to display in each panel and clear these selections.
Change display settings	You can select **[Display Settings]** from the right-click menu to change the display name, display color, display mode, and other settings of each channel.

4. Panel view



1. Tab bar

In a tab bar, a **panel** is displayed as a tab. The following functions are available.

Name	Function
Move	You can move a panel by dragging its tab within the panel view. When you drag a panel, the area of its movement destination is displayed.
Settings	Click ⚙ to configure the settings of the panel. For the setting details of each panel, see the following section. See: Panel
Maximize/minimize	Click the ⛶ / ⛶ button to maximize/minimize (respectively) the panel.
Rename	Select **[Rename]** from the right-click menu of each tab to change the panel name.
Close	Select **[Close]** from the right-click menu of each tab to close the panel.

2. Panel display

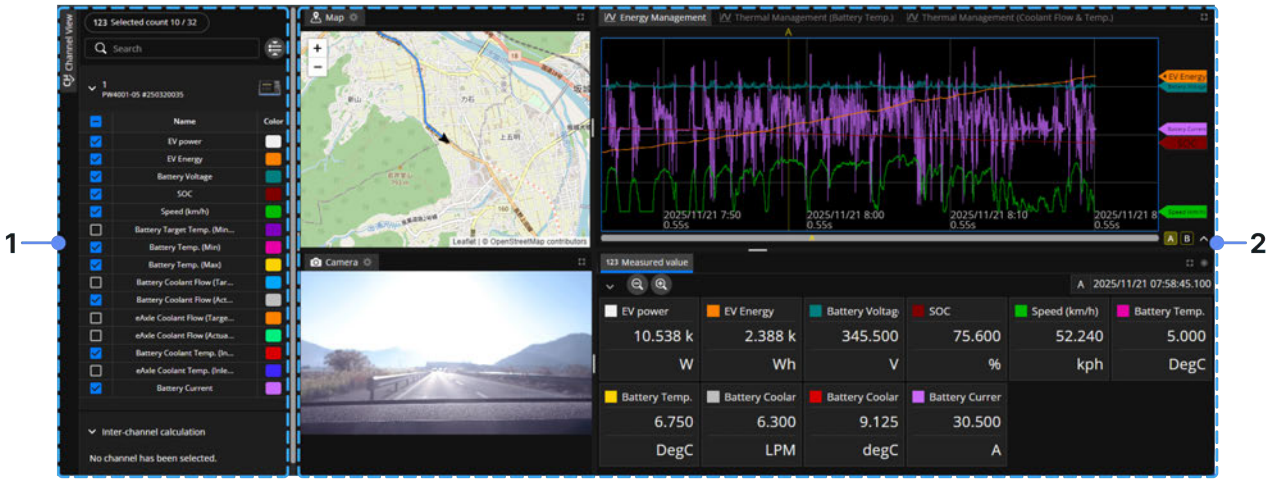
Displays the details of the panel. For the list of panels and the details of each panel, see the following section.

See: Panel

6.3 Panel

Overview

A **panel** indicates a separate area (a panel whose size and position can be adjusted) used to display the information of the **logging** function on the screen. You can use multiple **panels** to display separate information—such as waveforms, measured values, and camera images—at the same time.



No.	Name	Function
1	Channel View	Changes the **display channels** of the panel selected with the **panel view**. You can also change the display settings and instrument settings of each channel of the measuring instrument.***1** See: Channel View
2	Panel view	Displays multiple panels. You can resize panels by dragging their boundary lines. You can move panels by dragging the tab bar at the top of each panel. To add a new panel to the panel view, click **[Panels]** on the **toolbar**. See: Panel view See: Toolbar

***1**: **During recording** , you cannot change the instrument settings of the channels of the measuring instrument.

Panel list

This is the list of the **panels** that can be displayed in the **panel view**.

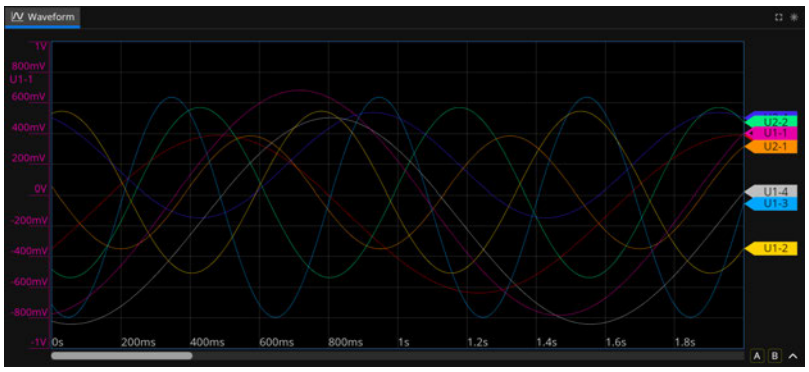
No.	Name	Function	Refer to
1	**Waveform panel**	Displays and operates the waveform. Also changes the display settings of waveforms.	→
2	**Measured value panel**	Displays measured values according to the cursor in the waveform panel. Also changes the display settings of measured values.	→
3	**Event panel**	Displays and operates events. Also changes the event settings.	→
4	**Camera panel**	Displays camera images according to the cursor in the waveform panel. In the logging recorded data, settings related to cameras cannot be changed.	→
5	**Map panel**	Displays a map and GPS paths according to the cursor in the waveform panel. In the logging recorded data, settings related to GPS devices cannot be changed.	→
6	**Instrument waveform panel**	Always displays the real-time waveform screen of the measuring instrument, regardless of the recorded data.	→
7	**Analog meter panel**	Displays measured values in analog meter format according to the cursor in the waveform panel. Also changes the display settings.	→
8	**Level bar panel**	Displays measured values in level bar format according to the cursor in the waveform panel. Also changes the display settings.	→
9	**Stats panel**	Displays statistical values of the recorded data. Changes the statistical range, stats items, and thresholds.	→

Waveform panel

Displays and operates the waveform. Also changes the display settings of waveforms.

For more information on the functions and settings of the waveform panel, see the following section.

See: Waveform panel

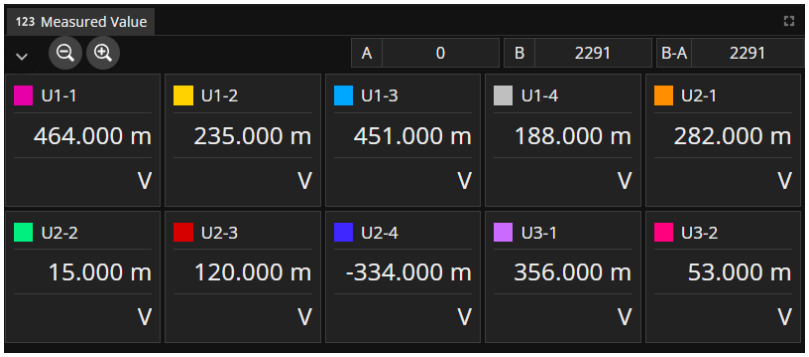


Measured value panel

Displays measured values according to the cursor in the waveform panel. Also changes the display settings of measured values.

For more information on the functions and settings of the measured value panel, see the following section.

See: Measured value panel

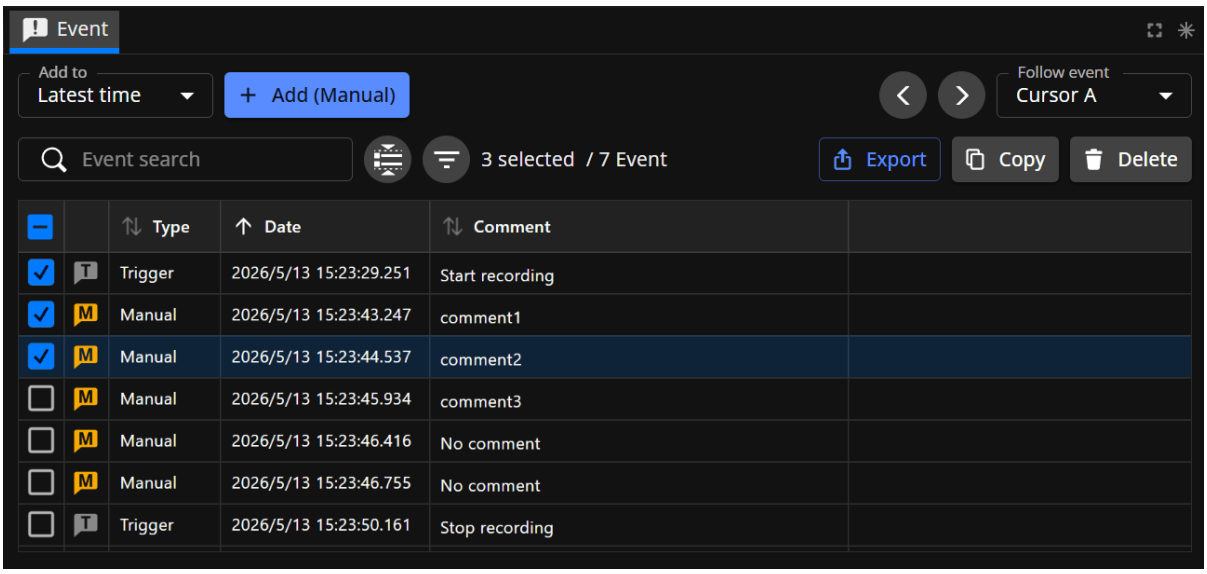


Event panel

Displays and operates events. Also changes the event settings.

For more information on the functions and settings of the event panel, see the following section.

See: Event panel

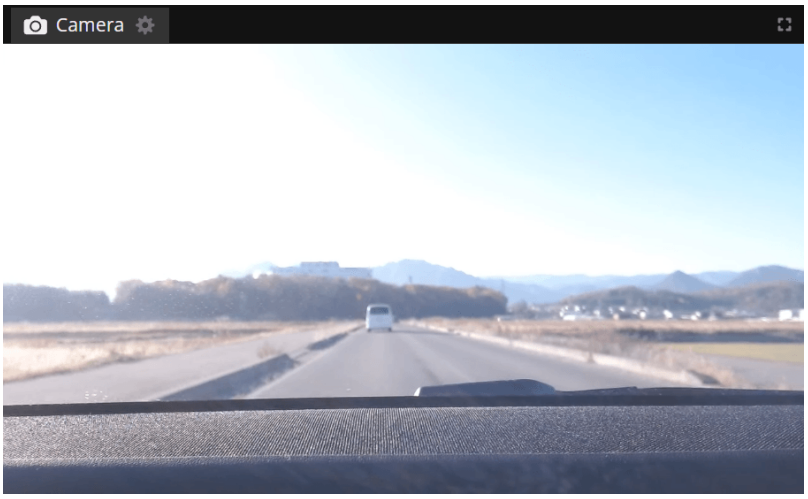


Camera panel

Displays camera images according to the cursor in the waveform panel. In the logging recorded data, settings related to cameras cannot be changed.

For more information on the functions and settings of the camera panel, see the following section.

See: Camera panel



IMPORTANT

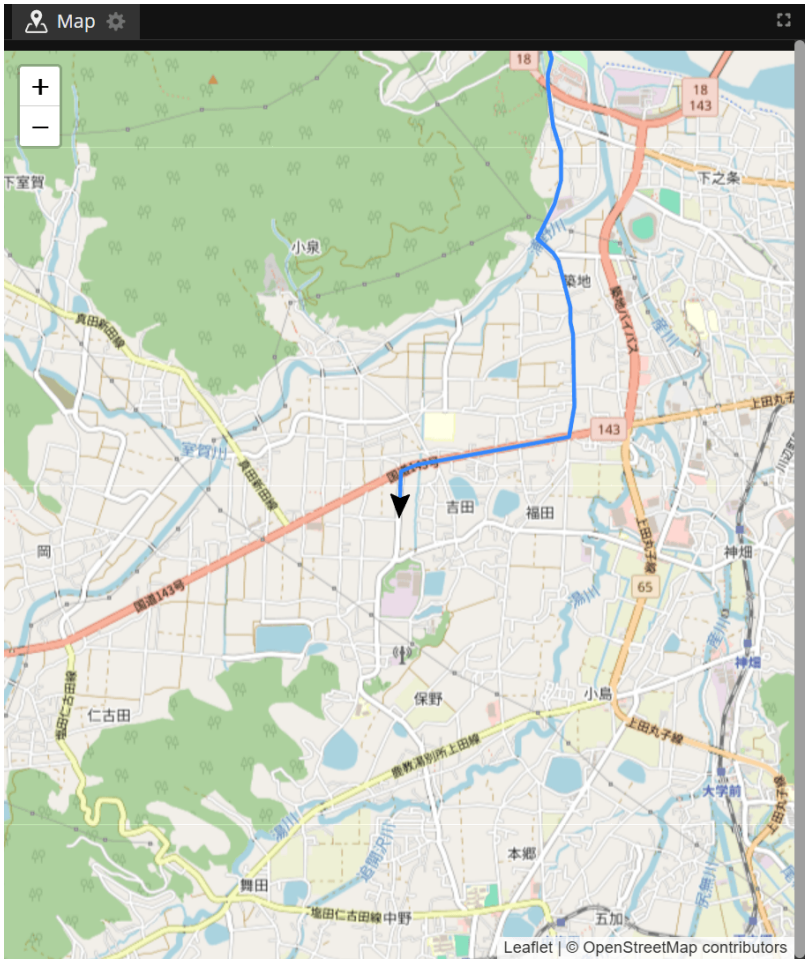
In the logging recorded data, settings related to cameras cannot be changed.

Map panel

Displays a map and GPS paths according to the cursor in the waveform panel. In the logging recorded data, settings related to GPS devices cannot be changed.

For more information on the functions and settings of the map panel, see the following section.

See: Map panel

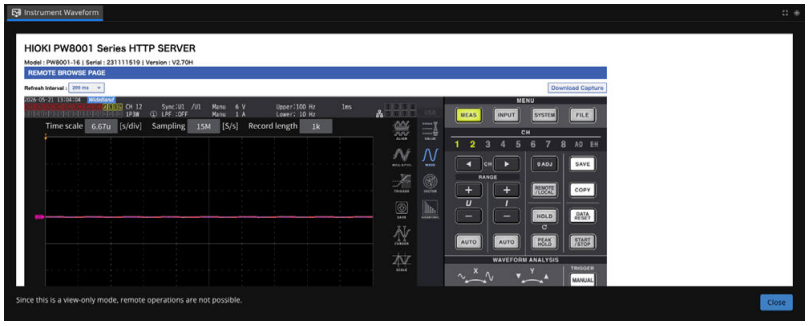


IMPORTANT

- In the logging recorded data, settings related to GPS devices cannot be changed.

Instrument waveform panel

Always displays the real-time waveform screen of the measuring instrument, regardless of the recorded data.
For more information on the functions of the instrument waveform panel, see the following section.
See: Instrument waveform panel



Analog meter panel

Displays measured values in analog meter format according to the cursor in the waveform panel. Also changes the display settings.
For more information on the functions and settings of the analog meter panel, see the following section.
See: Analog meter panel

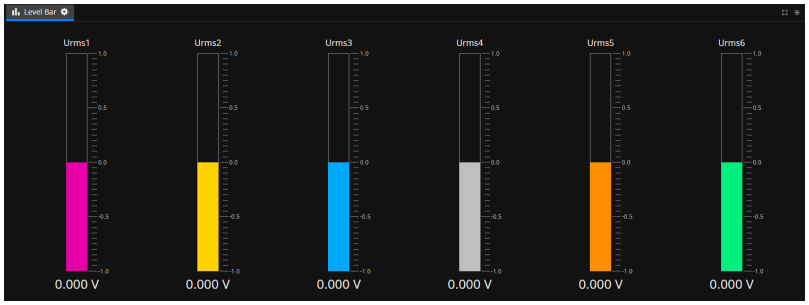


Level bar panel

Displays measured values in level bar format according to the cursor in the waveform panel. Also changes the display settings.

For more information on the functions and settings of the level bar panel, see the following section.

See: Level bar panel

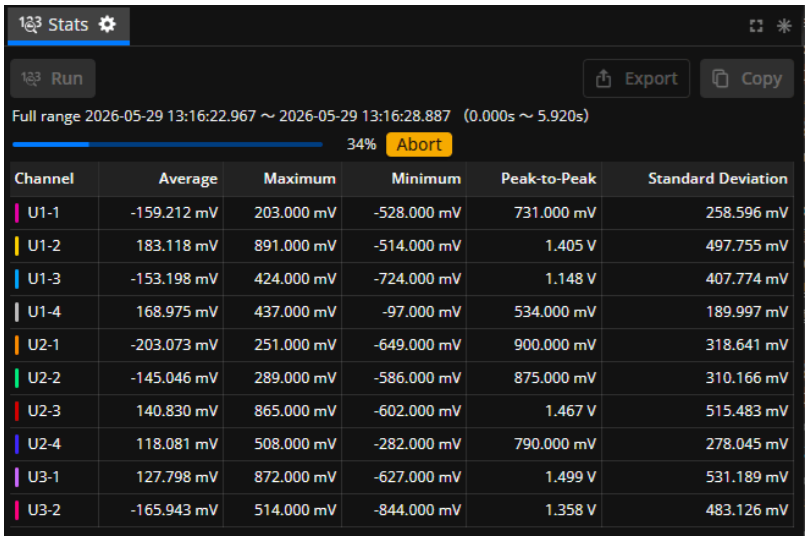


Stats panel

Displays statistical values of the recorded data. Also changes the calculation settings and thresholds.

For more information on the functions and settings of the statistics panel, see the following section.

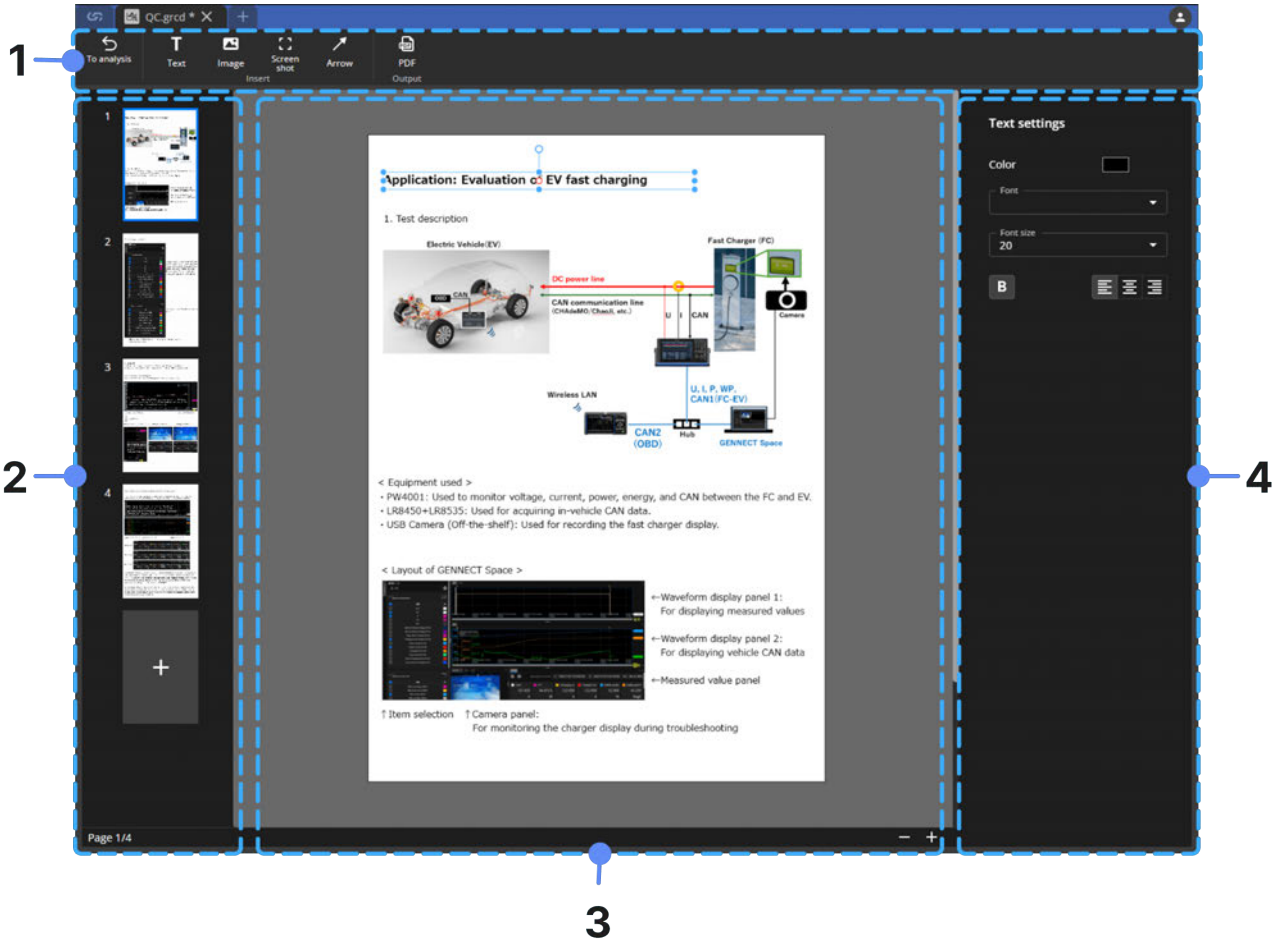
See: Stats panel



Channel	Average	Maximum	Minimum	Peak-to-Peak	Standard Deviation
U1-1	-159.212 mV	203.000 mV	-528.000 mV	731.000 mV	258.596 mV
U1-2	183.118 mV	891.000 mV	-514.000 mV	1.405 V	497.755 mV
U1-3	-153.198 mV	424.000 mV	-724.000 mV	1.148 V	407.774 mV
U1-4	168.975 mV	437.000 mV	-97.000 mV	534.000 mV	189.997 mV
U2-1	-203.073 mV	251.000 mV	-649.000 mV	900.000 mV	318.641 mV
U2-2	-145.046 mV	289.000 mV	-586.000 mV	875.000 mV	310.166 mV
U2-3	140.830 mV	865.000 mV	-602.000 mV	1.467 V	515.483 mV
U2-4	118.081 mV	508.000 mV	-282.000 mV	790.000 mV	278.045 mV
U3-1	127.798 mV	872.000 mV	-627.000 mV	1.499 V	531.189 mV
U3-2	-165.943 mV	514.000 mV	-844.000 mV	1.358 V	483.126 mV

6.4 Report

Overall

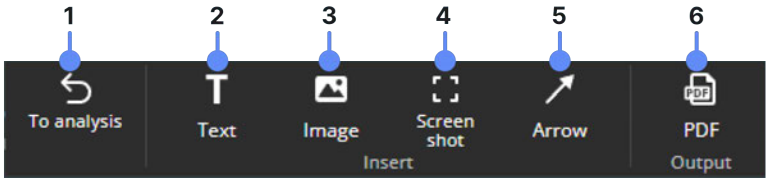


No.	Name	Function	Refer to
1	**Toolbar**	The toolbar for the report function. It allows you to add widgets such as text, images, and arrows and to output a PDF of the report.	→
2	**Page list view**	Displays the pages of the report in a list. You can add and delete pages.	→
3	**Report view**	The editing area of the report. The page selected in the page list view is displayed.	→

No.	Name	Function	Refer to
4	**Property view**	Displays the properties of the widget selected in the report view. You can change the text size, display color, and other such widget properties.	→

Details

1. Toolbar



No.	Name	Function
1	To analysis	Stops the report function and returns to the analysis screen.
2	Text	Adds a **text** widget to the report view.
3	Image	Adds an **image** widget to the report view.
4	Screenshot	Adds an **image** widget to the report view. You can add the image from the list of screenshots acquired during the recording of logging or acquired on the analysis screen of the logging recorded data.
5	Arrow	Adds an **arrow** widget to the report view.
6	Output PDF	Outputs the report as a PDF file.

2. Page list view

The list display area of the report. The following function is available.

Function	Description
Switch page	Click a page in the page list view to display the selected page in the **report view**.
Add page	Click + at the bottom of the page list view to add a page.

Function	Description
Copy/Paste page	After selecting a page, press the **Ctrl + C** key to copy it, and the **Ctrl + V** key to paste it. You can also copy and paste pages from their right-click menu. The pasted page is inserted directly after the current page. Pages can also be pasted into a report opened in another tab.
Delete page	After selecting a page, press the **Delete** key to delete it. You can also delete pages from their right-click menu.
Swap page	Drag a page in the page list view to swap the pages.

3. Report view

The editing area of the report. The page selected in the page list view is displayed. The following function is available.

Function	Description
Select widget	Selects an added widget. The selected widget is highlighted with a blue frame and can be edited, moved, magnified, demagnified, and deleted. You can also change the properties of this widget. You can press the **Ctrl + A** key to select all widgets in the report view.
Move widget	You can move widgets within the report view.
Magnify/Demagnify widget	Drag the handles of the selected widget with a mouse to magnify/demagnify the widget.
Rotate widget	Drag the handles of the selected widget with a mouse to rotate the widget.
Copy/Paste widget	After selecting a widget, press the **Ctrl + C** key to copy it, and the **Ctrl + V** key to paste it. You can also copy and paste widgets from their right-click menu. Widgets can also be pasted into a report opened in another tab.
Delete widget	After selecting a widget, press the **Delete** key to delete it. You can also delete widgets from their right-click menu.
Move widget forward/backward	Moves the selected widget **forward**/**backward**/**to the front**/**to the back**.
Magnify/Demagnify view	Click **[+]**/**[−]** in the lower-right corner of the report view to magnify/demagnify its overall display scale.

4. Property view

Displays and changes the properties of the widget selected in the report view. The properties that can be edited for each widget are as follows.

Type	Property	Function
1	Text	Displays and changes the color, font, size, font thickness, and alignment (left/right/center).
2	Image	Displays and changes the transparency, border line thickness, and border line color.
3	Arrow	Displays and changes the color, thickness, starting shape, and ending shape.

6.5 Data Playback

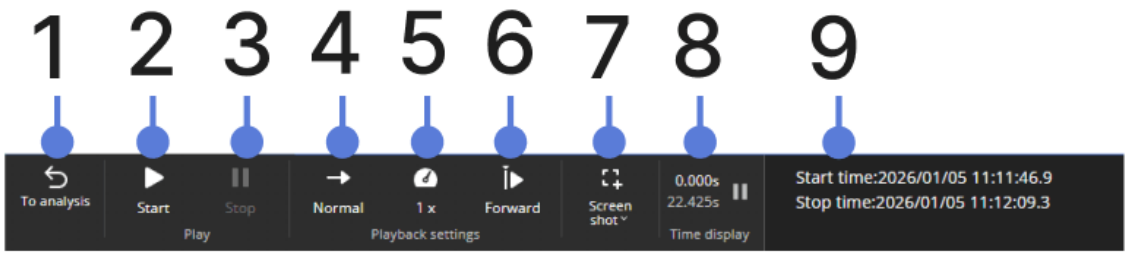
Overall



No.	Name	Function	Refer to
1	**Toolbar**	Toolbar for data playback function. You can configure data playback settings, start, and stop data playback. Data playback uses the A cursor of the waveform panel.	→

Details

1. Toolbar



No.	Name	Function
1	To Analysis	Ends the data playback function and returns to the analysis screen.
2	Start	Starts data playback.
3	Stop	Stops data playback.
4	Playback Mode	Sets the playback mode. The playback mode can be switched between the following 3 modes. Normal Mode / Loop Mode / Scroll Mode
5	Playback Speed	Sets the playback speed. The playback speed can be changed in the range of 1/10000x ~ 10000x.
6	Playback Direction	Sets the playback direction. The playback direction can be switched between Forward and Reverse.
7	Screenshot	Takes a screenshot of the panel view and panels. You can switch between the following two modes for taking screenshots. Take a screenshot of one panel Take a screenshot of all panels
8	Time Display	Displays the current playback time and total playback time.
9	Start time/Stop time	Displays the start date and time and the stop date and time.

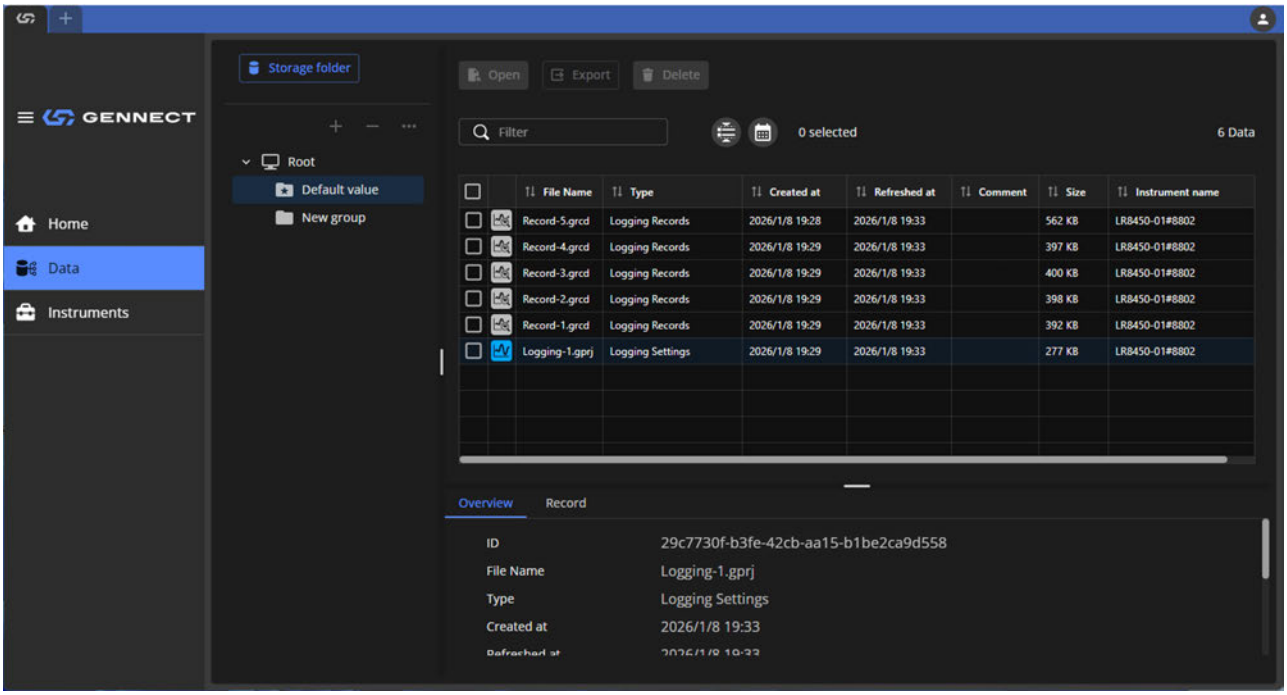
2. Playback Mode

No.	Name	Function
1	Normal Mode	Stops after playing to the end of recorded data.
2	Loop Mode	Returns to the beginning and restarts playback after playing to the end of recorded data.
3	Scroll Mode	Stops after playing to the end of recorded data. Automatically scrolls the waveform panel in sync with the A cursor.

7 Managing Measurement Data

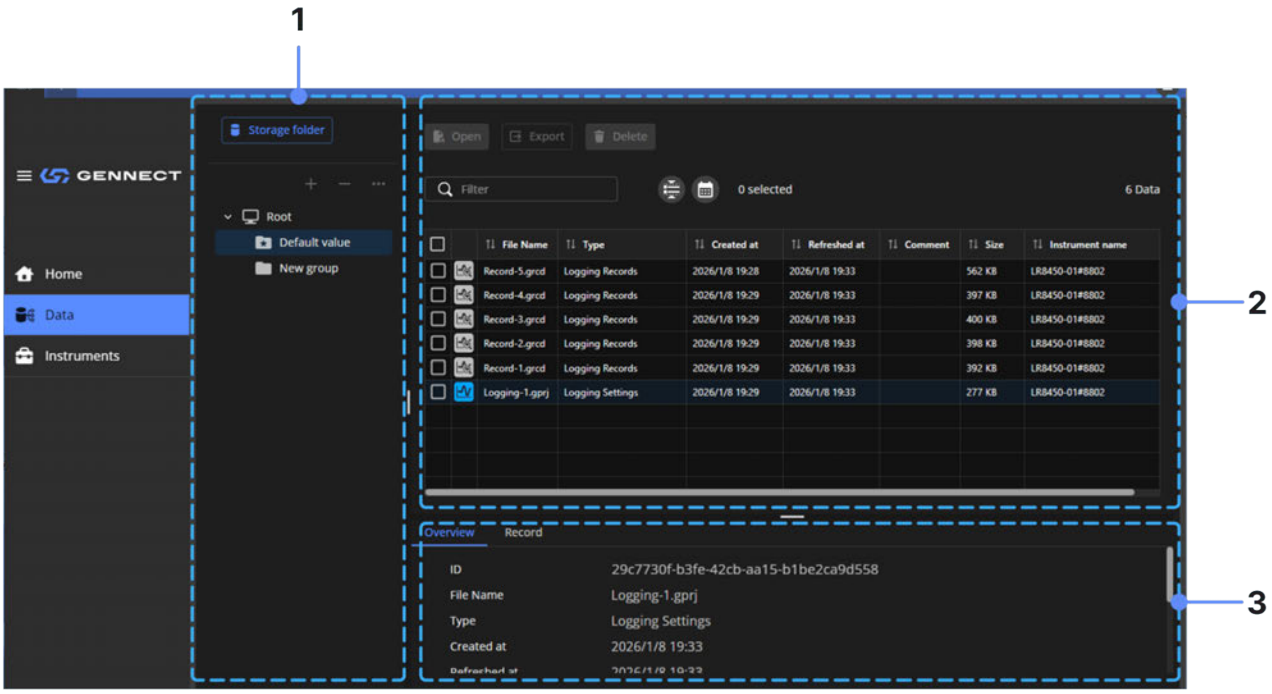
7.1 Data Screen

Splits data such as **logging settings data** and **logging recorded data** into **groups** and **displays this data in a list**. You can **display information for**, **open**, **delete**, **output**, **move**, and perform similar operations on the listed data. You can also manage the storage folders (reference folders) in which the application stores data.



7.2 Names and Functions of Each Part

Overall



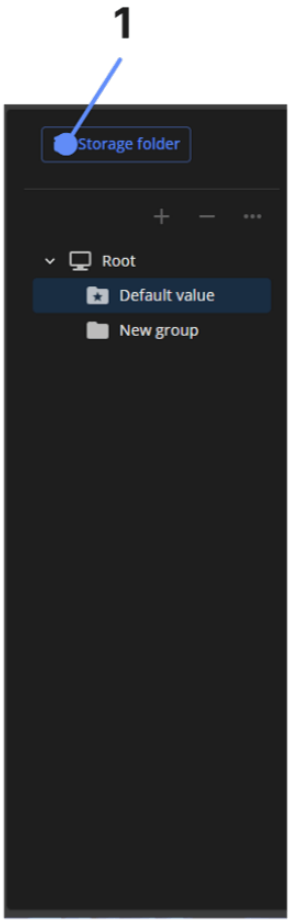
No.	Name	Function
1	**Tree section**	Displays the groups that manage the data in a folder tree. The data that belongs to the selected group is displayed in the list section on the right.
2	**List section**	Displays a list of data such as the **logging settings data** and **logging recorded data** saved in the application. You can open, delete, output, check the information for, and perform similar operations on the items whose checkboxes are selected.
3	**Information display section**	Displays the information of the data selected (highlighted) in the list section.

Details

1. Tree section

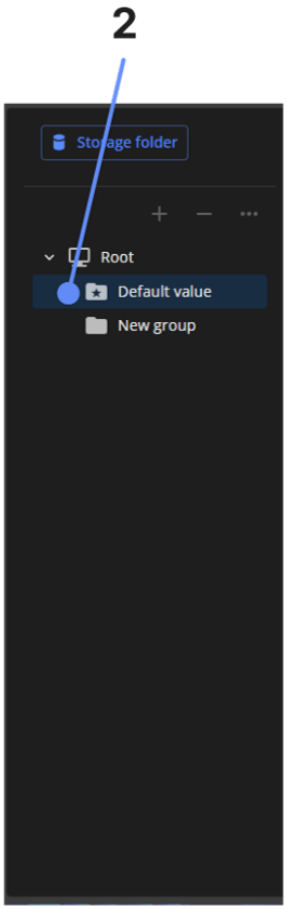
1. Storage folder

Click **[Storage folder]** to display the storage folder settings.



Name	Function
New	Registers a storage folder (reference folder) in which the application stores data.
Switch folder	• Switches the storage folder (reference folder) in which the application stores data. • The lists of groups and of data managed by the selected storage folder are displayed in the tree section on the left and the list section on the right.
Edit	Changes the display name of the storage folder (reference folder) in which the application stores data.
Delete	• Deletes a storage folder (reference folder) in which the application stores data. • All the managed data in the target storage folder is deleted.

2. Group

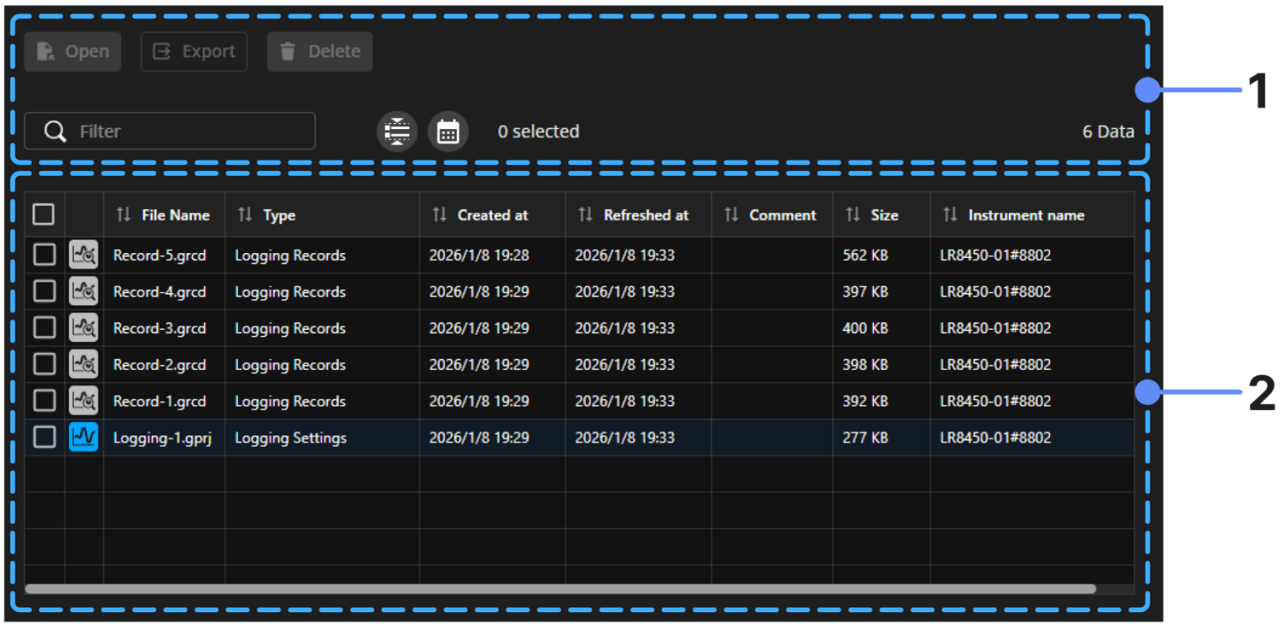


Name	Function
Select	• Click a tree item (group) to select it. • The data that exists in the selected group is displayed in the list section on the right.
Add	• Adds a group below the selected tree item (group). • You cannot add groups below the Default group.
Delete	• Deletes the selected tree item (group). • All the groups and data that exist below the target group will be deleted. • You cannot delete the Root and Default groups.
Other (edit)	• Edits the display name of the selected tree item (group). • You cannot edit the Root and Default groups.

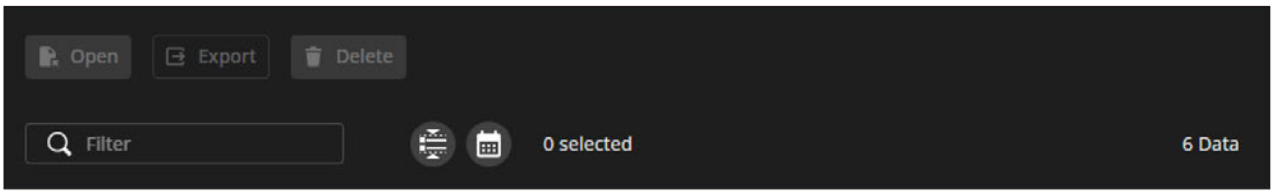
Tips

- You can also add, delete, and edit groups from the right-click menu of the tree item.
- You can move data from the group in which the data belongs in the list section to a destination group by dragging data whose checkboxes are selected in the list section to a group in the tree section. You cannot move data to the Root group.
- You can import data from the file system to this application by dragging data folders containing logging settings data, logging recorded data, and similar data, or instrument waveform files (BIN files, MEM files) (multiple selections allowed) from the file system to a group. You cannot import data to the Root group.
- For information on how to output data for import, see the following section.
  See: Operation button section

2. List section



1. Operation button section



Name	Function
Open	• Opens data whose checkbox has been selected in the list section. • The data only opens when there is only one piece of data whose checkbox has been selected. • You can also open data by double-clicking it in the list section.

Name	Function

Output	• Outputs to the computer data whose checkbox has been selected in the list section.
	• You can output data in the following formats.
	  • No Compression*1
	  • Compressed (ZIP)*2
	• The output data can be imported by dragging and dropping it into the list section, or by selecting Import from the [File] menu.
	See: List section, File

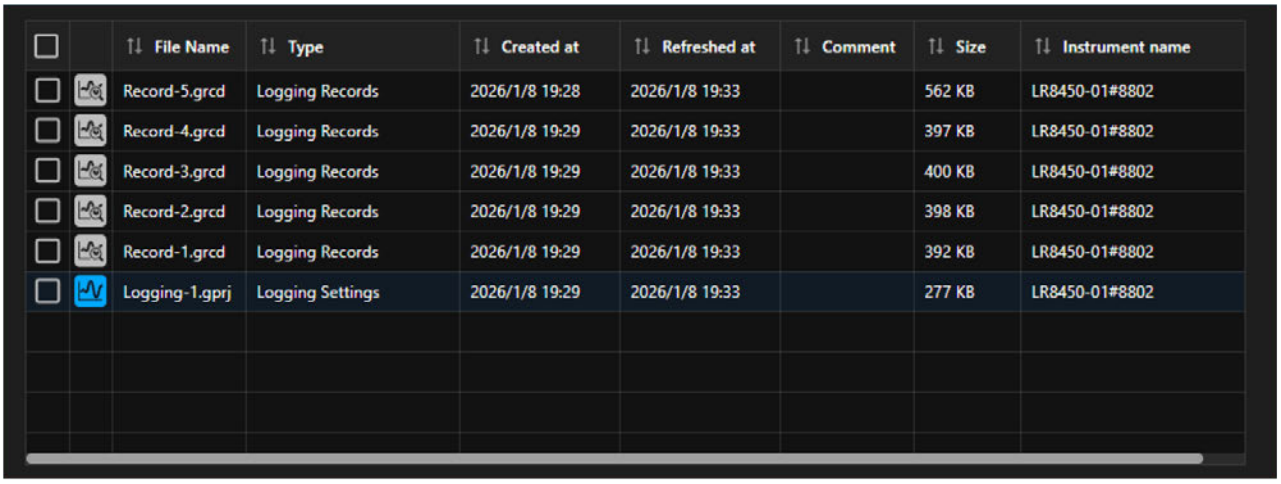
Delete	• Deletes data whose checkbox has been selected in the list section.
 Filter	• Filters the data according to the items displayed in the list. • The data displayed in the list is filtered to the data that partially matches the entered text.
Filter (checkbox selected)	Filters the data displayed in the list to those items whose checkboxes are selected.
Filter (date)	• Filters the data displayed in the list according to the date when these items were created or updated. • Filters the data displayed in the list to those items included in the set date range.
XX selected	Displays the number of data entries whose checkboxes are selected in the list section.
XX piece(s) of data	Displays the total number of data entries in the list section.

• *1: Logging settings data, logging recorded data are output together in a newly created folder.
*2: Logging settings data, logging recorded data are compressed into a ZIP file and output. When importing compressed data to this application, please extract the ZIP file first.

Tips

• You can also use the right-click menu of the list section to open, output, and delete data whose checkbox has been selected.

2. List section



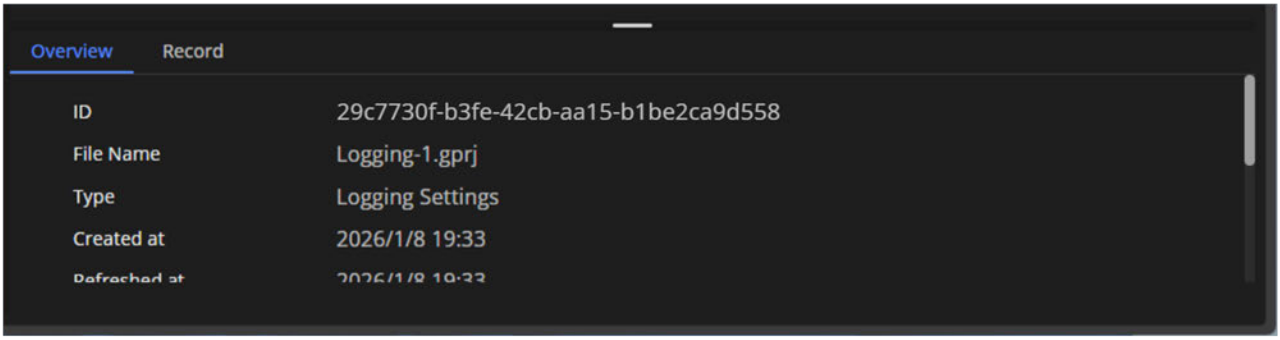
File Name	Type	Created at	Refreshed at	Comment	Size	Instrument name
Record-5.grcd	Logging Records	2026/1/8 19:28	2026/1/8 19:33		562 KB	LR8450-01#8802
Record-4.grcd	Logging Records	2026/1/8 19:29	2026/1/8 19:33		397 KB	LR8450-01#8802
Record-3.grcd	Logging Records	2026/1/8 19:29	2026/1/8 19:33		400 KB	LR8450-01#8802
Record-2.grcd	Logging Records	2026/1/8 19:29	2026/1/8 19:33		398 KB	LR8450-01#8802
Record-1.grcd	Logging Records	2026/1/8 19:29	2026/1/8 19:33		392 KB	LR8450-01#8802
Logging-1.gprj	Logging Settings	2026/1/8 19:29	2026/1/8 19:33		277 KB	LR8450-01#8802

Name	Function
Displayed items	• Items such as the file name, type, creation date and time, update date and time, comment, size, and measuring instrument name of the data are displayed. • You can edit the comment.
Operations	• Click a checkbox to select the data to be **opened**, **output**, **deleted**, or targeted by similar operations. • You can also perform operations on the data from its right-click menu. • When you highlight data, its information is displayed in the **[Information display section]**.

Tips

- You can select multiple pieces of data by holding down the **Ctrl** key while clicking them.
- You can use **[Ctrl] + [A]** to select the checkboxes of all the displayed data.
- You can import data from the file system to this application by dragging data folders containing **logging settings data**, **logging recorded data**, and similar data, or **instrument waveform files** (BIN files, MEM files) (multiple selections allowed) from the file system to the list section.

3. Information display section



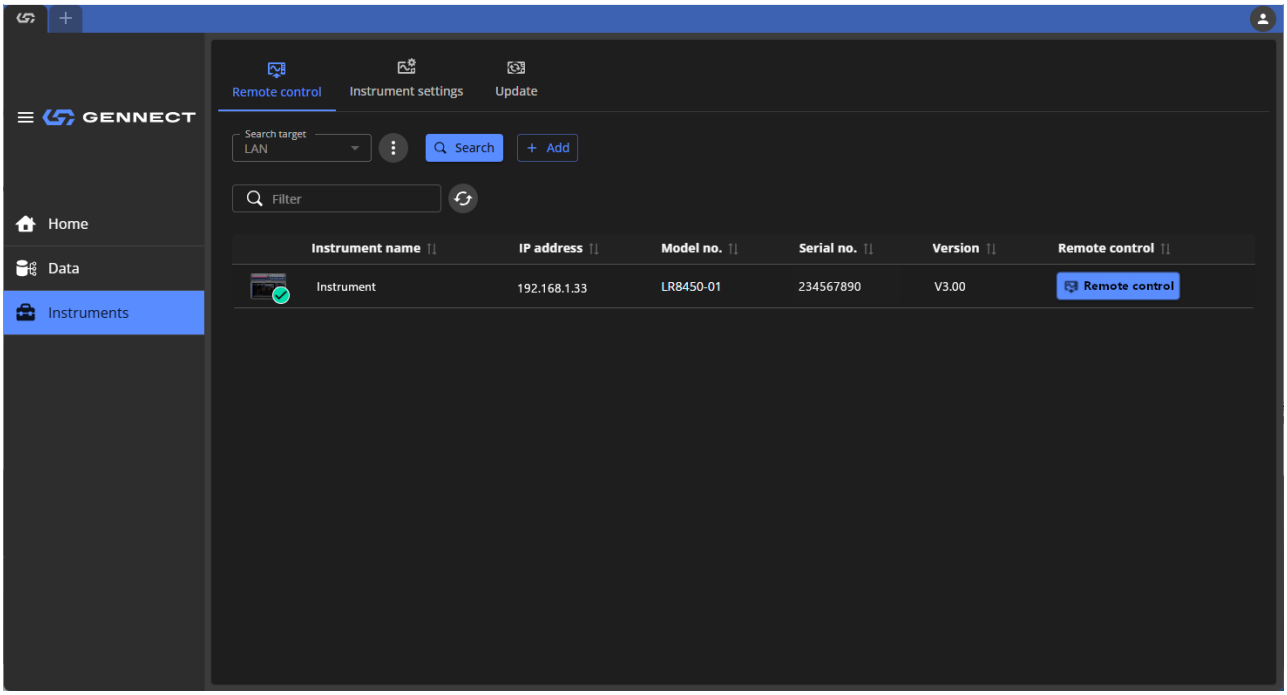
Displays the information of the data highlighted in the list section.

Name	Function
Overview	• Displays general information.
Recording settings	• Displays recording information. • The name and other displayed details vary depending on the data type such as **logging settings data** and **logging recorded data**.

8 Instrument Operation and Management

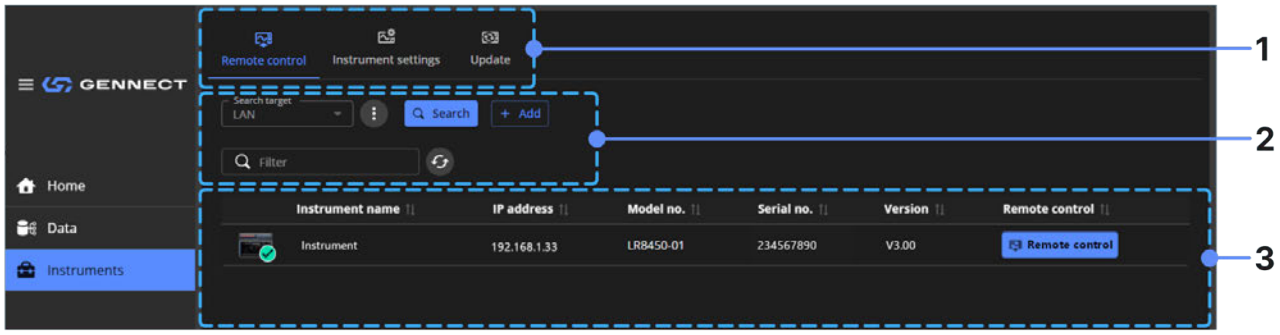
8.1 Measuring Instrument Screen

This measuring instrument utility screen provides access to operations such as **[Remote control]**, **[Instrument settings]**, and **[Update]** for the measuring instruments.



8.2 Names and Functions of Each Part

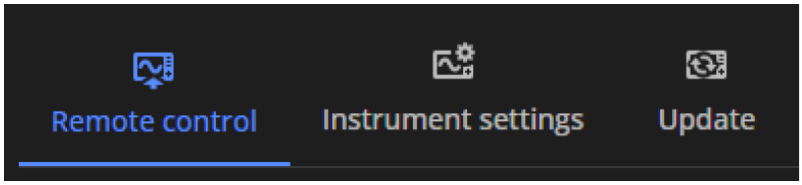
Overall



No.	Name	Function
1	**Function switching button section**	Switches between functions such as **[Remote control]**, **[Instrument settings]**, and **[Update]**.
2	**Operation panel**	Use this section to perform measuring instrument operations such as **[Search]**, **[Add]**, **Filter**, and **Update**.
3	**Measuring instrument list section**	Displays information such as the status, name, IP address, model number, serial number, and version of the measuring instruments found by the computer. Click buttons such as **[Remote control]**, **[Settings]**, and **[Update]** to execute operations on measuring instruments for these functions.

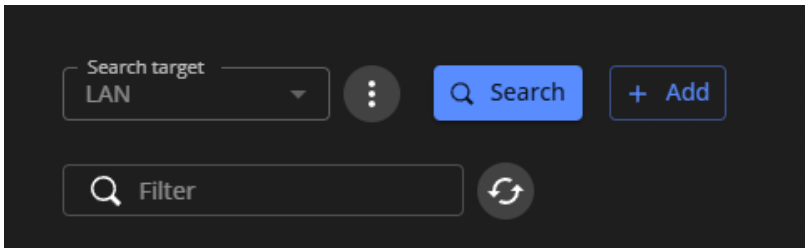
Details

1. Function switching button section



Name	Function
Remote Control	Displays the measuring instrument screen and performs operations on the measuring instrument.
Instrument Settings	Displays and changes the settings of the measuring instrument.
Update	Updates the firmware version of the measuring instrument when the newest firmware is available.

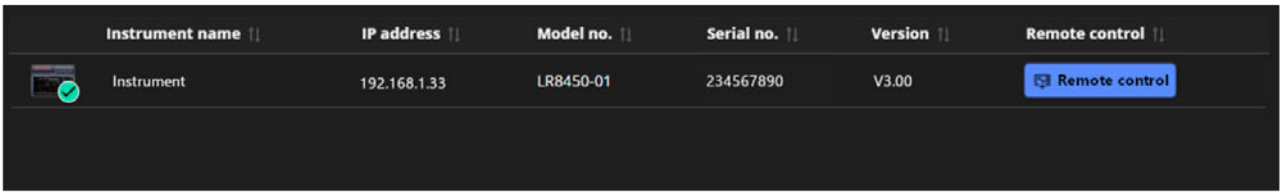
2. Operation panel section



Name	Function
Other functions (communication settings)	Displays communication settings related to measuring instrument operation.

Name	Function
Search	Automatically searches for measuring instruments on the computer's network and adds them to the list. • Depending on PC settings, such as security software, measuring instruments may not be detected. In that situation, manually add measuring instruments.
Add	Manually adds measuring instruments to the list. Specify the • [IP address] and [Port number] to add a measuring instrument. Select the • [Model number] from the drop-down list to automatically enter the default port number of the measuring instrument.
Filter	Filters the measuring instruments according to the items displayed in the list. • The measuring instruments displayed in the list are filtered to those that partially match the entered text.
Update	Updates the list of measuring instruments. • The list is updated to display the latest information.

3. Measuring instrument list section



Name	Function

Measuring instrument list	• Displays information such as the status, name, IP address, model number, serial number, and version of the measuring instruments found by the computer.
	• Click buttons such as **[Remote control]**, **[Instrument settings]**, and **[Update]** to execute operations on measuring instruments for these functions.
	• For more information on the operations of the functions, see the following pages.
	  • See: Remote Control
	  • See: Instrument Settings
	  • See: Update
	• You can right-click a measuring instrument to **[Edit]**, **[Update]**, **[Delete]**, **display the detailed information for it**, and to perform similar operations.

Tips

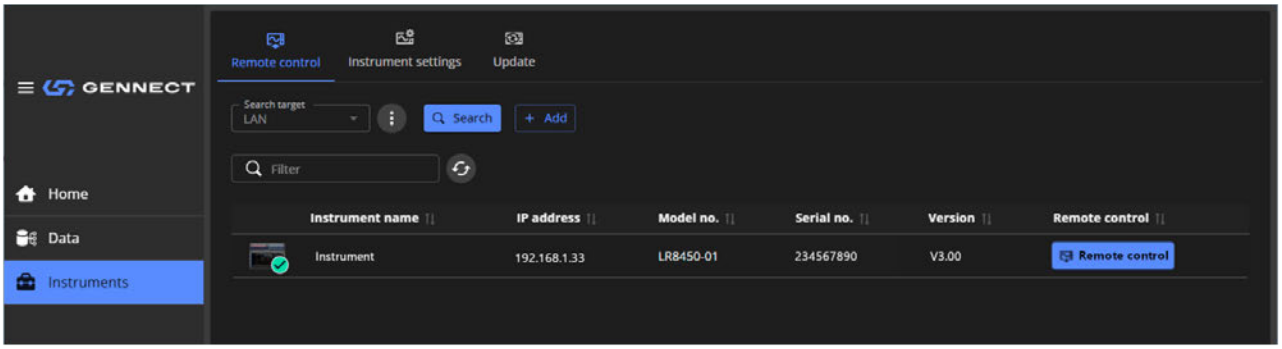
- You can select multiple measuring instruments by holding down the **Ctrl** key while clicking them.
- You can use **[Ctrl] + [A]** to select all the displayed measuring instruments.

8.3 Remote Control

Overview

This utility function uses the HTTP server function to view the screen of a measuring instrument and to operate this instrument from this application.

- To use this function, a measuring instrument that can communicate with this application must already have been added to the measuring instrument list section.
  See: Adding a measuring instrument to the measuring instrument list



Compatible measuring instruments

See: Compatible measuring instruments

Instructions

1 **Click [Remote control].**

The remote control screen of the measuring instrument opens. If authentication is required, it is performed, and then the remote control screen opens.

- Example: For the LR8450, select **[Control mode]** or **[View mode]**, and then select **[Remote control]** to switch to the screen for operating the measuring instrument.



2 **Click the close button ([×]) on the remote control screen to end remote control.**

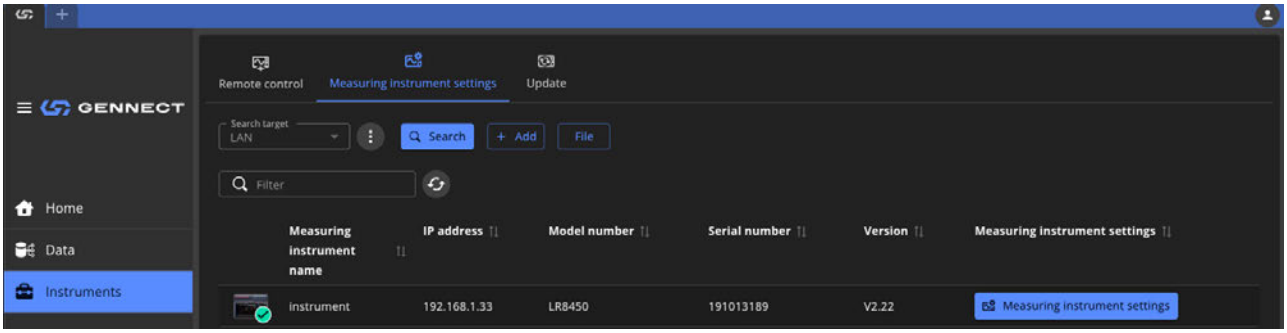
The remote control screen of the measuring instrument closes.

8.4 Instrument Settings

Overview

This utility function is used to check and change measuring instrument settings from this application.

- To use this function, a measuring instrument that can communicate with this application must already have been added to the measuring instrument list section.
  See: Adding a measuring instrument to the measuring instrument list



Compatible measuring instruments

Model number	Model name	Supported version
LR8450	Memory HiLogger	V3.00 or later
LR8101, LR8102	Data Logger	V1.60 or later

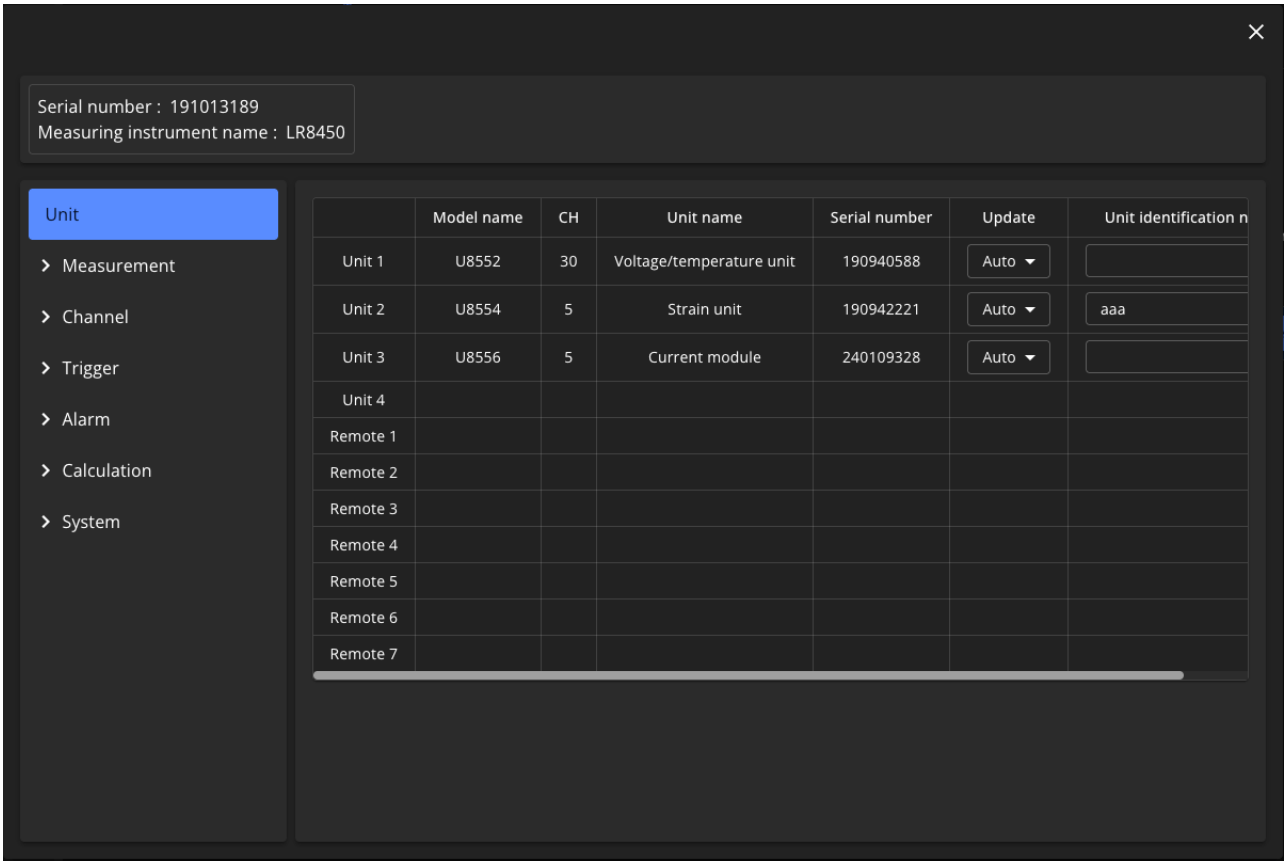
Instructions

1 Click [Instrument settings].

The setting screen of the measuring instrument opens.

- Use this screen to change the settings of the measuring instrument.
- Changes to the settings made on this screen are applied immediately to the measuring instrument.

> If the settings are not applied to the measuring instrument, the measuring instrument automatically returns to the state before the settings were configured.



2 Click the close button ([×]) on the setting screen.

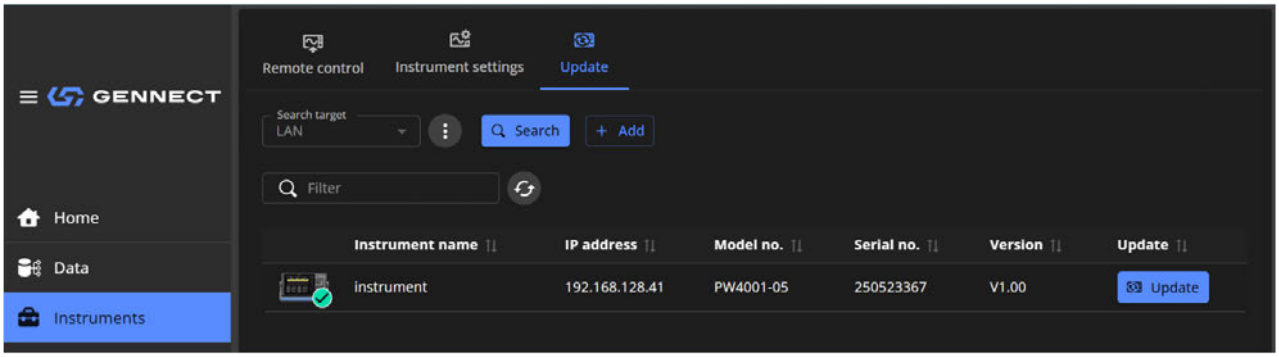
The setting screen of the measuring instrument closes.

8.5 Update

Overview

This utility function is used to check for and update to the latest measuring instrument firmware version from this application.

- To use this function, a measuring instrument that can communicate with this application must already have been added to the measuring instrument list section.
  See: Measuring instrument operation
- To use this function, you must be logged in to Gennect Cloud.
  See: Login
- To use this function, this application must be the latest version.
  See: Checking for updates



Compatible measuring instruments

Model number	Model name	Supported version	Note
LR8450	Memory HiLogger	V2.20 or later	This function is not supported by machines with the following serial numbers. • LR8450: serial numbers 210317114 and earlier • LR8450-01: serial numbers 210322039 and earlier
LR8101 LR8102	Data Logger	V1.50 or later	–

Model number	Model name	Supported version	Note
PW8001	Power Analyzer	V1.50 or later	–
PW4001	Power Analyzer	V1.00 or later	–

Instructions

1 Click [Update].

IMPORTANT

You cannot do this operation if the measuring instrument is already the latest version. The button is enabled when there is a latest version that the measuring instrument can be updated to from its current version.

Start updating the firmware version of the measuring instrument.

⚠ CAUTION

- Never turn off the measuring instrument while you are updating its firmware. Also, do not remove the storage device. If the power supply is turned off, the measuring instrument may stop operating normally, requiring repairs.

- It takes a few minutes to update the firmware of the measuring instrument.
- If the updating of the firmware of the measuring instrument finishes correctly, the message “Updated.” is displayed.
- If the updating of the firmware of the measuring instrument fails, a message showing the reason for the failure is displayed. Follow the on-screen instructions to solve the problem.

2 Check that [Version] in the measuring instrument list has been updated.

- If the updating of the firmware of the measuring instrument finishes correctly, **[Version]** is updated automatically.
- For more information on how to update the measuring instrument list, see **[Update]** in the section on measuring instrument operation.

Tips

You can also check the measuring instrument version by selecting **[Details]** > **[Measuring instrument]** from the right-click menu for measuring instruments.

9 Additional Functions

9.1 Login

When you log in to Gennect Cloud, you gain access from this application to the service that Gennect Cloud provides. The service that you can use from this application is as follows.

Name	Function	Refer to	Recommended license*1
Measuring instrument firmware update	Checks for the latest measuring instrument firmware and updates the measuring instrument.	Update	Free plan or higher

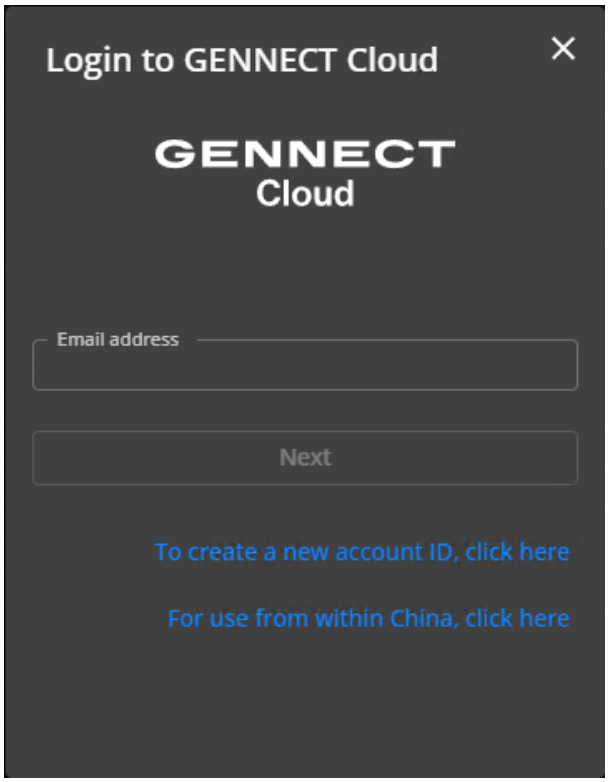
*1: For more information on Gennect Cloud licenses, access the following link.
See: Gennect Cloud Licenses

Logging in to Gennect Cloud

To log in to Gennect Cloud from this application, you need a Gennect Cloud account. You can create a Gennect Cloud account from the Gennect Cloud website.
See: Gennect Cloud Login
For the procedure to follow to make a new account, see the Gennect Cloud online manual.
See: Gennect Cloud Online Manual (Creating a new account)

1 Click the [Login] icon ( ) in the upper-right corner of the application.

The [Login] screen appears.

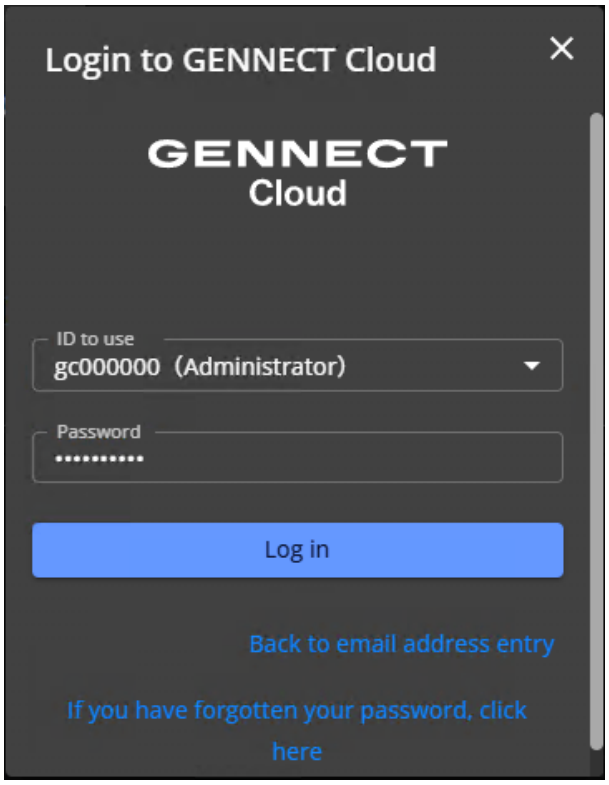


- If someone has already logged in to Gennect Cloud ( ), the information of the logged in user is displayed.
- To use Gennect Cloud services from within China, click **[For use from within China, click here]** and log in.

2 Enter your email address, and then click [Next].

- If no Gennect Cloud account matching the email address is found, the message “Account ID not found. Check the email address.” is displayed. Check the email address or create a new Gennect Cloud account.
  See: Gennect Cloud Online Manual (Creating a new account)

3 Select the [ID to use], enter the [Password], and then click [Log in].



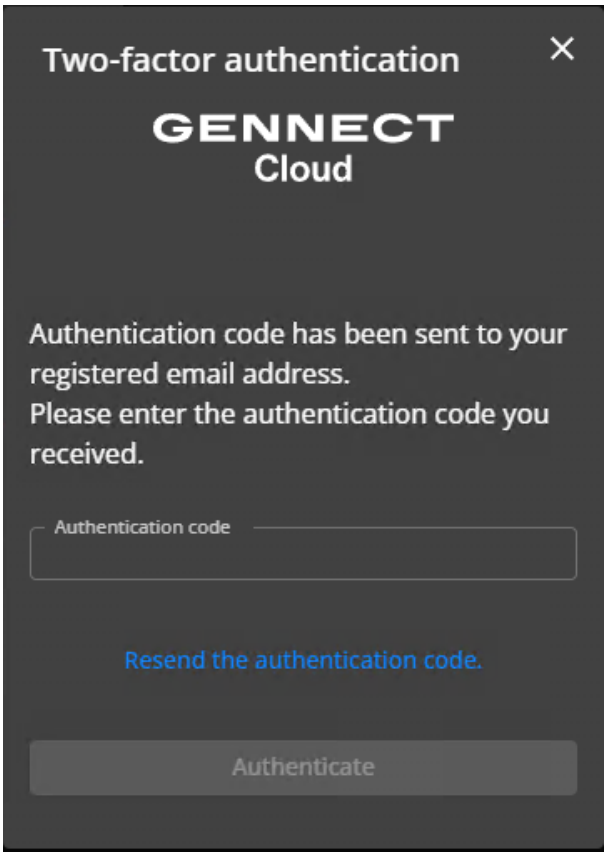
- When you finish logging in, your information (the information of the logged in user) is displayed. Click the [Close] button to close the screen.
- The Login icon changes to indicate that you are logged in ( ).
- If you close the app without logging out, the next time you start the app, it will start in a logged in state. This does not apply if your authentication has expired.

If you've enabled two-factor authentication

If you've enabled two-factor authentication, a window asking you to enter an authentication code will be displayed.

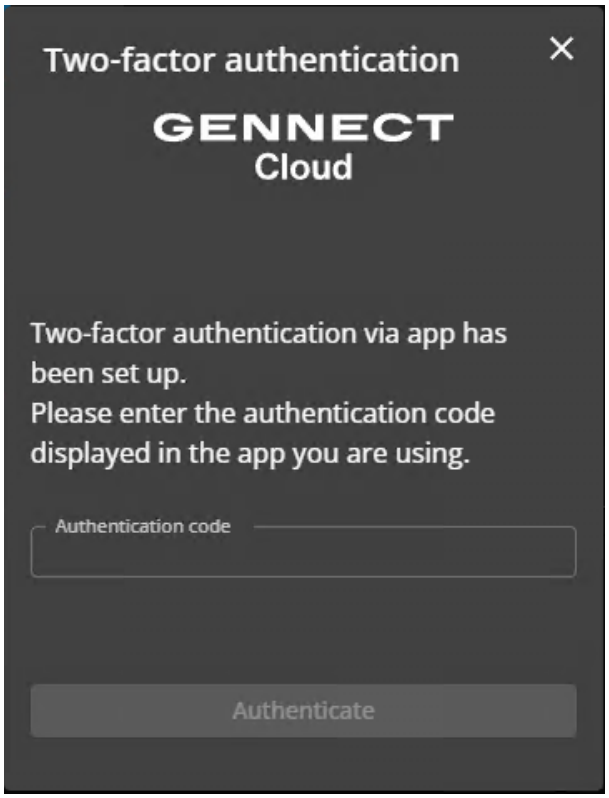
If you've enabled two-factor authentication using email

- Enter the authentication code that was sent to the email address you registered and click **[Authenticate]**.
- If you want to resend the authentication code, click on **[Resend the Authentication Code]**.



If you've enabled two-factor authentication using an app

- Enter the authentication code displayed by the two-factor authentication app you're using (Authy, etc.) and click **[Authenticate]**.



> For more information about how to enable two-factor authentication, please see the Gennect Cloud online help.
> Reference: (Application) Enabling two-factor authentication for a user
> https://www.gennect.net/en/cloud/manual/10-3

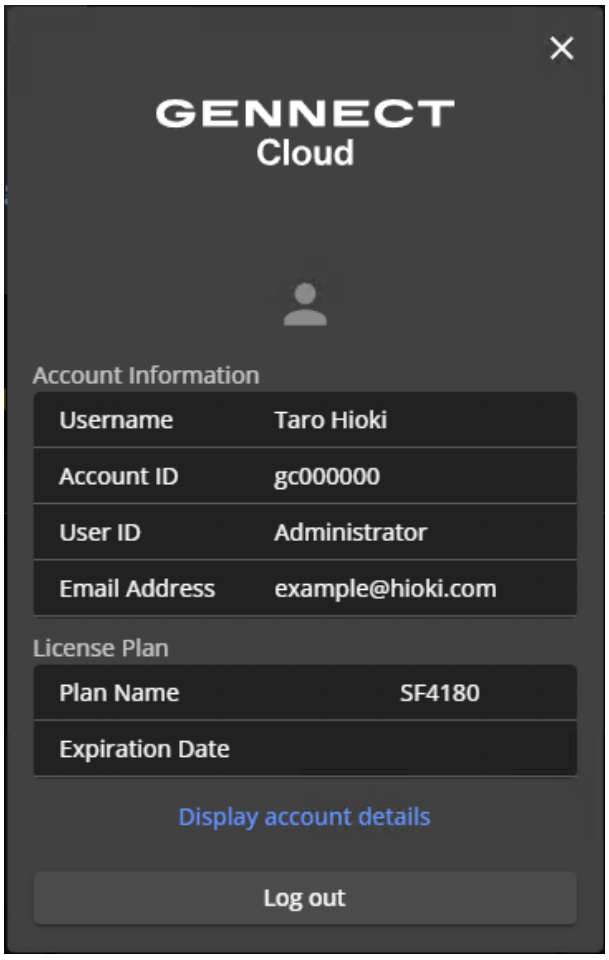
Logging out from Gennect Cloud

1 **Click the [Login] icon ( ) in the upper-right corner of the application.**

- A screen showing the information of the logged in user is displayed.

> - If you have not logged in to Gennect Cloud ( ), switch to the login screen.

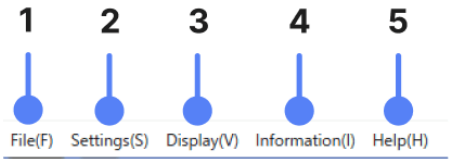
2 **On the screen that displays the information of the logged in user, click [Log out].**



- The Login icon changes to indicate that you are logged out ( ).

9.2 Menu Structure

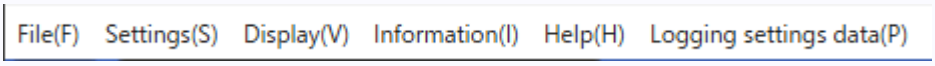
The structure of the application's main menu is as follows.



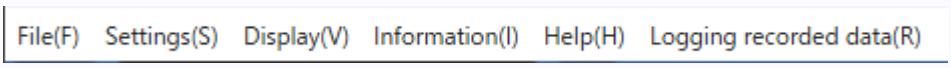
No.	Name	Function	Refer to
1	**File**	Contains **file**-related functions such as one for loading data.	→
2	**Settings**	Contains **setting**-related functions such as one for setting measuring instruments.	→
3	**Display**	Contains **display**-related functions such as one for changing the display language.	→
4	**Information**	Contains **information**-related functions such as one for displaying version information.	→
5	**Help**	Contains **help**-related functions such as one for displaying the instruction manual.	→

As shown below, menu items are added depending on the type of the selected tab when a function tab such as the **[Logging settings data]** tab or the **[Logging recorded data]** tab is selected.

See: Menu structure (logging settings data)



See: Menu structure (logging recorded data)



9.3 File

Overview

You can use the following function with the [File] menu.

No.	Name	Function
1	Import	Imports data such as logging settings data and logging recorded data into the application.

1. Importing data

Imports data such as logging settings data and logging recorded data into the application. The importing of the following data types is supported.

Name	Format
Logging settings data	Folder
Logging recorded data	Folder
Instrument waveform file	BIN file, MEM file

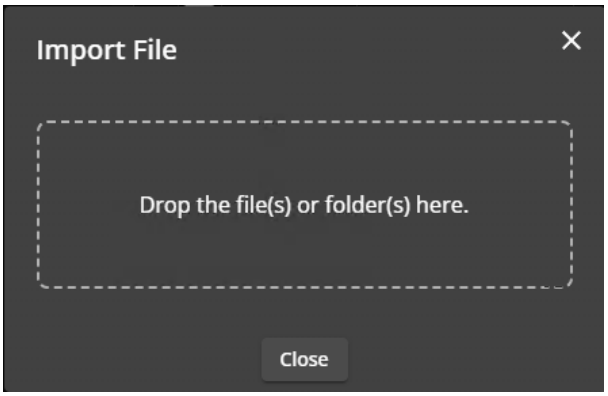
- When you execute [Open] for an instrument waveform file (BIN file, MEM file), it is converted to logging recorded data.
- The supported models for instrument waveform files are LR8450 (V3.00 or later), LR8101 (V1.60 or later), LR8102 (V1.60 or later), PW8001 (V2.60 or later), PW4001 (V1.01 or later), and MR6000 (V4.00 or later).

For information on how to output data for import, see the following section.
See: Operation button section

1 **Click the [File] > [Import] menu.**

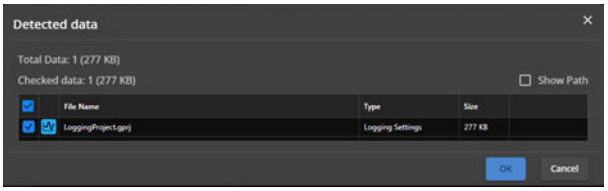
- The [Import data] screen is displayed.

2 Drag the file(s) or folder(s) from the file system to the [Drop the file(s) or folder(s) here.] area.



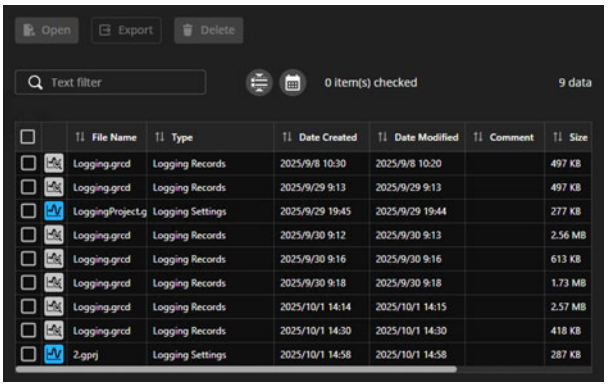
- The analysis of the dropped file(s) or folder(s) starts.
- When the analysis of the dropped file(s) or folder(s) finishes, the [Check data to import] screen is displayed.
- If the analysis takes 1 minute or more, too many files were dropped or there is too much data in the dropped folder (s). Click [Cancel] to cancel the processing and try again.

3 On the [Check data to import] screen, select the data to import, and then click [OK].



- The data that can be imported into this application is detected and listed on the [Check data to import] screen.
- Click [OK] to finish the importing of the data.

4 Check that the data has been added to the list section of the [Data] screen.



- The added data is highlighted.

9.4 Settings

Overview

You can use the following function with the **[Settings]** menu.

No.	Name	Function
1	**Measuring instrument**	Displays the screen for setting the measuring instrument.
2	**Application software**	Displays the screen for setting this application.
3	**Other settings**	Displays the screen for configuring other settings.

1. Setting the measuring instrument

Displays the screen for setting the measuring instrument.

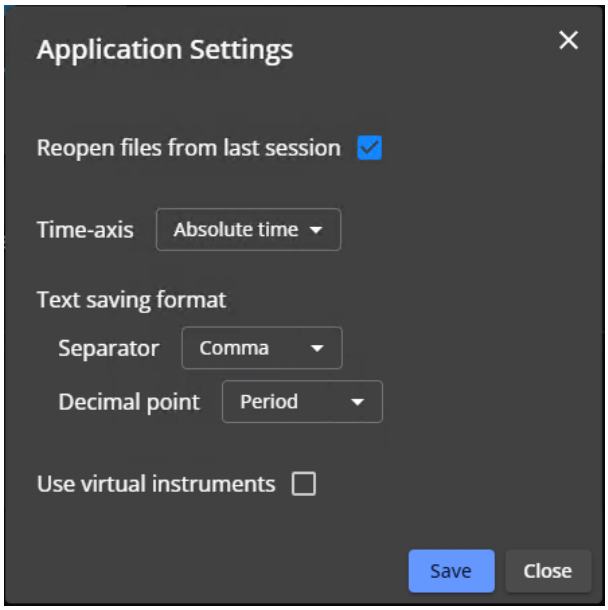
Click the [Settings] > [Measuring instrument] menu.

- The **[Instrument settings]** function of the **[Measuring instrument]** screen is displayed. For instructions, see the following section.
  See: Instrument Settings

2. Setting the application

Displays the screen for setting this application.

Click the [Settings] > [Application] menu.



Name	Function
Open previously open data on startup	When this checkbox is selected, the previously open data is recovered on startup.
Time-axis	Selects the format of the time axis to use in this application.
Text saving format	Selects the text saving format to use in this application. ·Separator ·Decimal point
Use virtual instruments	When this checkbox is selected, you can choose whether to use virtual instruments.

3. Configuring other settings

Displays the screen for configuring other settings. You can use the following function.

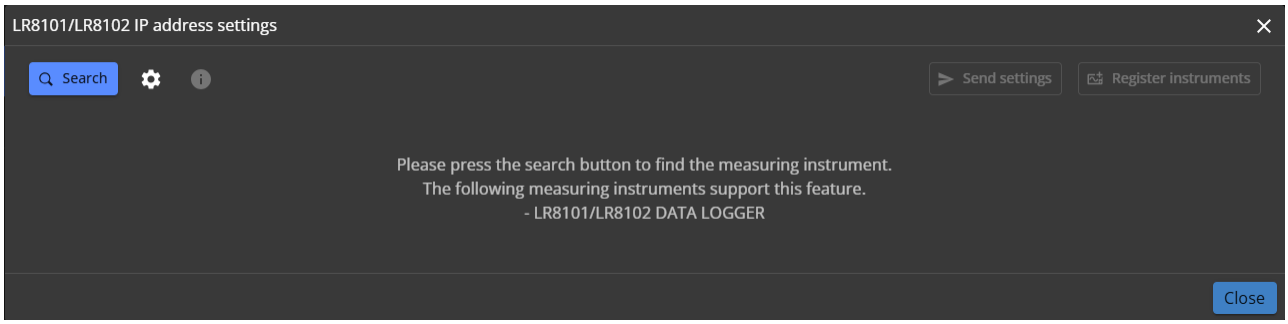
No.	Name	Function	Refer to
1	LR8101/LR8102 IP address	Sets the IP address and subnet mask of the LR8101 or LR8102 from this application.	→

Setting the IP address of the LR8101/LR8102

Use a LAN cable to connect the [LAN1] interface of the LR8101 or LR8102 to the computer, and then turn the measuring instrument on.

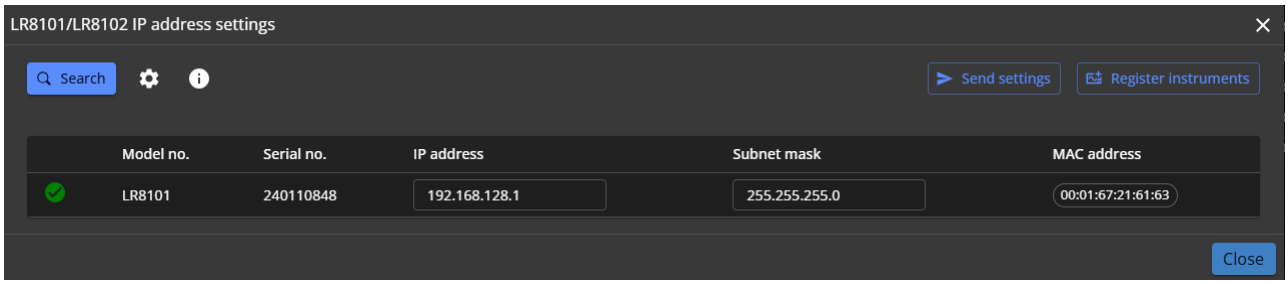
1 **Click the [Settings] > [Other] > [LR8101/LR8102 IP address] menu.**

A screen for setting the IP address of the LR8101 or LR8102 is displayed.



2 Click [Search].

The list is updated to include the LR8101 and LR8102 devices found on the network.

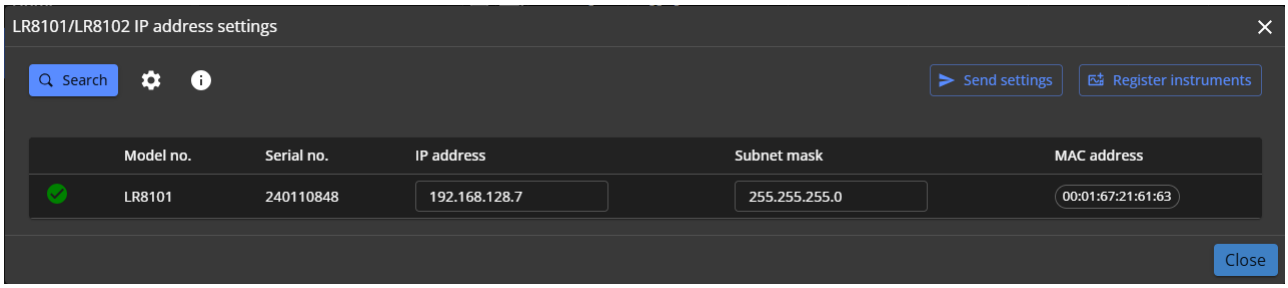


- If an LR8101 or LR8102 is found, the network information of the computer with the measuring instrument is displayed in the ⓘ icon part.
- Click the ⚙ button to display a screen from which you can set the search time. If it is difficult to find the LR8101 and LR8102 devices, setting a longer search time (such as 5000 milliseconds) may make it possible to find them.
- The following communication statuses are displayed according to the state of the measuring instrument.

	Explanation	Note
✓	Communication has been confirmed with the measuring instrument.	The measuring instrument can be added to this application.
✗	Communication could not be confirmed with the measuring instrument.	Moving the mouse pointer over the icon displays a message. Paying attention to the details of the message, set the IP address and subnet mask of the measuring instrument.

3 Edit the [IP address] and [Subnet mask] settings, and then click [Send settings].

The network settings are applied to the LR8101 or LR8102.



- If the computer and the LR8101 or LR8102 have the same IP address, it will not be possible to find the measuring instrument.
- You are recommended to set the IP address of the computer to something other than the factory-default IP address of the LR8101 and LR8102 (192.168.1.2) in advance.

4 Click [Register measuring instruments].

The LR8101 or LR8102 with the set IP address is added to this application.

5 Click [Close] or the close button ([×]).

This screen closes.

9.5 Display

Overview

You can use the following functions with the **[Display]** menu.

No.	Name	Function
1	**Language**	Changes the display language of the application.
2	**Appearance**	Changes the appearance of the application.

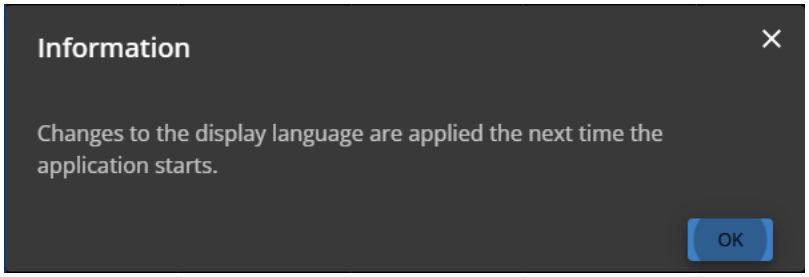
1. Changing the display language

Changes the display language of the application. The following languages are supported. Changes to the display language are applied the next time the application starts.

Name	Description
Auto	The display language of the application is selected automatically from the locale information of the OS. If this information does not match the languages supported by the application, English is selected.
Japanese	Changes the display language of the application to Japanese.
English	Changes the display language of the application to English.
Chinese (simplified)	Changes the display language of the application to Chinese (simplified).

Click the [Display] > [Language] menu, and then select the language.

- The following message is displayed.



- Click [OK]. Changes to the display language are applied the next time the application starts.

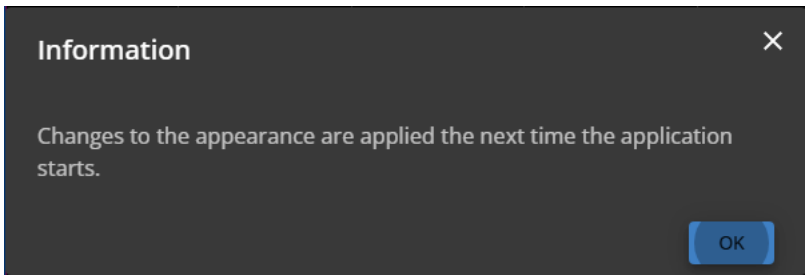
2. Changing the appearance

Changes the appearance of the application. Changes to the appearance are applied the next time the application starts.

Name	Description
Dark mode	Changes the appearance of the application to dark mode.
Light mode	Changes the appearance of the application to light mode.

Click the [Display] > [Appearance] menu and then select the appearance.

- The following message is displayed.



- Click [OK]. Changes to the appearance are applied the next time the application starts.

9.6 Information

Overview

You can use the following functions with the **[Information]** menu.

No.	Name	Function
1	**Version**	Displays the version information of the application.
2	**Check for update**	Determines whether the application is the latest version. If the latest version is available for use, you can update the application to this version.
3	**Inquiries**	Displays the inquiry form. You can use this form to transmit your comments and requests regarding this application.
4	**Privacy policy**	Displays the privacy policy.

1. Displaying the version information

Displays the version information of the application. You can also view the license agreement for this application and the license information for the open source software used.

Click the [Information] > [Version] menu.

- The version information of the application is displayed.
- Click the **[License Agreement]** button to display the license agreement for this application.
- Click the **[Open Source Licenses]** button to display the open source license information used in this application.
- Click the **[Close]** button to close the screen.



2. Checking for updates

Determines whether the application is the latest version. If the latest version is available for use, you can update the application to this version. To use this function, you require an Internet connection.

Click the [Information] > [Check for update] menu.

- If the application is already the latest version, the message **"The application is the latest version (Vx.xx)."** is displayed.
- If the latest version of the application is available for use, the message **"The latest version of the application (Vx.xx) is available. Do you want to download it?"** is displayed.
- Click **[OK]** to start the download. If you will not download the latest version, click **[Cancel]**.
- When the download finishes, the message **"When you exit the application, the installer will start. Exit the application."** is displayed. Click **[OK]**, and then exit the application.

Tips

The application automatically checks for updates on launch.

- To disable the message display on launch, click the **[Don't notify this version]** button. In this case, the message will not be displayed on launch until the next version is released.

3. Transmitting comments and requests

Displays the inquiry form. You can use this form to transmit your comments and requests regarding this application. To use this function, you require an Internet connection.

Click the [Information] > [Inquiries] menu.

- The inquiry form is displayed in the web browser of your computer.
- Enter the required information in the inquiry form, and then transmit it.

4. Displaying the privacy policy

Displays the privacy policy. To use this function, you require an Internet connection.

Click the [Information] > [Privacy policy] menu.

- The privacy policy is displayed in the web browser of your computer.

9.7 Help

Overview

You can use the following functions with the **[Help]** menu.

No.	Name	Function
1	**User manual**	Displays the user manual for the application (PDF version).
2	**Online manual**	Displays the online manual for the application.

1. Displaying the user manual

Displays the user manual for the application (PDF version).

Click the [Help] > [User manual] menu.

- If you are connected to the internet, the online version of the user manual (PDF) will be displayed in the PDF viewer or browser set up on your computer.
  If you are not connected to the internet, the offline version of the user manual (PDF) will be displayed.

2. Displaying the online manual

Displays the online manual of the application.
To display the online manual, you require an Internet connection.

Click the [Help] > [Online manual] menu.

- The online manual will be displayed in your computer's browser.

10 Maintenance and Support

10.1 Frequently Asked Questions

Q. What is the operating environment (such as the OS and the PC specifications)?

- A. For the operating environment of this application, see the following sections.
  Operating environment (recommended)
  Operating environment (minimum)

Q. What cameras can be used in the camera panel?

- A. For the cameras whose operation has been confirmed in combination with this application, see the following section.
  Camera

Q. What precautions should be taken when recording camera video?

- A. When recording camera video, please note the following points.
  - Ensure that the usage environment (temperature, humidity, vibration, etc.) is within the camera's specifications.
  - Ensure that the camera settings (resolution, frame rate) are within the camera's specifications.
  - Using a USB hub may result in insufficient power.
  - USB port power supply may become unstable. This can sometimes be resolved by disabling Windows USB selective suspend settings or USB root hub power management.

How to Disable USB Selective Suspend (Windows 11)

1. Open **[Control Panel]**, then go to **[Hardware and Sound]** → **[Power Options]**.
2. Click **[Change plan settings]** for the currently selected power plan.
3. Click **[Change advanced power settings]**.
4. Expand **[USB settings]** → **[USB selective suspend setting]**, change the setting from **[Enabled]** to **[Disabled]**, and click Apply.

How to Disable USB Root Hub Power Management (Windows 11)

1. Open **[Device Manager]**, then expand **[Universal Serial Bus controllers]** and double-click **[USB Root Hub]**.
2. On the **[Power Management]** tab, uncheck **[Allow the computer to turn off this device to save power]**.

Q. How much time difference is there between recorded measurement data and camera video?

- A. The displayed camera image has the following time lag relative to the measurement data. (Actual measurement results from 100 tests per condition in our environment)
  - With 1 camera at 30 fps: 8 ms to 83 ms time difference
  - With 5 cameras at 30 fps: 32 ms to 400 ms time difference

Q. What GPS devices can be used in the map panel?

- A. For the GPS devices whose operation has been confirmed in combination with this application, see the following section.
  GPS devices

Q. What precautions are there when recording for a long time with this application?

- A. When using this application to record for a long time (1 day or more), exercise caution as outlined below.
- Check that the PC is not scheduled to turn off during the recording period due to Windows Update, equipment inspections, etc.
- Disable the sleep and hibernation states of the PC during recording. Also, if using a laptop, keep it open or otherwise ensure that it does not enter the sleep state.
- Disable the low-power function of the PC's hard disk during recording.
- During recording, do not turn the PC off. If using a laptop, you are recommended to use an AC power supply.
- Maintain the network connection between the PC and the measuring instruments during recording.

Q. Can the same instrument be used simultaneously from this application installed on multiple PCs?

- A. No. The instrument can be used from only one PC at a time. If another PC connects while recording is in progress, the recording may stop.

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