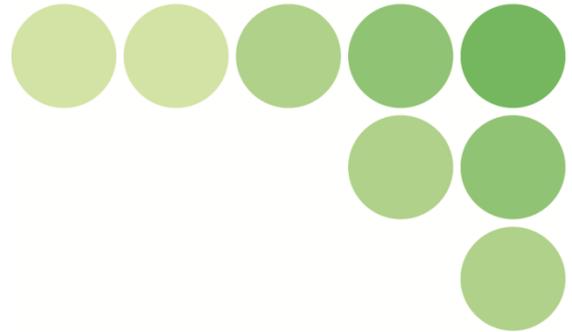


**OMRON**



Graph Viewer Tool  
**EQS-V10-E**  
**EQ-Viewer**

User's Manual

Version 1.1.15

Catalog No. N198-E1-06

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# Introduction

Thank you for using the EQ-Viewer.

The EQ-Viewer is an integrated software package that achieves visualizing energy control such as data collecting settings of Sensor Network Server EQ100 and EQ Server, registration, function settings, and chart display of measured data of various measurement devices.

\* To use the EQ-Viewer, devices such as EQ100 and measurement device are required.

For information on EQ100 and measurement devices, refer to our website.

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# Safety Precautions

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## Note regarding the environment of usage

Consider the following in using the Software:

- The character code for the file output by the Software is UTF-8. To reference the output file, use an application compatible with UTF-8 (for Excel, use Excel 2003 or later.)
- This Software and ECO monozukuri (manufacturing) support tool "EQ Watcher" cannot be used on the same computer. Be sure to uninstall the Software before installing "EQ-Watcher".
- The configured, measured or created data using the following software cannot be moved to this Software or referred to with this Software.
  - EasyEW Series
  - EasyKM Series
  - Multi Data Viewer Light
  - Station Utility
  - Wave Inspire

## Note regarding other units of equipment

- Before using the Software, each unit of equipment and wiring has been installed and necessary software products have been installed.
- This Software does not support EW700-M20L and EW700-P40L.
- This Software does not allow the user to perform initial settings of measurement devices to be connected to the EQ100.

# Meanings of Alert Symbols

To use the Software correctly, this manual indicates the following symbols. Also read other safety precautions before use.

## Precautions for Correct Use

This indicates items which need to be carried out or avoided for the safe use of the Software.

## Precautions

## Reference

They refer to details equivalent to usage advice and Precautions for Correct Use.

[                    ]

The menu items and buttons displayed on the Software are enclosed in parentheses [ ].

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- Note that there may be a slight difference in the illustrations in this manual.

## Definition of Terms

Shown below are terms related to EQ-Viewer.

Term	Description
Measured Value	A measured value itself. One that is not handled as data by a collecting device or a computer yet.
Integrated Value	A measured value that is integrated, such as electric energy and gas flow rate.
Instantaneous Value	A measured value that is not integrated, as such as temperature and humidity.
Measured Data	Data digitized from a measured value collected from a measurement device.
Energy Data	Data that can be converted into energy value, such as electric energy. It applies to some measured data that can be integrated.
Data Type	A data type defines a unit of data, summary method, or discrimination of integral and instantaneous values. For detailed data types, see "9.5.3 Data Type List" (p9-53.).
Summary	To summarize data based on a time unit defined as a summary interval. For an integrated value, the sum is used. For an instantaneous value, either of an average, maximum, or minimum value is used as a representative value.
Summary Data	Data summarized by a summary process.
Summary Interval	A unit of time to view a graph of summary data by EQ-GraphViewer.
Energy consumption	Energy consumption is the amount of energy of production necessary to produce fixed quantities.
Channel	An item of data to collect from a measurement device or a collecting device by EQ-Viewer. EQ100 has following two channels: - Measurement Channel - Operation Channel
Measurement Channel	A channel collected data from a measurement device. Included are electric energy, pulse, temperature, and foreign object amount from measurement devices.
Operation Channel	A channel created through arithmetic operations based on a measurement channel by EQ100. Included are free operation channel and basic unit operation channel.
Channel Group	A grouping to manage channels together in a production line, on a floor, and/or a building.
Measurement Device	Measurement devices include a sensor that directly measures a physical value such as electric energy, temperature, and humidity, and devices that does not directly measure a physical value but connects to EQ100 and provides data from a sensor for EQ100 (e.g. PLC and ZN-KMX21), having a measurement channel.
Connection Device	A device that is connected to EQ100 and provides data from a measurement device but does not have a measurement channel and wireless-relays data from a measurement device (e.g. WZ-MLAN01).
Measurement Device	A device that collects, stores, and sends data from a measurement device to the upper level system. For EQ-Viewer, it is EQ100.
Control Value	A threshold value to manage a range of values for each channel, defined as an upper and/or lower limit. When a value is out of the control value, the monitoring alarm detects and reports it.
Monitoring Alarm	A function that detects and reports a value exceeding a control value.

Term	Description
Device Alarm	A function that reports an instrument failure, setup/status, device, communications, and/or monitoring process of EQ100.
Periodic Report	A reporting function for alive monitoring.
General-Purpose Input	A contact input to assign a function. In case of EQ100, it is assigned to the pulse input function.
General-Purpose Output	A contact output to assign a function. In case of EQ100, it is used for the monitoring alarm contact output.
Logging	To store data with the time of saving for each measurement cycle.
Summary Data DB	A DB (database) that stores collected and summary data and that is managed by the EQ server.
EQ100 Measurement Cycle	A cycle for EQ100 to collect data from a measurement device.
EQ Server Collecting Interval	A cycle for EQ server to collect data from EQ100.
Collected Data	Data that is collected and saved by a collecting device or software (EQ-ServerService) in a certain cycle.
Collected Data File	A CSV file of data output that is collected and logged by a measurement device or software (EQ-ServerService).
Communication Test	A status to check communications by continuous execution of data collecting from a measurement/collecting device. This does not perform logging.
Project	A file created by EQ-Manager to store configuration information required for operation of EQ100 and EQ server.
EQ Project	A project that describes operation settings of EQ100. It is created by EQ-Manager.
EQ Server	A computer that collects data from EQ100 using EQ-ServerService. It acts as a server under a client-server configuration.
EQ Server Project	A project that describes operation settings of EQ server. It is created by EQ-Manager. It must be created if EQ-GraphViewer is used.
CompoWay/F	OMRON's dedicated serial communications protocol supported by OMRON's component devices.
Web UI Function	A function to view data incorporated into EQ100 main body. It allows a user to view EQ100 status and collected data graph and perform maintenance through a Web browser on a computer.
Windows Services	Application programs that run in the background in a computer to provide basic services. You can start programs automatically after the startup of a computer.

# Manual Revision History

A manual revision symbol is added to the end of the catalog number on the front and back covers.

**Catalog No. N198-E1-01**

↑  
Revision code

Revision code	Date	Revised contents
01	December 2017	First edition
02	September 2019	<p>Changes</p> <ul style="list-style-type: none"> <li>- Added support for the following function codes of Modbus RTU. Coil read (01), input status read (02), input register read (04)</li> <li>- Changed project extension and icon.</li> <li>- Modified so that day of the week should be displayed based on EQ-GraphViewerPro date setting.</li> <li>- Changed the upper limit of favorite items to 30.</li> <li>- Added EW700 compatibility function.</li> <li>- Improved graph view. Changed to display vertical axis tick-mark label as comma-delimited numbers. Changed to display channel name and time and date and measured value on the graph tooltip.</li> <li>- Expanded time zone setting range.</li> <li>- Improved EQ-GraphViewer automatic update.</li> <li>- Fixed the bug that collection from EQ100 stops by double registering of measured value.</li> <li>- Fixed the bug that email characters are garbled in the action setting.</li> </ul>
03	September 2019	Revision with version upgrade (Ver.1.1.10)
04	November 2020	<p>Revision with version upgrade (Ver.1.1.13)</p> <ul style="list-style-type: none"> <li>- Added EW700 compatible CSV import function.</li> <li>- Fixed the bug that EQ ConverterManager can not start project conversion.</li> <li>- Fixed the upper limit of unit numbers for CompoWay/F and Modbus RTU devices.</li> </ul>
05	June 2021	<p>Revision with version upgrade (Ver.1.1.14)</p> <ul style="list-style-type: none"> <li>- Support air flow sensor D6FZ-FGT200, D6FZ-FGT500.</li> </ul>
06	October 2021	<p>Revision with version upgrade (Ver.1.1.15)</p> <ul style="list-style-type: none"> <li>- The number of operation channel inputs has been expanded to 32 channels.</li> </ul>

## Related Manual

Manual Number	Model	Manual Title	Details
N196-E1	Model: EQ100	Sensor Network Server Model: EQ100 User's Manual	Describes EQ100 overview, functions, and settings.

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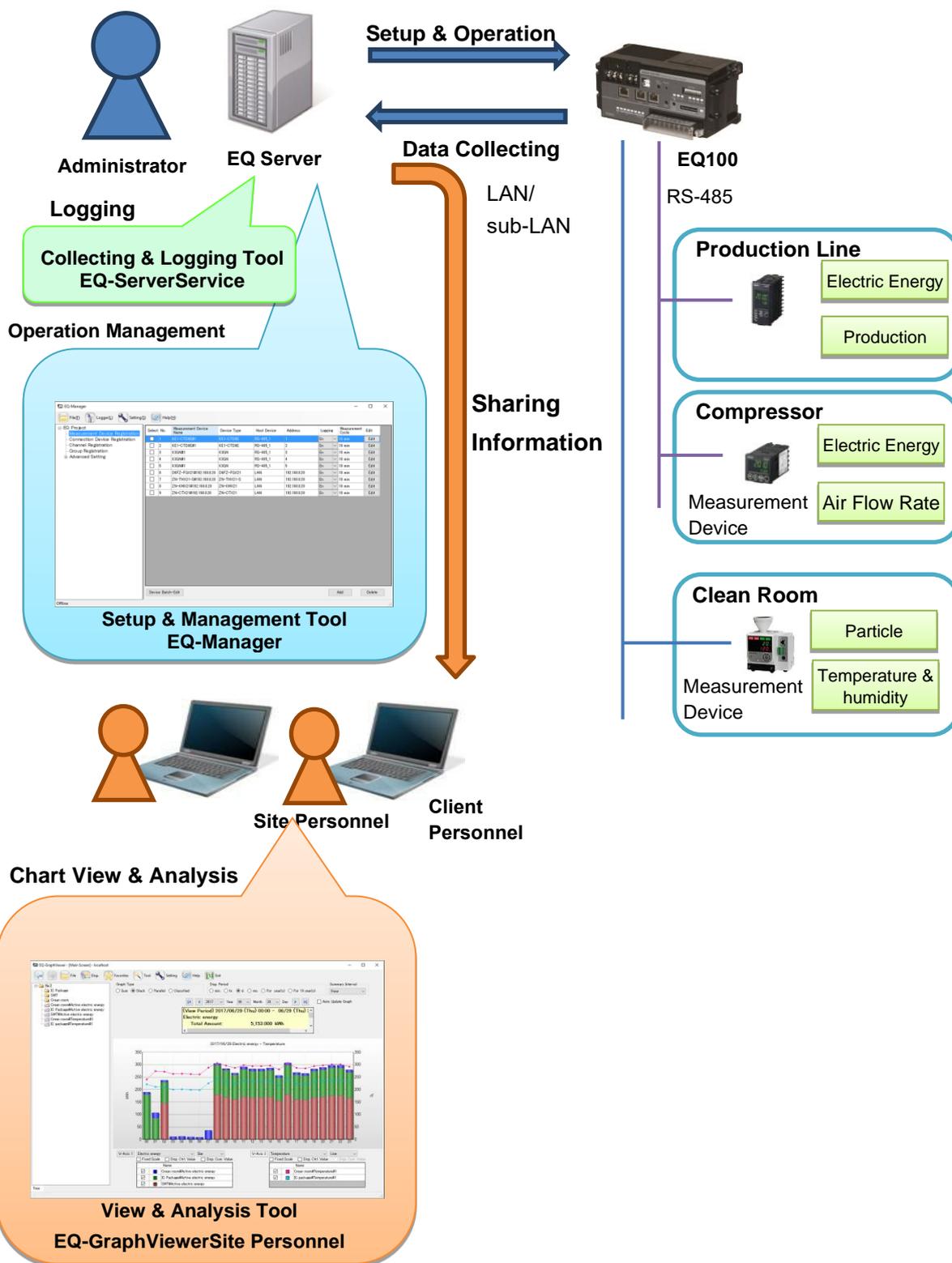
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# 1. EQ-Viewer Overview

## 1.1. Overview

EQ-Viewer is an integrated software package to materialize configuration for sensor network server type EQ100 (hereinafter called EQ100) to collect measurement device data, graph display and analysis of the collected data, and information sharing in an organization. It contributes to materialization of "visualization at the site level" of energy and other environmental data.

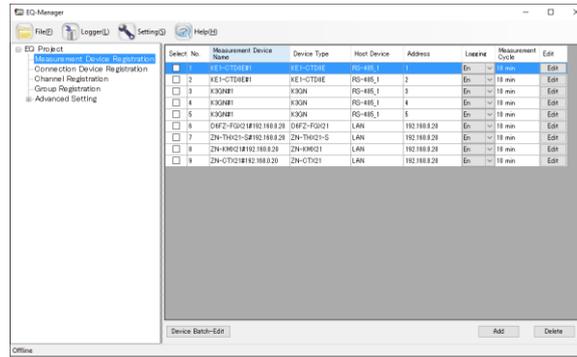


## 1.2. System Configuration

EQ-Viewer includes three software tools; setup & management tool "EQ-Manager", view & analysis tool "EQ-GraphViewer", and collecting & logging tool "EQ-ServerService".

### ■ Setup & Management Tool EQ-Manager

EQ-Manager is software to configure settings and manage operation of EQ100 as well as the EQ server.

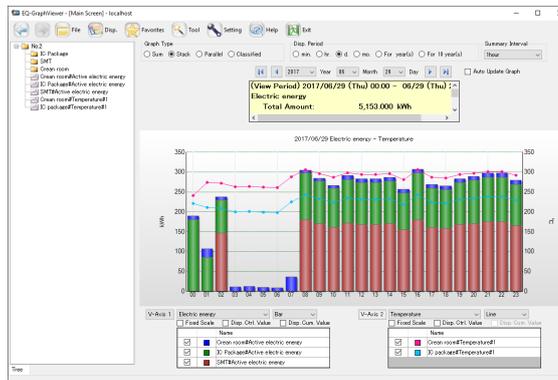


Major functions include:

- Setup:
  - Creation of a setup file (EQ project) to run EQ100
  - Setup file to use EQ-ServerService and EQ-GraphViewer
  - Creation of (EQ server project)
  - Save/write of setup file (EQ project/EQ server project)
- Operation management
  - Start/end of EQ100 communication test
  - Start/end of EQ100 logging
  - Start/end of EQ-ServerService communication test
  - Start/end of EQ-ServerService logging

### ■ View & Analysis Tool EQ-GraphViewer

EQ-GraphViewer is software to make access to the EQ server and to view and analyze data collected and summarized by EQ-ServerService from EQ100.



Major functions include:

- Connection to EQ server
- Main graph display (bar graph/ line graph and summary view)
  - Narrowed-down channel view by measurement channel group
  - Graph view through independent configuration change of view period and summary interval
  - Display of abnormal values by control value view
- Sub-graph view
  - Comparison with past data
  - Comparison with other channel group
- Summary data CSV file output

### ■ Collecting & Logging Tool EQ-ServerService

EQ-ServerService collects and logs data on the EQ server, running as a Windows service in the background.

It connects to EQ100 to collect and log collected data in the specified cycle and saves the data in the summary data DB.

EQ-GraphViewer and EQ-Manager connect to the EQ-ServerService to perform various operations.

Major functions include:

- Automatic collecting/logging of collected data from EQ100
- Creation and management of summary data DB

## 1.3. Major Functions and Overview

### ■EQ-Manager

#### ●EQ100 Setting and Operation and Management (Function Related to EQ Project)

Function		Functional Overview
Setting	EQ Project Creation	You can create setup information to run EQ100 and output as a setup file (EQ project). The outputted EQ project can be loaded via LAN or SD card to EQ100 to configure setup. An EQ project configures the following items: <ul style="list-style-type: none"> <li>• Registration of measurement devices, measurement channels, and groups</li> <li>• Setup for EQ100 to collect measured data</li> <li>• Setup of control values for EQ100 to monitor and report</li> <li>• EQ100 main body system settings</li> </ul>
	Write Settings/ Download Settings	You can register a created EQ project to EQ100 via LAN. You can load and edit EQ100 configuration information as well.
	Communication Test Start/End	You can start and end communication test of EQ100.
Operations and Management	Logging Start/End	You can change an EQ100 status from setting to collecting or from collecting to setting. Collecting Status: Measured data are collected from a measurement device and stored in EQ100. Setting Status: Measured data collecting of EQ100 is stopped.
	Operation Monitor	You can check statuses of EQ100 as well as measurement devices connected to EQ100 during logging or communication test.

#### ●EQ Server Setting and Operation and Management (Function Related to EQ Server Project)

Function		Functional Overview
Setting	EQ Server Project Creation	You can create setup information to run the EQ server and output as a setup file (EQ server project). An EQ server project configures the following items: <ul style="list-style-type: none"> <li>• Registration of collecting device (EQ100) and measurement channels</li> <li>• Setting of group for graph display</li> <li>• Collecting operation setting of EQ server</li> </ul>
	Write Settings/ Download Settings	You can register a created EQ server project to the EQ server. You can load and edit EQ server configuration information as well.
	Communication Test Start/End	You can start and end EQ server communication test.
Operations and Management	Logging Start/Stop	You can start and stop EQ server operations.
	Operation Monitor	You can check statuses of the EQ server as well as EQ100 connected to the EQ server during logging or communication test.
	CSV File Import	You can import EQ100 system internal file via an SD card or FTP.
	Data Maintenance	You can delete a part of data of a collected channel and copy data between channels.

### ■ EQ-GraphViewer

Function		Functional Overview
Graph View	Graph View	You can create a graph of collected data from a measurement device with a selected condition. You can change the graph with the following conditions: - Graph view target (a channel in a group) - Graph type (sum/stack/parallel/classified) - View period (minute/hour/day/month/year/10 years) - Summary interval (1 minute/30 minutes/1 hour/1 day/1 month/1 year) - Data type (electric energy/temperature/base unit, etc.) - Showing/hiding control values
	Graph Comparison	You can compare overlaid graphs of the same measurement point with different date & time or group.
Report Output Function	CSV File Output of Summary Data	You can output summary data file (in CSV) for reference by spreadsheet and other software.
	Graph Report	You can output the displayed graph image to a file or a printer.
	Data Report	You can display graph data being displayed in a table. You can output the data to a file or a printer.

### ■ EQ-ServerService

Function	Functional Overview
Acquisition of Setting Value	You can acquire an EQ server project as configuration information from EQ-Manager.
Collecting Function	You can acquire collected data from EQ100 via LAN in a collecting interval.
Logging Function /Summary Data DB Management Function	You can summarize the acquired collected data and save in the summary data DB on the EQ server. The summary data are provided for EQ-GraphViewer.

#### Reference

- EQ-Manager instructs EQ-ServerService to start/stop logging from EQ100. EQ-GraphViewer makes access to summary data DB in EQ-ServerService and displays the summary data in a graph.
- EQ-ServerService runs as a Windows service in the background. It is automatically started upon startup of the computer and automatically stopped upon shutdown of the computer.

### ■ Other Support Tool

Function	Functional Overview
Change Folder	Changes the data folder of the system.

## 1.4. System Configuration

An EQ-Viewer system configuration depends on a data collecting method from EQ100, the number of computers to view graphs, and usage of the network.

Data collecting methods from EQ100 include: EQ100 and a computer (EQ server) are connected via LAN and automatically collect data, or EQ100 outputs collected data on an SD card which are later imported.

Note that collected data stored in the summary data DB in the EQ server can be shared not only with the EQ server but also with client computers connected to the network.

Described below are typical system configurations:

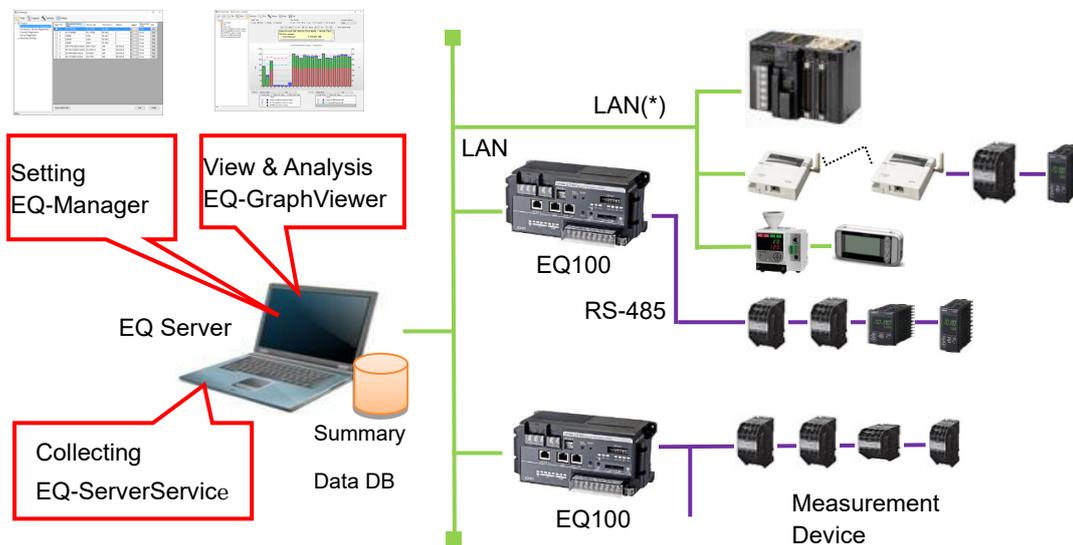
System Configuration	Overview
Standalone Configuration	One computer (EQ server) collects and displays data of EQ100 under this configuration. The EQ server uses EQ-Manager, EQ-ServerService, and EQ-GraphViewer.
Client-Server Configuration	One computer (EQ server) summarizes collected data of EQ100 and shares the summary data with other computers under this configuration. The computers as clients connect to the EQ server and display graphs using EQ-GraphViewer.
EQ100 Offline Configuration	Collected data are outputted in an SD card by EQ100, and the collected data are imported to a computer (EQ server) via the SD card for operation and management. EQ100 and the EQ server do not need connection via LAN for operation and management.  The collected data outputted in an SD card can be imported by EQ-Manager and viewed in a graph by EQ-GraphViewer.

### Precautions for Correct Use

To operate under the standalone or client-server configuration, you must adjust the EQ100 clock to the server's and configure the time synchronization type to the EQ server or SNTP server.

### 1.4.1. Standalone Configuration

One computer (EQ server) collects and displays data of EQ100 under this configuration. EQ100 collects measured data from a measurement device. Then EQ-ServerService collects and stores the collected data from EQ100 in the summary data DB. EQ-GraphViewer makes access to the EQ server and displays the summary data. EQ-ServerService can collect collected data from more than one EQ100 via LAN as well.



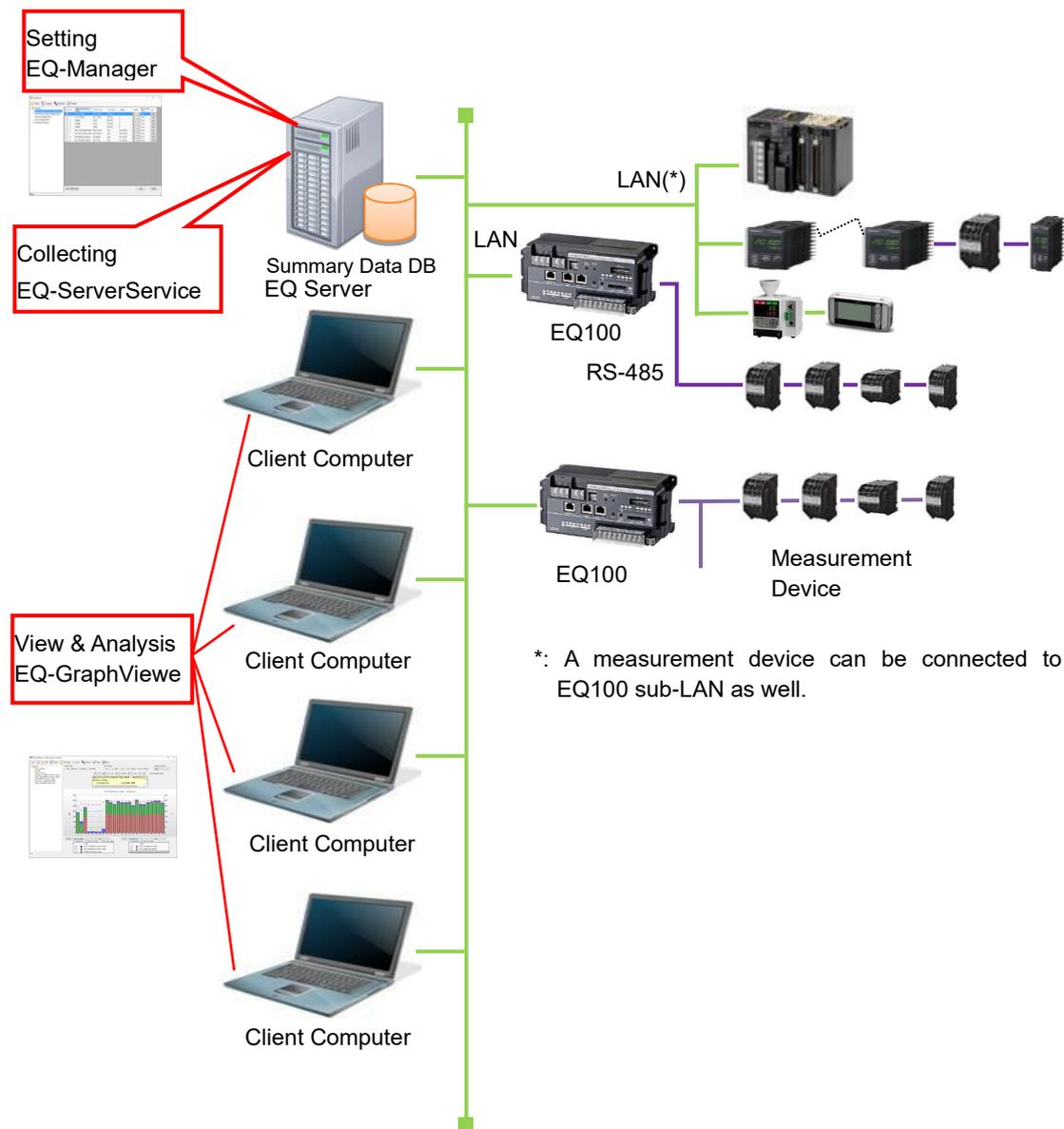
\*: A measurement device can be connected to EQ100 sub-LAN as well.

### 1.4.2. Client-Server Configuration

One server (EQ server) collects collected data of EQ100 and shares the summary data with other computers (client computers) under this configuration.

EQ-ServerService of the EQ server collects and summarizes the collected data from EQ100 and stores the data in the summary data DB. A client computer makes access to the EQ server by EQ-GraphViewer and displays a graph of the summary data.

Under this configuration, one EQ server can connect up to 10 client computers.





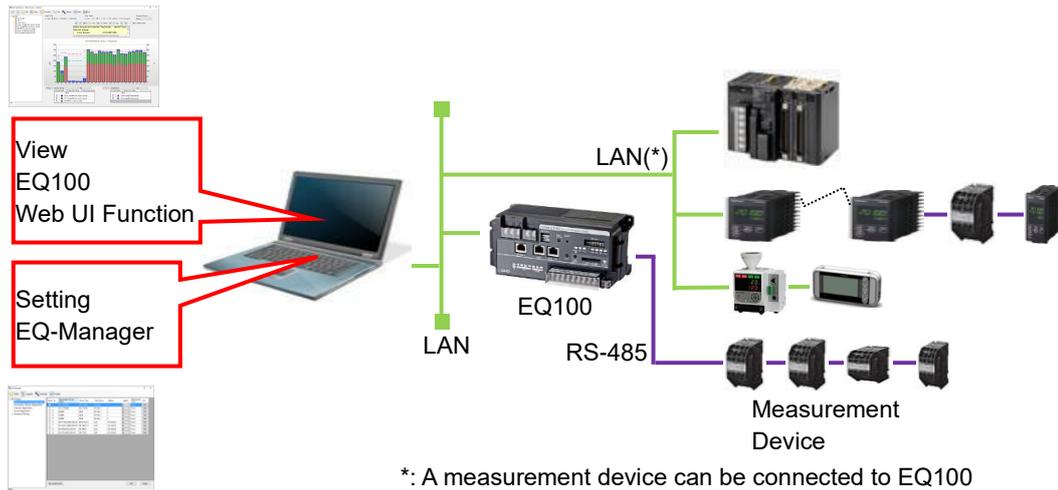
### 1.4.4. Other Configuration Examples

A configuration is available that does not use EQ-GraphViewer after EQ100 settings are configured using EQ-Manager.

■ Configuration to Operate EQ100 and View Simple Graphs on Web Browser

You can connect EQ100 and a computer via LAN to view data of EQ100 using the Web UI function of EQ100. To configure EQ100, use EQ-Manager.

For details, see "EQ100 User's Manual".

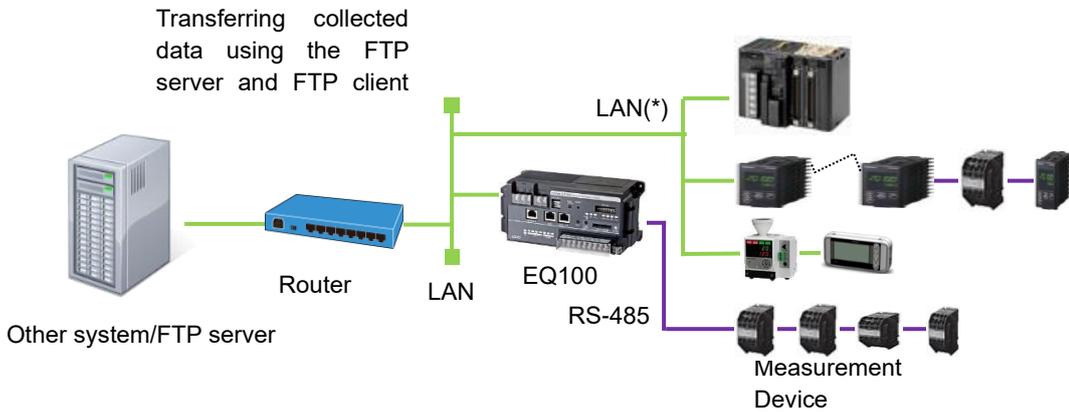


■ Configuration to Transfer Collected Data from EQ100

You can use the FTP server and FTP client functions of EQ100 to transfer collected data.

To configure EQ100, use EQ-Manager.

For details, see "EQ100 User's Manual".



## 1.5. Recommended Operating Environment

Described below is an operating environment for a computer to run EQ-Viewer comfortably. This does not guarantee the operation as memory usage and performance may depend on customer's use environment.

Item	Operating Environment
Supported OS (Required Environment)	Windows 10 32-bit / 64bit Windows Server 2012 R2 64-bit Windows Server 2016, Windows Server 2019 Windows touch panel function is not supported.
CPU	Intel Core i3 2 GHz equivalent or higher
Memory	32-bit: 2 GB or more / 64-bit: 4 GB or more
Screen Size	Resolution of 1024 x 768 pixels or higher, HIGH color 16-bit or higher (full-color environment recommended)
Font Size Settings	For the text size on the display ([Control Panel] - [Appearance and Personalization] - [Make text and other items larger or smaller] for Windows 7), the use of other than [Smaller] is not guaranteed.
HDD	Server computer - Installation capacity: 1 GB or more - Data storage: 400 GB (Reference: A collecting interval of 1 minute with 1000 channels for 3 years)  Client computer - Installation capacity: A free space of 500 MB or more
CD-ROM Drive	For installation
SD Card Slot/ SD Card Reader/Write	Used to: - Write an EQ project file to EQ100 via an SD card - Load data outputted on an SD card from EQ100 to the EQ server under offline
.NET Framework	For Windows 10 and Windows Server 2012 R2, Windows Server 2016, Windows Server 2019 you must enable .NET Framework 3.5.
Adobe Reader	For browsing manuals
Port to Use	4211 (if the same port is used by other software, EQ-ServerService cannot run)

Note: The operating environment described above, except for HDD, is common for every system configuration (client-server and standalone).

## 1.6. Specifications

### ■ Supported Collecting Device

Model	EQ100
-------	-------

### ■ Setup Details to EQ100 (EQ Project)

For details and specifications configurable to an EQ project, see "EQ100 User's Manual", "2. Specifications".

### ■ Setup Details to EQ Server (EQ Server Project)

Item	Details	Specifications
Number of Connections	Number of EQ100 connections	10
Channels Available for Registration	The number of channels that can be collected	2000 If the measurement cycle (*) of EQ100 is 1 minute, specify 1000 or less.
Collecting Interval	A cycle for EQ server to collect data from EQ100.	1 min/5 min/10 min/ 30 min/60 min
Group	The maximum number of groups available for registration	50
	The number of channels per group	50
Data Type	The number of data types available for registration	100
CSV File Import	A CSV file that can be imported	A CSV file outputted by EQ100
Data Maintenance	Management of data of a collected channel	Delete Copy
Project File	An extension of a project file	.eqpj or .pcpj

\* A cycle for EQ100 to collect data from a measurement device.

## ■ EQ-GraphViewer

Item	Details	EQ-Viewer	
Graph View	Graph type	Bar graph or line graph	
	The number of vertical axes	Up to 2 axes	
	Maximum measurement channels to view simultaneously	50	
	Graph type	Sum/stack/parallel/classified	
	Disp. period	Minute/hour/day/month/year/10 years	
	Summary interval (On a view period basis)	Minutely	Do not summarize
		Hourly	for 1 minute
Daily		1 min/30 min/1 hour	
Monthly		30 min/1 hour/1 day	
Yearly		1 day/1 month	
	For 10 years	1 month/1 year	
Automatic Graph Update	Refresh cycle if automatic update configured	1 minute	
Favorite Registration	The number of graph view conditions available for registration	10 conditions	
Data Comparison View	The number of graphs to compare by changing group/hour	2 graphs	
Print	Graph printing	Graph/parameters are printed	
	Data printing	Data list is printed	
File Output	File format	CSV	
	Character code	System encoding/UTF-8	
Connected Clients	The process number of EQ-GraphViewers that can be connected to the server under the client-server configuration	10 clients	

## 1.7. Processing Time

Shown below are processing time periods required to collect and summarize collected data stored in EQ100 if logging has been stopped for a certain period of time by EQ-ServerService. EQ-GraphViewer cannot display data until summary is completed for the data.

Depending on customer's computer environment, a collecting period, and system configuration, time to process may vary. Shown below are processing time periods measured in our environment:

### ■ Our Computer Environment Used for Measurement

OS	Windows 7 32bit
CPU	Intel Core i3 2.4GHz
Memory	2GB

### ■ Processing Time

#### ● Logging Online

Typically data are collected and summarized in several seconds for each collecting interval if EQ-ServerService is continuously running and logging. If logging is started after it was stopped by EQ-ServerService, it will take time to collect and summarize data stored in EQ100.

Time to complete the collecting and summary processes may vary depending on stored data amount. In case of 100 channels and measurement cycle of 1 minute, the time will be:

Stored Period in EQ100 (Uncollecting period by the server in the collecting data of EQ100)	1 day	5 days	10 days
Collecting Time 100 channels, with collecting data	5 minutes	25 minutes	50 minutes
Collecting Time 100 channels, without collecting data	2 minutes	5 minutes	10 minutes

### Precautions for Correct Use

- If the EQ100 version is older one (than 1.0.3), it will take 12 minutes for 1-day data stored in EQ100 regardless of channels, data measurement cycle, or data existence. (For how to check the version of EQ100, see "EQ100 User's Manual".)

#### ● CSV Import

Shown below are processing time periods for EQ-Manager to import collected data outputted on an SD card by EQ100.

<Collected Data Conditions>

The number of EQ100 units : 1 unit

Measurement Cycle : 10 minutes

Channels : 500 channels

Stored Period in EQ100	1 day	5 days	10 days
Import Time	2 minutes	4 minutes	6 minutes

## 1.8. Preparation

To use EQ-Viewer, the following items are separately required.

Preparation	Description
Measurement Device	Measurement devices include devices and PLCs that have a measurement channel such as power monitor, particle sensor, and temperature controller. For supported measurement devices of EQ100, see "EQ-Viewer User's Manual", supported device list.
Collecting Device	A device (EQ100) that collects and operates measured data of a measurement device.
Computer	A computer is required to install software. For a standalone configuration or EQ100 offline configuration, one computer (EQ server) is used. For a client-server configuration, one computer for EQ server and computers for required clients are used.
Memory Card	SD card or SDHC card. Required to write an EQ project file to EQ100. It is required for an offline configuration to collect data collected in EQ100 to the EQ server as well. For a system configuration that collects data from EQ100 via LAN, it is recommended to attach an SD card to EQ100 to save data for backup. For supported memory cards, see "EQ100 User's Manual".

<b>Reference</b>
------------------

For initial setting of measurement devices, operate the device itself or use the dedicated setup tool. You cannot use EQ-Viewer for the initial setting.

For how to configure the settings, see "EQ100 User's Manual".

## 2. Steps before Operation and Management

This chapter describes steps from introduction of EQ-Viewer to its operation and management. The description starts from the point the installation and wiring of EQ100 as well as installation, wiring and setup of measurement devices have been completed.

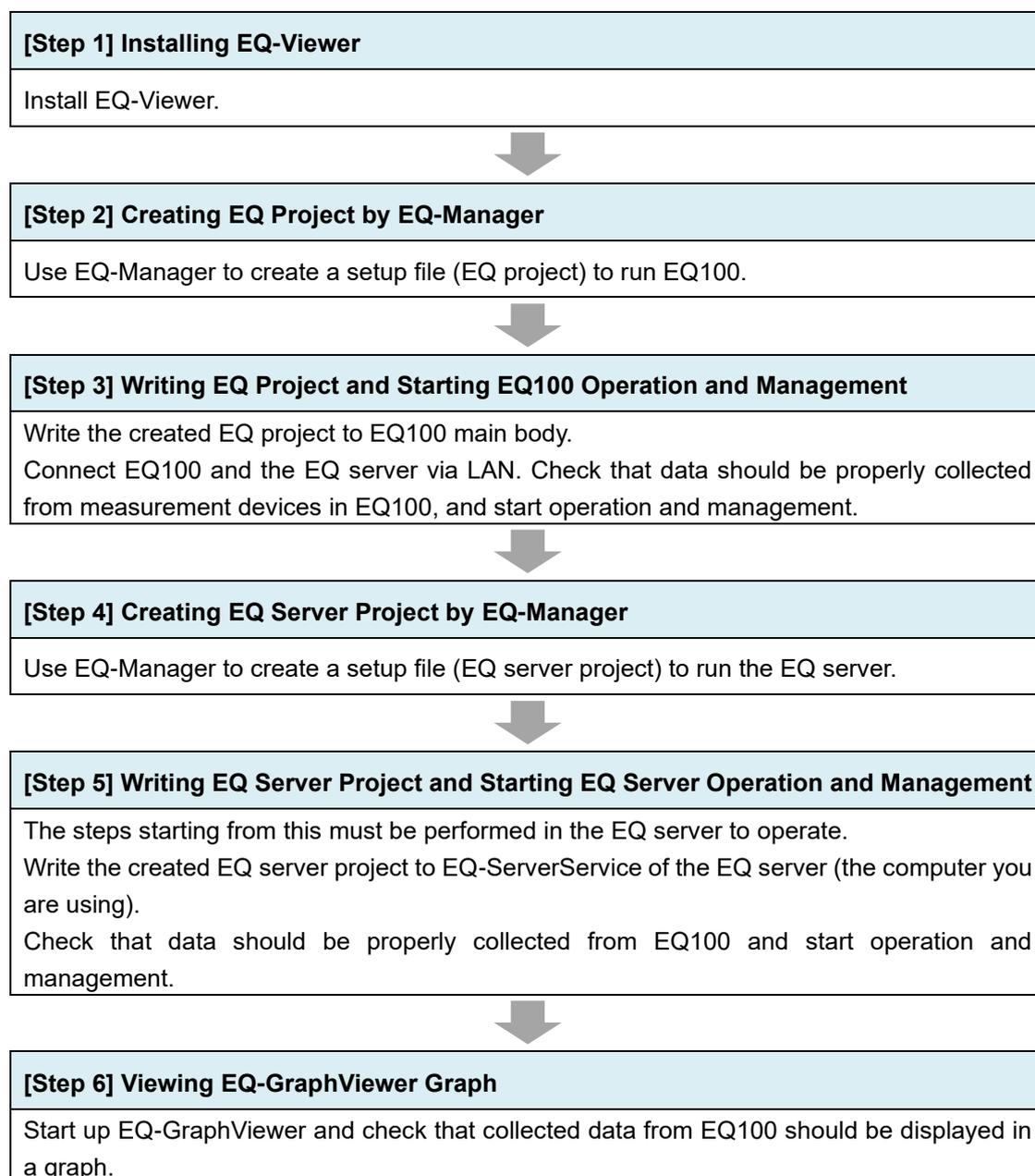
The steps before operation and management may differ depending on a system configuration.

### 2.1. Steps on a System Configuration Basis

#### ■ Standalone Configuration

Perform the following steps for operation and management for a computer under the standalone configuration.

For details, see "2.2 Steps for Operation and Management of Server in Standalone Configuration or Client-Server Configuration" (p.2-4).



## 2.Steps before Operation and Management

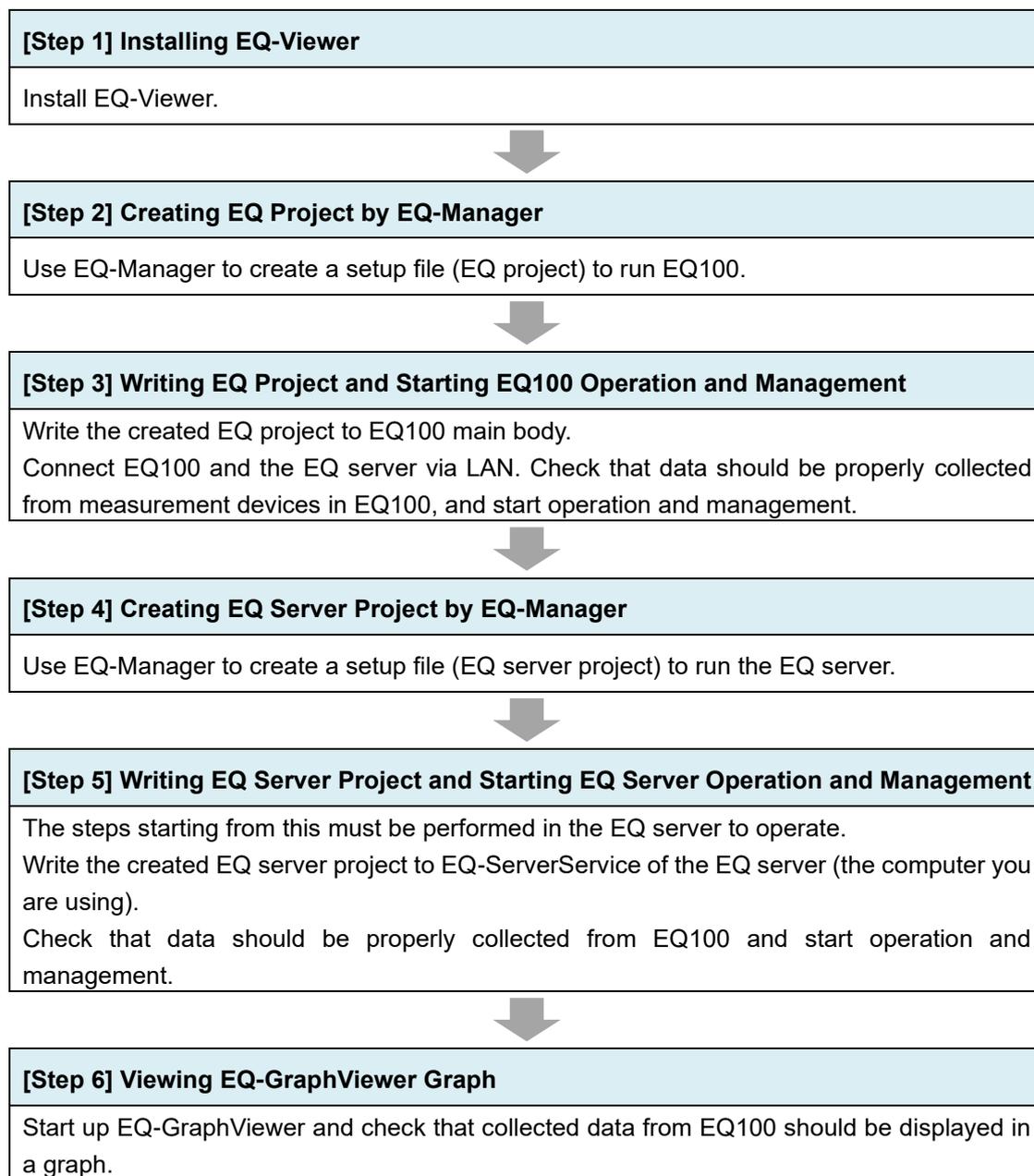
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### ■ Client-Server Configuration

#### ● EQ Server

Perform the following steps for operation and management for the server under the client-server configuration.

For details, see "2.2 Steps for Operation and Management of Server in Standalone Configuration or Client-Server Configuration" (p.2-4).



#### ● Client Computer

Perform the following steps for operation and management for the computers as clients under the client-server configuration.

For details, see "2.3 Steps for Operation and Management of Client in Client-Server Configuration" (p.2-23).

## 2.Steps before Operation and Management

### **[Step 1] Installing EQ-Viewer**

Install EQ-Viewer.



### **[Step 2] Viewing EQ-GraphViewer Graph**

Start up EQ-GraphViewer and connect to the EQ server. Check that a client computer should be able to display a graph of collected data from EQ100 by the EQ server.

### ■ EQ100 Offline Configuration

For details, see "2.4 Steps for Operation and Management of Offline Configuration" (p.2-25).

### **[Step 1] Installing EQ-Viewer**

Install EQ-Viewer.



### **[Step 2] Creating EQ Project by EQ-Manager**

Use EQ-Manager to create a setup file (EQ project) to run EQ100.



### **[Step 3] Writing EQ Project and Starting EQ100 Operation and Management**

Write the created EQ project to EQ100 main body.  
Connect EQ100 and the EQ server via LAN. Check that data should be properly collected from measurement devices in EQ100, and start operation and management.



### **[Step 4] Creating EQ Server Project by EQ-Manager**

Use EQ-Manager to create a setup file (EQ server project) to run the EQ server.



### **[Step 5] Writing EQ Server Project**

The steps starting from this must be performed in the EQ server to perform CSV import.  
Write the created EQ server project to EQ-ServerService of the EQ server (the computer you are using).



### **[Step 6] CSV Import via SD Card**

Output collected data (CSV file) of EQ100 to an SD card. Use EQ-Manager to select a CSV file to import, and perform import to the EQ server.



### **[Step 7] Viewing EQ-GraphViewer Graph**

Start up EQ-GraphViewer and check that collected data from EQ100 via SD card should be displayed in a graph.

## 2.2. Steps for Operation and Management of Server in Standalone Configuration or Client-Server Configuration

### [Step 1] Installing EQ-Viewer

Install EQ-Viewer.

Install EQ-Manager, EQ-GraphViewer, and EQ-ServerService at the same time in a computer (or the EQ server in case of client-server configuration).



**Refer to** "3.1 Installation" (p.3-1)



### [Step 2] Creating EQ Project by EQ-Manager

Use EQ-Manager to create a project.

A project is a file containing configuration information to operate EQ100. There are following two types of project:

**EQ Project:** An EQ project contains configuration information to operate EQ100. An EQ project is created by EQ-Manager to write to EQ100. If there are more than one EQ100, a project must be created for each EQ100.

**EQ Server Project:** An EQ server project contains configuration information to operate the EQ server. An EQ server project is created by EQ-Manager to write to the EQ server. Even if there are more than one EQ100, configuration information is added to one project for EQ100 units.

In these steps an EQ project of EQ100 is created.

The description (**Mandatory**) indicates an item that must be configured to operate EQ100.

The description (**Optional**) indicates an item to configure if necessary.

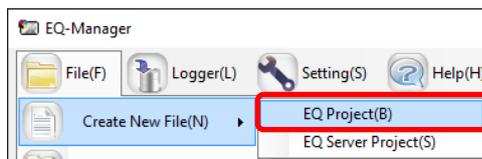
(1) Start up EQ-Manager

Double-click the EQ-Manager icon on the desktop, or press the Windows Start button, and click [All Programs] - [OMRON EQ-Viewer] - [EQ-Manager].

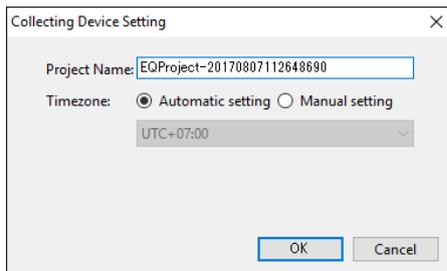
## 2.Steps before Operation and Management

### (2) Create a new EQ project

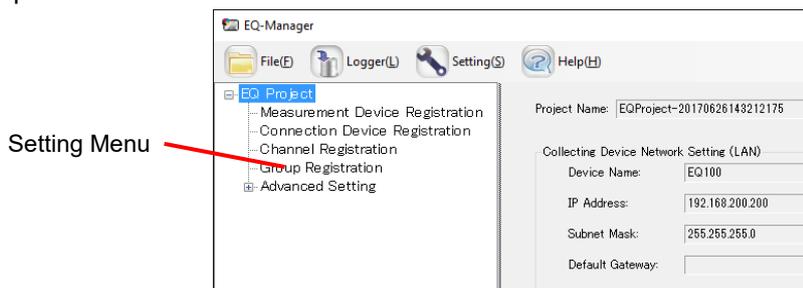
1. On the EQ-Manager toolbar, click [File] - [Create New File] - [EQ Project].



2. Specify a project name.

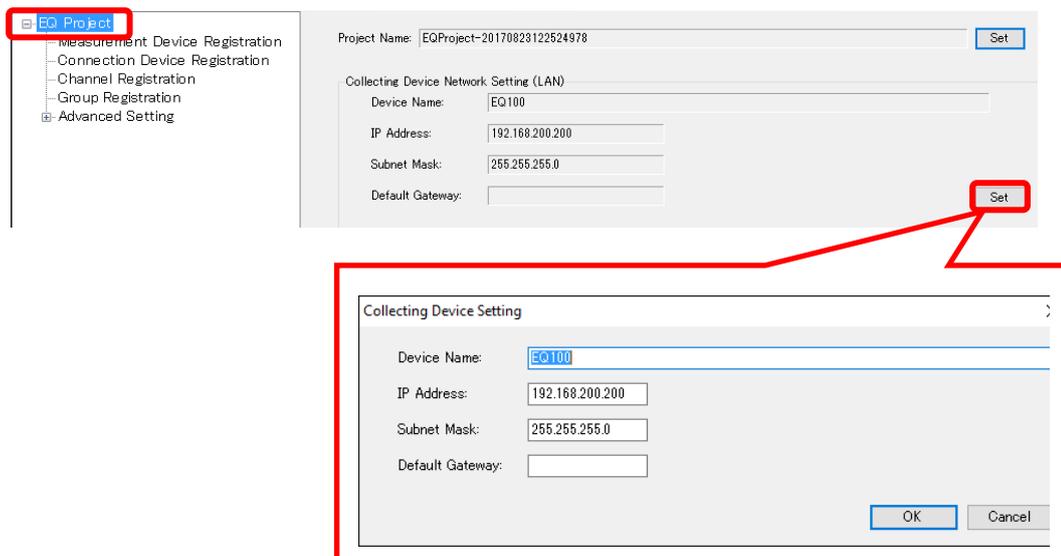


3. On the EQ project creation screen, the setup menu appears on the left pane. Select a required item from the setup menu to configure. Pressing an item switches between setup screens.



### (3) EQ100 IP Address Edit (**Mandatory**)

Enter an IP address for the EQ100 LAN connection port.



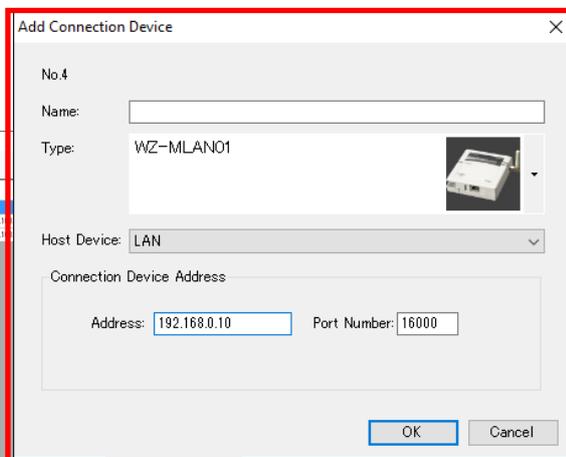
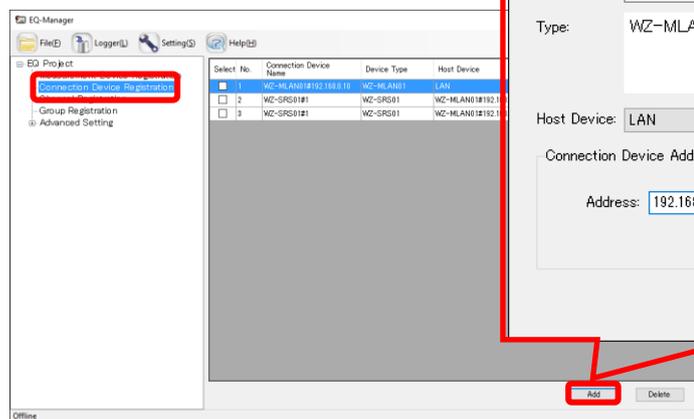
<Collecting Device Setting Dialog Box>

**Refer to** "4.6.2 Editing EQ100 IP Address/Device Name" (p.4-19)

(4) Connection Device Registration (**Optional**)

This registration is not required if no wireless unit is to be connected. To connect EQ100 and a measurement device through the wireless master unit, register the wireless master unit and the wireless/RS-485 converter as a connection device.

<Connection Device Registration Screen>



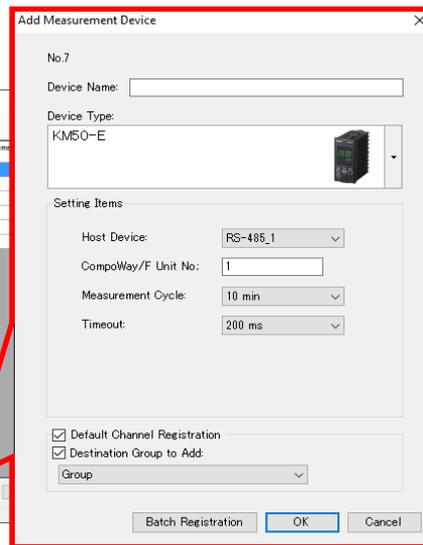
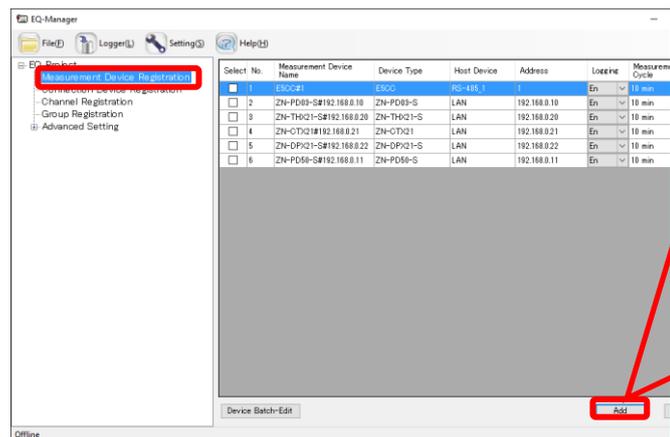
<Add Connection Device Dialog Box>

**Refer to** "4.6.3.1 EQ100 Connection Device Registration" (p.4-21)

(5) Measurement Device Registration (**Mandatory**)

Register a measurement device to connect to EQ100. Setup items depend on a measurement device type and a connection type. To acquire pulses from the EQ100 general-purpose input terminal, the general-purpose input terminal must be configured in the measurement device registration.

<Measurement Device Registration Screen>



<Add Measurement Device Dialog Box>

Setup items depend on measurement devices connected to LAN, RS-485, and general-purpose input terminal.

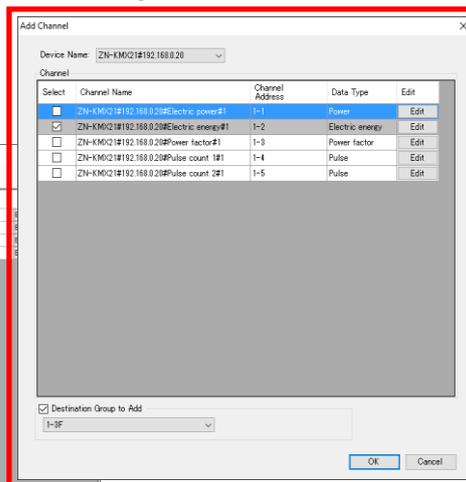
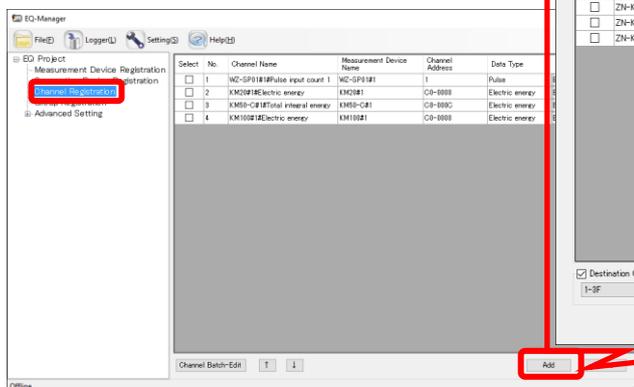
**Refer to** "4.6.3.2 EQ100 Measurement Device Registration" (p.4-25)

2.Steps before Operation and Management

(6) Channel Registration (**Mandatory**)

Select a channel to collect data among channels of a registered measurement device.

<Channel Registration Screen>

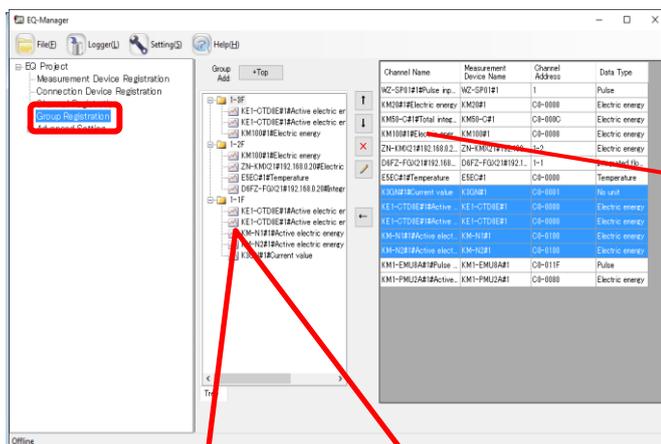


<Add Channel Dialog Box>  
Select a channel to register.

**Refer to** "4.6.3.3 EQ100 Channel Registration" (P.4-45)

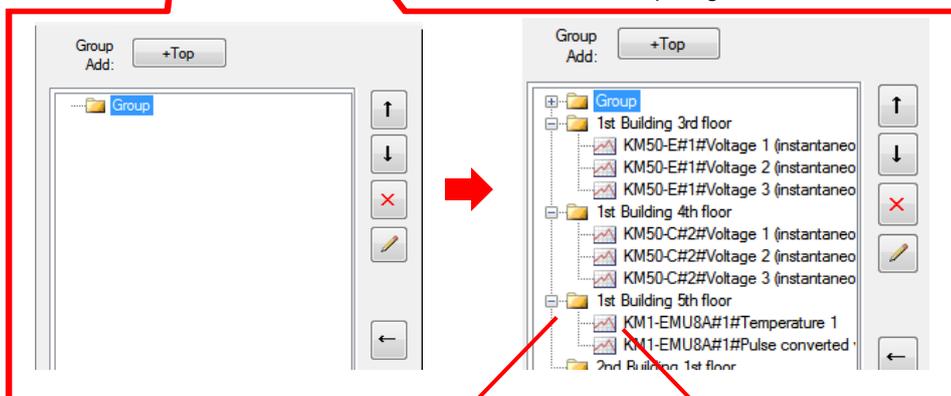
(7) Group Registration (**Optional**)

This registration is used to summarize and manage using a Web browser (Web UI function) by classifying based on areas etc. Only one level is available.



A channel list appears.  
Select the channel and add to the group in the left.

<Group Registration Screen>



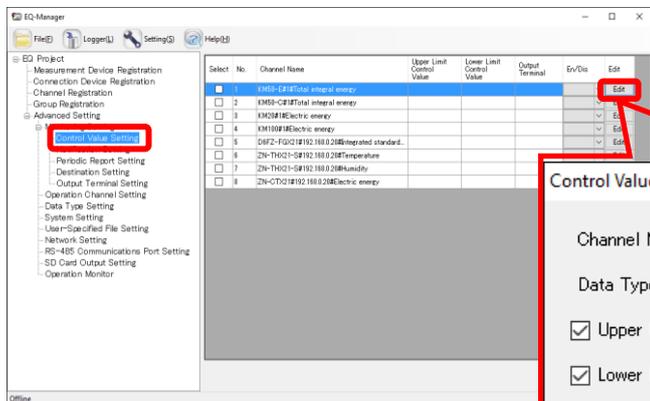
Group Channel

**Refer to** "4.6.3.4 EQ100 Group Registration" (p.4-56)

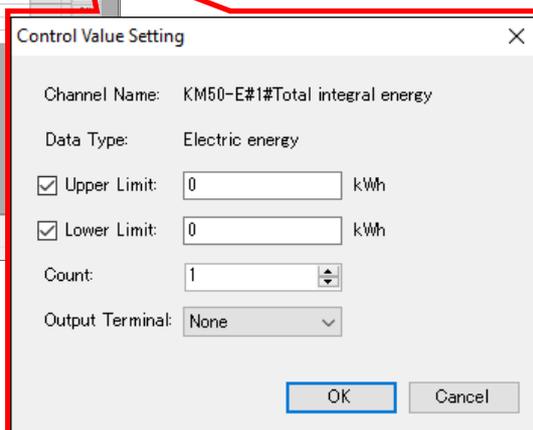
(8) Control Value Setting (Optional)

Configure this item if you want to monitor measured data by specifying control values. Specify control values for each channel. If measured data exceeds the setting, an email is sent or output is made to a general-purpose output terminal.

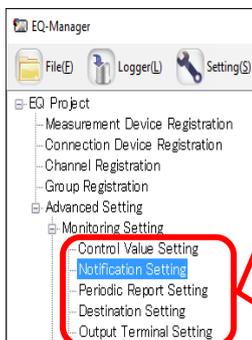
<Control Value Setting Screen>



<Control Value Setting Dialog Box>  
Configure upper/lower limits



Use the following setup screen to configure email and general-purpose output terminal settings.



<Notification Setting>

Configure an email destination group to notify upon data exceeding the control value setting or upon a device failure.

Notification Details	Destination Group	En/Dis	Edit
Monitoring Alarm	None	Dis	Edit
Device Alarm	None	Dis	Edit

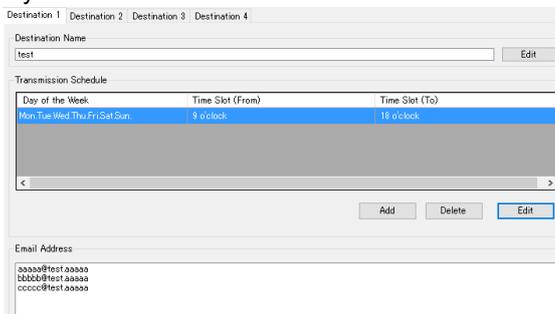
<Periodic Report Setting Screen>

An email notifies EQ100 operations regularly.

Periodic Report Details	Destination Group	En/Dis	Edit
Daily 12 o'clock	test	Dis	Edit

<Destination Setting Screen>

Configure destination email addresses as a group. Configure for each day of the week and time slot.



<Output Terminal Setting Screen>

Configure output setting for four general-purpose output terminals.

Output Terminal	Setting	Edit
1	On upon Event/Off upon Return	Edit
2	On upon Event/Off upon Return	Edit
3	On upon Event/Off upon Return	Edit
4	No Output	Edit

Refer to

"4.6.4.1 EQ100 Monitoring Setting" (p.4-62)

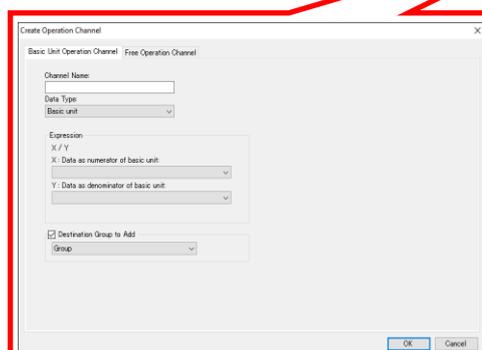
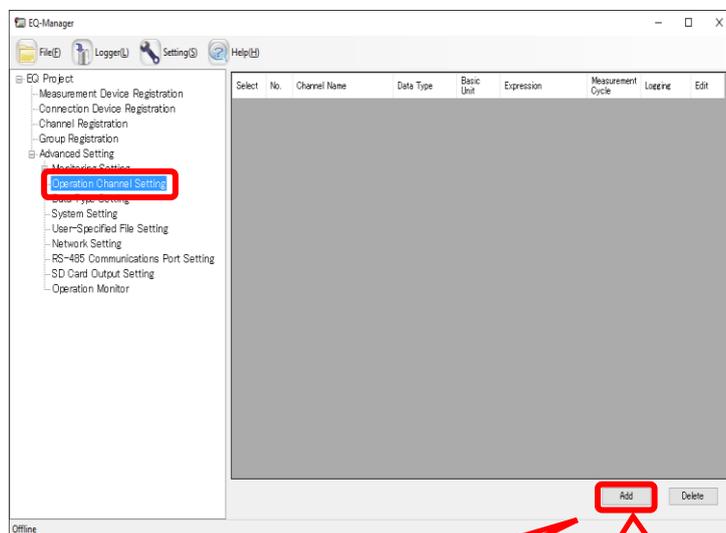
## 2.Steps before Operation and Management

### (9) Operation Channel Setting (*Optional*)

Configure this item if you want to create a channel through arithmetic operation on an existing channel.

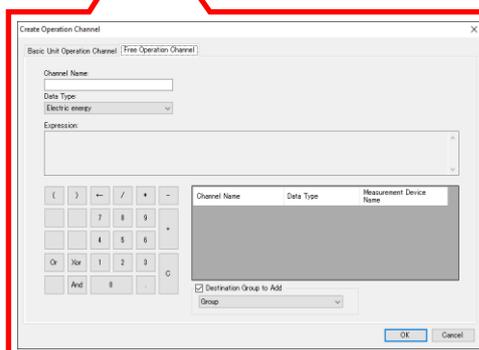
You can create two types of channels, basic unit operation channel and free operation channel.

<Operation Channel Setting Screen>



<Basic Unit Operation Channel Creation Dialog Box>

Create an operation channel by an operation "Channel of energy data (Numerator) / Channel (Denominator)".



<Free Operation Channel Creation Dialog Box>

Create an operation channel by multiplying an existing channel with a factor or by operating channels.

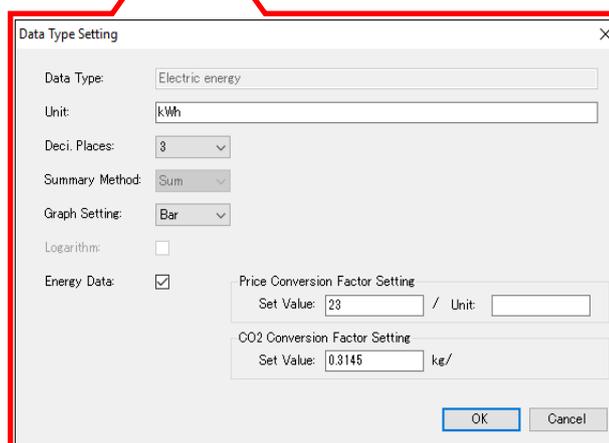
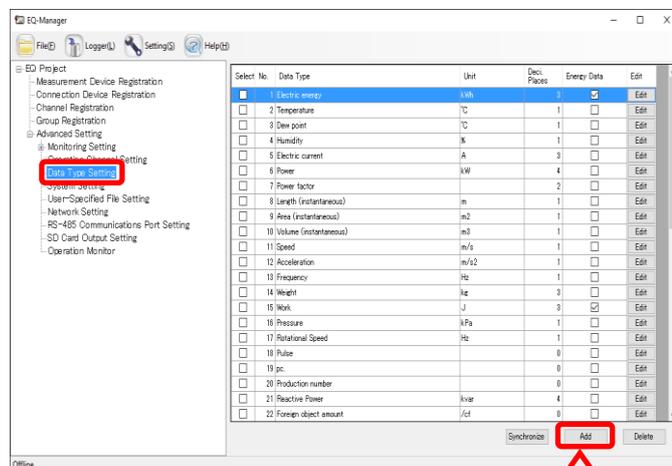
**Refer to** 4.6.4.2 EQ100 Operation Channel Setting (p.4-76)

## 2.Steps before Operation and Management

### (10) Data Type Setting (*Optional*)

In the data type setting, define a new data type which is not provided by the system.  
For existing data types, you can change units, decimal digits, energy data, and so on.

<Data Type Setting Screen>



<Data Type Setting Dialog Box>

Specify a data category name, unit, decimal digits, summary method, and energy data.

**Refer to** "4.6.4.3 EQ100 Data Type Setting" (p.4-82)

## 2.Steps before Operation and Management

### (11) System Setting, User-Specified File Setting, Network Setting, RS-485 Communications Port Setting, SD Card Setting (*Optional*)

If necessary, configure the EQ100 main body settings.

**<System Setting Screen>**  
Specify a password for access to EQ100 using the Web UI function and a time synchronization type.

**<User-Specified File Setting Screen>**  
Configure creation of user-specified files available for FTP, creation cycle, and file format.

**<Network Setting Screen>**  
Configure the setting while switching tabs.

- IP address setting of EQ100 LAN/sub-LAN connection ports
- Setting for EQ100 to send email (SMTP, POP Setting)
- FTP Client Setting
- FTP Server Setting

**<RS-485 Communications Port Setting>**  
Configure settings of four EQ100 serial communications ports (RS-485).

**<SD Card Output Setting>**  
Configure the time to output collected data to the SD card attached to EQ100.

**Refer to**

"4.6.4.4 EQ100 System Settings (Password/Language/Time Zone/Time Synchronization Settings)" (p.4-85 and later)

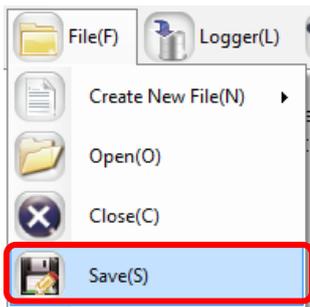


**[Step 3] Writing EQ Project and Starting EQ100 Operation and Management**

Write the EQ project created in the previous step to EQ100 main body.  
Connect EQ100 and the EQ server via LAN. Check that data should be properly collected from measurement devices in EQ100, and start operation and management.

1) Save the EQ project

After creating an EQ project, save the EQ project as a file through [File] - [Save].

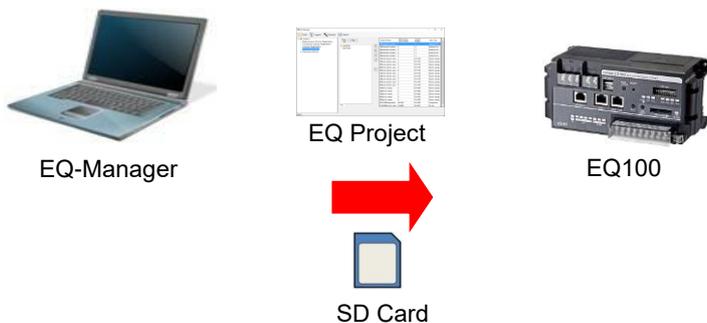


**Refer to** "4.7.1 Saving and Storing EQ100 Project" (p.4-97)

2) Writing EQ project to configure EQ100

Write the EQ project to EQ100. It is recommended to write using an SD card for EQ100 of factory shipment settings. Or, you can change the computer's IP address to that of EQ100 and write via LAN.

For how to write a project, see 4.7.1 Saving and Storing EQ100 Project" (p.4-97) to configure EQ100.



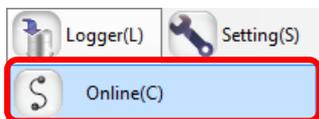
**Refer to**

3) Connect EQ100 and the computer via LAN

Connect EQ100 and the computer with EQ-Manager installed via LAN.

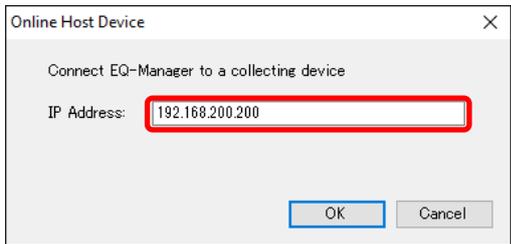
4) Connect online between EQ-Manager and EQ100

1. While the target EQ project is being opened, click [Logger] - [Online].



(2) Enter the EQ100 IP address and connect online to EQ100.

If the EQ100 settings are factory shipment ones, enter "192.168.200.200" as the IP address.

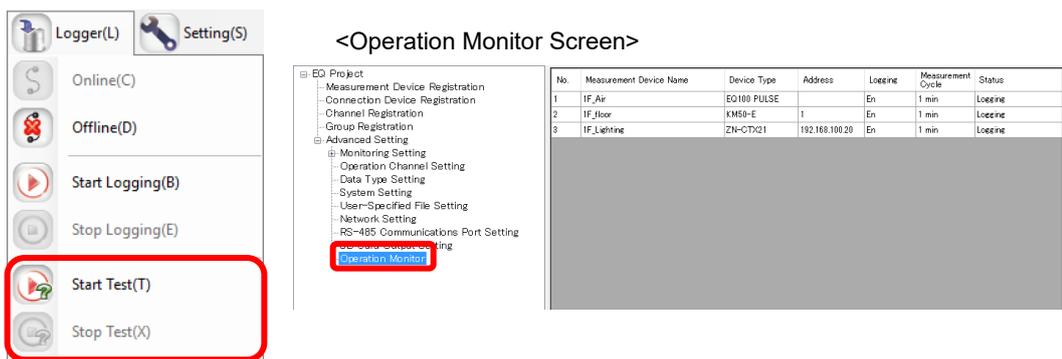


5) Communication test

Select [Logger] - [Start Test] to start the communication test. On the status bar, [Online | Comm. Testing] appears.

Then click [Operation Monitor] in the setup menu, and wait until a measurement cycle of respective measurement device passes. Finally check that the measurement device status should be "collecting".

After checking on the operation monitor, select [Logger] - [Stop Test] to end the communication test.



**Refer to** "4.7.4 EQ100 Communication Test " (p.4-107)

6) Check measured values

Check that measured values collected by EQ100 should be proper ones.

Use the Web UI function of EQ100 to view a simple graph to compare with actual measured values of the measurement device for proper settings and wiring.

**Refer to** "EQ100 User's Manual"

7) Start EQ100 operation and management

Select [Logger] - [Start Logging] to start EQ100 operation and management.

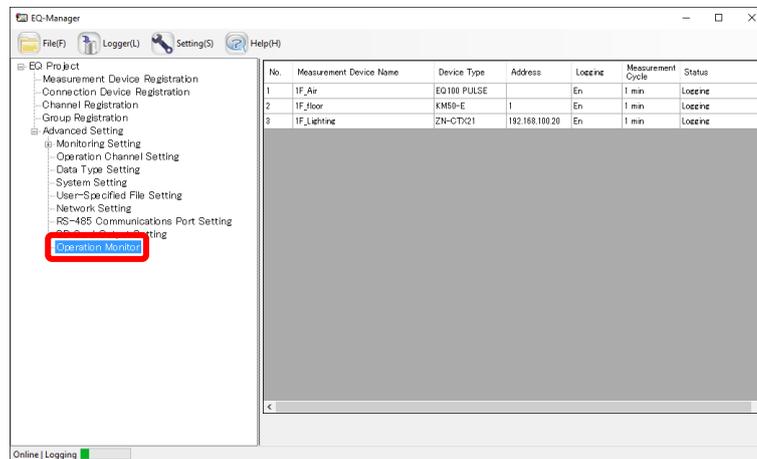


**Refer to** "4.7.4 EQ100 Communication Test " (p.4-107)

8) Use operation monitor to check operation

Check the EQ100 and measurement device statuses. After a measurement cycle of respective measurement device passed, check that the measurement device status should be "collecting" using the operation monitor.

<Operation Monitor Screen>

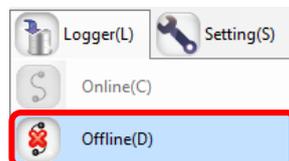


**Refer to** "4.7.6.3 EQ100 Operation Monitor" (p.4-114)

9) Disconnect between EQ-Manager and EQ100

Select [Logger] - [Offline] to disconnect between EQ100 and EQ-Manager.

Unless [Stop Logging] is clicked, EQ100 continues operation and management.



**[Step 4] Creating EQ Server Project by EQ-Manager**

Use EQ-Manager to create an EQ server project for the EQ server.

**(Mandatory)** indicates an item that must be configured to operate the EQ server.

**(Optional)** indicates an item to configure if necessary.

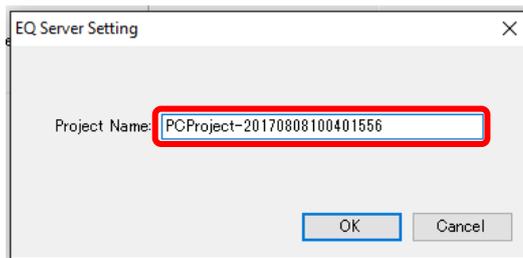
1) Create a new EQ server project

(1) Click [File] - [Create New File] - [EQ Server Project].

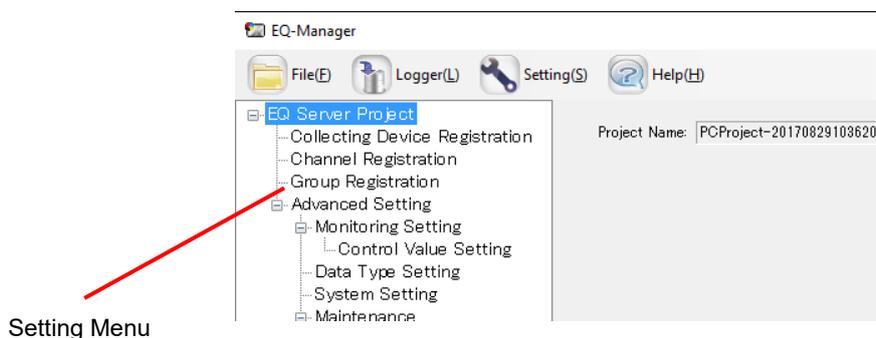


## 2.Steps before Operation and Management

(2) Specify a project name.



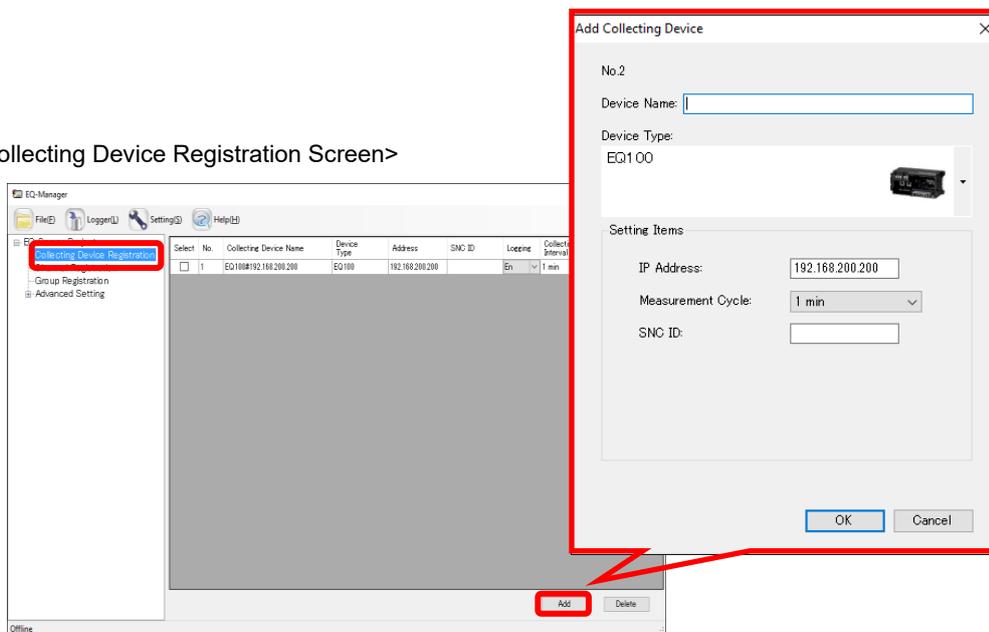
(3) On the EQ server project creation screen, the setup menu appears on the left pane. Select a required item from the setup menu to configure. Pressing an item switches between setup screens.



### 2) Collecting Device Registration (**Mandatory**)

Register a collecting device to connect to the EQ server.

<Collecting Device Registration Screen>

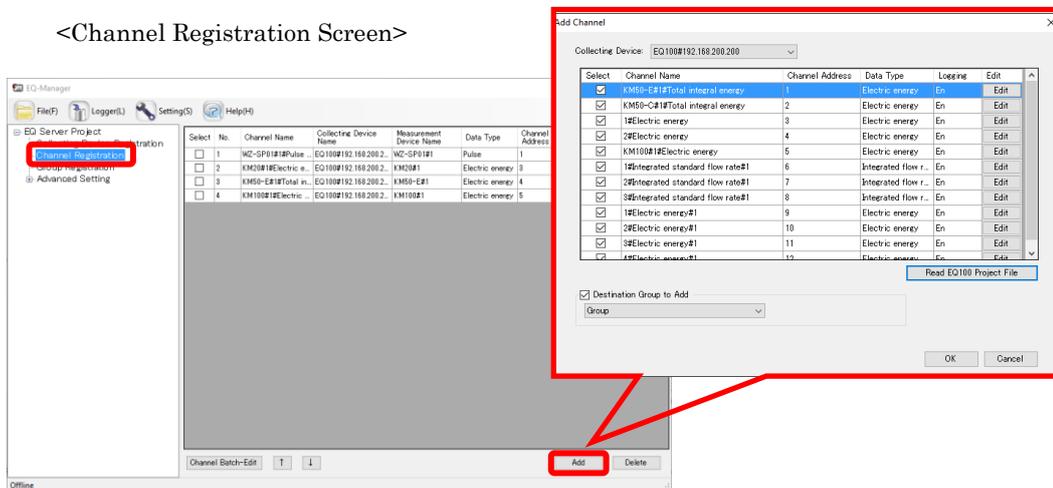


**Refer to** "4.8.3.1 Registering EQ Server Collecting Device" (p.4-118)

### 3) Channel Registration (**Mandatory**)

Load the EQ project saved in "[Step 3] Writing EQ Project and Starting EQ100 Operation and Management" (1), and register a channel to collect for the EQ server among the channels registered in the EQ project.

<Channel Registration Screen>

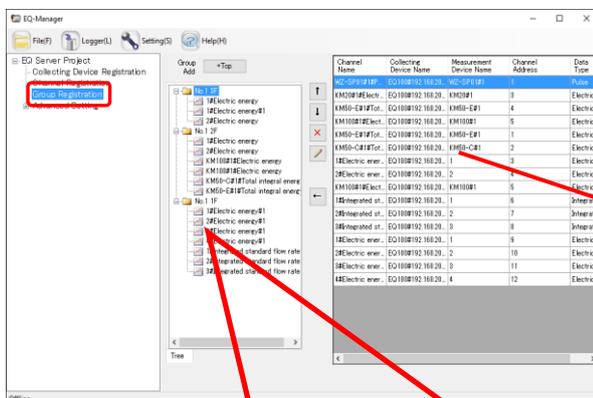


**Refer to** "4.8.3.2 Registering EQ Server Channel (Loading EQ Project File)" (p.4-121)

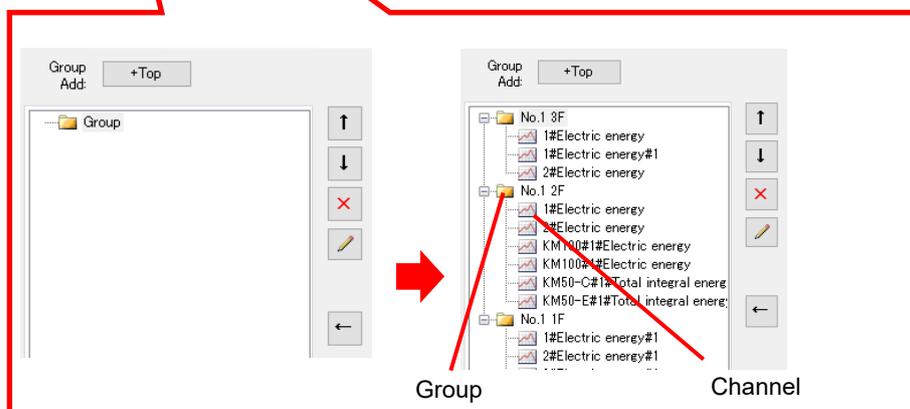
### 4) Group Registration (**Optional**)

This registration is used to view and analyze a graph using EQ-GraphViewer by categorizing based on areas etc. Only one level is available.

<Group Registration Screen>



A channel list appears. Select the channel and add to the group in the left.



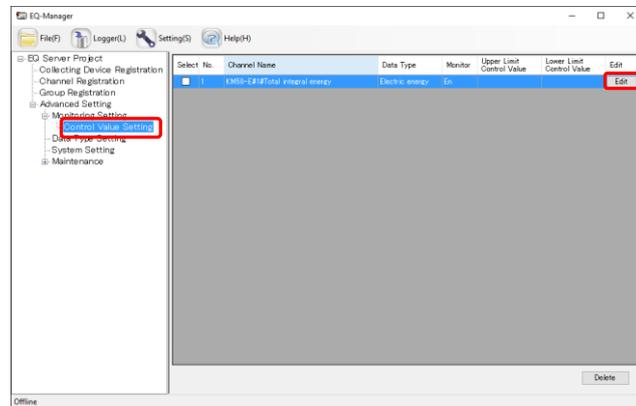
**Refer to** "4.8.3.3 Registering EQ Server Group" (p.4-128)

5) Control Value Setting (**Optional**)

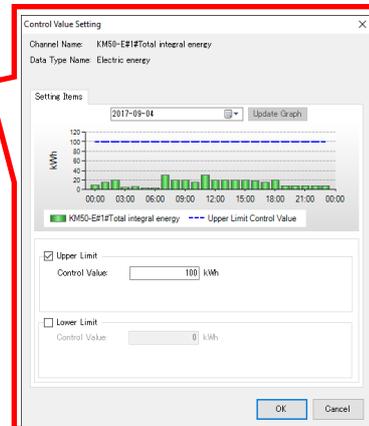
Specify control values to view on EQ-GraphViewer.

To configure control values while viewing a graph on the control value setting dialog box, the EQ server must perform logging for a certain period of time and store collected data.

<Control Value Setting Screen>



<Control Value Setting Dialog Box>



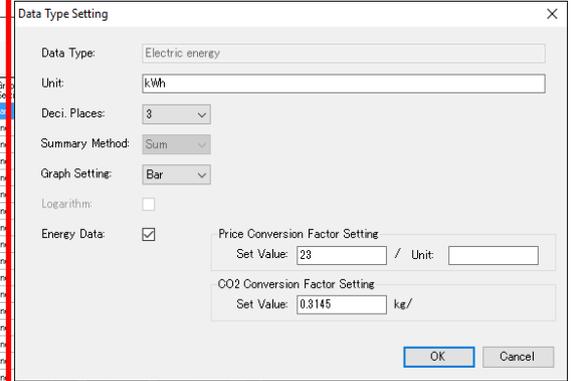
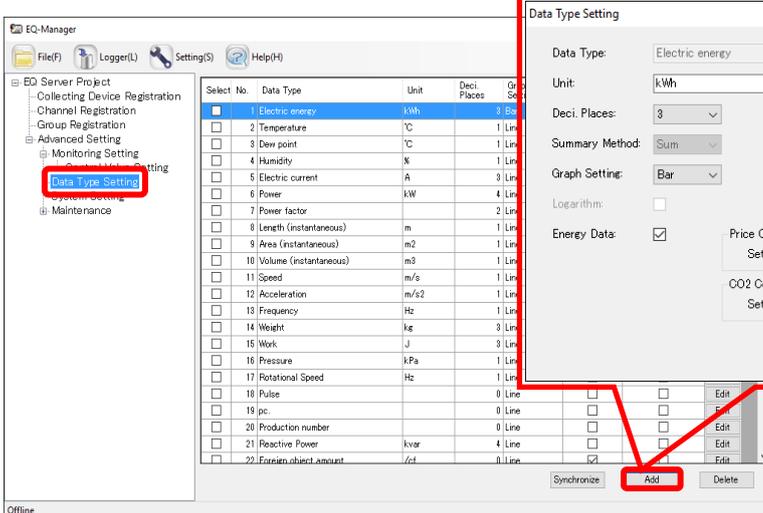
**Refer to** "4.8.4.1 EQ Server Control Value Setting" (p.4-134)

6) Data Type Setting (**Optional**)

In the data type setting, define a new data type which is not provided by the system.

For existing data types, you can change units, decimal digits, graph types, and energy data.

<Data Type Setting Screen>



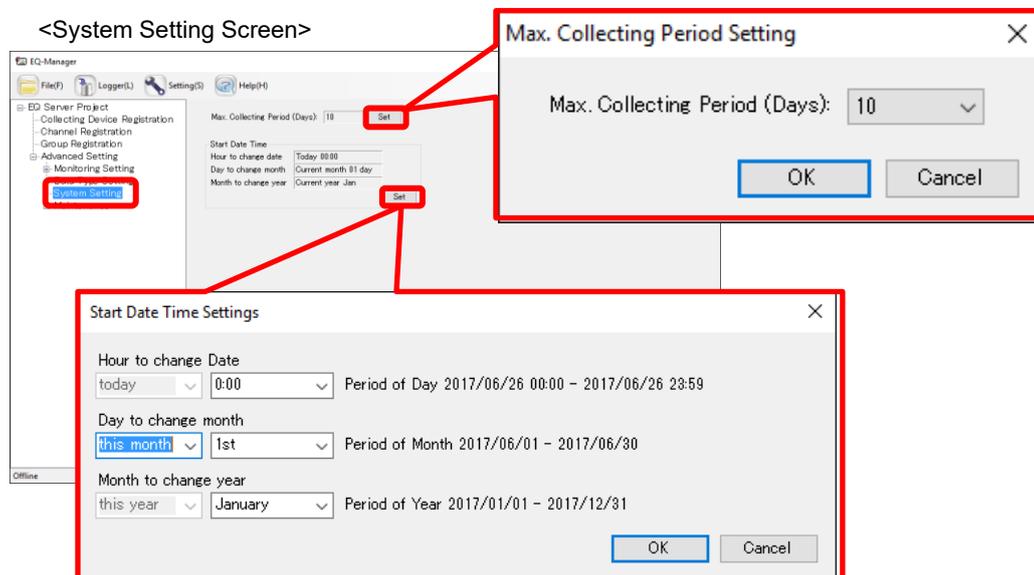
<Data Type Setting Dialog Box>

Specify a data category name, unit, decimal digits, summary type, graph setting, fee conversion factor, and CO2 conversion factor.

**Refer to** "4.8.4.2 EQ Server Data Type Setting" (p.4-138)

10) System Setup (*Optional*)

Specify the maximum number of days to collect data if logging from a collecting device has not been performed for a certain period of time. Specify the start date and time of the day, month, and year as well.



**Refer to** "4.8.4.3 System Setting" (p.4-141)

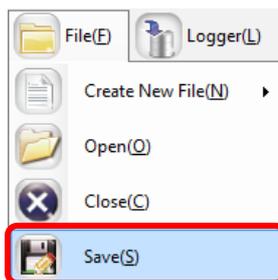


**[Step 5] Writing EQ Server Project and Starting EQ Server Operation and Management**

The steps starting from this must be performed in the EQ server to actually operate. Write the EQ server project created in the previous step to EQ-ServerService of the EQ server (the computer you are using). Check that data should be properly collected from EQ100 and start operation and management.

1) Save the EQ server project

After creating an EQ server project, save the EQ server project as a file through [File] - [Save].

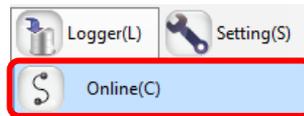


**Refer to** "4.9.1 Saving/Storing EQ Server Project" (p.4-162)

## 2.Steps before Operation and Management

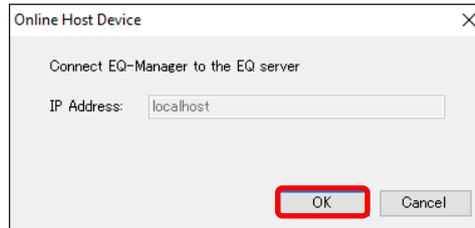
2) Connect online between EQ-Manager and the EQ server

1. While the target EQ server project is being opened, click [Logger] - [Online].



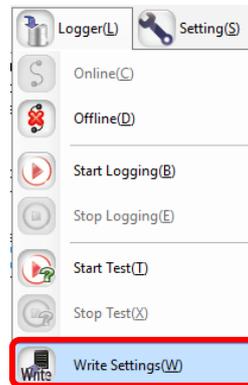
(2) Click [OK] to connect EQ-Manager and the EQ server.

\* "localhost"(fixed) indicates the computer you are using.

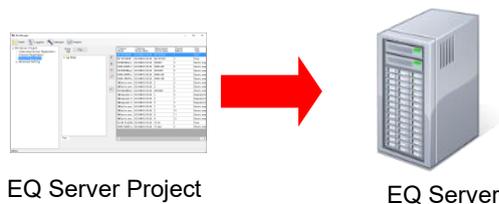


3) Write the EQ server project

Write the EQ server project to the EQ server (the computer you are using). Click [Logger] - [Write Settings].



The configuration information of the project is written to the EQ server (the computer you are using).



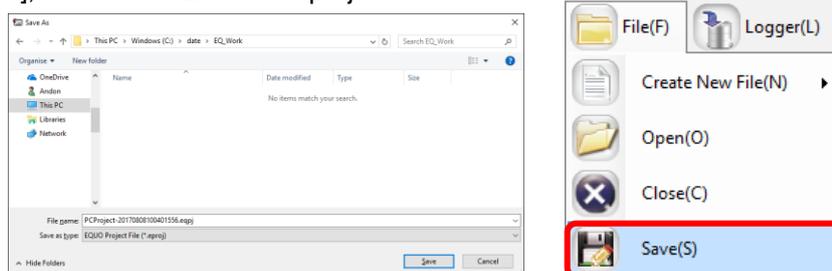
**Refer to** "4.9.2 Writing EQ Server Project" (p.4-163)

4) Save and store the EQ server project

**Always save the EQ server project even "after you wrote it" to the EQ server.**

It will be required when you change the EQ server project.

Use the [Save] dialog box appeared after writing the EQ server project, or select [File] - [Save], to save the EQ server project.



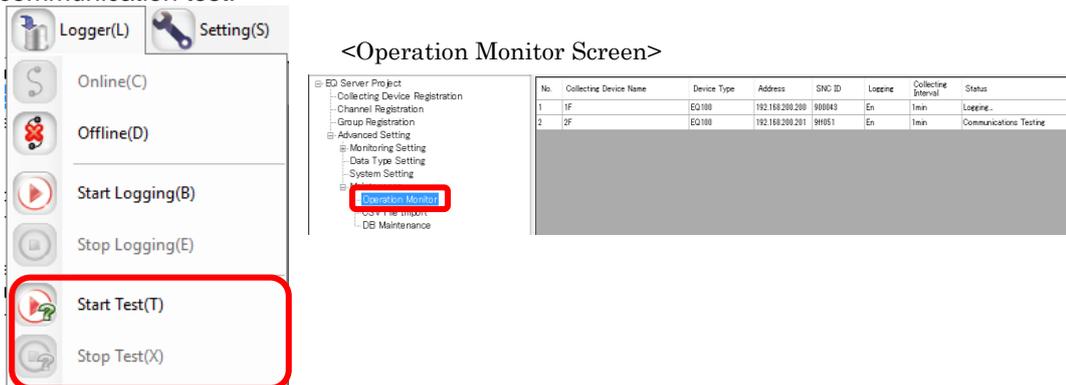
**Refer to** "4.5.7.1 Changing Project and Inheriting Data" (p.4-17)

5) Communication test

Select [Logger] - [Start Test] to start the communication test. On the status bar, [Online | Comm. Testing] appears.

Then click [Operation Monitor] in the setup menu, and wait until a measurement cycle of respective collecting device passes. Finally check that the EQ100 status should be "logging".

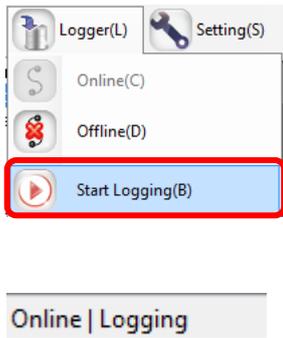
After checking on the operation monitor, select [Logger] - [Stop Test] to end the communication test.



**Refer to** "4.9.4 EQ Server Communication Test" (p.4-169)

6) Start EQ Server operation and management

Click [Logger] - [Start Logging] to start EQ server operation and management. On the status bar, [Online | Logging] appears.



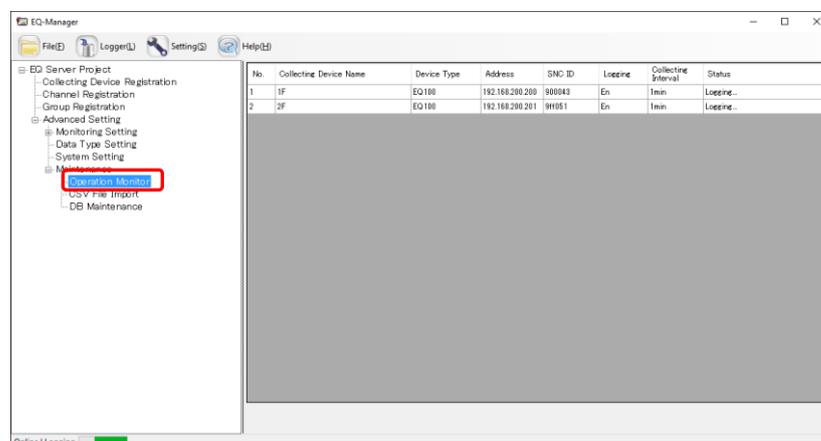
**Refer to** "4.9.5.1 Starting EQ Server Operation and Management " (p.4-172)

## 2.Steps before Operation and Management

### 7) Use operation monitor to check operation

Check the EQ server and EQ100 statuses. After a collecting interval of respective EQ100 passed, check that the EQ100 status should be "logging" using the operation monitor.

<Operation Monitor Screen>

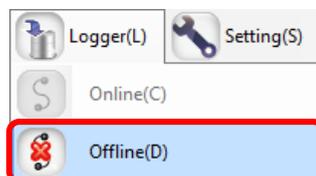


**Refer to** "4.7.6.3 EQ100 Operation Monitor" (p.4-114)

### 8) Disconnect between EQ-Manager and the EQ server

Select [Logger] - [Offline] to disconnect between the EQ server and EQ-Manager.

Unless [Stop Logging] is clicked, the EQ server continues operation and management.



**[Step 6] Viewing EQ-GraphViewer Graph**

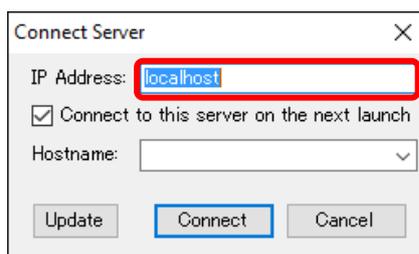
Start up EQ-GraphViewer and check that collected data from EQ100 should be displayed in a graph.

(1) Start up EQ-GraphViewer

Double-click the EQ-GraphViewer icon on the desktop, or press the Windows Start button, and click [All Programs] - [OMRON EQ-Viewer] - [EQ-GraphViewer].

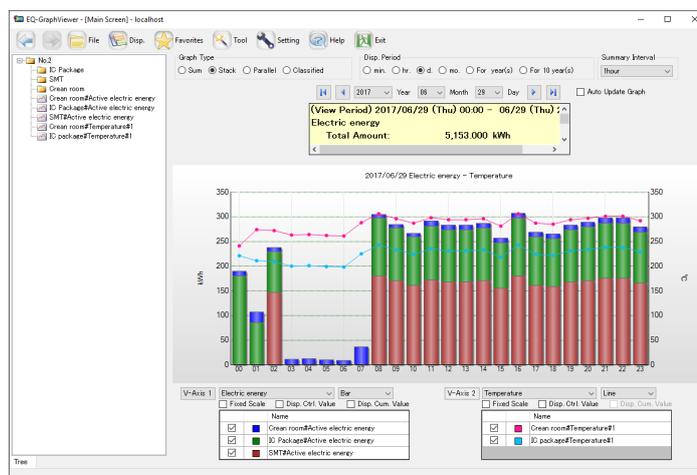
(2) Connect to the EQ server

The EQ server is the computer you are using. Specify "localhost".



(3) View, compare, and analyze collected data

The main screen appears that displays a graph of summary data in the connected EQ server.



Refer to

"5 Operating View & Analysis Tool EQ-GraphViewer " (p.5-1)

## 2.3. Steps for Operation and Management of Client in Client-Server Configuration

### [Step 1] Installing EQ-Viewer client

Install EQ-Viewer in a client computer.

\* Installation to a client computer includes all of EQ-Manager, EQ-GraphViewer, and EQ-ServerService, while only EQ-GraphViewer is used here.



**Refer to** "3.1 Installation" (p.3-1)



### [Step 2] Viewing EQ-GraphViewer Graph

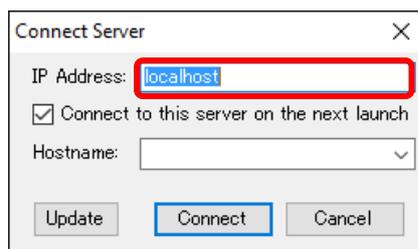
Start up EQ-GraphViewer and connect to the EQ server. Check that a client computer should be able to display a graph of collected data from EQ100 by the EQ server.

#### (1) Start up EQ-GraphViewer

Double-click the EQ-GraphViewer icon on the desktop, or press the Windows Start button, and click [All Programs] - [OMRON EQ-Viewer] - [EQ-GraphViewer].

#### (2) Connect to the EQ server

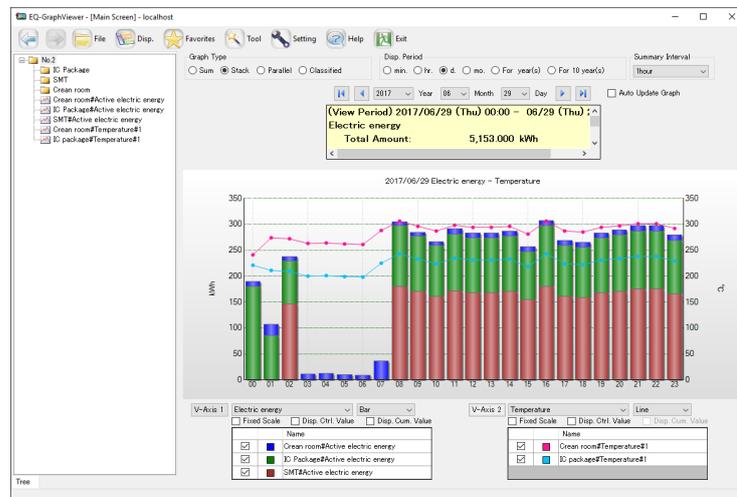
Specify the EQ server IP address.



## 2.Steps before Operation and Management

### (3) View, compare, and analyze collected data

The main screen appears that displays a graph of summary data in the connected EQ server.



Refer to "5 Operating View & Analysis Tool EQ-GraphViewer" (p.5-1)

## 2.4. Steps for Operation and Management of Offline Configuration

### [Step 1] Installing EQ-Viewer

### [Step 2] Creating EQ Project by EQ-Manager

### [Step 3] Writing EQ Project and Starting EQ100 Operation and Management

### [Step 4] Creating EQ Server Project

For the detailed steps, see below.

#### Refer to

"2.2 Steps for Operation and Management of Server in Standalone Configuration or Client-Server Configuration" (p.2-4)  
"[Step 1] Installing EQ-Viewer" to "[Step 4] Creating EQ Server Project by EQ-Manager"



### [Step 5] Writing EQ Server Project

The steps starting from this must be performed in the EQ server to perform CSV import. Write the EQ server project created in the previous step to EQ-ServerService of the EQ server (the computer you are using).

#### (1) Save the EQ server project

After creating an EQ server project, save the EQ server project as a file through [File] - [Save].

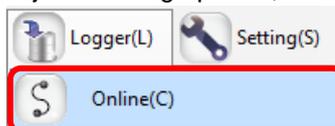


#### Refer to

"4.9.1 Saving/Storing EQ Server Project" (p.4-162)

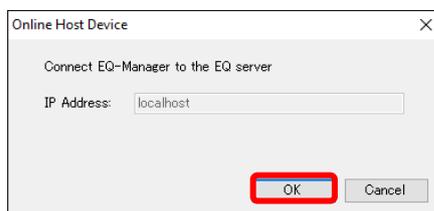
#### (2) Connect online between EQ-Manager and the EQ server

1. While the target EQ server project is being opened, click [Logger] - [Online].



2. Click [OK] to connect EQ-Manager and the EQ server.

\* "localhost"(fixed) indicates the computer you are using.





**[Step 6] CSV Import via SD Card**

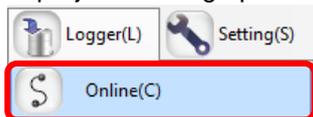
Output collected data (CSV file) of EQ100 to an SD card. Use EQ-Manager to select a CSV file to import, and perform import to the EQ server. On EQ-Manager, open and import the EQ server project.

- 1) Output collected data from EQ100
  - Output collected data from EQ100 to an SD card.

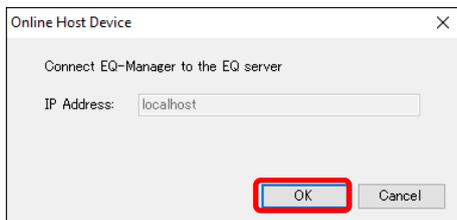
**Refer to** "EQ100 User's Manual"

- 2) Insert an SD card to the computer.
  - Eject the SD card from EQ100 and insert it to the computer's SD card slot.

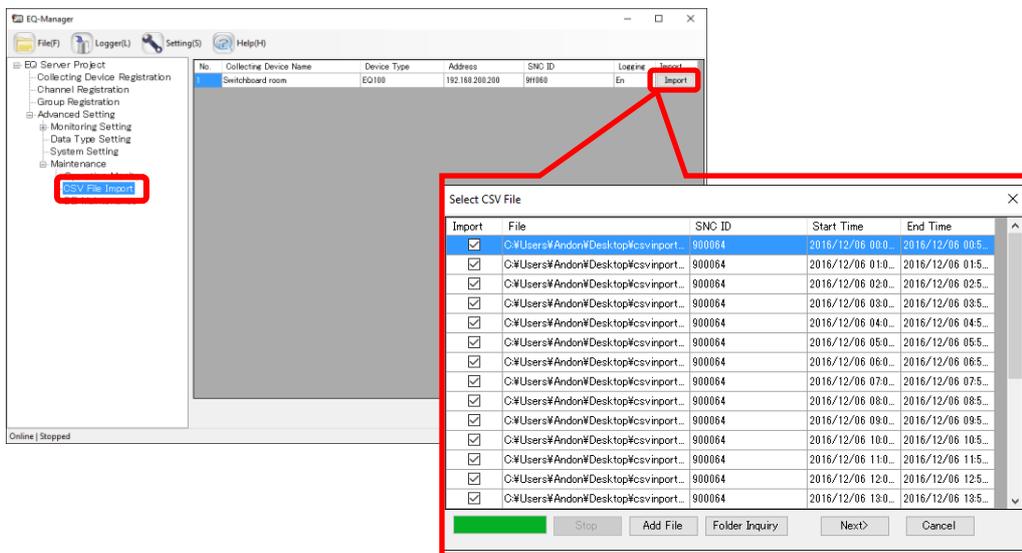
- 3) Connect online between EQ-Manager and the EQ server
  - 1. While the target EQ server project is being opened, click [Logger] - [Online].



- (2) Click [OK] to connect EQ-Manager and the EQ server.
  - \* "localhost"(fixed) indicates the computer you are using.



- 4) Import the CSV file
  - Read and import the CSV file to the EQ server.



<Select CSV File Dialog Box>

**Refer to** "■ CSV Import (Collected Data Import) “ (p.4-144)



### [Step 7] Viewing EQ-GraphViewer Graph

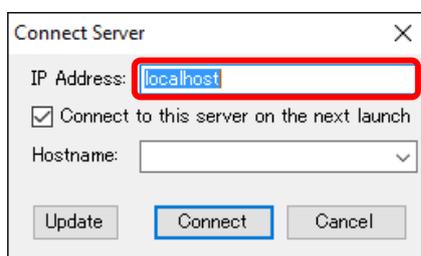
Start up EQ-GraphViewer and check that collected data from EQ100 via SD card should be displayed in a graph.

(1) Start up EQ-GraphViewer

Double-click the EQ-GraphViewer icon on the desktop, or press the Windows Start button, and click [All Programs] - [OMRON EQ-Viewer] - [EQ-GraphViewer].

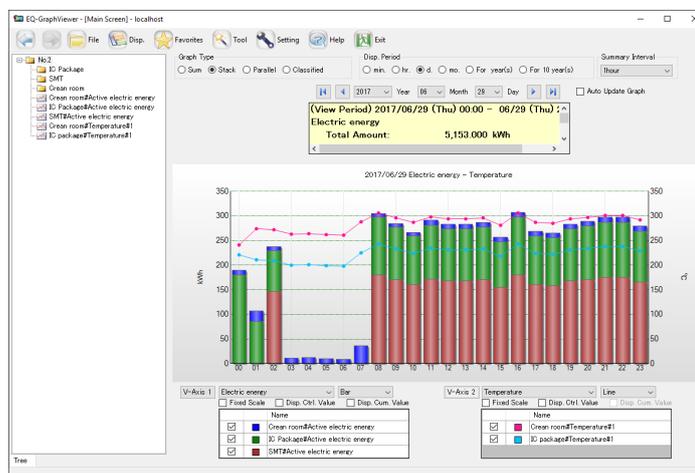
(2) Connect to the EQ server

The EQ server is the computer you are using. Specify "localhost".



(3) View, compare, and analyze collected data

The main screen appears that displays a graph of summary data in the connected EQ server.



**Refer to** "5 Operating View & Analysis Tool EQ-GraphViewer" (p.5-1)

## 3. Installation and Uninstallation

### Precautions for Correct Use

- Installation and uninstallation must be performed by a user having permissions to change the system, e.g. Administrator or a computer administrator.
- Before starting installation or uninstallation, terminate all the running software.

### 3.1. Installation

#### Precautions for Correct Use

- You cannot install "EQ-Watcher" and "EQ-Viewer" at the same time. "EQ-Watcher" contains EQ-Viewer functions. If you need to use both, install "EQ-Watcher".

#### Precautions for Correct Use

- You may need to check and/or perform the following items before installation, depending on the customer's environment (network configuration, computer settings, etc).
  - Enabling .NET Framework 3.5 SP1
  - Connection permission of communications port number "4211"
  - Disabling Web browser proxy

For details, see "9.2 Notes on Installation Steps" (p9-7.).

#### Precautions for Correct Use

- A computer may transition to screen saver or power save mode depending on its setting. Check the settings.
  - Server: Use in the setting in which the Windows does not transition to the power save mode.
  - Client: Use in the setting in which the Windows does not transition to the power save mode. Turn off screen saver if you want to view the display continuously.
- Ensure to use the software of the same version for the server and the client. If the version is different, a message may be displayed at the startup time.

When EQ-Viewer is installed, the following software programs are installed at the same time. You cannot install them separately.

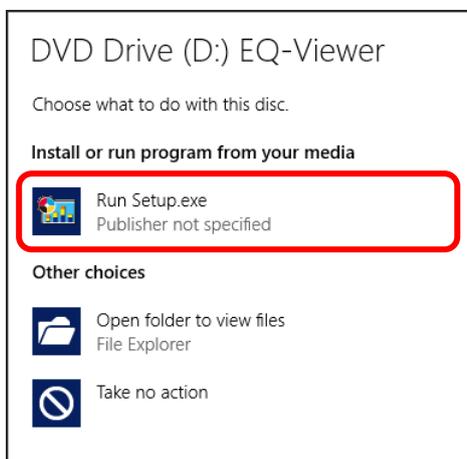
- EQ-Manager
- EQ-GraphViewer
- EquoServerService

### 3. Installation and Uninstallation

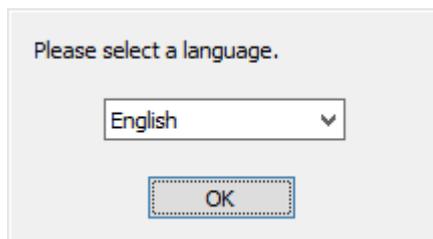
---

Shown below are installation steps:

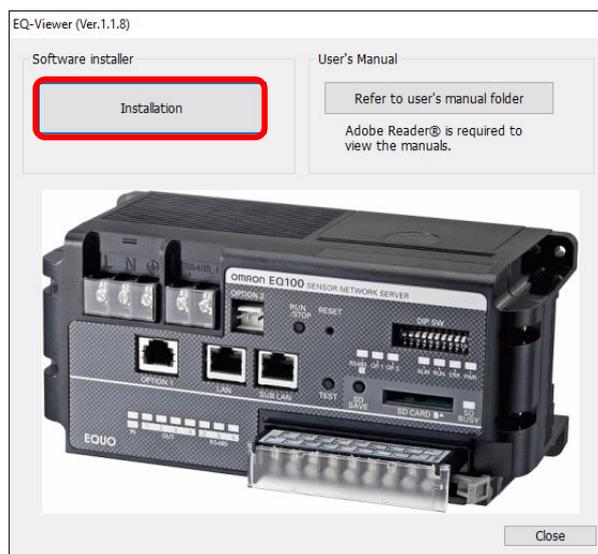
- (1) Insert the accessory CD-ROM of EQ100 to the CD-ROM drive of the computer.
- (2) In the [AutoPlay] dialog box, select "Run Setup.exe".



- (3) The following screen appears.  
Please select a language.



- (4) On the installation screen shown below, click [Installation].

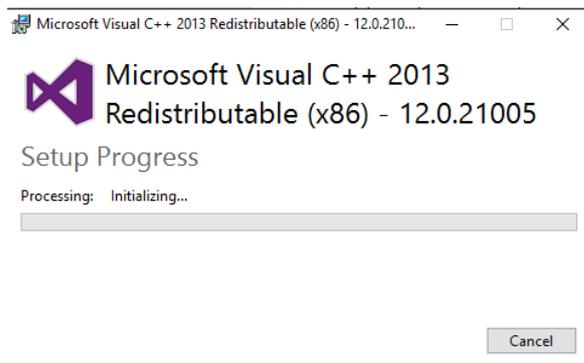


#### Reference

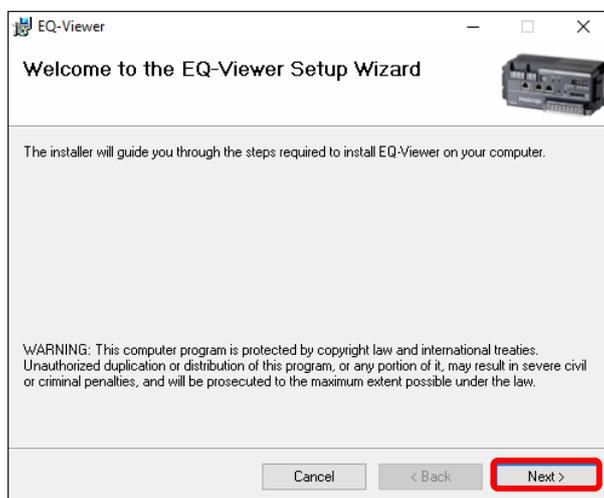
- If the installation screen does not appear, run Setup.exe in the CD-ROM drive.

### 3. Installation and Uninstallation

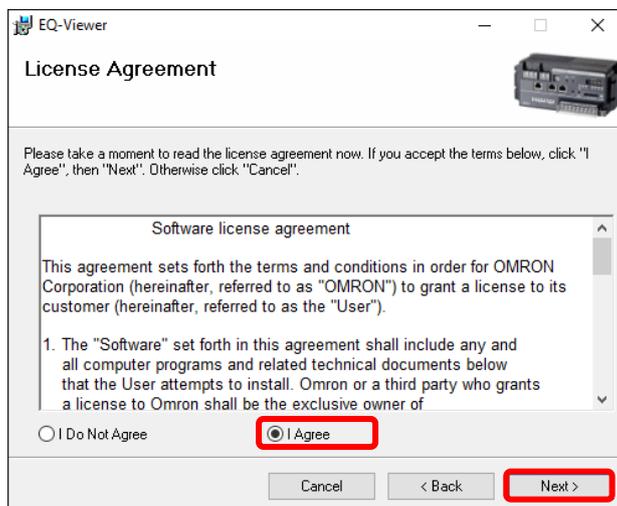
- (5) Microsoft Visual C++ Redistributable Installation Screen appears. (Or may not appear depending on an environment)



- (6) The following screen appears.  
Click [Next].



- (7) The [License Agreement] screen appears. Read the software license agreement carefully, and select [I Agree] and click [Next].

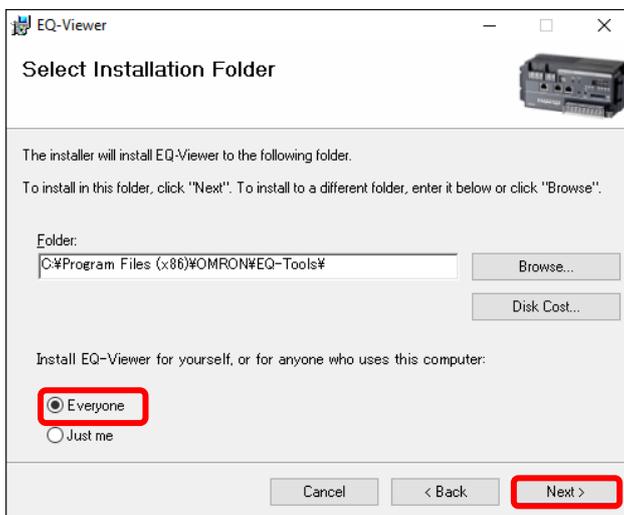


### 3. Installation and Uninstallation

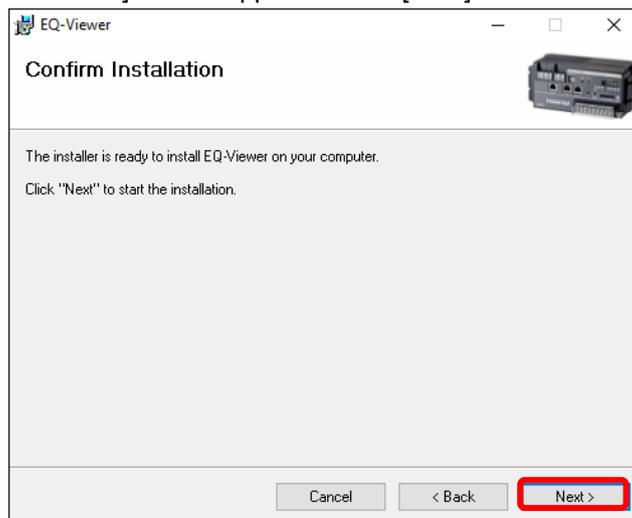
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(8) The [Select Installation Folder] screen appears. Check the destination folder for installation, select [Everyone], and click [Next].

If you want to change the destination folder for installation, either enter the folder in the [Folder] field or click [Browse].



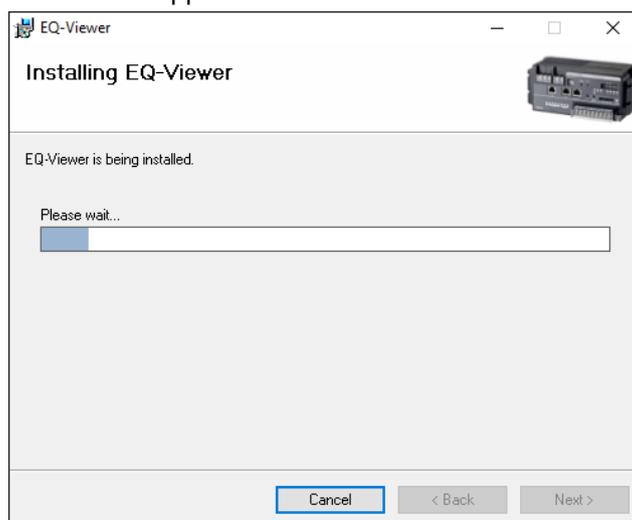
(9) The [Confirm Installation] screen appears. Click [Next].



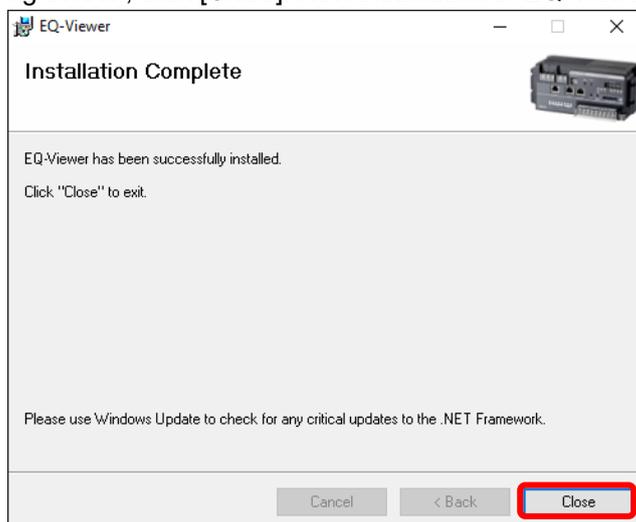
\* If the user account control screen asking "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click [Yes].

### 3. Installation and Uninstallation

(10) The screen shown below appears and the installation of the software starts.



(11) In the following screen, click [Close]. Now installation of EQ-Viewer is finished.



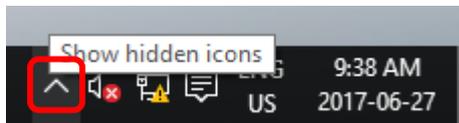
(12) The screen transitions back to the following one. Click [Close].



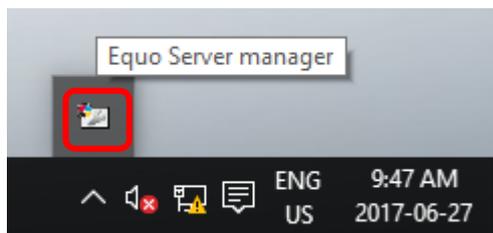
### 3.2. Shutdown and Restart of Server PC

Before shutting down or restarting the server PC, right-click the [EQ Server Management] icon in the task tray on the bottom right to stop the EQ server.

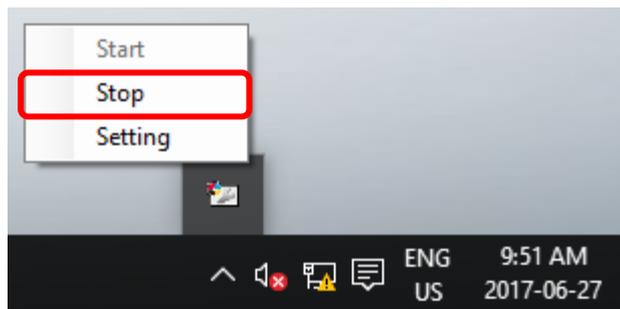
(1) Click the bottom-right icon to show the hidden indicator.



(2) Right-click [EQ Server Management].

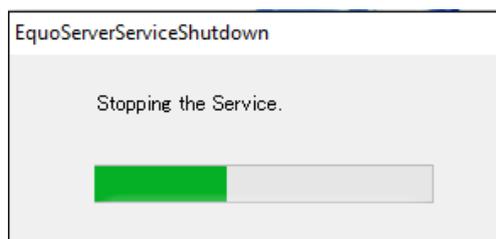


(3) Click [Stop].



(4) On the [User Account Control] dialog box, click [Yes].

(5) The [Stopping EQ server] screen appears as shown below, and the EQ server stops.

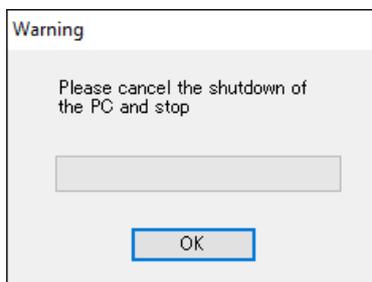


#### **Precautions for Correct Use**

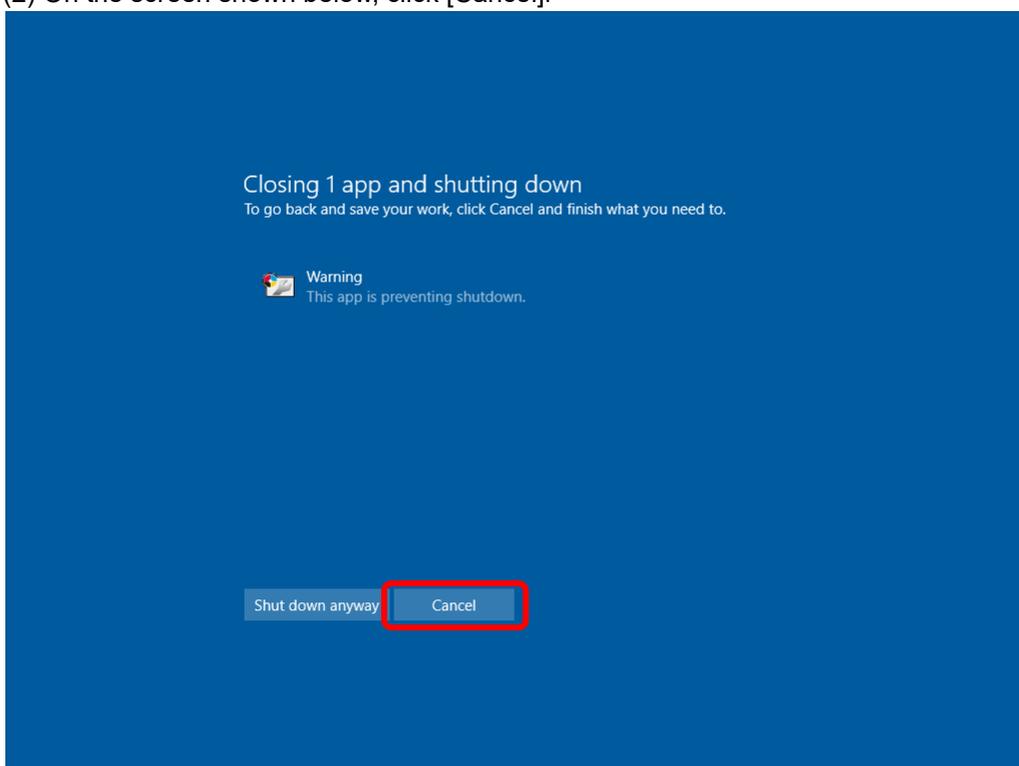
If you logged in to the server PC and switched to another user without logging out, you cannot activate the EQ server management as the switched user.

#### Precautions for Correct Use

- (1) If you shut down or restart the server PC before the EQ server is stopped, the following [Warning] dialog box appears.



- (2) On the screen shown below, click [Cancel].

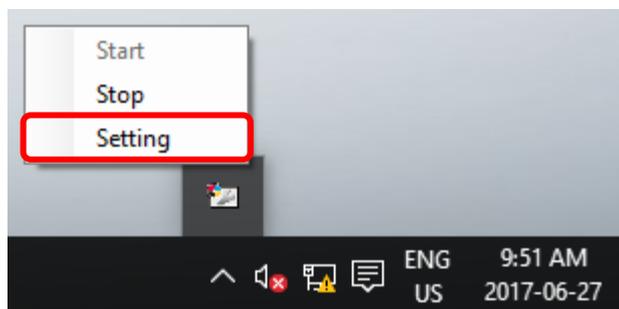


- (3) On the [Warning] dialog box, click [OK].
- (4) On the [User Account Control] dialog box, click [Yes].
- (5) The [Stopping EQ server] screen appears, and the EQ server stops.
- (6) After the EQ server is stopped, shut down or restart the server PC.

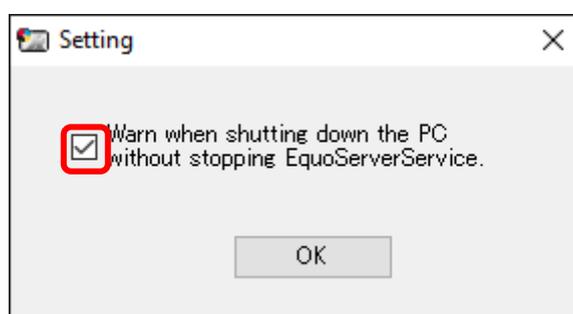
#### Reference

You can cancel the [Warning] dialog box in the [Setting] of [EQ Server Management].

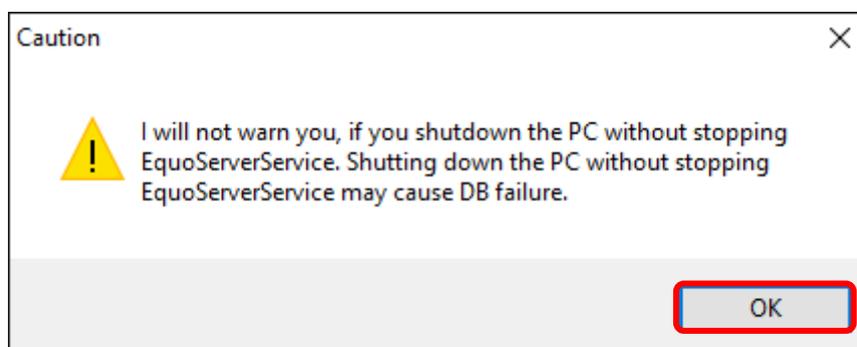
(1) Click [Setting].



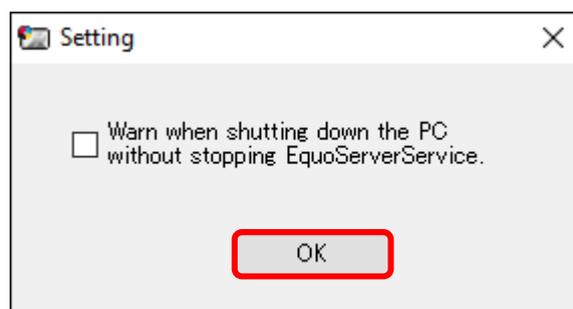
(2) On the dialog box below, unselect the check box.



(3) Unselecting the check box shows the following dialog box. Read the message and click [OK].



(4) Click [OK].



### 3.3. Uninstallation

#### Precautions for Correct Use

- For uninstallation, you must use the same user account as that used for the installation.

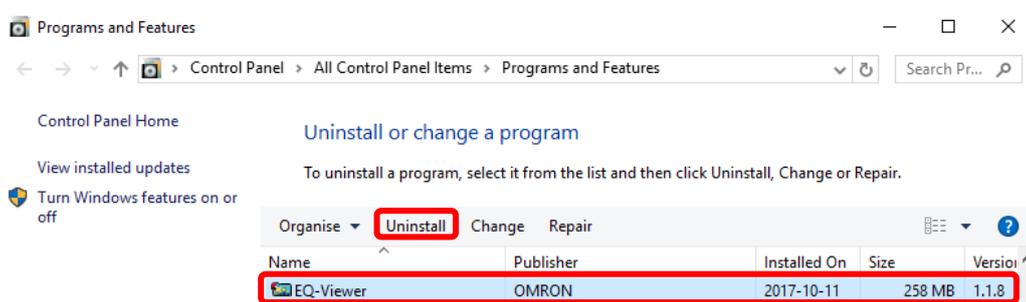
Described below are uninstallation steps of EQ-Viewer. All of EQ-Manager, EQ-ServerService, and EQ-GraphViewer are uninstalled at the same time. These tools cannot be uninstalled individually.

Then uninstall the database (PostgreSQL 9.5).

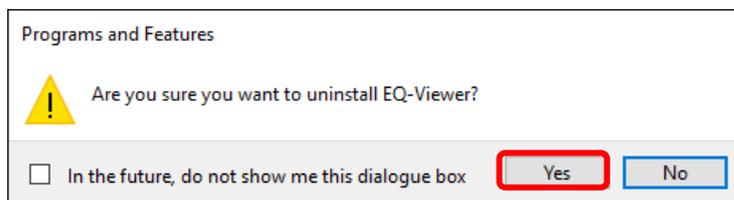
- (1) Stop EQ Server logging.  
(See "4.9.5.2 Stopping EQ Server Operation and Management" p.4-173)
- (2) Terminate EQ-Manager and EQ-GraphViewer if they are running.  
(See "4.4 Starting/Ending EQ-Manager" p.4-10 "5.4 Starting/Exiting EQ-GraphViewer" p.5-7)
- (3) Uninstall the software from the computer having EQ-Viewer installed.

<Windows Server 2012 / Windows 7 / Windows 10>

Click Windows Start button, select [Control Panel] - [Programs] - [Programs and Features] - [EQ-Viewer], and click [Uninstall].



- (4) On the uninstallation confirmation dialog box, click [Yes].



\* If the user account control screen asking "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click [Yes].

- (5) Uninstall the database from the computer.  
Select PostgreSQL in Programs and Features, and then click Uninstall.

#### Reference

- To uninstall including setup information and collected data, delete the following folder after the uninstallation of the software.  
C:\OMRON\EQ-Tools  
If this folder is deleted, you cannot display data collected by the EQ server in the past even if you installed EQ-Viewer again.
- If you are upgrading next step, you do not need to uninstall the database.

### 3.4. Version Upgrade Installation

If EQ-Viewer is revised and/or improved, use the following steps to upgrade the version. You can keep collected data while upgrading the EQ-Viewer version.

- (1) Uninstall the older version of the software.  
See "3.3 Uninstallation(p.3-9).  
Please restart your computer, before installing the latest version.
- (2) Install the new version of the software.  
See "3.1 Installation" (p.3-1).
- (3) Open the EQ server project and perform communication test for checking.  
See "4.9.4 EQ Server Communication Test" (p.4-169).
- (4) Starting logging.  
See "4.9.5.1 Starting EQ Server Operation and Management" (p.4-172).
- (5) In case of version upgrade from Ver.1.1.5 or earlier version, you must migrate data.  
See "8.8 Migrate Data from Ver. 1.1.6 or Earlier Version"(p.8-11).
- (6) Specify a start date by day, month, and year, if necessary.  
See "8.9 Change Start Date/Time"(p.8-12).

### 3.5. Recovery Installation

If you cannot start up EQ-Viewer due to a hard disk failure or if you want to recover the initial state of EQ-Viewer, use the following steps for recovery installation. You can keep collected data while performing recovery installation of EQ-Viewer. If a newer version has been released before installation, it is recommended that you should install the newer one.

(1) Uninstall the software.

See "3.3 Uninstallation"(p.3-9).

(2) Install the latest version of the software.

See "3.1 Installation" (p.3-1).

(3) Open the EQ server project and perform communication test for checking.

See "4.9.4 EQ Server Communication Test" (p.4-169).

(4) Starting logging.

See "4.9.5.1 Starting EQ Server Operation and Management" (p.4-172).

#### **Precautions for Correct Use**

- If you cannot start up the software even after performing the steps described above, the EQ-Viewer database may be corrupt and must be deleted including the past data. Delete the following folder and perform the steps described above.  
C:\OMRON\EQ-Tools  
If this folder is deleted, you cannot display data collected by the EQ-ServerService in the past even if you installed EQ-Viewer again.

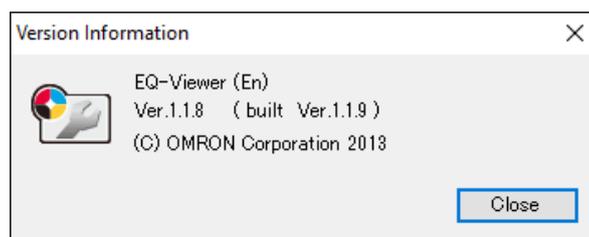
## 3.6. Version Information

You can check the version by the following steps.

Note: Displayed content may differ depending on the version.

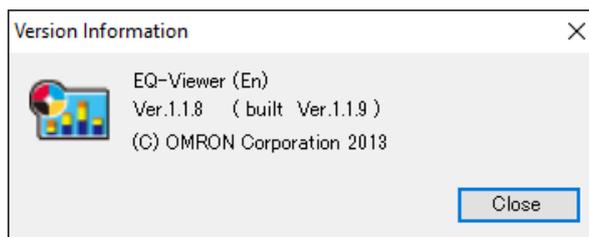
### ■ Checking Version Information on EQ-Manager

On the EQ-Manager toolbar, clicking [Help] - [Version Information] shows the version information.



### ■ Checking Version Information on EQ-GraphViewer

On the EQ-GraphViewer toolbar, clicking [Help] - [Version Information] shows the version information.



## 3.7. Change Data Folder

In the initial setting, data used for the server are created under "C:\¥OMRON¥EQ-Tools".  
To change the folder, use the steps described below:

(1) Stop EQ Server logging.

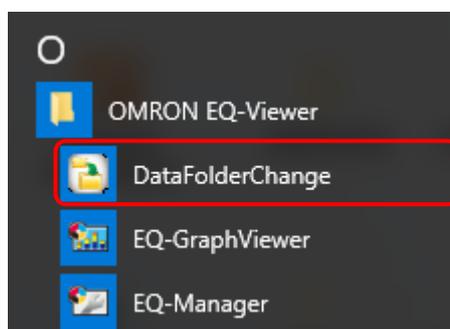
For how to stop, see "4.9.5.2 Stopping EQ Server Operation and Management" (p.4-173).

(2) Terminate EQ-Manager and EQ-GraphViewer if they are running.

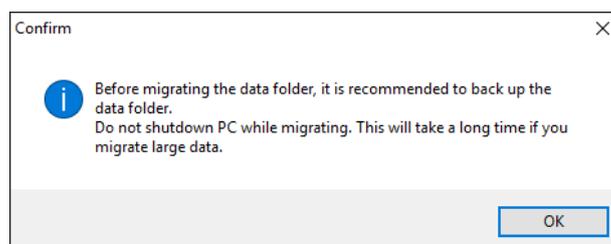
If you collected data, back up the data just in case. For how to back up data, see "6.1 Backup" (p.6-1).

(3) From the menu, start up DataFolderChange.

(This program stops services and Windows messages may appear. In such a case click [OK])

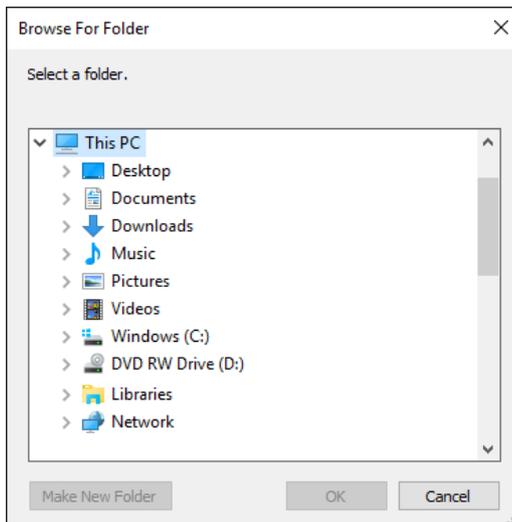


(4) When started up, the following confirmation message appears. Click [OK].

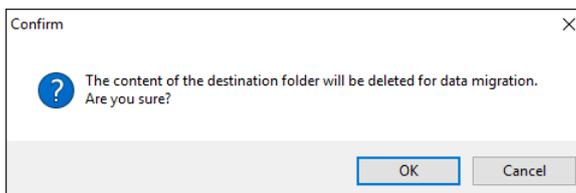


### 3.Installation and Uninstallation

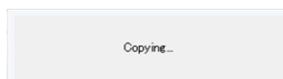
(5) The following screen appears. Click [Select] and select a folder to change.



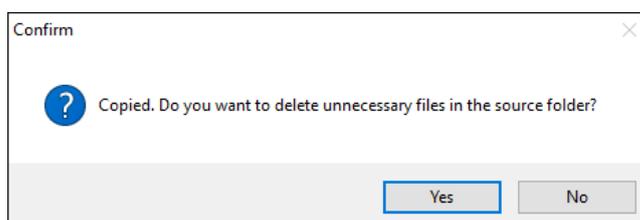
(6) After selecting a folder, click [OK]. Clicking the button shows a dialog box confirming that the content of the destination folder for data migration should be deleted. Click [OK]. Clicking [OK] starts copying. Copying may take time depending on data amount of the source folder.



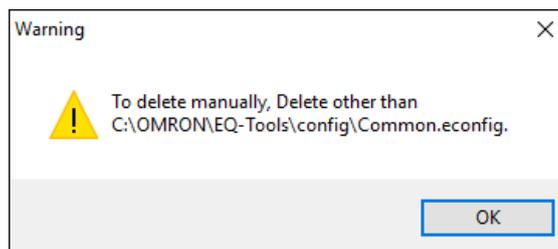
During copying, the following window appears.



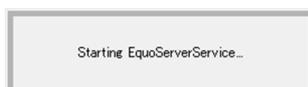
(7) When copying is completed, a message appears asking if source data should be deleted. Click either button.



Clicking [Yes] deletes the content of the destination folder for data migration. Clicking [No] shows a confirmation dialog box. Click [OK].



Clicking [OK] starts services and terminates the program.



#### **Precautions for Correct Use**

- As a destination folder, the drive path actually existing on PC can be specified. The network path is not available.
- When the capacity of the destination folder is low or when there is no access permission, data folder change will fail. Properly specify the folder. If, however, the data folder change fails during the process, the target data or the setting will not be deleted.
- You may fail to change data folders if you are viewing the source or destination folder using Windows Explorer. Close Windows Explorer before changing data folders.

## 4. Operations of Setup & Management Tool

### EQ-Manager

#### 4.1. Overview

EQ-Manager is software to configure settings and manage operation of EQ100 and EQ server.

Major functions include:

- Setup for EQ100 to collect measured data
- Setup for the EQ server to collect measured data from EQ100
- Setup for email notification and general-purpose output upon measured data exceeding control values
- Connection settings for external FTP server and SNTP server
- Change of system configuration and maintenance of the EQ server and summary data DB after start operation and management

## 4.2. Basic Operation Steps

Described below are basic operation steps of EQ-Manager.

### 4.2.1. From Creation of EQ Project to Start of EQ100 Operation

<b>1. Creating an EQ project</b> Create an EQ project by EQ-Manager.	Setting Required/ As You Want
<b>(1) Starting up EQ-Manager</b> Start up EQ-Manager. (See "4.4 Starting/Ending EQ-Manager" p.4-10)	—
<b>(2) Creating an EQ100 project</b> Create an EQ project and specify a project name as you want. (See "4.6.1 Creating New EQ Project" p.4-18)	Required
<b>(3) Editing the EQ100 IP address</b> Edit the IP address of EQ100 LAN-connection port from "192.168.200.200" as the factory shipment to an IP address available for connection. (See "4.6.2 Editing EQ100 IP Address/Device Name " p.4-19)	Required
<b>(4) Registering a connection device</b> Register a device if you use a wireless unit. (See "4.6.3.1 EQ100 Connection Device Registration" p.4-21)	As you want
<b>(5) Registering a measurement device</b> Register a measurement device to connect to EQ100. (See "4.6.3.2 EQ100 Measurement Device Registration" p.4-25)	Required
<b>(6) Registering a channel</b> Select and register a channel retained by a measurement device as an EQ100 collecting target. (See "4.6.3.3 EQ100 Channel Registration" p.4-45)	Required
<b>(7) Registering a group</b> Register it if you need to view/summarize collected data on a group basis such as an area. A Web browser (Web UI function) is used to display. (See "4.6.3.4 EQ100 Group Registration" p. 4-56)	As you want
<b>(8) Advanced setting</b> Configure the following items if necessary: Monitoring alarm (control value setting, notification setting, periodic report setting, transmission destination setting, output terminal setting) RS-485 communications port setting, operation channel setting, data type setting, system setting, network setting, SD card output setting, user-specified file setting (See "4.6.4 EQ100 Advanced Setting" p.4-62)	As you want



## 2. Saving the EQ project

Save the created EQ project to a file.

<b>Refer to</b>	"4.7.1 Saving and Storing EQ100 Project" p.4-97
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## 3. Writing the EQ project

Write the created EQ project to EQ100.

<b>Refer to</b>	"4.7.2 Writing Project to EQ100" p.4-98
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## 4. Communication test

Collect measured data from measurement devices to EQ100 and perform communication test.

<b>Refer to</b>	"4.7.4 EQ100 Communication Test" p.4-107
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## 5. Checking measured values

Check that measured values collected by EQ100 should be proper ones.

Use the Web UI function of EQ100 to view a simple graph to compare with actual measured values of the measurement device for proper settings and wiring.

<b>Refer to</b>	"EQ100 User's Manual"
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## 6. Starting logging (starting EQ100 operation and management)

Start the operation and management of EQ100.

<b>Refer to</b>	"4.7.6.1 Starting EQ100 Operation and Management" p.4-110
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## 4.2.2. From Creation of EQ Server Project to Start of EQ Server Operation

<b>1. Creating an EQ server project</b> Create an EQ server project by EQ-Manager.	Setting Required/As You Want
<b>(1) Create a new EQ server project</b> Create an EQ server project and specify a project name as you want. (See "4.8.1 Creating New EQ Server Project" p.4-116)	Required
<b>(2) Registering EQ100</b> Register EQ100 for collecting by the EQ server. (See "4.8.3.1 Registering EQ Server Collecting Device" p.4-118)	Required
<b>(3) Registering a channel (loading an EQ project)</b> Read an EQ project to the EQ server project to reuse channel registration information. Select a channel as a collecting target for the EQ server to read. (See "4.8.3.2 Registering EQ Server Channel (Loading EQ Project File)" p.4-121)	Required
<b>(4) Registering a group</b> Register it if you need to view/summarize collected data on a group basis such as an area. You can use EQ-GraphViewer to display. (See "4.8.3.3 Registering EQ Server Group" p.4-128)	Required
<b>(5) Advanced setting</b> Configure the following items if necessary: Control value setting, data type setting, system setting (See "4.8.4 EQ Server Advanced Setting" p.4-134)	As you want



<b>2. Saving the EQ server project</b> Save the EQ server project to a file.	
<b>Refer to</b>	"4.9.1 Saving/Storing EQ Server Project" p.4-162



<b>3. Writing the EQ server project</b> Write the created EQ server project configuration information to the EQ server. Always save and store the EQ server project after you wrote it to the EQ server.	
<b>Refer to</b>	"4.9.2 Writing EQ Server Project" p.4-163



<b>4. Communication test</b> Perform Communication test between EQ100 and the EQ server.	
<b>Refer to</b>	"4.9.4 EQ Server Communication Test" p.4-169

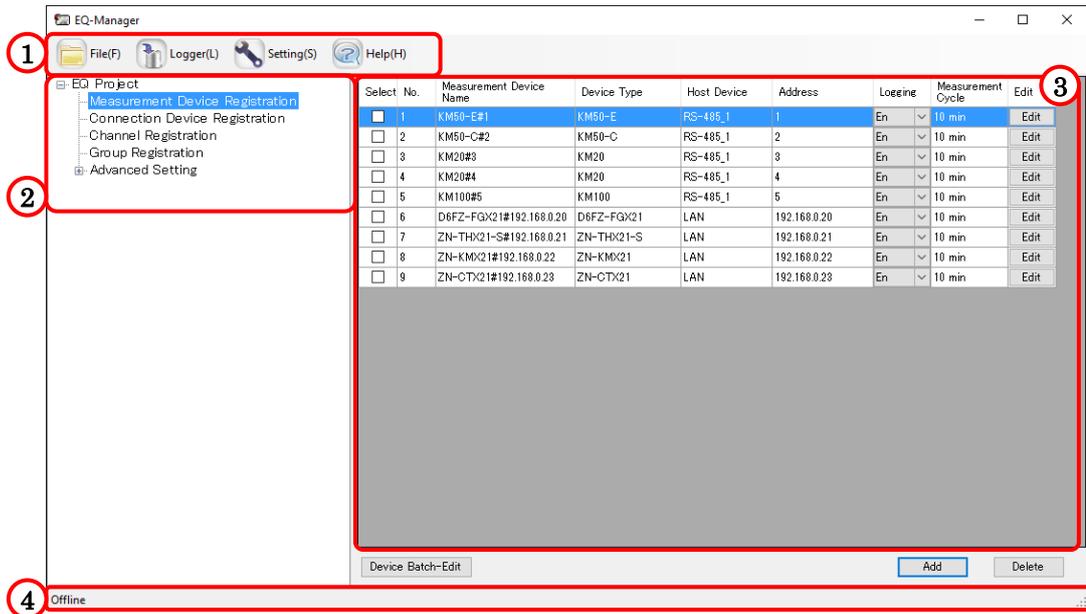


<b>5. Starting logging (starting EQ server operation and management)</b> Start the operation and management of the EQ server.	
<b>Refer to</b>	"4.9.5.1 Starting EQ Server Operation and Management" p.4-172

## 4.3. Description of Screen

### 4.3.1. Main Screen

Described below are descriptions of EQ-Manager main screen.



No.	Item	Description
1	Toolbar	Icon buttons are arranged to call the functions. Clicking an icon displays the respective function which you can select.
2	Setting Menu	Under the project, the selection menu appears in a tree view. Displayed items may differ depending on a project type.
3	Setting Details View Area	Selecting the setting menu displays its detail.
4	Status Bar	Shows current EQ-Manager status and progress of the processing.

### 4.3.2. Toolbar Functions



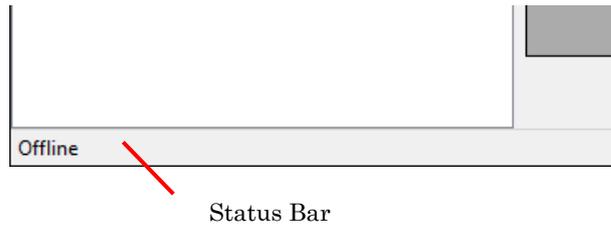
On the EQ-Manager toolbar, menu items of [File], [Logger], [Setting], and [Help] are provided for the following functions:

The menu items are displayed as operable when it is available and grayed-out when it is unavailable.

Menu	Function Name	Details
File	Create New File	Creates a new project.
	Open	Reads a saved project.
	Close	Closes the project.
	Save	Saves the created project to a file.
	Exit	Ends EQ-Manager.
Logger	Online	Switches the EQ-Manager status from offline to online. Communications become available between EQ100 and the EQ server.
	Offline	Switches the EQ-Manager status from online to offline.
	Start Logging	Starts logging (operation and management) of EQ100 or the EQ server.
	Stop Logging	Stops logging (operation and management) of EQ100 or the EQ server.
	Start Test	Starts communication test between EQ100 and a measurement device or between EQ100 and the EQ server.
	Stop Test	Stops the communication test being performed.
	Write Settings	Writes the project file created by EQ-Manager to EQ100 or the EQ server.
	Download Settings	Loads the project file from EQ100 or the EQ server and overwrites to the project of EQ-Manager being opened.
Setting	Password Setting	Manages the password for saving a project or writing the setting.
Help	EQ-Manager Help	Displays the manual.
	Version Information	Displays the EQ-Manager version.

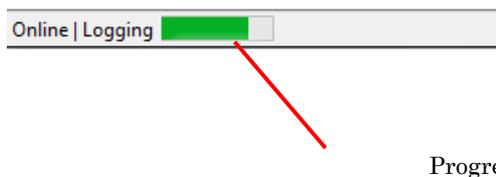
### 4.3.3. Status Bar Functions

The status bar of EQ-Manager displays a status with EQ100 or the EQ server.



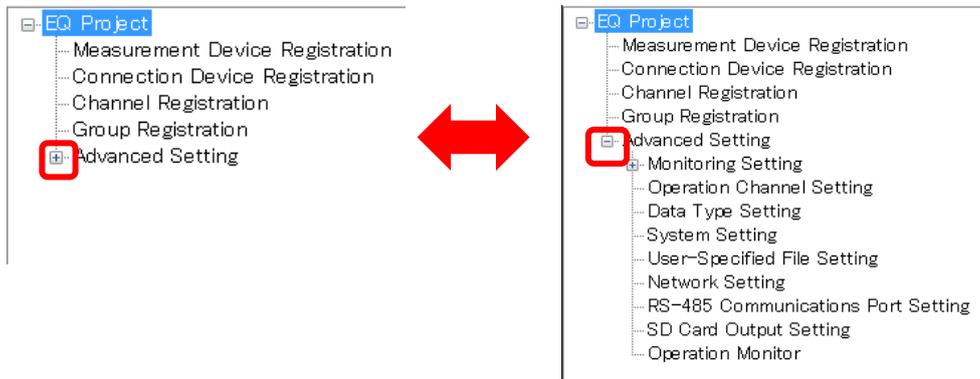
Status Bar Message	Details
Offline	EQ-Manager is not being connected to EQ100 or the EQ server.
Online	EQ-Manager is being connected to EQ100 or the EQ server.
Communication Error	Not connected to EQ100 or the EQ server due to a communication error while transitioning from offline to online or a communication error occurred while online
Online   Logging	Performing logging The progress bar appears as well while the operation monitor is being displayed.
Online   Logging Comm.Error	Logging is stopped due to a communication error while the operation monitor is being displayed
Online   Stopped	Logging or communication test was stopped
Online   Comm. Testing	Performing communication test The progress bar appears as well while the operation monitor is being displayed.
Online   Comm. Testing Comm. Error	Communication test is stopped due to a communication error while the operation monitor is being displayed

When displaying the Operation Monitor screen during the logging or the communication test, the progress bar appears, showing that the system monitors the operation.



### 4.3.4. Deploying Setting Menu

The setting menu has a tree structure and can be deployed and collapsed. Clicking [+] deploys the tree view. Clicking [-] collapses the tree view.



### 4.3.5. Sorting Items

Clicking an item sorts the in ascending or descending order. It allows checking setup details in the setting item.

e.g.: Ascending Order of Device Type

No.	Measurement Device Name	Device Type	Host Device
1	KM50-E#1	KM50-E	RS-485_1
2	KM50-C#2	KM50-C	RS-485_1
3	KM1-EMU8A#1	KM1-EMU8A	RS-485_2
4	KM1-PMU1A#2	KM1-PMU1A	RS-485_2

No.	Measurement Device Name	Device Type	Host Device
3	KM1-EMU8A#1	KM1-EMU8A	RS-485_2
4	KM1-PMU1A#2	KM1-PMU1A	RS-485_2
2	KM50-C#2	KM50-C	RS-485_1
1	KM50-E#1	KM50-E	RS-485_1

### 4.3.6. Changing Item Column Width

Dragging or double-clicking the right edge of an item changes the width of the item column.

Select	No.	Measurement Device Name	Device Type	Host Device
<input type="checkbox"/>	3	KM1-EMU8A#1	KM1-EMU8A	RS-485_2
<input type="checkbox"/>	4	KM1-PMU1A#2	KM1-PMU1A	RS-485_2
<input type="checkbox"/>	2	KM50-C#2	KM50-C	RS-485_1
<input type="checkbox"/>	1	KM50-E#1	KM50-E	RS-485_1

### 4.3.7. Selecting Items

Right-clicking on a line shows the menu, from which you can change selection of check boxes of multiple lines.

You can select:

One line: By clicking the channel line.

Multiple serial lines: By pressing and holding a [Shift] key while clicking the first and the last channel lines.

Multiple independent lines: By pressing and holding a [Ctrl] key while clicking.

- Or you can select the check boxes by dragging the mouse.

All lines: By pressing and holding a [Ctrl] key while pressing the [A] key.

Then right-clicking the mouse button displays the menu shown below. Selecting [Select] selects the check box of the selected line. Selecting [Clear] clears the check box of the selected line.

Select	No.	Channel Name	Collecting Device Name	Measurement Device Name	Data Type	Channel Address	Logging	Edit
<input type="checkbox"/>	1	KM50-E#1#Total in...	EQ100#192.168.200.2...	KM50-E#1	Electric energy	1	En	Edit
<input type="checkbox"/>	2	KM50-C#2#Total i...	EQ100#192.168.200.2...	KM50-C#2	Electric energy	2	En	Edit
<input type="checkbox"/>	3	KM20#3#Electric e...	EQ100#192.168.200.2...	KM20#3	Electric energy	3	En	Edit
<input type="checkbox"/>	4	KM20#4#Electric e...	EQ100#192.168.200.2...	KM20#4	Electric energy	4	En	Edit
<input checked="" type="checkbox"/>	5	KM100#5#Electric ...	EQ100#192.168.200.2...	KM100#5	Electric energy	5	En	Edit
<input checked="" type="checkbox"/>	6	D6FZ-FGX21#192...	EQ100#192.168.200.2...	D6FZ-FGX21#192...	Integrated flo...	6	En	Edit
<input checked="" type="checkbox"/>	7	ZN-THX21-S#192...	EQ100#192.168.200.2...	ZN-THX21-S#192...	Temperature	7	En	Edit
<input checked="" type="checkbox"/>	8	ZN-THX21-S#192...	EQ100#192.168.200.2...	ZN-THX21-S#192...	Humidity	8	En	Edit
<input checked="" type="checkbox"/>	9	ZN-KMX21#192.16...	EQ100#192.168.200.2...	ZN-KMX21#192.1...	Electric energy	9	En	Edit
<input type="checkbox"/>	10	ZN-CTX21#192.16...	EQ100#192.168.200.2...	ZN-CTX21#192.16...	Electric energy	10	En	Edit
<input type="checkbox"/>	11	D6FZ-FGX21#192...	EQ100#192.168.200.2...	D6FZ-FGX21#192...	Integrated flo...	11	En	Edit
<input type="checkbox"/>	12	D6FZ-FGX21#192...	EQ100#192.168.200.2...	D6FZ-FGX21#192...	Integrated flo...	12	En	Edit
<input type="checkbox"/>	13	E5CC#6#Temperat...	EQ100#192.168.200.2...	E5CC#6	Temperature	13	En	Edit
<input type="checkbox"/>	14	E5CC#7#Temperat...	EQ100#192.168.200.2...	E5CC#7	Temperature	14	En	Edit
<input type="checkbox"/>	15	K3GN#8#Current v...	EQ100#192.168.200.2...	K3GN#8	No unit	15	En	Edit

## 4.4. Starting/Ending EQ-Manager

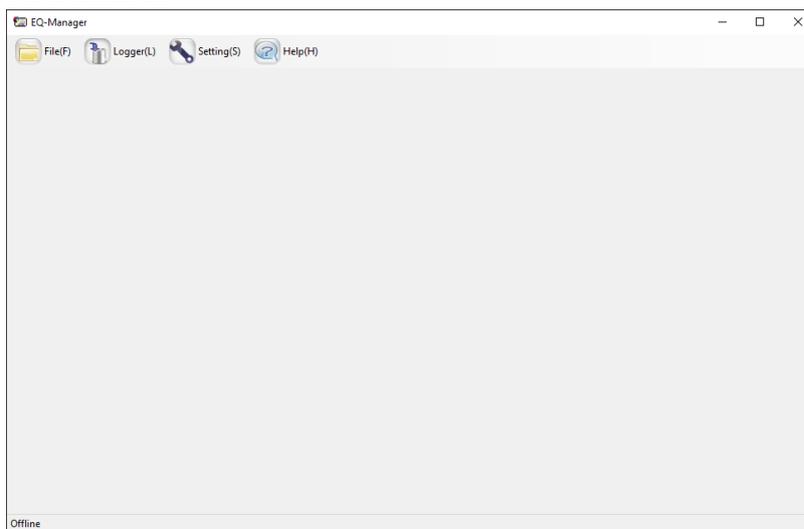
### 4.4.1. Starting EQ-Manager

Press the Windows Start button, and click [All Programs] - [OMRON EQ-Viewer] - [EQ-Manager].

Or, double-click the EQ-Manager icon on the desktop.

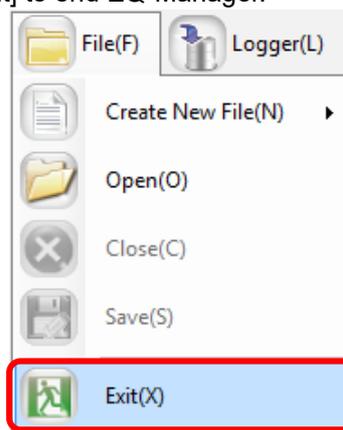


EQ-Manager is activated.

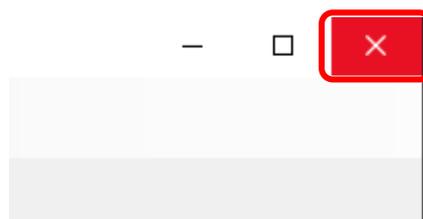


### 4.4.2. Ending EQ-Manager

On the toolbar, click [File] - [Exit] to end EQ-Manager.



Or, click [x] on the top right of the screen to end.



## 4.5. Project Overview

In EQ-Manager, configuration information of EQ100 or the EQ server is created as a "project".

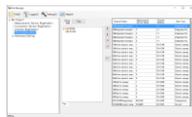
There are two types of "projects": EQ project and EQ server project.

### 4.5.1. EQ Project

An EQ project configures registration of measurement devices to collect data for EQ100, as well as registration of collecting channels and EQ100 operation settings.

Use EQ-Manager to create a project and write it to EQ100.

If there are more than one EQ100 unit, EQ projects must be created for each EQ100.



EQ Project



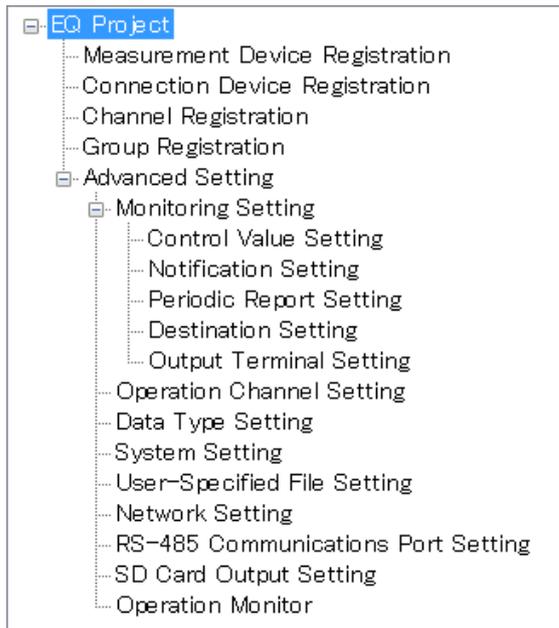
Write



EQ100

### 4.5.2. Details of EQ Project Settings

Shown below are EQ project setting details:



EQ Project		Edit an EQ project name, EQ100 LAN connection port IP address, etc.		
Measurement Device Registration		Register a measurement device to connect to EQ100.		
Connection Device Registration		Register this item for a connection device to connect to EQ100.		
Channel Registration		Register a measurement channel for each measurement device to collect for EQ100.		
Group Registration		Classify measurement devices registered for web viewing into groups. Register it if you need to manage groups based on applications, such as areas and rooms.		
Advanced Setting	Monitoring Setting	Control Value Setting	Specify the upper and lower limit values for each channel.	
		Notification Setting	Configure an email destination group to notify upon data exceeding the upper or limit in the control value setting or upon a device failure.	
		Periodic Report Setting	An email notifies EQ100 operations.	
		Destination Setting	Specify an email destination of notification setting and periodic report setting on a group basis.	
		Output Terminal Setting	Set the EQ100 general-purpose output operations.	
	Operation Channel Setting		Create a basic unit operation channel/free operation channel.	
	Data Type Setting		Create a new data type or edit an existing one.	
	System Setting		Configure the password setting for access, language/time zone setting, and time synchronization setting through the Web UI function.	
	User-Specified File Setting		You can create a measurement data file in a user-specified cycle and format. The file can be viewed and transferred using FTP.	

#### 4. Operations of Setup & Management Tool EQ-Manager

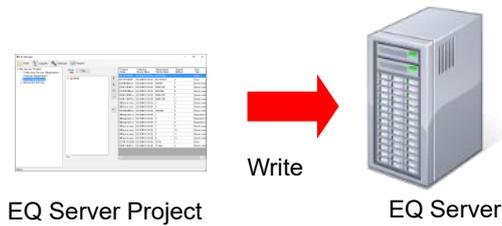
		Network Setting	Configure EQ100 LAN/sub-LAN connection port IP addresses, EQ100 email transmission setting (sender setting), and FTP setting.
		RS-485 Communications Port Setting	Configure the communications setting for each EQ100 RS-485 port.
		SD Card Output Setting	Specify a schedule to output collected data to the SD card attached to EQ100.
		Operation Monitor	You can view a measurement device status during testing or logging while connecting online.

### 4.5.3. EQ Server Project

An EQ server project configures registration of EQ100 units to collect data for the EQ server, as well as registration of collecting channels and EQ server operation settings.

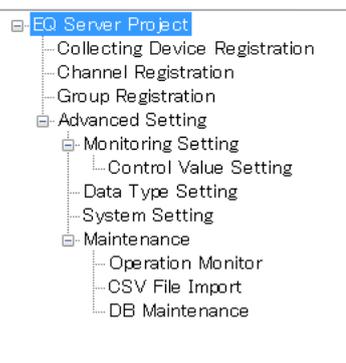
Use EQ-Manager to create a project and write it to the EQ server.

If there are more than one EQ100, register the EQ100 units to one EQ server project.



### 4.5.4. Details of EQ Server Project Settings

Shown below are EQ server project setting details:



EQ Server Project			Edit an EQ server project name.
Collecting Device Registration			Register EQ100 to connect to the EQ server.
Channel Registration			Register a measurement channel for each measurement device to collect for the EQ server. Read the EQ project setting to register.
Group Registration			Classify registered measurement devices into groups. Register it if you need to manage groups based on applications, such as areas and rooms.
Advanced Setting	Monitoring Setting	Control Value Setting	Specify the upper and lower limit values for each channel.
	Data Type Setting		Create a new data type or edit an existing one.
	System Setting		Specify the number of days to collect data if logging from a collecting device has not been performed. Specify the start date and time by day, month, and year.
	Maintenance	Operation Monitor	You can view a collecting device status upon test or logging start while connecting online.
CSV File Import		You can import a CSV file outputted by EQ100 to view a graph by EQ-GraphViewer.	
DB Maintenance		The following functions are provided: - To delete all data stored in the EQ server - To delete channel data by specifying a time period - To copy channel data to other channel by specifying a time period	

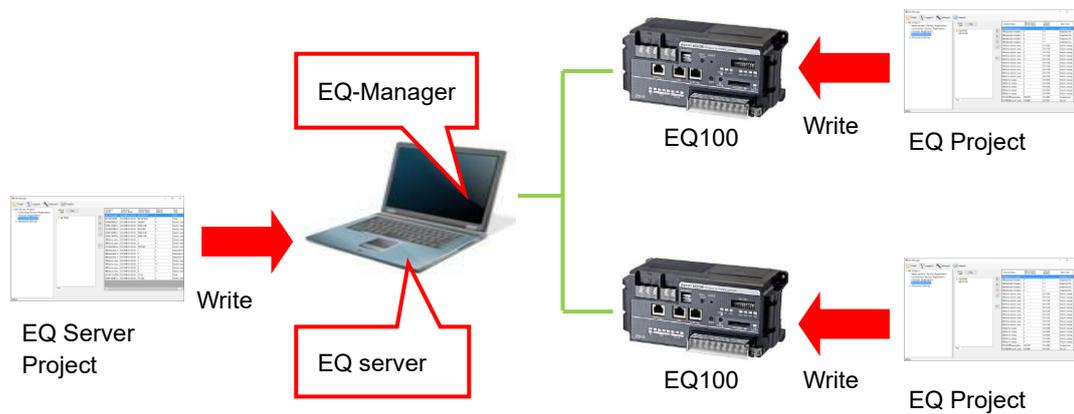
### 4.5.5. System Configuration and Required Project

Depending on a system configuration such as software to use, the number of EQ100 units, and network usage, a project to create may differ.

#### 4.5.5.1. Standalone Configuration

Under this system configuration, create EQ projects for the number of the units and one EQ server project.

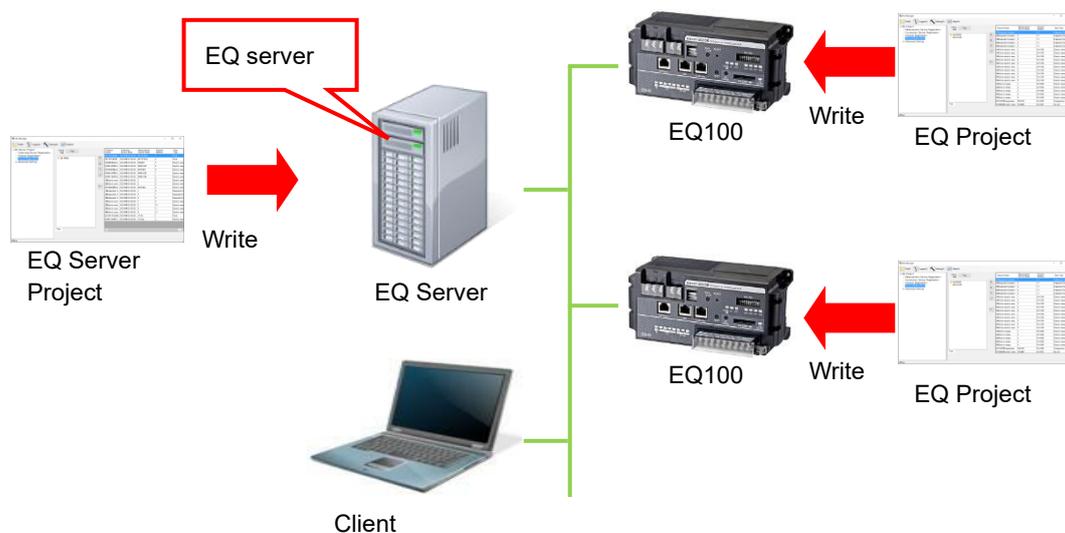
- (1) If the number of the EQ100 units is more than one, create one project for each unit and write it to respective EQ100 unit.
- (2) Create one EQ server project and write it to the EQ server. In this case, use the computer you are using to write the EQ server project to itself.



#### 4.5.5.2. Client-Server Configuration

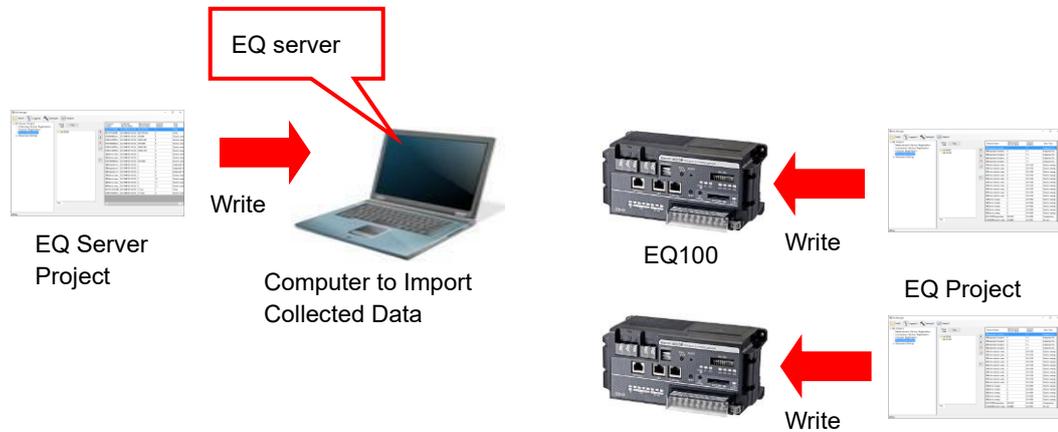
Under this system configuration, create EQ projects for the number of the units and one EQ server project.

- (1) If the number of the EQ100 units is more than one, create one project for each unit and write it to respective EQ100 unit.
- (2) Create one EQ server project and write it to the EQ server. You do not need to write the EQ server project to the client computers.



### 4.5.5.3. EQ100 Offline Configuration

Under this system configuration, create EQ projects for the number of the units and one EQ server project for the computer to which collected data are imported.



### 4.5.6. EQ-Manager Status and Project Operation

Shown below are statuses of connection between EQ-Manager and EQ100/EQ server.

Task \ Status	Offline	Online			
		Communication Test		Logging (Operation)	
		Under Operation	Stopping	Under Operation	Stopping
Create New/Open EQ Project	Yes	N/A	N/A	N/A	N/A
Save Project	Yes	N/A	Yes	N/A	Yes
Write/Read Project	N/A	N/A	Yes	N/A	Yes

Yes: Available, N/A: Not available

## 4.5.7. Cautions on Creating/Changing Project

### 4.5.7.1. Changing Project and Inheriting Data

Pay attention on the following items if you want to keep (inherit) data collected by a collecting/measurement device when you need to change a project such as adding/deleting another collecting/measurement device.

#### Precautions for Correct Use

- **To change a project, open the project file having configured for EQ100 or the EQ server being under operation.**

Even if you create a new project file with the same configuration, the data collected in the past cannot be viewed by EQ-GraphViewer and EQ100 Web UI function.

#### Precautions for Correct Use

- **Always save the EQ server project "after you wrote it" to the EQ server.**

EQ-ServerService adds specific information to an EQ server project itself when written. If you update the project using an EQ server project before being written, EQ-ServerService recognizes it as an entirely different EQ server project, resulting in unsuccessful data inheritance.

Note that if you accidentally lost the project file, load the configuration from EQ100 for the EQ project (see "4.7.3 Reading EQ100 Setting" p.4-104.). For an EQ server project, load the configuration from the EQ server (see "4.9.3 Reading EQ Server Setting" p.4-166).

### 4.5.7.2. Changing EQ Project and Reflecting to EQ Server Project

#### Precautions for Correct Use

If you changed an EQ project, you must reflect the change to the EQ server project. To reflect the change, use channel registration of the EQ server project to load the EQ project again.

If a measurement cycle of EQ100 is changed to a longer value during the system operations, total values for one cycle including the changed hour cannot be properly collected.

### 4.5.7.3. Full-Width Character Input

#### Precautions for Correct Use

EQ-Manager uses the UTF-8 character code. In UTF-8, the maximum number of full-width characters you can enter varies depending on the entered characters. The maximum number of characters described in this manual is just a guideline.

### 4.5.7.4. Language type

#### Precautions for Correct Use

characters you can enter varies depending on the entered characters. The maximum number of characters described in this manual is just a guideline.

## 4.6. Creating EQ100 Project

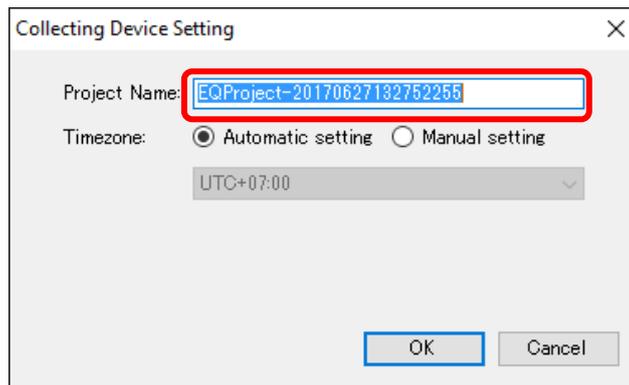
### 4.6.1. Creating New EQ Project

Create a new EQ project.

(1) On the toolbar, click [File] - [Create New File] - [EQ Project].



(2) In the [Collecting Device Setting] dialog box, enter an EQ project name.



Item	Description
Project Name	Enter a project name. By default, date and time of creation is displayed as a project name. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Time Zone	Specify a time zone. If you select Auto Setting, the time zone of the PC is used. If you select Manual Setting, you can select from the list(*). * Time zone list: UTC+07:00, UTC+08:00, UTC+09:00

#### Reference

- EQ-Manager internally uses UTF-8 that can support world-wide characters and using full-width characters requires larger memory capacity than using half-width characters by about three times.

(3) Click [OK] to view the EQ project setup menu.



Setting Menu

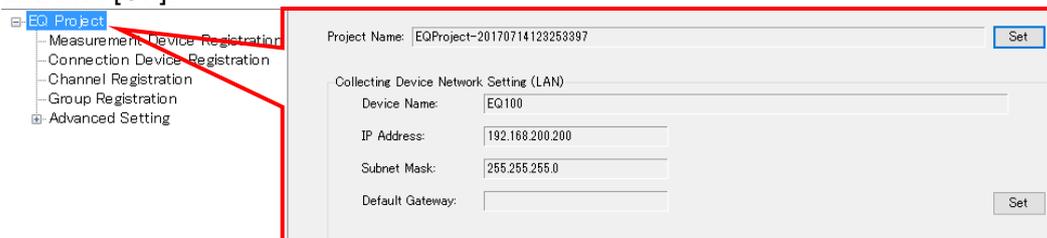
### 4.6.2. Editing EQ100 IP Address/Device Name

This section describes how to edit an EQ project name, device name, and a LAN connection port IP address of EQ100.

#### ■ Viewing/Editing Setup Screen

Clicking [EQ Project] in the setup menu displays the following screen.

To edit an item, click the respective [Set] button to display the setup dialog box. Edit the item and click [OK].



Item Name		Details
Project Name		Edit the project file name. When a new project is created, a name entered in the [EQ100 Setting] dialog box appears. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Collecting Device Network Setting (LAN)	Device Name	Set an EQ100 device name. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
	IP Address	Configure an IP address of EQ100 LAN connection port. <Initial Value> 192.168.200.200
	Subnet Mask	Specify the value based on the network environment. <Initial Value> 255.255.255.0
	Default Gateway	Specify the value based on the network environment. <Initial Value> (None)

The IP address, subnet mask, and default gateway edited in the screen are synchronized with the LAN connection port configuration in the network setup described below.

"4.6.4.6 EQ100 Network Setup (LAN, Email Transmission, FTP Transfer, FTP Server)" (p.4-90),  
Configuring EQ100 LAN Connection Port

Editing either one reflects the settings to the other.

#### Reference

- In the [EQ Project Setting] screen, only the EQ100 LAN connection port is configured. To configure the sub-LAN connection port, see "4.6.4.6 EQ100 Network Setup (LAN, Email Transmission, FTP Transfer, FTP Server)" (p.4-90).

### 4.6.3. EQ100 Collecting Settings

The collecting setting registers measurement devices to connect to EQ100, and registers a channel of the measurement device for collecting.

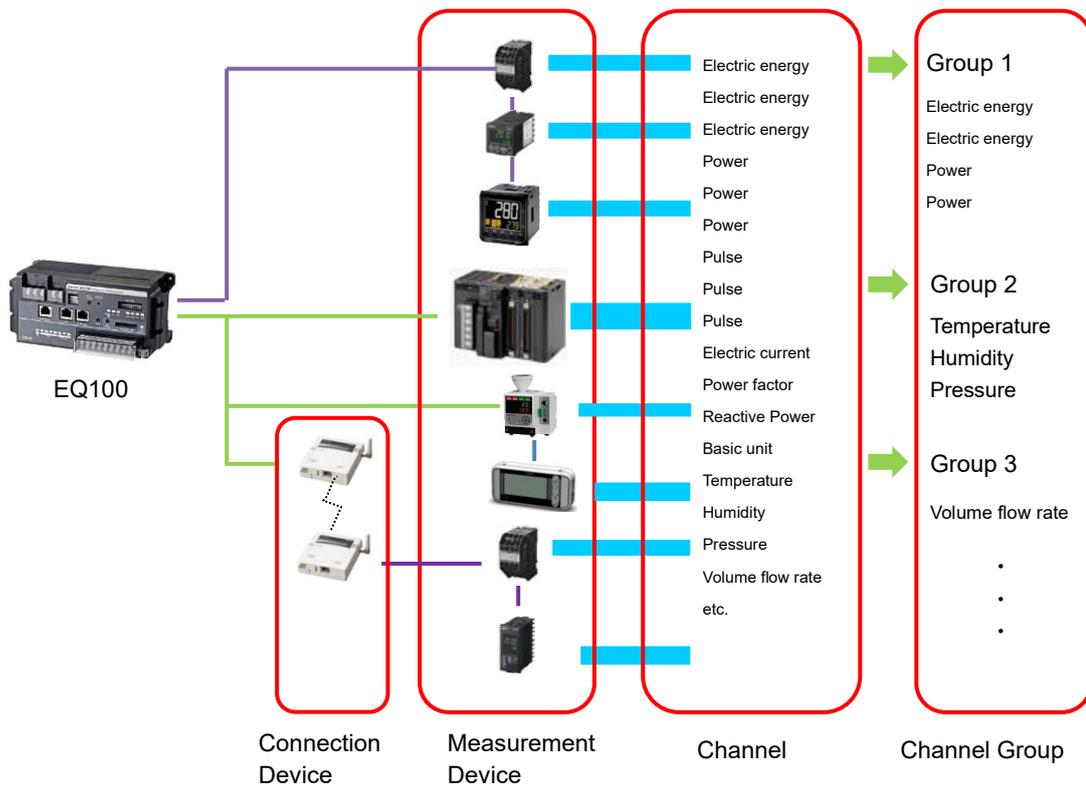
In addition, you can group the registered channels.

Connection Device: A device that only relays on the radio channel and does not have a measurement channel

Measurement Device: A device that has a measurement channel

Channel Registration: To specify measurement channels among those retained by measurement devices

Channel Group: Grouped channels being registered



#### 4.6.3.1. EQ100 Connection Device Registration

This registration is not required if no wireless unit is to be connected.

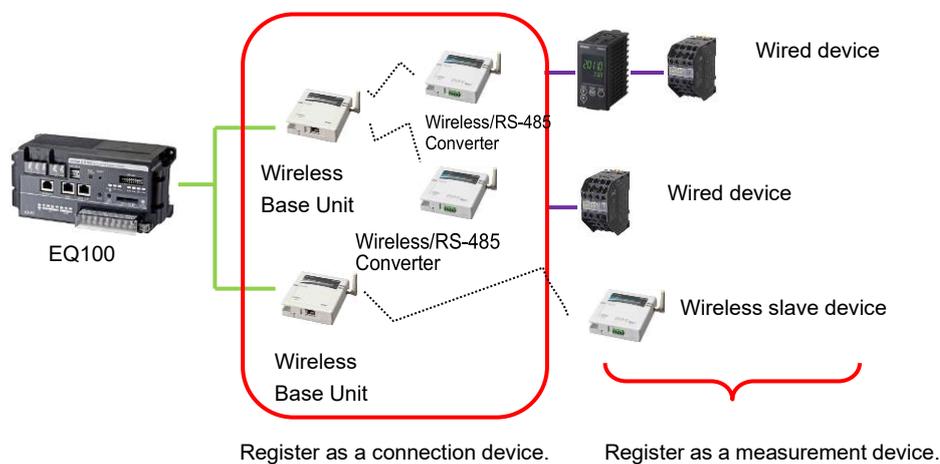
To connect a measurement device through the wireless master unit, first register the wireless master unit and the wireless/RS-485 converter as a connection device.

A wireless sensor or a RS-485-connected connection device must be registered as a measurement device connected to the wireless master unit or wireless/RS-485 converter registered as its connection device.

Whether a device should be registered as a connection device or a measurement device depends on the measurement function.

See below for registration.

Wireless Unit Type	Function	Registration
Wireless Unit Master (LAN) (WZ-MLAN01)	Wireless Master Unit (No measurement function, relaying only)	Register as a connection device
Wireless Unit Slave (CompoWay/F), WZ-SRS01	Wireless/RS-485 converter (No measurement function, relaying only)	
Wireless Device Unit	Wireless Slave Unit (with measurement function)	Register as a measurement device with a connection device as its destination
An RS-485-connected device to be connected to a wireless/RS-485 converter	Wireless Device (with measurement function)	



#### Reference

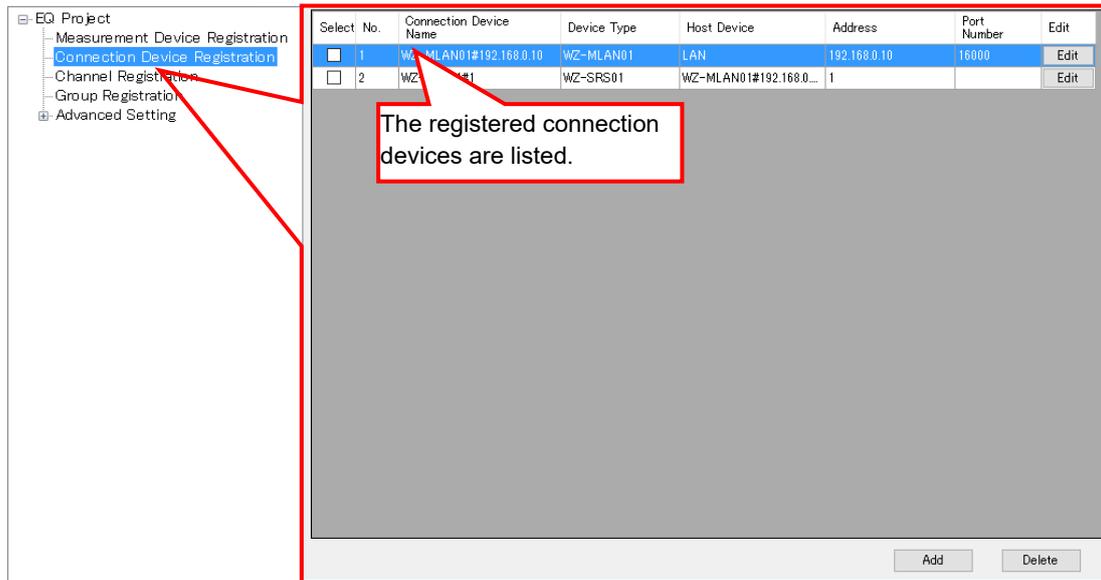
A radio relay unit (router) relays radio wave between the wireless master device and wireless slave devices or between the wireless master device and wireless/RS-485 converter for a longer distance.

The radio relay unit is automatically detected by wireless devices and you do not need to register it to an EQ project.

You just need to configure the setting on wireless devices. For how to configure, see manual of the radio relay unit.

### ■ Viewing Registration Screen

In the setting menu, click [Connection Device Registration].



Item	Description
Select	Selecting the [Select] check boxes (☑) and clicking [Delete] deletes all the selected connection devices.
No.	The number serially assigned in the input order.
Connection Device Name	The entered connection device name is displayed.
Unit Type	A type of the connection device.
Host Unit	A name of the upstream device to which the connection device is connected. In case of the wireless master device, "LAN" is displayed. For the wireless/RS-485 converter, the wireless master device is displayed.
Address	An address of the connection device. In case of the wireless master device, its IP address is displayed. For the wireless/RS-485 converter, the wireless unit ID is displayed.
Port Number	The port number of the connection device (for the wireless master unit only).
Edit	To change registration details of a connection device:

### ■ Adding Connection Device

#### Precautions

- To register a wireless/RS-485 converter (WZ-SRS01), first add the wireless master unit as a destination. If a wireless master device is not registered, the wireless master device cannot be configured in a selection of destination to connect even if you try to register a wireless/RS-485 converter (WZ-SRS01).

(1) Click [Add].



(2) In the [Add Connection Device] dialog box, enter the registration details of the connection device.

Item	Description
Name	Enter a name of the connection device. If not entered, "model"+"#"+"connection device address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Type	A list of connection device types appears. Select a connection device type. In case of the wireless master device, select [WZ-MLAN01]. In case of the wireless/RS-485 converter, select [WZ-SRS01].
Host Unit	Select an upstream destination for the connection device. In case of the wireless master device, select [LAN]. In case of the wireless/RS-485 converter, select [Wireless Master].
Connection Device Address	Enter the address of the connection device selected in the type field. Details depend on a selected type. For the wireless master device, enter its IP address and port number. For the wireless/RS-485 converter, enter the wireless unit ID.

(3) Clicking [OK] adds the connection device to the list.

**■ Editing Connection Device**

To change registration details of a connection device:

(1) Click the [Edit] button of the connection device you want to change.

<input type="checkbox"/>	1	WZ-MLAN01#192.168.0.10	WZ-MLAN01	LAN	192.168.0.10	16000	Edit
--------------------------	---	------------------------	-----------	-----	--------------	-------	------

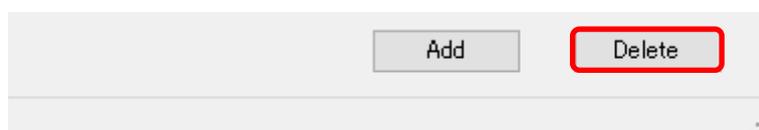
(2) In the [Edit Connection Device] dialog box, change the registration details.

(3) Clicking [OK] changes the registration of the connection device.

**■ Deleting Connection Device**

(1) In the [Connection Device Registration] screen, select the [Select] check box.

(2) Click [Delete].

**Precautions**

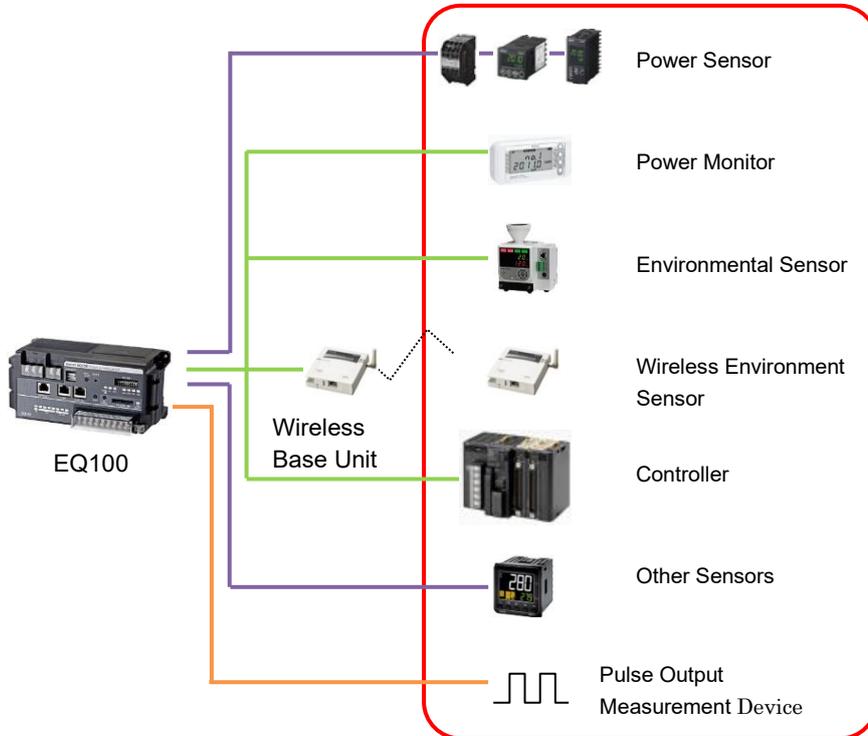
- A connection device cannot be deleted if a measurement device or a wireless/RS-485 converter is being registered downstream of the connection device. First delete the measurement device or the wireless/RS-485 converter before deleting the connection device.

### 4.6.3.2. EQ100 Measurement Device Registration

A measurement device is a device that has a measurement function. Register a measurement device to connect to EQ100.

To acquire pulses from the EQ100 general-purpose input terminal, the general-purpose input terminal must be configured in the measurement device registration.

For the maximum number of measurement devices to EQ100, see "EQ100 User's Manual".



Register a measurement device.

In the measurement device registration, you can perform default channel registration. This function allows automatic registration of major channels of respective measurement device for EQ100 to collect. You can delete unnecessary channels from the auto-registered channels. Manually add other channels by channel registration.

<Add Measurement Device Dialog Box>

Default Channel Registration automatically registers major channels.

<Add Channel Dialog Box>

Auto-register target channel  
Excluded Channel  
Auto-register target channel

Select	Channel Name	Channel Address	Data Type	Edit
<input type="checkbox"/>	KM20#1#P1-P2 voltage (instantaneous value)	C0-0000	Voltage	Edit
<input type="checkbox"/>	KM20#1#P2-P3 voltage (instantaneous value)	C0-0001	Voltage	Edit
<input type="checkbox"/>	KM20#1#I1 current (instantaneous value)	C0-0002	Electric current	Edit
<input type="checkbox"/>	KM20#1#I2 current (instantaneous value)	C0-0003	Electric current	Edit
<input type="checkbox"/>	KM20#1#Active power (instantaneous value)	C0-0004	Power	Edit
<input type="checkbox"/>	KM20#1#Power factor (instantaneous value)	C0-0006	Power factor	Edit
<input type="checkbox"/>	KM20#1#Frequency	C0-0007	Frequency	Edit
<input checked="" type="checkbox"/>	KM20#1#Electric energy	C0-0008	Electric energy	Edit

For target channels of simultaneous registration, see "9.5.2 Measurement Device Channel List" (p9-35.).

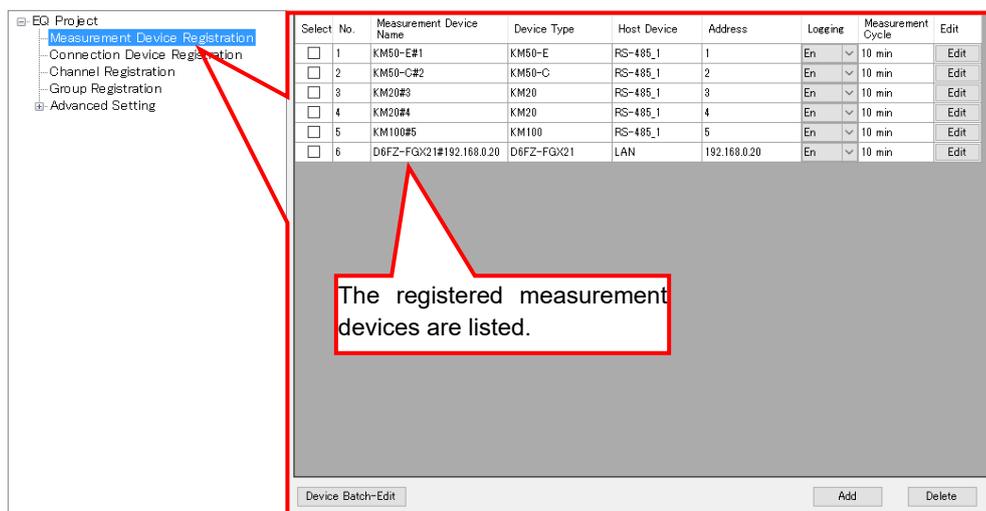
#### ■ Supported Measurement Devices

Shown below are measurement devices that can be registered by measurement device registration.

Measurement Device Type	Model	Measurement Device Name
Power Sensor	KM-N1-FLK	Smart Power Monitor
	KM-N2-FLK	Power Monitor
	KM-N3-FLK	Power Monitor
	KM20-B40-FLK	Smart Power Monitor
	KM100-T□-FLK	Smart Power Monitor
	KM50-E1-FLK	Smart Power Monitor
	KM50-C1-FLK	Smart Power Monitor
	KM1-PMU1A-FLK	Power Measurement Unit
	KM1-PMU2A-FLK	Dual Power System Measurement Unit
	KM1-EMU8A-FLK	Pulse/Temperature Input Unit
KE1-CTD8E	CT Expansion Unit	
Power Logger	ZN-CTX21	Portable Power Monitor
Environmental Sensor	ZN-PD03-S	Air Particle Sensor
	ZN-PD50-S	Air Particle Sensor
	ZN-THX21-S	Air Thermo Station
	ZN-DPX21-S	Differential Pressure Station
	ZN-KMX21	Power Sensor Station
	D6FZ-FGX21	Air Flow Station
Wireless Device Unit	WZ-STH01	Wireless Device Thermo-Humidity Sensor
	WZ-SL01	Wireless Device Light Intensity Sensor
	WZ-STHL01	Wireless Device Thermo-Humidity Light Intensity Sensor
	WZ-SCD01	Wireless Device CO <sub>2</sub> Sensor
	WZ-SP01	Wireless Unit slave (Pulse count)
Other Sensors	K3GN	1/32 DIN Digital Panel Meter
	K3HB	Digital Panel Meter
	E5CC	Digital Temperature Controller
	E5EC	Digital Temperature Controller
	D6FZ-FGT200/500	Air Flow Sensor
Controller	NJ Series	Machine Automation Controller
	NX1P Series	Machine Automation Controller
	CJ1 Series	Programmable Controller
	CJ2 Series	Programmable Controller
Modbus RTU Device	-	-

## ■ Viewing Registration Screen

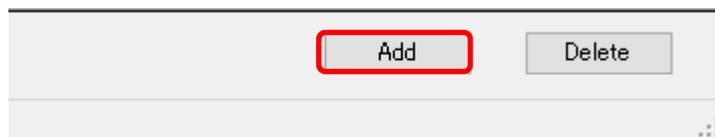
In the setting menu, click [Measurement Device Registration].



Item	Description
Select	Selecting the [Select] check boxes ( <input checked="" type="checkbox"/> ) and clicking [Delete] deletes all the selected measurement devices.
No.	The number serially assigned in the input order.
Measurement Device Name	The entered measurement device name is displayed.
Device Type	A type of the measurement device.
Host Device	The destination or upstream device for EQ100 to connect. LAN, RS-485 communications port number, wireless master device, or wireless/RS-485 converter is displayed.
Address	An address of the measurement device. In case of LAN connection with EQ100, its IP address is displayed. In case of RS-485 connection with EQ100, its unit number is displayed. In case of wireless connection with the wireless master device, the wireless unit ID is displayed. In case of RS-485 connection with wireless/RS-485 converter, its CompoWay/F unit number is displayed.
Logging	Specify if logging (operation and management) from a measurement device should be enabled/disabled. Specify this item if you want to pause data collecting of a measurement device.
Measurement Cycle	Specify a measurement cycle to collect measured values from a measurement device.
Edit	To change registration details of a measurement device:
Device Batch-Edit	You can use this item to view a list of measurement devices and change their device names, addresses, and measurement cycles at the same time.

■ Adding Measurement Device

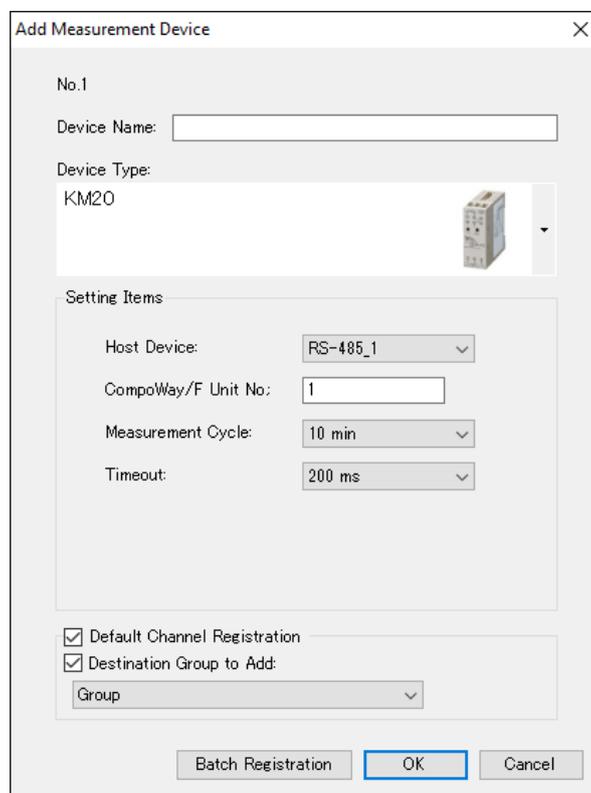
(1) Click [Add].



(2) In the [Add Measurement Device] dialog box, enter the registration details.

Details depend on a measurement device type to register as shown below. Furthermore, details may differ for the same measurement device type depending on a model and connection destination. For details of measurement device settings, see "9.5.1 Measurement Device Setting List" (p9-27.).

<Power Sensor>



Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"CompoWay/F unit number" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement devices appears with photos. Select a measurement device type to add.
Setting Items	Details depend on a selected measurement device type. [Host Device]: Select an RS-485 port number, from [RS-485_1] to [RS-485_4]. Or select the wireless/RS-485 converter. [CompoWay/F Unit No]: Enter a CompoWay/F unit number of the

Item	Description
	<p>RS-485-connected measurement device.</p> <p>&lt;Input range&gt; 1 to 31</p> <p>[Measurement Cycle]: Select a measurement cycle for the measurement device.</p> <p>&lt;Selection&gt; 1min/5min/10min/30min/60min</p> <p>[Timeout]: Select a time period to evaluate no communication response from the measurement device.</p> <p>&lt;Selection&gt; 100ms/200ms/500ms/1s/2s/5s/10s/20s/30s</p>
Default Channel Registration	<p>This function saves operations to channel registration and group registration described later. If the [Default Channel Registration] check box is selected, channel registration and group registration can be done at the same time by measurement device registration.</p> <p>&lt;Default Channel Registration&gt;</p> <p>Major channels of the measurement device are automatically registered. Channels that are automatically registered are defined upon factory shipment.</p> <p>Note that the channels that are registered simultaneously can be changed later.</p> <p>&lt;Destination Group to Add&gt;</p> <p>If the [Destination Group to Add] check box is selected, measurement device channels can be registered to a specified group at the same time.</p> <p>To use this function, first register a group.</p> <p>For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.).</p> <p>Note that performing the simultaneous registration without performing group registration registers to a default "group".</p> <p>If the simultaneous registration is performed while the [Destination Group to Add] check box is being cleared, the channels are registered without being registered to any group.</p>
Batch Registration	<p>Use this function to register multiple measurement devices of the same type together. For how to register, see "■ Batch Registration" (p4-41.).</p>

<b>Reference</b>
------------------

For registration of KM-N1, see "8.7 Perform Multiple Circuit Measurement by KM-N□".

## &lt;Power Logger&gt;

The screenshot shows the 'Add Measurement Device' dialog box. It contains the following fields and options:

- No.1**: A label for the first device.
- Device Name**: A text input field.
- Device Type**: A dropdown menu showing 'ZN-CTX21' with a small image of the device.
- Setting Items**: A section containing:
  - Host Device**: A dropdown menu set to 'LAN'.
  - IP Address**: A text input field containing '192.168.0.20'.
  - Measurement Cycle**: A dropdown menu set to '10 min'.
  - Timeout**: A dropdown menu set to '500 ms'.
- Default Channel Registration**: A checked checkbox.
- Destination Group to Add**: A checked checkbox with a dropdown menu labeled 'Group'.
- Buttons**: 'Batch Registration', 'OK', and 'Cancel'.

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"IP address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement devices appears with photos. Select a measurement device type to add.
Setting Items	Details depend on a selected measurement device type. [Host Device]: Select [LAN]. [IP Address]: Enter an IP address of the measurement device. [Measurement Cycle]: Select a measurement cycle for the measurement device. <Selection> 1min/5min/10min/30min/60min [Timeout]: Select a time period to determine no response in communication with the measurement device. <Selection> 100ms/200ms/500ms/1s/2s/5s/10s/20s/30s

Item	Description
Default Channel Registration	<p>This function saves operations to channel registration and group registration described later. If the [Default Channel Registration] check box is selected, channel registration and group registration can be done at the same time by measurement device registration.</p> <p>&lt;Default Channel Registration&gt;</p> <p>Major channels of the measurement device are automatically registered. Channels that are automatically registered are defined upon factory shipment.</p> <p>Note that the channels that are registered simultaneously can be changed later.</p> <p>&lt;Destination Group to Add&gt;</p> <p>If the [Destination Group to Add] check box is selected, measurement device channels can be registered to a specified group at the same time.</p> <p>To use this function, first register a group.</p> <p>For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.).</p> <p>Note that performing the simultaneous registration without performing group registration registers to a default "group".</p> <p>If the simultaneous registration is performed while the [Destination Group to Add] check box is being cleared, the channels are registered without being registered to any group.</p>
Batch Registration	<p>Use this function to register multiple measurement devices of the same type together. For how to register, see " ■ Batch Registration" (p4-41.).</p>

<Environmental Sensor>

Environmental Sensor: LAN

Add Measurement Device

No.1

Device Name:

Device Type:  
ZN-PD03-S 

Setting Items

Host Device: LAN

IP Address: 192.168.0.10

CompoWay/F Unit No.: 1

Measurement Cycle: 10 min

Timeout: 500 ms

ZN-TH11-S is attached.

Default Channel Registration

Destination Group to Add:  
Group

Batch Registration OK Cancel

Environmental Sensor: Connection Device (ZN-PD03-S/ZN-PD50-S)

Add Measurement Device

No.1

Device Name:

Device Type:  
ZN-PD03-S 

Setting Items

Host Device: WZ-SRS01#1

IP Address: 192.168.0.10

CompoWay/F Unit No.: 1

Measurement Cycle: 10 min

Timeout: 5 s

ZN-TH11-S is attached.

Default Channel Registration

Destination Group to Add:  
Group

Batch Registration OK Cancel

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"IP address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement devices appears with photos. Select a measurement device type to add.
Setting Items	<p>[Connection Count]: For only collecting devices such as Power Sensor Station and Air Flow Sensor, enter the number of connections of the downstream measurement devices. &lt;Input range&gt; 1 to 31 devices</p> <p>[CompoWay/F Unit No]: Enter a CompoWay/F unit number of the RS-485-connected measurement device using a wireless/RS-485 converter. &lt;Input range&gt; 1 to 9</p> <p>[Measurement Cycle]: Select a measurement cycle for the measurement device. &lt;Selection&gt; 1min/5min/10min/30min/60min</p> <p>[Timeout]: Select a time period to determine no response in communication with the measurement device. &lt;Selection: LAN&gt; 500ms/1s/2s/5s/10s &lt;Selection: Connection Device&gt; 1s/2s/5s/10s/20s/30s</p> <p>[ZN-TH11-S is Attached.]: Select this check box only if the measurement device is an air particle sensor and if it has ZN-TH11-S attached.</p>
Default Channel Registration	<p>This function saves operations to channel registration and group registration described later. If the [Default Channel Registration] check box is selected, channel registration and group registration can be done at the same time by measurement device registration.</p> <p>&lt;Default Channel Registration&gt; Major channels of the measurement device are automatically registered. Channels that are automatically registered are defined upon factory shipment. Note that the channels that are registered simultaneously can be changed later.</p> <p>&lt;Destination Group to Add&gt; If the [Destination Group to Add] check box is selected, measurement device channels can be registered to a specified group at the same time. To use this function, first register a group. For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.). Note that performing the simultaneous registration without performing group registration registers to a default "group". If the simultaneous registration is performed while the [Destination Group to Add] check box is being cleared, the channels are registered without being registered to any group.</p>
Batch Registration	Use this function to register multiple measurement devices of the same type together. For how to register, see "■Batch Registration" (p4-41.).

<Wireless Environmental Sensor Unit>

The screenshot shows a dialog box titled "Add Measurement Device" with a close button (X) in the top right corner. The dialog is divided into several sections:

- No.24**: A label indicating the device number.
- Device Name**: A text input field.
- Device Type**: A dropdown menu showing "WZ-STH01" with a small photo of the device to its right.
- Setting Items**: A section containing three fields:
  - Host Device**: A dropdown menu showing "WZ-MLAN01#192.1".
  - Wireless Unit ID**: A text input field containing "1".
  - Measurement Cycle**: A dropdown menu showing "10 min".
- Default Channel Registration**: A checked checkbox.
- Destination Group to Add**: A checked checkbox with a dropdown menu below it showing "Group".
- Buttons**: Three buttons at the bottom: "Batch Registration", "OK" (highlighted with a blue border), and "Cancel".

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"wireless unit ID" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement devices appears with photos. Select a measurement device type to add.
Setting Items	Setting Items depend on a selected measurement device type. [Host Unit]: Select the wireless master unit. [Wireless Unit ID]: Enter the wireless unit ID. [Measurement Cycle]: Select a measurement cycle for the measurement device. <Selection> 1min/5min/10min/30min/60min
Default Channel Registration	This function saves operations to channel registration and group registration described later. If the [Default Channel Registration] check box is selected, channel registration and group registration can be done at the same time by measurement device registration. <Default Channel Registration> Major channels of the measurement device are automatically registered. Channels that are automatically registered are

Item	Description
	<p>defined upon factory shipment.</p> <p>Note that the channels that are registered simultaneously can be changed later.</p> <p>&lt;Destination Group to Add&gt;</p> <p>If the [Destination Group to Add] check box is selected, measurement device channels can be registered to a specified group at the same time.</p> <p>To use this function, first register a group.</p> <p>For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.).</p> <p>Note that performing the simultaneous registration without performing group registration registers to a default "group".</p> <p style="padding-left: 40px;">If the simultaneous registration is performed while the [Destination Group to Add] check box is being cleared, the channels are registered without being registered to any group.</p>
Batch Registration	<p>Use this function to register multiple measurement devices of the same type together. For how to register, see "■Batch Registration" (p4-41.).</p>

<Other Sensors>

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"CompoWay/F unit number" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement devices appears with photos. Select a measurement device type to add.
Setting Items	Setting Items depend on a selected measurement device type. [Host Device]: Select an RS-485 port number, from [RS-485_1] to [RS-485_4]. [CompoWay/F Unit No]: Enter a CompoWay/F unit number of the RS-485-connected measurement device. <Input range> 1 to 31 [Measurement Cycle]: Select a measurement cycle for the measurement device. <Selection> 1min/5min/10min/30min/60min [Timeout]: Select a time period to evaluate no communication response from the measurement device. <Selection> 100ms/200ms/500ms/1s/2s/5s/10s/20s/30s
Default Channel Registration	This function saves operations to channel registration and group registration described later. If the [Default Channel Registration] check box is selected, channel registration and group registration can be done at the same time by measurement device registration. <Default Channel Registration>

Item	Description
	<p>Major channels of the measurement device are automatically registered. Channels that are automatically registered are defined upon factory shipment.</p> <p>Note that the channels that are registered simultaneously can be changed later.</p> <p>&lt;Destination Group to Add&gt;</p> <p>If the [Destination Group to Add] check box is selected, measurement device channels can be registered to a specified group at the same time.</p> <p>To use this function, first register a group.</p> <p>For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.).</p> <p>Note that performing the simultaneous registration without performing group registration registers to a default "group".</p> <p>If the simultaneous registration is performed while the [Destination Group to Add] check box is being cleared, the channels are registered without being registered to any group.</p>
Batch Registration	<p>Use this function to register multiple measurement devices of the same type together. For how to register, see "■ Batch Registration" (p4-41.).</p>

## &lt;Controller&gt;

The screenshot shows the 'Add Measurement Device' dialog box. It includes the following fields and options:

- No.1**: A label for the device number.
- Device Name**: A text input field.
- Device Type**: A dropdown menu currently showing 'C-J1' with a server rack icon.
- Setting Items**: A section containing:
  - Host Device**: A dropdown menu set to 'LAN'.
  - IP Address**: A text input field containing '192.168.250.1'.
  - Measurement Cycle**: A dropdown menu set to '10 min'.
  - Port**: A text input field containing '9600'.
- Buttons**: 'Batch Registration', 'OK', and 'Cancel' buttons at the bottom.

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"IP address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement device types appears. Select a measurement device type to add.
Setting Items	Setting Items depend on a selected measurement device type. [Host Device]: Select [LAN]. [IP Address]: Enter an IP address of the measurement device. [Measurement Cycle]: Select a measurement cycle for the measurement device. <Selection> 1min/5min/10min/30min/60min [Port]: Enter a port number.
Batch Registration	Use this function to register multiple measurement devices of the same type together. For how to register, see "■Batch Registration" (p4-41.).

<Modbus RTU Device>

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "model"+"#"+"Modbus RUT unit number" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	A list of measurement devices appears with photos. Select a measurement device type to add.
Setting Items	Setting Items depend on a selected measurement device type. [Host Device]: Select an RS-485 port number, from [RS-485_1] to [RS-485_4]. [CompoWay/F Unit No]: Enter a Modbus RTU unit number of the RS-485-connected measurement device. <Input range> 1 to 31 [Measurement Cycle]: Select a measurement cycle for the measurement device. <Selection> 1min/5min/10min/30min/60min [Timeout]: Select a time period to evaluate no communication response from the measurement device. <Selection> 100ms/200ms/500ms/1s/2s/5s/10s/20s/30s
Batch Registration	Use this function to register multiple measurement devices of the same type together. For how to register, see "■ Batch Registration" (p4-41.).

## &lt; EQ100 General-Purpose Input Terminal (Pulse Input) Measurement Device &gt;

The screenshot shows the 'Add Measurement Device' dialog box. It has a title bar with a close button (X). The main area contains the following elements:

- No.1**: A label above the 'Device Name' field.
- Device Name**: A text input field.
- Device Type**: A dropdown menu currently showing 'EQ100 PULSE' with a small image of the device to its right.
- Setting Items**: A section containing a 'Measurement Cycle' dropdown menu set to '10 min'.
- Default Channel Registration**: A checked checkbox.
- Destination Group to Add**: A checked checkbox.
- Group**: A dropdown menu.
- Buttons**: 'Batch Registration' (disabled), 'OK' (active), and 'Cancel'.

Item	Description
Device Name	Enter a name of the measurement device. If not entered, "EQ100 PULSE"+"#" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	Select [EQ100 PULSE].
Setting Items	Details depend on a selected measurement device type. [Measurement Cycle]: Select a measurement cycle for the measurement device. <Selection> 1min/5min/10min/30min/60min
Default Channel Registration	<Default Channel Registration> One channel of [EQ100 PULSE] can be registered to channel registration and group registration. <Destination Group to Add> If the [Destination Group to Add] check box is selected, measurement device channels can be registered to a specified group at the same time. To use this function, first register a group. For how to register, see "4.6.3.4 EQ100 Group Registration" (p.4-56). Note that performing the simultaneous registration without performing group registration registers to a default "group". If the simultaneous registration is performed while the [Destination Group to Add] check box is being cleared, the channels are registered without being registered to any group.

A conversion processing is performed for pulse input. The conversion expression is configured in the free operation channel.

See "●Example of Pulse Input Conversion from General-Purpose Input" (p.4-76)

(3) Clicking [OK] registers the measurement device.

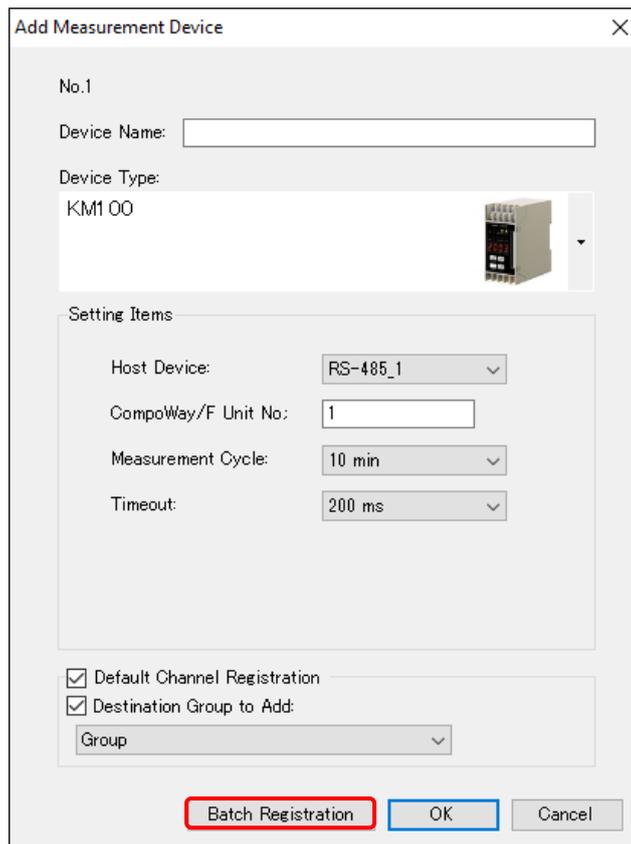
■ Batch Registration

Multiple measurement devices can be registered together in the [Add Measurement Device] dialog box.

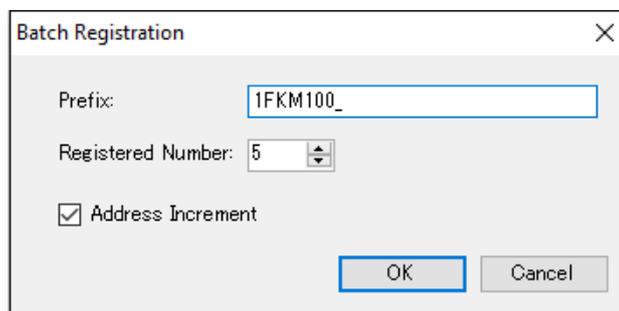
This function, however, configures the same settings for device address and others. You need to edit the settings after the batch registration.

In this section, assume batch registration of KM100 as an example.

(1) In the [Add Measurement Device] dialog box, click the [Batch Registration] button.



(2) In the [Batch Registration] dialog box, enter the setting items.



Item	Description
Prefix	In the [Prefix] field, a device name entered in the [Add Device] dialog box appears. If not entered, enter a prefix here. For example, if you enter a prefix name as "1st floor KM100_" and 5 devices as the number of devices to register, the devices are registered as names with a serial number added to the end, as "1st

Item	Description
	floor KM100_1", "1st floor KM100_2", ... "1st floor KM100_5". <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Registered Number	Enter the number of measurement devices to register.
Address Increment	If you select this check box, you can register IP addresses or unit numbers increased step-by-step by one from the one entered in the [Add Measurement Device] screen. If cleared, the same values are entered as the address.

(3) Clicking [OK] registers KM100 together.

Select	No.	Measurement Device Name	Device Type	Host Device	Address	Logging	Measurement Cycle	Edit
<input checked="" type="checkbox"/>	1	1FKM100_1	KM100	RS-485_1	1	En	10 min	Edit
<input type="checkbox"/>	2	1FKM100_2	KM100	RS-485_1	2	En	10 min	Edit
<input type="checkbox"/>	3	1FKM100_3	KM100	RS-485_1	3	En	10 min	Edit
<input type="checkbox"/>	4	1FKM100_4	KM100	RS-485_1	4	En	10 min	Edit
<input type="checkbox"/>	5	1FKM100_5	KM100	RS-485_1	5	En	10 min	Edit

A number is added to the tail sequentially.

Selecting the [Address Increment] check box increments addresses by one.

(4) If the batch-registered address and/or measurement cycle are not desirable, modify the value.

To modify, click the [Edit] button of the device name you want to modify. For operations, see "Editing Measurement Device" below.

#### ■ Editing Measurement Device

To change registration details of a measurement device:

(1) Click the [Edit] button of the measurement device you want to change.

<input type="checkbox"/>	6	ZN-KMX21#192.168.0.20	ZN-KMX21	LAN	192.168.0.20	En	10 min	Edit
--------------------------	---	-----------------------	----------	-----	--------------	----	--------	------

(2) In the [Edit Measurement Device] dialog box, change the registration details.

(3) Clicking [OK] changes the registration of the measurement device.

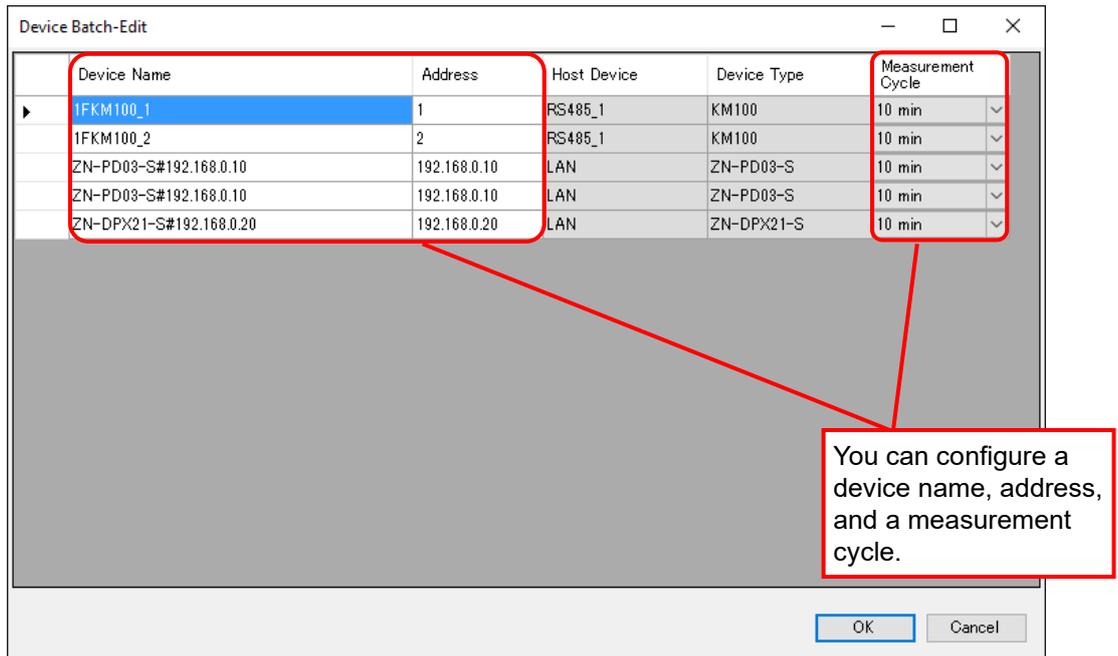
#### ■ Device Batch Edit

(1) On the bottom of the screen, click the [Device Batch-Edit] button.



(2) In the [Device Batch-Edit] dialog box, click an item you want to edit directly.

You can edit a device name, address, and a measurement cycle.



### Reference

- You can select a device name or address field in the list and copy it to Excel. You can paste the edited text on Excel to the list as well.  
See below for operations:
- - Moving the mouse up/down or left/right while clicking and holding the mouse button allows selection of serial device names or addresses.
- - Right-clicking while selecting an item allows selection of [Copy] and [Paste].  
Note that the measurement cycle field is selective and cannot be copied and pasted.

(3) Click [OK].

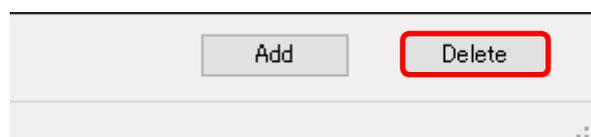
### ■ Deleting Measurement Device

#### Precautions for Correct Use

- Deleting a measurement device deletes its channels that are registered as well.

(1) In the [Measurement Device Registration] screen, select the [Select] check box.

(2) Click [Delete].



(3) In the confirmation dialog box, click [Yes] if you are sure.

### ■ Enabling/Disabling Logging

You can stop logging from a measurement device while keeping the measurement device registration as it is.

(1) In the [Measurement Device Registration] screen, change the setting of enabling/disabling [Logging].

Select	No.	Measurement Device Name	Device Type	Host Device	Address	Logging	Measurement Cycle	Edit
<input type="checkbox"/>	1	1FKM100_1	KM100	RS-485_1	1	En	10 min	Edit
<input type="checkbox"/>	2	1FKM100_2	KM100	RS-485_1	2	En (Dis)	10 min	Edit

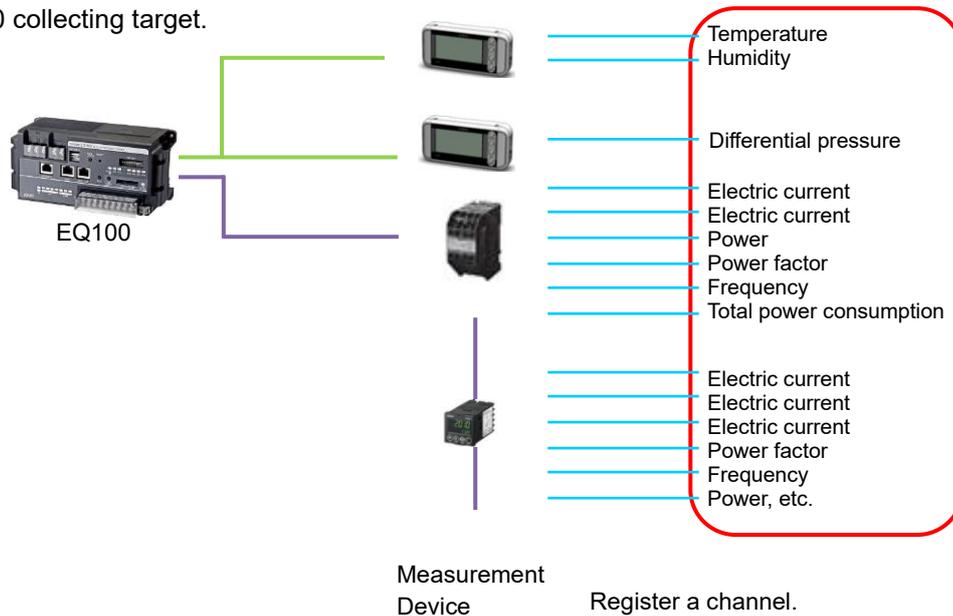
Item	Description
Logging	En (Enable): Collection from the measurement device is available. Dis (Disable): Collection is not done from the measurement device even if the logging is started.

### Precautions for Correct Use

- When the measurement device is used in the operation channel described later in this manual, the setting of disabling logging is limited. (See "4.6.4.2 EQ100 Operation Channel Setting" p.4-76)

### 4.6.3.3. EQ100 Channel Registration

Only required channels of those retained by a measurement device can be registered as EQ100 collecting target.



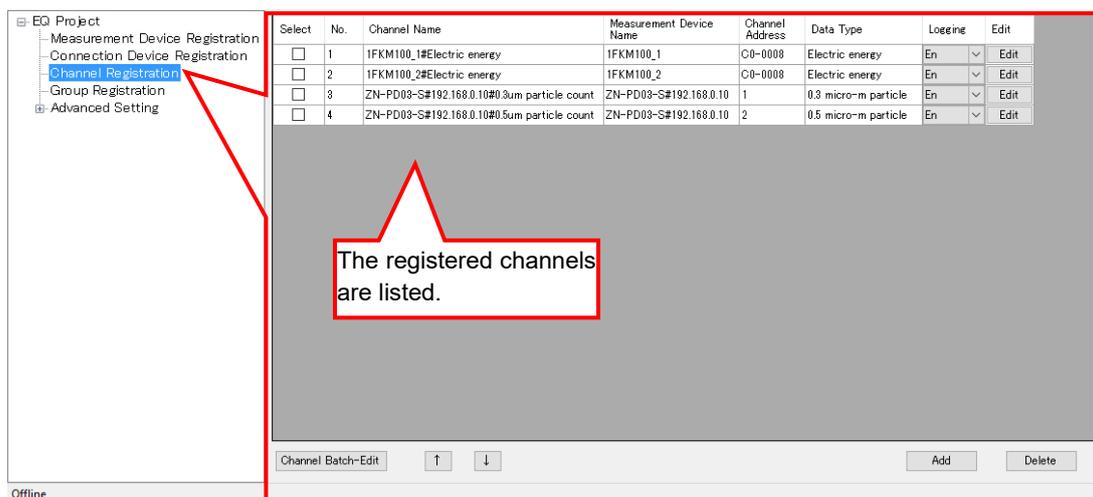
Depending on a registered measurement device and default channel registration, number of channels to register and registration steps differ.

Condition	Registration Availability/Method
Default channel registration has been done on device registration	Major channels have been registered already. If necessary, change the channel registration.
Default channel registration has not been done on device registration	Manually register the channels.
Measurement device is PLC	

The maximum number of channel registrations depends on a device type and a measurement cycle. For details, see "EQ100 User's Manual".

## ■ Viewing Registration Screen

In the setting menu, click [Channel Registration].



Item	Description
Select	Selecting the [Select] check boxes (☑) and clicking [Delete] deletes all the selected channels.
No.	The number serially assigned in the registered order.
Channel Name	The registered channel name is displayed. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Measurement Device Name	A name of the measurement device that retains the channel.
Channel Address	An address to identify measured data readout position of the channel for the measurement device.
Data Type	Shows a data type.
Logging	Shows logging enabled/disabled from a channel.
Edit	To change registration details of a channel.
Channel Batch-Edit	You can use this item to view a list of channels and change their names at the same time.

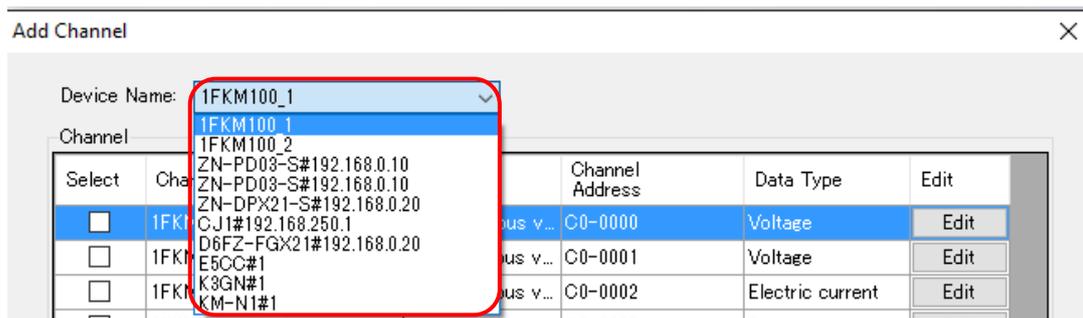
## ■ Adding Channels

(1) Click [Add].



(2) In the [Add Channel] dialog box, register the channels you want.

Select a measurement device of the channels you want to register.



Depending on the selected device, the screen switches. Details depend on a measurement device type such as PLC, K3GN-□□□-FLK, measurement devices connected to EQ100 general-purpose input terminal, and others. Configure the following settings.

### Precautions for Correct Use

- If you switch to a view of other device while adding a channel in the [Add Channel] dialog box, the settings you are configuring are cleared. In the [Add Channel] dialog box displayed by clicking [Add] once, you can add a channel of only one device.

< PLC >

The 'Add Channel' dialog box contains the following fields and options:

- Device Name: CJ1#192.168.250.1
- Channel Name: CJ1#192.168.250.1#CIO-001-0
- Data Type: Electric energy
- Type: Boolean
- Variable Area: CIO
- Start Address: 1
- Start Bit: 0
- Differential Processing: No
- Preprocess: Coefficient: 1, Constant Value: 0
- Range of Values: unchecked
- Destination Group to Add: checked

Item	Description
Device Name	Select a device name of the PLC.
Channel Name	Enter a channel name. If not entered, "device name"+"#"+"channel address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Data Type	Select a data type.
Type	Select a data type.
Variable Area	Select an area type of I/O memory.
Start Address	Enter the start address.
Start Bit	Select the start bit. You cannot select one if the type is other than Boolean.
Differential Processing	Select Yes or No for differential processing. No: A channel is handled as an instantaneous value. Yes: A channel is handled as an integrated value.
Preprocess	Click [Edit] and enter a factor and a constant value.
Range of Values	Specify a maximum value for a target to read if the differential processing is required. Configuring this allows proper differential processing even if a value is reset to 0 after reaching the maximum value.
Destination Group to Add	If the [Destination Group to Add] check box is selected, channels can be registered to a specified group at the same time. To use this function, first register a group. For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.). Note that performing the registration without performing group registration registers to a default "group".

< Modbus RTU >

The 'Add Channel' dialog box is used for configuring a new Modbus RTU channel. It includes the following fields and options:

- Device Name:** A dropdown menu currently showing 'ModbusRTU#1'.
- Channel:** A section containing:
  - Channel Name:** An empty text input field.
  - Data Type:** A dropdown menu set to 'Electric energy'.
  - Function code:** A dropdown menu set to '03'.
  - Starting Address:** A text input field with '1' and a range indicator '10'.
  - Quantity of Registers:** A spinner control set to '1'.
  - Type:** A dropdown menu set to 'Integer'.
  - Byte order:** A dropdown menu set to 'Big Endian'.
  - Differential Processing:** A dropdown menu set to 'No'.
- Preprocess:** A section with:
  - Coefficient:** A text input field with '1'.
  - Constant Value:** A text input field with '0' and an 'Edit' button.
- Range of Values:** A section with:
  - Range of Values checkbox.
  - Max. Value:** A text input field.
  - Min. Value:** A text input field and an 'Edit' button.
- Destination Group to Add:** A checked checkbox and a dropdown menu set to 'Group'.

Buttons for 'OK' and 'Cancel' are located at the bottom right of the dialog.

Item	Description
Device Name	Select the measurement device name of Modbus RTU.
Channel Name	Enter a channel name. If not entered, "device name"+"#"+"channel address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Data Type	Select the data type.
Function Code	Select a function code from 01, 02, 03, or 04.
Start Address	Enter the start address.
No. of Registers	Automatically set from the model.
Type	Select the data type.
Byte order	Select the byte order of the data.
Differential Processing	Select Yes or No for differential processing. No: A channel is handled as an instantaneous value. Yes: A channel is handled as an integrated value.
Preprocess	Click [Edit] and enter a factor and a constant value.
Range of Values	Specify a maximum value for a target to read if the differential processing is required. Configuring this allows proper differential processing even if a value is reset to 0 after reaching the maximum value.
Destination Group to Add	If the [Destination Group to Add] check box is selected, channels can be registered to a specified group at the same time. To use this function, first register a group. For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.). Note that performing the registration without performing group registration registers to a default "group".

## &lt; EQ100 General-Purpose Input Terminal Measurement Device &gt;

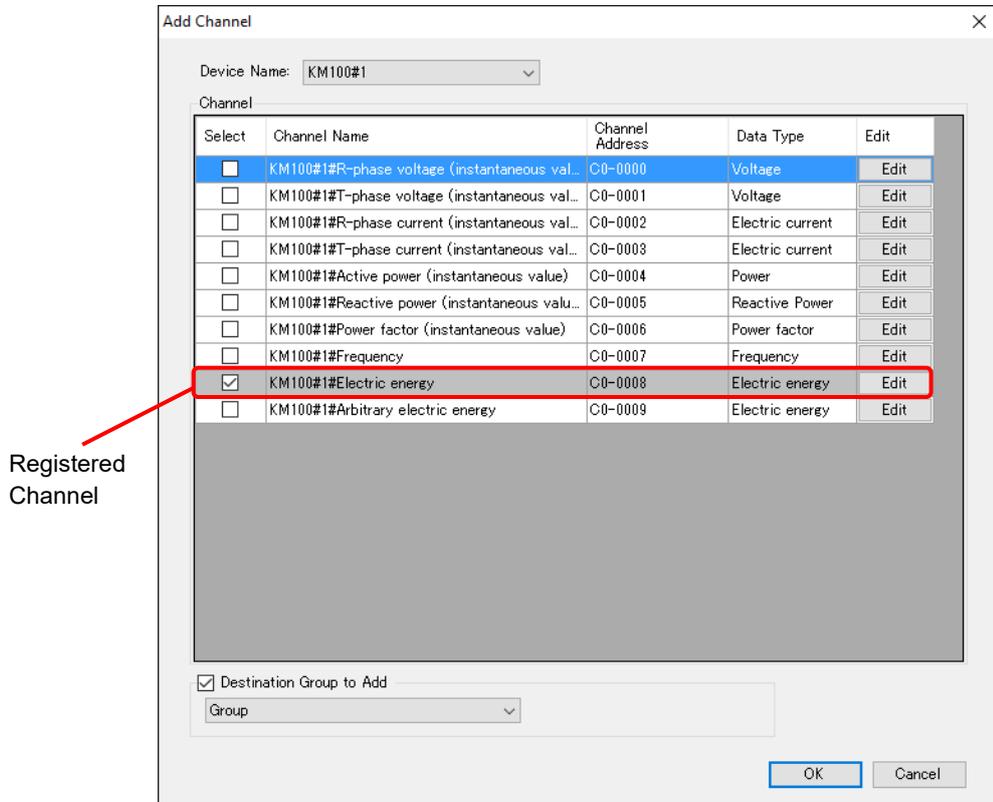
Item	Description
Device Name	Enter a name of a device connected to the EQ100 general-purpose input terminal.
Channel Name	Enter a channel name. If not entered, "device name"+"#"+"PULSE" is automatically set.
Destination Group to Add	If the [Destination Group to Add] check box is selected, channels can be registered to a specified group at the same time. To use this function, first register a group. For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.). Note that performing the registration without performing group registration registers to a default "group".

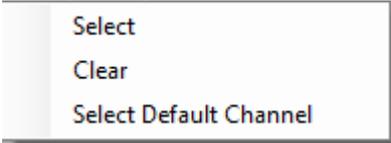
### Precautions for Correct Use

To convert a value measured in the general-purpose input terminal, create a free operation channel in the operation channel setting. For details, see "4.6.4.2 EQ100 Operation Channel Setting". (p.4-76)

<Others (Others than PLC/EQ100 General-Purpose Input Terminal Measurement Device)>

Select the [Select] check box of the channel you want to register. The channels that have been registered already are shaded with their check boxes being selected.



Item	Description
Select	Select a channel you want to register for collecting. Right-clicking shows the following menu, in which [Select], [Cancel], and [Select the default channel] are available. 
Channel Name	A channel name appears. To change, press the [Edit] button.
Channel Address	A channel address appears.
Data Type	A channel type appears.
Edit	Clicking this displays a dialog box to change the channel name and input parameter (only for available parameters).
Destination Group to Add	If the [Destination Group to Add] check box is selected, channels can be registered to a specified group at the same time. To use this function, first register a group. For how to register, see "4.6.3.4 EQ100 Group Registration" (p4-56.). Note that performing the registration without performing group registration registers to a default "group".

(3) Clicking [OK] registers the channel with the specified configuration.

(4) To add more channels, repeat the steps from (1) to (3).

(Editing when the parameter can be changed)

Item	Description
Channel Name	Enter a channel name. If not entered, "measurement device name"+"#"+"channel address" is automatically set.
Data Type	Select a data type.
Differential Processing	Select Yes or No for differential processing. No: A channel is handled as an instantaneous value. Yes: A channel is handled as an integrated value.
Preprocess	Click [Edit] and enter a factor and a constant value. For the factor, enter a proper value by referring to decimal point information in the communications manual of the measurement device. The constant value must be 0 if a measured value of a measurement device is used as a channel value. Example of Coefficient Input - The decimal point position in the sensor's communications manual is one decimal place > Preprocess input value is 0.1 - The decimal point position in the sensor's communications manual is four decimal places > Preprocess input value is 0.0001

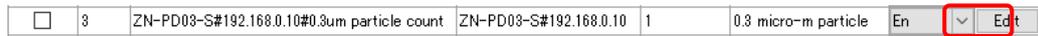
(Other Edit)

Item	Description
Channel Name	Enter a channel name. If not entered, "measurement device name"+"#"+"channel address" is automatically set.

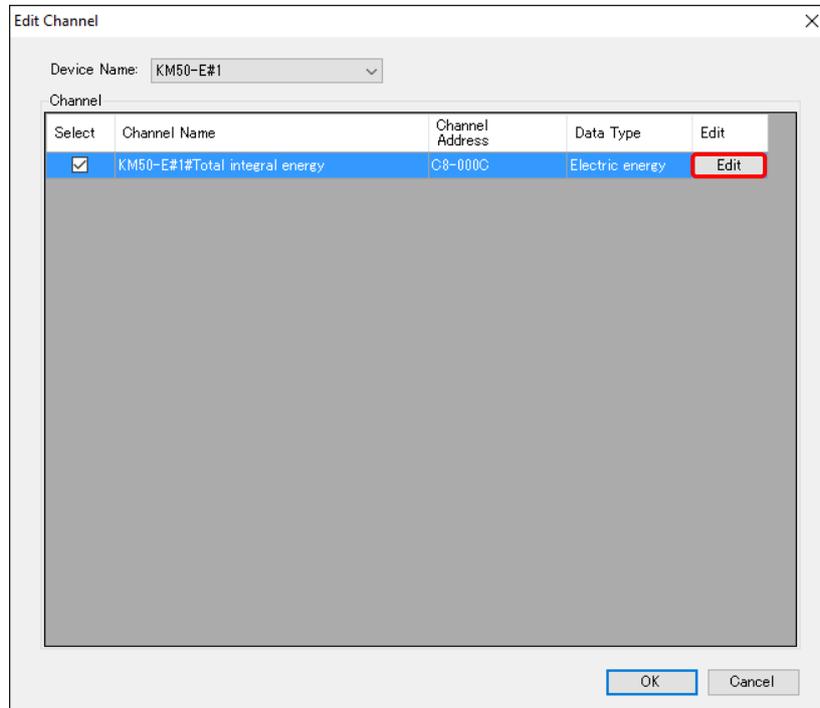
■ Editing Channel

Change a channel name.

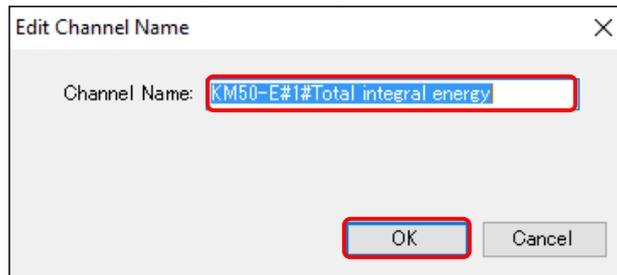
(1) Click the [Edit] button of the channel you want to change.



(2) In the [Edit Channel] dialog box, click [Edit].

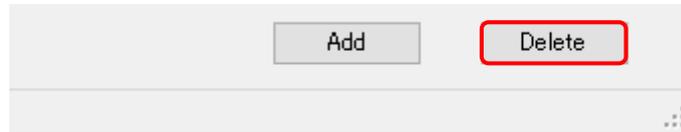


(3) In the [Edit Channel Name] dialog box, change the channel name and click [OK].



■ Deleting Channel

- (1) In the [Channel Registration] screen, select the [Select] check box.
- (2) Click [Delete].



- (3) In the confirmation dialog box, click [Yes] if you are sure.

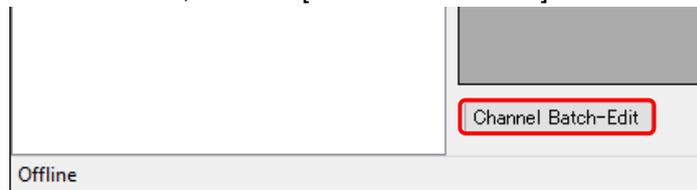
**Precautions for Correct Use**

- If a channel is deleted and registered again, it is registered as a new channel. You cannot inherit the past data in such a case.

■ Batch-Editing Channel

You can view a list of multiple channels and edit the channel names together.

- (1) On the bottom of the screen, click the [Channel Batch-Edit] button.



- (2) Click the field of the channel you want to edit, and edit the item directly.  
You can edit a channel name only. You cannot edit a shaded item.

You can edit a channel name only.

Channel Name	Measurement Device Name	Measurement Channel Name	Data Type	Channel Address
1FKM100_1#Electric energy	1FKM100_1	Electric energy	Electric energy	C0-0008
1FKM100_2#Electric energy	1FKM100_2	Electric energy	Electric energy	C0-0008
ZN-PD03-S#192.168.0.10#0.3um ...	ZN-PD03-S#192.168.0.10	0.3um particle count	0.3 micro-m parti...	1
ZN-PD03-S#192.168.0.10#0.5um ...	ZN-PD03-S#192.168.0.10	0.5um particle count	0.5 micro-m parti...	2
D6FZ-FGX21#192.168.0.20#Integ...	D6FZ-FGX21#192.168.0.20	Integrated standard flow ...	Integrated flow r...	1-1
E5CC#1#Temperature	E5CC#1	Temperature	Temperature	C0-0000
KM-N1#1#Active electric energy	KM-N1#1	Active electric energy	Electric energy	C0-0100
EQ100 PULSE##PULSE	EQ100 PULSE#	PULSE	Pulse	
KM100#1#Electric energy	KM100#1	Electric energy	Electric energy	C0-0008
KM50-E#1#Total integral energy	KM50-E#1	Total integral energy	Electric energy	C8-000C
ZN-PD03-S#192.168.0.10#1.0um ...	ZN-PD03-S#192.168.0.10	1.0um particle count	1.0 micro-m parti...	3
1FKM100_1#R-phase voltage (in...	1FKM100_1	R-phase voltage (instant...	Voltage	C0-0000
1FKM100_1#T-phase voltage (in...	1FKM100_1	T-phase voltage (instant...	Voltage	C0-0001
1FKM100_1#R-phase current (in...	1FKM100_1	R-phase current (instant...	Electric current	C0-0002
1FKM100_1#T-phase current (in...	1FKM100_1	T-phase current (instant...	Electric current	C0-0003
1FKM100_1#Active power (insta...	1FKM100_1	Active power (instantane...	Power	C0-0004
1FKM100_1#Reactive power (ins...	1FKM100_1	Reactive power (instanta...	Reactive Power	C0-0005

**Reference**

- After selecting items from the channel list and copying to other software e.g. Excel, you can paste the edited data back to the list.
- See below for operations:
  - - Moving the mouse up/down or left/right while clicking and holding the mouse button allows selection of serial channel names.
  - - Right-clicking while selecting an item allows selection of [Copy] and [Paste].

- (3) Click [OK].

■ Enabling/Disabling Logging

You can stop logging from a measurement device while keeping the channel registration as it is.

(1) In the [Channel Registration] screen, change the setting of enabling/disabling [Logging].

Select	No.	Channel Name	Measurement Device Name	Channel Address	Data Type	Logging	Edit
<input type="checkbox"/>	1	1FKM100_1#Electric energy	1FKM100_1	C0-0008	Electric energy	En	Edit
<input type="checkbox"/>	2	1FKM100_2#Electric energy	1FKM100_2	C0-0008	Electric energy	En	Edit
<input type="checkbox"/>	3	ZN-PD03-S#192 168.0 10#0.3um particle count	ZN-PD03-S#192 168.0 10	1	0.3 micro-m particle	En	Edit

Item	Description
Logging	<p>En (Enable): Collection from the channel is available.</p> <p>Dis (Disable): Collection is not done from the channel even if the logging from a measurement device is started.</p>

■ Changing Channel Registration/View Sequence (with Up/Down Arrow Buttons)

You can change the registration and view order of channels.

For example, if you add a measurement device to a new measurement point and its channel to a group, the channel is added to the end of the list. This function can be used to move the channel to the same position as that of other channels of the group.

(1) In the [Channel Registration] screen, click [No.] in the heading line of the list to sort in ascending order. (Clicking switches between ascending and descending order)

- EQ Project
- Measurement Device Registration
- Connection Device Registration
- Channel Registration
- Group Registration
- Advanced Setting

Select	No.	Channel Name	Measurement Device Name	Channel Address	Data Type	Logging	Edit
<input type="checkbox"/>	1	WZ-SCD01#CO2 Concentration	WZ-SCD01#1	1	CO2 Concentration	En	Edit
<input type="checkbox"/>	2	KM50-E#1#Voltage 1 (instantan...	KM50-E#1	C8-0000	Voltage	En	Edit
<input type="checkbox"/>	3	KM50-E#1#Voltage 2 (instantan...	KM50-E#1	C8-0001	Voltage	En	Edit
<input type="checkbox"/>	4	KM50-E#1#Voltage 3 (instantan...	KM50-E#1	C8-0002	Voltage	En	Edit

(2) Click the channel row you want to change the sequence, and press up or down arrow button. Pressing the button moves the row up or down by one line.

- EQ Project
- Measurement Device Registration
- Connection Device Registration
- Channel Registration
- Group Registration
- Advanced Setting

Select	No.	Channel Name	Measurement Device Name	Channel Address	Data Type	Logging	Edit
<input type="checkbox"/>	1	WZ-SCD01#CO2 Concentration	WZ-SCD01#1	1	CO2 Concentration	En	Edit
<input type="checkbox"/>	2	KM50-E#1#Voltage 1 (instantan...	KM50-E#1	C8-0000	Voltage	En	Edit
<input type="checkbox"/>	3	KM50-E#1#Voltage 2 (instantan...	KM50-E#1	C8-0001	Voltage	En	Edit
<input type="checkbox"/>	4	KM50-E#1#Voltage 3 (instantan...	KM50-E#1	C8-0002	Voltage	En	Edit

Channel Batch-Edit
↑
↓
Add
Delete

(3) Save the EQ project and write the setting.

#### 4.6.3.4. EQ100 Group Registration

Measurement channels and operation channels can be grouped for management by classifying based on a production line, a floor, and/or a building.

Grouping is done within a range of channels collected by EQ100.

A channel must be registered to a channel group. You can register one channel to multiple groups. You cannot overlap registration of one channel to the same group.

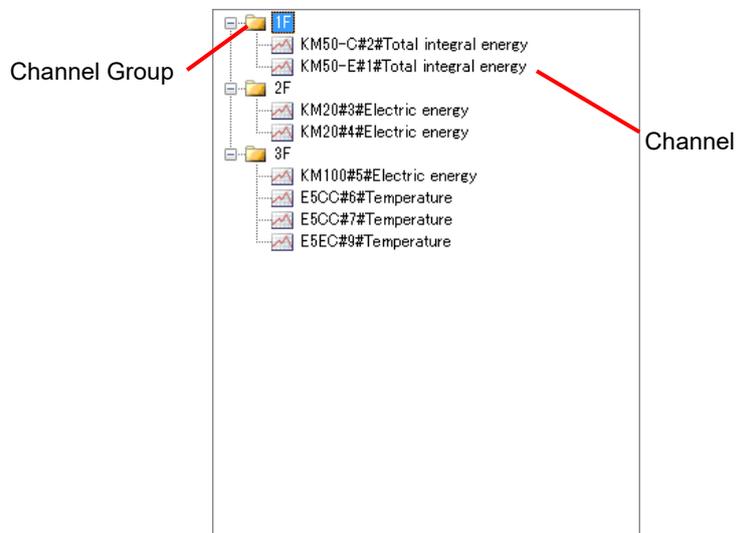
Up to 20 items can be registered to a channel group. Only one level is available for a channel group.

Up to 50 channels can be registered to the channel group.

The registered group is used for a graph view on the Web screen of EQ100.

**Reference**

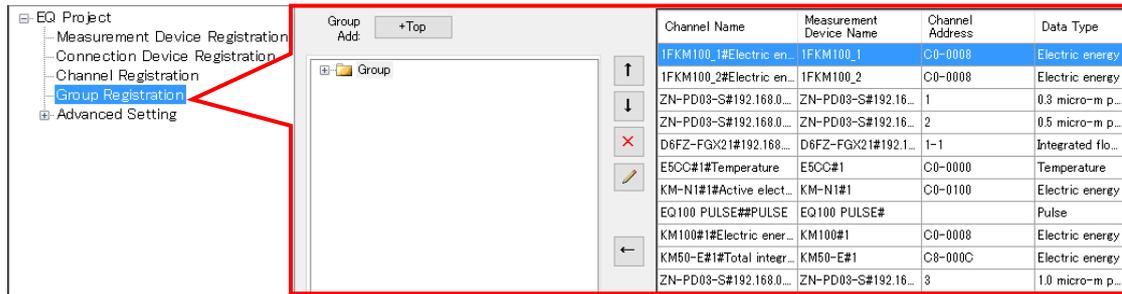
- Use an EQ server project to register a group that is used for a graph view of EQ-GraphViewer.



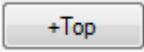
Icon	Description
	Indicates a channel group.
	Indicates a channel.

■ Viewing Registration Screen

In the setting menu, click [Group Registration].



Item	Description
Channel Name	A channel name appears.
Measurement Device Name	A measurement device name appears.
Channel Address	A channel address appears.
Data Type	Shows a data type.

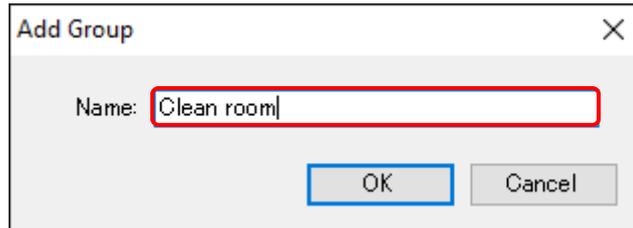
Button	Description
	Creates a channel group.
	Moves the selected channel group up by one.
	Moves the selected channel group down by one.
	If a channel is being selected, the channel is deleted from the registered group. If a channel group is being selected, the group is deleted. Group-registered channels can be reregistered even if they are deleted.
	Changes the selected channel group name.
	Adds the channel selected in the channel list on the right to the channel group.

■ Adding Channel Group

(1) Add a channel group. Click [+Top].



(2) In the [Add Group] dialog box, enter a channel group name.



Item	Description
Name	Enter a channel group name. <Input range> Half-width 63 characters (Full-width 20 characters, more or less) <Maximum Group Count> Up to 10 groups

**Precautions for Correct Use**

You cannot use the following characters in a channel group name:

- ¥ (backslash, yen symbol), / (forward slash), : (colon),
- \* (asterisk), ? (question mark), " (double quotation),
- < (less than sign), > (greater than sign), | (pipe)

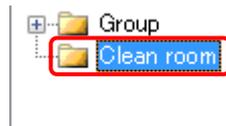
(3) Clicking [OK] adds the channel group.



■ Adding Channels

To add a channel to a channel group:

1) Select a channel group to add. In this example, click [cleanroom].



2) Add a channel to the channel group.

(1) Select a channel to add. You can select either:

One line: By clicking the channel line.

Multiple serial lines: By pressing and holding a [Shift] key while clicking the first and the last channel lines.

Multiple independent lines: By pressing and holding a [Ctrl] key while clicking.

(2) Click the [-] button.

Channel Name	Measurement Device Name	Channel Address	Data Type
WZ-SCD01#1#CO2 Co...	WZ-SCD01#1	1	CO2 Concentr...
KM50-E#1#Voltage 1 (...)	KM50-E#1	C8-0000	Voltage
KM50-E#1#Voltage 2 (...)	KM50-E#1	C8-0001	Voltage
D6FZ-FGX21#192.168...	D6FZ-FGX21#192.1...	1-1	Integrated flo...
D6FZ-FGX21#192.168...	D6FZ-FGX21#192.1...	1-2	Standard flow...
D6FZ-FGX21#192.168...	D6FZ-FGX21#192.1...	1-5	Volume flow r...
KM20#3#P1-P2 voltag...	KM20#3	C0-0000	Voltage
KM20#3#I1 current (ins...	KM20#3	C0-0002	Electric current
KM20#3#I2 current (ins...	KM20#3	C0-0003	Electric current
KM100#5#R-phase vol...	KM100#5	C0-0000	Voltage
KM100#5#T-phase volt...	KM100#5	C0-0001	Voltage
KM100#5#R-phase cur...	KM100#5	C0-0002	Electric current

3) The selected channel(s) are added to the channel group [cleanroom].

- Group
  - Clean room
    - D6FZ-FGX21#192.168.0.20#Instan...
    - WZ-SCD01#1#CO2 Concentration
    - KM20#3#P1-P2 voltage (instan...
    - KM50-E#1#Voltage 1 (instantane...

### ■ Deleting Channel Group

(1) Select a channel group you want to delete, and click the [x] button.

- Group
  - Clean room
  - Implementation
    - KM20#3#I1 current (instantaneous val...
    - KM20#3#I2 current (instantaneous val...

(2) Select [Delete Group], and click [OK].

Group Name: Implementation

Delete Group  
 Delete Group Element

Select	Icon	Group Element Name	Channel Address	Data Type
<input type="checkbox"/>		KM20#3#I1 current (instantaneous value)	C0-0002	Electric current
<input type="checkbox"/>		KM20#3#I2 current (instantaneous value)	C0-0003	Electric current

OK Cancel

(3) The selected group and the channels belonging to the group are deleted.



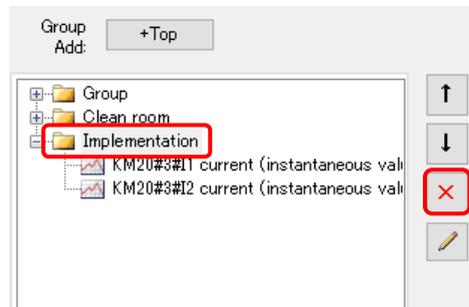
**Precautions for Correct Use**

- You cannot delete a channel group if it is the only channel group.

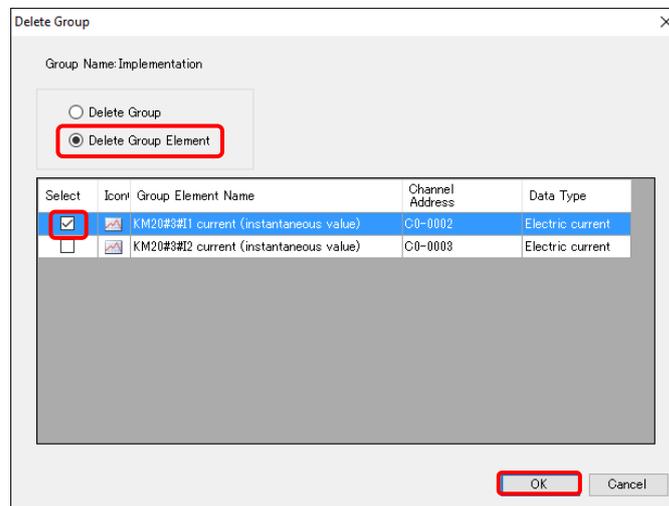
**Partially Deleting Channels in Channel Group**

\* You can delete channels using the Delete Channel Group screen.

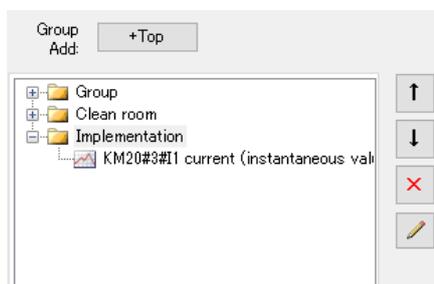
1) Select a group that contains the channels you want to delete, and click the [X] button.



2) Select [Delete Group Element] and the check boxes of the channels you want to delete, and click [OK].

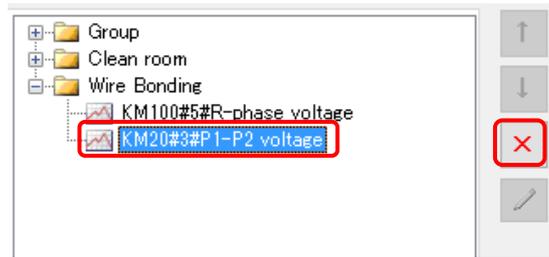


3) The selected channels are deleted.

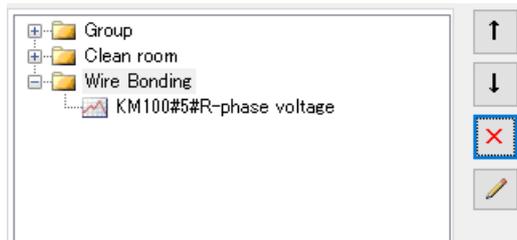


■Deleting Channel

(1) Select channels you want to delete, and click the [x] button.



(2) The selected channels are deleted.



#### 4.6.4. EQ100 Advanced Setting

Configure the advanced settings if necessary. See below for advanced settings:

Item	Description
Monitoring Setting	Monitoring alarm, device alarm, periodic report
Operation Channel Setting	Creates a basic unit operation channel/free operation channel
Data Type Setting	Creates/edits a data type
System Setting	Configures password setting, language/time zone setting, time synchronization setting
User-Specified File Setting	Configures user-specified CSV file output
Network Setting	Configures EQ100 LAN/sub-LAN connection port IP addresses, email transmission, FTP transfer, FTP server
RS-485 Communications Port Setting	RS-485 communications port setting
SD Card Output Setting	Data saving cycle to an SD card
Operation Monitor	Checks operation statuses of EQ100 and measurement devices For details, see "4.7.6.3 EQ100 Operation Monitor" (p4-114.)

##### 4.6.4.1. EQ100 Monitoring Setting

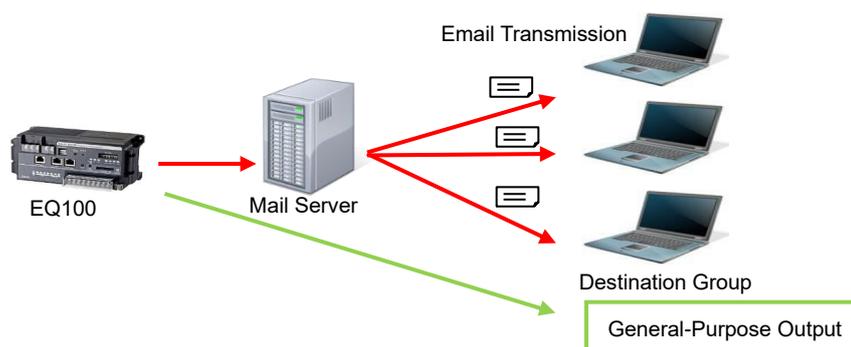
Configure monitoring setting for collected data of EQ100.

In the monitoring setting, configure monitoring alarm, device alarm, and periodic report settings. Configure the setting if necessary.

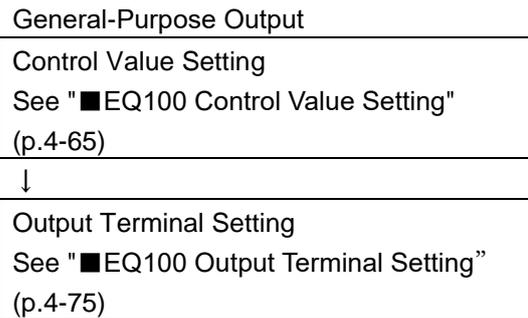
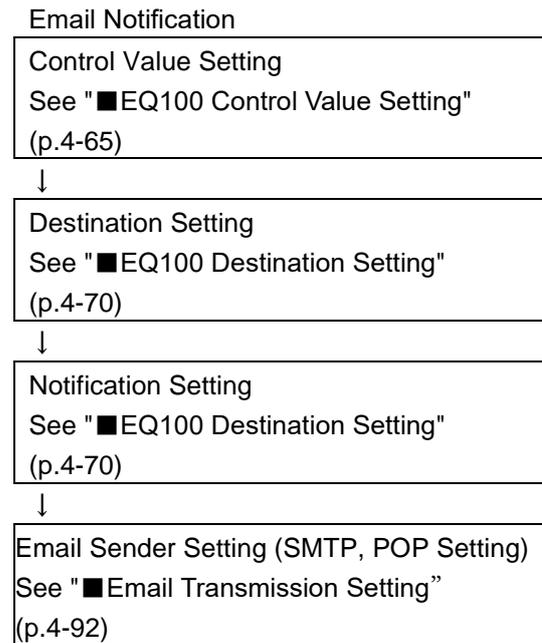
###### ● Monitoring Alarm

Specify control values as well as the number of times over the control values to occur a monitoring alarm, for each channel collected by EQ100. If measured data exceeds the upper/lower limit and EQ100 outputs a monitoring alarm, an email is sent or output is made to a general-purpose output terminal.

The email is sent to the specified email address in a specified schedule. You can configure an email transmission schedule and email address on a destination group basis.



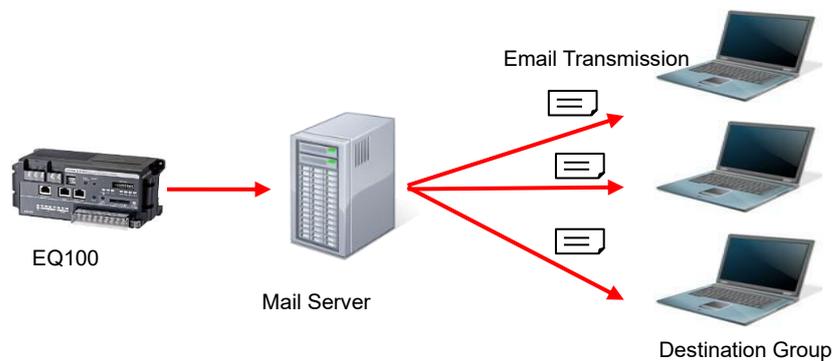
Setup Flow



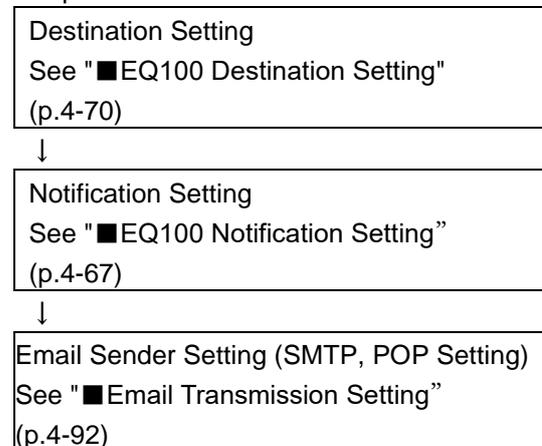
● Device Alarm

An email is sent upon an instrument failure, setup/status, device, communications, and/or monitoring process of EQ100 occurred.

The notification email is sent to the specified email address in a specified schedule. You can configure an email transmission schedule and email address on a destination group basis.



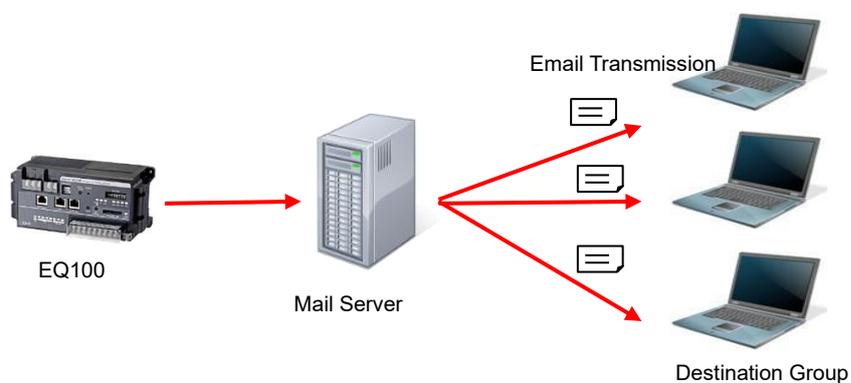
Setup Flow



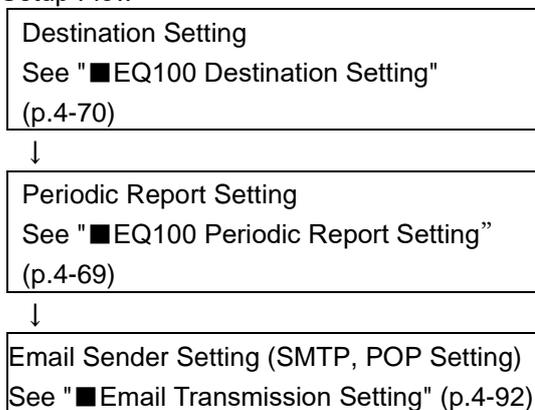
● Periodic Report

An email notifies EQ100 operations.

The email with registered content is sent based on conditions such as date/time.



Setup Flow



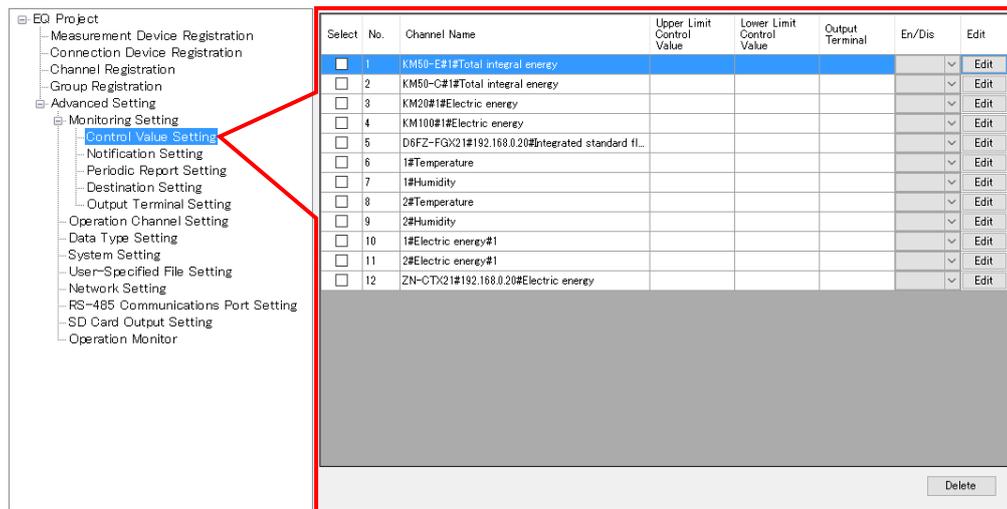
■EQ100 Control Value Setting

Specify control values as well as the number of times over the control values to occur a monitoring alarm, for each channel collected by EQ100 or an operation channel.

If a measured data exceeds the setting, an email is sent (see "■EQ100 Destination Setting" p4-70.) or output is made to a general-purpose output (see "■EQ100 Output Terminal Setting■EQ100 Output Terminal Setting■EQ100 Output Terminal Setting■EQ100 Output Terminal Setting" p4-75.).

●Viewing Setting Screen

In the setting menu, click [Control Value Setting].



Item	Description
Select	Selecting the [Select] check boxes ( <input type="checkbox"/> ) and clicking [Delete] deletes all the selected control value settings.
No.	The number serially assigned in the registered order.
Channel Name	A channel name appears.
Upper Limit Control Value	The upper limit control value appears.
Lower Limit Control Value	The lower limit control value appears.
Output Terminal	Shows the output terminal of EQ100 upon a monitoring alarm.
En/Dis	Displays enabled/disabled channel monitoring alarm. If disabled, no monitoring alarm output is done even if the upper/lower limit is exceeded.
Edit	You can edit the control values.

● Control Value Setting

(1) Click the [Edit] button of the channel you want to configure.

Select	No.	Channel Name	Upper Limit Control Value	Lower Limit Control Value	Output Terminal	En/Dis	Edit
<input type="checkbox"/>	1	KM50-E#1#Total integral energy				▼	<b>Edit</b>

(2) In the [Control Value Setting] dialog box, enter the setting items.

Control Value Setting

Channel Name: KM50-E#1#Total integral energy

Data Type: Electric energy

Upper Limit: 0 kWh

Lower Limit: 0 kWh

Count: 1

Output Terminal: None

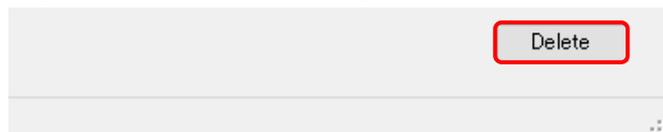
OK Cancel

Item	Description
Upper Limit check box	Select this check box if you want to enable the upper limit control value.
Upper Limit	Specify the upper limit control value.
Lower Limit check box	Select this check box if you want to enable the lower limit control value.
Lower Limit	Specify the lower limit control value.
Count	Specify the number of times over the control values to occur a monitoring alarm. <Selection> 1 to 8 times
Output Terminal	Set an EQ100 general-purpose output terminal number. If "None" is set, no output is made to the output terminals. To make an output to an output terminal, you must configure the output terminal setting in "■EQ100 Output Terminal Setting" (p.4-75) for the selected output terminal number. <Selection> None/1/2/3/4

(3) Click [OK].

● Deleting Control Value

(1) Select the [Select] check box of the channel you want to delete, and click [Delete].



The control value setting is deleted.

■ EQ100 Notification Setting

For notification setting, select an email destination group for the following two notification emails.

Item	Transmission Condition
Monitoring Alarm	A measured data is over the upper or under the lower limit of the control value setting.
Device Alarm	An instrument failure, setup/status, device, communications, and/or monitoring process of EQ100 occurred.

**Precautions**

Before configuring notification setting, you must configure the destination group setting (see "

■ EQ100 Destination Setting" p4-70.).

● Viewing Setting Screen

In the setting menu, click [Notification Setting].



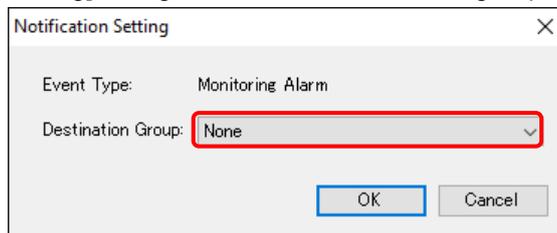
Item	Description
Notification Details	Notification details include two types: monitoring alarm and device alarm.
Destination Group	Displays a destination group.
En/Dis	Displays enabled/disabled notification setting. An email notification is sent only if configured as Enabled.
Edit	You can specify a destination group.

● Editing Destination Group

(1) Click the [Edit] button of the monitoring alarm or device alarm.



(2) In the [Notification Setting] dialog box, select a destination group.



(3) Click [OK].

### ■ EQ100 Periodic Report Setting

An email notifies EQ100 operations.

Registered details are sent as an email to a destination group periodically.

The email transmission condition is the specified time of every day.

Only 1 item can be registered to the periodic report setting.

Before configuring periodic report setting, you must configure the destination group setting (see "■ EQ100 Destination Setting" p4-70.).

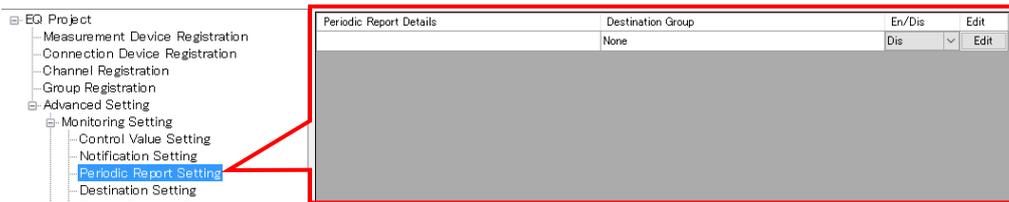
### Precautions for Correct Use

In the periodic report transmission setting, the transmission schedule configured in the [Destination Setting] is prioritized.

If the transmission condition of periodic report is out of the transmission schedule in the [Destination Setting], the periodic report is not done.

### ● Viewing Setting Screen

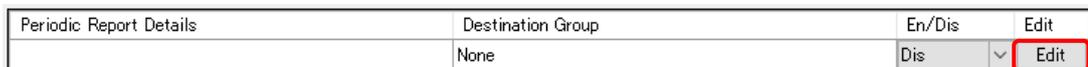
In the setting menu, click [Periodic Report Setting].



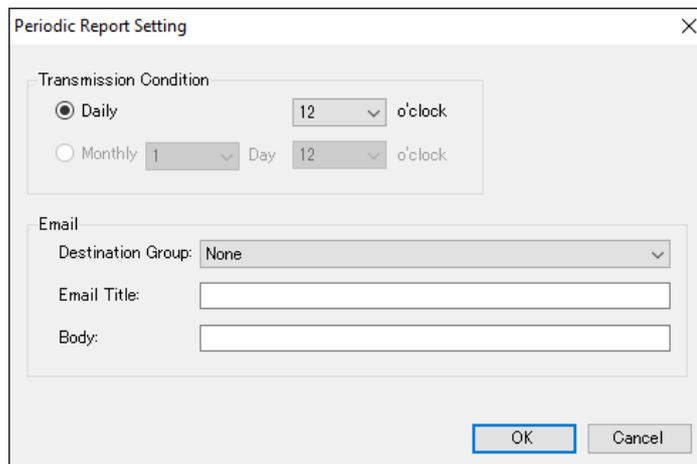
Item	Description
Periodic Report Details	Displays details of the transmission condition.
Destination Group	Displays a destination group.
En/Dis	Displays enabled/disabled periodic report setting. An email periodic report is sent only if configured as Enabled.
Edit	You can edit the periodic report setting.

### ● Editing Periodic Report Setting

(1) Click [Edit].



(2) In the [Periodic Report Setting] dialog box, enter the setting items.



Item	Description
Transmission Condition	Select an email transmission condition either of: Every day (fixed), or specify time from 0 to 23 o' clock
Email	Select a destination group and enter the title and body of the mail. <Input range> Title: Half-width 63 characters (Full-width 20 characters, more or less) Body: Half-width 499 characters (Full-width 160 characters, more or less)

(3) Click [OK].

■EQ100 Destination Setting

Specify a destination group and email address of [Notification Setting] and [Periodic Report Setting].

Up to four groups and up to 10 emails per group can be configured.

Specify a transmission schedule and email address as a set. The transmission schedule must be specified in a day of the week and a time slot. You can specify more than one transmission schedule.

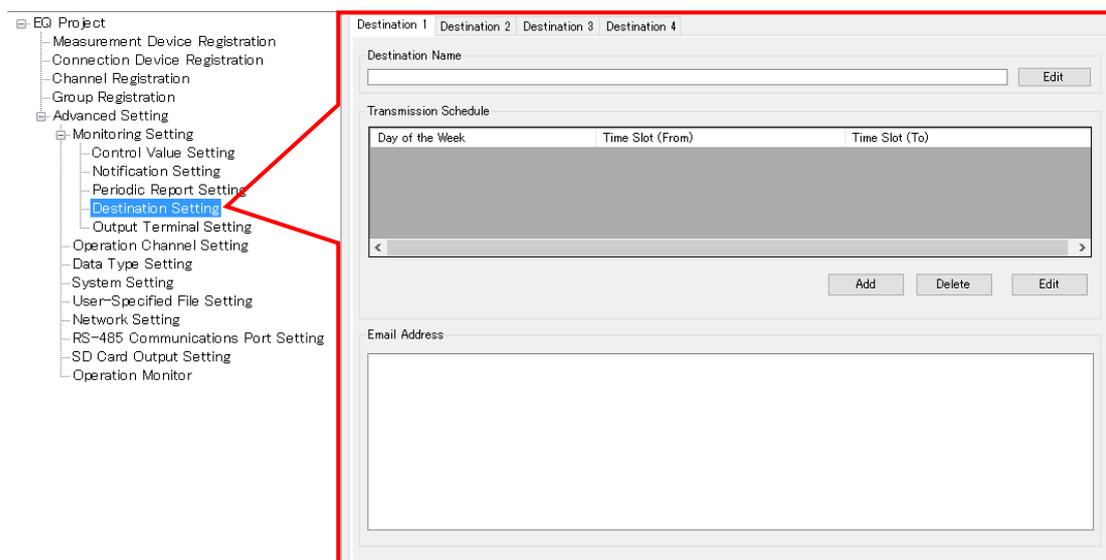
Destination 1	Sending schedule 1	Mail address 1 ~ Mail address 10
	Sending schedule 2	Mail address 1 ~ Mail address 10
	Sending schedule 3	Mail address 1 ~ Mail address 10
		•
		•
		•
Destination 2	Sending schedule 1	Mail address 1 ~ Mail address 10
	Sending schedule 2	Mail address 1 ~ Mail address 10
•		•
•		•
•		•
Destination 4		•

**Precautions**

To send an email to a destination group, email transmission setting is required. Configure the setting as well. (See "■Email Transmission Setting" p4-92.)

● Viewing Setting Screen

In the setting menu, click [Destination Setting].



Item	Description
Destination 1 to Destination 4	Select an email destination from the four groups.
Destination Name	Enter a destination name. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Transmission Schedule	The transmission schedule must be specified in a day of the week and a time slot.
Email Address	Set an email address of the group. Up to 10 items can be configured. <Input range> For 1 email address: Half-width 126 characters

● Editing Destination

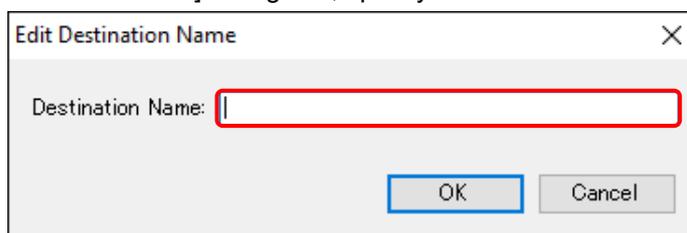
(1) Select a destination to edit.



(2) Click [Edit].



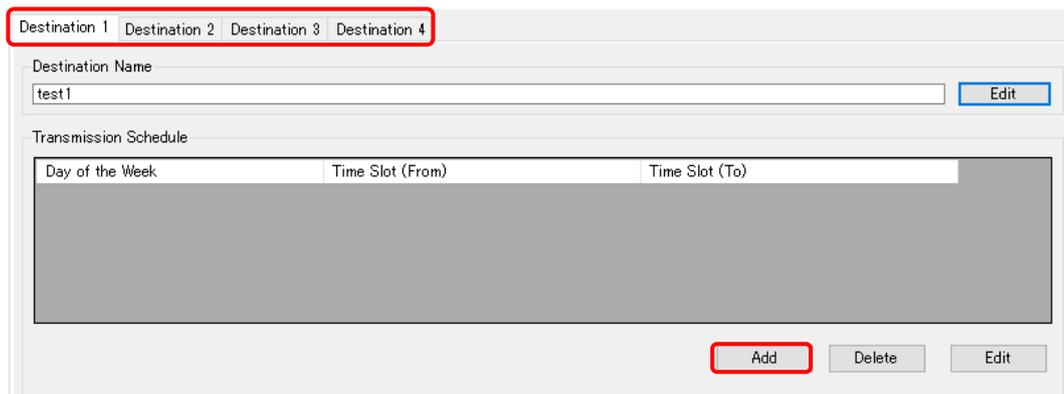
(3) In the [Edit Destination Name] dialog box, specify a destination name.



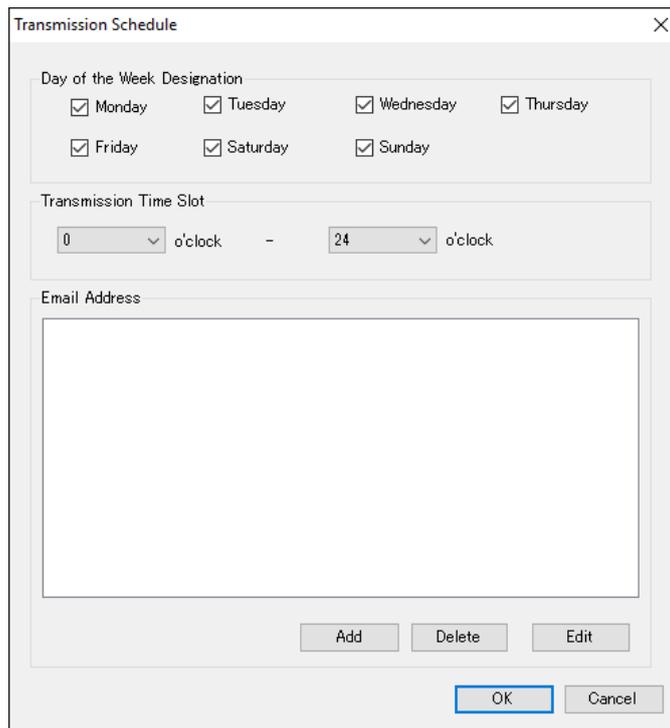
(4) Click [OK].

● Adding Transmission Schedule and Email Address

(1) Select a destination (1 to 4) tab, and click the [Add] button.



(2) In the [Transmission Schedule] dialog box, enter the setting items.



Item	Description
Day of the Week Designation	Specify a day of the week to send. Select a check box for the day.
Transmission Time Slot	Select a time slot to transmit. Available start time of the time slot is from 0 to 23 o'clock, end time from 1 to 24 o'clock.
Email Address	Click a button to specify an email address. In the [Email Address] field, specify one email address in one line. Up to 10 email addresses can be configured. Add: In the [Destination] dialog box, enter the email address. Edit: Select an email address and click the [Edit] button. In the [Destination] dialog box, change the setting. Delete: Select the email address and click [Delete].

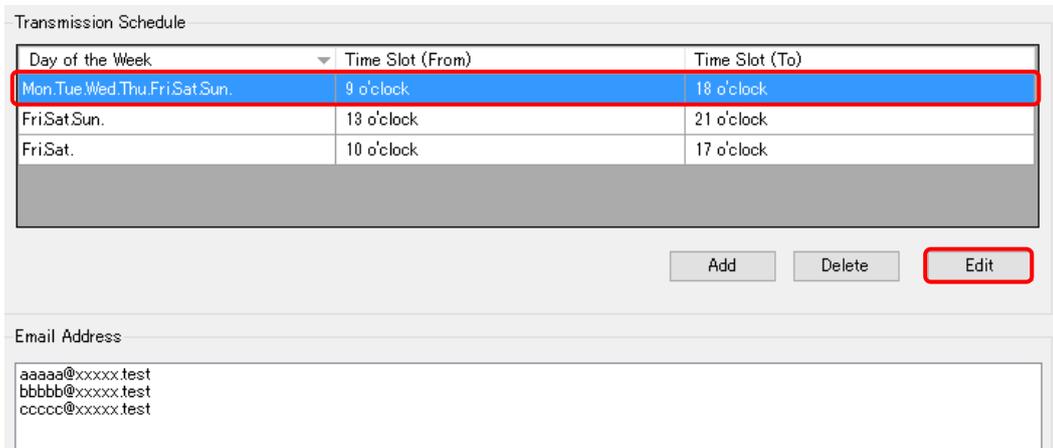
(3) Click [OK].

(4) To add a transmission schedule, repeat the steps from (1) to (3).

● Editing Sending Schedule and Email Address

(1) Select a destination (1 to 4) tab.

(2) Select a transmission schedule to edit, and click [Edit].



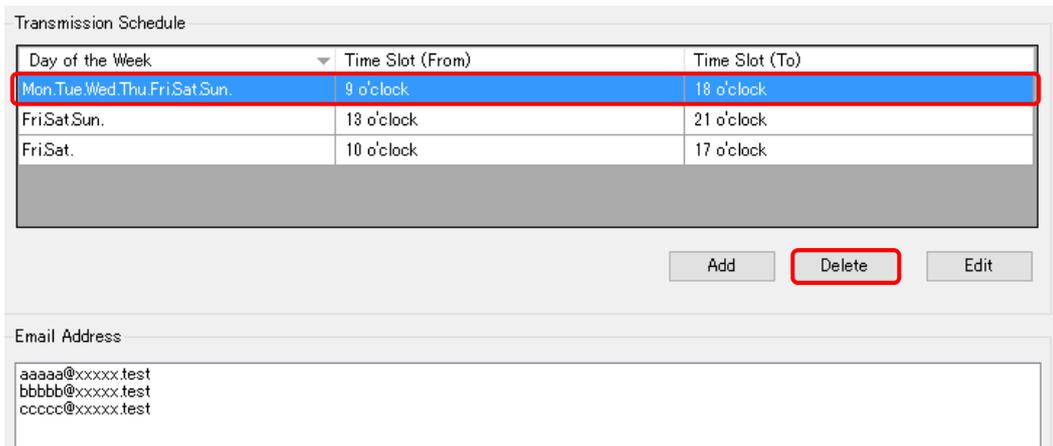
(3) In the [Transmission Schedule] dialog box, change the transmission schedule or email address.

(4) Click [OK].

● Deleting Transmission Schedule and Email Address

(1) Select a destination (1 to 4) tab.

(2) Select a transmission schedule to delete, and click [Delete].



(3) The selected transmission schedule and email address are deleted.

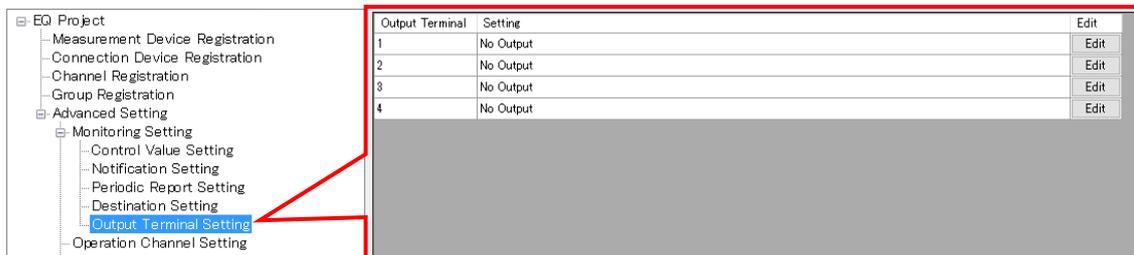
■ EQ100 Output Terminal Setting

Configure operations of four output terminals specified in the control value setting.

For the output terminal setting, you can select either [On upon Event/Off upon Return] or [Off upon Event/On upon Return].

● Viewing Setting Screen

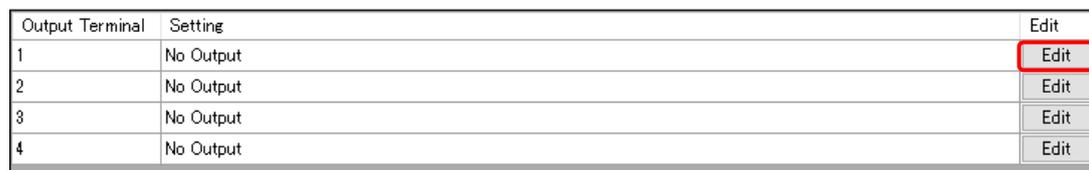
In the setting menu, click [Output Terminal Setting].



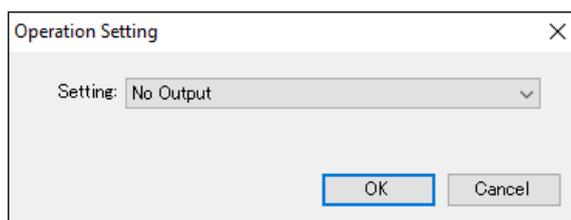
Item	Description
Output Terminal	Indicates an EQ100 general-purpose output terminal number.
Setting	Displays the operation setting.
Edit	You can specify a general-purpose output operation setting.

● Editing General-Purpose Output Setting

(1) Click the [Edit] button of the general-purpose output terminal number you want to configure.



(2) In the [Operation Setting] dialog box, select an operation setting.



Selection	Description
No Output	No output is done.
On upon Event/Off upon Return	On if a monitoring alarm occurs, Off if recovered. A monitoring alarm can occur if this setting is configured and if output is specified in the control value setting.
Off upon Event/On upon Return	Off if a monitoring alarm occurs, On if recovered. A monitoring alarm can occur if this setting is configured and if output is specified in the control value setting.

(3) Click [OK].

#### 4.6.4.2. EQ100 Operation Channel Setting

An operation channel is a channel newly created through arithmetic operations based on channel data. EQ100 performs operations at data collecting with the specified operational expression and collects data.

The following two channels can be created:

Item	Description
Basic Unit Operation Channel	A new channel can be created by configuring an operation "Channel of energy data (Numerator) / Channel (Denominator)".
Free Operation Channel	A new channel can be configured by multiplying an existing channel with a factor or by operating channels.

On the operation channel, up to 32 channels can be used for arithmetic operation for registration. Note that you cannot use a registered operation channel to create another operation channel.

This function can be used if you want to use the following values as an operation channel:

e.g.)

- Sum value of electric energy consumption, etc, and differential value
- Base unit (electric energy consumption/production volume)
- Electric energy consumption per floor area

#### ● Example of Pulse Input Conversion from General-Purpose Input

If pulse input from the general-purpose input is configured in the measurement device registration, the pulse input count must be converted into a measured value.

Use a free operation channel to configure as shown below:

Expression:  $A \times \text{Pulse input count}$

A: Weight per 1 pulse (factor)

Unit: Specify the unit of the converted value.

(e.g.) For electric energy of 10 kWh per 1 pulse

Unit: kWh

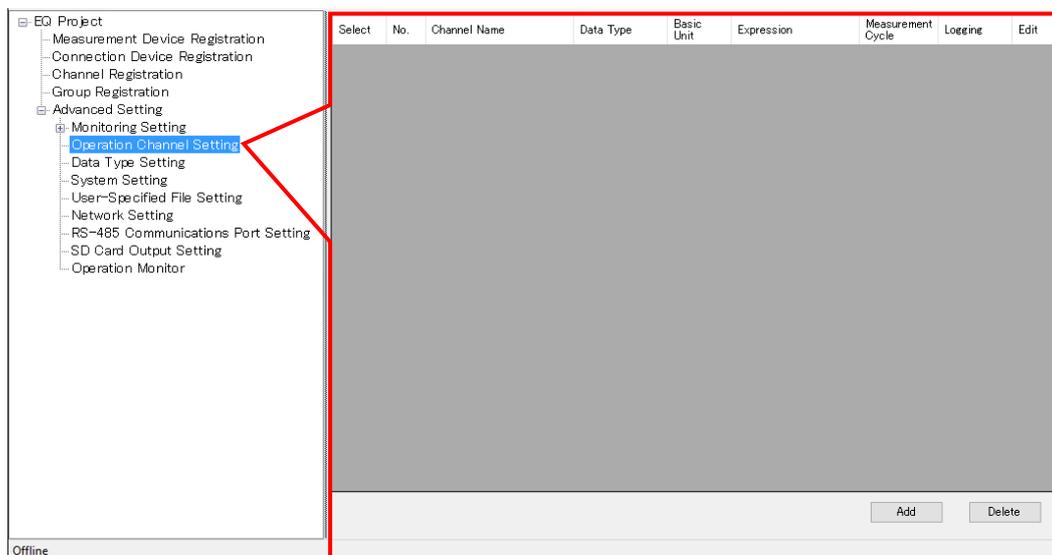
Coefficient: 10 (/pulse)

#### Precautions for Correct Use

- Use only those measurement channels that have the same measurement cycle in one expression for an operation channel. An operation channel cannot be created by using channels with different measurement cycle.
- Use only those measurement channels that have logging enabled for an operation channel. An operation channel cannot be created by using channels with logging disabled.
- Measurement channels that configure one expression must be instantaneous values for both or integrated values for both only. Proper operation of an operation channel cannot be ensured that is configured by an expression with an instantaneous value and an integrated value.
- The system collects all the channel data in the signed real of 8 bytes. If the logical operation is specified, the logical operation of the binary bit is performed by regarding the target data as an integer.

## ■ Viewing Setting Screen

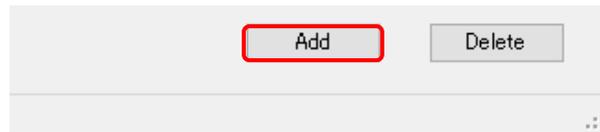
In the setting menu, click [Operation Channel Setting].



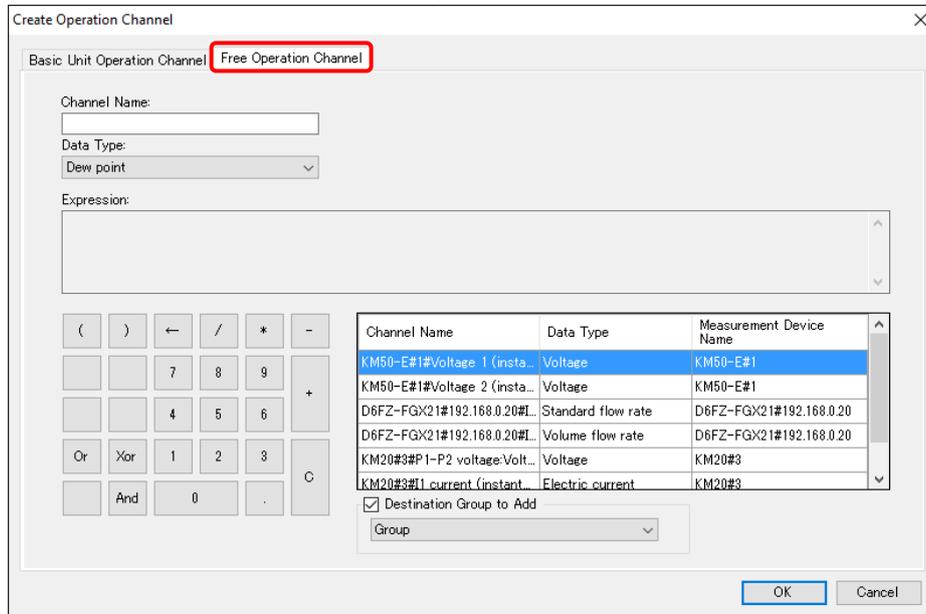
Item	Description
Select	Selecting the [Select] check boxes ( <input checked="" type="checkbox"/> ) and clicking [Delete] deletes all the selected channels.
No.	The number serially assigned in the registered order.
Channel Name	An operation channel name.
Data Type	A data type of the operation channel.
Basic Unit	If a basic unit operation channel is created, "o" appears.
Expression	An operation expression of the operation channel.
Measurement Cycle	A measurement cycle of the operation channel. If the setting has a problem, the following message may appear in addition to the measurement cycle. - Disabled: A channel with logging disabled is used in the operation channel - Mismatch: Measurement cycles of the channels in the expression are different.
Logging	Specify if logging (operation and management) of the operation channel should be enabled/disabled. Specify this item if you want to pause data collection of operated values.
Edit	You can edit the operation channel.

■ Adding Free Operation Channel

(1) Click [Add].



(2) In the [Create Operation Channel] dialog box, click the [Free Operation Channel] tab.



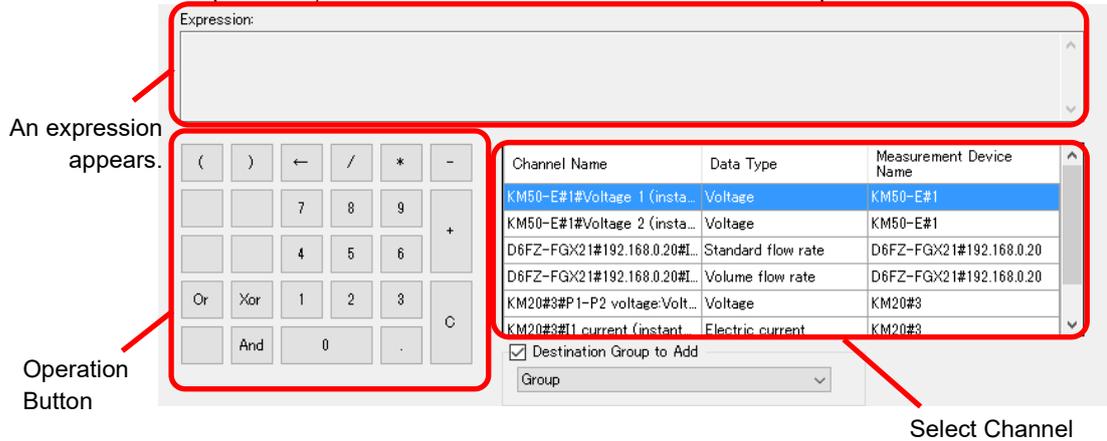
Item	Description
Channel Name	Enter a name of a new operation channel to create. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Data Type	Select a data type for the free operation channel.
Expression	Configure an operation expression by button input. * Measurement channels that configure one expression must be instantaneous values for both or integrated values for both only. Proper operation of an operation channel cannot be ensured that is configured by an expression with an instantaneous value and an integrated value. <Input range> Character string in expression format: Half-width 199 characters See below for calculation of characters to enter: One measurement channel = Half-width 4 characters A number/symbol on the operation button = Half-width 1 character Number of measurement channels that can be registered to an expression: 1 to 32 channels
Destination Group to Add	Select a group to which the created operation channel is added.

(3) Enter a channel name.

(4) Select a data type.

(5) Create an expression.

To add to the expression, double-click a channel name or click an operation button.



Item	Description
Expression	An expression appears.
()	A parenthesis is entered to the operation expression.
←	An operator or a channel is deleted.
/ * - +	Arithmetic operation is done.
And,Or,Xor	Performs logical operation.
.	A decimal point is entered to the operation expression.
C	Entire operation expression is deleted.
Channel Name, Data Type, Measurement Device Name	Added to the expression by double-clicking. An operation channel configured with a channel indicating "(Disabled)" in the head of the channel name, when used, cannot set the operation channel to EQ100. Either disable or correct logging.

**Precautions for Correct Use**

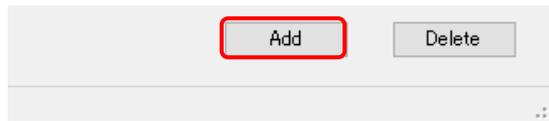
- Division by "0" is not allowed in an operation channel. If an operation channel contains division by "0" due to incorrect input, its operation result shall be "0".
- When the logical operation is specified, the logical operation is performed for binary bit by regarding the value as an integer. For example, under the condition of A And B, when A = L, B = 0, the result will be 0. This is an operator assuming the ON/OFF channel.

(6) Select a group to which the created operation channel is added.

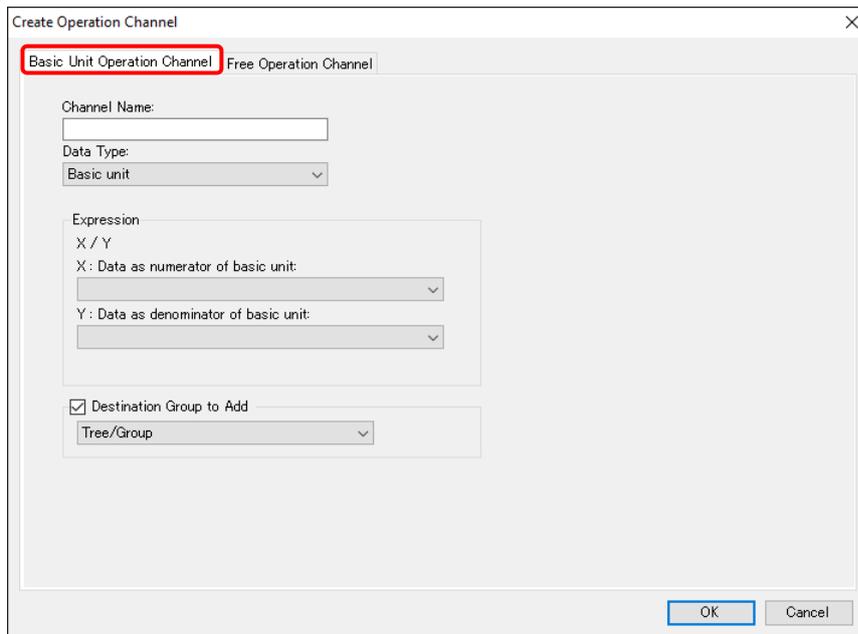
(7) Click [OK].

■ Creating Basic Unit Operation Channel

(1) Click [Add].



(2) In the [Create Operation Channel] dialog box, click the [Basic Unit Operation Channel] tab and configure the settings.



Item	Description
Channel Name	Enter a name of a new basic unit operation channel to create. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Data Type	Select a data type for the basic unit operation channel.
Data as numerator of basic unit	Select an existing channel as a numerator of the basic unit operation channel. "(Disabled)" in the head of the channel name, when used, cannot set the operation channel to EQ100. Either disable or correct logging.
Data as denominator of basic unit	Select an existing channel as a denominator of the basic unit operation channel. Select a measurement channel of integrated values for data as denominator. "(Disabled)" in the head of the channel name, when used, cannot set the operation channel to EQ100. Either disable or correct logging.
Destination Group to Add	Select a group to which the created basic unit operation channel is added.

(3) Click [OK].

■ Editing Basic Unit Operation Channel/Free Operation Channel

(1) Click the [Edit] button of the expression you want to change.

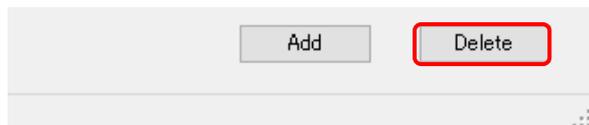


(2) In the [Create Operation Channel] dialog box, edit the setting items.

(3) Clicking [OK] changes the operation channel.

■ Deleting Operation Channel

(1) Select the [Select] check box of the channel you want to delete, and click [Delete].



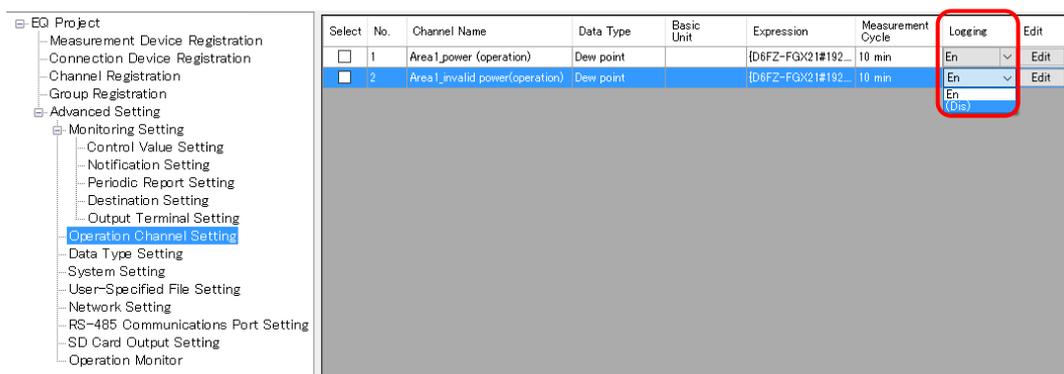
The channel is deleted from the operation channel.

**Precautions for Correct Use**

- If an operation channel is deleted and configured again, it is configured as a new operation channel. You cannot inherit the past data in such a case.

■ Enabling/Disabling Logging

You can stop logging of an operation channel while keeping the operation channel registration/configuration as it is.



Item	Description
Logging	En (Enable): Logging of the operation channel is available. Dis (Disable): Logging of operated values is not done even if the logging is started.

### 4.6.4.3. EQ100 Data Type Setting

A data type defines a unit of data, summary method, or discrimination of integral and instantaneous values.

While the system provides data types, you can create a type not defined by the system.

For system-defined data types, see "9.5.3 Data Type List" (p.9-53" or view the setting screen.

In the data type setting, specify data type, unit, decimal digits, and energy data.

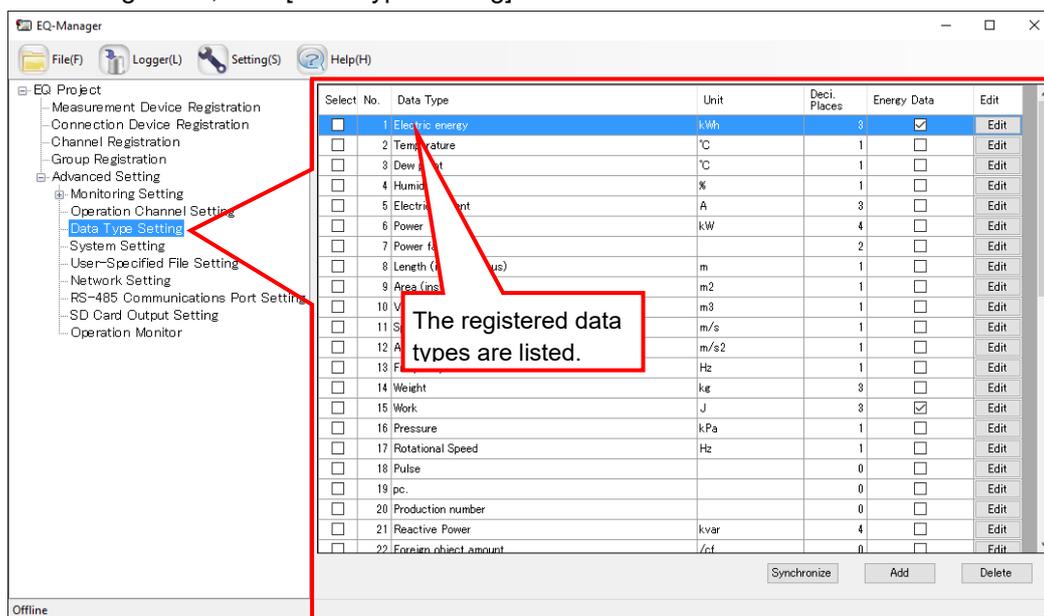
Note that, for system-defined data types, you can change unit, decimal digits, and energy data.

#### Precautions for Correct Use

- To edit the Data Type at EQ project creation, perform Data Type setting before the channel registration of EQ100. When the Data Type is set after the channel registration, it is not reflected to the channel previously registered.
- A data type can be shared between an EQ project and an EQ server project.

#### ■ Viewing Setting Screen

In the setting menu, click [Data Type Setting].



Item	Description
No.	The number serially assigned in the registered order.
Data Type	A name of the data type.
Unit	A unit of the data type.
Deci. Places	Significant decimal digits of the data type.
Energy Data	Specify if the data type should be handled as energy data or not.
Edit	You can edit the details of the data type.

### ■ Adding Data Type

To add a new data type:

(1) Click the [Add] button. In the [Data Type Setting] dialog box, enter the setting items.

Item	Description
Data Type	Enter a data type. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Unit	Enter a unit of the data type. <Input range> Half-width 9 characters (Full-width 20 characters, more or less)
Deci. Places	Select the number of decimal digits. <Selection> 0 to 9 digits
Summary Method	Select a data type summary method, from "average", "sum", "minimum", or "maximum". Note that summary methods of EQ100 are two; "average" and "sum", and that selecting "minimum" or "maximum" is actually equivalent to selecting "average".
Energy Data	Specify if the data type should be handled as energy data or not. If the [Energy Data] check box is selected, you can edit the rate conversion factor and CO <sub>2</sub> conversion factor settings which cannot be used in EQ100.

(2) Click [OK].

### ■ Editing Data Type

You can edit a data type.

You can edit any item in the data type created using this function.

For system-defined data types, you can edit the unit, decimal digits, and energy data.

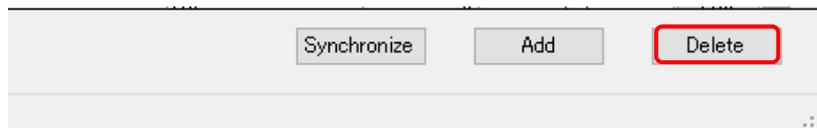
- (1) Click the [Edit] button of the data type you want to change. In the [Data Type Setting] dialog box, change the settings.

Select	No.	Data Type	Unit	Deci. Places	Energy Data	Edit
<input type="checkbox"/>	7	Power factor		2	<input type="checkbox"/>	Edit
<input type="checkbox"/>	8	Length (instantaneous)	m	1	<input type="checkbox"/>	Edit
<input type="checkbox"/>	9	Area (instantaneous)	m <sup>2</sup>	1	<input type="checkbox"/>	Edit
<input type="checkbox"/>	10	Volume (instantaneous)	m <sup>3</sup>	1	<input type="checkbox"/>	Edit
<input type="checkbox"/>	11	Speed	m/s	1	<input type="checkbox"/>	Edit
<input type="checkbox"/>	12	Acceleration	m/s <sup>2</sup>	1	<input type="checkbox"/>	Edit

- (2) Click [OK].

### ■ Deleting Data Type

- (1) Select the [Select] check box of the data type you want to delete, and click [Delete].



The data type is deleted.

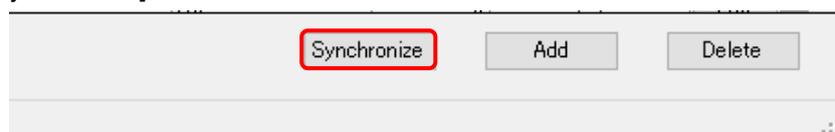
#### Precautions for Correct Use

- You can delete a data type added by the customer. You cannot delete data types already registered upon installation.
- You cannot delete a data type used in a registered channel.

### ■ Synchronizing Data Type

You can use this function to edit or delete a data type added in other computer. To make consistency between EQ100 and the Data Type in the server, EQ-Manager limits editing the data which Data Type is different from that of the initial value which EQ-Manager retains. By the synchronizing function, the initial setting retained by the EQ-manager and the setting of the edited data type are synchronized, enabling edit and deletion.

- (1) Click [Synchronize].



If the computer that is currently used for editing has a data type that was not created in itself, the data type is synchronized.

#### Precautions for Correct Use

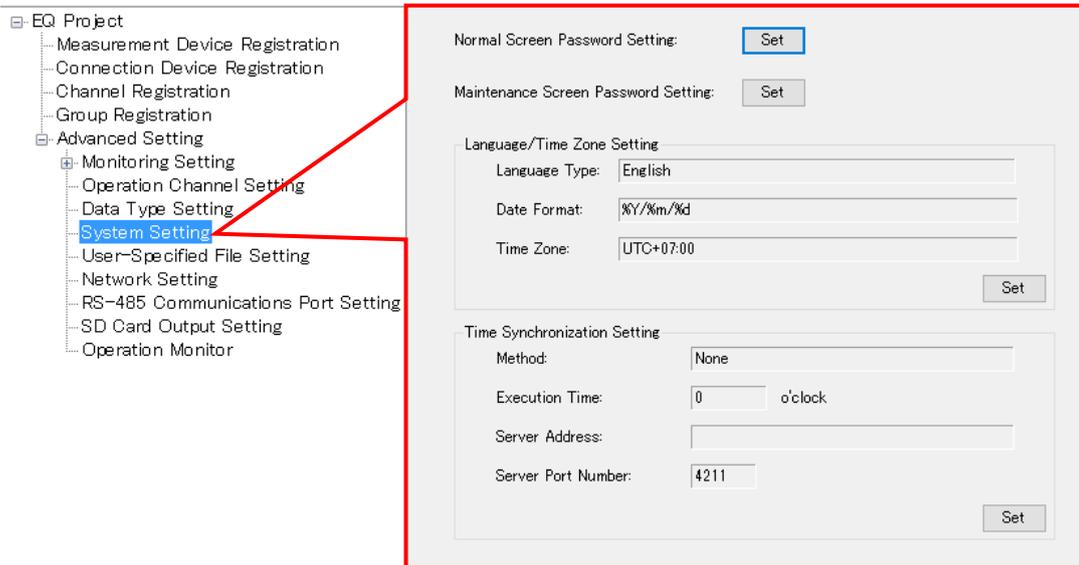
- Perform synchronization to edit a project containing any data type created by other PC.

#### 4.6.4.4. EQ100 System Settings (Password/Language/Time Zone/Time Synchronization Settings)

Configure the EQ100 system settings.

##### ■ Viewing Setting Screen

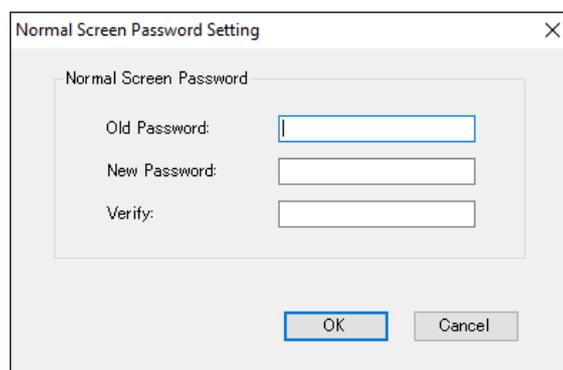
In the setting menu, click [System Setting].



Item	Description
Normal Screen Password Setting	Specify a password for access to EQ100 using the Web UI screen of EQ100 for protection.
Maintenance Screen Password Setting	Specify a password for access to EQ100 to change the EQ100 settings for protection.
Language/Time Zone Setting	Specify a language type, date format, and time zone.
Time Synchronization Setting	Set a reference to adjust the time of EQ100.

##### ● Normal Screen Password Setting

(1) Clicking the [Set] button in [Normal Screen Password Setting] displays the [Normal Screen Password Setting] dialog box.

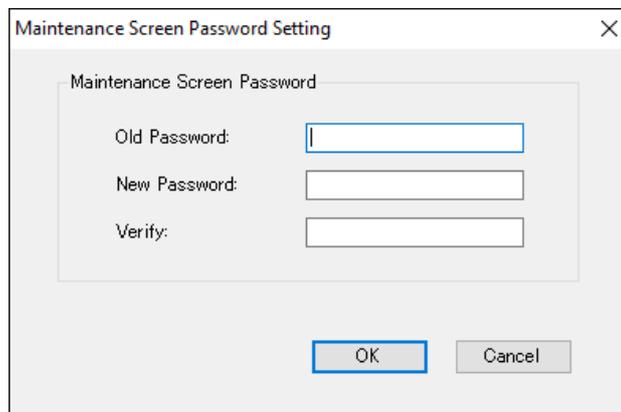


Item	Description
Normal Screen Password	Specify a password for access to EQ100 using the Web UI screen of EQ100 for protection. Old Password: Enter the old password. New Password: Enter a new password. Verify: Enter a new password again. <Input Range> Half-width 63 characters <initial value> (None)

(2) Enter the password and click [OK].

● Maintenance Screen Password Setting

(1) Clicking the [Set] button in [Maintenance Screen Password Setting] displays the [Maintenance Screen Password Setting] dialog box.

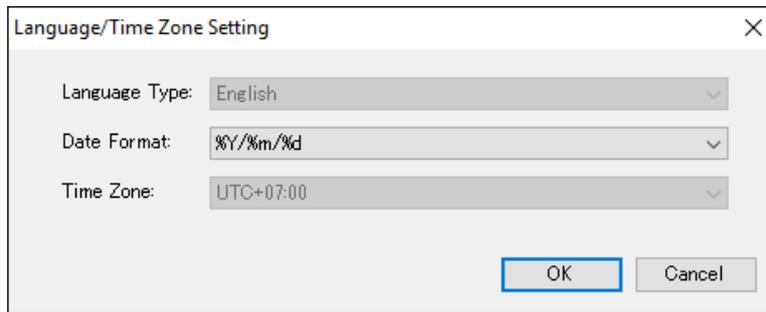


Item	Description
Maintenance Screen Password	Setup change on the maintenance screen (system/operation check/update) after access to EQ100 using the Web UI function is protected by a password. Old Password: Enter the old password. New Password: Enter a new password. Verify: Enter a new password again. <Input Range> Half-width 63 characters <initial value> admin (half-width lowercase characters)

(2) Enter the password and click [OK].

● Language/Time Zone Setting

(1) Clicking the [Set] button in [Language/Time Zone Setting] displays the [Language/Time Zone Setting] dialog box.

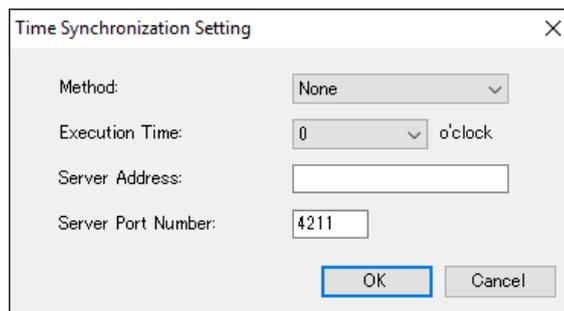


Item	Description
Language Type	Select a language to view collected data of EQ100 using the Web UI function. Fixed to Japanese.
Date Format	Select a date format from below for the web UI screen of EQ100. · %Y/%m/%d (e.g.: 2013/12/31) · %Y-%m-%d (e.g.: 2013-12-31) · %m/%d/%Y (e.g.: 12/31/2013)
Time Zone	You can view the time zone specified upon EQ project creation.

(2) Specify items required, and click [OK].

● Time Synchronization Setting

(1) Clicking the [Set] button in [Time Synchronization Setting] displays the [Time Synchronization Setting] dialog box.



Item	Description
Method	Select a time synchronization type for EQ100 from the following three options: None: To adjust to EQ100 built-in clock. Manual time synchronization of EQ100 is regularly required. (For time synchronization setting items, see "EQ100 User's Manual") SNTP Server: To adjust to the SNTP server. EQ Server: To adjust to the EQ server.
Execution Time	Set an hour to adjust the time of EQ100. Time synchronization is performed once a day. <Selection> 0 to 23 o'clock

Item	Description
Server Address	Enter the server address if time synchronization is performed by the SNTP server or EQ server. <Input Range> Half-width 126 characters
Server Port Number	Enter the server port number if time synchronization is performed by the SNTP server or EQ server. For EQ server, use the initial value "4211". For SNTP server, set the port number to "123". <Initial Value> 4211

(2) Specify items required, and click [OK].

#### 4.6.4.5. User-Specified CSV File Setting

A user can specify and create a CSV file available for FTP with a specified output cycle.

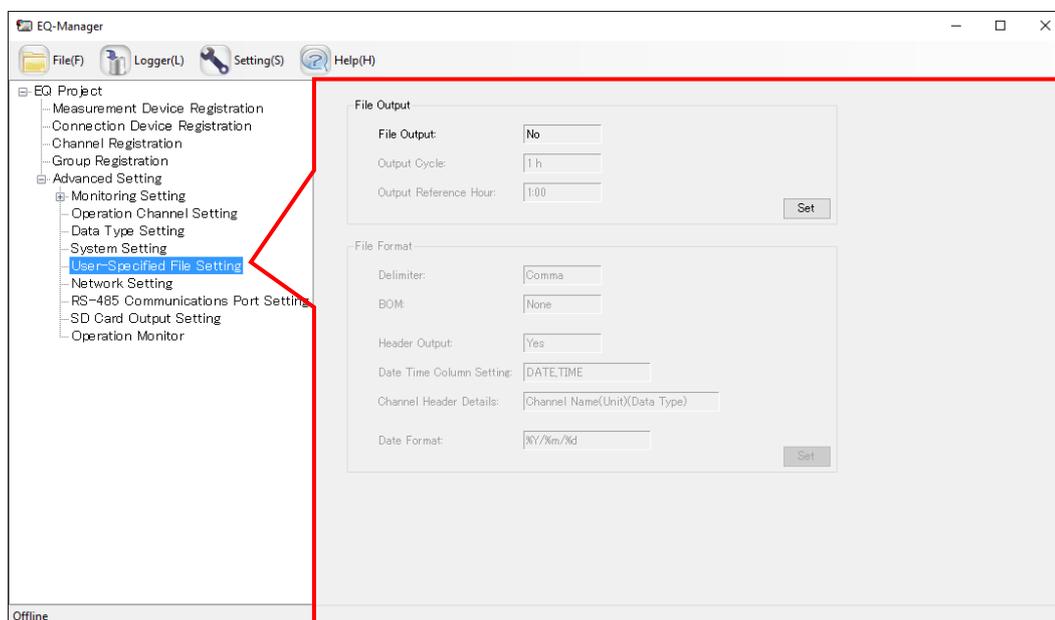
The file encoding is fixed to UTF-8.

Specify a date format and header column titles for the CSV files.

CSV files of measured data are created in a specified output cycle if the output is specified.

If a cycle of one hour is specified for 1-minute measurement, for example, a file of data from 12:00 to 12:59 is created in 13:00.

#### ● User-Specified File Setting Screen



Item	Description	Selection
File Output	Specify whether a user-specified file should be created or not.	Yes/No <Initial value> No
Output Cycle	Specify a cycle to create the files.	Select from 10min, 30min, 1h, 6h, 12h, or 24h.

Output Reference Hour	If a cycle is over one hour, specify a reference hour for an hour to output. For example, if a reference hour is 2:00 and an output cycle is 6 hours, output is done at 2:00, 8:00, 14:00, and 20:00.	Select from 0 to 23 o'clock
Delimiter	A field separator for CSV. Fixed.	Comma
BOM	Specify whether BOM is output to the output file.	Yes No
Header Output	Specify whether the header line should be outputted or not in the 1st line.	Yes/No
Date Time Column Setting	Specify the number of columns for a date in the top columns.	DATE, TIME, MSEC (3 columns of date, time, and millisecond) DATE, TIME (2 columns of date and time) DATETIME (1 column of date-time)
Channel Header Details	Specify the details of the label in the 1st line of a CSV file.	Channel Name Channel Name (Unit) Channel Name (Unit)(Data Type)
Date Format	A date format. Fixed.	%Y/%m/%d (e.g.: 2013/12/31)

#### Precautions for Correct Use

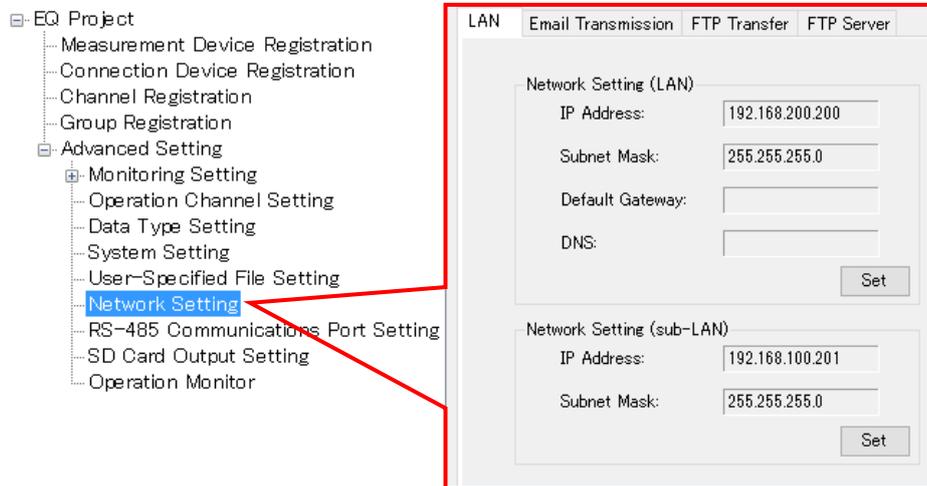
- A user-specified file is created on RAM. If the power of EQ100 is turned off, the file will be lost. If you created a file acquire it before turning off the power.
- A user-specified file is the file specified for FTP use. Note that it is not saved in a SD card.
- A User-specified file cannot be imported to the database of EQ server. For import, use the system internal file.
- If there is a channel with the measurement cycle of 1 minute, the output cycle of the user-specified file cannot be set to 24h due to the greater volume of the collected data. Set a shorter output cycle.

#### 4.6.4.6. EQ100 Network Setup (LAN, Email Transmission, FTP Transfer, FTP Server)

Configure the EQ100 network setup.

##### ■ Viewing Setting Screen

In the setting menu, click [Network Setup].



Tab	Description
LAN	Configure IP addresses of EQ100 LAN/sub-LAN connection ports.
Email Transmission	Configure the setting for EQ100 to send an email.
FTP Transfer	Set an external server for FTP transfer of EQ100 collected data. (FTP Client Setting)
FTP Server	Specify an account to use EQ100 as the FTP server. (FTP Server Setting)

## ■ EQ100 LAN Setting

### Precautions for Correct Use

- Configure the IP addresses of LAN and sub-LAN to different network segments.

(1) In the setting menu, select [Network Setting] and click the [LAN] tab.

(2) In the following screen, configure the details.

Clicking [Set] button shows a corresponding dialog box. Configure the setting if required.

Item	Description
Network Setting (LAN)	<p>Set the LAN connection port of EQ100.</p> <p>IP Address: Enter an IP address.</p> <p>Subnet Mask: Specify the value based on the network environment.</p> <p>Default Gateway: Specify the value based on the network environment.</p> <p>DNS: Specify the value based on the network environment.</p> <p>&lt;Initial Value&gt; IP Address: 192.168.200.200            Subnet Mask: 255.255.255.0            Default Gateway: (None)            DNS: (None)</p>
Network Setting (sub-LAN)	<p>Set the sub-LAN connection port of EQ100.</p> <p>IP Address: Enter an IP address.</p> <p>Subnet Mask: Specify the value based on the network environment.</p> <p>&lt;Initial Value&gt; IP Address: 192,168,100,201            Subnet Mask: 255.255.255.0</p>

### ■ Email Transmission Setting

Specify an email account of EQ100 (sender) to send in the notification setting and periodic report setting.

- (1) In the setting menu, select [Network Setting] and click the [Email Transmission] tab.
- (2) In the following screen, configure the setting items.

Clicking [Set] button shows a corresponding dialog box. Configure the setting if required.

The screenshot shows a configuration window with the following elements:

- Tabs:** LAN, Email Transmission (active), FTP Transfer, FTP Server.
- Email Address:** A text input field with a 'Set' button to its right.
- Encoding Character String:** A text input field containing 'iso-2022-jp'.
- SMTP Setting:** A sub-section containing:
  - SMTP Server Address: Text input field.
  - SMTP Port Number: Text input field with '25'.
  - SMTP Authentication Method: Text input field with 'None'.
  - SMTP Email Account: Text input field.
  - SMTP Password: Text input field.
  - A 'Set' button at the bottom right of this section.
- POP Setting:** A sub-section containing:
  - POP Server Address: Text input field.
  - POP Port Number: Text input field with '110'.
  - POP Email Account: Text input field.
  - POP Password: Text input field.
  - A 'Set' button at the bottom right of this section.

Item	Description
Email Address	Set an EQ100 email address.
Encoding Character String	<Input Range> Half-width 63 characters The encoding character string is fixed to "Japanese ISO-2022-JP".
SMTP Setting	Enter SMTP settings. <ul style="list-style-type: none"> <li>- SMTP Server Address &lt;Input Range&gt; Half-width 126 characters</li> <li>- SMTP Port Number &lt;Initial Value&gt; 25</li> <li>- SMTP Authentication Method &lt;Selection&gt; SMTP authentication (PLAIN)/SMTP authentication (MD5)/POP before SMTP/APOP before SMTP</li> <li>- SMTP Email Account &lt;Input Range&gt; Half-width 63 characters</li> <li>- SMTP Password &lt;Input Range&gt; Half-width 63 characters</li> </ul>
POP Setting	Specify this item if the SMTP server authentication is [POP before SMTP] or [APOP before SMTP]. For others, the setting is not required. Configure the following items: <ul style="list-style-type: none"> <li>- POP Server Address &lt;Input Range&gt; Half-width 126 characters</li> <li>- POP Port Number &lt;Initial Value&gt; 110</li> <li>- POP Email Account &lt;Input Range&gt; Half-width 63 characters</li> <li>- POP Password &lt;Input Range&gt; Half-width 63 characters</li> </ul>

### ■ FTP Transfer Setting (FTP Client Setting)

Set an external server for FTP transfer of EQ100 collected data.

(1) In the setting menu, select [Network Setting] and click the [FTP Transfer] tab.

(2) In the following screen, configure the setting items.

Clicking [Set] button shows a corresponding dialog box. Configure the setting if required.

Item	Description
FTP Transfer	Specify whether FTP transfer is required or not. <Initial value> No
Transfer Target	Select the file to transfer. (System internal file/User-specified file) -System internal file Fixed format file to output to the SD card defined by the EQ100 system -User-specified file File defined in 4.6.4.5 User-Specified CSV File Setting
Server Address	Enter a destination FTP server address. <Input Range> Half-width 126 characters
Port Number	Enter a port number. <Initial Value> 21
Account	Specify an account to transfer to an external server. <Input Range> Half-width 63 characters <initial value> anonymous
Password	Enter the password for the account. <Input Range> Half-width 63 characters <initial value> anonymous
Destination Path	Enter a destination path of the FTP server. <Input Range> Half-width 127 characters <initial value> ./

### Precautions for Correct Use

- When the server of FTP destination cannot be connected, the file failed in transfer is transferred again at the next time when connection is established within 24 hours at longest.

■ FTP Server Setting

Specify an account and password to use EQ100 as the FTP server.

(1) In the setting menu, select [Network Setting] and click the [FTP Server] tab.

(2) In the following screen, configure the details.

Clicking [Set] button shows a corresponding dialog box. Configure the setting if required.

Item	Description
FTP Server Status	Specify whether the FTP server should be enabled or not.
Account	Specify an account to connect to the FTP server. <Input Range> Half-width 63 characters <initial value> ftp
Password	Specify a password to connect to the FTP server. <Input Range> Half-width 63 characters <initial value> ftppassword

■ Available characters for password

Available characters for password in email transmission are shown below.

Blank	!	“	#	\$	%	&	‘	(	)	*	+	,	-	.	/
0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y	Z	[	¥	]	^	_
`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
p	q	r	s	t	u	v	w	x	y	z	{		}	~	

#### 4.6.4.7. EQ100 RS-485 Communications Port Setting

To connect an RS-485-connected measurement device to EQ100, you must configure RS-485 communications ports.

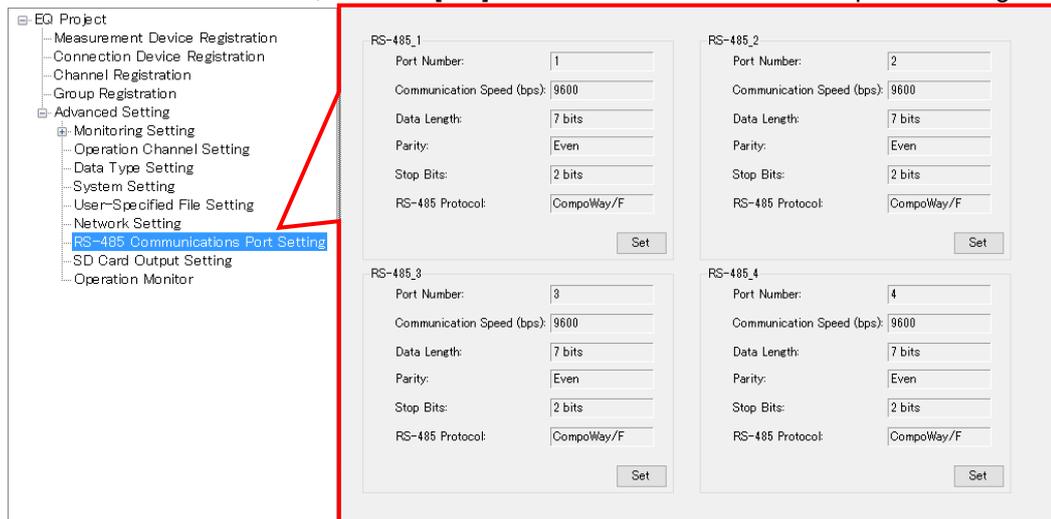
Specify the communications conditions for four RS-485 communications ports (RS-485\_1, RS-485\_2, RS-485\_3, and RS-485\_4) of EQ100.

Shown below are factory shipment settings of the communications ports:

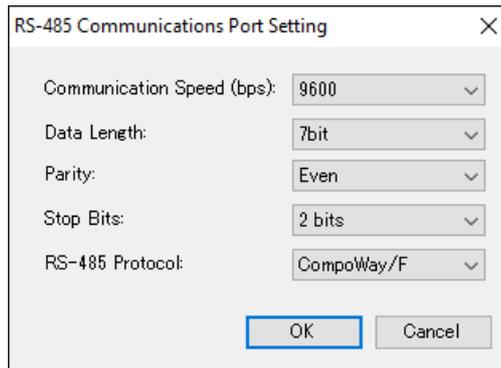
Item	Factory Shipment Settings
Communication Speed (bps)	9600
Data Length	7bit
Parity	Even
Stop Bits	2bit
RS-485 Protocol	CompoWay/F

(1) In the setting menu, click [RS-485 Communications Port Setting].

(2) In the screen shown below, click the [Set] button of the communications port to configure.



(3) In the [RS-485 Communications Port Setting] dialog box, select setup items and click [OK].



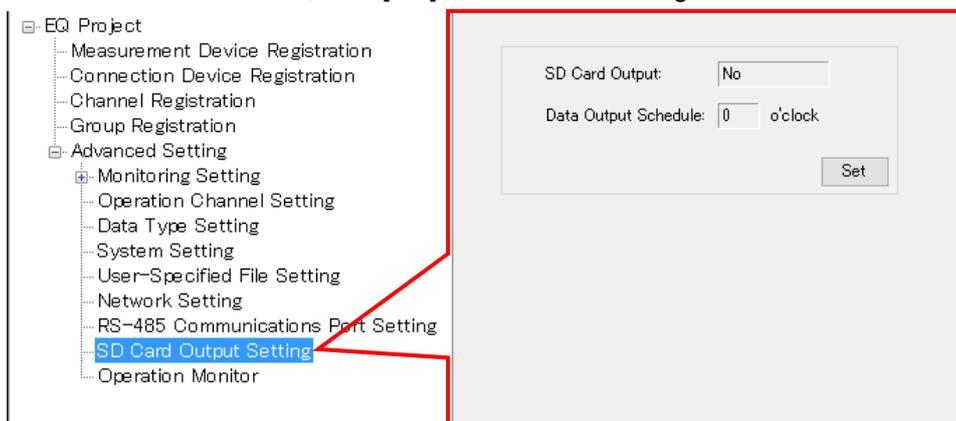
Item	Description
Communication Speed (bps)	Select a communication speed. <Selection> 9600bps (initial value), 19200bps, or 38400bps
Data Length	Select a data length. <Selection> 7 bits (initial value), 8 bits
Parity	Select parity. <Selection> None/Even(Initial value)/Odd
Stop Bits	Select a stop bit. <Selection> None, 1 bit, or 2 bits (initial value)
RS-485 Protocol	Select a communications protocol. <Selection> CompoWay/F (initial value), Modbus RTU

#### 4.6.4.8. EQ100 SD Card Output Setting

Specify if collected data (system internal file) of EQ100 should be outputted to an SD card or not, and a data output schedule if outputted.

(1) In the setting menu, click [SD Card Output Setting].

(2) On the screen shown below, click [Set] and enter the setting items.



Item	Description
SD Card Output	Specify if output should be done to an SD card or not. <Initial value> No output
Data Output Schedule	Select a time to write collected data to an SD card. Output is done once a day. <Selection> 0 to 23 o'clock

## 4.7. EQ100 Operation and Management

### 4.7.1. Saving and Storing EQ100 Project

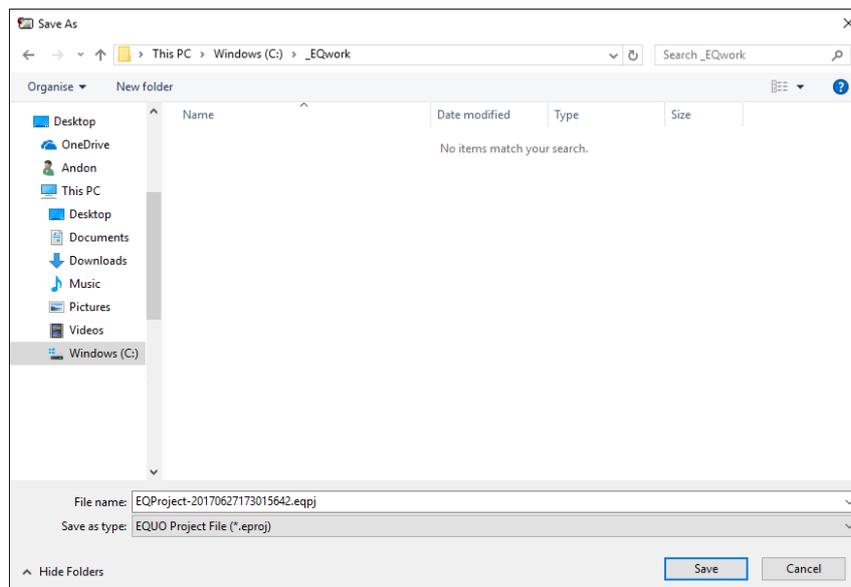
#### 4.7.1.1. Saving EQ Project

After creating an EQ project, save the project on a computer as a file.

(1) On the toolbar, click [File] - [Save].



(2) In the [Save As] dialog box, enter a file name and click [Save].



#### Precautions for Correct Use

- Do not use " "(a space character) in an EQ project file name. Otherwise a write error occurs when you try to write a project to EQ100 via an SD card.

#### 4.7.1.2. Storing EQ Project

You may need to edit the saved EQ project if you want to change the setting as adding or deleting a measurement device, editing a channel, and switching the enable/disable status of logging.

Afar writing the setting to EQ100, save or retain the EQ project.

### 4.7.2. Writing Project to EQ100

Write the EQ project to EQ100.

To write a project to EQ100, use any of the following three operations:

- Writing through LAN from a computer with EQ-Manager (see “4.7.2.1 Writing through LAN from a Computer with EQ-Manager” (p.4-98))
- Writing through SD card (see "EQ100 User's Manual")
- Writing through login to EQ100 Web screen (see "EQ100 User's Manual")

#### 4.7.2.1. Writing through LAN from a Computer with EQ-Manager

The default (factory shipment) IP address of EQ100 is 192.168.200.200.

Changing an IP address of the computer with EQ-Manager so as to connect to EQ100 via LAN allows writing an EQ project to EQ100.

(If operation and management is available with the default value EQ100 IP address, you do not need to change the IP address of the computer. See "■Writing Project While Operating with LAN Connection” (p.4-101).

#### ■Writing Project by Changing Computer's IP Address (for first implementation only)

##### ●Required Items

- A computer with EQ-Manager installed
- EQ100
- LAN cable (either a straight or a crossover cable is available for direct connection)

##### ●Steps

Temporarily change the IP address of the computer with EQ-Manager installed to write the project.



(1) Connect the computer with EQ-Manager and EQ100 via LAN.

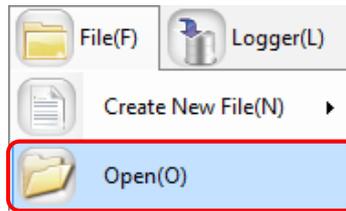
(2) Turn on the power of EQ100.

(3) Change the computer's IP address so as to connect to EQ100.

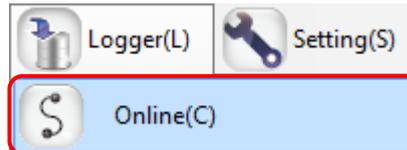
Configure the following settings. For IP address setting details, refer to computer's manuals.

IP Address	Set to "192.168.200.***". For "***", specify a number from 2 to 199 or from 201 to 254.
Subnet Mask	255.255.255.0
Default Gateway	Setting not required

- (4) Start up EQ-Manager and open an EQ project file to write.  
On the toolbar click [File] - [Open] to open the target EQ project.

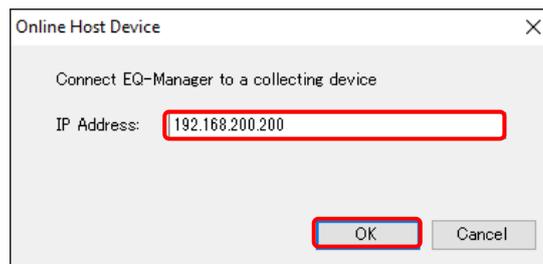


- (5) On the toolbar, click [Logger] - [Online].



- (6) In the [Online Host Device] dialog box, check the displayed IP address and click [OK].  
If the IP address is different from the one shown below, edit it.

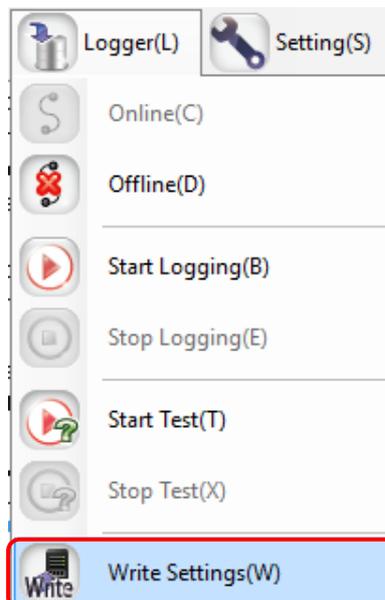
EQ100 IP Address upon Factory Shipment: 192.168.200.200



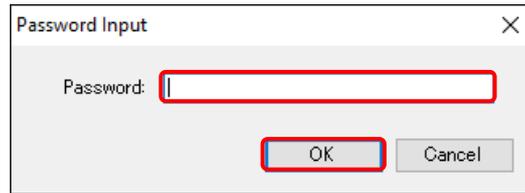
- (7) When Online is done, the status bar indicates [Online].



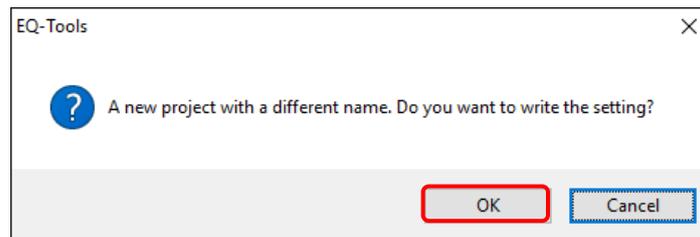
- (8) On the toolbar, click [Logger] - [Write Settings].



(9) If a password is designated for EQ-Manager, a confirmation dialog box appears as shown below. Enter the password and click [OK].



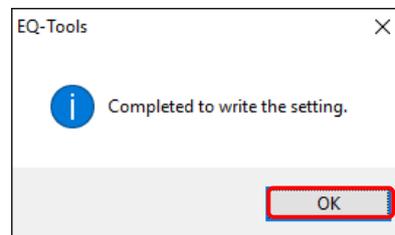
(10) If the project name written in EQ100 differs from the project name to write, the following confirmation dialog box appears. If you are sure to write, click [OK].



(11) When the project is written in EQ100, the following dialog box appears. The detail of the dialog box depends on the settings.

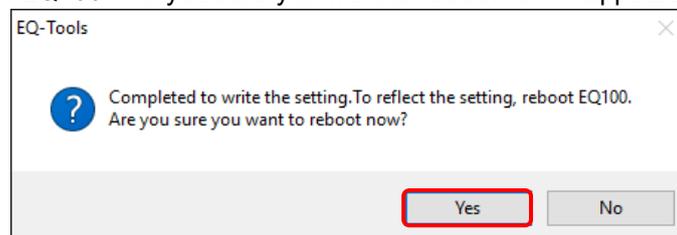
<If restart of EQ100 is not required>

When writing is completed, a message "Completed to write the setting" appears. Click [OK].



<If restart of EQ100 is required>

When writing is completed, a message "Completed to write the setting. To reflect the setting, reboot EQ100. Are you sure you want to reboot now?" appears. Click [Yes].



EQ-Manager and EQ100 transition to offline. EQ100 is restarted and the setting is reflected.

**Precautions**

- The written project is required to edit the project later for a change of configuration, etc. Keep it for later edit.

(12) Change the computer's IP address back.

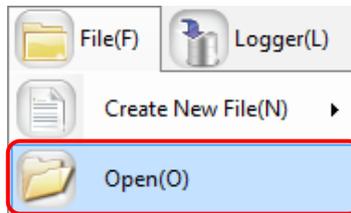
■ Writing Project While Operating with LAN Connection

**Precautions for Correct Use**

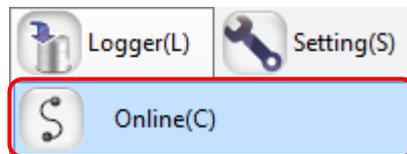
- The project cannot be written until logging is stopped. Data will be lost from when logging is stopped to when logging is started.

(1) Use EQ-Manager to open the target project.

On the toolbar click [File] - [Open] to open the target project.

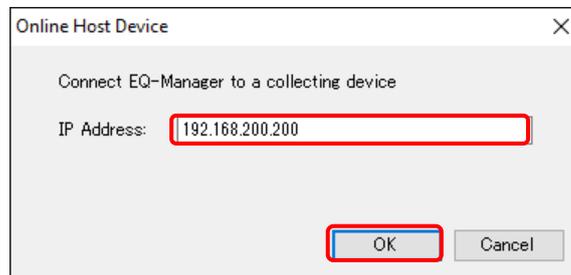


(2) On the toolbar, click [Logger] - [Online].



(3) In the [Online Destination] dialog box, check the destination EQ100 IP address and click [OK].

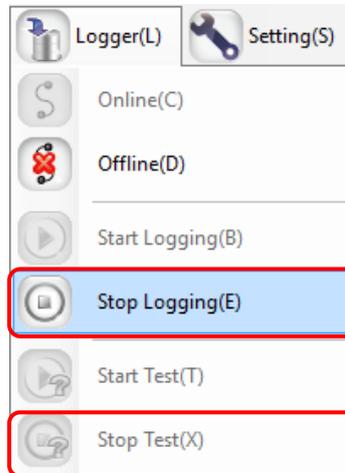
If the displayed IP address is different from the EQ100 IP address, edit it.



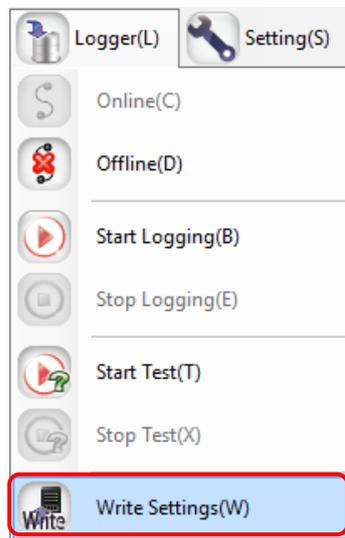
(4) When EQ-Manager is connected to EQ100, [Online] appears on the status bar.

Online | Stopped

- (5) If EQ100 is under operation (performing logging) or testing, stop it.  
To stop operation, click [Logger] - [Stop Logging]. To stop testing, click [Logger] - [Stop Test].

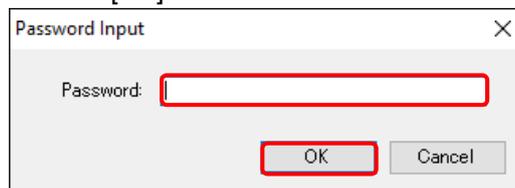


- (6) On the toolbar, click [Logger] - [Write Settings].

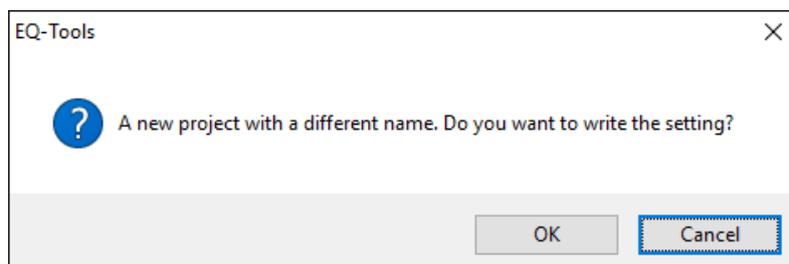


- (7) If a password is designated for EQ-Manager, a confirmation dialog box appears as shown below.

Enter the password and click [OK].



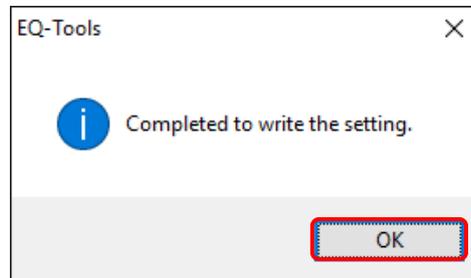
- (8) If the project name written in EQ100 differs from the project name to write, the following confirmation dialog box appears. If you are sure to write, click [OK].



(9) When the project is written in EQ100, the following dialog box appears. The contents of the dialog box depend on the settings.

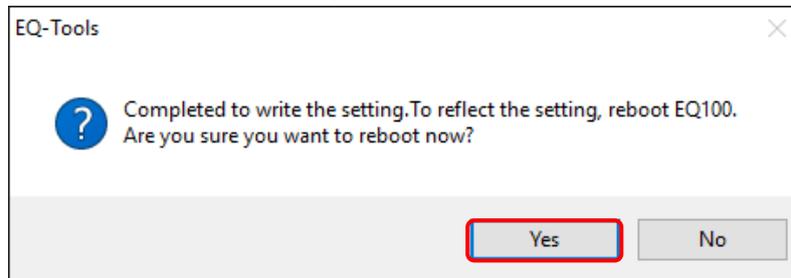
<If restart of EQ100 is not required>

When writing is completed, a message "Completed to write the setting" appears. Click [OK].



<If restart of EQ100 is required>

When writing is completed, a message "Completed to write the setting. To reflect the setting, reboot EQ100. Are you sure you want to reboot now?" appears. Click [Yes].



EQ-Manager and EQ100 transition to offline. EQ100 is restarted and the setting is reflected.

**Precautions**

- The written project is required to edit the project later for a change of configuration, etc. Keep it for later edit.

(10) Resume the operation or testing if you want.

To resume operation, click [Logger] - [Start Logging]. To resume testing, click [Logger] - [Start Test].

### 4.7.3. Reading EQ100 Setting

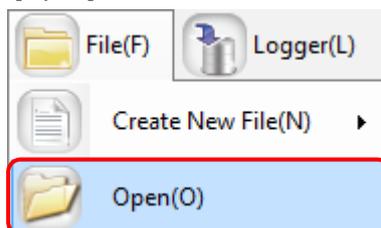
If EQ100 and the computer are connected via LAN, the project running on EQ100 can be read out to EQ-Manager of the computer.

#### Precautions for Correct Use

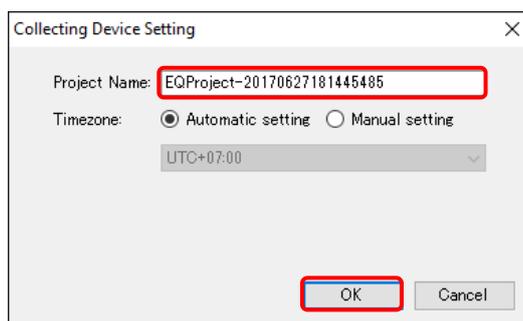
- The project cannot be loaded until logging is stopped. Data will be lost from when logging is stopped to when logging is started.

Here an empty new project is created, and the EQ project of EQ100 is read to replace it with the new project.

- (1) On the toolbar, click [File] - [Open].

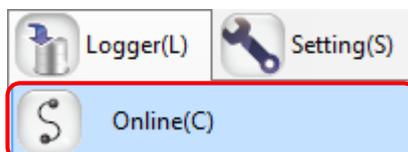


- (2) The [Collecting Device Setting] dialog box appears. Enter the project name, and click the [OK] button.

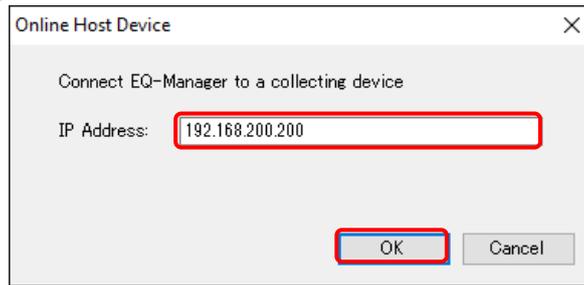


- (3) On the toolbar, click [Logger] - [Online].

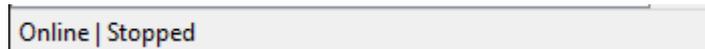
EQ-Manager refers to the IP address configured in the project to connect.



- (4) In the [Online Host Device] dialog box, check the destination EQ100 IP address and click [OK]. If the displayed IP address is different from the EQ100 IP address, edit it.



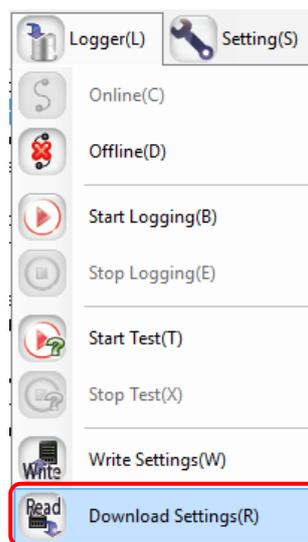
- (5) When EQ-Manager is connected to EQ100, [Online] appears on the status bar.



- (6) If EQ100 is under operation (performing logging) or testing, stop it.  
To stop operation, click [Logger] - [Stop Logging]. To stop testing, click [Logger] - [Stop Test].

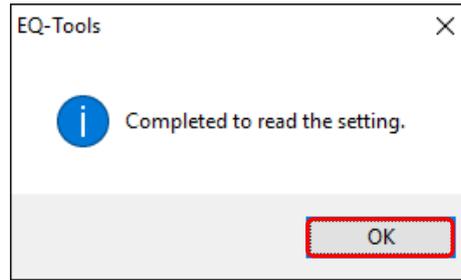


- (7) On the toolbar, click [Logger] - [Download Settings].



The project is loaded.

(8) When the loading is completed, the following dialog box appears. Click [OK].



The project on EQ-Manager is replaced by the loaded one.

(9) The contents of the EQ project can be displayed.

(10) Resume the operation or testing if you want.

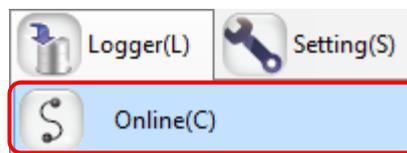
To resume operation, click [Logger] - [Start Logging]. To resume testing, click [Logger] - [Start Test].

#### 4.7.4. EQ100 Communication Test

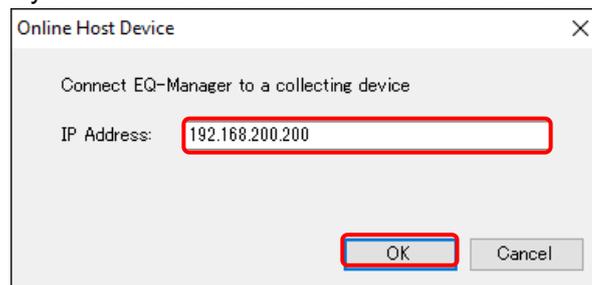
This test checks if the measurement devices registered in the EQ project exist or not and if connections between EQ100 and measurement devices are established. Collected data in EQ100 are not collected. To start operation and management, you must perform the required steps separately.

##### 4.7.4.1. Starting EQ100 Communication Test

- (1) Finish the hard wiring of EQ100, LAN connection, connection between EQ100 and measurement devices, configuration and hard wiring of measurement devices, and EQ project writing to EQ100 so as to be able to operate EQ100.
- (2) Check that the power of EQ100 as well as all of the connection devices and measurement devices with which you want to perform communication test must be on.
- (3) Use EQ-Manager to open an EQ project, and on the toolbar click [Logger] - [Online].



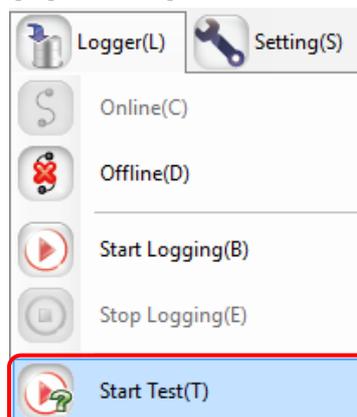
- (4) In the [Online Host Device] dialog box, check the destination EQ100 IP address and click [OK]. If the displayed IP address is different from the EQ100 IP address, edit it.



When EQ-Manager is connected to EQ100, [Online] appears on the bottom left of the screen.



- (5) On the toolbar, click [Logger] - [Start Test].



(6) The communication test begins.

During the communication test, [Online | Communication Testing] appears.

Online | Comm. Testing

(7) To verify the communication test result, select [Operation Monitor] in the setting menu to view. Please wait for a while before a measurement cycle of a measurement device passes.

The screenshot shows the 'EQ Project' settings menu on the left. Under 'Advanced Setting', 'Monitoring Setting', and 'Operation Channel Setting', the 'Operation Monitor' option is highlighted. A red box highlights a table in the main content area, which is connected to the 'Operation Monitor' menu item by a red line. The table contains the following data:

No.	Measurement Device Name	Device Type	Address	Logging	Measurement Cycle	Status
1	1F_Air	EQ100 PULSE		En	1 min	Logging
2	1F_floor	KM50-E	1	En	1 min	Logging
3	1F_Lighting	ZN-CTX21	192.168.100.20	En	1 min	Logging

The communication test result appears in the [Status] field. Make sure that it should be [Logging].

Status	Description
--	Appears before EQ100 checks the measurement device status.
Stopped	Appears after EQ100 stopped the measurement device logging.
Logging	Appears while EQ100 is performing logging/communication test of a measurement device.
Error	Appears when communication is successful between EQ100 and a measurement device but measured data could not be collected.
Communication Error	Appears when communication is not successful between EQ100 and a measurement device.

(8) Check the result and change the EQ project registration if necessary.

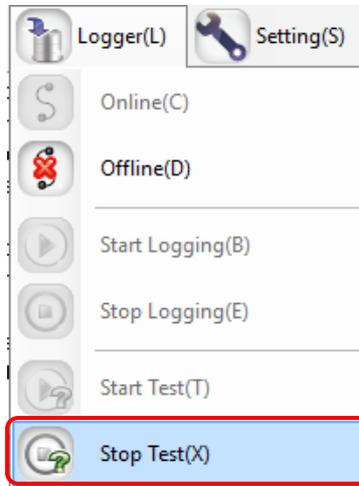
**Precautions**

- The EQ100 communication test can be performed by the Web UI function as well. (See "EQ100 User's Manual")

#### 4.7.4.2. Ending EQ100 Communication Test

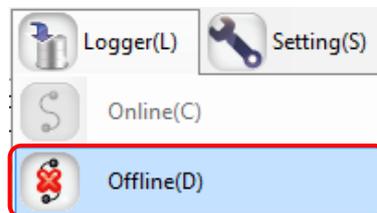
Complete the EQ100 communication test.

(1) On the toolbar, click [Logger] - [Stop Test].



The communication test ends.

(2) To cut the connection between EQ-Manager and EQ100 as well, on the toolbar click [Logger] - [Offline].



- The EQ100 communication test can be terminated by the Web UI function as well. (See "EQ100 User's Manual")

#### 4.7.5. Checking Measured Values

Check that measured values collected by EQ100 should be proper ones.

Use the Web UI function of EQ100 to view a simple graph to compare with actual measured values of the measurement device for proper settings and wiring.

For details of measured value checking, see "EQ100 User's Manual".

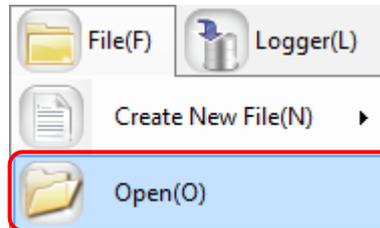
## 4.7.6. Starting/Stopping EQ100 Operation and Management

### 4.7.6.1. Starting EQ100 Operation and Management

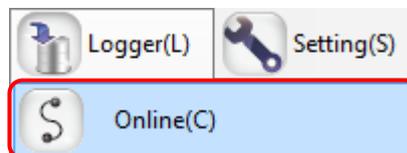
Start the operation and management of EQ100. On EQ-Manager, open an EQ project and perform the operation start steps.

- (1) Open the project file you want to start operating on EQ-Manager.

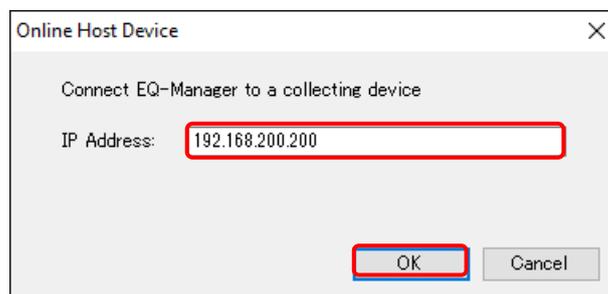
On the toolbar, click [File] - [Open].



- (2) Connect online between EQ-Manager and EQ100 On the toolbar, click [Logger] - [Online].



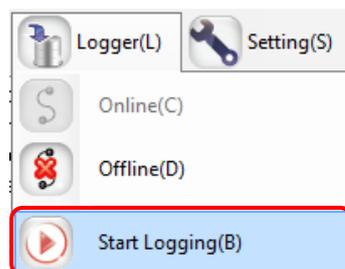
- (3) In the [Online Host Device] dialog box, check the destination EQ100 IP address and click [OK]. If the displayed IP address is different from the EQ100 IP address, edit it.



When EQ-Manager is connected to EQ100, [Online] appears on the bottom left of the screen.



- (4) Start operation and management. Click [Logger] - [Start Logging].



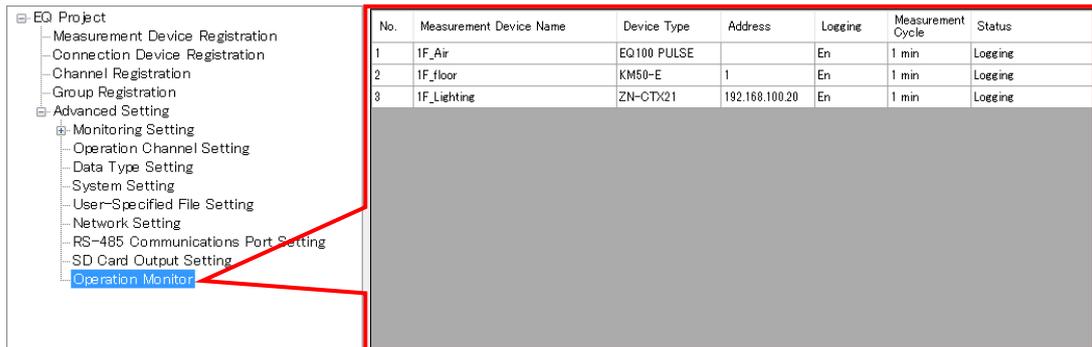
EQ100 starts its operation and management.

Under the operation, on the EQ-Manager status bar [Online | Logging] appears.

Online | Logging

(5) Use the operation monitor to check the EQ100 and measurement device statuses.

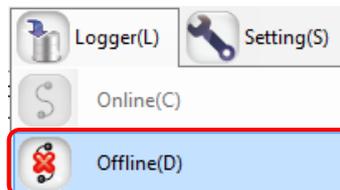
(1) In the setting menu, click [Operation Monitor]. Please wait for a while before a measurement cycle of a measurement device passes.



(2) Check that [Status] of the measurement devices connected to EQ100 should be [Logging].

Status	Description
--	Appears before EQ100 checks the measurement device status.
Stopped	Appears after EQ100 stopped the measurement device logging.
Logging	Appears while EQ100 is performing logging/communication test of a measurement device.
Error	Appears when communication is successful between EQ100 and a measurement device but measured data could not be collected.
Communication Error	Appears when communication is not successful between EQ100 and a measurement device.

(6) Cut the connection between EQ-Manager and EQ100. On the toolbar, click [Logger] - [Offline].



The connection between EQ-Manager and EQ100 is cut. EQ100 continues operation and management even after connection with EQ100 is cut.

(7) Terminate EQ-Manager. Click [File] - [Exit].

EQ100 continues operation and management even after EQ-Manager is terminated.

### Precautions

- The EQ100 operation and management can be started by the Web UI function and EQ100 main body as well. (See "EQ100 User's Manual")

#### 4.7.6.2. Stopping EQ100 Operation and Management

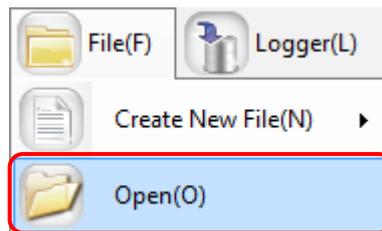
Stop the operation and management of EQ100. On EQ-Manager, open the EQ project and perform the operation stop steps.

##### Precautions for Correct Use

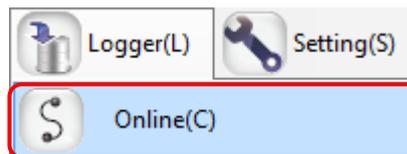
The project cannot be written until logging is stopped. Data will be lost from when logging is stopped to when logging is started.

- (1) Open the project file you want to stop operating on EQ-Manager.

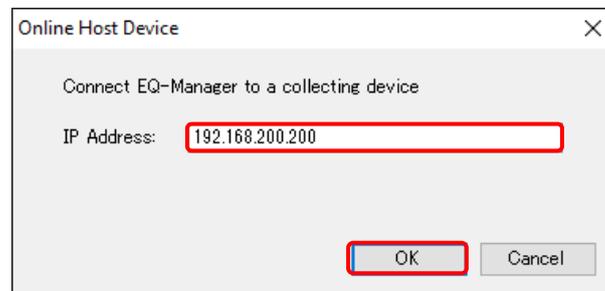
On the toolbar, click [File] - [Open].



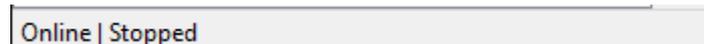
- (2) Connect online between EQ-Manager and EQ100 On the toolbar, click [Logger] - [Online].



- (3) In the [Online Host Device] dialog box, check the destination EQ100 IP address and click [OK]. If the displayed IP address is different from the EQ100 IP address, edit it.



- (4) When EQ-Manager is connected to EQ100, [Online] appears on the bottom left of the screen.

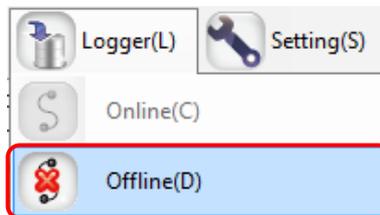


(5) Stop the operation and management of EQ100. Click [Logger] - [Stop Logging].



Connected EQ100 stops its operation and management.

(6) Disconnect and go offline. Click [Logger] - [Offline].



The connection between EQ-Manager and EQ100 is cut.

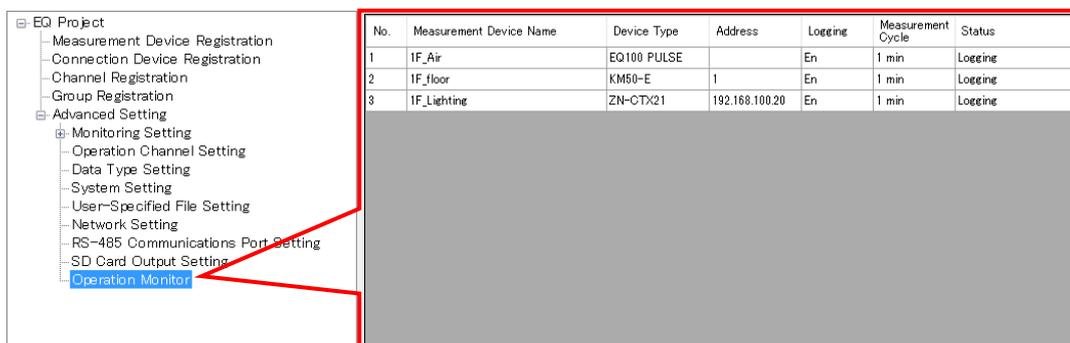
**Precautions**

- The EQ100 operation and management can be stopped by the Web UI function and EQ100 main body as well. (See "EQ100 User's Manual")

### 4.7.6.3. EQ100 Operation Monitor

After connecting EQ-Manager to EQ100 online and start logging or testing, you can view and monitor a list of EQ100 and measurement device statuses.

The operation monitor updates operation statuses of respective measurement devices to display.



Item	Description
No.	The number serially assigned in the order the measurement devices were registered.
Measurement Device Name	A measurement device name appears.
Device Type	A type of measurement device appears.
Address	Shows an IP address.
Logging	Shows logging enabled/disabled of a measurement device.
Measurement Cycle	A cycle to collect data from a measurement device.
Status	A status of a measurement device is displayed as shown below:

#### <Operation Monitor Status>

Status	Description
--	Appears before EQ100 checks the measurement device status.
Stopped	Appears after EQ100 stopped the measurement device logging.
Logging	Appears while EQ100 is performing logging/communication test of a measurement device.
Error	Appears when communication is successful between EQ100 and a measurement device but measured data could not be collected.
Communication Error	Appears when communication is not successful between EQ100 and a measurement device.

#### Precautions for Correct Use

In case of PLC, an occurrence of "Operation Stop Error" or "Operation Continuation Error" for PLC's CPU unit causes an error in the [Status] of the measurement device.

If "Low Battery" error occurred in a CPU unit, for example, "Operation Continuation Error" occurs and the EQ100 does not record data from the PLC. Replace the CPU unit's battery before "Low Battery" occurs.

\* An error due to operation continuation failure does not occur for EQ100 of the firmware version 1.160 or later.

When the operation monitor screen is displayed while logging or communication testing, the progress bar appears.



Progress Bar

## 4.8. EQ Server Project Creation

### Precautions for Correct Use

- For the EQ server to collect data from EQ100, you must configure EQ100 and the EQ server settings to match. If you updated the EQ project (EQ100) setting with addition/deletion of a channel or device or with enabling/disabling a setup item, you must update the server project as well.
- For how to update a project, see “8 If You Want To”, through “8.1 Add EQ100” (p.8-1) to “8.3 Change Project Setting” (p.8-3).

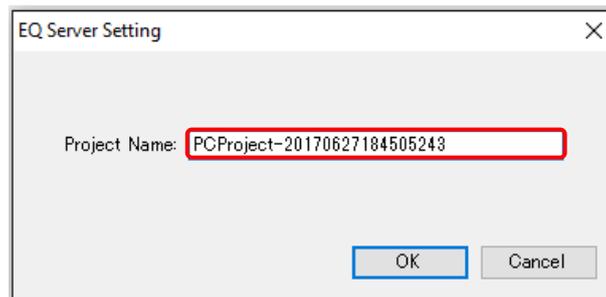
### 4.8.1. Creating New EQ Server Project

Create a new EQ server project.

(1) On the toolbar, click [File] - [Create New File] - [EQ Server Project].



(2) In the [EQ Server Setting] dialog box, enter a project name.



Item	Description
Project Name	Enter a project name. By default, date and time of creation is displayed as a project name. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)

(3) Click [OK].

The EQ server project setting screen appears.



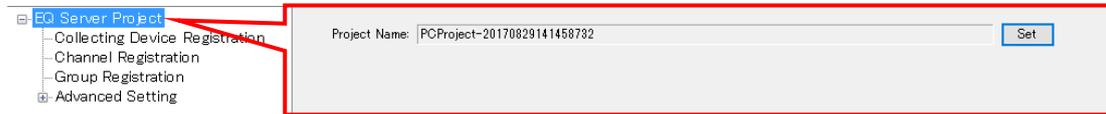
Setting Menu

### 4.8.2. Editing EQ Project Name

Edit an EQ server project name.

#### ■ Viewing Setting Screen

Clicking [EQ Server Project] in the setup menu displays the following screen.



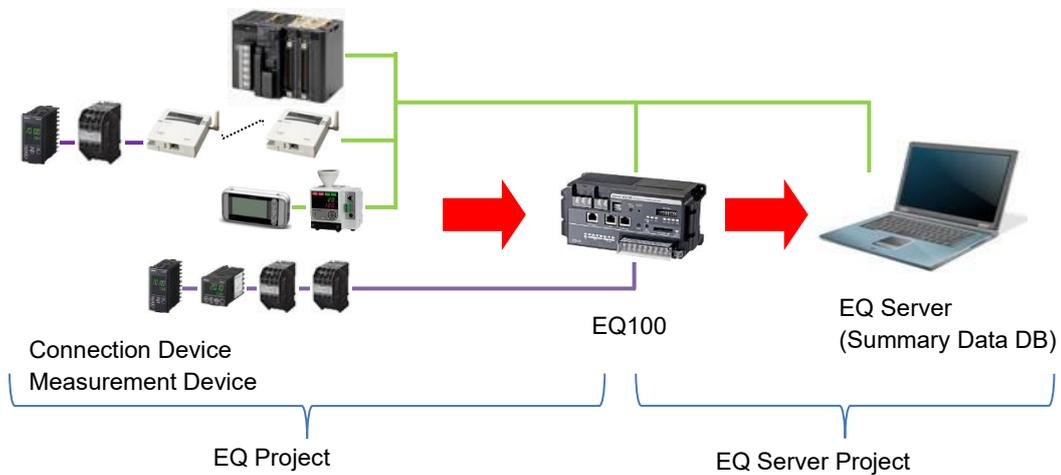
Item	Details
Project Name	When a new EQ server project is created, a name entered in the setting dialog box appears.

#### ■ Editing Project Name

Click the [Set] button to display the setup dialog box. Edit the item and click [OK].

### 4.8.3. EQ Server Collecting Setting

The EQ server inherits data collected by EQ100 to store the data in the summary data DB. In the EQ server collecting setting, select and configure the channel information collected by EQ100.



### 4.8.3.1. Registering EQ Server Collecting Device

Register EQ100 as the collecting source of the EQ server. If there are more than one EQ100, all of the EQ100 units must be registered.

#### ■ Viewing Registration Screen

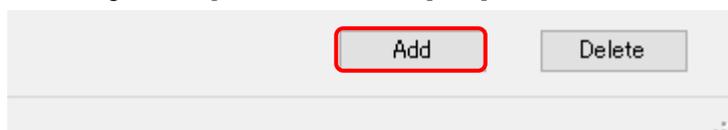
In the setting menu, click [Collecting Device Registration].

Select	No.	Collecting Device Name	Device Type	Address	SNC ID	Logging	Collecting Interval	Edit
<input type="checkbox"/>	1	EQ100#192.168.200.200	EQ100	192.168.200.200		En	1 min	Edit

Item	Description
Select	Selecting the [Select] check boxes (☑) and clicking [Delete] deletes all the selected collecting devices.
No.	The number serially assigned in the registered order.
Collecting Device Name	A collecting device name appears.
Device Type	Shows a device type.
Address	The IP address of the collecting device appears.
SNC ID	The SNC ID of the collecting device appears.
Logging	Specify if logging (operation and management) from a collecting device should be enabled/disabled.
Collecting Interval	A cycle to collect measurement data from a collecting device.
Edit	To change registration details of a collecting device:

#### ■ Adding Collecting Device

(1) In the [Add Collecting Device] screen, click the [Add] button.



(2) In the [Add Collecting Device] dialog box, enter the setting items.

Item	Description
Device Name	Enter a device name. If not entered, "model"+"#"+"IP address" is automatically set. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Device Type	Select a device type.
Setting Items	Configure the following items: IP Address: An IP address of the device Measurement Cycle: A cycle to collect measured data from a device <Selection> 1min/5min/10min/30min/60min <Initial Value> 10min SNC ID: An SNC ID of the device The ID specifically assigned to each EQ100. Normally this requires no input. The SNC ID of EQ100 can be checked by the label attached or on the Web browser (see the "EQ100 User' s Manual" ). When the device is switched, input this ID to import the CSV file created by the previous device.

(3) Click [OK].

(4) If there are more than one EQ100 units, repeat the steps from (1) to (3).

■ Editing Collecting Device

Change settings of a registered collecting device.

- (1) In the [Collecting Device Registration] screen, click the [Edit] button of the collecting device you want to change.

<input type="checkbox"/>	1	EQ100#192.168.200.200	EQ100	192.168.200.200	xxxxxx	En	▼	1 min	Edit
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- (2) In the [Edit Collecting Device] dialog box, change the details.

- (3) Click [OK].

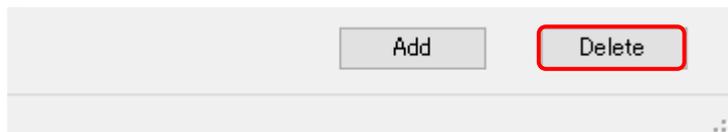
■ Deleting Collecting Device

**Precautions for Correct Use**

- If you delete a registered collecting device, data collected in the past by the EQ server are deleted as well.

- (1) In the [Collecting Device Registration] screen, select the [Select] check box.

- (2) Click [Delete].



- (3) In the confirmation dialog box, click [Yes] if you are sure.

■ Enabling/Disabling Logging

You can stop logging from EQ100 while keeping the collecting device registration as it is.

- (1) In the [Collecting Device Registration] screen, change the setting of enabling/disabling [Logging].

Select	No.	Collecting Device Name	Device Type	Address	SNC ID	Logging	Collecting Interval	Edit
<input type="checkbox"/>	1	EQ100#192.168.200.200	EQ100	192.168.200.200	xxxxxx	En ▼ En (Dis)	1 min	Edit

Item	Description
Logging	En (Enable): Collecting from the collecting device is available. Dis (Disable): Collecting is not done from the collecting device even if the logging is started.

### 4.8.3.2. Registering EQ Server Channel (Loading EQ Project File)

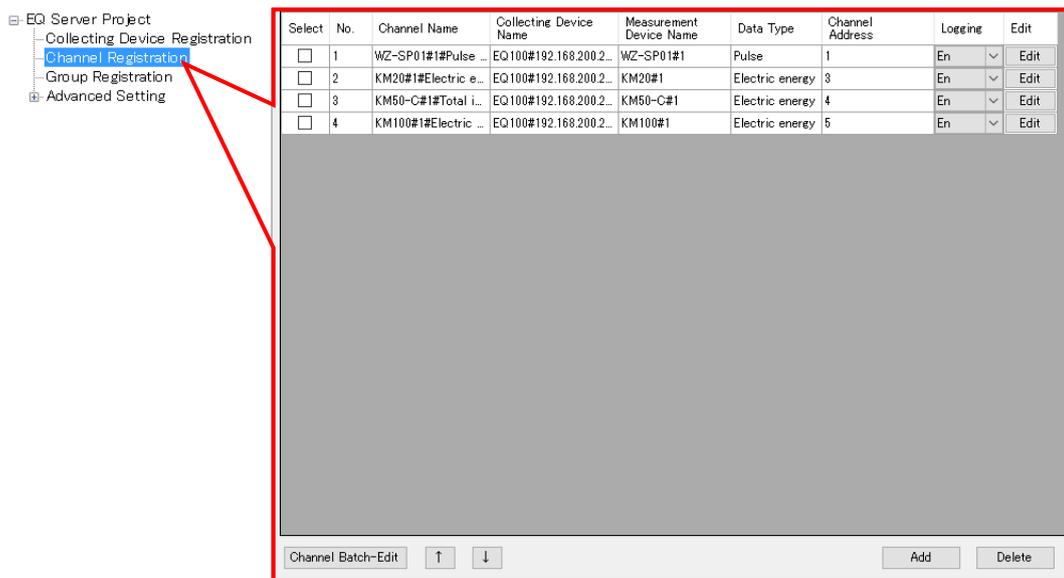
Reuse registered data of an EQ project to register a channel for the EQ server project. You can select a channel you need when you acquire channel data.

If there are more than one EQ100, you must load the file for each EQ100 unit.

Note that you can delete a channel registered in the EQ server project but you cannot edit other items than the channel name. If you want to edit an item other than the channel name, go back to the EQ project and edit.

#### ■ Viewing Registration Screen

In the setting menu, click [Channel Registration].



Item	Description
Select	Selecting the [Select] check boxes (☑) and clicking [Delete] deletes all the selected channels.
No.	The number serially assigned in the registered order.
Channel Name	The registered channel name is displayed. Used for an ID name to indicate the channel data.
Collecting Device Name	A collecting device name appears.
Measurement Device Name	Shows a name of the measurement device that retains the channel.
Data Type	Data type of the channel appears.
Channel Address	An address to identify measured data readout position of the channel for the measurement device.
Logging	Shows logging enabled/disabled from a channel.
Edit	Enter a channel name.
Channel Batch-Edit	You can use this item to view a list of channels and change their settings at the same time.

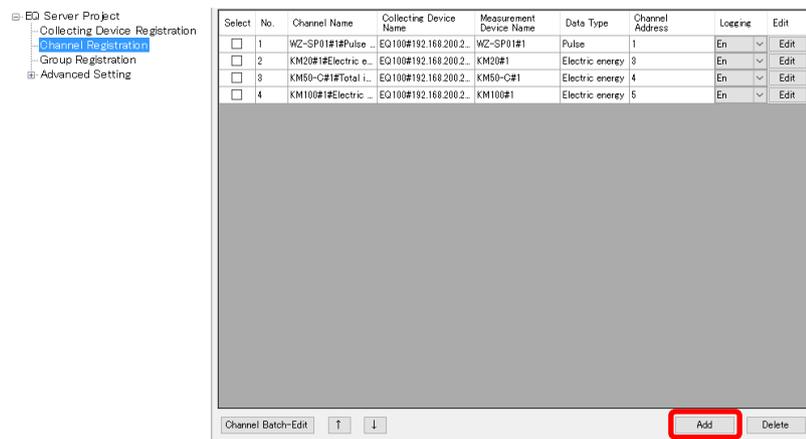
■ Loading EQ Project (Adding Channel)

**Precautions for Correct Use**

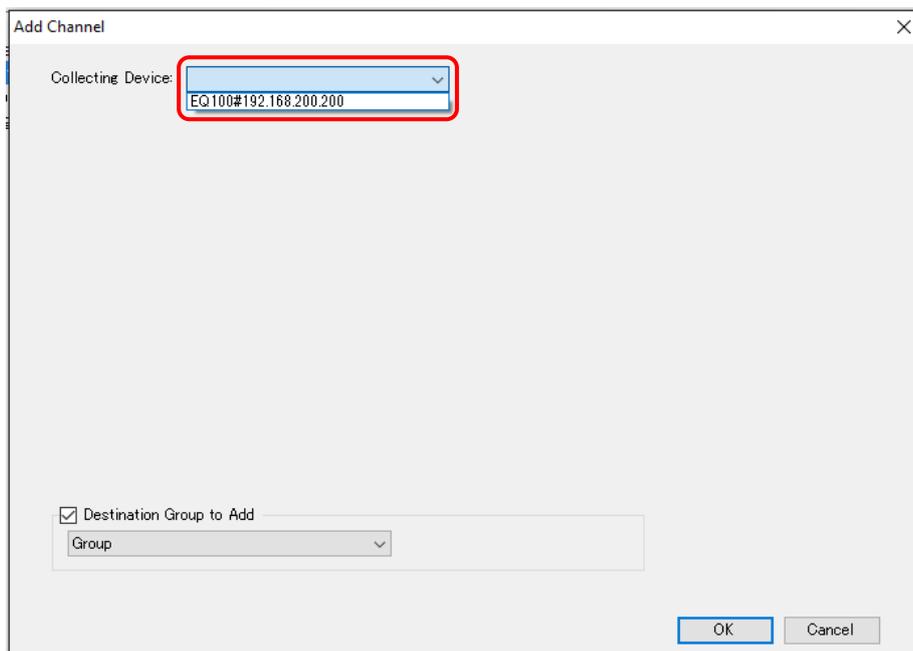
- If you changed enabled/disabled setting of logging of a channel registered in the EQ project or a measurement device, load the EQ project again in the channel registration of the EQ server project. When loaded, the enabled/disabled status of the channel registration is updated.
- To load the EQ100 project being operated to the EQ server project again, edit the EQ project already loaded in the EQ server project before loading. Even if you load an EQ project with the same configuration, the EQ server recognizes it as a different channel and the past data are not inherited.
- The channel name of the EQ server project will not be changed even if you change the channel name of the EQ project that has been loaded to the EQ server project and reload it to the EQ server project.  
You need to change the channel name of the EQ server project.

Read an EQ project to register channel data to the EQ server project.

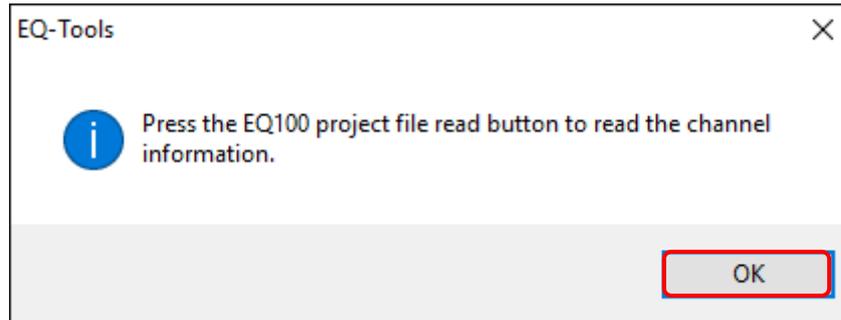
(1) Click [Add].



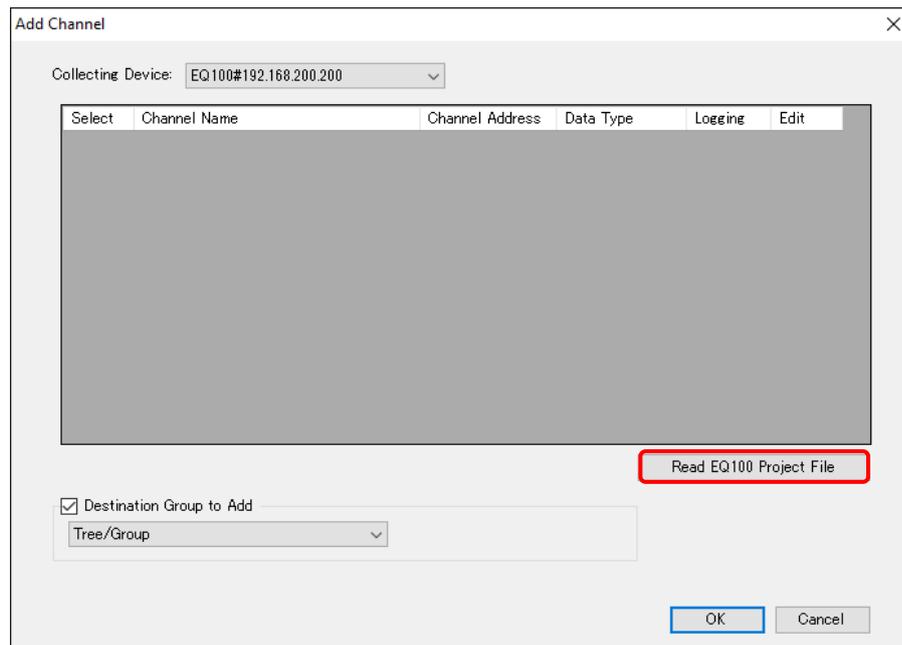
(2) In the [Add Channel] dialog box, select [Collecting Device].



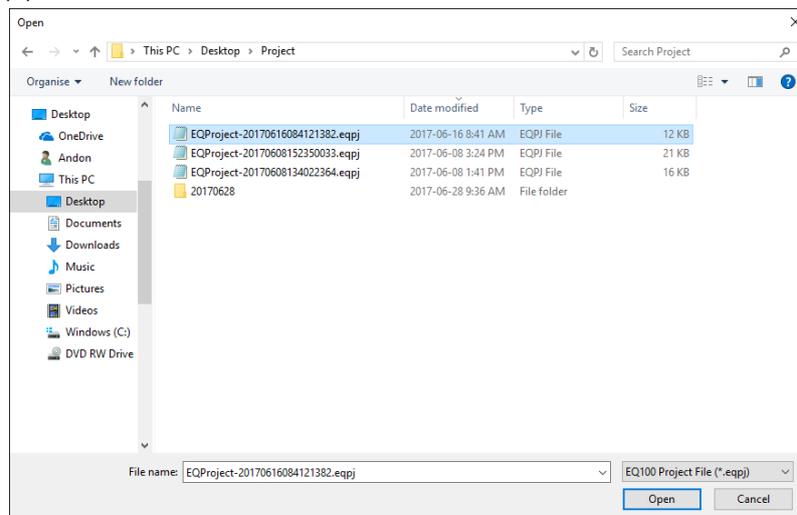
(3) On the screen shown below, click [OK].



(4) In the [Add Channel] dialog box, click [Read EQ100 Project File].

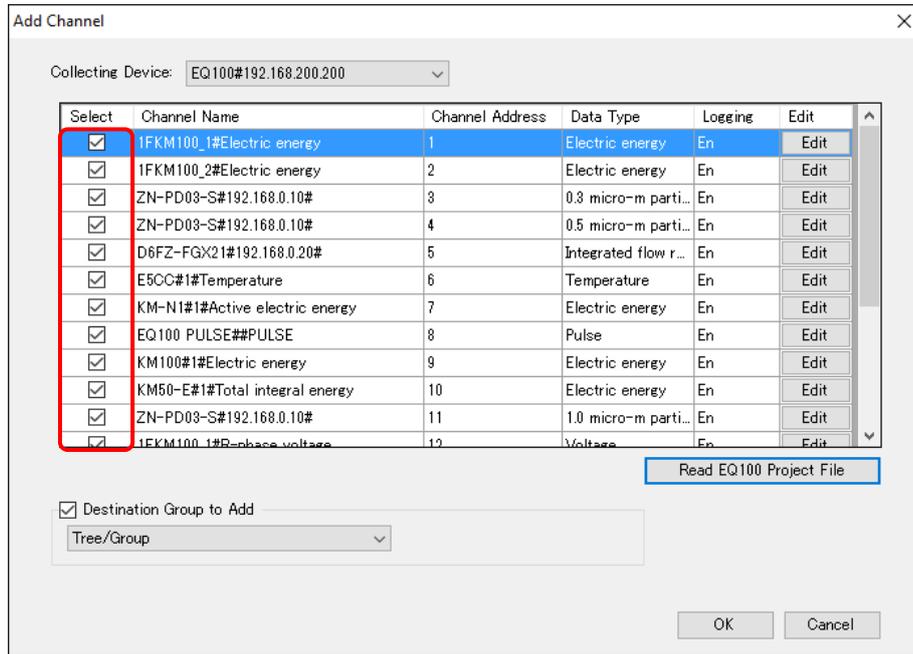


(5) In the [Open] dialog box, open the EQ project file of the collecting device you selected in the step (2).



(6) The loaded EQ project details are displayed.

Clear the check boxes of the channels not required to collect to the EQ server but select the [Select] check boxes of the required channels only.



Item	Description
Select	When an EQ project is loaded, all of the [Select] check boxes ( <input checked="" type="checkbox"/> ) are being selected. Clear the check boxes of the channels not required but select the check boxes of the required channels only.
Destination Group to Add	<p>If the [Destination Group to Add] check box is selected, the selected channels are automatically registered to a group.</p> <p>To use this function, first register a group.</p> <p>For how to register, see "4.8.3.3 Registering EQ Server Group " (p.4-128) Note that you do not perform group registration, the channel is registered to a default "group".</p> <p><b>Precautions for Correct Use</b></p> <p>The maximum number of channels that can be registered to one group is 50. If you want to register more than 50 channels, add a group before.</p>
Edit	Clicking the [Edit] button displays the [Edit Channel Name] dialog box.

(7) Clicking [OK] displays a list of selected channels.

Select	No.	Channel Name	Collecting Device Name	Measurement Device Name	Data Type	Channel Address	Logging	Edit
<input type="checkbox"/>	1	1FKM100_1#Electri...	EQ100#192.168.200.2...	1FKM100_1	Electric energy	1	En	Edit
<input type="checkbox"/>	2	1FKM100_2#Electri...	EQ100#192.168.200.2...	1FKM100_2	Electric energy	2	En	Edit
<input type="checkbox"/>	3	ZN-PD03-S#192.1...	EQ100#192.168.200.2...	ZN-PD03-S#192.1...	0.3 micro-m p...	3	En	Edit
<input type="checkbox"/>	4	ZN-PD03-S#192.1...	EQ100#192.168.200.2...	ZN-PD03-S#192.1...	0.5 micro-m p...	4	En	Edit
<input type="checkbox"/>	5	D6FZ-FGX21#192...	EQ100#192.168.200.2...	D6FZ-FGX21#192...	Integrated flo...	5	En	Edit
<input type="checkbox"/>	6	E5CC#1#Temperat...	EQ100#192.168.200.2...	E5CC#1	Temperature	6	En	Edit
<input type="checkbox"/>	7	KM-N1#1#Active e...	EQ100#192.168.200.2...	KM-N1#1	Electric energy	7	En	Edit
<input type="checkbox"/>	8	EQ100 PULSE##P...	EQ100#192.168.200.2...	EQ100 PULSE#	Pulse	8	En	Edit
<input type="checkbox"/>	9	KM100#1#Electric ...	EQ100#192.168.200.2...	KM100#1	Electric energy	9	En	Edit
<input type="checkbox"/>	10	KM50-E#1#Total in...	EQ100#192.168.200.2...	KM50-E#1	Electric energy	10	En	Edit

(8) If there are more than one EQ100 units, repeat the steps from (1) to (7).

### ■ Batch-Editing Channel

You can view a list of multiple channels and edit them together.

(1) On the bottom of the screen, click the [Channel Batch-Edit] button.



(2) Click the field of the channel you want to edit, and edit the item directly.

You can edit a channel name only. You cannot edit a shaded item.

You can edit a channel name only.

Channel Name	Measurement Device Name	Data Type	Channel Address
KM50-E#1	KM50-E#1	Voltage	1
KM20#3#11 current (instantaneou...	KM20#3	Electric current	6
KM100#5#R-phase voltage	KM100#5	Voltage	7
D6FZ-FGX21#192.168.0.20#Insta...	D6FZ-FGX21#192.168.0.20	Standard flow rate	3
1FKM100_1#Electric energy	1FKM100_1	Electric energy	1
1FKM100_2#Electric energy	1FKM100_2	Electric energy	2
ZN-PD03-S#192.168.0.10#	ZN-PD03-S#192.168.0.10	0.3 micro-m parti...	3
ZN-PD03-S#192.168.0.10#	ZN-PD03-S#192.168.0.10	0.5 micro-m parti...	4
D6FZ-FGX21#192.168.0.20#	D6FZ-FGX21#192.168.0.20	Integrated flow r...	5
E5CC#1#Temperature	E5CC#1	Temperature	6
KM-N1#1#Active electric energy	KM-N1#1	Electric energy	7
EQ100 PULSE##PULSE	EQ100 PULSE#	Pulse	8
KM100#1#Electric energy	KM100#1	Electric energy	9
KM50-E#1#Total integral energy	KM50-E#1	Electric energy	10
ZN-PD03-S#192.168.0.10#	ZN-PD03-S#192.168.0.10	1.0 micro-m parti...	11
1FKM100_1#R-phase voltage	1FKM100_1	Voltage	12
1FKM100_1#T-phase voltage	1FKM100_1	Voltage	13

### Precautions

After selecting items from the channel list and copying to other software e.g. Excel, you can paste the edited data back to the list.

- See below for operations:
- - Moving the mouse up/down or left/right while clicking and holding the mouse button allows selection of serial channel names.
- - Right-clicking while selecting an item allows selection of [Copy] and [Paste].

(3) Click [OK].

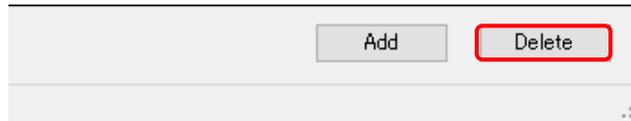
■ Deleting Channel

**Precautions for Correct Use**

- If you delete a registered channel, data collected in the past by the EQ server are deleted as well.

(1) In the [Channel Registration] screen, select the [Select] check box.

(2) Click [Delete].



(3) In the confirmation dialog box, click [Yes] if you are sure.

■ Enabling/Disabling Logging

You can stop logging from EQ100 while keeping the channel registration as it is.

(1) In the [Channel Registration] screen, change the setting of enabling/disabling [Logging].

Select	No.	Channel Name	Collecting Device Name	Measurement Device Name	Data Type	Channel Address	Logging	Edit
<input checked="" type="checkbox"/>	1	1FKM100_1#Electric energy	EQ100#192.168.200.2...	1FKM100_1	Electric energy	1	En	Edit
<input type="checkbox"/>	2	1FKM100_2#Electric energy	EQ100#192.168.200.2...	1FKM100_2	Electric energy	2	En (Dis)	Edit
<input type="checkbox"/>	3	ZN-PD03-S#192.168.0.10#	EQ100#192.168.200.2...	ZN-PD03-S#192.1...	0.3 micro-m parti...	3	En	Edit

Item	Description
Logging	En (Enable): Collection from the channel is available. Dis (Disable): Collection is not done from the channel even if the logging is started.

■ Changing Channel Registration/View Sequence (with Up/Down Arrow Buttons)

You can change the registration and view order of channels.

For example, if you add a measurement device to a new measurement point and its channel to a group, the channel is added to the end of the list. This function can be used to move the channel to the same position as that of other channels of the group.

(1) In the [Channel Registration] screen, click [No.] in the heading line of the list to sort in ascending order. (Clicking switches between ascending and descending order)

Select	No.	Channel Name	Collecting Device Name	Measurement Device Name	Data Type	Channel Address	Logging	Edit
<input type="checkbox"/>	1	WZ-SP01#1#Pulse ...	EQ100#192.168.200.2...	WZ-SP01#1	Pulse	1	En	Edit
<input type="checkbox"/>	2	KM20#1#Electric e...	EQ100#192.168.200.2...	KM20#1	Electric energy	3	En	Edit
<input type="checkbox"/>	3	KM50-C#1#Total i...	EQ100#192.168.200.2...	KM50-C#1	Electric energy	4	En	Edit
<input type="checkbox"/>	4	KM100#1#Electric ...	EQ100#192.168.200.2...	KM100#1	Electric energy	5	En	Edit

(2) Click the channel row you want to change the sequence, and press up or down arrow button.

Pressing the button moves the row up or down by one line.

The screenshot shows the 'Channel Registration' window in the EQ Manager software. On the left is a tree view with 'Channel Registration' selected. The main area contains a table with the following data:

Select	No.	Channel Name	Collecting Device Name	Measurement Device Name	Data Type	Channel Address	Logging	Edit
<input type="checkbox"/>	1	WZ-SP01#1#Pulse ...	EQ100#192.168.200.2...	WZ-SP01#1	Pulse	1	En	Edit
<input type="checkbox"/>	2	KM20#1#Electric e...	EQ100#192.168.200.2...	KM20#1	Electric energy	3	En	Edit
<input type="checkbox"/>	3	KM50-C#1#Total i...	EQ100#192.168.200.2...	KM50-C#1	Electric energy	4	En	Edit
<input type="checkbox"/>	4	KM100#1#Electric ...	EQ100#192.168.200.2...	KM100#1	Electric energy	5	En	Edit

At the bottom of the window, there are buttons for 'Channel Batch-Edit', 'Add', and 'Delete'. The 'Channel Batch-Edit' button contains two arrow buttons: an up arrow and a down arrow, which are highlighted with a red box in the image.

(3) Save the EQ server project and write the setting.

### 4.8.3.3. Registering EQ Server Group

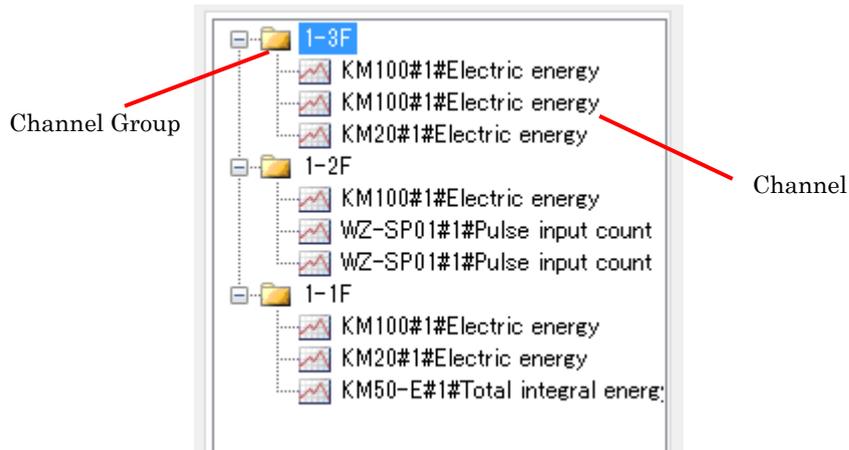
You can group channels for management. You can classify groups based on areas, organizations, and so on.

Grouping is done within a range of channels collected by the EQ server.

A channel must be registered to a channel group. You can register one channel to multiple groups. You cannot overlap registration of one channel to the same group.

The registered group is used for a graph view on EQ-GraphViewer.

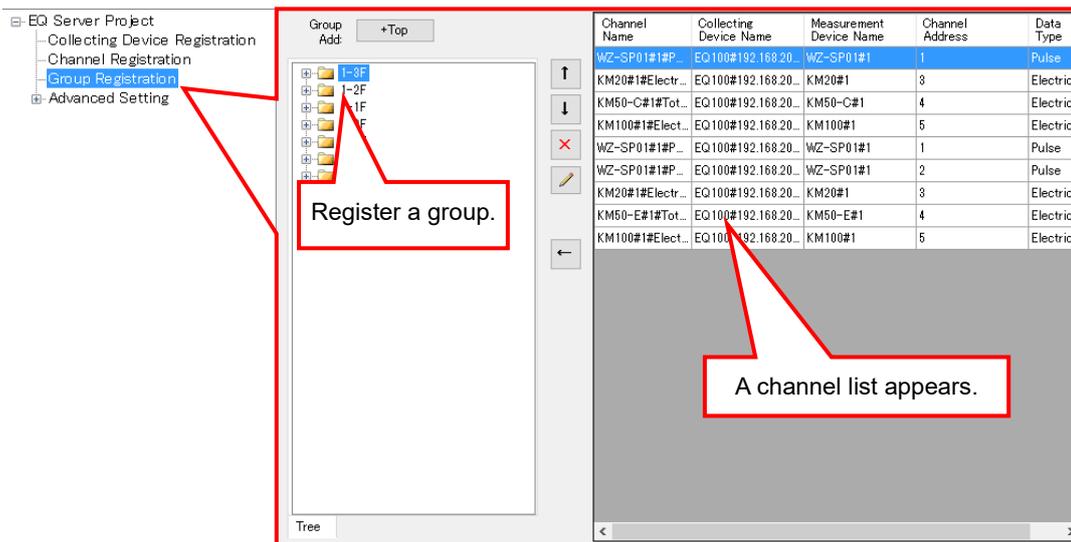
The maximum number of channel group to be registered to the channel group is 50.



Icon	Description
	Indicates a channel group.
	Indicates a channel.

#### ■ Viewing Registration Screen

In the setting menu, click [Group Registration].



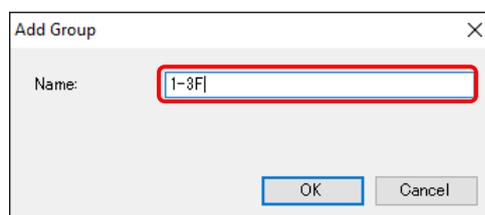
Button	Description
	Creates a channel group.
	Moves the selected channel group up.
	Moves the selected channel group down.
	If a channel is being selected, the channel is deleted from the registered group. If a channel group is being selected, the group is deleted. If a lower level channel group exists, the lower level channel group is deleted as well.
	You can edit the channel group name.
	Adds the channel selected in the list to the channel group.

■ Adding Channel Group

(1) Add a channel group. Click [+Top].



(2) In the [Add Group] dialog box, enter a channel group name.



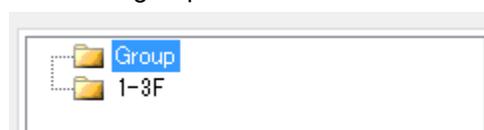
Item	Description
Name	Enter a channel group name. <Input range> Half-width 63 characters (Full-width 20 characters, more or less) <Maximum Group Count> Up to 50 groups

**Precautions for Correct Use**

You cannot use the following characters in a channel group name:

- ¥ (backslash, yen symbol), / (forward slash), : (colon),
- \* (asterisk), ? (question mark), " (double quotation),
- < (less than sign), > (greater than sign), | (pipe)

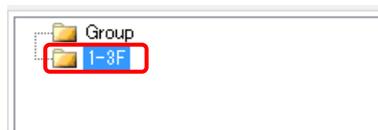
(3) Clicking [OK] adds the channel group.



■ Adding Channels

To add a channel to a channel group:

(1) Select a channel group to add. In this example, click [1st Building 3rd floor].



(2) Add a channel to the channel group.

(1) Select a channel to add. You can select either:

One line: By clicking the channel line.

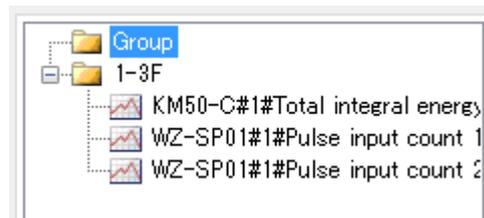
Multiple serial lines: By pressing and holding a [Shift] key while clicking the first and the last channel lines.

Multiple independent lines: By pressing and holding a [Ctrl] key while clicking.

(2) Click the [-] button.

Channel Name	Collecting Device Name	Measurement Device Name	Channel Address	Data Type
WZ-SP01#1#P...	EQ100#192.168.20...	WZ-SP01#1	1	Pulse
WZ-SP01#1#P...	EQ100#192.168.20...	WZ-SP01#1	2	Pulse
KM20#1#Electr...	EQ100#192.168.20...	KM20#1	3	Electric en
KM50-C#1#Tot...	EQ100#192.168.20...	KM50-C#1	4	Electric e
KM100#1#Elect...	EQ100#192.168.20...	KM100#1	5	Electric en
WZ-SP01#1#P...	EQ100#192.168.20...	WZ-SP01#1	1	Pulse
WZ-SP01#1#P...	EQ100#192.168.20...	WZ-SP01#1	2	Pulse
KM20#1#Electr...	EQ100#192.168.20...	KM20#1	3	Electric en
KM50-E#1#Tot...	EQ100#192.168.20...	KM50-E#1	4	Electric en
KM100#1#Elect...	EQ100#192.168.20...	KM100#1	5	Electric en

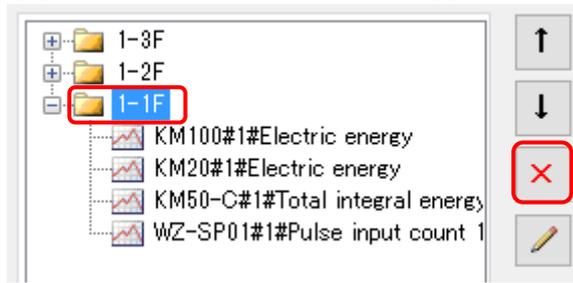
(3) The selected channel(s) are added to the channel group [1st Building 3rd floor].



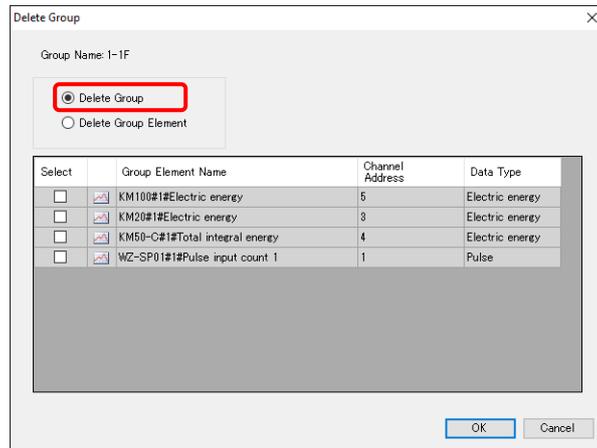
(4) To add more channels, repeat the steps from (1) to (3).

■ Deleting Channel Group

(1) Select a channel group you want to delete, and click the [x] button.



(2) In the dialog box shown below, select the [Delete Group] check box and click [OK].



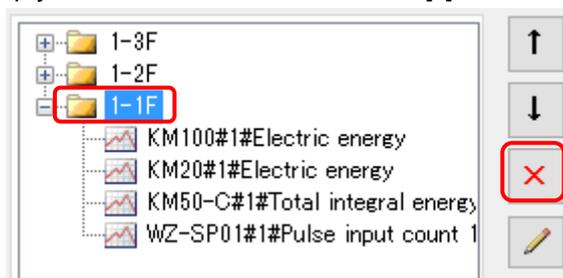
(3) The selected group and the channels belonging to the group are deleted.



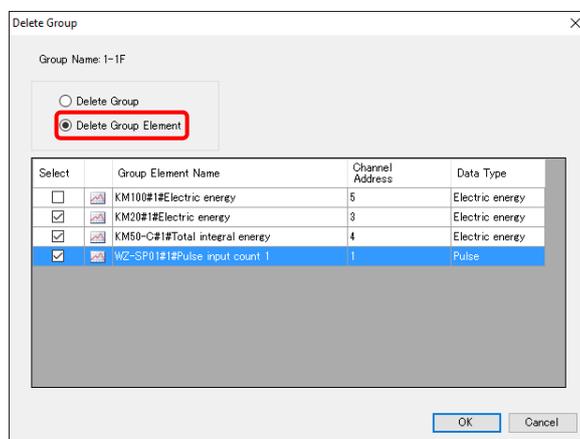
■ Partially Deleting Channels in Channel Group

You can delete channels using the Delete Channel Group screen as well.

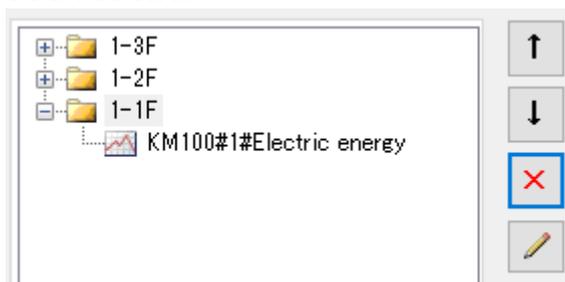
(1) Select a channel group you want to delete, and click the [x] button.



2) Select [Delete Group Element] and the check boxes of the channels you want to delete, and click [OK].

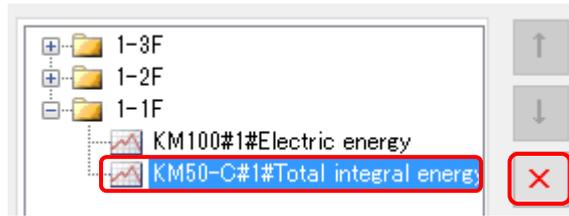


3) The selected channels are deleted.

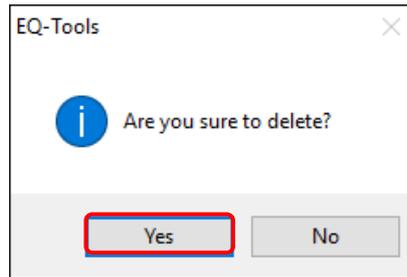


■Deleting Channel

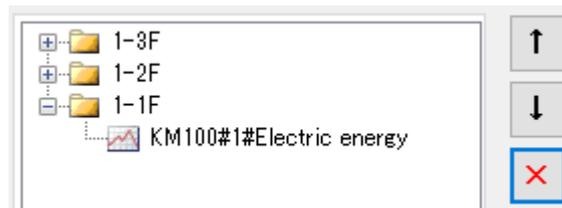
(1) Select channels you want to delete, and click the [x] button.



(2) On the dialog box shown below, click [Yes].



(3) The selected channels are deleted.



### 4.8.4. EQ Server Advanced Setting

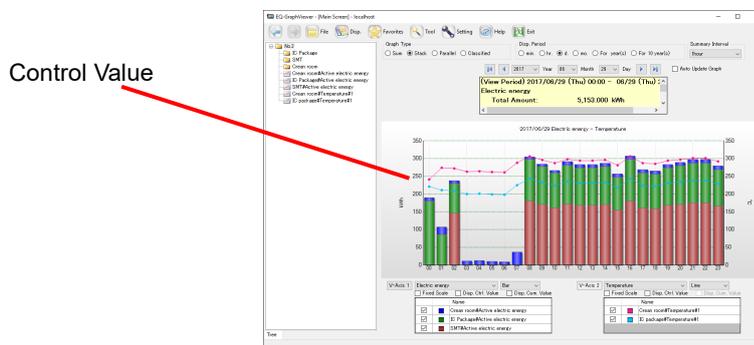
Configure the advanced settings if necessary.

See below for advanced settings:

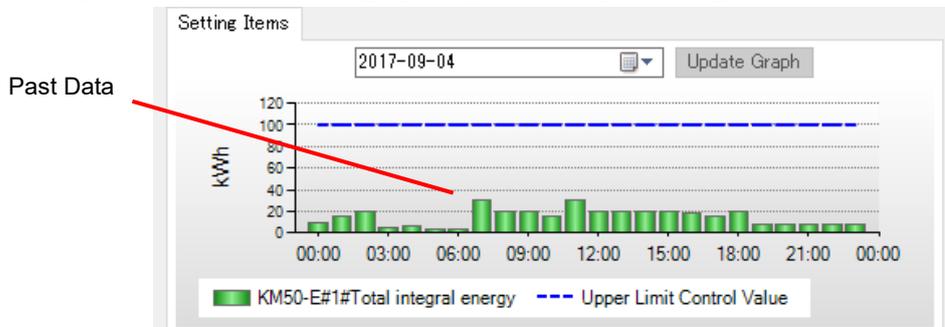
Item	Description
Control Value Setting	Setting of the upper and lower limit control values
Data Type Setting	Creates/edits a data type
System Setting	Setting of the maximum collecting period and start date & time
Maintenance	Operation monitor, CSV import, and DB maintenance

#### 4.8.4.1. EQ Server Control Value Setting

In the control value setting, specify the upper and lower limit control values for each channel. When control values are configured, you can display control values on a graph by EQ-GraphViewer.



When the stored volume of collected data reaches a certain level after starting operation and management, you can view a graph of past data upon configuration of control values.



## ■ Viewing Setting Screen

In the setting menu, click [Control Value Setting].

Select	No.	Channel Name	Data Type	Monitor	Upper Limit Control Value	Lower Limit Control Value	Edit
<input checked="" type="checkbox"/>	1	WZ-SP01#1#Pulse input count 1	Pulse	En			Edit
<input type="checkbox"/>	2	WZ-SP01#1#Pulse input count 2	Pulse	En			Edit
<input type="checkbox"/>	3	KM20#1#Electric energy	Electric energy	En			Edit
<input type="checkbox"/>	4	KM50-C#1#Total integral energy	Electric energy	En			Edit
<input type="checkbox"/>	5	KM100#1#Electric energy	Electric energy	En			Edit
<input type="checkbox"/>	6	WZ-SP01#1#Pulse input count 1	Pulse	En			Edit
<input type="checkbox"/>	7	WZ-SP01#1#Pulse input count 2	Pulse	En			Edit
<input type="checkbox"/>	8	KM20#1#Electric energy	Electric energy	En			Edit
<input type="checkbox"/>	9	KM50-E#1#Total integral energy	Electric energy	En			Edit
<input type="checkbox"/>	10	KM100#1#Electric energy	Electric energy	En			Edit

Delete

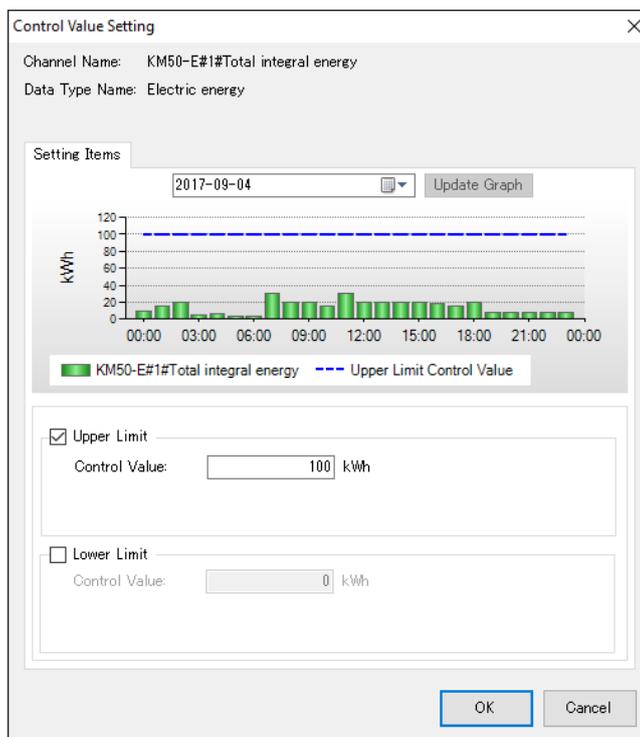
Item	Description
Select	Selecting the [Select] check boxes ( <input checked="" type="checkbox"/> ) and clicking [Delete] deletes the selected control value settings.
No.	The number serially assigned in the registered order.
Channel Name	A channel name appears.
Data Type	Shows a data type.
Monitor	Shows whether the monitoring of the measured value is valid.
Upper Limit Control Value	The upper limit control value appears.
Lower Limit Control Value	The lower limit control value appears.
Edit	You can edit the control values.

■ Editing Control Value

(1) Click the [Edit] button of the channel you want to specify a control value.

Select	No.	Channel Name	Data Type	Monitor	Upper Limit Control Value	Lower Limit Control Value	Edit
<input checked="" type="checkbox"/>	1	WZ-SP01#1#Pulse input count 1	Pulse	En			Edit
<input type="checkbox"/>	2	WZ-SP01#1#Pulse input count 2	Pulse	En			Edit
<input type="checkbox"/>	3	KM20#1#Electric energy	Electric energy	En			Edit

(2) In the [Control Value Setting] dialog box, enter the setting items.



Item	Description
Year/month/date	Select a date of past data you want to view the graph. Clicking at the right end  displays a calendar in which you can specify a date.
Update Graph	Clicking the button after specifying a date refreshes the graph.
Graph	A graph appears that of past collected data of the date specified in the calendar. If check boxes of the upper and lower limit control values are being selected, the graph shows the set values. To view a graph of past data, the following conditions must be satisfied: <ul style="list-style-type: none"> <li>- The EQ server must have the collected data</li> <li>- EQ-Manager and the EQ server must be connected online</li> <li>- The communication test/logging must be stopped</li> </ul>
Upper Limit check box	Select this check box if you want to enable the upper limit control value.
Control Value	Specify the upper limit control value.
Lower Limit check box	Select this check box if you want to enable the lower limit control value.
Control Value	Specify the lower limit control value.

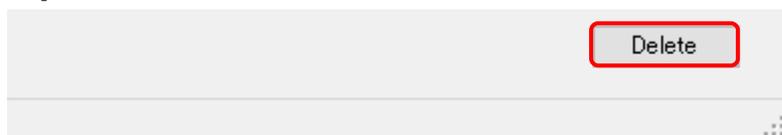
(3) Clicking [OK] sets the control values.

Select	No.	Channel Name	Data Type	Monitor	Upper Limit Control Value	Lower Limit Control Value	Edit
<input type="checkbox"/>	1	WZ-SP01#1#Pulse input count 1	Pulse	En	7000		Edit
<input type="checkbox"/>	2	WZ-SP01#1#Pulse input count 2	Pulse	En			Edit
<input type="checkbox"/>	3	KM20#1#Electric energy	Electric energy	En			Edit

#### ■ Deleting Control Value

(1) In the [Control Value Setting] screen, select the [Select] check box.

(2) Click [Delete].



(3) On the dialog box confirming deletion, click [OK].

The control value setting is deleted.

### 4.8.4.2. EQ Server Data Type Setting

A data type defines a unit of data, summary method, or discrimination of integral and instantaneous values.

While the system provides data types, you can create a type not defined by the system.

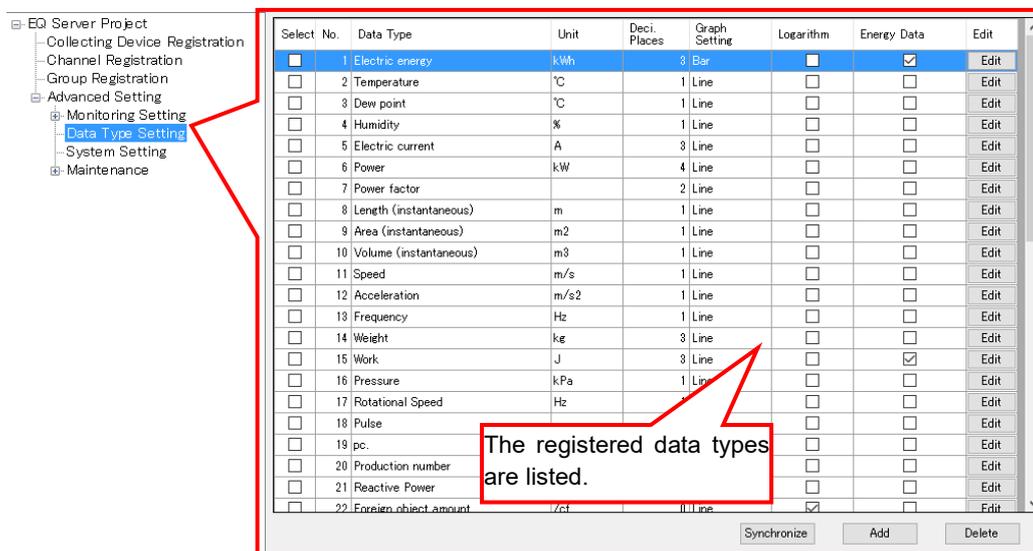
For system-defined data types, see "9.5.3 Data Type List" (p.9-53)"or view the setting screen.

In the data type setting, specify data type name, unit, decimal digits, logarithm view, and energy data.

For system-defined data types, you can change unit, decimal digits, logarithm view, and energy data.

#### ■ Viewing Setting Screen

In the setting menu, click [Data Type Setting].



Item	Description
No.	The number serially assigned in the registered order.
Data Type	A name of the data type.
Unit	A unit of the data type.
Deci. Places	Significant decimal digits of the data type.
Graph Setting	Select the initial value of the graph displayed by EQ-GraphViewer. <Selected item> Bar, Line
Logarithm	Specify if the graph of measured data should be in a logarithmic scale or not.
Energy Data	Specify if the data type should be handled as energy data or not.
Edit	You can edit the details of the data type.

■ Adding Data Type

To add a new data type:

(1) Click the [Add] button. In the [Data Type Setting] dialog box, enter the setting items.

Item	Description
Data Type	Enter a data type. <Input range> Half-width 63 characters (Full-width 20 characters, more or less)
Unit	Enter a unit of the data type. <Input range> Half-width 9 characters (Full-width 3 characters, more or less)
Deci. Places	Select the number of decimal places. <Selection> 0 to 9 digits
Summary Method	Select a data type summary type, from Ave., Sum, Min., or Max.
Graph Setting	Specify the default setting to view a graph on EQ-GraphViewer. <Selection> Bar/Line
Logarithm	Specify if a logarithm scale should be used.
Energy Data	Specify if the data type should be handled as energy data or not. In case of energy data, you can configure fee and CO <sub>2</sub> conversion factors.  <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"><b>Reference</b></div> <ul style="list-style-type: none"> <li>- The converted energy data fee and CO<sub>2</sub> emission are displayed in the summary area of EQ-GraphViewer.</li> </ul>

**Precautions for Correct Use**

- You cannot select both check boxes of Logarithm and Energy Data.

(2) Click [OK].

### ■ Editing Data Type

Change a data type.

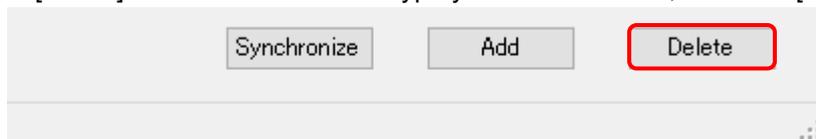
- (1) Click the [Edit] button of the data type you want to change. In the [Data Type Setting] dialog box, change the settings.



- (2) Click [OK].

### ■ Deleting Data Type

- (1) Select the [Select] check box of the data type you want to delete, and click [Delete].



The data type is deleted.

#### Precautions for Correct Use

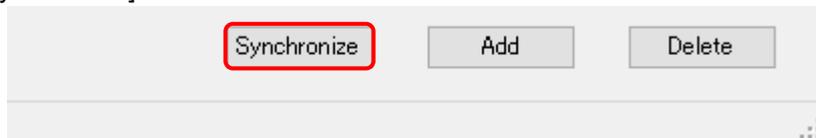
You can delete a data type added by the customer. You cannot delete data types already registered upon installation.

- You cannot delete a data type used in a registered channel.

### ■ Synchronizing Data Type

You can use this function to edit or delete a data type added in other computer. To make consistency between EQ100 and the Data Type in the server, EQ-Manager limits editing the data which Data Type is different from that of the initial value which EQ-Manager retains. By the synchronizing function, the initial setting retained by the EQ-manager and the setting of the edited data type are synchronized, enabling edit and deletion.

- (1) Click [Synchronize].



If the computer that is currently used for editing has a data type that was not created in itself, the data type is synchronized.

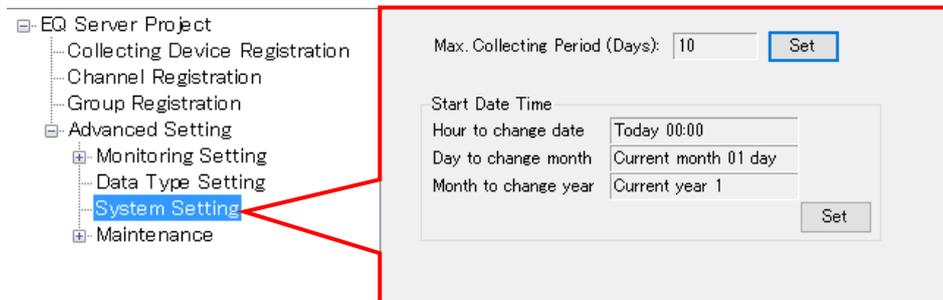
#### Precautions for Correct Use

Perform synchronization to edit a project containing any data type created by other PC.

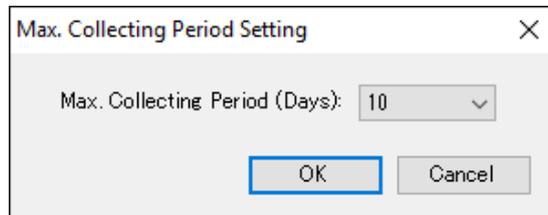
### 4.8.4.3. System Setting

Specify the maximum number of days to collect data if logging from a collecting device has not been performed for a certain period of time.

(1) In the setting menu, click [System Setting].



(2) Clicking the [Set] button displays the [Max. Collecting Period Setting] dialog box.



Item	Description
Max. Collecting Period (Days)	Specify the maximum number of days from today to collect measured data that are not collected by the EQ server. <Selection> 1 to 10, 20, 30 days <Initial value: 10 days>

(3) Select the day count and click [OK].

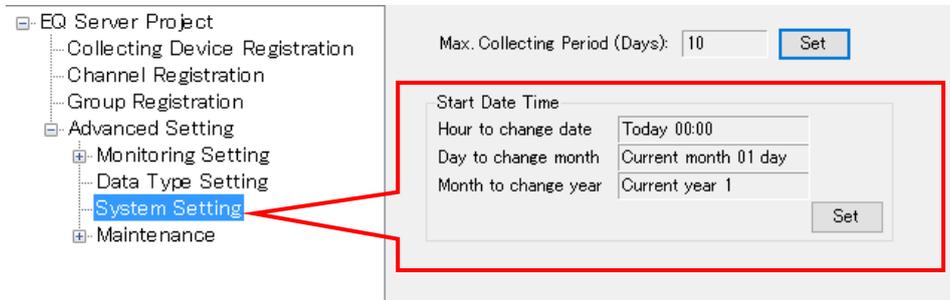
#### Precautions for Correct Use

- Set according to the maximum period of EQ server stop. When the stop continues more than the maximum period or a week, use also a SD card to extend the storage period of the EQ100 log. The storage period of the EQ100 measurement log is a week without use of the SD card.

■ Start Date/Time

Specify a start date and time to change the summary period of day, month, and year.

(1) On the setting menu, click [System Setting].



(2) Clicking the [Setting] button shows the [Start Date/Time] dialog box.



Item	Description
Date Change Time	You can specify a date start time other than 0 o'clock. You can specify the time from 0 to 23 on an hour basis. Measurement values are recorded for 24 hours, starting from the start time.
Month Change Date	You can specify a start date of this month other than the 1st of the month. You can specify a date ranging from the 2nd day of the last month to 28th day of this month on a day basis. Note that you cannot specify a date before the 1st of January to start a year. You cannot specify the 29th, 30th, and 31st as well. Measurement values are recorded for 1 month, starting from the start date.
Year Change Month	You can specify a year start month other than January. You can specify the month from January to December on a month basis. Measurement values are recorded for 1 year, starting from the start month.

(3) After specifying the start date/time, click [OK].

### **Precautions for Correct Use**

After changing the start date/time, always perform the following steps to reflect the setting and summarize the accumulated data again. (See "8.9 Change Start Date/Time"p.8-12)

- ① Configuring Start Date/Time
- ② Restarting EquoServerService
- ③ Performing Recalculation Tool

#### 4.8.4.4. Maintenance

With the maintenance function, you can import collected data of EQ100 to the EQ server. You can delete all data in the summary data DB of the EQ server as well.

##### ■ CSV Import (Collected Data Import)

You can import collected data of EQ100 to the summary data DB of the EQ server after connecting EQ-Manager online to the EQ server.

##### Precautions

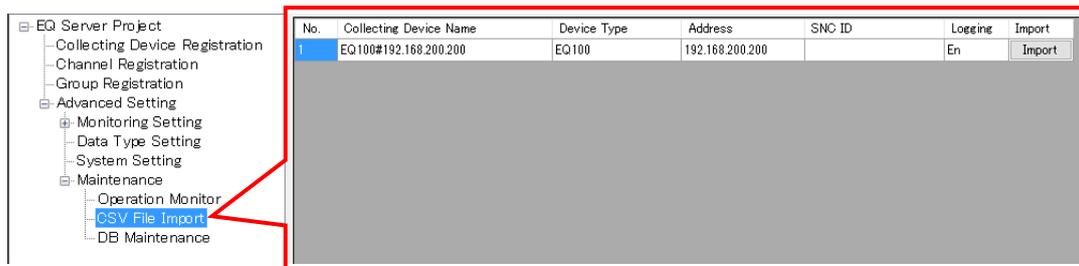
- This function can be used with the collecting via LAN.

##### Precautions for Correct Use

When the data of the same channel with that of CSV data to register already exists in the EQ server, the existing data is deleted.

##### ● Viewing Setting Screen

In the setting menu, click [CSV File Import].



Item	Description
No.	The number serially assigned in the order the collecting devices were registered.
Collecting Device Name	Shows a name of the collecting device.
Device Type	Shows a type of the collecting device.
Address	Shows an address of the collecting device.
SNC ID	Shows an SNC ID of the collecting device.
Logging	Shows availability of logging (operation and management) from a collecting device.
Import	Pressing this button imports collected data to the EQ server after selecting a collecting device to import.

● Importing Collected Data

You can import a CSV file of EQ100 to the EQ server.

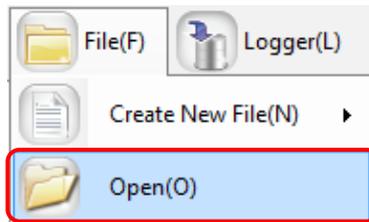
Before importing a CSV file of EQ100, you must register the target EQ100 to the EQ server project and write the project to EQ-ServerService. The file for import can be acquired by SD card output or via FTP. The following steps show the example using a SD card.

(1) Output collected data from EQ100 to an SD card.

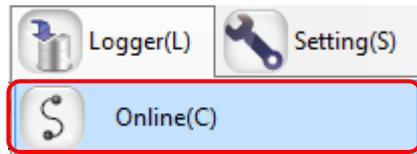
To output collected data from EQ100 to an SD card, see "EQ100 User's Manual".

(2) Eject the SD card from EQ100 and insert it to the computer's SD card slot.

(3) Open an EQ server project to which the target EQ100 was registered.

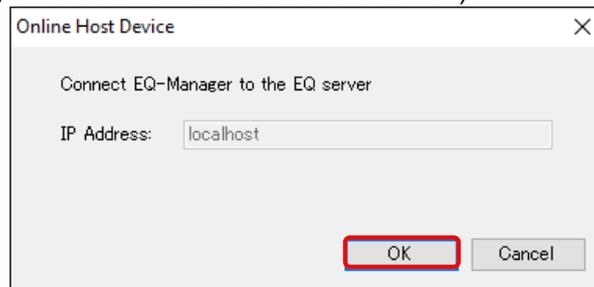


(4) Connect online between EQ-Manager and the EQ server. On the toolbar, click [Logger] - [Online].



(5) On the [Online Host Device] dialog box, click [OK].

The host device IP address on the view is "localhost"(fixed). (The EQ-Manager allows the On-line work only on the same machine with the server.)



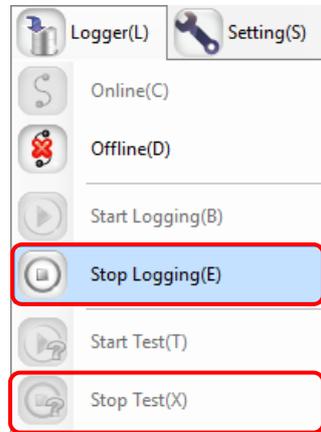
(6) When Online is done, the status bar indicates [Online].



(7) Stop logging or communication test if being performed.

To stop logging, on the toolbar click [Logger] - [Stop Logging].

To stop communication test, on the toolbar click [Logger] - [Stop Test].



(8) The EQ100 units registered in the EQ server are displayed. Select an EQ100 you want to import collected data of the SD card. Click the [Import] button of the target EQ100.

No.	Collecting Device Name	Device Type	Address	SNC ID	Loggine	Import
1	EQ100#192.168.200.200	EQ100	192.168.200.200	9ff060	En	Import

(9) In the [Select CSV File] dialog box, select the target CSV file.

You can select either clicking:

[Add File] button: You can directly select the CSV file.

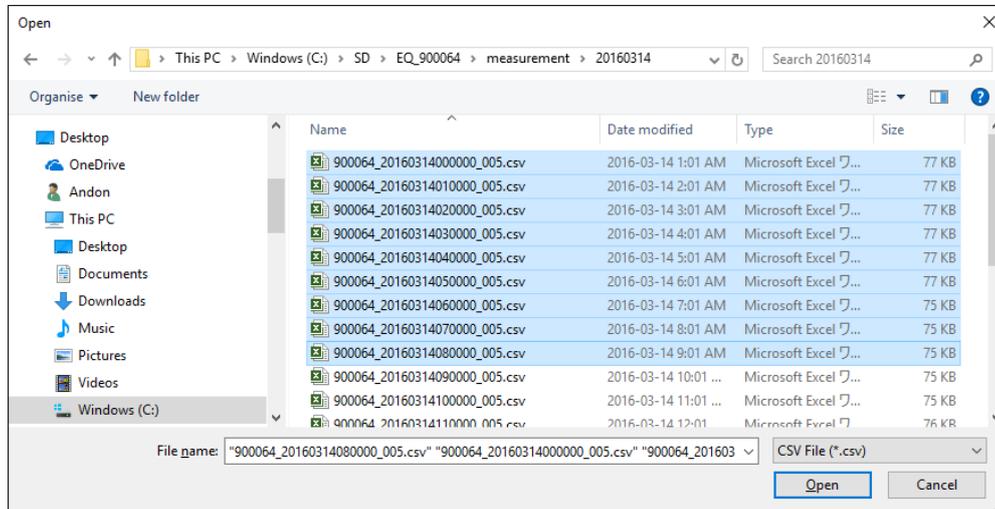
[Folder Inquiry] button: You can select the CSV file from a list of files in the specified folder.



<Selecting by [Add File] Button>

(1) Click the [Add File] button. In the [Open] dialog box, select the inserted SD card then CSV file(s).

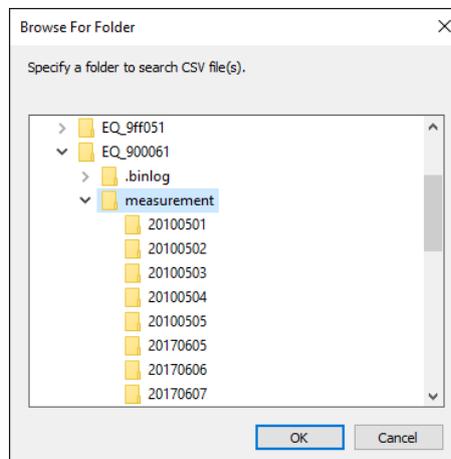
You can select multiple files by pressing and holding a [Shift] or a [Ctrl] key while clicking.



(2) Click [Open].

<Selecting by [Folder Inquiry] Button>

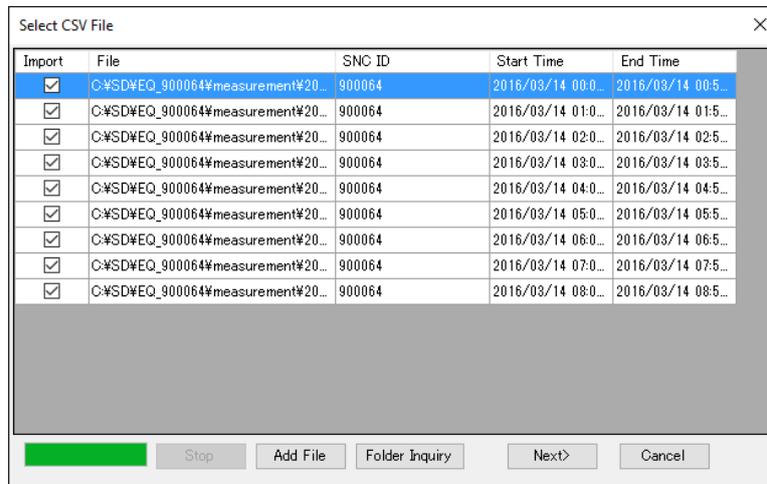
(1) Click the [Folder Inquiry] button. In the [Browse For Folder] dialog box, select the folder.



(2) Click [OK].

(10) A list of CSV files selected in the [Add File] or [Folder Inquiry] dialog box appears.

To add another CSV file(s), click [Add File] or [Folder Inquiry] and repeat the steps described above.



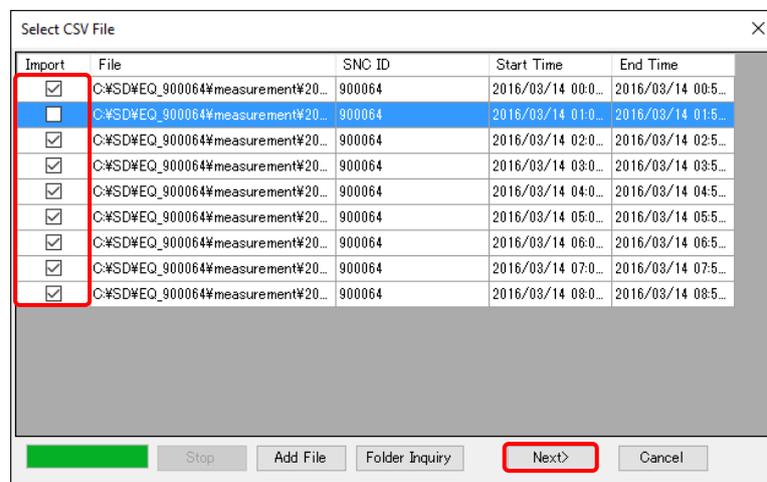
Item	Description
Import	Select the check box to import the file. Clear the check box if you do not want to import.
File	Shows the directory path of the CSV file.
SNC ID	Shows an SNC ID of the collecting device.
Start Time	Shows the start time of collected data in the CSV file.
End Time	Shows the end time of collected data in the CSV file.

### Reference

- To stop [Folder Inquiry], click [Stop].

(11) After selecting CSV files, click [Next].

Clear the [Import] check box of the channel you do not want to import, if any.

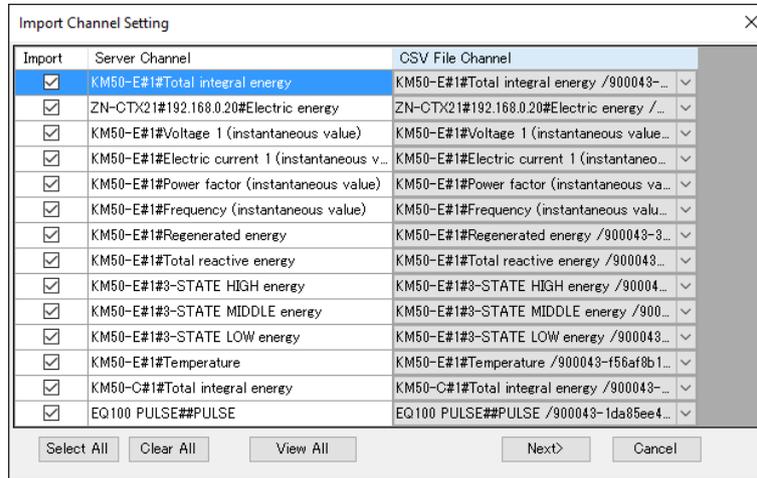


(12) The [Import Channel Setting] dialog box appears.

Channels registered to the EQ server and those in the CSV files are compared, and only those that matched are displayed in the list.

The following elements are evaluated and the highest priority is displayed:

- SNC IDs should be the same
- Channel IDs should be the same
- Channel names should be the same



Item	Description
Import	Select the check box to import the file to the EQ server. Clear it if you do not want to import.
Server Channel	Shows a channel registered in the EQ server.
CSV File Channel	Shows a CSV file channel.
[Select All] button	All of the [Import] check boxes are selected.
[Clear All] button	All of the [Import] check boxes are cleared.
[View All]/[View Selected] button	Clicking this button switches between [View All] and [View Selected] button.  View All: All channels are displayed. You can manually configure the CSV file channels corresponding to the EQ server channels.  View Selected: Only the matched channels are displayed after comparison of EQ server and CSV file channels.
[Next] button	The target channels are imported to the EQ server.
[Cancel] button	The import process is canceled and the dialog box closes.

### Precautions

After starting registration, sometimes a message “No Channel Applied” may be displayed to the CSV file of import target. When this happens, check the following items:

Import	Server Channel	CSV File Channel
<input checked="" type="checkbox"/>	KM50-E#1#Total integral energy	KM50-E#1#Total integral energy /900043-bl
<input checked="" type="checkbox"/>	ZN-CTX21#192.168.0.20#Electric energy	KM50-E#1#Total integral energy /900043-b6a2
<input checked="" type="checkbox"/>	KM50-E#1#Voltage 1 (instantaneous value)	EQ100 PULSE##PULSE /900043-1da85ee455e1
<input checked="" type="checkbox"/>	KM50-E#1#Electric current 1 (instantaneous v...	KM50-C#1#Total integral energy /900043-e8e2
<input checked="" type="checkbox"/>	KM50-E#1#Power factor (instantaneous value)	KM50-E#1#3-STATE HIGH energy /900043-4c3
<input checked="" type="checkbox"/>	KM50-E#1#Frequency (instantaneous value)	KM50-E#1#3-STATE LOW energy /900043-d8d
<input checked="" type="checkbox"/>	KM50-E#1#Regenerated energy	KM50-E#1#3-STATE MIDDLE energy /900043-
<input checked="" type="checkbox"/>	KM50-E#1#Total reactive energy	KM50-E#1#Electric current 1 (instantaneous va
<input checked="" type="checkbox"/>	KM50-E#1#3-STATE HIGH energy	KM50-E#1#Frequency (instantaneous value) /9
<input checked="" type="checkbox"/>	KM50-E#1#3-STATE MIDDLE energy	KM50-E#1#Power factor (instantaneous value)
<input checked="" type="checkbox"/>	KM50-E#1#3-STATE LOW energy	KM50-E#1#Regenerated energy /900043-32f11
<input checked="" type="checkbox"/>	KM50-E#1#Temperature	KM50-E#1#Temperature /900043-f56af8b1530a
<input checked="" type="checkbox"/>	KM50-C#1#Total integral energy	KM50-E#1#Total reactive energy /900043-33ba
<input checked="" type="checkbox"/>	EQ100 PULSE##PULSE	KM50-E#1#Voltage 1 (instantaneous value) /90
		ZN-CTX21#192.168.0.20#Electric energy /90004

Select All Clear All View Selected Next> Cancel

1. Open the EQ server project written in the EQ server and make sure that the EQ100 SNC ID (labeled on the EQ100 main body) has been properly registered.
2. If there are more than one EQ100, make sure that the same project should not be registered to multiple EQ100 units.
3. Unique name should be registered to each EQ100 and each channel.

On this screen, you can manually configure the CSV file channels to the server channels as well.

Click a CSV file channel to view the menu, and select a corresponding channel.

(13) Click [Next].

Clear the [Import] check box of the channel you do not want to import, if any.

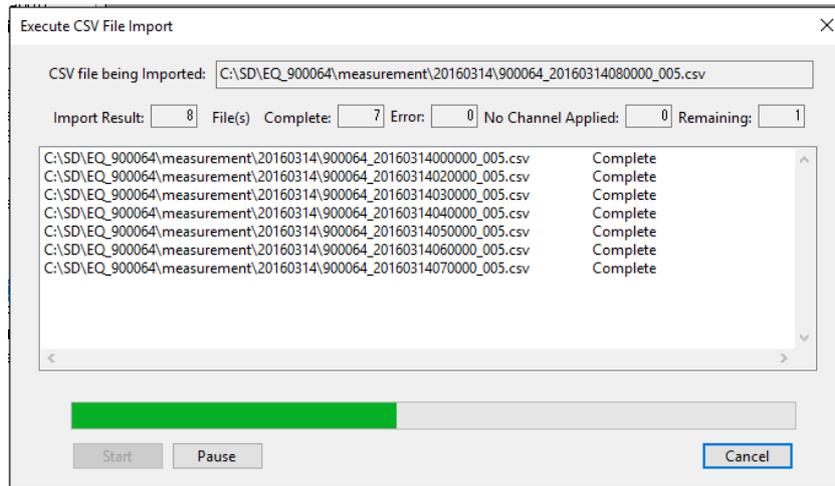
(14) In the [Execute CSV File Import] dialog box, click [Start].

Execute CSV File Import

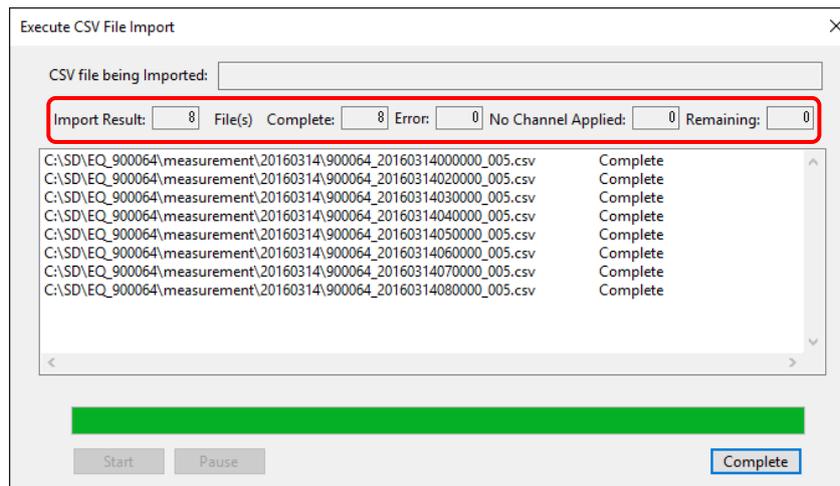
CSV file being Imported:

Import Result:  File(s) Complete:  Error:  No Channel Applied:  Remaining:

While executing import, the dialog box appears as shown below.



- (15) When import is completed, indicated are file paths for which import is completed and the import result (Complete/Error/Unmatched).  
 When the [Complete] button is displayed, and if the [Error] or [No Channel Applied] columns show 0, the import process is successful.



- (16) Click [Complete].

■ EW700 Compatible CSV Import

You can Import a EW700 compatible CSV file to the EQ server.

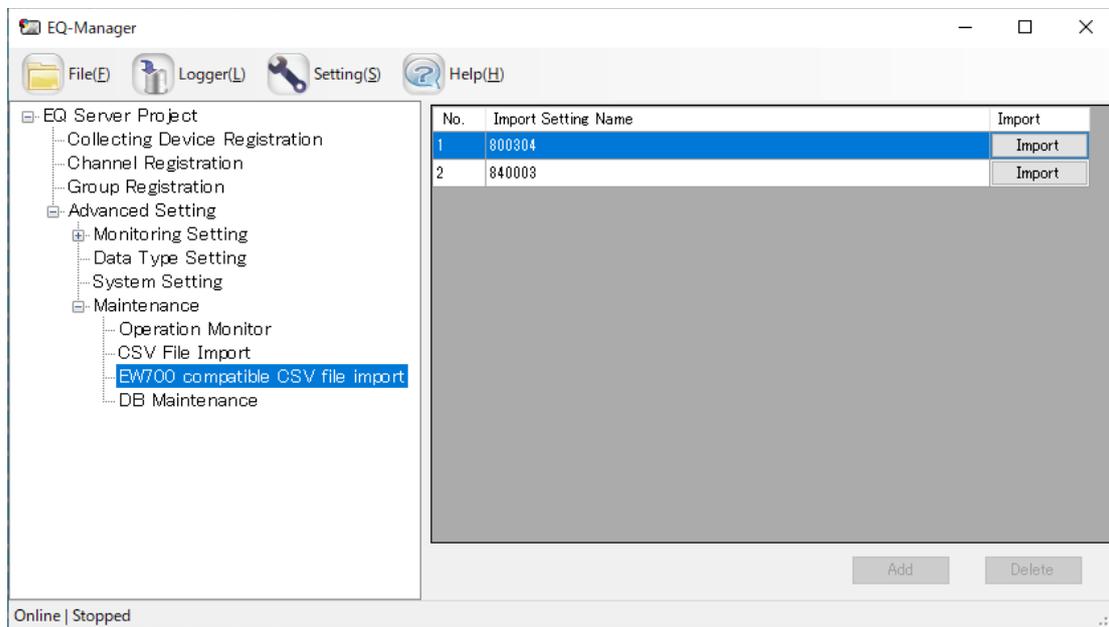
To import, the system must be online and the logging must be being stopped. To stop logging, see Collected Data Import section.

To import the past data, you create the input settings with EQConverterManager and import with EQ-Manager.

● List of import settings

The [EW700 compatible CSV import] menu is displayed when the input settings are created with EQConverterManager.

Click [EW700 compatible CSV import] in the setting menu to display the list of import settings.



Item	Description
No.	The number serially assigned in the registered order.
Import Setting Name	Indicates the registered import setting name.
Import	Select the import setting and import the CSV data to the EQ server.
Add (N/A)	Use EQConverterManager to add import settings.
Delete (N/A)	Use EQConverterManager to delete import settings.

## ● Importing Data

- (1) To import a CSV file, click the [Import] button in the line for which the import setting was created.

No.	Import Setting Name	Import
1	800304	Import
2	840003	Import

- (2) In the [Select General-Purpose CSV File] dialog box, select the CSV file to import.

You can select either clicking:

[Add File] button: You can directly select the CSV file.

[Folder Inquiry] button: You can select the CSV file from a list of files in the specified folder.

Import	File	SNC ID	Start Time	End Time
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/02/05 21:3...	2019/03/27 17:1...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/03/27 17:1...	2019/03/27 17:2...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/03/27 17:2...	2019/03/27 17:3...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/03/27 17:3...	2019/03/27 17:4...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/03/27 17:4...	2019/03/27 17:5...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/03/27 17:5...	2019/03/27 18:0...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/03/27 18:0...	2019/03/29 09:3...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/05/09 19:0...	2019/05/09 19:0...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/05/09 19:0...	2019/05/09 19:0...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/05/09 19:3...	2019/05/09 19:3...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/05/09 19:3...	2019/05/09 19:3...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/05/09 19:3...	2019/05/09 19:3...
<input checked="" type="checkbox"/>	C:\OMRON\EW700Collector\folder\...	GENERIC DEVICE	2019/05/09 19:4...	2019/05/09 19:4...

Buttons: Stop, Add File, Folder Inquiry, Next>, Cancel

Operations are the same as those for importing collected data.

Select a file to import and click [Next].

### Precautions for Correct Use

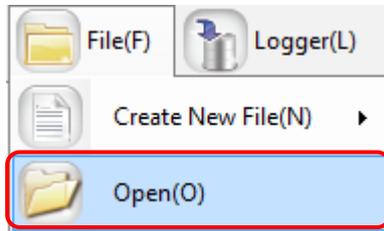
- GENERIC DEVICE (fixed) is indicated in the SNC ID column.
- If the format is different from that specified in the import setting, clicking [Add File] or [Search Folder] does not show an item in the list.
- Data to import must be those of 2013 or later. You cannot view a graph for data earlier than that.

- (3) In the [Execute General-Purpose CSV File Import] dialog box, press the Start button to read the CSV file. The operations are the same as those in previously "● Importing Collected Data".

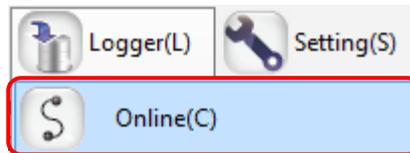
■ EQ Server DB Maintenance

After the EQ-Manager is connected to the EQ server in the On-line status, the data initialization, partial deletion, and partial copy is available for the summary data database cumulated in the EQ server. For specific operation, perform Online and logging stop.

(1) Open a project file of the EQ server.

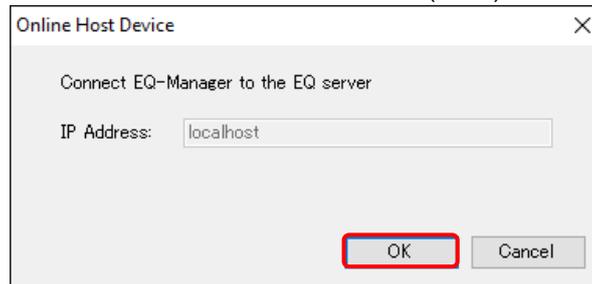


(2) Connect online between EQ-Manager and the EQ server. On the toolbar, click [Logger] - [Online].

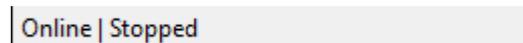


(3) On the [Online Host Device] dialog box, click [OK].

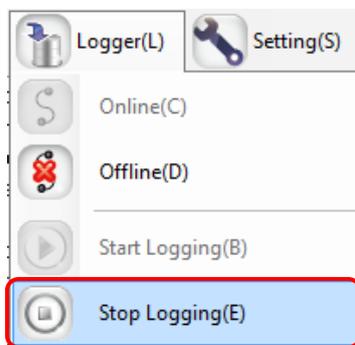
The host device IP address on the view is "localhost"(fixed).



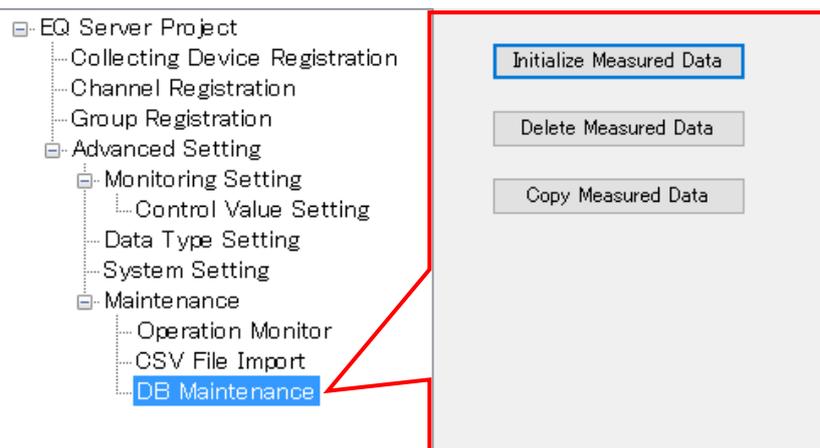
(4) When Online is done, the status bar indicates [Online].



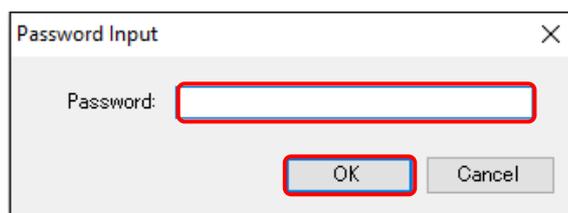
(5) Stop EQ Server operation and management. On the toolbar, click [Logger] - [Stop Logging].



(6) In the setting menu, click [Maintenance] - [DB Maintenance].



(7) If a password is designated, a confirmation dialog box appears as shown below.  
Enter the password and click [OK].



### ■ Measured Data Initialization

The initialization of measured data deletes all measured data and logs to the default status.

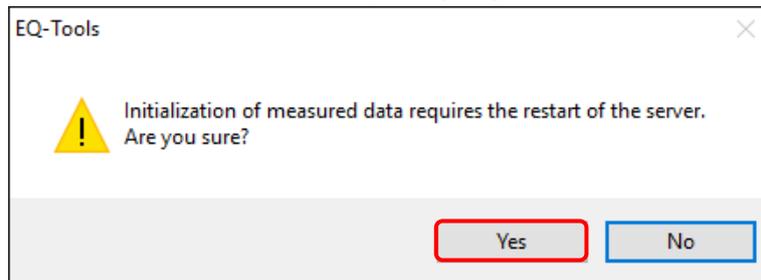
The registered project is kept as it is.

To delete all data, initialize measured data.

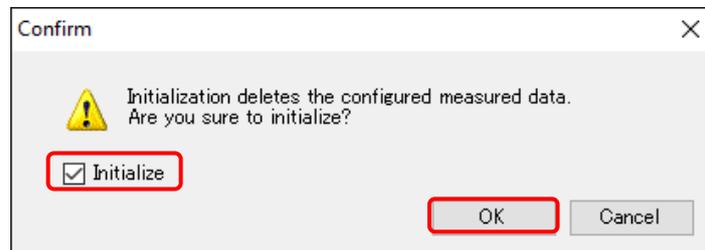
(1) Click [Initialize Measured Data].



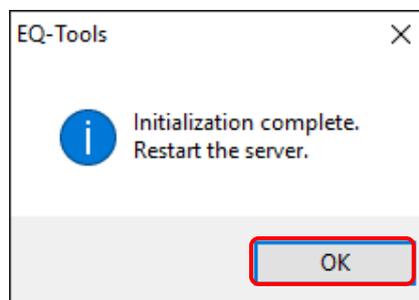
(2) On the confirmation screen shown below, click [Yes].



(3) In the confirmation dialog box, select the [Initialize] check box and click [OK].



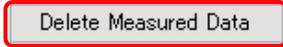
(4) When the initialization is completed, the following dialog box appears. Click [OK].  
Connection between EQ-Manager and EQ100 transitions to offline.



■ Deleting Measured Data

In this function, the measurement data collected and registered to the database can be deleted for the specified channel and period. Use this function when unnecessary measured data is generated from the measured data or operation before the sensor operates properly.

- (1) Click [Delete Measured Data].



- (2) In the list of measured data, select the check box of a channel you want to delete to select the date to delete, and specify the start and the end date/time of deletion.

Delete Measured Data

Deletion Start Date/Time: 2017/06/29 13:42 Deletion End Date/Time: 2017/06/29 13:42

Select	No.	Channel Name	Collecting Device Name	Data Type Name	Channel Address	Logging
<input checked="" type="checkbox"/>	1	1FKM100_1#Electric energy	EQ	Electric energy	1	En
<input checked="" type="checkbox"/>	2	1FKM100_2#Electric energy	EQ	Electric energy	2	En
<input checked="" type="checkbox"/>	3	ZN-PD03-S#192.168.0.10#	EQ	0.3 micro-m particle	3	En
<input type="checkbox"/>	4	ZN-PD03-S#192.168.0.10#	EQ	0.5 micro-m particle	4	En
<input type="checkbox"/>	5	D6FZ-FGX21#192.168.0.20#	EQ	Integrated flow rate	5	En
<input type="checkbox"/>	6	E50C#1#Temperature	EQ	Temperature	6	En
<input type="checkbox"/>	7	KM-N1#1#Active electric energy	EQ	Electric energy	7	En
<input type="checkbox"/>	8	EQ100 PULSE##PULSE	EQ	Pulse	8	En
<input type="checkbox"/>	9	KM100#1#Electric energy	EQ	Electric energy	9	En
<input type="checkbox"/>	10	KM50-E#1#Total integral energy	EQ	Electric energy	10	En
<input type="checkbox"/>	11	ZN-PD03-S#192.168.0.10#	EQ	1.0 micro-m particle	11	En
<input type="checkbox"/>	12	1FKM100_1#R-phase voltage	EQ	Voltage	12	En
<input type="checkbox"/>	13	1FKM100_1#T-phase voltage	EQ	Voltage	13	En
<input type="checkbox"/>	14	1FKM100_1#R-phase current	EQ	Electric current	14	En
<input type="checkbox"/>	15	1FKM100_1#T-phase current	EQ	Electric current	15	En
<input type="checkbox"/>	16	1FKM100_1#Active power	EQ	Power	16	En
<input type="checkbox"/>	17	1FKM100_1#Reactive power	EQ	Reactive Power	17	En
<input type="checkbox"/>	18	1FKM100_1#Power factor	EQ	Power factor	18	En

Delete Cancel

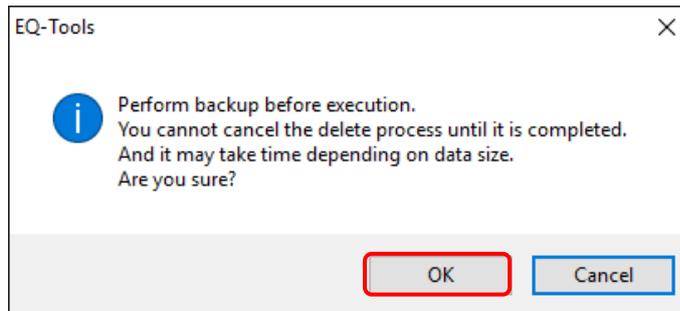
Item	Description
Deletion Start Date/Time: Deletion End Date/Time:	Deletes the measured data for the specified period. The following condition is required: Start date/time $\leq$ (Target) < End date/time
Select	Specifies the channel to delete.
No.	The number attached in the display order.
Collecting Device Name	Displays the collecting device name to which the channel is registered.
Data Type Name	Displays the data type name of the channel.
Channel Address	Displays the channel ID name in the collecting devices.
Logging	Displays whether the channel logging is valid or not.

### Precautions for Correct Use

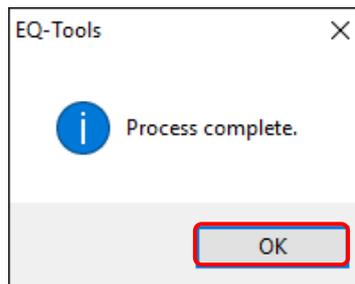
The maximum period between the start and end date/time is 60 days. The number of channels you can specify is up to 50. To delete more, repeat the steps.

(3) Click [Delete]. On the dialog box, click [OK].

The deletion starts.



(4) When completed, the following dialog box appears. Click [OK].



### Precautions for Correct Use

- When you delete measured data, maintenance of the summary data for view created in the system is performed as well. The total process can take time to delete data in addition to maintenance based on the data volume (channel count and period) in the period of data deleted.
- If you try to delete data, stored for 1000 channels in 1-minute measurement cycle, of 50 channels for 5-day period, it may take 5 to 10 minutes.
- Once deleted, the data cannot be restored. It is recommended that the deletion should be performed with a backup process beforehand.

■ Copying Measured Data

This function copies the measured data collected to other channel. In the following cases, the channel is recognized as a separate channel on the system; copying the old data to a new channel enables referential operation:

- Sensor type changed

When the sensor type is replaced or registered again, it is recognized as a separate channel.

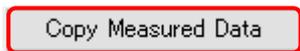
- EQ100 configuration changed

When the EQ100 is added or deleted to change the configuration of sensors arranged in EQ100, the sensors should be added or deleted. Accordingly, even when the same sensor is used, the channel is recognized as a separate channel.

- Switched from operation channel to measurement channel

When the sensor to measure the channel calculated and created on the operation channel on EQ100 is added and changed into the data for actual measurement, the channel is recognized as a separate channel.

(1) Click [Copy Measured Data].



(2) In the confirmation screen shown below, configure the setting.

Select the source, destination channel, and a period of data to copy.

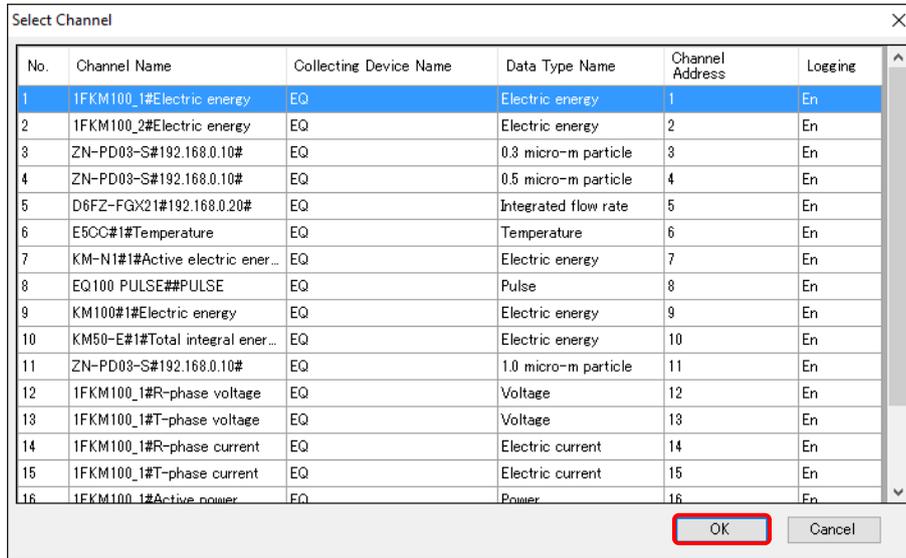
Item	Description
Source Channel	Specify the source channel from which the data is copied Select from the list by the [Select Channel] button.
Copy Data Extraction Start Date/Time: Copy Data Extraction End Date/Time:	The following data is the copy target: Deletion start date/time ≤ (target) < Deletion end date/time
Destination Channel	Specify the destination channel to which the data is copied. Select from the list by the [Select Channel] button.

**Precautions for Correct Use**

The maximum period between the start and end date/time of copy data extraction is 60 days.  
To copy more, repeat the steps.

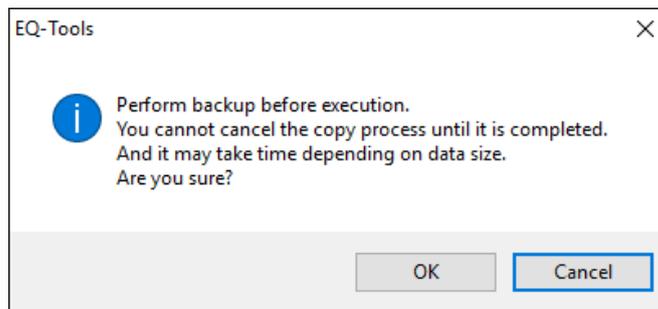
(3) Select a source channel to copy.

In the Select Channel screen, select a channel to copy click [OK].

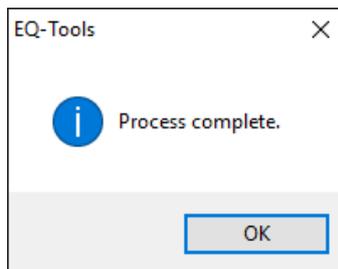


Select a destination channel to copy as well.

(4) On the confirmation dialog box, click [OK].



(5) When completed, the following dialog box appears. Click [OK].



### **Precautions for Correct Use**

- When you copy measured data, maintenance of the summary data for view created in the system is performed as well. The total process can take time to copy data in addition to maintenance based on the data volume (channel count and period) in the period of data copied.
- If you try to copy data, stored for 1000 channels in 1-minute measurement cycle, of 1 channel for 5-day period, it may take 5 to 10 minutes.
- When you copy the data, if there is data in the same period it cannot be restored because it is overwritten. It is recommended that the copying should be performed with a backup process beforehand.
- Deleting a channel on the EQ server disables referential operation, and copying is also disabled. To use the data, do not perform channel deletion on the EQ server project even when the sensor is deleted, and leave the channel deletion to be disabled.

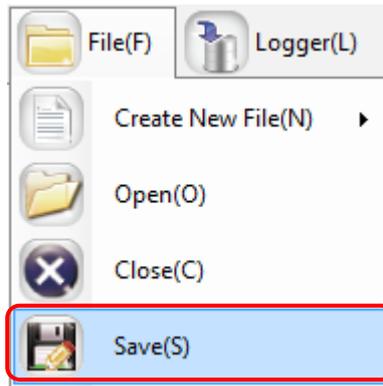
## 4.9. EQ Server Operation and Management

### 4.9.1. Saving/Storing EQ Server Project

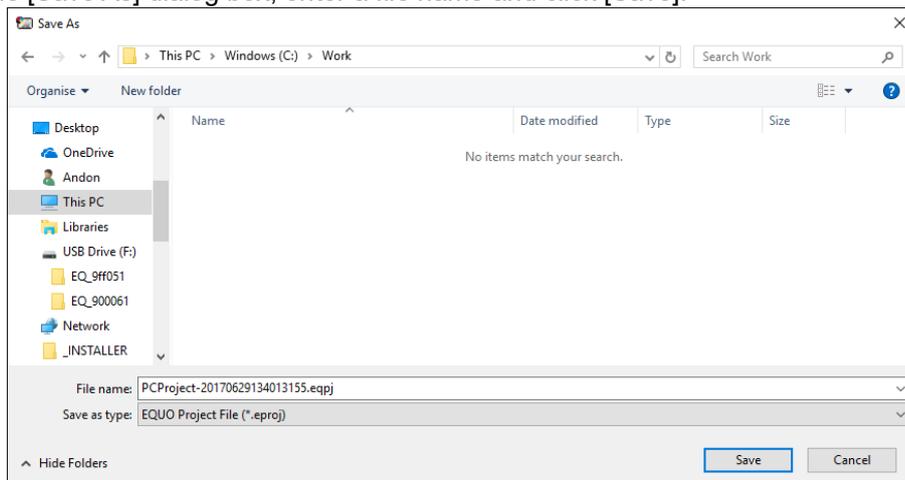
#### 4.9.1.1. Saving EQ Server Project

After creating an EQ server project, save the project on a computer as a file.

(1) On the toolbar, click [File] - [Save].



(2) In the [Save As] dialog box, enter a file name and click [Save].



#### 4.9.1.2. Storing EQ Server Project

You may need to edit the saved EQ server project if you edited an EQ project, want to enable or disable logging, and change a control value.

Keep the project written to the EQ server to be able to edit later.

#### **Precautions for Correct Use**

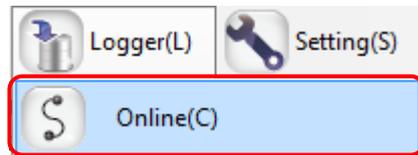
- When an EQ server project is written to EQ-Manager, specific information of the EQ server is added to the file on EQ-Manager. The stored data of the EQ server cannot be inherited without the information when you edit the EQ server project. To inherit data, always save and store the EQ server project after you wrote it to the server.

### 4.9.2. Writing EQ Server Project

Write the created EQ server project to the EQ server. You can write the project being opened by EQ-Manager.

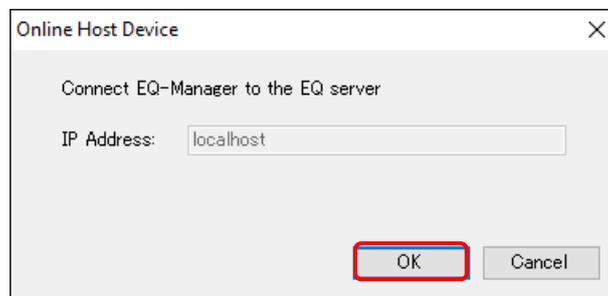
(1) Use EQ-Manager to open the target project.

(2) On the toolbar, click [Logger] - [Online].

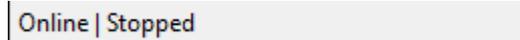


(3) On the [Online Host Device] dialog box, click [OK].

The host device IP address on the view is "localhost"(fixed).

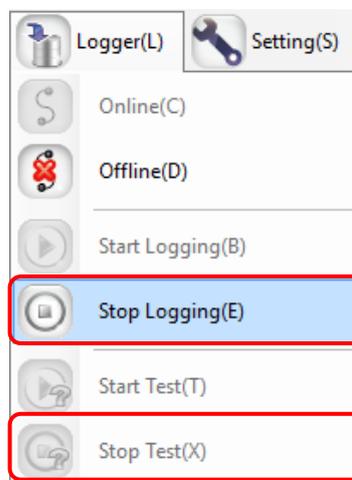


(4) When Online is done, the status bar indicates [Online].

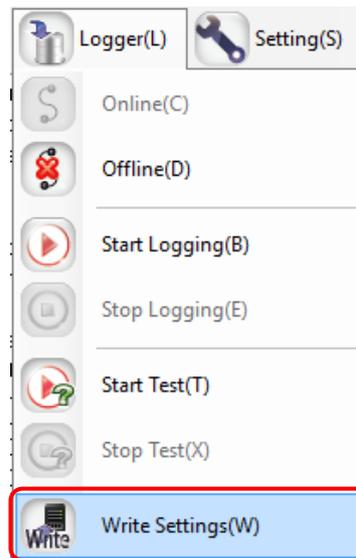


(5) If the EQ server is under operation (performing logging) or testing, stop it.

To stop operation, click [Logger] - [Stop Logging]. To stop testing, click [Logger] - [Stop Test].

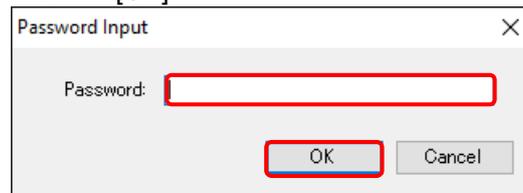


(6) On the toolbar, click [Logger] - [Write Settings].

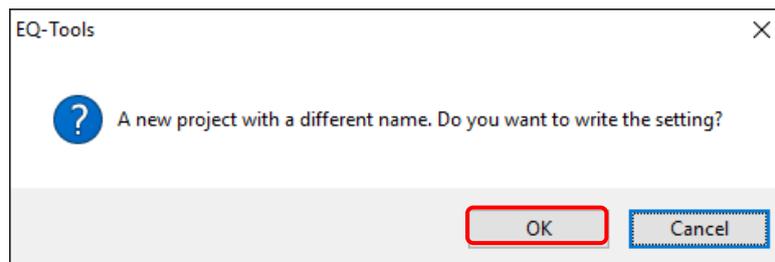


(7) If a password is designated for EQ-Manager, a confirmation dialog box appears as shown below.

Enter the password and click [OK].

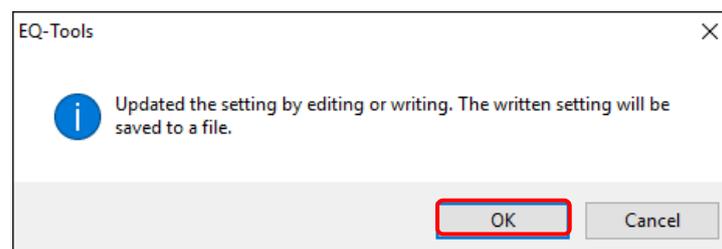


(8) If the project name written in the EQ server differs from the project name to write, the following confirmation dialog box appears. If you are sure to write, click [OK].

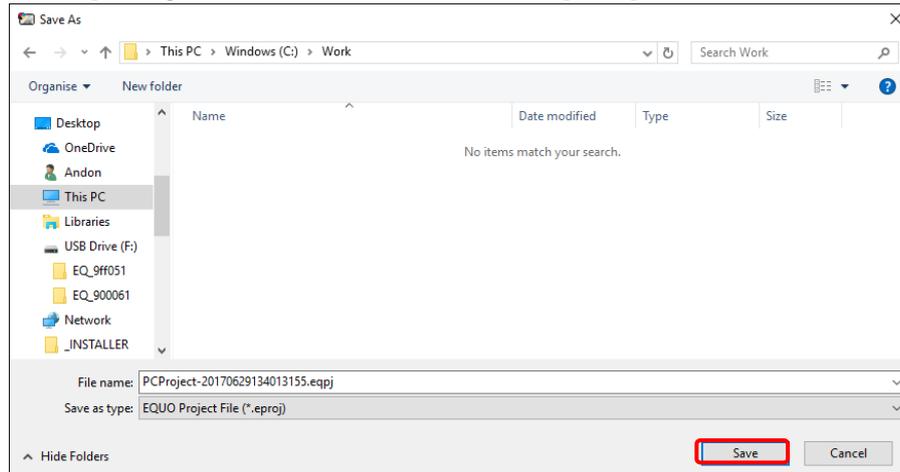


(9) When the project file is written to the server, the dialog box appears as shown below. The detail of the dialog box depends on the settings.

<If you need to save the project file>



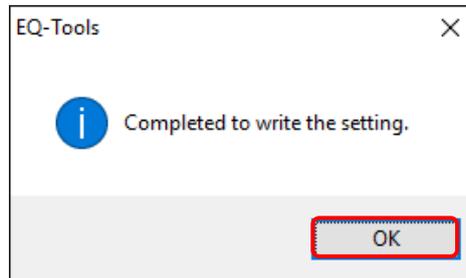
In the [Save As] dialog box, enter a file name and click [Save].



- The written project is required to edit the project later for a change of configuration and a control value. Keep it for later edit.
- Specific information of the EQ server is added to the project written to the server. Data cannot be inherited unless the project is edited using this information. Always save and store the EQ server project after you wrote it to the server.

<If you do not need to save the project file>

When writing is completed, a message "Completed to write the setting" appears. Click [OK].



(10) Resume the operation or testing if you want.

To resume operation, click [Logger] - [Start Logging]. To resume testing, click [Logger] - [Start Test].

(11) Cut the connection.

On the toolbar, click [Logger] - [Offline].

### Precautions for Correct Use

- Be sure to restart EQ-GraphViewer after loading the EQ server project. Operation is not guaranteed if you use it continuously.
- If you write a project immediately after stopping logging, the following message may be displayed.  
"Cannot write while summary data being updated. Wait for a while and try again."  
If this message appears, wait for a while and then write the project again. It usually takes 1 to 2 minutes when collecting 200 channels for 1 minute.

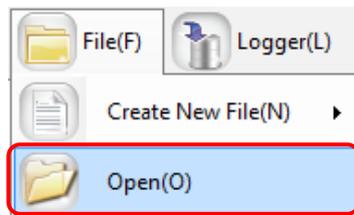
### 4.9.3. Reading EQ Server Setting

You can read the project operating in the EQ server to computer's EQ-Manager.

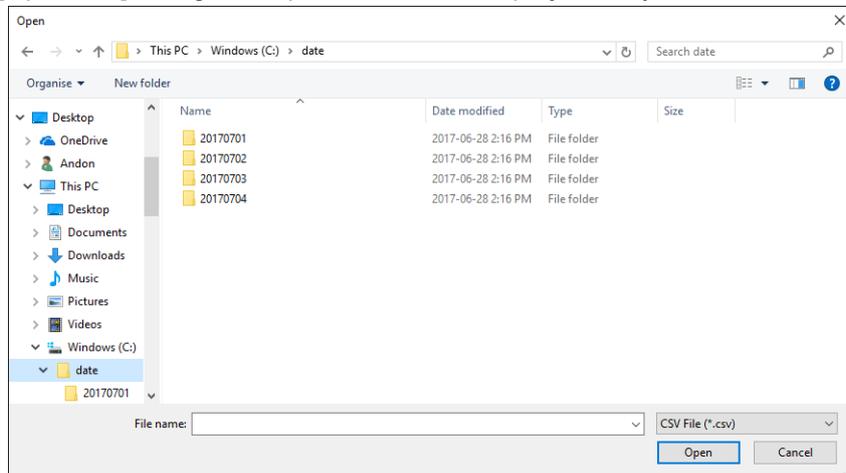
#### Precautions

If the project is read, a project that is being opened when connected online on EQ-Manager is replaced by the running project. Pay attention on a project name when you save it.

(1) On the toolbar, click [File] - [Open].



(2) In the [Open File] dialog box, open the EQ server project file you want to connect.



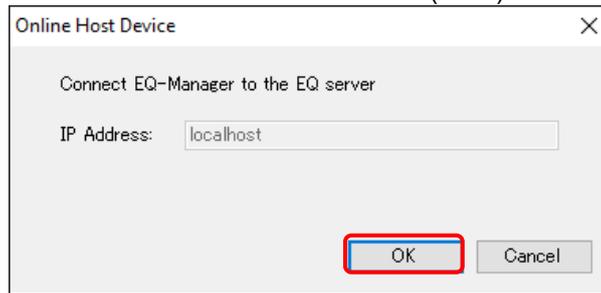
(3) On the toolbar, click [Logger] - [Online].

EQ-Manager refers to the IP address configured in the project to connect.



(4) On the [Online Host Device] dialog box, click [OK].

The host device IP address on the view is "localhost"(fixed).

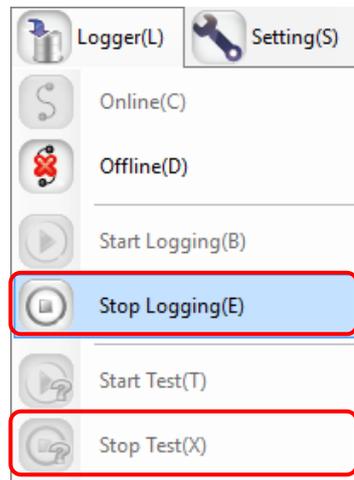


(5) When connected to the EQ server, the status bar indicates [Online].

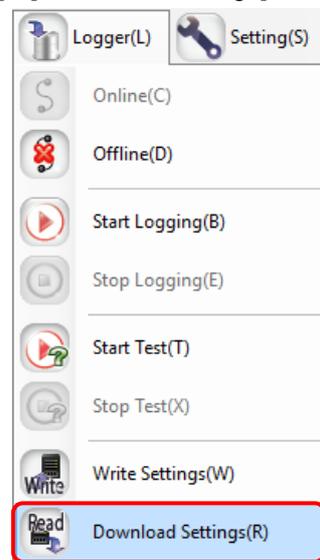


(6) If the EQ server is under operation (performing logging) or testing, stop it.

To stop operation, click [Logger] - [Stop Logging]. To stop testing, click [Logger] - [Stop Test].

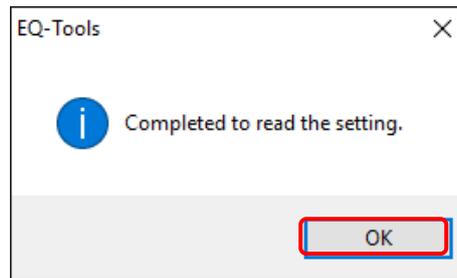


(7) On the toolbar, click [Logger] - [Download Settings].



The project is loaded.

- (8) When the loading is completed, the following dialog box appears. Click [OK].  
The project on EQ-Manager is replaced by the loaded one.



- (9) Check the details of the EQ project.

- (10) Resume the operation or testing if you want.

To resume operation, click [Logger] - [Start Logging]. To resume testing, click [Logger] - [Start Test].

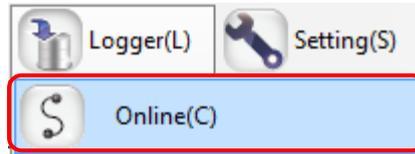
#### 4.9.4. EQ Server Communication Test

Perform Communication test between EQ100 and the EQ server.

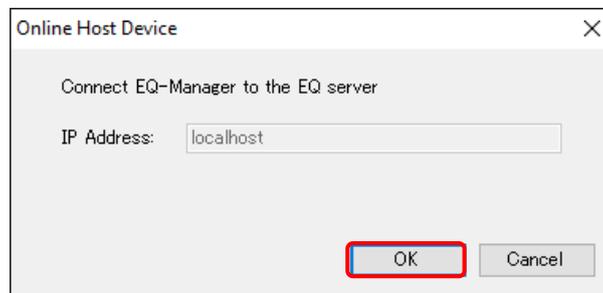
##### 4.9.4.1. Starting Communication Test

Perform Communication test between EQ100 and the EQ server.

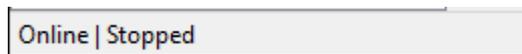
- (1) Use EQ-Manager to open an EQ server project, and on the toolbar click [Logger] - [Online].



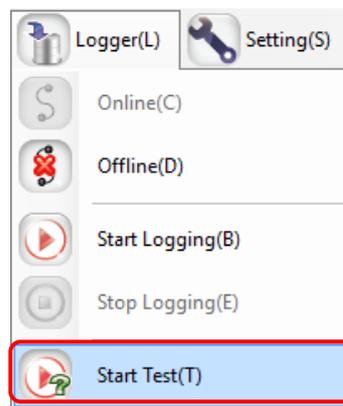
- (2) On the [Online Host Device] dialog box, click [OK].  
The host device IP address on the view is "localhost"(fixed).



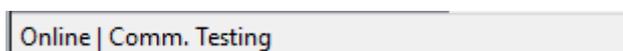
- (3) When Online is done, the status bar indicates [Online].



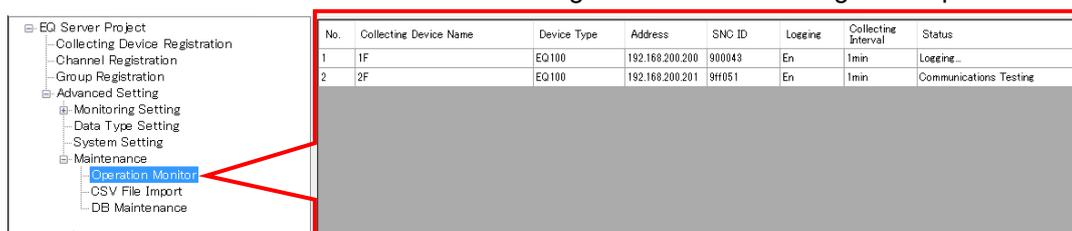
- (4) On the toolbar, click [Logger] - [Start Test].



- (5) The communication test begins.  
During the communication test, [Online | Comm. Testing] appears on EQ-Manager.



(6) To verify the communication test result, select [Operation Monitor] in the setting menu to view. Please wait for a while before a collecting interval of a collecting device passes.



The communication test result appears in the [Status] field. Make sure that it should be [Logging] or [Communication Testing].

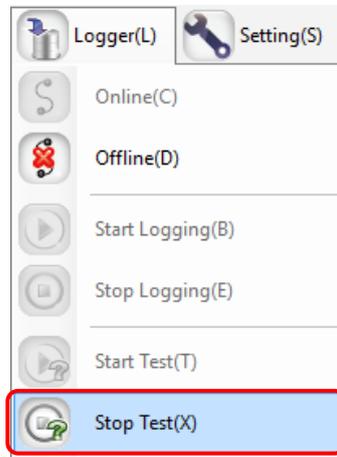
Status	Description
Logging...	EQ100 is logging measured values of measurement devices.
Communication Testing	EQ100 is testing communications with measurement devices.
Stopped	EQ100 stopped logging from measurement devices.
Error	A system error occurred in EQ100.
Mismatch	A mismatch occurred between channels of logging for EQ100 and the EQ server.
Time Mismatch	Clocks of EQ100 and the EQ server are unmatched. You must synchronize the clocks.
Communication Error	Communications were disconnected between EQ100 and the EQ server.
--	The EQ server did not check the EQ100 status yet. (Initial status, etc)

(7) Check the result and change the EQ server project if necessary.

#### 4.9.4.2. Ending Communication Test

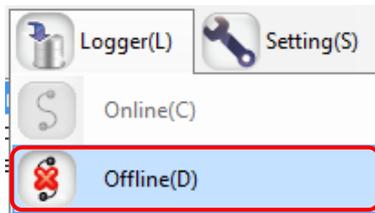
Stop the communication test.

(1) On the toolbar, click [Logger] - [Stop Test].



The communication test ends.

(2) To cut the connection between EQ-Manager and the EQ server as well, on the toolbar click [Logger] - [Offline].

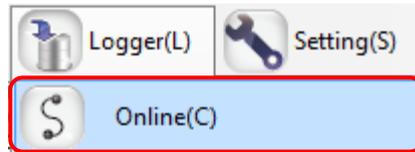


## 4.9.5. Starting/Stopping EQ Server Operation and Management

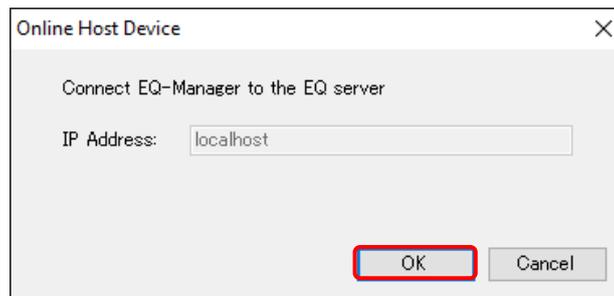
### 4.9.5.1. Starting EQ Server Operation and Management

Start the operation and management of the EQ server. On EQ-Manager, perform the steps to start operation and management.

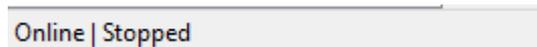
- (1) Open the project file you want to start operating on EQ-Manager.
- (2) Connect online between EQ-Manager and the EQ server. On the toolbar, click [Logger] - [Online].



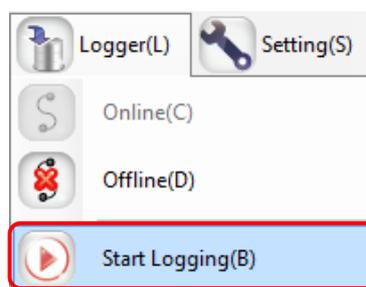
- (3) On the [Online Host Device] dialog box, click [OK].  
The host device IP address on the view is "localhost"(fixed).



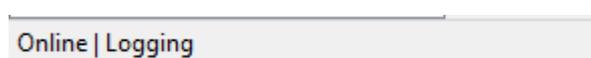
- (4) When Online is done, the status bar indicates [Online].



- (5) Start EQ server operation and management. On the toolbar, click [Logger] - [Start Logging].

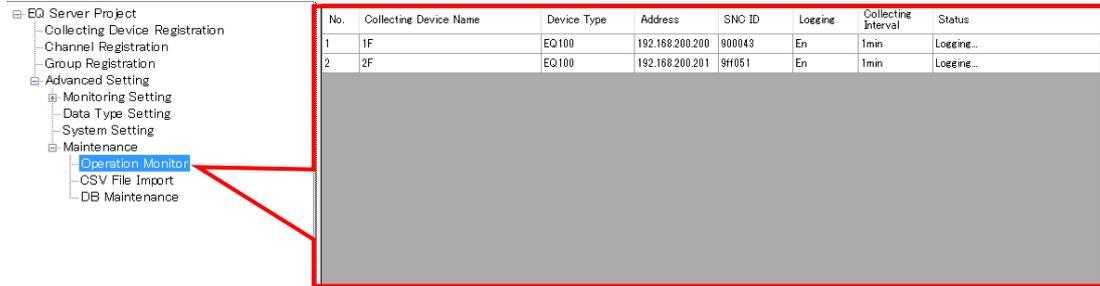


The operation and management of the EQ server begins.  
Under the operation, on the EQ-Manager status bar [Online | Logging] appears.



(6) Use the operation monitor to check the EQ server and EQ100 statuses.

(1) In the setting menu, click [Operation Monitor]. Please wait for a while before a collecting interval of a collecting device passes.



(2) Check that [Status] of the collecting devices connected to the EQ server should be "Logging".

Status	Description
Logging...	EQ100 is logging measured values of measurement devices.
Communication Testing	EQ100 is testing communications with measurement devices.
Stopped	EQ100 stopped logging from measurement devices.
Error	A system error occurred in EQ100.
Mismatch	A mismatch occurred between channels of logging for EQ100 and the EQ server.
Communication Error	Communications were disconnected between EQ100 and the EQ server.
--	The EQ server did not check the EQ100 status yet. (Initial status, etc)

(7) Cut the connection between EQ-Manager and the EQ server. On the toolbar, click [Logger] - [Offline].

The connection between the EQ server and EQ100 is cut.

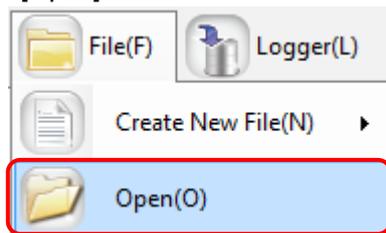
(8) Terminate EQ-Manager. On the toolbar, click [File] - [Exit].

The EQ server continues operation and management even after EQ-Manager is terminated.

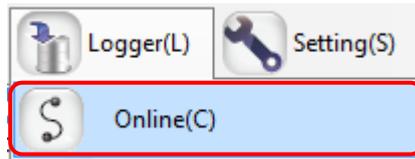
#### 4.9.5.2. Stopping EQ Server Operation and Management

(1) Open the project file you want to stop operating on EQ-Manager.

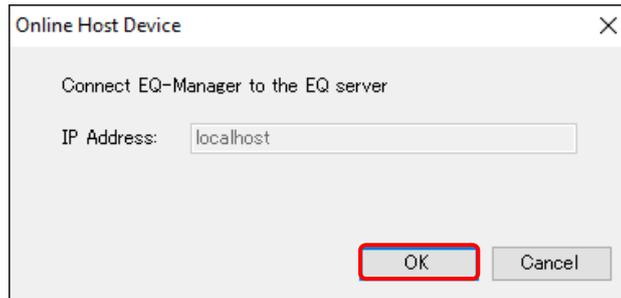
On the toolbar, click [File] - [Open].



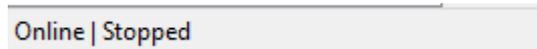
- (2) Connect online between EQ-Manager and the EQ server. On the toolbar, click [Logger] - [Online].



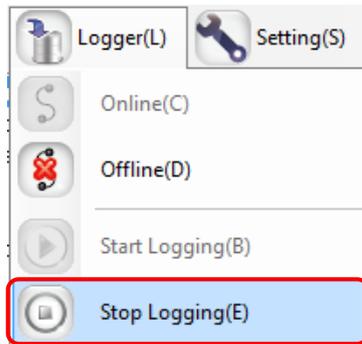
- (3) On the [Online Host Device] dialog box, click [OK].  
The host device IP address on the view is "localhost"(fixed).



- (4) When Online is done, the status bar indicates [Online].

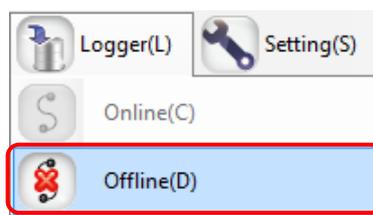


- (5) Stop EQ Server operation and management. On the toolbar, click [Logger] - [Stop Logging].



The operation and management of the EQ server stops.

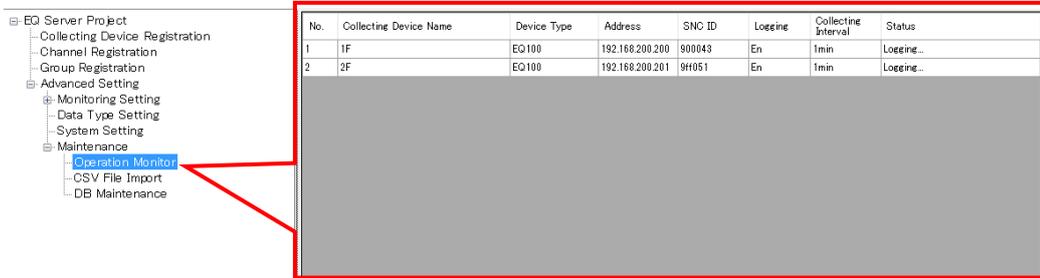
- (6) Cut the connection between EQ-Manager and the EQ server. On the toolbar, click [Logger] - [Offline].



The connection between EQ-Manager and the EQ server is cut to offline.

### 4.9.5.3. EQ Server Operation Monitor

After connecting EQ-Manager to the EQ server online and start logging or testing, you can view and monitor a list of collecting devices to monitor operation statuses of the EQ server and collecting devices. The operation monitor updates operation statuses in a collecting interval of respective collecting devices to display.



Item	Description
No.	The number serially assigned in the registered order.
Collecting Device Name	A collecting device name appears.
Device Type	A collecting device type appears.
Address	The IP address of the collecting device appears.
SNC ID	The SNC ID of the collecting device appears.
Logging	Enabled/disabled logging status of the collecting device appears.
Collecting Interval	A cycle to collect measurement data from a collecting device appears.
Status	A status of the collecting device is displayed as shown below:

#### <Operation Monitor Status>

Status	Description
Logging...	EQ100 is logging measured values of measurement devices.
Communication Testing	EQ100 is testing communications with measurement devices.
Stopped	EQ100 stopped logging from measurement devices.
Error	A system error occurred in EQ100.
Mismatch	A mismatch occurred between channels of logging for EQ100 and the EQ server.
Time Mismatch	Clocks of EQ100 and the EQ server are unmatched. You must synchronize the clocks.
Communication Error	Communications were disconnected between EQ100 and the EQ server.

When the operation monitor screen is displayed while logging or communication testing, the progress bar appears.

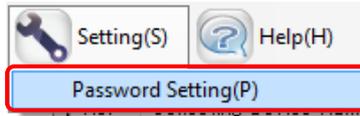


## 4.10. EQ-Manager Password Setting (for Administrator Access Control)

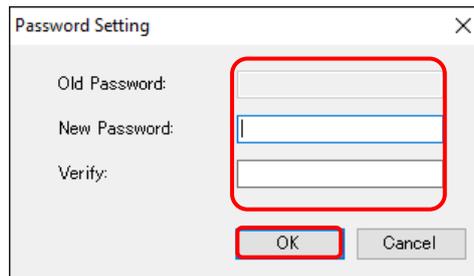
Configure a password to limit the execution of EQ-Manager. By setting a password, you can limit execution of [Write Settings] and [Maintenance].

### ■ Setting New Password

(1) On the toolbar, click [Setting] - [Password Setting].



(2) In the [Password Setting] dialog box, enter a password and click [OK].

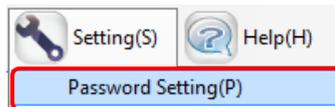


Item	Description
New Password	Enter a new password. <Input Range> Half-width 63 characters
Verify	Enter the new password again for verification.

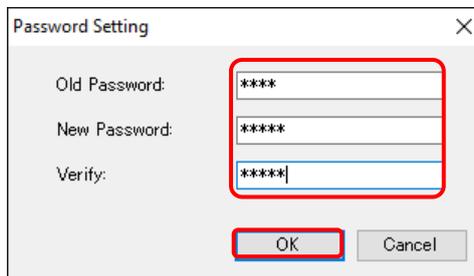
The password is configured.

### ■ Changing Password

(1) On the toolbar, click [Setting] - [Password Setting].



(2) In the [Password Setting] dialog box, enter a password and click [OK].



Item	Description
Old Password	Enter the current password.
New Password	Enter a new password.
Verify	Enter the new password again for verification.

The password is changed.

## 5. Operating View & Analysis Tool

### EQ-GraphViewer

#### 5.1. Overview

EQ-GraphViewer is software to summarize collected data from measurement devices stored in the summary data DB of the EQ server for viewing and analyzing the graph.

Major functions of EQ-GraphViewer include:

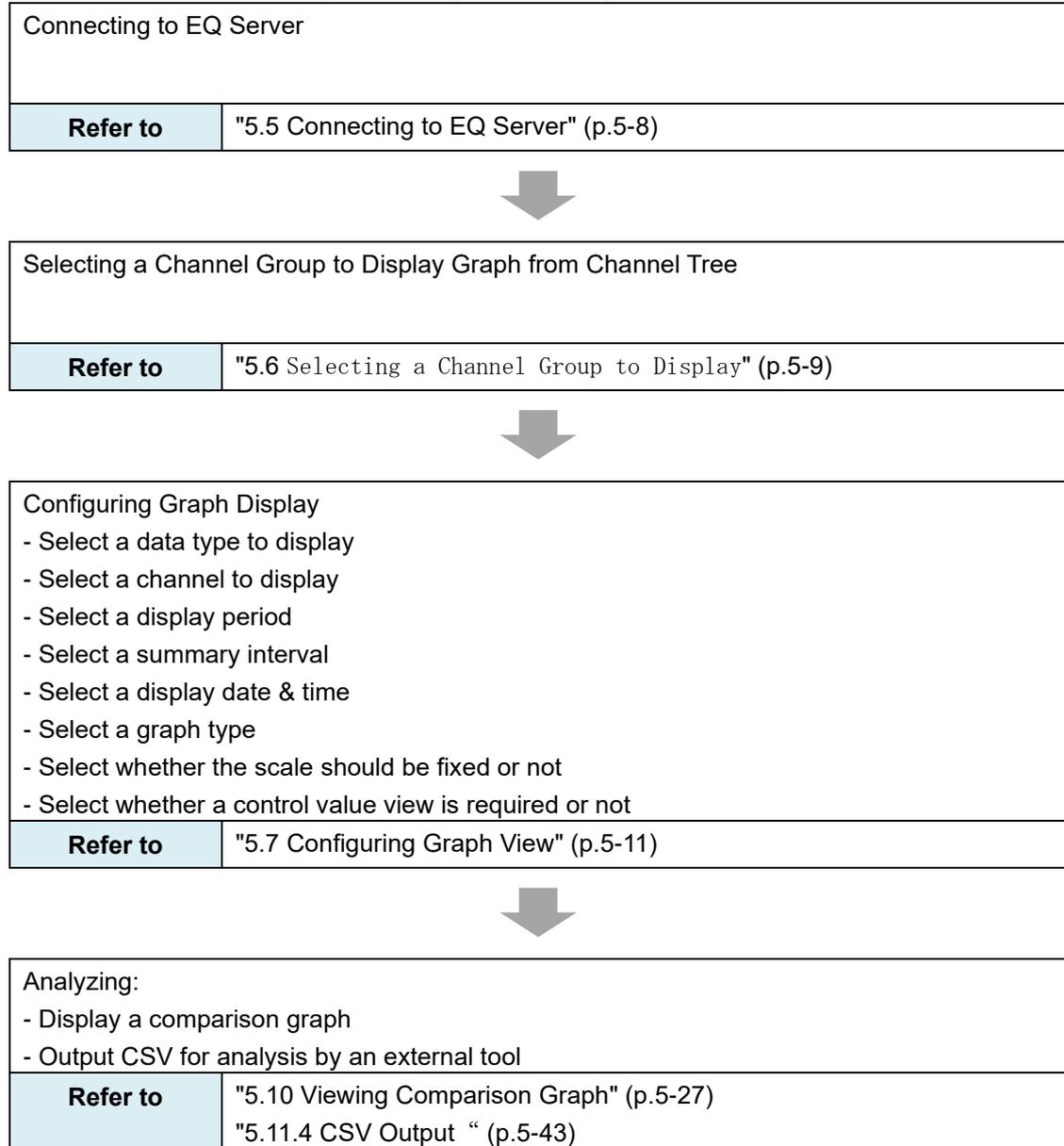
- Connecting to the EQ server and viewing collected data
- Narrowed-down view of channels registered in a group
- Graph view through independent configuration of view period and summary interval
- Comparison with past data
- Detection of abnormal values by control value view
- Simultaneous view of data of different data types
- CSV output enabling analysis by an external tool

#### **Precautions for Correct Use**

Update the EQ server project setting as well, if you changed the EQ project setting of EQ100. If the setting details of the EQ project and the EQ server project do not match, EQ-GraphViewer cannot display data properly.

## 5.2. Basic Operation Steps

Described below are basic operation steps of EQ-GraphViewer.



### 5.3. Description of Screen

#### 5.3.1. Main Screen

Described below are descriptions of EQ-GraphViewer main screen.

This sample screen shows all functions, some of which you can show or hide based on the setting.



No.	Item	Description
1	Title Bar	The following indication appears: EQ-GraphViewer - [Main Screen] - (Host Device) * Host Device: Shows the connected server name.
2	Toolbar	Clicking an icon executes its function. For details, see "5.3.2 Toolbar Functions" (p5-5.).
3	Channel Tree Area	Shows a channel group configured in the EQ server. Selecting a channel group in the channel tree displays a graph that contains all channels right under the group. You can drag the boundary by the mouse to change the width. For details, see"5.6 Selecting a Channel Group to Display" (p.5-9)
4	Graph Type Setting Area	Specify a type of the graph to draw. For details, see "5.7.6 Selecting Bar Graph Type" (p5-17.).
5	Disp. Period Setting Area	Specify a period of the graph to draw. For details, see "5.7.3 Selecting View Period" (p5-13.).
6	Summary Interval Setting Area	Specify a summary interval of the graph. For details, see "5.7.4 Selecting View Unit (Summary Interval)" (p5-14.).

No.	Item	Description
7	Date/Time Setting Area	Specify a date & time to display in the graph. An available range of setting depends on the setting in the view period setting area. For details, see "5.7.5 Specifying View Date/Time & Auto-Updating Graph View" (p5-15.).
8	Summary Area	Shows the total/average values of the graph data. For details, see "5.8 Summary Area View" (p5-25.).
9	Graph Area	Displays a summary graph based on the setting configured in the setting areas of the main screen. You can manipulate the X-axis scale and other configurations with the mouse. For details, see "5.7.10 Operating Graph" (p5-23.).
10	Graph View Setting Area	Configure a data type on the graph, graph type, visual, availability of cumulative value view and/or control value view, and the target data to view. You can configure the setting for vertical axes 1 and 2 respectively. For details, see "5.7.1 Selecting Data Type (Vertical Axis Unit) " (p5-12.), "5.7.2 Selecting View Channel Independently" (p5-12.), "5.7.7 Selecting/Clearing Fixed Scale" (p5-18.), "5.7.8 Enabling/Disabling Control Value " (p5-19.).
11	Status Bar	Displays information such as a progress status of current operation. More specifically, it displays the statuses of data acquisition from the server or of graph view.

### 5.3.2. Toolbar Functions

Various functions are assigned to toolbar icons.



Clicking a toolbar icon executes its function as shown below.

Icon	Function	
 (Back)	Transitions the screen back to the previous one. You can go back to previous screens by up to 16.	
 (Forward)	Transitions to the original screen when you transitioned to the previous screen. You cannot use this function if the current screen the latest one.	
 File	Clicking the icon shows the following menu items:	
	Connect Server	You can specify the EQ server IP address to connect. Summary data on the connected EQ server is displayed on the graph.
 Disp.	Clicking the icon shows the following menu items:	
	Disp. Channel Tree	You can show or hide the channel tree are.
	Disp. Summary Area	You can show or hide the summary are.
	Disp. Settings	You can show or hide the graph view setting are.
 Favorites	Clicking the icon shows the following menu items:	
	Add to Favorites	You can register the current graph screen to view it later by one-click operation.
	Organize Favorites	Shows the management menu to change or delete a name of a screen registered in [Favorites].
(Favorites List)	Shows a screen registered in [Favorites] in a list under the menu.	

Icon	Function	
 Tool	Clicking the icon shows the following menu items:	
	Compare with Previous Data	A separate screen appears that shows the graph to compare current and past data.
	Graph Output	You can output the displayed graph image and conditions to a file or a printer.
	Data Output	You can output a list of current data on the screen to a printer or a file.
	CSV Output	You can select summary data while specifying period/channel/summary interval to output in a report format or M2M format CSV file.
 Setting	Shows the [Setting] dialog box for settings of EQ-GraphViewer. You can configure the following items: <ul style="list-style-type: none"> <li>- To open the screen of previous data when starting-up</li> <li>- To show/hide channels in the channel tree area, as well as legend, title, and missing values in the graph area.</li> <li>- To specify character code for CSV export</li> </ul>	
 Help	Clicking the icon shows the following menu items:	
	EQ-GraphViewer Help	Displays the manual.
	Version Information	Shows the version information.
 Exit	Terminates EQ-GraphViewer.	

## 5.4. Starting/Exiting EQ-GraphViewer

### 5.4.1. Startup

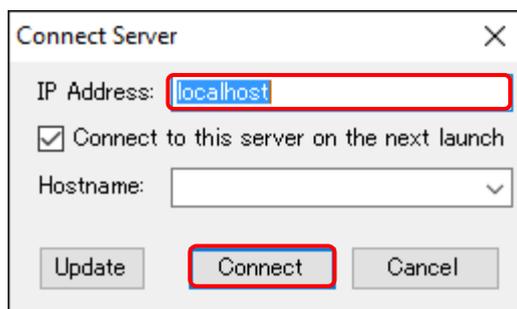
- (1) Press the Windows Start button, and click [All Programs] - [OMRON EQ-Viewer] - [EQ-GraphViewer].

Or, double-click the EQ-GraphViewer icon on the Windows desktop.



- (2) In the [Connect Server] dialog box to select the EQ server to connect, enter the IP address of the EQ server and click [Connect].

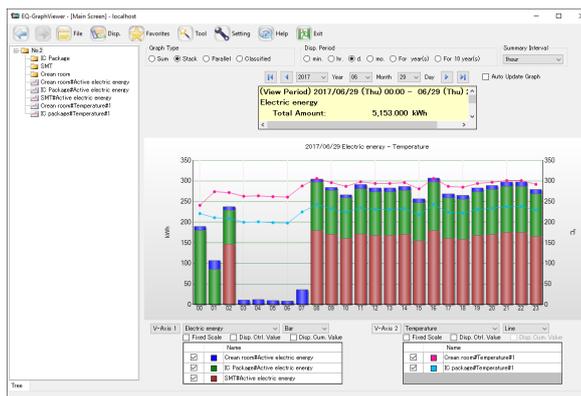
If the computer you are using is the EQ server itself, specify "localhost". If the computer you are using is a client computer, specify the IP address of the EQ server.



#### Reference

- Selecting the [Connect to this data on the next launch] check box allows automatic connection to the server on the next startup.

- (3) The main screen appears that displays a graph of summary data in the connected EQ server.



#### Precautions

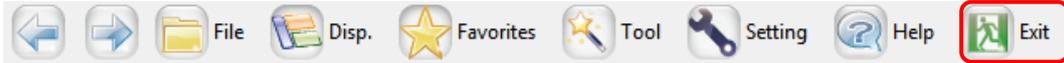
- Right after starting logging in the EQ server, or if you have stopped logging for one to several days, it may take time to display a graph due to summary processing by EQ-ServerService. For a processing time of stored collected data in EQ100, see "1.7 Processing Time" (p.1-14).

#### Reference

- Upon the 2nd and later startup, the main screen appears based on the previous operations (e.g. setting in [Connect to this data on the next launch]).

### 5.4.2. Exiting

On the main screen toolbar, click [Exit] to terminate EQ-GraphViewer.



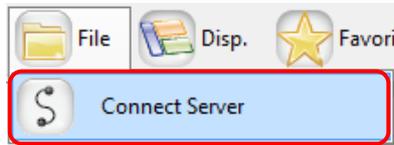
Or, click [x] on the top right of the screen to end.



## 5.5. Connecting to EQ Server

You can specify the EQ server to connect for summary, view, and analysis. Shown below are steps to connect to the server.

(1) On the toolbar, click [File] - [Connect Server].

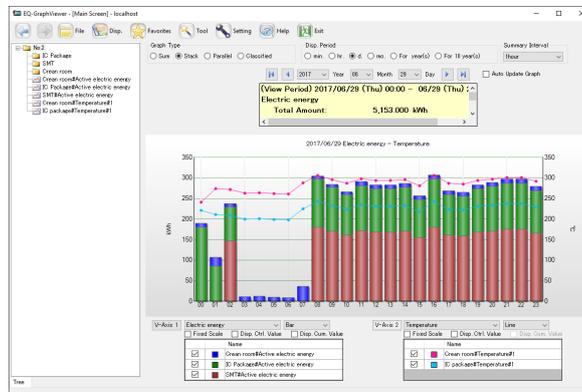


(2) In the [Connect Server] dialog box, enter the IP address of the host device and click [Connect].

If the computer you are using is the EQ server itself, specify "localhost". If the computer you are using is a client computer, specify the IP address of the EQ server.



(3) The main screen displays a graph of the specified summary data DB.

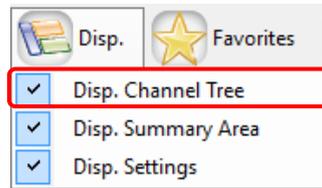


## 5.6. Selecting a Channel Group to Display

Click and select a channel group for a graph view from the channel tree area on the left of the main screen. Channel groups are displayed as folder icons.

### ■ Showing/Hiding Channel Tree Area

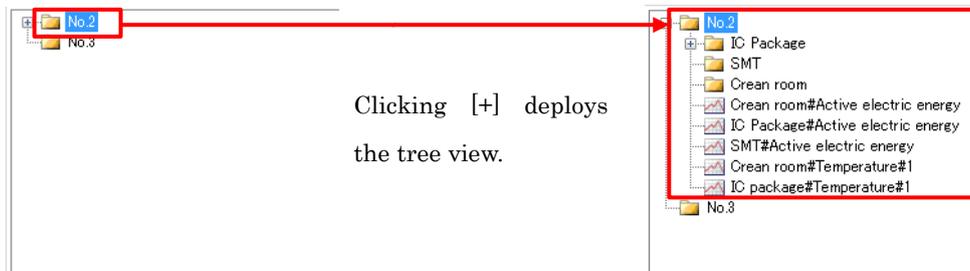
If the channel tree area is not displayed, on the toolbar click [Disp.] and select the [Disp. Channel Tree] check box.



This operation switches showing/hiding the channel tree area.

### ■ Deploying/Undeploying a Channel Group

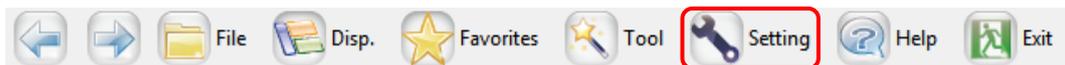
You can deploy channels by the following operation.



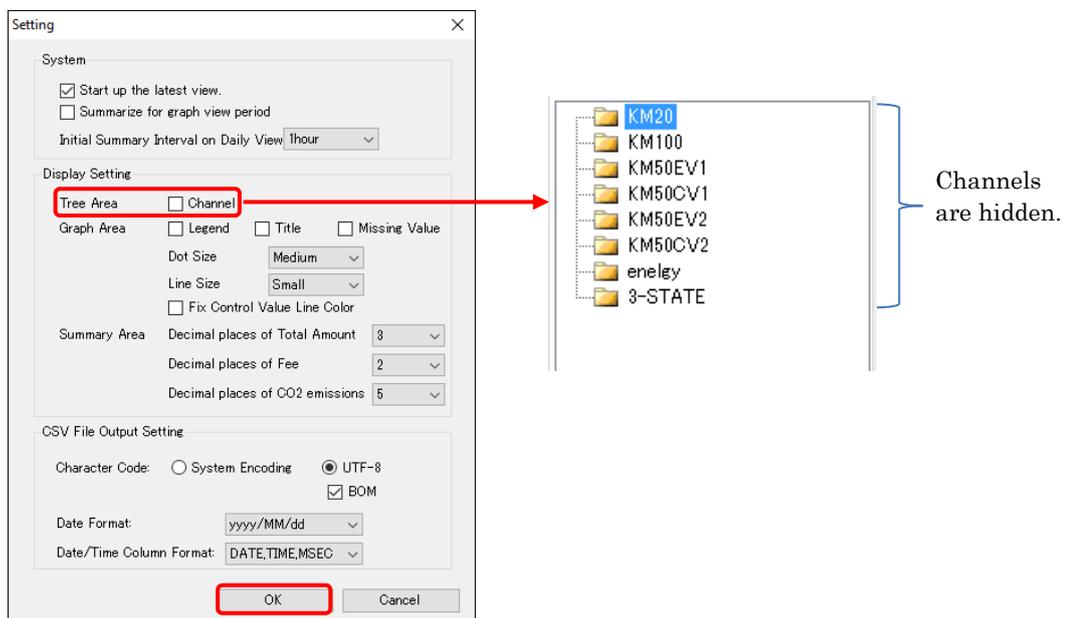
### ■ Hiding Channel Names

You can hide channel names belonging to a channel group.

(1) On the toolbar, click [Setting].



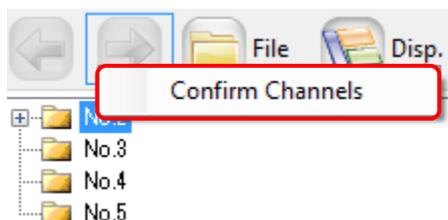
(2) In the [Setting] dialog box, clear the [Channel] check box of [Tree Area] in [Display Setting] field. Clicking [OK] hides channel names in the channel tree.



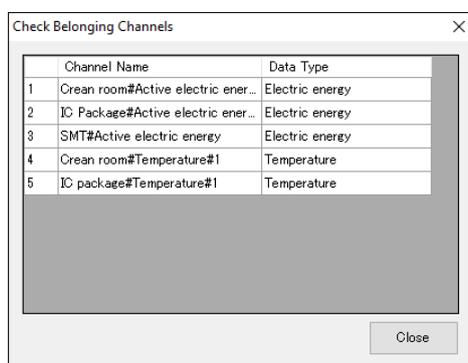
### ■ Checking a Belonging Channel

On the [Check Belonging Channels] screen, you can view a list of channels belonging to a channel group.

(1) Right-click a channel group in the channel tree area, and select [Confirm Channels].



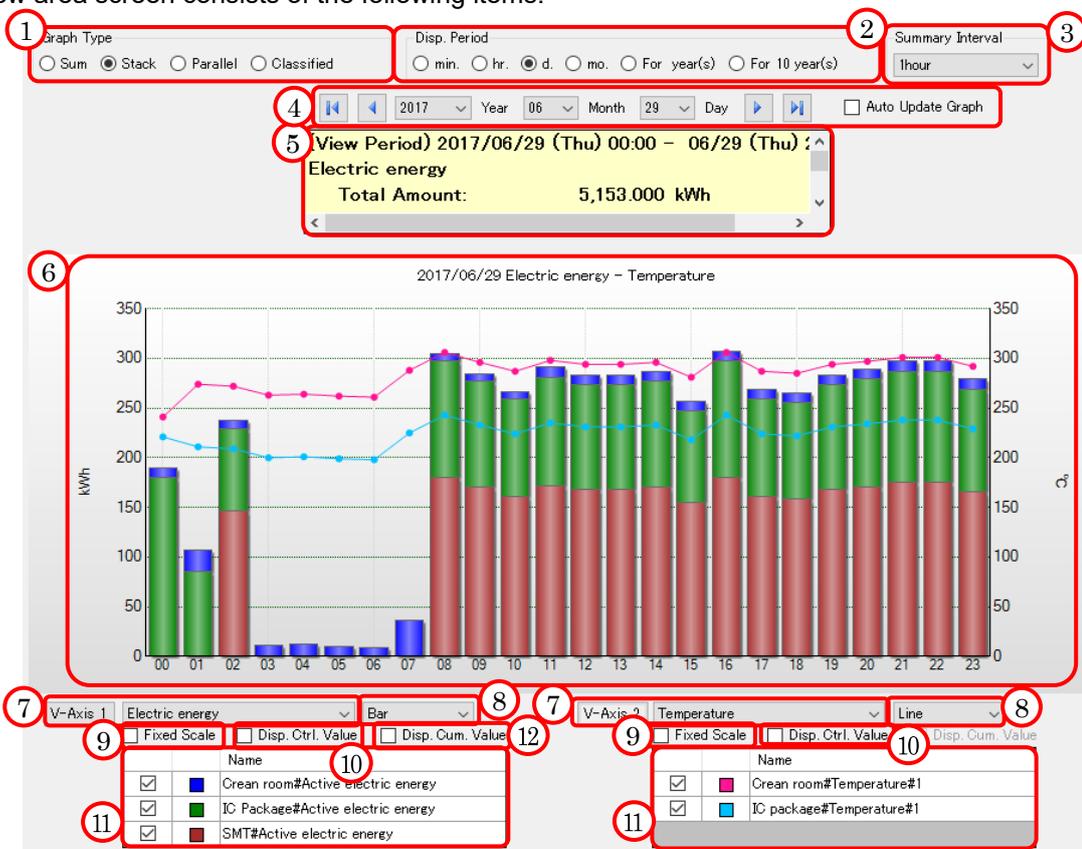
(2) The [Check Belonging Channels] screen appears.



## 5.7. Configuring Graph View

You can use EQ-GraphViewer for analysis of energy usage by summarizing and viewing data of a specified channel.

In the graph view area of EQ-GraphViewer, a graph of the summary data appears. The graph view area screen consists of the following items:



No	Item	Description
1	Graph Type Setting Area	Specify a type of the graph to draw in the graph area.
2	Disp. Period Setting Area	Specify a period of the graph to draw in the graph area.
3	Summary Interval Setting Area	Specify a summary interval of the graph to draw in the graph area.
4	Date/Time Setting Area	Specify a date & time of the graph to draw in the graph area.
5	Summary Area	Shows summary of data being displayed, e.g. total and average values.
6	Graph Area	Shows a summary graph. You can scale up and down the horizontal axis (temporal axis) by mouse operation.
7	Data Type Setting Area	Specify a type of data to draw in the graph area for vertical axes 1 and 2 respectively.
8	Graph Selection Area	Select either bar or line graph.
9	Fixed Scale check box	Select if the scale should be automatically changed based on data or fixed to the current one for vertical axes 1 and 2.
10	Disp. Ctrl. Value check box	Select if the control value should be displayed or not on the vertical axes 1 and 2.
11	Disp. Target Setting Area	Shows a list of channels in the selected channel group. Select the check box of the channel to draw a graph in the graph view area.
12	Disp. Cumulative Value check box	Switches the graph to the cumulative value view. This is valid only for a graph of integrated values.

- If the summary method of the data type is not the total, the graph is displayed as grouped even if you select the graph type (sum, stacked).

### 5.7.1. Selecting Data Type (Vertical Axis Unit)

You can display two data types in one graph. Specify a data type to view in a graph in [V-Axis 1] and [V-Axis 2] in the data type setting area.



Data of the specified type appears in the graph area. In addition, the vertical axis unit changes based on the specified data type.

A unit of data type specified in [V-Axis 1] is displayed on the left of the graph.  
 A unit of data type specified in [V-Axis 2] is displayed on the right of the graph.

#### Reference

- The unit is specified in [Data Type Setting] in EQ-Manager.

### 5.7.2. Selecting View Channel Independently

To specify channels in a channel group to view in the graph separately, use the view target setting area or the view target visual setting.

#### 5.7.2.1. Configuration in View Target Setting Area

In the view target setting area, a list of channels of the data type specified in [V-Axis 1] and [V-Axis 2].

Selecting the [Disp.] check box of a channel to display reflects the channel in the graph area. Clicking [Disp. Settings] of the [Disp.] menu in the toolbar shows/hides the view target setting area.

		Name
<input checked="" type="checkbox"/>	<span style="color: blue;">■</span>	Crean room#Active electric energy
<input checked="" type="checkbox"/>	<span style="color: green;">■</span>	IC Package#Active electric energy
<input checked="" type="checkbox"/>	<span style="color: red;">■</span>	SMT#Active electric energy

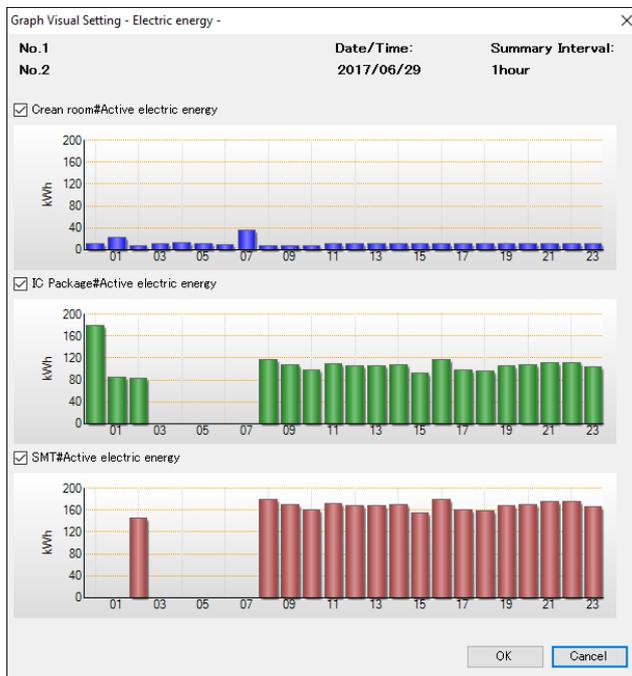
Item Name	Details
Check Box	Selecting a check box shows the target in the graph. Right-clicking the box enables all select or all deselect according to the menu.
Color Sample	Shows a color of the selected channel.
Name	Shows the channel name configured in the channel name edit of the EQ server project in EQ-Manager.

- If the classification channel has been registered to the display target, its status appears in the Name field in the following format.  
 [Operating] Channel Name, [Waiting] Channel Name, [Stop] Channel Name

### 5.7.2.2. Configuration by View Target Visual Setting

(1) Clicking the [V-Axis 1] or [V-Axis 2] button displays the graph of the view target in the [Graph Visual Setting] screen.

The colors in the graph are the same as those in the graph colors of the main screen.



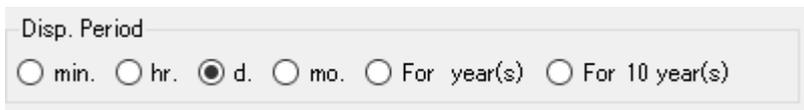
(2) After checking the respective view target in the graph list, selecting/clearing the check box of the view target name shows/hides the target graph.

(3) Click [OK] to refresh the graph view on the main screen based on the selected item.

### 5.7.3. Selecting View Period

You can switch between the periods for the horizontal axis (temporal axis) of a chart in the view period setting area.

Select from six types of view periods, minute/hour/day/month/year/10 years. Selecting an item refreshes the graph.

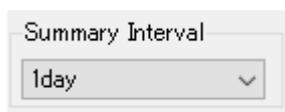


Shown below is a relation between view periods, graph horizontal scales, and displayed data:

Disp. Period	Horizontal Scale	Summary Interval
min.	for 1 minute	Do not summarize
hr.	for 1 hour	1 minute
d.	for 1 day	1 min/30 min/60 min (select one)
mo.	for 1 month	30 min/60 min/1 day (select one)
For year(s)	for 1 year	1 day/1 month (select one)
For 10 year(s)	for 10 years	1 month/1 year (select one)

#### 5.7.4. Selecting View Unit (Summary Interval)

To configure a summary interval to view on a graph, use the summary interval setting area.



Based on the view period specified in "5.7.3 Selecting View Period" (p.5-13), you can select from the following summary interval:

Disp. Period	Summary Interval Setting	Initial Value
min.	Do not summarize	Do not summarize
hr.	for 1 minute	for 1 minute
d.	1 min/30 min/1 hour	for 30 minutes
mo.	30 min/1 hour/1 day	for 1 day
for 1 year	1 day/1 month	for 1 month
for 10 years	1 month/1 year	for 1 year

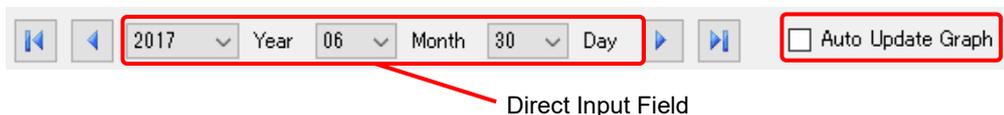
#### Precautions for Correct Use

- If you specify a summary interval shorter than a measurement cycle of a measurement device, the display appears so that data is provided for each measurement cycle.
- If a summary interval of ON/OFF values is larger than 1 minute, the value is an average one and indicates the operating rate.

### 5.7.5. Specifying View Date/Time & Auto-Updating Graph View

#### ● Specifying View Date/Time

Specify a date and time of data to view a graph in the date/time setting area. You can specify a date/time within a range of measurement periods of all channels. Consequently, if you changed a channel group, its graph cannot be displayed unless the range of measurement period of the channel group includes the specified date/time.



Shown below are the functions:

Button	Function
	Shows data with the oldest date and time among the periods of the channels.
	Specify data of the previous period by one, selected in the view period setting area.
Direct Input field	Directly specify a value of year/month/day/time by list selection.
	Specify data of the next period by one, selected in the view period setting area.
	Shows data with the latest date and time among the periods of the channels. Data of the current hour is displayed if the EQ server is collecting data.

#### ● Auto-Updating Graph View

To automatically update the graph view, select the [Auto-Update] check box. The graph view acquired from the EQ server is automatically updated every 60 seconds.

Check Box	Function
<input type="checkbox"/> Auto Update Graph	<p>If this check box is selected, data is acquired every 60 seconds from the EQ server that is logging data, and the graph view is automatically updated.</p> <p>Selecting this check box disables operations of the main screen, except for this check box itself and [Disp.] menu.</p> <p>This function is available only if the EQ server is logging data.</p>

#### Precautions for Correct Use

- If auto-update for the graph view is specified, the graph does not appear on the screen until the server acquires the data even after the view period has been switched. When a long measurement cycle is specified, the graph view may need a longer time. For example, it may take 12 to 13 minutes until a graph appears including the measurement delay time, for a channel of EQ100 measurement cycle of 10 minutes.

Based on the view period selected in "5.7.3 Selecting View Period" (p.5-13)", the view unit in the date/time setting area changes as shown below:

- View Period: Minutely



You can specify a year, month, day, hour, and minute directly, or the previous/next minute.

- View Period: Hourly



You can specify a year, month, day, and hour directly, or the previous/next hour.

- View Period: Daily



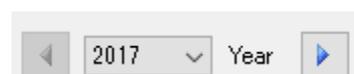
You can specify a year, month, and day directly, or the previous/next day.

- View Period: Monthly



You can specify a year and month directly, or the previous/next month.

- View Period: Yearly



You can specify a year directly, or the previous/next year.

- View Period: 10 years



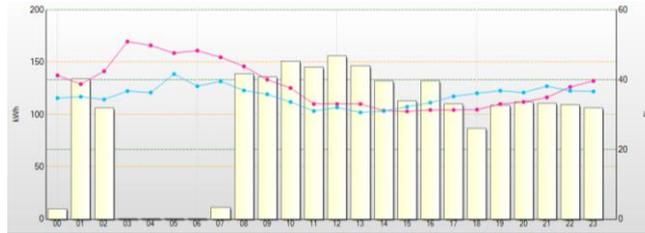
You can specify the year of the oldest data within 10 years directly, or the previous/next year.

### 5.7.6. Selecting Bar Graph Type

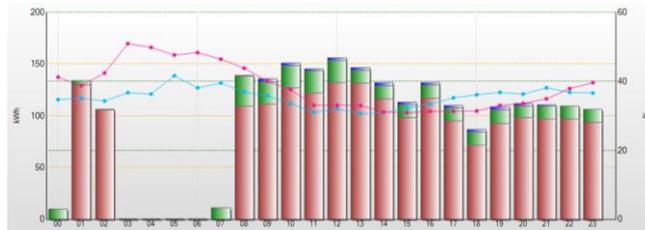
You can select a type of bar graph from four types in the graph type area, Sum/Stack/Parallel/Classified.



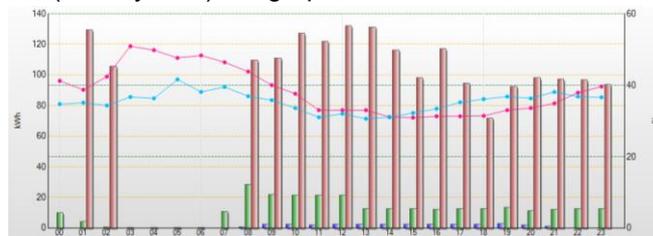
- Sum: A graph of total value of the selected channels is displayed.



- Stack: A stacked bar graph of the selected channels with different colors is displayed.



- Parallel: A parallel (side-by-side) bar graph of the selected channels is displayed.



- Classified: A graph of electric energy of the selected channels is displayed, with classified in three statuses (3-STATE) [Operating](High), [Waiting](Middle), and [Stopped](Low) as well as [Classification Unavailable], in this sequence from the top.



The classified graph can be displayed if the channel or channel group to view contains "3-STATE energy" data. Multiple 3-STATE channels are displayed by compiling for each 3-STATE data.

### Precautions for Correct Use

The channel is displayed in gray if a channel of electric energy is included that does not contain "3-STATE" information if you selected a classified graph. (Classification unavailable)

#### Reference

- Switching between graph types does not change the graph of data that cannot be integrated, such as temperature, particle, and electric current.
- Even if you specify the bar graph for the data that cannot be integrated such as temperature, particle, and electric current, the data is always displayed as grouped graph.

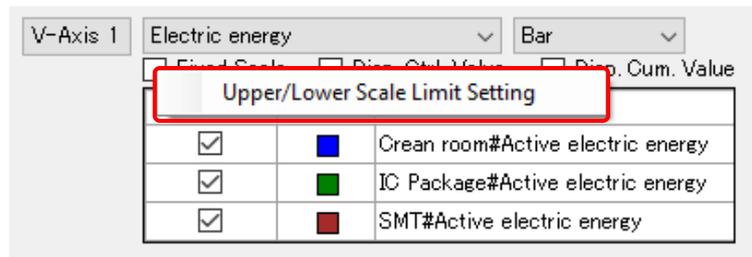
### 5.7.7. Selecting/Clearing Fixed Scale

In the [Fixed Scale] check box of the data type setting area, select whether the scale for the axes should be automatically changed based on the viewing data or fix the scale with specified upper and lower limits.

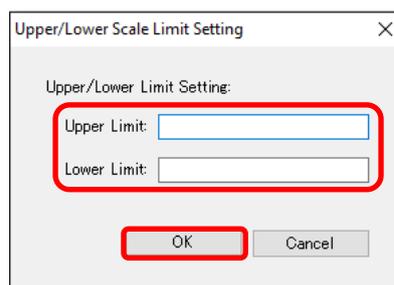
To continuously switch the date/time or to show/hide channels, fix the scale for relative recognition of value sizes.

#### ■ Fixed Scale

(1) Right-click on the [Fixed Scale] check box, and click [Scale Upper/Lower Limit Setting].



(2) In the [Upper/Lower Scale Limit Setting] dialog box, enter the upper and lower limits, and click [OK].



The [Fixed Scale] check box is selected. From now on the graph is displayed in the scale fixed with the specified upper and lower limits.

**Precautions for Correct Use**

- Only the power of 10 is valid for the graph scale of the target channel of the logarithm view.
- Be sure set the scale upper/lower limit such that the measured data value does not exceed the value range specified in the upper/lower limit.
- The scale-fixed upper/lower limit value is retained even if the display period is changed. Change the upper/lower limit value if the measured data value exceeds the range of the upper/lower limit value.

■ Clearing Fixed Scale

Clearing the [Fixed Scale] check box allows flexible scaling.

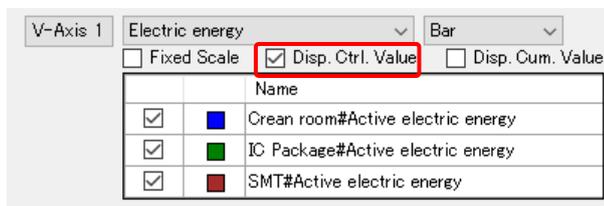
**5.7.8. Enabling/Disabling Control Value Display**

Viewing control values makes it easier for a user to notice data exceeding the control values and quickly understand an occurrence of an error.

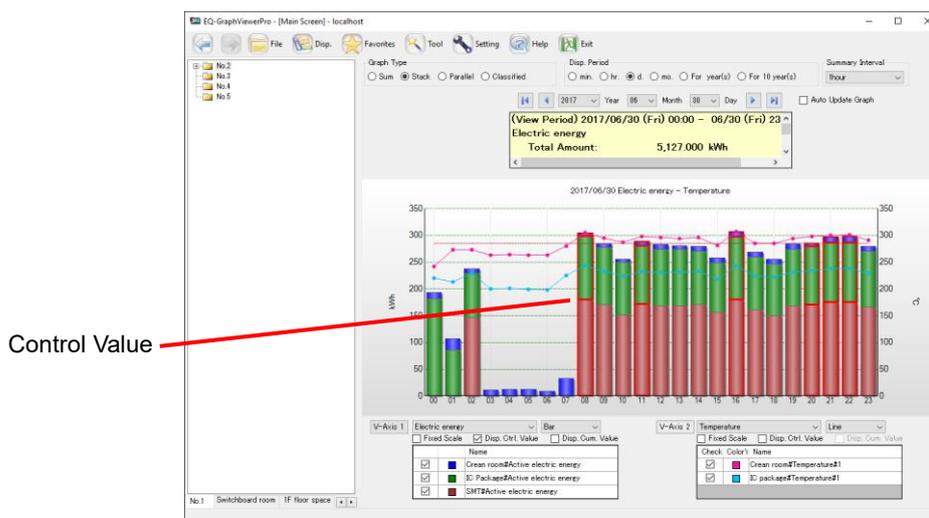
The control value is displayed in broken lines with the same color of the data of line graph. The color can be fixed to a single color (red) with the setting.

■ Viewing Control Value

(1) Select the [Disp. Ctrl. Value] check box.



(2) The graph shows the control values.



**Precautions for Correct Use**

- For the channel of ON/OFF data type, [Disp. Ctrl. Value] cannot be enabled.

■ Disabling Control Value View

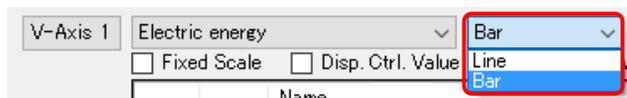
Clear the [Disp. Ctrl. Value] check box.

**Reference**

- A control value is specified in EQ-Manager. For details, see "4.8.4.1 EQ Server Control Value Setting" (p.4-134).
- If no control value has been configured, selecting the [Disp. Ctrl. Value] check box does not change the view.

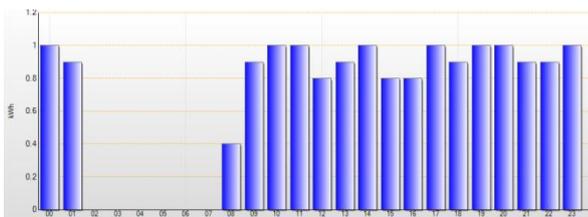
### 5.7.9. Changing Graph

#### ■ Switching Graph View (Bar Graph/Line Graph)



You can switch between bar graph and line graph view by the graph view switching operation. Whether the view should be in a bar graph or a line graph is determined by default based on the data type. The default setting can be changed by EQ-Manager.

Selecting [Bar]



Selecting [Line]



#### Precautions for Correct Use

As a line graph cannot display stacked data, selecting a line graph with stack/classified setting for integrated values such as electric energy or integrated flow rate results in the same line graph as that of sum.

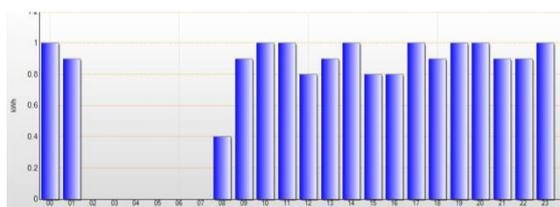
#### ■ Display Cumulative



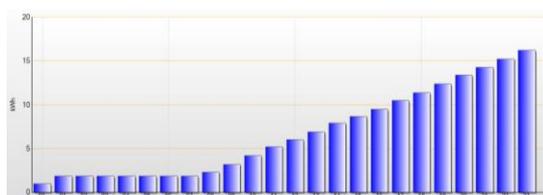
Selecting the [Disp. Cum. Value] check box shows the cumulative value view.

You can view cumulative values only for integrated data such as electric energy and integrated flow rate.

Disp. Cum. Value

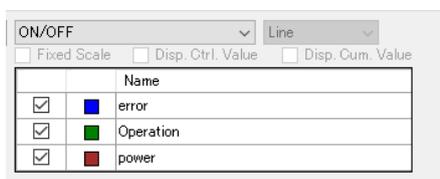


Disp. Cum. Value



■ ON/OFF Graph View

A graph of data type of ON/OFF is displayed while being shifted for easier view. A bar graph cannot be selected for a graph type.

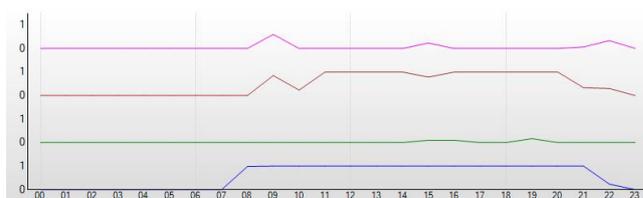


If a summary interval of ON/OFF values is larger than 1 minute, the value is an average one and indicates the operating rate.

Summary Interval: 1 minute



Summary Interval: 1 hour



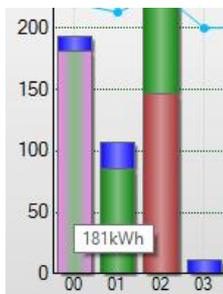
### 5.7.10. Operating Graph

The graph view area displays a graph based on the setting in the main screen displayed after the startup.

You can perform the following operations in the graph view area:

#### ■ Viewing Bar Graph Data

Moving the mouse cursor over a bar graph changes the graph color and displays the graph data.



#### ■ Changing View Period Down by 1 Level

Double-clicking a bar graph changes the view period of the graph down by 1 level (e.g. from year to month and from month to day).

For example, double-clicking a bar graph of November with its view period as [y.] changes the view period to [mo.], showing a graph from November 1st to 30th.

If the view period setting is [min.], no change occurs.

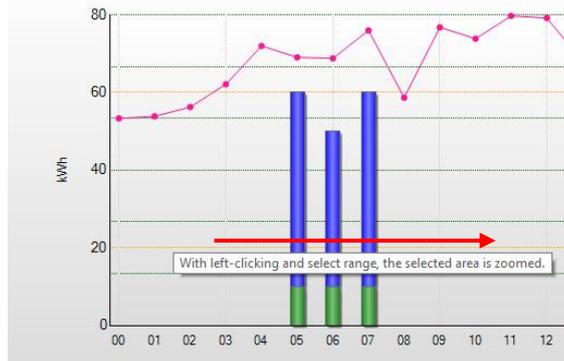
Depending on the summary interval setting, operations by double-clicking differ based on a graph summary method as shown below

Summary Interval	Graph Summary Method	Operation upon Double-Clicking
Do not summarize	Shows all Instantaneous values.	Nothing happens
1 minute	If set to "00", a summary value of 00 min 00 sec or more and less than 01 min 00 is displayed.	View Period: Changes to "min." Summary Interval: Changes to "Do not summarize" Date/Time Setting: Changes to the clicked minute
30 minutes	If set to "0", a summary value of 0 hour 00 min 00 sec or more and less than 0 hour 30 min 00 sec is displayed. If set to "30", a summary value of 0 hour 30 min 00 sec or more and less than 1 hour 00 min 00 sec is displayed.	View Period: Changes to "hr." Summary Interval: Changes to "for 1 minute" Date/Time Setting: Changes to the clicked hour
1 hour	If set to "0", a summary value of 0 hour 00 min 00 sec or more and less than 1 hour 00 min 00 sec is displayed.	View Period: Changes to "hr." Summary Interval: Changes to "for 1 minute" Date/Time Setting: Changes to the clicked hour
1 day	If set to "1", a summary value of 0 hour 00 min 00 sec or more of one day and less than 0 hour 00 min 00 sec of the next day is displayed.	View Period: Changes to "d." Summary Interval: Changes to "for 30 minute" Date/Time Setting: Changes to the clicked day
1 month	If set to "1", a summary value of 0 hour 00 min 00 sec or more of the 1st day of a month and less than 0 hour 00 min 00 sec of the 1st day of the next month is displayed.	View Period: Changes to "mo." Summary Interval: Changes to "for 1 day" Date/Time Setting: Changes to the clicked month

Summary Interval	Graph Summary Method	Operation upon Double-Clicking
1 year	If set to "2011", a summary value of 0 hour 00 min 00 sec or more of January 1st of a year and less than 0 hour 00 min 00 sec of January 1st of the next year is displayed.	View Period: Changes to "y." Summary Interval: Changes to "for 1 month" Date/Time Setting: Changes to the clicked year

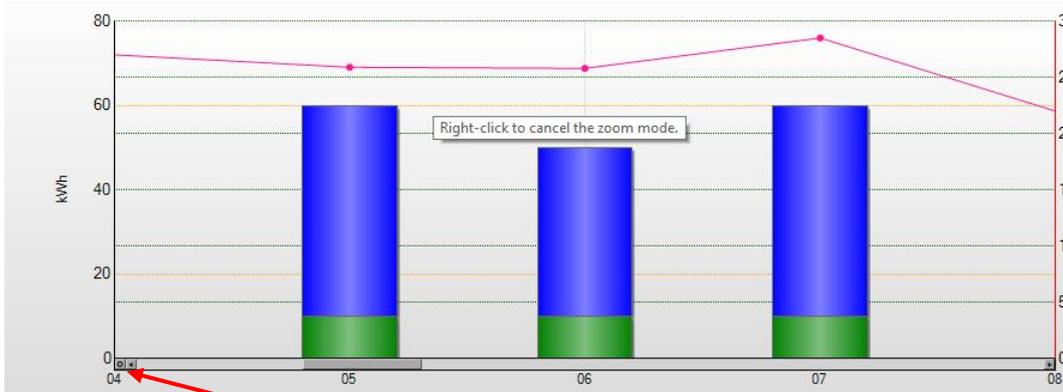
**■ Zooming Graph**

When you move the mouse cursor to a place in the graph area other than the graph and select a range while clicking and holding the left mouse button (for example drag to the red arrow direction as shown below), the graph in the selected range is zoomed in.



**■ Zooming-Off Graph**

While the graph is being zoomed in, either of right-clicking, clicking the left-end button on the graph scroll bar, or changing the view setting recovers the normal view.



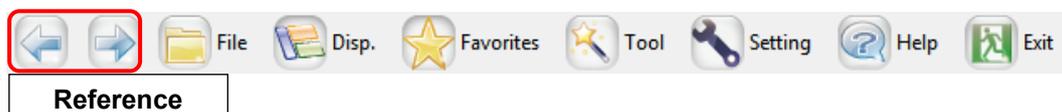
 Clicking here returns the normal view.

You cannot zoom off a graph view smaller than the default status of the view period and summary interval.

While a graph is being zoomed in, the scroll bar appears under the graph area which allows a user to scroll the graph to the left and right.

**5.7.11. Switching Screens in View History Sequence ([Back] and [Forward] Buttons)**

You can switch between screens in the view history sequence by the [Back] and [Forward] buttons on the left of the toolbar.

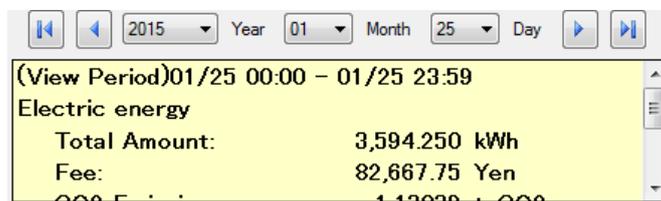


- The screen history keeps up to 16 screens to switch.

## 5.8. Summary Area View

In the summary area, summary values of data being displayed appear.

Clicking [Disp.] - [Disp. Summary Area] can show/hide the summary area.



Shown below are items on the view:

Display Item	Details
Summary Period	Shows the target period of summary being displayed.
Data Name	For channels that handle energy data, "data type name" is displayed that contains all channels. For other channels, "channel name" is displayed.
Total Amount	Shows the total value of the graph data. This item is displayed only for a channel that handles energy data.
Fee	Shows a value of total amount multiplied by the fee conversion factor configured in the [Data Type Setting] screen (see "4.8.4.2 EQ Server Data Type Setting" (p.4-138)) of EQ-Manager. This item is displayed only for a channel that handles energy data.
CO <sub>2</sub> Emissions	Shows a value of total amount multiplied by the CO <sub>2</sub> conversion factor configured in the [Data Type Setting] screen (see "4.8.4.2 EQ Server Data Type Setting" (p.4-138)) of EQ-Manager. This item is displayed only for a channel that handles energy data.
Ave.	Shows an average value of summary values for respective period specified in the summary interval.
Max.	Shows the maximum value of summary values for respective period specified in the summary interval.
Min.	Shows the minimum value of summary values for respective period specified in the summary interval.

\* You can change the number of decimal places for Sum, Charge, and CO<sub>2</sub> Emission on the setting dialog box.

## 5.9. Displaying Missing Value

If a missing value occurred due to power interruption of the power monitor, summary for a long period of time such as 1 month and 1 year, the summary value will be less than the actual value. To recognize such a missing value, "x" mark appears on the graph.

<Missing Value Display Condition>

The "x" mark appears if the graph type is "sum" or if the following conditions are met in case of a bar graph and a line graph. It does not appear if the graph type is stack, parallel, or classified.

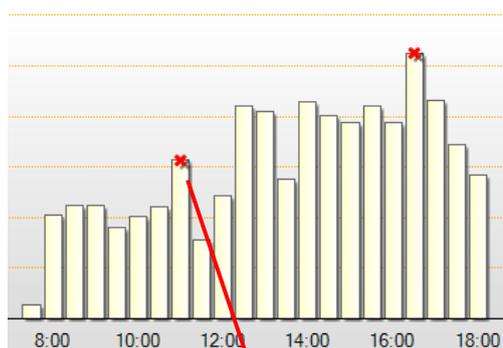
- Data Type Viewed in Bar Graph (Energy Data)

The mark appears if multiple channels are selected and if a channel of a measurement device that EQ100 could not measure is included.

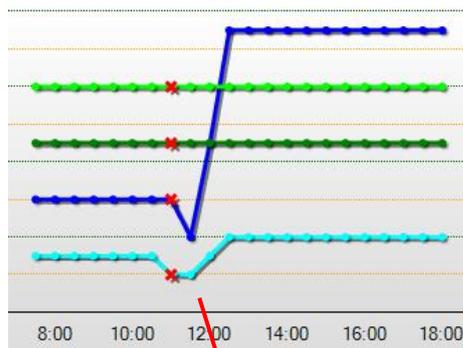
- Data Type Viewed in Line Graph (Other than Energy Data)

The mark appears if the summary interval is 30 minutes or longer and if data for calculation of average/maximum/minimum includes data that EQ100 could not measure.

To view the missing value, select the [Missing Value] check box in the view setting of "5.11.5 Setting" (p5-46.).



A missing value is indicated as "x"



A missing value is indicated as "x"

### Precautions for Correct Use

- When the conditions of both the missing value indication (x) and highlighting (◆) when exceeding the control value display are satisfied in the line graph, indication priority is given to the highlighting (◆).
- The missing value mark (x) is not displayed when the cumulative value is displayed.

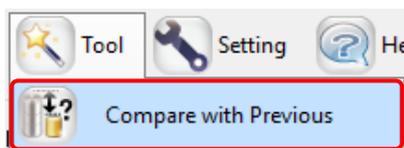
## 5.10. Viewing Comparison Graph

You can use EQ-GraphViewer to compare summary data being displayed (source) on the main screen and summary data of another date/time (target).

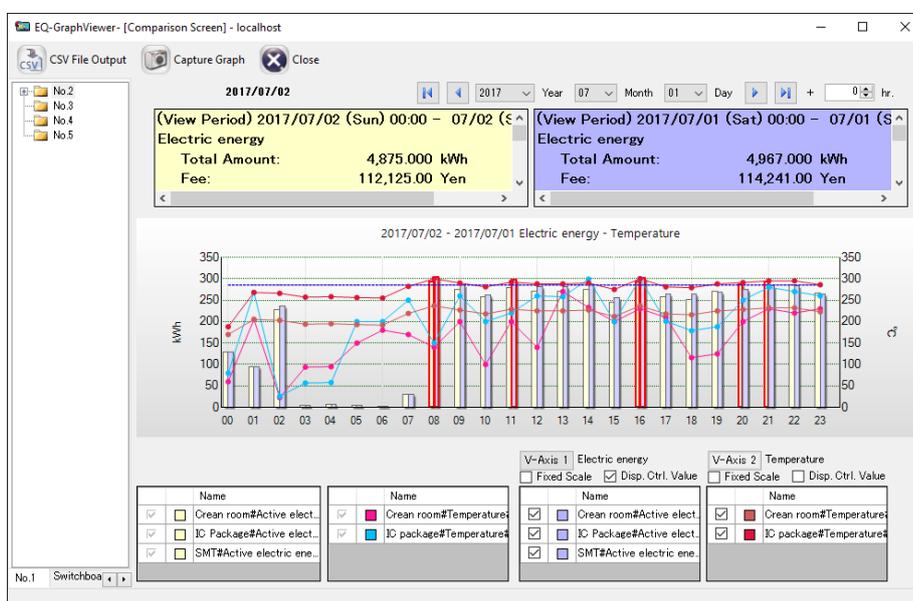
### 5.10.1. Opening Comparison Screen

Shown below are steps to open the comparison screen.

- (1) On the toolbar of the main screen, click [Tool] - [Compare with Previous].



- (2) A new comparison screen appears with the summary data being displayed on the main screen as the source and the past summary data as the target.



To the view setting for the comparison screen (view period, summary interval, data type, fixed scale), applied is the view setting on the main screen when [Compare with Previous] is selected.

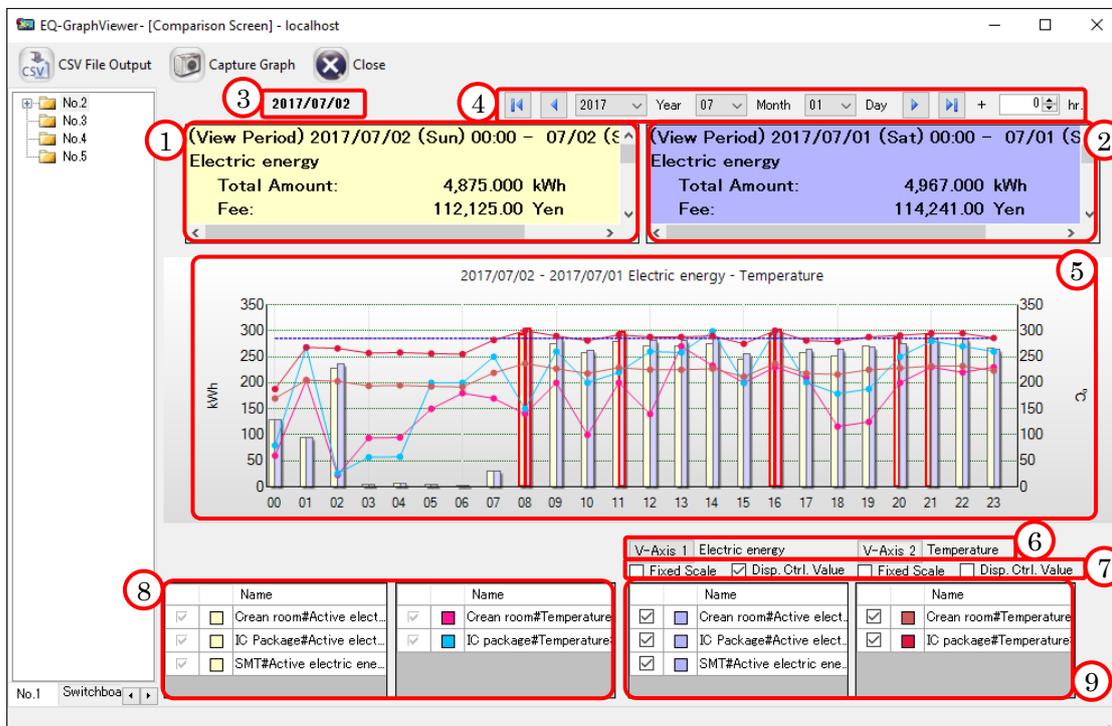
### Precautions for Correct Use

The comparison screen of integrated data such as electric energy and integrated flow rate shows the sum graph for the graph type as sum, stack and classified, or parallel graph for the graph type as paralleled.

### 5.10.2. Description of Comparison Screen

On this screen you can compare data being displayed (source) and data of another date/time (target).

It consists of the following areas: The source summary data view area on the left, and the target summary and view target setting area.



No.	Item	Description
1	Source Summary Area	Shows the summary of the source graph to draw in the graph area.
2	Target Summary Area	Shows the summary of the target graph to draw in the graph area.
3	Source Date/Time View Area	Shows the date and time of the source graph to draw in the graph area.
4	Target Date/Time Setting Area	Specify a date & time of the target graph to draw in the graph area.
5	Graph Area	Shows the source and target summary graphs based on the following settings. - If the data type selected in the data type setting function on the main screen is not included in the target data, the target graph is not displayed. - The graph type of the integrated data in the comparison screen is always the sum graph.
6	Data Type View Area	Shows the data type to draw in the graph area. The data type viewed in the main screen is displayed as it is.
7	Fixed Scale check box Disp. Ctrl. Value check box	In the [Fixed Scale] check box, select if the scale should be automatically changed based on data or fixed to the current one for vertical axes 1 and 2. Select or clear the [Disp. Ctrl. Value] check box to show/hide control values on the graph.
8	Source Data View Area	Shows availability of data on the graph area to draw for the source data.
9	Target View Setting Area	Shows availability of data on the graph area to draw for the target data.

### 5.10.2.1. Viewing Comparison Source

As the comparison source data, displayed is the source summary data being viewed on the main screen upon startup of the comparison screen.

You cannot change the view conditions in the comparison screen. To change the conditions, go back to the main screen and display the comparison screen again.

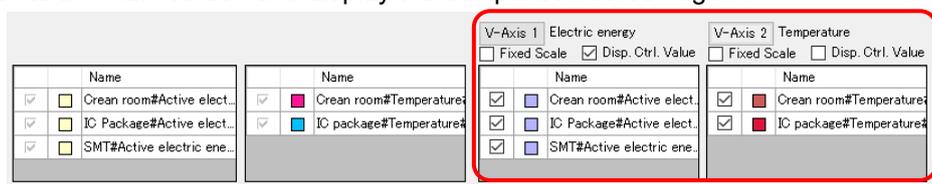


You cannot change the view conditions of the comparison source.

### 5.10.2.2. Selecting Comparison Target

Configure the view condition of the different summary data as the target. Operation steps are the same as those for the view condition setting in the main screen.

In the comparison screen you cannot switch graph types and view period. To change these, go back to the main screen and display the comparison screen again.

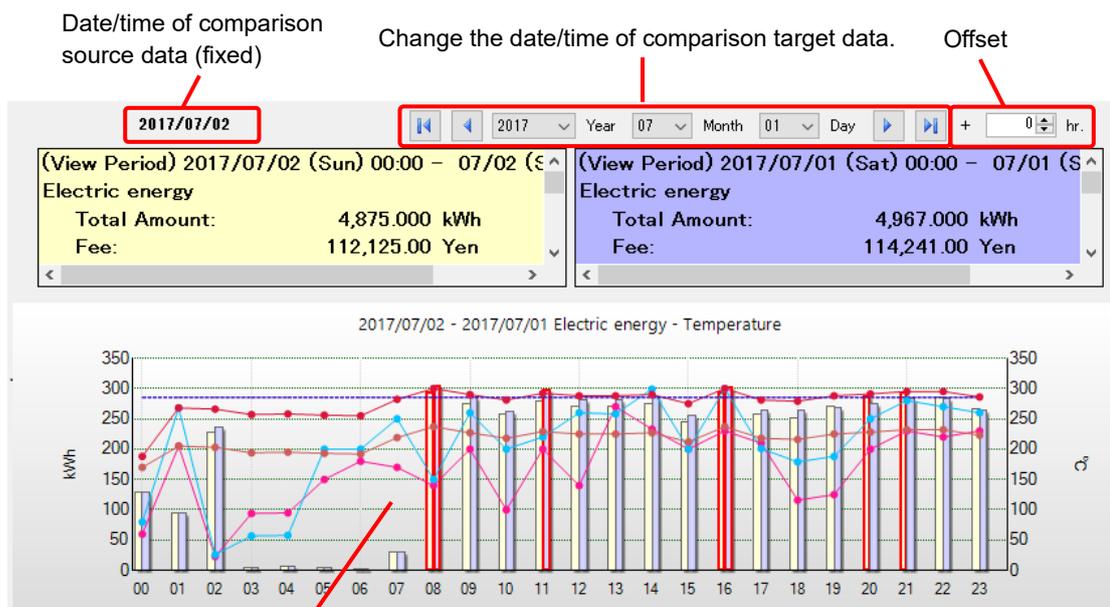


Configure the view conditions of comparison target data.

### 5.10.2.3. Changing Comparison Target Period

In the date time setting on the comparison screen, you can configure the view date/time of the comparison target data.

Upon clicking the [Compare with Previous] button, the date/time of the comparison source data being viewed on the main screen is displayed. You cannot change this item.



The source and target comparison data are viewed in the graph.

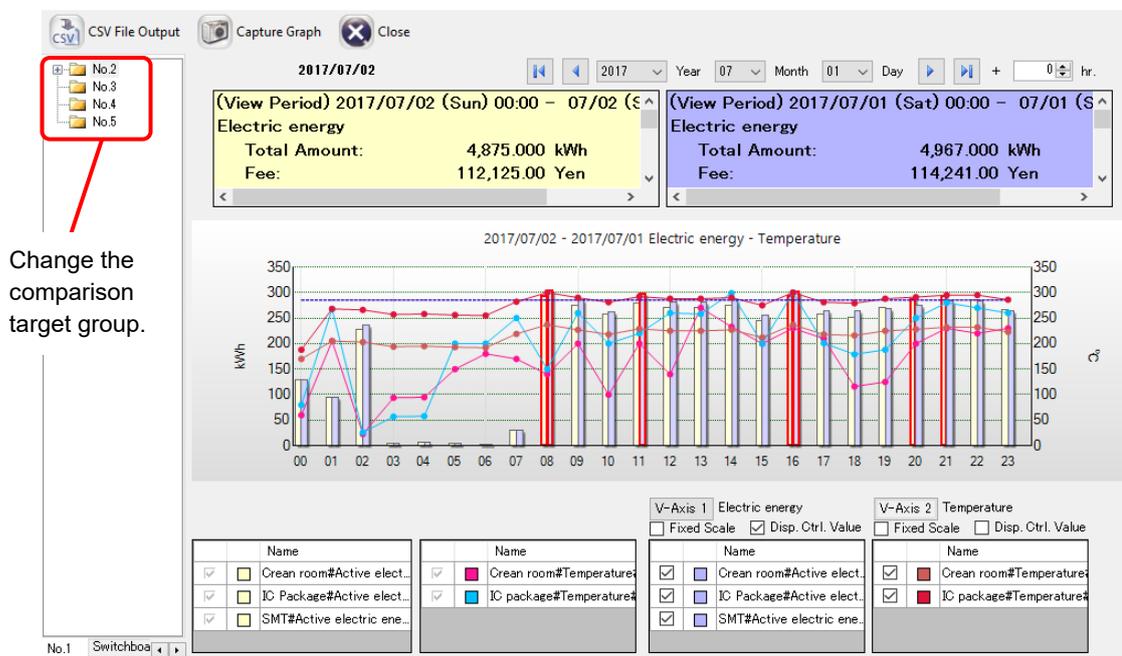
**Precautions for  
Correct Use**

For the ON/OFF channel, the source and target comparison data are associated from top to bottom in the selection list. Clearing the check box results in the source and target data not associated properly.

### 5.10.2.4. Changing Comparison Target Group

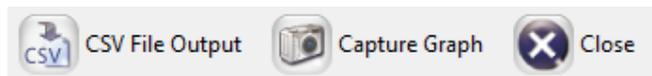
You can change the comparison target group. Selecting a group in the channel tree area switches the graph view with the group set as the comparison target.

The comparison source data is kept as it is while the channel group being selected upon clicking the [Compare with Previous] button at being selected.



### 5.10.3. Comparison Screen Toolbar Functions

Assignment of some functions in the comparison screen toolbar is different from that in the main screen toolbar.



Clicking a toolbar icon executes its function as shown below.

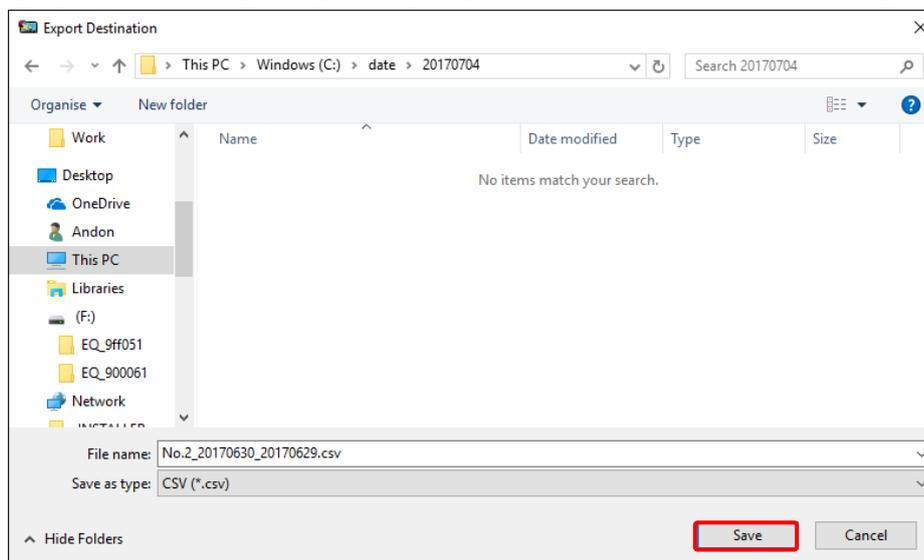
Icon	Function
CSV File Output	Outputs a CSV file in a summary data format.
Capture Graph	Copies the graph image being displayed to the clipboard.
Close	Closes the comparison screen and goes back to the main screen.

#### 5.10.4. CSV Output of Comparison Screen

You can output data of period and channel displayed on the comparison screen in a CSV file in the summary data format.

(1) On the toolbar, click [CSV File Output].

(2) In the [Export Destination] dialog box, specify the destination to save, and click [Save].

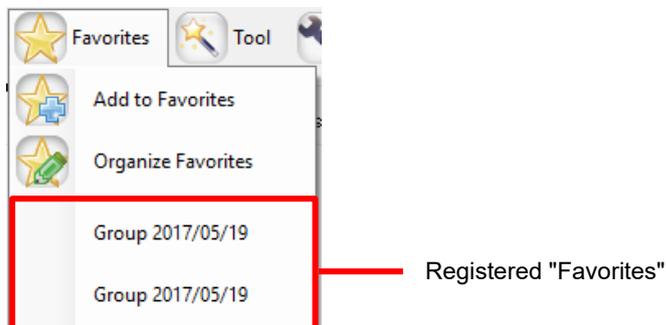


For output CSV file format, see "5.12.4 CSV Output File Format on Comparison Screen" (p.5-54).

## 5.11. Other Operations

### 5.11.1. Registering Favorites Screen

You can register displayed data of a channel you want to check later as a "Favorite". The registered data is listed in the [Favorites] menu, clicking which allows browsing of the data.

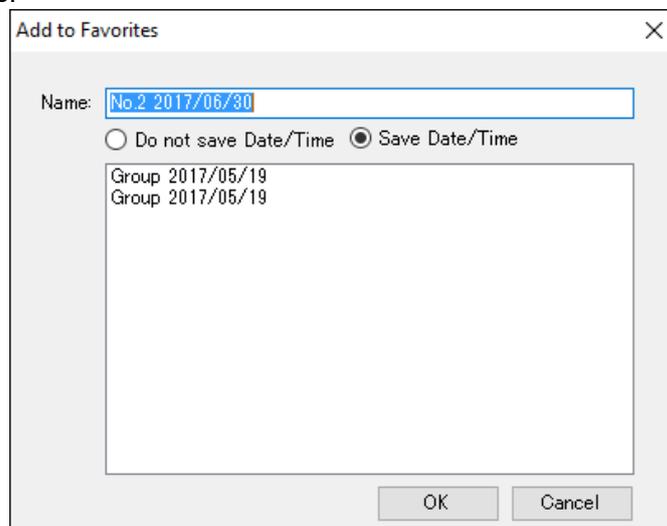


#### Reference

- Data of the channel registered in "Favorites" is saved in the local computer. You cannot share the Favorites with other users.

#### 5.11.1.1. Adding to Favorites

(1) In the [Favorites] menu, click [Add to Favorites]. The following [Add to Favorites] dialog box appears.



(2) In the [Name] field, enter a name of the favorite. In the field the channel group name being displayed and the set value of the date/time setting area are already displayed.

If you select [Do not save Date/Time], the information in the date/time area is not saved. When the favorite is displayed next time, a graph is displayed with the date and time of the display.

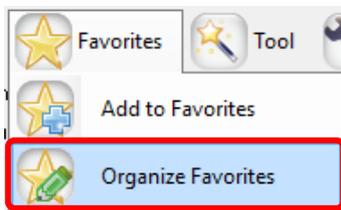
If you select [Save Date/Time], the information in the date/time area is saved. When the favorite is displayed next time, a graph is displayed with the saved date and time.

(3) Clicking [OK] adds the favorite with the specified name in the last row of the Favorites menu.

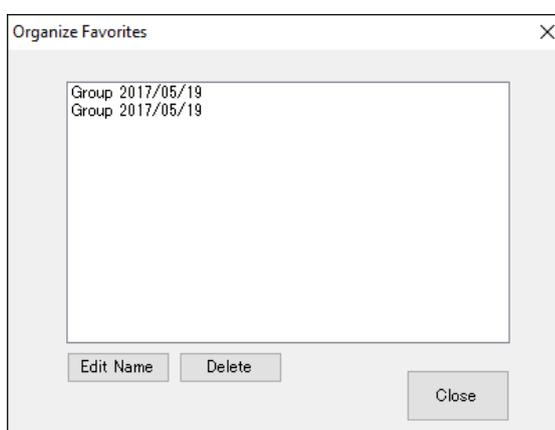
### 5.11.1.2. Organizing Favorites

In the Favorites management screen, you can change or delete names of registered favorites.

(1) In the [Favorites] menu, click [Organize Favorites].



(2) The [Organize Favorites] dialog box shown below appears.



(3) To change a favorite, select the favorite and click [Edit Name] to enter a new name to register.

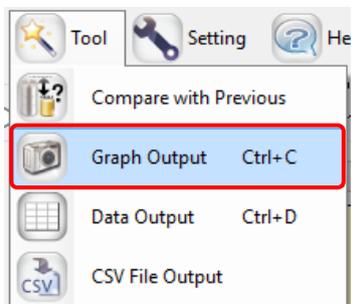
To delete a favorite, select the favorite and click [Delete].

(4) Click [Close].

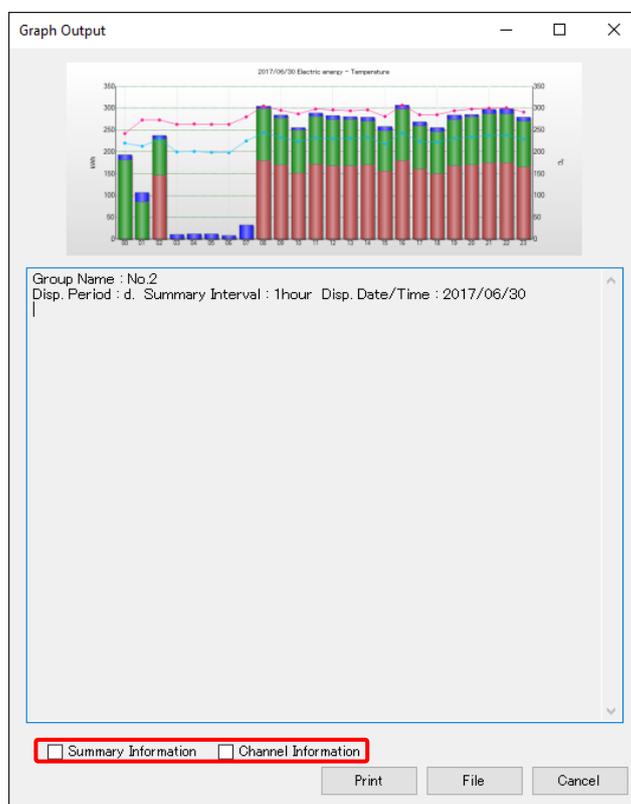
### 5.11.2. Graph Output

On EQ-GraphViewer you can output the displayed graph and other information to a file or a printer.

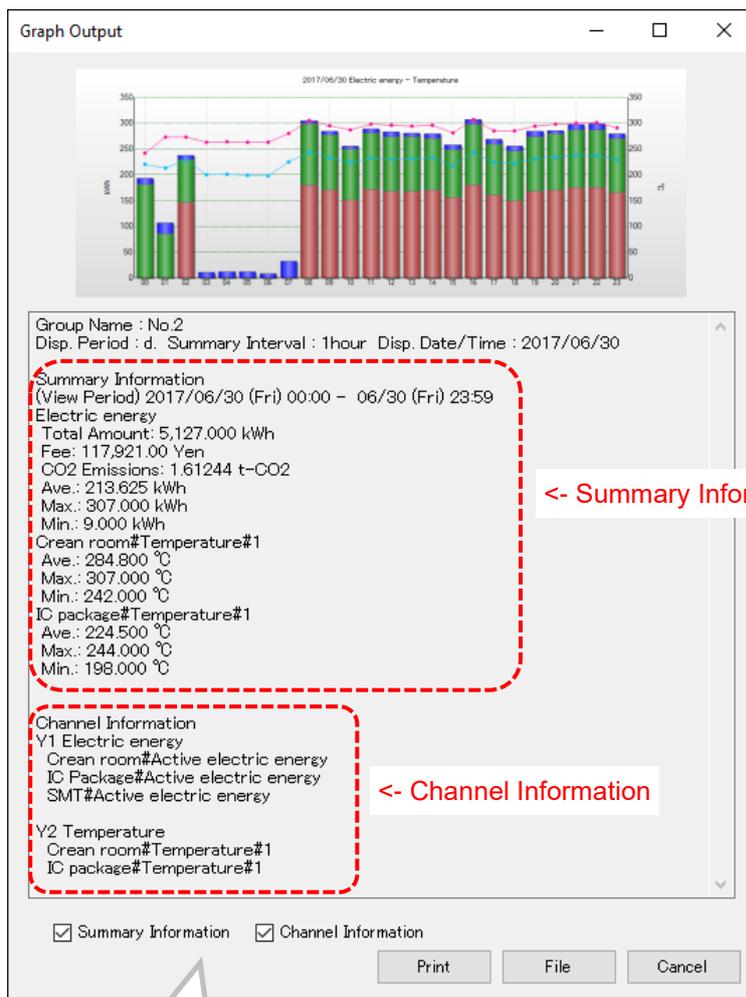
(1) Display a graph you want to output. On the toolbar, click [Tool] - [Graph Output].



(2) The following screen appears.

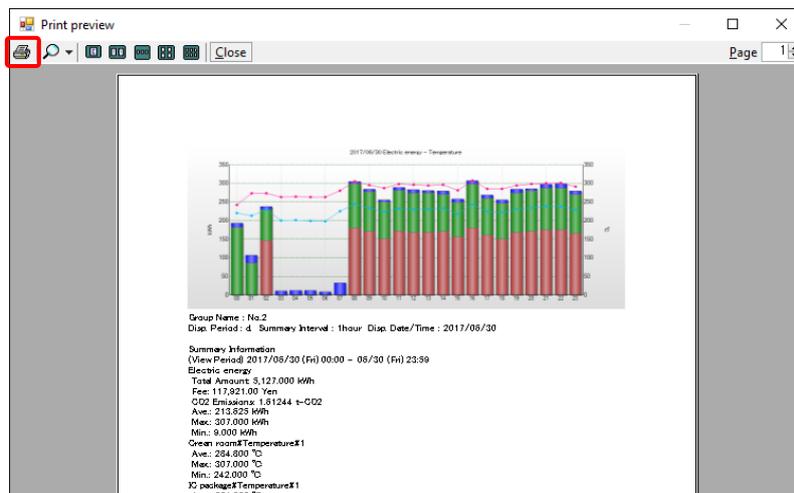


Selecting the check boxes of summary information and channel information displays the information on the screen.



■ Print

Clicking the [Print] button  displays the [Print Preview] screen.



Click the print button  on the top left of the print preview screen. In the confirmation dialog box, click [Print].

Print

General

Select Printer

- Fax
- Microsoft Print to PDF
- Microsoft XPS Document Writer

Status: Ready  Print to file

Location:

Comment:

Page Range

All  Selection  Current Page

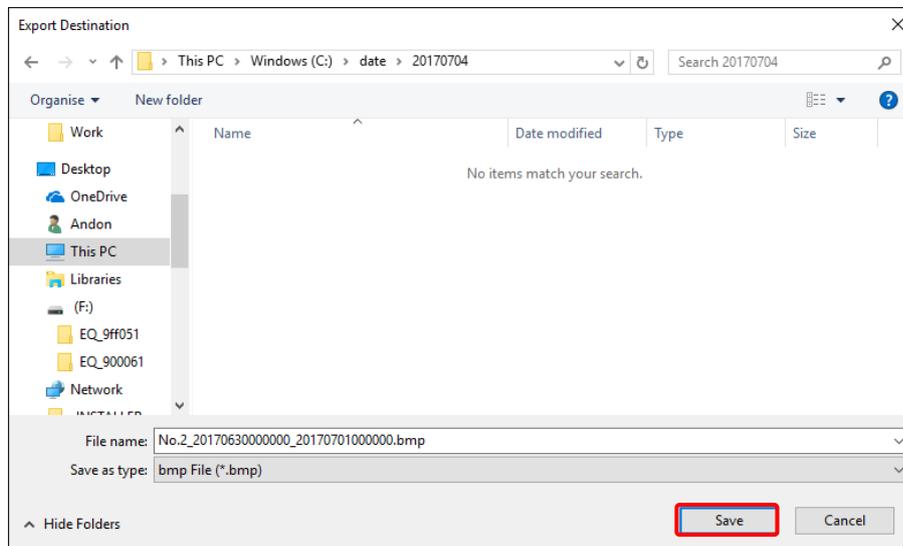
Pages:

Number of copies: 1

Collate

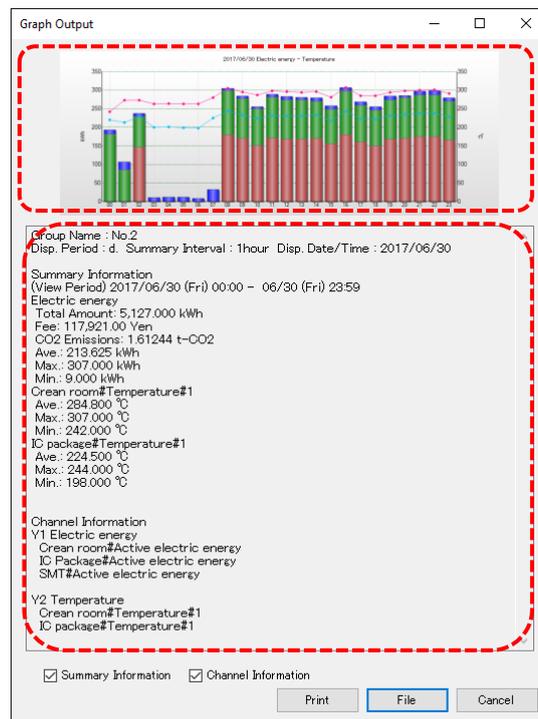
■ File Output

Clicking the [File] button  enables to save the same image as the print image as an image file.

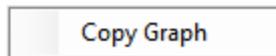


Input the file name, and click [Save].

■ Copy to Clip Board



<- Graph Area



<- Text Area

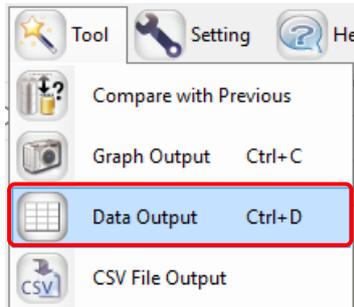


Right-clicking the mouse on the graph area or the text area above to select the menu enables to copy the graph data and the text data to a clipboard, to use them in the other application.

### 5.11.3. Data Output

On EQ-GraphViewer you can check and save the data of the displayed graph to a file.

(1) Display a graph you want to output. On the toolbar, click [Tool] - [Data Output].



(2) The following data output screen appears.

Data Output  
 Group Name : No.2  
 Disp. Period : d. Summary Interval : 1hour Disp. Date/Time : 2017/06/30

Date/Time	Creen room#Active electric energy	IC Package#Active electric energy
00:00	12.000	181.000
01:00	22.000	85.000
02:00	9.000	82.000
03:00	11.000	0.000
04:00	12.000	0.000
05:00	12.000	0.000
06:00	9.000	0.000
07:00	33.000	0.000
08:00	7.000	118.000
09:00	7.000	107.000
10:00	7.000	98.000
11:00	8.000	109.000
12:00	10.000	105.000
13:00	8.000	105.000
14:00	9.000	100.000
15:00	10.000	92.000
16:00	10.000	117.000
17:00	10.000	98.000
18:00	10.000	96.000
19:00	10.000	106.000
20:00	7.000	108.000
21:00	10.000	112.000
22:00	11.000	112.000
23:00	10.000	104.000
Sum	264.000	2035.000
Ave.	11.000	84.792
Max.	33.000	181.000
Min.	7.000	0.000
Unit	kWh	kWh
Data Type	Electric energy	Electric energy

Selected Channel Only

Date of Measurement

Data Information

Channel Name

Measured Data

Total Value of Data (integrated data only)

Average Value of Data

Max. Value

Min. Value

Unit

Data Type

A list of data selected in the main screen appears.

Clearing the [Selected Channel Only] check box shows the entire data of the selected group.

Data Output

Group Name : No.2  
 Disp. Period : d. Summary Interval : 1hour Disp. Date/Time : 2017/06/30

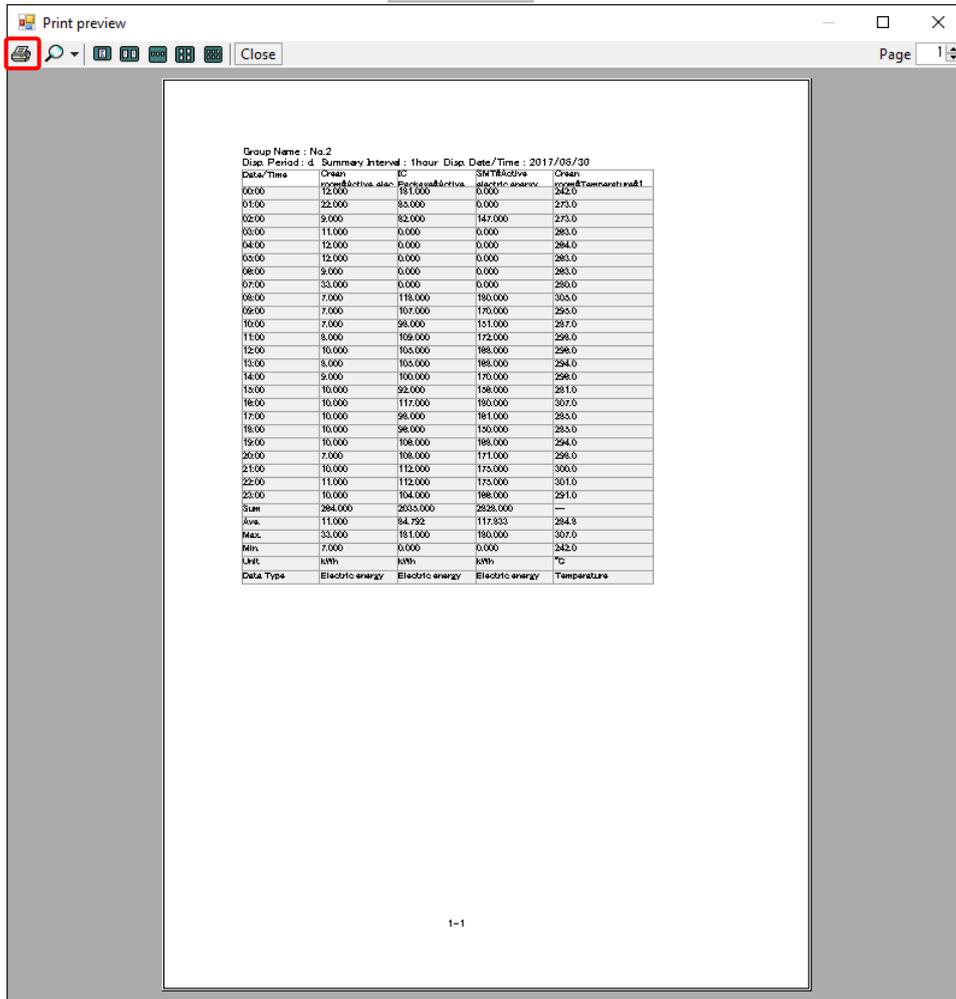
Date/Time	Crean room#Active electric energy	IC Package#Active electric energy	SMT#Active electric energy	Crean room#Temperature#1	IC package#Temperature#1
00:00	12.000	181.000	0.000	242.0	220.0
01:00	22.000	85.000	0.000	273.0	213.0
02:00	9.000	82.000	147.000	273.0	229.0
03:00	11.000	0.000	0.000	263.0	200.0
04:00	12.000	0.000	0.000	264.0	201.0
05:00	12.000	0.000	0.000	263.0	199.0
06:00	9.000	0.000	0.000	263.0	198.0
07:00	33.000	0.000	0.000	280.0	225.0
08:00	7.000	118.000	180.000	305.0	244.0
09:00	7.000	107.000	170.000	295.0	233.0
10:00	7.000	98.000	151.000	287.0	224.0
11:00	8.000	109.000	172.000	298.0	232.0
12:00	10.000	105.000	168.000	296.0	230.0
13:00	8.000	105.000	168.000	294.0	231.0
14:00	9.000	100.000	170.000	296.0	233.0
15:00	10.000	92.000	156.000	281.0	218.0
16:00	10.000	117.000	180.000	307.0	243.0
17:00	10.000	98.000	161.000	285.0	224.0
18:00	10.000	96.000	150.000	285.0	222.0
19:00	10.000	106.000	168.000	294.0	231.0
20:00	7.000	108.000	171.000	298.0	234.0
21:00	10.000	112.000	175.000	300.0	238.0
22:00	11.000	112.000	175.000	301.0	238.0
23:00	10.000	104.000	166.000	291.0	229.0
Sum	264.000	2035.000	2828.000	--	--
Ave.	11.000	84.792	117.833	284.8	224.5
Max.	33.000	181.000	180.000	307.0	244.0
Min.	7.000	0.000	0.000	242.0	198.0
Unit	kWh	kWh	kWh	°C	°C
Data Type	Electric energy	Electric energy	Electric energy	Temperature	Temperature

Selected Channel Only

Print File Cancel

■ Print

Clicking the [Print] button  displays the [Print preview] screen.

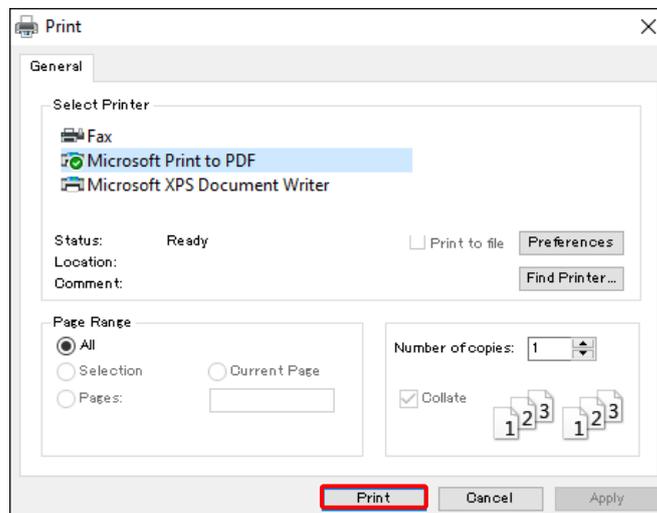


Print preview window showing a data table. The table has the following structure:

Date/Time	Crean	IC	SWT	Active	Crean
00:00	12.000	151.000	0.000	242.0	242.0
01:00	22.000	83.000	0.000	273.0	273.0
02:00	9.000	82.000	147.000	273.0	273.0
03:00	11.000	0.000	0.000	283.0	283.0
04:00	12.000	0.000	0.000	284.0	284.0
05:00	12.000	0.000	0.000	283.0	283.0
06:00	9.000	0.000	0.000	283.0	283.0
07:00	33.000	0.000	0.000	280.0	280.0
08:00	7.000	118.000	180.000	303.0	303.0
09:00	7.000	107.000	170.000	295.0	295.0
10:00	7.000	98.000	151.000	297.0	297.0
11:00	8.000	109.000	172.000	298.0	298.0
12:00	10.000	105.000	188.000	298.0	298.0
13:00	8.000	105.000	188.000	294.0	294.0
14:00	9.000	100.000	170.000	298.0	298.0
15:00	10.000	92.000	158.000	287.0	287.0
16:00	10.000	117.000	180.000	307.0	307.0
17:00	10.000	95.000	181.000	285.0	285.0
18:00	10.000	98.000	150.000	283.0	283.0
19:00	10.000	108.000	188.000	294.0	294.0
20:00	7.000	108.000	171.000	298.0	298.0
21:00	10.000	112.000	173.000	300.0	300.0
22:00	11.000	112.000	173.000	301.0	301.0
23:00	10.000	104.000	188.000	291.0	291.0
Sum	284.000	2033.000	2828.000	—	—
Ava.	11.000	84.792	117.833	284.8	284.8
Max.	33.000	181.000	180.000	307.0	307.0
Min.	7.000	0.000	0.000	242.0	242.0
LHR	kWh	kWh	kWh	°C	°C
Data Type	Electric energy	Electric energy	Electric energy	Temperature	Temperature

A table may consist of multiple pages. Before printing a table, use Preview to check.

Click the print button  on the top left. In the confirmation dialog box, click [Print].

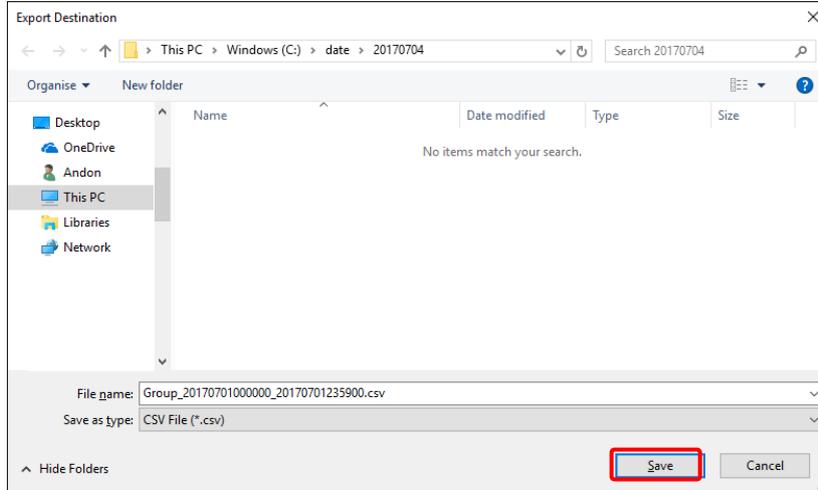


Print dialog box (General tab) showing printer selection and options:

- Select Printer: Microsoft Print to PDF
- Status: Ready
- Page Range: All
- Number of copies: 1
- Collate:
- Buttons: Print, Cancel, Apply

■ File Output

Clicking the [File] button  saves the data of the graph in a CSV file.



Input the file name, and click the [Save] button. The data displayed on the screen is output in the format as it is, separated by commas.

■ Copy to a clipboard

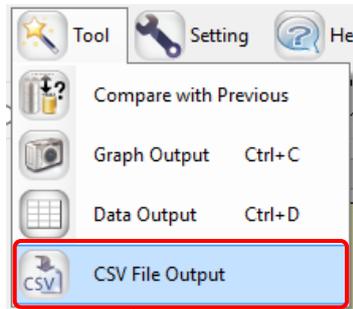
Date/Time	Cream room#Active electric energy	IC Package#Active electric energy	SMT#Active electric energy	Cream room#Temperature#1	IC package#Temperature#1
00:00	12.000	181.000	0.000	242.0	220.0
01:00	22.000	85.000	0.000	273.0	213.0
02:00	9.000	82.000	147.000	273.0	229.0
03:00	11.000	0.000	0.000	263.0	200.0
04:00	12.000	0.000	0.000	264.0	201.0
05:00	12.000	0.000	0.000	263.0	199.0
06:00	9.000	0.000	0.000	263.0	198.0
07:00	33.000	0.000	0.000	280.0	225.0
08:00	7.000	118.000	180.000	305.0	244.0
09:00	7.000	107.000	170.000	295.0	233.0
10:00	7.000	98.000	151.000	287.0	224.0
11:00	8.000	109.000	172.000	298.0	232.0
12:00	10.000	105.000	168.000	296.0	230.0
13:00	8.000	105.000	168.000	294.0	231.0
14:00	9.000	100.000	170.000	296.0	233.0
15:00	10.000	92.000	156.000	281.0	218.0
16:00	10.000	117.000	180.000	307.0	243.0
17:00	10.000	98.000	161.000	285.0	224.0
18:00	10.000	96.000	150.000	285.0	222.0
19:00	10.000	106.000	168.000	294.0	231.0
20:00	7.000	106.000	171.000	298.0	234.0
21:00	10.000	112.000	175.000	300.0	238.0
22:00	11.000	112.000	175.000	301.0	238.0
23:00	10.000	104.000	166.000	291.0	229.0
Sum	264.000	2085.000	2828.000	--	--
Ave.	11.000	84.792	117.833	284.8	224.5
Max.	33.000	181.000	180.000	307.0	244.0
Min.	7.000	0.000	0.000	242.0	198.0
Unit	kWh	kWh	kWh	°C	°C
Data Type	Electric energy	Electric energy	Electric energy	Temperature	Temperature

Right-clicking the mouse on the graph area or the text area above to select the menu enables to copy the text data and the table data to a clipboard, to use them in the other application.

### 5.11.4. CSV Output

You can output summary data in a CSV file with the same conditions as those for viewing data or specified conditions, to read and analyze summary data by spreadsheet software. In the CSV output function of EQ-GraphViewer, you can specify its output folder and file name as well as output format, output period, summary interval, and channel to output.

(1) On the toolbar, click [Tool] - [CSV File Output].



(2) The [CSV File Output Target Setting] dialog box appears. Specify data and format to output.

CSV File Output Target Setting

1 Output Format  
 Report Form     M2M Form

2 Output Period  
 2017/06/30 00:00 - 2017/06/30 23:59

3 Summary Interval Setting  
 None     1 min.     30 min.     1 hr.     1 DAY     1 mo.     1 YR

4 Report Form Setting  
 Header: Title      Date at the output  
 Footer:  Ave.     Sum     Max.     Min.  
 Classified:  Classified Data Output

5 Select Channels

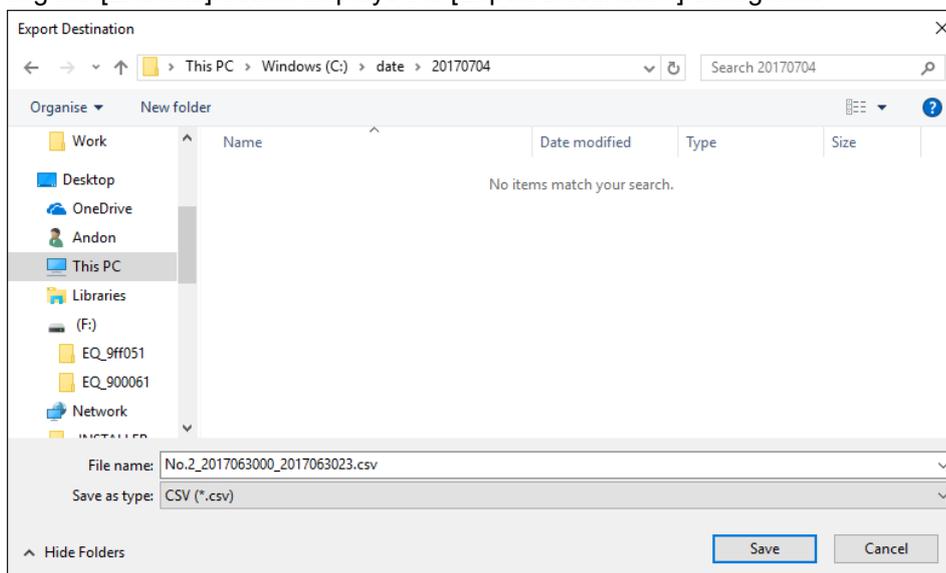
Channel Name	Data Type
<input checked="" type="checkbox"/> Crean room#Active electric energy	Electric energy
<input checked="" type="checkbox"/> IC Package#Active electric energy	Electric energy
<input checked="" type="checkbox"/> SMT#Active electric energy	Electric energy
<input checked="" type="checkbox"/> Crean room#Temperature#1	Temperature
<input checked="" type="checkbox"/> IC package#Temperature#1	Temperature

6 Execute    7 Close

See below for the settings.

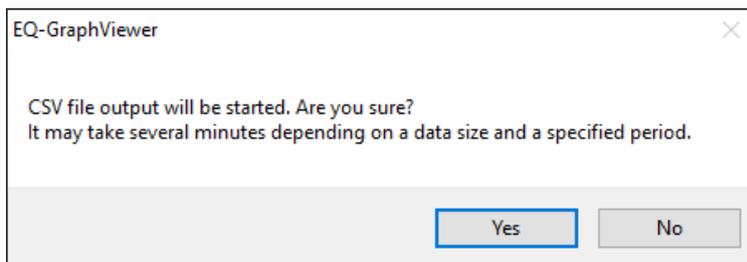
No.	Item Name	Details
1	Output Format	Select a file format to output. - Report Form - M2M Form For details of the formats, see "5.12 CSV Output File Format" (p5-48.).
2	Output Period	Specify a time period to output to a CSV file. Clicking the down arrow in the date field displays a calendar in which you can specify the start and end date of the period.
3	Summary Interval Setting	Specify a summary interval of data to output to a CSV file.
4	Report Form Setting	Specify the header/footer details, date format, and availability of classification for the report form.  Header: Specify a report title and output year/month/day. Footer: Specify summary data average/sum/maximum/minimum values. Classified: Selecting the [Classified Data Output] check box outputs data for each classified channel.
5	Select Channel	Specify a data channel to output to a CSV file. By default, the check box of the channel selected in the view target setting area is being selected when clicking [Tool] -[CSV File Output] on the main screen.
6	Execute	Clicking this button shows the dialog box to specify a location to save the CSV file.
7	Close	Closes the dialog box and cancels CSV file output.

(3) Clicking the [Execute] button displays the [Export Destination] dialog box.

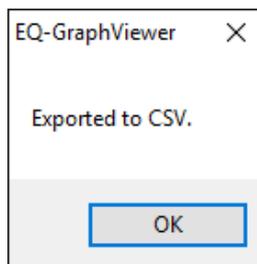
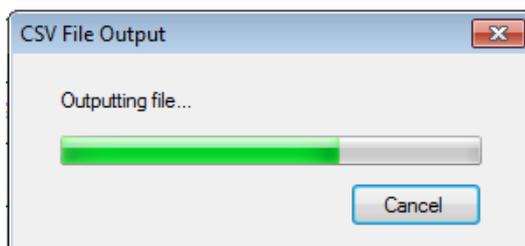


(4) Specify a destination and click [Save].

(5) The screen confirming output to start appears. Click [Yes(Y)].



(6) The CSV output starts and the dialog boxes appear as shown below. Click [OK].



### Precautions for Correct Use

- If the CSV file is garbled on Excel or other software, change the character code of the CSV output setting to [System Encoding] or with BOM (see "5.11.5 Setting" (p.5-46))
- In the following cases, the file volume may be very large, resulting in a long time to process. In addition, an error may occur during output due to a lack of free space in the storage media.
  - The number of channels to output is large
  - The summary period is long
  - Summary interval is 1 minute (small unit)
 etc.

In the above cases, either change the parameter or change the output destination to that of larger capacity.

### Reference

- In the comparison screen, too, you can output data on the graph in a CSV format by clicking [CSV File Output] on the toolbar. Data to output in the comparison screen is a period and channel data being viewed (see "5.10.4 CSV Output of Comparison Screen" (p.5-32)).

### 5.11.5. Setting

- (1) Clicking the [Setting] button on the toolbar in the main screen displays the following [Setting] dialog box.



Item Name	Description
System	<p>Configure the following items:</p> <ul style="list-style-type: none"> <li>- At startup, opening the data that has been opened at the previous finish</li> <li>Specify if the data being opened upon exiting should be automatically opened upon the next startup or not. &lt;Initial value&gt; with checkmark</li> <li>- Day-Specified Summary Interval Initial Value</li> <li>Specify an initial value for the summary interval in case of the day setting. It is used when a graph is clicked and drilled down from month to day view. Initial value: 1 hour</li> </ul>

Item Name	Description
Display Setting	<p>Select display settings for the following items:</p> <ul style="list-style-type: none"> <li>- Channel name for each channel group in the tree area Initial value: with checkmark</li> <li>- Legend, title, and missing value in the graph area Initial value: without checkmark</li> <li>- Graph dot/line size: select from Small, Medium, and Large Initial value: Point size: Medium, Line size: Small</li> <li>- Fixing control value line color to red (or dotted lines in the same color as data color by default) Initial value: without checkmark</li> <li>- Specify the number of decimal places for Sum, Charge, and CO<sub>2</sub> Emission to view on the summary area as 0 to 5.</li> </ul>
CSV File Output Setting	<p>Select a character code for CSV file output from the followings:</p> <p>Character code: select from the followings:</p> <ul style="list-style-type: none"> <li>- System Encoding (When the system encoding is selected, the encoding of the operating system is used. In case of Windows OS in Japanese, it is typically Shift JIS)</li> <li>• UTF-8 If UTF-8 encoding is selected, you can specify availability of BOM collects. Selected: With BOM collects Cleared: Without BOM collects</li> </ul> <p>Date format: select from the followings:</p> <ul style="list-style-type: none"> <li>- %Y/%m/%d (e.g.: 2013/12/31) (Initial value)</li> <li>- MM/dd/yyyy (e.g.: 12/31/2013)</li> <li>- dd/MM/yyyy (e.g.: 31/12/2013)</li> <li>- yyyy-MM-d (e.g.: 2013-12-31)</li> </ul> <p>Date/time column setting:</p> <ul style="list-style-type: none"> <li>-DATE.TIME.MSEC: 3 columns (date, time, millisecond) (Initial value)</li> <li>-DATE.TIME: 2 columns (date, time)</li> <li>-DATETIME: 1 column (date-time)</li> </ul>

(2) Change the setting and click [OK] to view the main screen with the setting reflected.

#### Reference

- The setting described above is saved for each login user.

## 5.12. CSV Output File Format

Shown below is basic information of CSV file output from the main screen [Tool] menu or comparison screen [CSV File Output] on the toolbar.

Item	Description
Extension	CSV
Character Code	A character code specified in the [Setting] - [CSV File Output Setting].
Default File Name	<Channel Group Name>_<Start Date/Time>_<End Date/Time>.csv Channel Group Name: The name of the channel group being selected. If not selected, nothing appears. Start Date/Time: Start date & time of output. Notation depends on the summary interval. End Date/Time: End date & time of output. Notation depends on the summary interval.

CSV file formats include a report form and an M2M form by CSV output on the main screen and a summary data form by the comparison screen.

### 5.12.1. Report Form File Format

Shown below is the CSV file format of "Report Form" output by the main screen [Tool] - [CSV File Output]. The date/time column format is specified in the setting. See "5.11.5 Setting" (p5-46.).

#### 5.12.1.1. Header Block

<Title> Date/time column,<channel information 1>,<channel information 2>, ... ...
---

Item	Details
<Title>	A title is outputted if specified.
Date/Time Column	(1) Output in three columns DATE,TIME,MESC (2) Output in two columns DATE,TIME (3) Output in one column DATETIME Either of the followings is outputted.
<channel information{n}>	Chanel information consists of the following items: <channel name>( <unit>)( <data type name>) <channel name> A channel name configured in an EQ server project. <(unit)> The unit of the nth data being displayed on the graph. A unit for data type configured for each channel (a data type unit is configured in an EQ server project). * "-"(hyphen) is outputted if no unit applies. <(data type name)> The name of the nth data type being displayed on the graph. A data type name is configured in an EQ server project.

{n} indicates repetition for the number of channels.

### 5.12.1.2. Data Block

Date/Time Column,,<value 1>,<value 2>, ...

Item	Details
Date/Time Column	<ul style="list-style-type: none"> <li>- Year/month/day Date of a graph being viewed. Format: YYYY/MM/DD</li> <li>- Time Information of hour, minute, and second of the graph being viewed. Format: "hh:mm:ss". Note that 00 is outputted if a time value is smaller than the view duration. For example, if a graph is displayed for days (summarized on a 30 minute basis), only "00" and "30" are outputted for minute unit and "00" fixed for second unit.</li> <li>- Millisecond Information of millisecond of the graph being viewed. 000 fixed. The value is "000" fixed.</li> </ul> <p>If a date output is specified as one-column output, a space is inserted between the date and the time.</p>
<value{n}>	A value corresponding to the header of the graph being viewed.

{n} indicates repetition for the number of channels.

### 5.12.1.3. Footer Block

SUM, , , <total value 1>, <total value 2>, ...  
 AVE, , , <average value 1>, <average value 2>, ...  
 MAX, , , <maximum value 1>, <maximum value 2>, ...  
 MIN, , , <minimum value 1>, <minimum value 2>, ...

Item	Details
<total value{n}>	Total value of data outputted for the channel {n}.
<average value{n}>	Average value of data outputted for the channel {n}.
<maximum value{n}>	Maximum value of data outputted for the channel {n}.
<minimum value{n}>	Minimum value of data outputted for the channel {n}.

{n} indicates repetition for the number of channels.

### 5.12.1.4. Output Example

[Case 1] View period on main screen is [Daily (summary period of 30 minutes)]:  
 DATE,TIME,MSEC,Electric energy 1(kWh)(Electric energy),Electric energy 2(kWh)(Electric energy), Temperature (°C)(temperature)  
 2011/06/06,00:00:00,000,22.43,12.01,18.4  
 2011/06/06,00:30:00,000,20.21,11.89,18.4  
 2011/06/06,01:00:00,000,22.12,10.73,18.3  
 2011/06/06,01:30:00,000,20.03,10.24,18.2  
 2011/06/06,23:30:00,000,21.48,11.96,18.5  
 SUM,,,106.27,56.83,91.8  
 AVE,,,26.6,11.37,18.36  
 MAX,,,22.43,12.01,18.5  
 MIN,,,20.03,10.24,18.2

[Case 2] View period on main screen is [hr.]:

```

DATE,TIME,MSEC,Electric energy 1(kWh)(Electric energy),Electric energy 2(kWh)(Electric
energy), Temperature (°C)(temperature)
2011/06/06,12:00:00,000,22.43,12.01,18.4
2011/06/06,12:01:00,000,20.21,11.89,18.4
2011/06/06,12:02:00,000,22.12,10.73,18.3
2011/06/06,12:03:00,000,20.03,10.24,18.2
.....
2011/06/06,12:59:00,000,21.48,11.96,18.5
SUM,,,106.27,56.83,91.8
AVE,,,26.6,11.37,18.36
MAX,,,22.43,12.01,18.5
MIN,,,20.03,10.24,18.2
    
```

[Case 3] Classified data output is selected:

```

DATE,TIME,MSEC,Operation(kWh)(Electric energy),Wait(kWh)(Electric
energy),Stop(kWh)(Electric energy),Classification unavailable(kWh)(Electric energy)
2013/05/01,10:00:00,000,2316,2868,1380,100
2013/05/01,10:30:00,000,2532,3012,1452,130
2013/05/01,11:00:00,000,2748,3156,1524,125
2013/05/01,11:30:00,000,2724,3120,1476,115
2013/05/01,12:00:00,000,2508,2976,1404,130
.....
2013/05/01,12:30:00,000,2292,2832,1332,120
SUM,,,15120,17964,8568,720
AVE,,,2520,2994,1428,120
MAX,,,2748,3156,1524,130
MIN,,,2292,2832,1332,100
    
```

### 5.12.2. M2M Form File Format

Shown below is the CSV file format of "M2M Form" output by the main screen [Tool] - [CSV File Output].

"M2M Form" is a file format of measured data provided by OMRON's e-watching energy measurement service.

#### 5.12.2.1. Header Block

Shown below is the output file format in All Data Form.

Header Block (1st line)

```
HEAD,Date,Time,<channel information 1>,<channel information 2>,...
```

Item	Details
HEAD	"HEAD" is outputted.
Date	"Date" is outputted.
Time	"Time" is outputted.
<channel information{n}>	<p>Channel information consists of the following:            &lt;channel name&gt;(&lt;unit&gt;) (&lt;data type name&gt;)            &lt;channel name&gt;</p> <p>The channel name of the nth data being displayed on the graph. A channel name configured in an EQ server project.            (&lt;unit&gt;)</p> <p>The unit of the nth data type being displayed on the graph. A unit for data type configured for each channel (a data type unit is configured in an EQ server project).            (&lt;channel identifier&gt;)</p> <p>An identifier that specifies a channel for the nth data is outputted. It is a specific name of a channel created by the system upon channel creation.</p>

{n} indicates repetition for the number of channels.

#### 5.12.2.2. Data Block

Data Block (2nd and later lines)

```
DATA,<Year/month/day>,<Time>,<value 1>,<value 2>,...
```

Item	Details
DATA	Outputs DATA.
<Year/month/day>	Date of a graph being viewed. Format: YYYY/MM/DD.
<Time>	Information of hour, minute, and second of the graph being viewed. Format: hh:mm:ss.
<value{n}>	A value collected by the measurement device at the time.

#### 5.12.2.3. Output Example

[Example]  
 HEAD,Date,Time,Building\_No.2\_1F\_ActiveElectricEnergy(kWh)(KM50-E#RS485\_1#24#INTEGRAL\_POWER\_CONSUMPTION#C8-0021),DistributionBoardTemperature(°C)(KM50-E#RS485\_1#24#TEMPERATURE#C8-0038)  
 DATA,2013/05/28,00:00:00,47,28.9  
 DATA,2013/05/28,01:00:00,47,28.4  
 DATA,2013/05/28,02:00:00,46,28.1  
 DATA,2013/05/28,03:00:00,47,27.8  
 DATA,2013/05/28,04:00:00,47,28

### 5.12.3. CSV Output File Format of Data Output

The screenshot shows a window titled "Data Output" with the following details:

- Group Name: No.2
- Disp. Period: d. Summary Interval: 1hour Disp. Date/Time: 2017/06/30

The table contains the following data:

Date/Time	Clean room#Active electric energy	IC Package#Active electric energy	SMT#Active electric energy	Clean room#Temperature#1	IC package#Temperature#1
00:00	12.000	181.000	0.000	242.0	220.0
01:00	22.000	85.000	0.000	273.0	213.0
02:00	9.000	82.000	147.000	273.0	229.0
03:00	11.000	0.000	0.000	263.0	200.0
04:00	12.000	0.000	0.000	264.0	201.0
05:00	12.000	0.000	0.000	263.0	199.0
06:00	9.000	0.000	0.000	263.0	198.0
07:00	33.000	0.000	0.000	280.0	225.0
08:00	7.000	118.000	180.000	305.0	244.0
09:00	7.000	107.000	170.000	295.0	233.0
10:00	7.000	98.000	151.000	287.0	224.0
11:00	8.000	109.000	172.000	298.0	232.0
12:00	10.000	105.000	168.000	296.0	230.0
13:00	8.000	105.000	168.000	294.0	231.0
14:00	9.000	100.000	170.000	296.0	233.0
15:00	10.000	92.000	156.000	281.0	218.0
16:00	10.000	117.000	180.000	307.0	243.0
17:00	10.000	98.000	161.000	285.0	224.0
18:00	10.000	96.000	150.000	285.0	222.0
19:00	10.000	106.000	168.000	294.0	231.0
20:00	7.000	108.000	171.000	298.0	234.0
21:00	10.000	112.000	175.000	300.0	238.0
22:00	11.000	112.000	175.000	301.0	238.0
23:00	10.000	104.000	166.000	291.0	229.0
Sum	264.000	2035.000	2828.000	--	--
Ave.	11.000	84.792	117.833	284.8	224.5
Max.	33.000	181.000	180.000	307.0	244.0
Min.	7.000	0.000	0.000	242.0	198.0
Unit	kWh	kWh	kWh	°C	°C
Data Type	Electric energy	Electric energy	Electric energy	Temperature	Temperature

Annotations in the image:

- 1st line:** Points to the header information (Group Name, Disp. Period, Summary Interval, Disp. Date/Time).
- 2nd line:** Points to the first row of the table (00:00).
- Data Block:** Points to the entire table area.

At the bottom of the window, there is a checkbox for "Selected Channel Only" and buttons for "Print", "File", and "Cancel".

The CSV file format output by the [File] button of [Data Output] of the [Tool] menu on the Main screen is as follows.. The displayed data is output to the file as it is. On the first line the title on the screen is output, on the second line the label on the first line is output, and the data displayed at the third and later lines are output to a file with comma delimited.

#### 5.12.3.1. Header Block

- 1st line: The title on the screen is outputted.
- 2nd line: The 1st line of the table is outputted.

#### 5.12.3.2. Data Block

In the 2nd and later lines, the table data are outputted as they are. For the output graph contents, see "5.11.3 Data Output" (p.5-39).

### 5.12.3.3. Output Example

[Example]

Group Name: Cleanroom, Display period: DAY, Summary Interval: 1 hour, Display

Date/Time: June 14, 2013

Date/Time,D/B/Electric energy, particle\_clean room

00:00,1.900,5246

01:00,1.000,6976

02:00,0.000,8876

03:00,0.000,3553

04:00,0.000,3869

05:00,0.000,3269

06:00,0.000,1992

07:00,0.000,1946

08:00,1.500,4215

09:00,1.900,4015

10:00,1.900,3553

11:00,1.800,3938

12:00,2.100,3753

13:00,2.000,3823

14:00,2.100,4992

15:00,2.000,5246

16:00,2.000,4500

17:00,2.000,2646

18:00,1.800,1323

19:00,2.100,5215

20:00,2.000,7161

21:00,1.700,10400

22:00,2.000,16423

23:00,1.700,10584

Sum,33.500,--

Ave,1.396,5313

Max,2.100,16423

Min,0.000,1323

Unit,kWh,/cf

Data type: Electric energy, 0.5 um particle

### 5.12.4. CSV Output File Format on Comparison Screen

Shown below is the CSV file format by the comparison screen [CSV File Export].

#### 5.12.4.1. Header Block

Date/time column,<channel information (1)1>, <channel information (1)2>, ...,Date/time column,,<channel information (2)1>, <channel information (2)2>, ...

... (1) is the comparison source and (2) is the target.

Item	Details
Date/Time Column	(1) Output in three columns DATE,TIME,MESC (2) Output in two columns DATE,TIME (3) Output in one column DATETIME Either of the followings is outputted.
<channel information (1){n}> <channel information (2){n}>	Channel information consists of the followings: <channel name>( <unit>)( <data type name>)  <channel name> A channel name configured in an EQ server project. ( <unit>) The unit of the nth data type being displayed on the graph. Configured in an EQ server project. * "-"(hyphen) is outputted if no unit applies. ( <data type name>) The name of the nth data type being displayed on the graph. Configured in an EQ server project.

{n} indicates repetition for the number of channels.

#### 5.12.4.2. Data Block

Date/Time Column,,<value (1)1>,<value (1)2>,...<Year/month/day>,Date/Time Column,<value (2)1>,<value (2)2>, ...

Item	Details
Date/Time Column	- Year/month/day Date of a graph being viewed. Format: YYYY/MM/DD - Time Information of hour, minute, and second of the graph being viewed. Format: "hh:mm:ss". Note that 00 is outputted if a time value is smaller than the view duration. For example, if a graph is displayed for days (summarized on a 30 minute basis), only "00" and "30" are outputted for minute unit and "00" fixed for second unit. - Millisecond Information of millisecond of the graph being viewed. 000 fixed. The value is "000" fixed.  If a date output is specified as one-column output, a space is inserted between the date and the time.
<value{n}>	A value corresponding to the header of the graph being viewed.

{n} indicates repetition for the number of channels.

### 5.12.4.3. Output Example

[Case 1] View period on comparison screen is [Yearly]:

```
DATE,TIME,MSEC,Building_No.2_1F(kWh)(Electric
energy),Building_No.2_2F(°C)(Temperature),DATE,TIME,MSEC,Building_No.2_1F_Temperat
ure(kWh)(Electric energy),Building_No.2_2F_Temperature(°C)(Temperature)
2011/01/01,00:00:00,000,22.43,18.4,2010/01/01,00:00:00,000,12.01,20.5
2011/02/01,00:00:00,000,20.21,18.4,2010/02/01,00:00:00,000,11.89,20.4
2011/03/01,00:00:00,000,22.12,18.3,2010/03/01,00:00:00,000,10.73,20.4
2011/04/01,00:00:00,000,20.03,18.2,2010/04/01,00:00:00,000,10.24,20.3
...
```

[Case 2] View period on comparison screen is [Minutely]:

```
DATE,TIME,MSEC,Electric
energy(kWh)(Building_No.2_1F),Temperature(°C)(Building_No.2_2F),DATE,TIME,MSEC,Ele
ctric energy(kWh)(Building_No.2_1F temperature),Temperature(°C)(Building_No.2_2F
temperature)
2011/06/06,12:04:00,000,22.43,18.4,2011/08/24,06:01:00,000,12.01,20.5
2011/06/06,12:04:01,000,20.21,18.4,2011/08/24,06:01:01,000,11.89,20.4
2011/06/06,12:04:02,000,22.12,18.3,2011/08/24,06:01:02,000,10.73,20.4
2011/06/06,12:04:03,000,20.03,18.2,2011/08/24,06:01:03,000,10.24,20.3
...
2011/06/06,12:04:59,000,21.48,18.5,2011/08/24,06:01:59,000,11.96,20.7
```

## 6. Backup and Recovery of EQ Server

Please back up the project files of this software and saved summary data regularly. Regular backup ensures data recovery even when a failure occurred in a computer with this software installed or when data was deleted.

### Precautions for Correct Use

- The operation described in this chapter is based on the condition in which the user of administrative authority should perform the operation on the PC that enables the operation of EQ server.
- Do not delete, move, or edit the aggregated data DB in this chapter for other reasons than backup or recovery.
- To retain data in case that the data access is disabled due to PC failure or else, save the data from EQ100 to an SD card or perform data backup on the EQ server.
- Data Folder Compatibility with Different Versions of the EQ Server  
Data folders with different databases are not compatible.

Do not overwrite the data folder with incompatible backup data.

Version	Database
Ver 1.0.0 to 1.1.5	SQLite
Ver 1.1.6 later	PostgreSQL 9.5.3

### 6.1. Backup

The backup process copies the files including configuration information and summary data to a storage other than the computer. Save the EQ project and EQ server project every time they are created/changed.

#### ■ Operation Steps

- (1) Stop EQ Server logging.  
(See "4.9.5.2 Stopping EQ Server Operation and Management" p.4-173)
- (2) Terminate EQ-Manager and EQ-GraphViewer.  
(See "4.4 Starting/Ending EQ-Manager" p.4-10, "5.4 Starting/Exiting EQ-GraphViewer" p.5-7)
- (3) Stop EQ-ServerService and PostgreSQL9.5.
  - ① Click [Show hidden icons] on the bottom-right triangle.
  - ② Right-click [EQ Server Management].
  - ③ Click [Stop].
  - ④ On the [User Account Control] dialog box, click [Yes].
  - ⑤ The [Stopping EQ server] screen appears, then EQ-ServerService and PostgreSQL9.5 stop.  
(See "3.2 Shutdown and Restart of Server PC" p.3-6)
- (4) In storage (e.g. external hard disk and file server) other than the computer, create a folder for backup.

- (5) Use Windows Explorer to copy the following folder to the folder created in the step (4).  
Copy all the folders with their subfolders.

C:\OMRON\EQ-Tools

- (6) Start up EQ-ServerService and PostgreSQL9.5.
- ①Click [Show hidden icons] on the bottom-right triangle.
  - ②Right-click [EQ Server Management].
  - ③Click [Start].
  - ④On the [User Account Control] dialog box, click [Yes].
  - ⑤The [Starting EQ server] screen appears, then EQ-ServerService and PostgreSQL9.5 start.
- (7) If you want to log collected data, start up EQ-Manager and start logging.  
(See "4.4 Starting/Ending EQ-Manager" p.4-10, "4.9.5.1 Starting EQ Server Operation and Management" p.4-172)

## 6.2. Recovery

When a failure occurred in the computer or data was deleted, you can copy the backup data to the summary data folder of this software to recover the data to the timing when the backup was taken.

### ■ Operation Steps

- (1) If the computer does not have EQ-Viewer installed, install EQ-Viewer.  
(See "3.1 Installation" p.3-1)
- (2) If the EQ server is logging, startup EQ-Manager and stop logging.  
(See "4.4 Starting/Ending EQ-Manager" p.4-10, "4.9.5.2 Stopping EQ Server Operation and Management" p.4-173)
- (3) Terminate EQ-Manager and EQ-GraphViewer.  
(See "4.4 Starting/Ending EQ-Manager" p.4-10, "5.4 Starting/Exiting EQ-GraphViewer" p.5-7)
- (4) Stop EQ-ServerService and PostgreSQL9.5.
- ①Click [Show hidden icons] on the bottom-right triangle.
  - ②Right-click [EQ Server Management].
  - ③Click [Stop].
  - ④On the [User Account Control] dialog box, click [Yes].
  - ⑤The [Stopping EQ server] screen appears, then EQ-ServerService and PostgreSQL9.5 stop.  
(See "3.2 Shutdown and Restart of Server PC"p.3-6)
- (5) If EQ-Tools folder already exists under C:\OMRON, change its folder name.

- (6) Copy the latest backup data in the folder shown below to overwrite. The data to the time of backup is recovered.

C:¥OMRON

- (7) Start up EQ-ServerService and PostgreSQL9.5.
- ①Click [Show hidden icons] on the bottom-right triangle.
  - ②Right-click [EQ Server Management].
  - ③Click [Start].
  - ④On the [User Account Control] dialog box, click [Yes].
  - ⑤The [Starting EQ server] screen appears, then EQ-ServerService and PostgreSQL9.5 start.
- (8) If you want to log measured data, start up EQ-Manager and open the EQ server project of the recovered EQ server.  
(See "4.4 Starting/Ending EQ-Manager" p.4-10)
- (9) Connect online to the EQ server and start logging.  
(See "4.9.5.1 Starting EQ Server Operation and Management" p.4-172)

#### **Precautions for Correct Use**

- If you have changed the data folder, construct the same environment as that on backup before copying the folder. If you try to recover the environment on a PC other than that you took the backup, for example, change the data folder of the PC for recovery before copying the folder.

## 7. EW700 compatibility function

This section describes EW700 compatibility function of EQ-ANDON/EQ100.

To use the EW700 compatibility function, you must install EQ-ANDON (or software which comes with EQ100) of a PC that has EasyEW-Logger installed in order to convert EasyEW-Logger configuration information file to a project file.

The EW700 compatibility function can input and output data in the same format (EW700-format CSV) as a CSV file provided by EasyEW-Logger.

The EW700 compatibility function is executed by the Configuration Tool EQ Converter Manager and the conversion service EQ Converter Service.

### **EQ Converter Manager**

- Converts EasyEW-Logger configuration information file into an EQ-ANDON/EQ100 project.
- Configures export function to output measured values collected from EQ100 as an EW700-format CSV file
- Configures import function to acquire measured values of EW700 collected by EasyEW-Logger into the EQ server

### **EQ Converter Service**

- Converts and outputs measured values collected from EQ100 into an EW700-format CSV file
- Imports an EW700-format CSV file collected by EasyEW-Logger into the EQ server

## Specifications

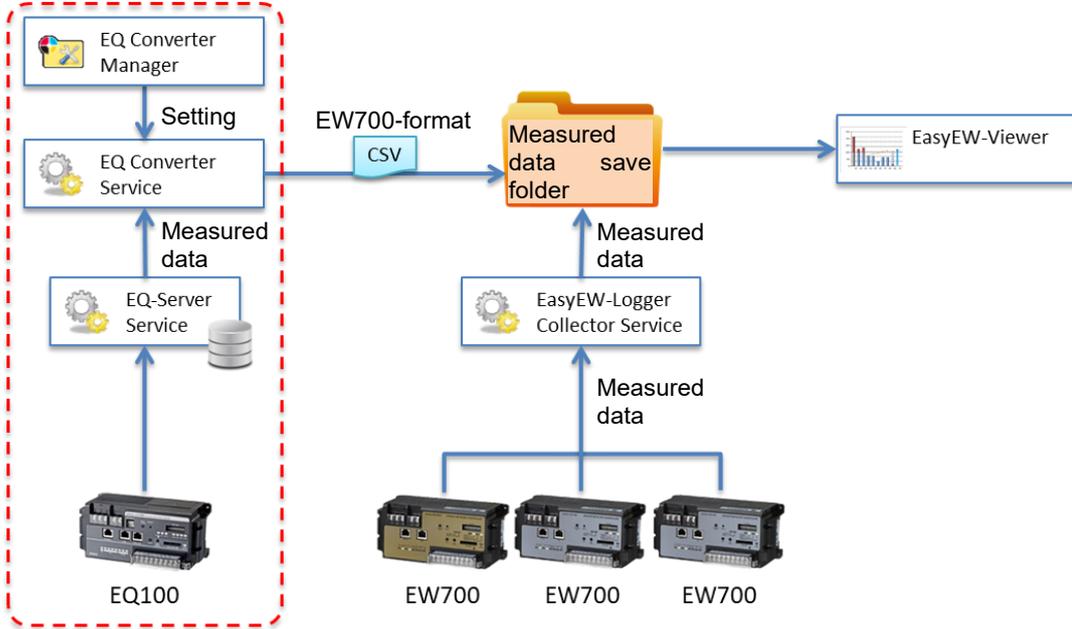
	EQ-ANDON/EQ-Viewer	EasyEW-Logger (ref.)
Supported OS	Windows 10 (32/64 bit) Windows Server 2012 R2 Windows Server 2016 R2 Windows Server 2019	Windows XP SP3 Windows Vista SP2 Windows 7 Windows 10 Windows Server 2008
CPU	Intel(R) Core i3 2GHz equivalent or higher	Intel(R) Core 2 1.8GHz or higher
Memory	32-bit OS: 2GB or more 64-bit OS: 4GB or more	Free space: 500MB or more
Screen size	1024 x 768 or more	1024 x 768 or more
Hard drive	400GB (assuming a collection interval of 1 minute of 1000 channels for 3 years)	Up to about 5GB per year assuming an interval of 10 minutes for 32 EW700 units (6400 channels)
Number of connected units	Up to 10 units (EQ100)	Up to 64 units (EW700) Measurement interval of 1 min.: 3 units Measurement interval of 10 min.: 32 units Measurement interval of 15 min.: 48 units Measurement interval of 30 min.: 64 units Measurement interval of 60 min.: 64 units
Restrictions	<ul style="list-style-type: none"> <li>• To take over the settings from EW700, enable the Configuration Information Option.</li> <li>• Only the total value is supported for power consumption.</li> <li>• Micro-range of KM50-C/E's instantaneous power, reactive power, and total accumulated power consumption is converted and outputted as kW, kvar, and kWh, respectively.</li> </ul>	

- Export function

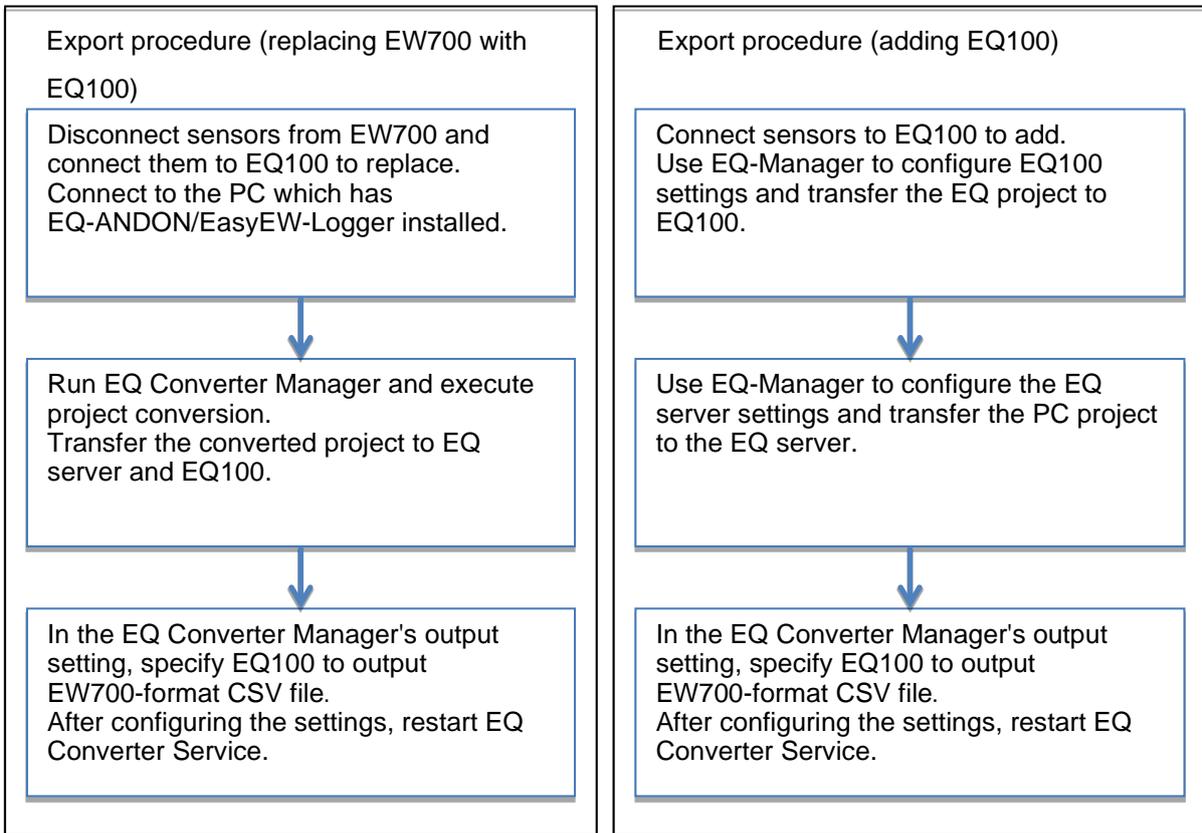
Outputs data collected by EQ100 as a CSV file.

The output data can be utilized by EasyEW-series software for EW700.

You can replace EW700 with EQ-ANDON/EQ100 which can be added.



Export function concept

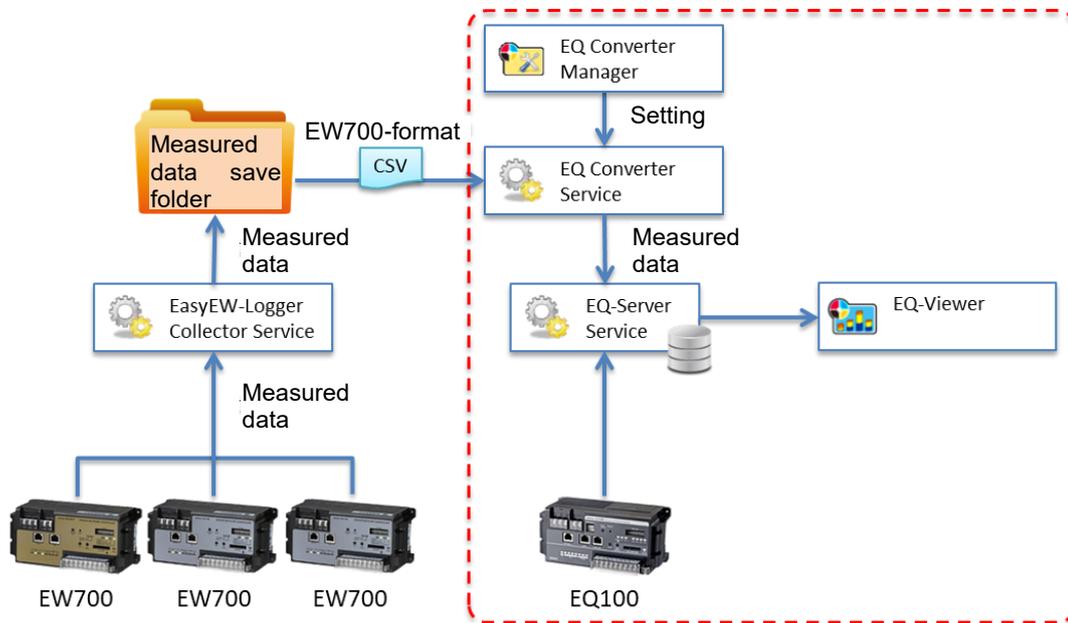


- Import function

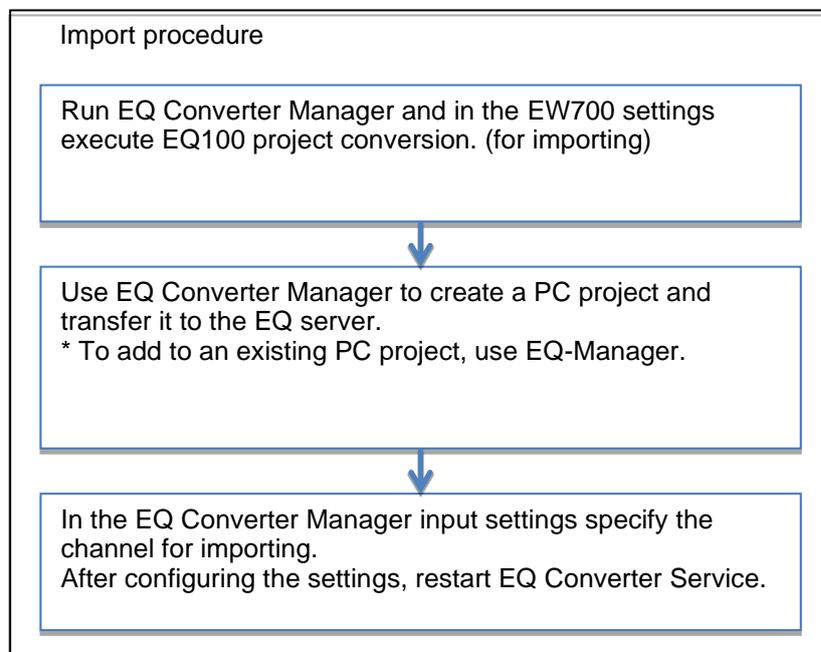
Automatically imports a file outputted by EasyEW-Logger to the EQ server.

You can utilize data collected by EQ100 for EQ GraphViewer.

You can utilize data accumulated by EW700 series for EQ-ANDON.



Import function concept



## 7.1 Starting and Exiting EQ Converter Manager

### 7.1.1 Starting

Select [Start] - [All Programs] - [OMRON] - [EQ-ANDON] - [EQ Converter Manager].

### 7.1.2 Exiting

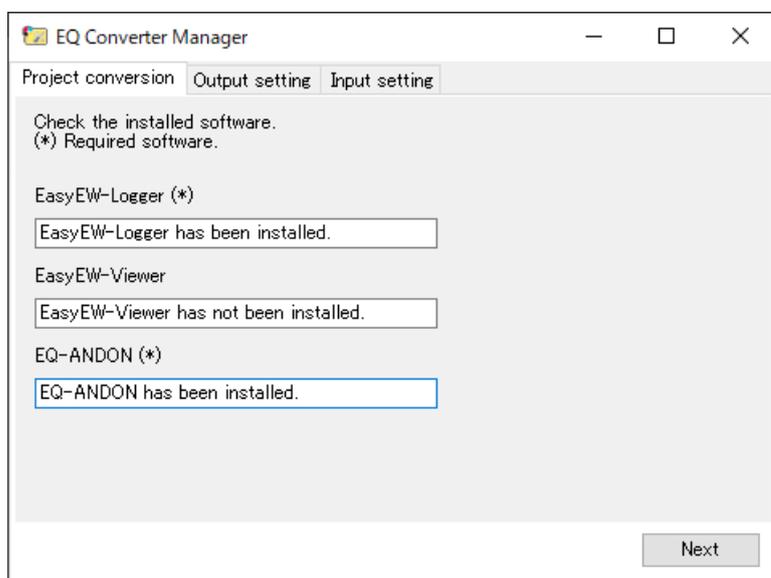
On the top right of the screen, click [x] to exit EQ Converter Manager.

## 7.2 Project Conversion

After starting EQ Converter Manager, the following screen appears.

### (1) Checking installation

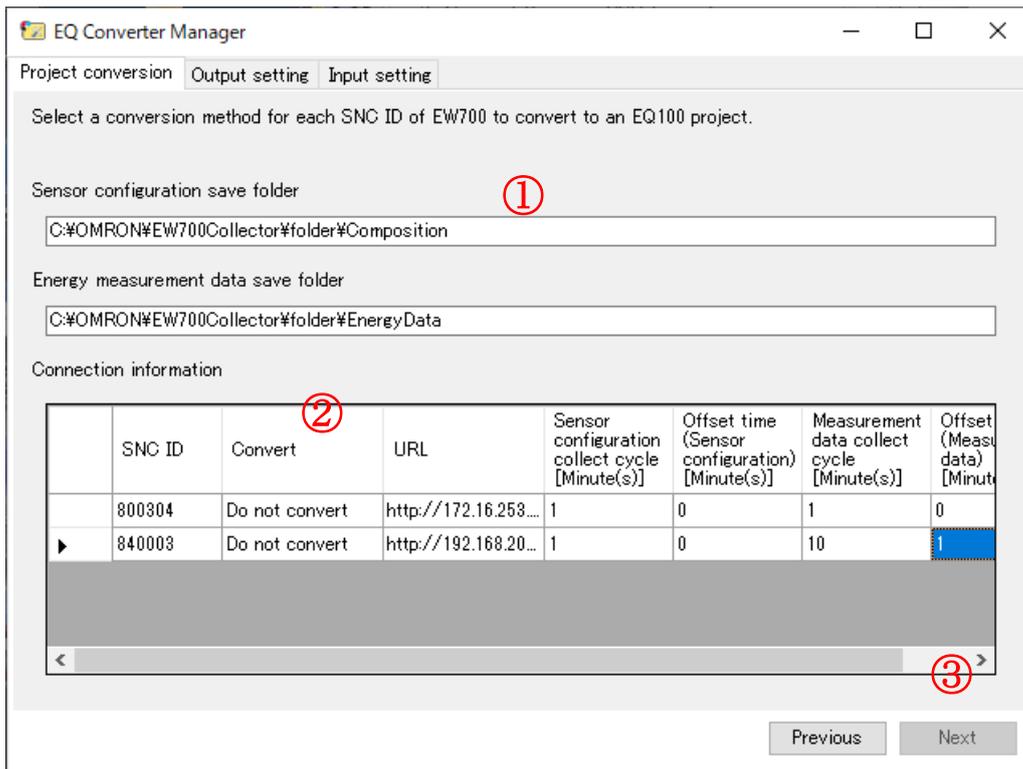
If EasyEW-Logger and EQ-ANDON have been installed, you can proceed to the next step by pressing [Next].



### (2) Checking conversion method

After verifying the EasyEW-Logger configuration information folder (1), select an EW700 conversion method (2) from the pull-down list.

Option	Description
No conversion	Not converted to an EQ100 project.
For conversion	An EQ100 project is created to replace EW700.
For import	A project is created which has channels registered for acquisition of EW700 measured values collected by EasyEW-Logger.

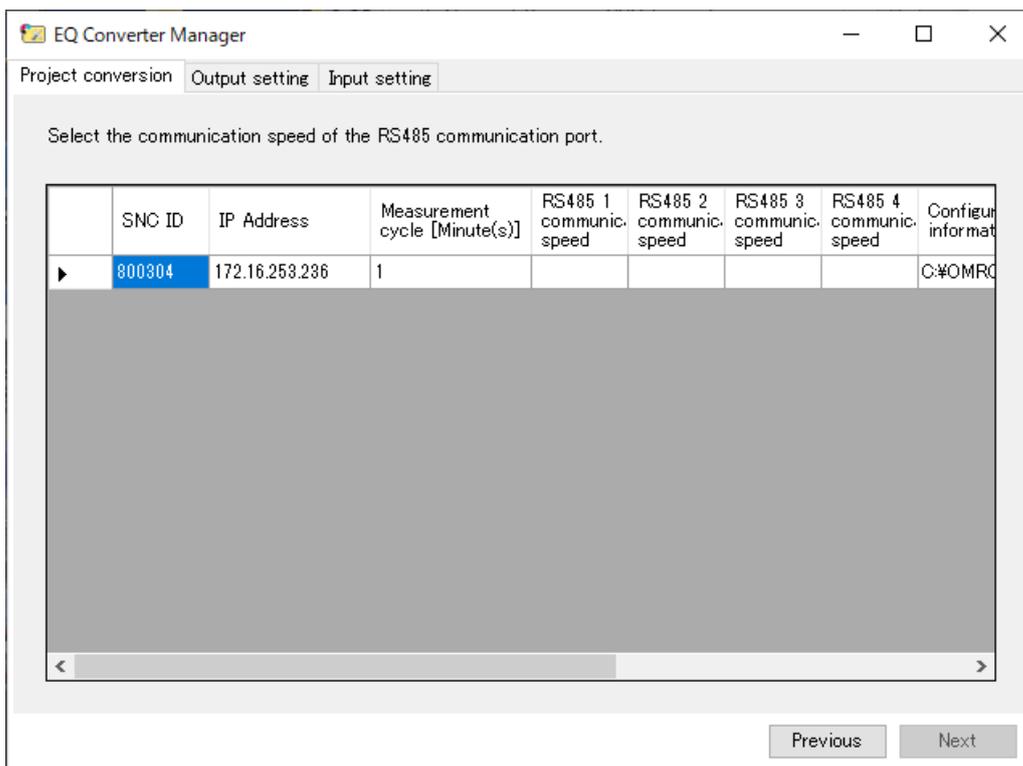


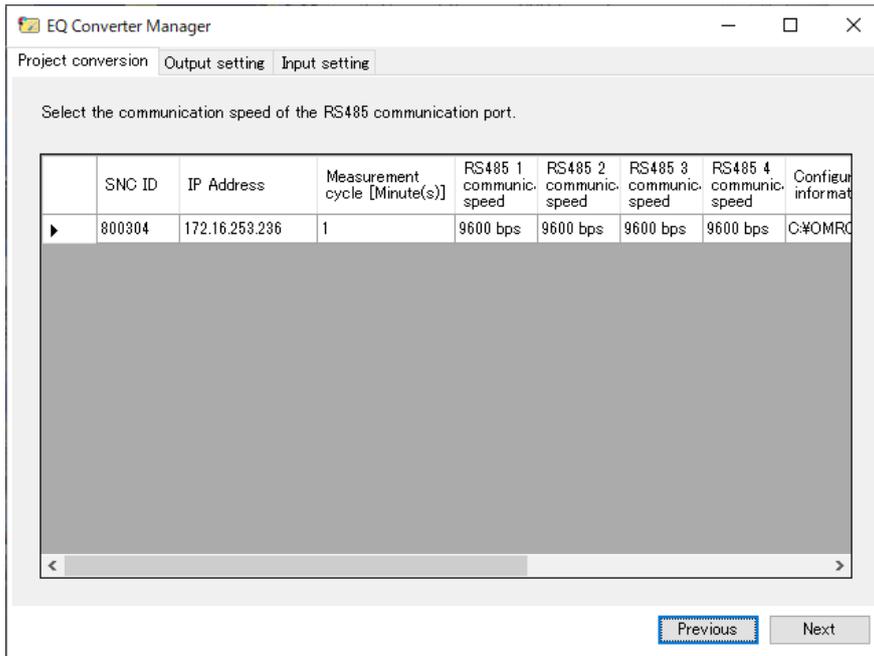
(3) RS485 communication speed setting

Specify the communication speed of RS485 communications port.

Specify 9600 bps for communications ports that are not used.

You cannot proceed unless you specify all the communications ports.



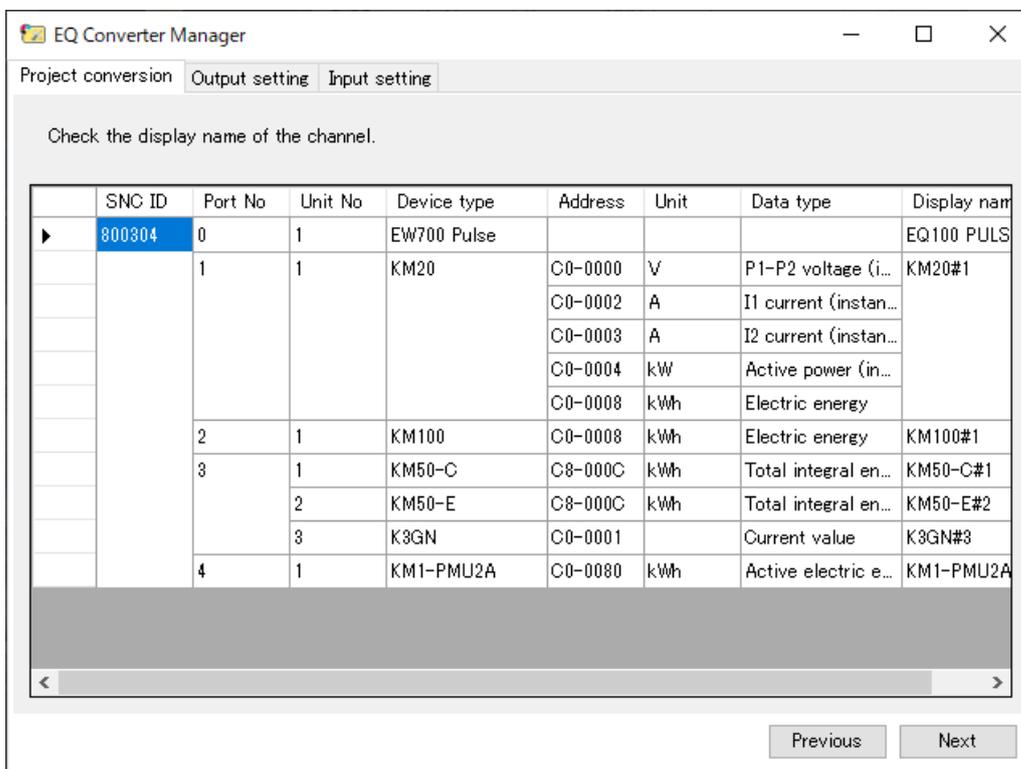


(4) Channel display name check

Verify the channel name and proceed to the next step.

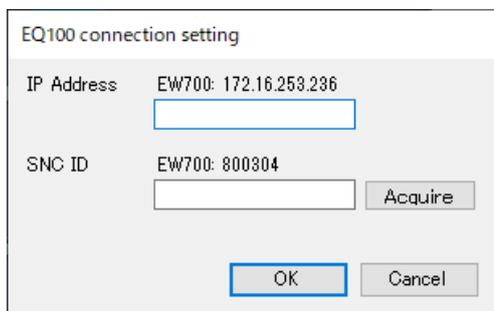
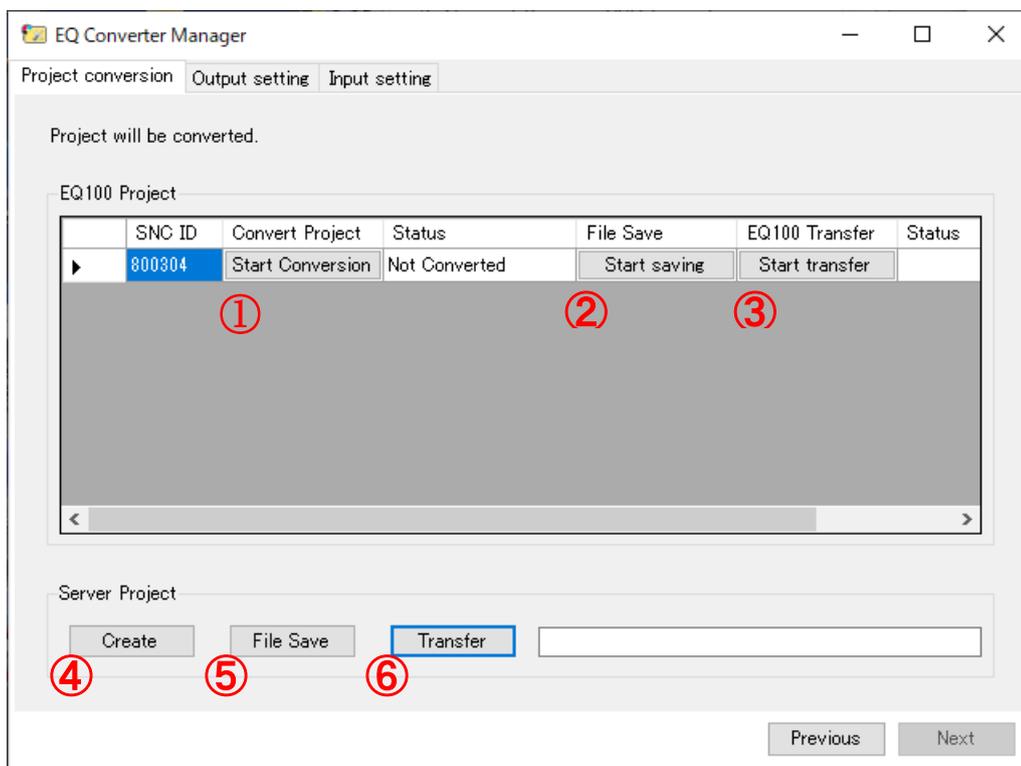
You can edit the display name if you wish.

A channel name for EQ-ANDON/EQ100 is [display name#data type].



## (5) Project conversion

Shown below is a project conversion screen.



## EQ100 project

- ① Pressing [Start conversion] in the list creates an EQ100 project.

In case of a project for conversion, you can specify EQ100's IP address and SNC ID during the conversion process. If an EQ100 is connected to the PC, you can get EQ100's SNC ID. Type the EQ100's IP address and press [Get].

If you want to use EW700's IP address as it is, leave the field blank and press [OK].

- ② Pressing [Start saving] in the list saves the created project as a file. The saved project file can be edited by EQ-Manager.
- ③ Pressing [Start transfer] in the list writes the created project into the EQ100.

#### Server project

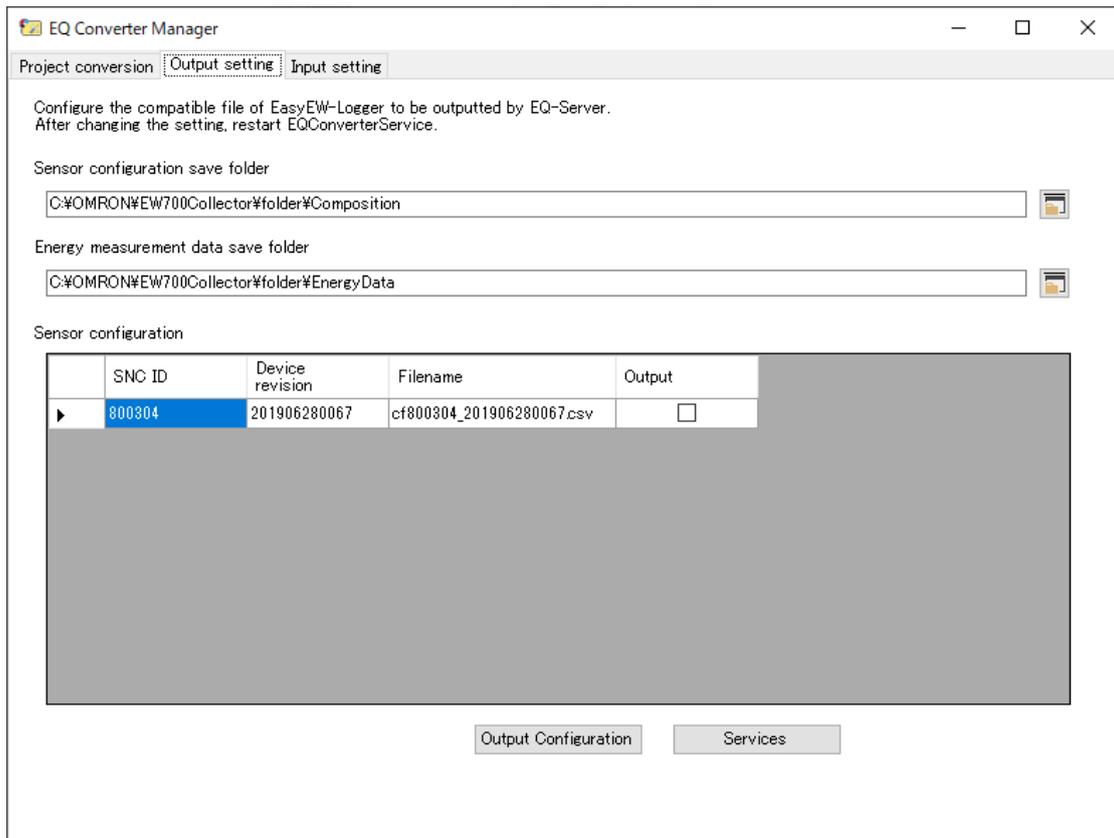
- ④ Pressing [Create] creates a server project.
- ⑤ Pressing [Save file] saves the created project as a file. The saved project file can be edited by EQ-Manager.
- ⑥ Pressing [Transfer] writes the created project into the EQ server.

[Note] As overwriting a server project changes the Channel ID, you cannot handle past data consistently even if you configure the same channel setting.

If you want to replace a project with an existing project or add an EQ100 project for importing, use EQ-Manager to edit the server project.

## 7.3 Output Setting

Selecting the [Output setting] tab in EQ Converter Manager shows the following screen.



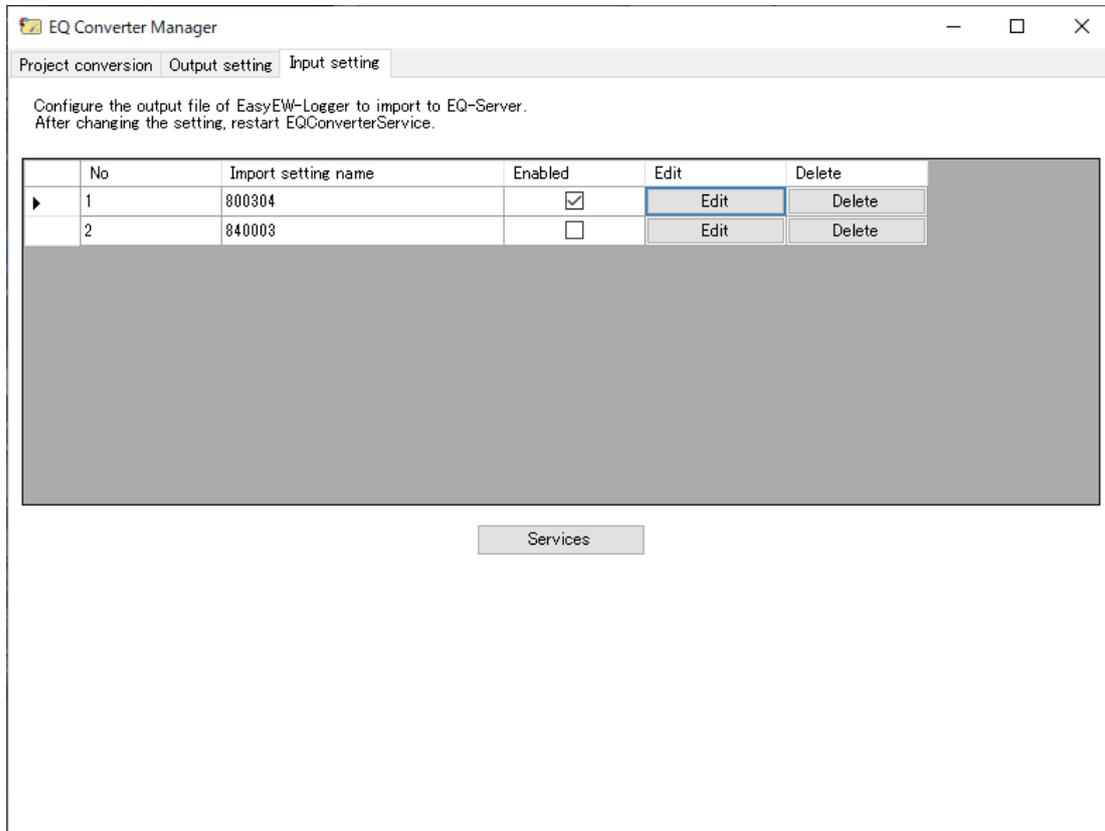
- (1) Check the configuration information save folder and energy measured data save folder.  
You can change the location of these folders using the button in the right respectively.
- (2) In the output column of the list, select the check box of the EQ100 to output.
- (3) Pressing [Output configuration information] outputs the configuration information file and a setting file for EW700-format file output.  
To reflect the settings, restart EQ Converter Service.
- (4) Pressing [Service] opens the Windows service management tool Services.  
Here, restart EQ Converter Service.

### Restrictions

- To take over the settings from EW700, enable the Configuration Information Option.
- Only the total value is supported for power consumption.
- Micro-range of KM50-C/E's instantaneous power, reactive power, and total accumulated power consumption is converted and outputted as kW, kvar, and kWh, respectively.

## 7.4 Input Setting

Selecting the [Input setting] tab in EQ Converter Manager shows the following screen.



A list of EW700 units appears that collect measured data using EasyEW-Logger.

To import measured data into the EQ server, press [Edit] and specify a channel to import measured data.

Pressing [Delete] deletes the import setting.

To reflect the settings, restart EQ Converter Service.

Pressing [Service] opens the Windows service management tool Services.

Here, restart EQ Converter Service.

Pressing [Edit] in the input setting screen shows the following screen.

EW Import Settings

Import setting name: 800304

Header Setting

Header: 2 (Row No)

Date Time Column: DATE, TIME

Date Format: yyyy/MM/dd

Auto Import

Enable:

Watched Folder: C:\OMRON\EW700Collector\folder\EnergyDa

Filename: en800304\*.csv

Column Setting

Column Number	CSV File Channel	Server Channel	Coefficient	Constant Value	Edit	Delete
5	PI100100				Edit	Delete
6	AI310101				Edit	Delete
7	AI310103				Edit	Delete
8	AI310104				Edit	Delete
9	AI310105				Edit	Delete
10	PI310108				Edit	Delete
11	PI320109				Edit	Delete

OK Cancel

If you select the [Enable] check box of automatic import, a newly created file in the specified monitoring folder is loaded and imported to the EQ server.

To specify the channel for import, press [Edit].

Pressing [Delete] deletes the linkage between the EQ server and the channel.

Selecting a channel to import and pressing [Edit] shows the following screen.

No	Channel	Collecting Device Name	Data type	Logging	Description
0	KM1-PMU2A#1#Active ele...	EQ100#840003(EW700)	Electric energy	False	840003 PI310127
1	KM1-PMU2A#1#Active ele...	EQ100#840003(EW700)	Electric energy	False	840003 PI310128
2	KM1-PMU2A#1#Active ele...	EQ100#840003(EW700)	Electric energy	False	840003 PI310129
3	KM1-PMU2A#1#Active ele...	EQ100#840003(EW700)	Electric energy	False	840003 PI310130
4	KE1-CTD8E#2#Active elec...	EQ100#840003(EW700)	Electric energy	False	840003 PI310237
5	KE1-CTD8E#2#Active elec...	EQ100#840003(EW700)	Electric energy	False	840003 PI310238
6	KE1-CTD8E#2#Active elec...	EQ100#840003(EW700)	Electric energy	False	840003 PI310239

Select an import destination of CSV channel from the server channel list.

Assigned channels are not displayed to prevent a single measured value from being recorded to multiple channels.

Measured values can be linear-transformed by using coefficient and addition on importing.

Value to import = Coefficient × Measured value + Addition

#### Reference

The input settings are reflected in the EW700 compatible CSV import settings of EQ-Manager. Past data can be imported by EW700 compatible CSV import of EQ-Manager.

#### Precautions for Correct Use

The input settings of the EW700 compatible function cannot be edited with EQ-Manager.

## 8. If You Want To

### 8.1. Add EQ100

Shown below are steps when you add an EQ100 unit. A new EQ100 unit to add must be configured so that its IP address should be unique before connecting to the network.

EQ project: Create a new project.

EQ server project: Change the project.

Steps	Description	Refer to:
(1)	Install and connect cables and wires of the EQ100. Do not connect to the LAN yet.	"EQ100 User's Manual", "EQ100 Operation Manual", "EQ100 Startup Guide"
(2)	Install and connect cables and wires of the measurement devices.	Measurement Device Manuals "EQ100 User's Manual"
(3)	Start up EQ-Manager and create a new EQ project. Or, you can open and edit an existing EQ project.	"4.6.3 EQ100 Collecting Settings" (p.4-20)
(4)	After creating the EQ project, write it to the EQ100 via an SD card. Connect EQ100 to the LAN, perform communication test, and start operation and management.	"4.7.1 Saving and Storing EQ100 Project" (p.4-97)
(5)	Change the existing EQ server project.	
	(1) Open the EQ server project and register the added EQ100 to the EQ server project. Register collecting devices, channels, and groups.	"4.8.3 EQ Server Collecting Setting" (p.4-117)
	(2) Change the advanced setting if necessary.	"4.8.4 EQ Server Advanced Setting" (p.4-134)
(6)	After changing the EQ server project, perform the steps as shown below, from saving the EQ server project to resuming EQ server operation and management.	
	(1) Stop EQ server operation and management.	"4.9.5.2 Stopping EQ Server Operation and Management" (p.4-173)
	(2) Write the EQ server project to the EQ server.	"4.9.2 Writing EQ Server Project" (p.4-163)
	(3) Save the EQ server project.	"4.9.1.1 Saving EQ Server Project" (p.4-162)
	(4) Perform communication test between the EQ server and EQ100.	"4.9.4 EQ Server Communication Test" (p.4-169)
	(5) Resume EQ server operation and management.	"4.9.5.1 Starting EQ Server Operation and Management" (p.4-172)

## 8.2. Add Measurement Device

Shown below are steps when you add a measurement device.

EQ project: Change the project.

EQ server project: Change the project.

Steps	Description	Refer to:
(1)	Install and connect cables and wires of the measurement devices.	Measurement Device Manuals "EQ100 User's Manual"
(2)	Start up EQ-Manager, and open and edit the existing EQ project.	
	(1) Register measurement device, channel, and group for the added measurement device.	"4.8.3 EQ Server Collecting Setting" (p.4-117)
	(2) If necessary, configure advanced setting such as monitoring setting.	"4.8.4 EQ Server Advanced Setting" (p.4-134)
(3)	After editing the EQ server project, perform the steps as shown below, from saving the EQ project to resuming operation and management.	
	Save the EQ project.	"4.7.1 Saving and Storing EQ100 Project" (p.4-97)
	(2) Stop the operation and management of EQ100.	"4.7.6.2 Stopping EQ100 Operation and Management" (p.4-112)
	(3) Write the EQ project.	"4.7.2.1 Writing through LAN from a Computer with EQ-Manager" (p.4-98)
	(4) Perform communication test between the measurement device and EQ100.	"4.7.4 EQ100 Communication Test" (p.4-107)
	(5) Resume the operation and management of EQ100.	"4.7.6.1 Starting EQ100 Operation and Management" (p.4-110)
(4)	Open and edit the existing EQ server project. Reflect the channel of the measurement device added in EQ100 to the EQ server project.	
	(1) Edit the collecting setting.	"4.8.3 EQ Server Collecting Setting" (p.4-117)
	(2) Change the advanced setting if necessary.	"4.8.4 EQ Server Advanced Setting" (p.4-134)
(5)	After changing the EQ server project, perform the steps as shown below, from saving the EQ server project to resuming EQ server operation and management.	
	(1) Stop EQ server operation and management.	"4.9.5.2 Stopping EQ Server Operation and Management" (p.4-173)
	(2) Write the EQ server project to the EQ server.	"4.9.2 Writing EQ Server Project" (p.4-163)
	(3) Save the EQ server project.	"4.9.1.1 Saving EQ Server Project" (p.4-162)
	(4) Perform communication test between the EQ server and EQ100.	"4.9.4 EQ Server Communication Test" (p.4-169)
	(5) Resume EQ server operation and management.	"4.9.5.1 Starting EQ Server Operation and Management" (p.4-172)

### 8.3. Change Project Setting

Shown below are steps when you change setting such as addition of a channel instead of configuration change of a measurement device or EQ100.

Steps	Description	Refer to:
(1)	Start up EQ-Manager, and edit the existing EQ project. Change the setting as you need.	"4.6.3 EQ100 Collecting Settings" (p.4-20) "4.6.4 EQ100 Advanced Setting" (p.4-62)
(2)	After editing the EQ server project, perform the steps as shown below, from saving the EQ project to resuming operation and management.	
(1)	Save the EQ project.	"4.7.1 Saving and Storing EQ100 Project" (p.4-97)
(2)	Stop the operation and management of EQ100.	"4.7.6.2 Stopping EQ100 Operation and Management" (p.4-112)
(3)	Write the EQ project.	"4.7.2 Writing Project to EQ100" (p.4-98)
(4)	Perform communication test between the measurement device and EQ100.	"4.7.4 EQ100 Communication Test" (p.4-107)
(5)	Resume the operation and management of EQ100.	"4.7.6.1 Starting EQ100 Operation and Management" (p.4-110)
(3)	Open and edit the existing EQ server project if necessary.	
(1)	Edit the collecting setting if necessary.	"4.8.3 EQ Server Collecting Setting" (p.4-117)
(2)	Change the advanced setting if necessary.	"4.8.4 EQ Server Advanced Setting" (p.4-134)
(4)	After changing the EQ server project, perform the steps as shown below, from saving the EQ server project to resuming EQ server operation and management.	
(1)	Stop EQ server operation and management.	"4.9.5.2 Stopping EQ Server Operation and Management" (p.4-173)
(2)	Write the EQ server project to the EQ server.	"4.9.2 Writing EQ Server Project" (p.4-163)
(3)	Save the EQ server project.	"4.9.1.1 Saving EQ Server Project" (p.4-162)
(4)	Perform communication test between the EQ server and EQ100.	"4.9.4 EQ Server Communication Test" (p.4-169)
(5)	Resume EQ server operation and management.	"4.9.5.1 Starting EQ Server Operation and Management" (p.4-172)

## 8.4. Add Client Computer in Client-Server Configuration

Add EQ-GraphViewer to a client computer.

Shown below are steps to perform.

Steps	Description	Refer to:
(1)	Insert EQ-Viewer disk to a client computer and install it.	"3.1 Installation" (p.3-1)
(2)	Start up EQ-GraphViewer and configure to the EQ server host device. If necessary, configure the client setting.	"5.4 Starting/Exiting EQ-GraphViewer" (p.5-7) "5.11.5 Setting" (p.5-46)

## 8.5. Migrate EQ Server

Shown below are steps to migrate from standalone to client-server configuration or to replace the EQ server.

Steps	Description	Refer to:
(1)	Back up the operating EQ server (hereinafter called old EQ server).	"6.1 Backup" (p.6-1) (1) to (6)
(2)	Stop the old EQ Server logging and go offline.	"4.9.5.2 Stopping EQ Server Operation and Management" (p.4-173)
(3)	If you want to assign the same IP address to the new server to migrate (hereinafter called new EQ server) as that of the old EQ server, unplug the LAN cable from the old EQ server.	-
(4)	Install EQ-Viewer in the new EQ server.	"3.1 Installation" (p.3-1)
(5)	Recover the backup data of the old EQ server in the step 1 to the new EQ server.	"6.2 Recovery" (p.6-2) (1) to (6)
(6)	Connect the new EQ server to LAN.	"EQ100 User's Manual"
(7)	Use a Web browser in the new EQ server to open the EQ100 Web screen, to check the network connection with EQ100.	"EQ100 User's Manual"
(8)	Use EQ-Manager of the new EQ server to open the EQ server project of the old EQ server.	-
(9)	Write the EQ server project of the old EQ server to the new EQ server.	"4.9.2 Writing EQ Server Project" (p.4-163)
(10)	Save the EQ server project written in the previous step.	"4.9.1.1 Saving EQ Server Project" (p.4-162)
(11)	Perform communication test in the new EQ server to check that communication with EQ100 should be available after passing a collecting interval.	"4.9.4 EQ Server Communication Test" (p.4-169)
(12)	Start the operation and management of the new EQ server.	"4.9.5.1 Starting EQ Server Operation and Management" (p.4-172)
(13)	Start up EQ-GraphViewer on the new EQ server and check that the past and the latest data of the old EQ server should be displayed.	"5.4.1 Startup" (p.5-7)
(14)	If the IP addresses of the old and new EQ servers differ, change the host device of client computers.	-

## 8.6. Check EQ-ServerService Status and Restart

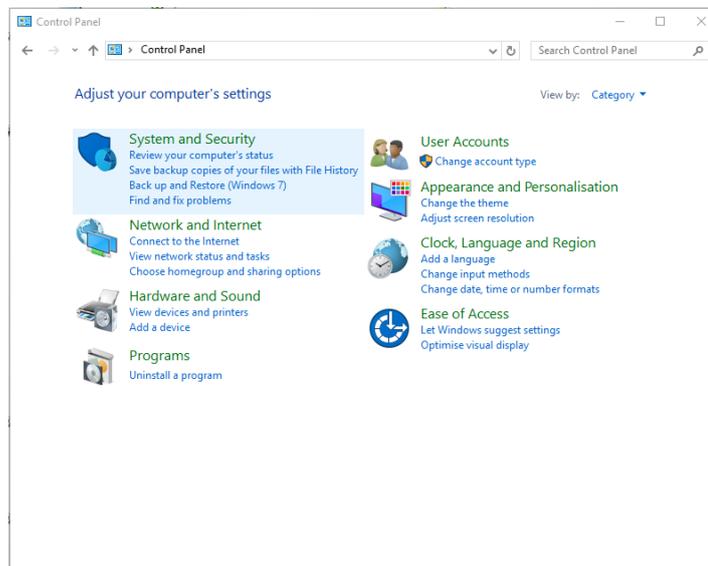
EQ-ServerService is executed automatically by Windows service. In normal cases you don't need to understand the EQ-ServerService running status. If you need to restart EQ-ServerService due to EQ server maintenance or a failure, however, perform the following steps.

### Precautions for Correct Use

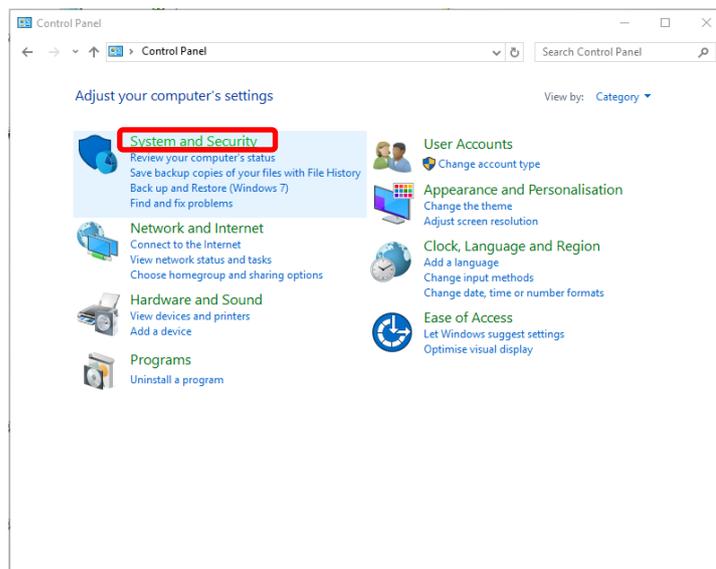
- Do not perform "start/stop" of EQ-ServerService by these steps under normal operations. Otherwise mismatch with this software may occur.

### ■ Checking EQ-ServerService Operation

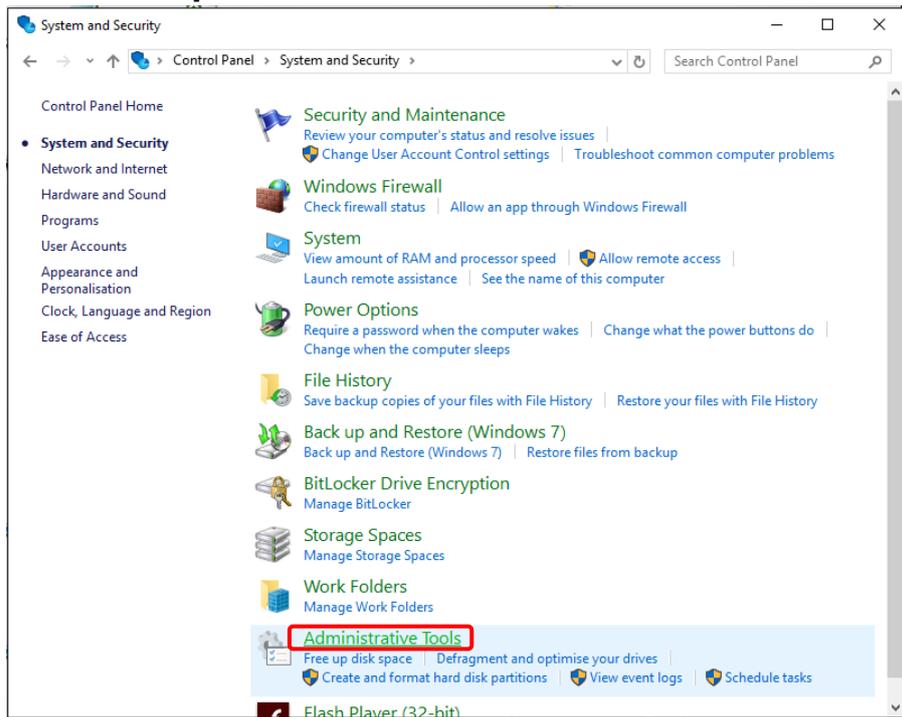
(1) Select Windows [Start] button, and click [Control Panel].



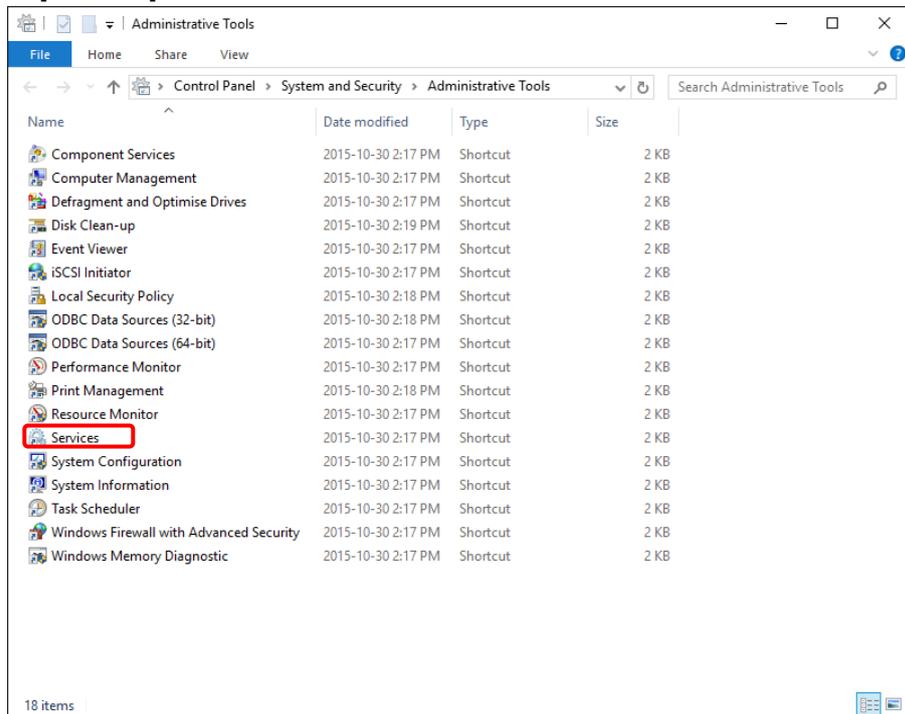
(2) Click [System and Security].



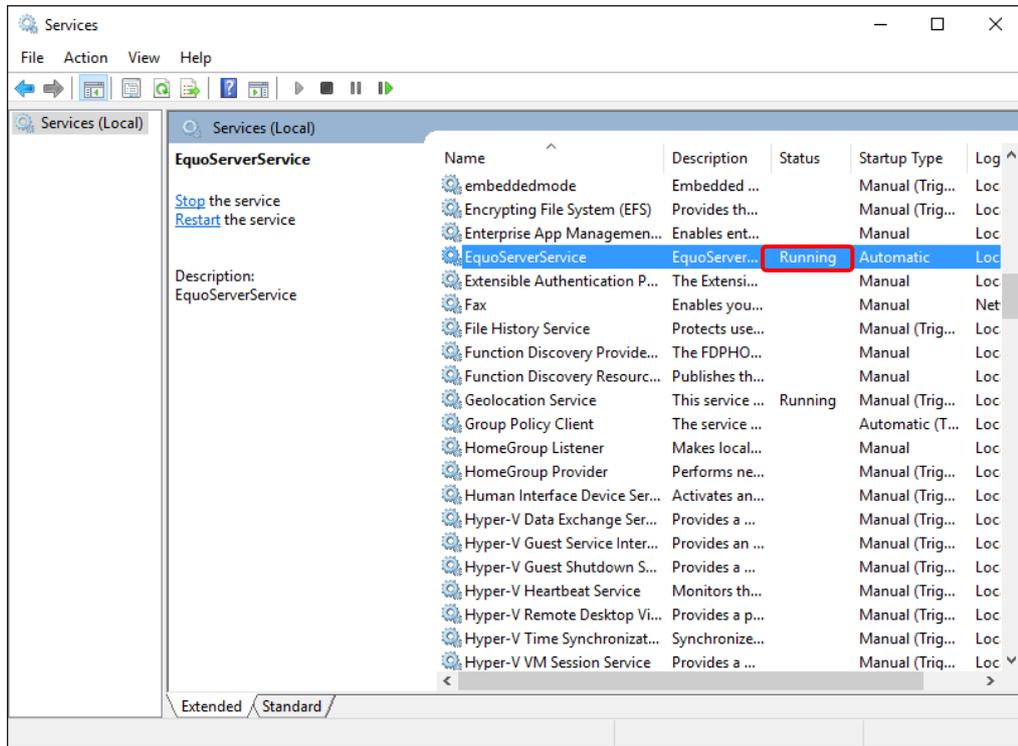
(3) Click [Administrative Tools].



(4) Double-click [Services].



(5) In the Service window, check the [Status] field of [EquoServerService] as the service name of EQ-ServerService.

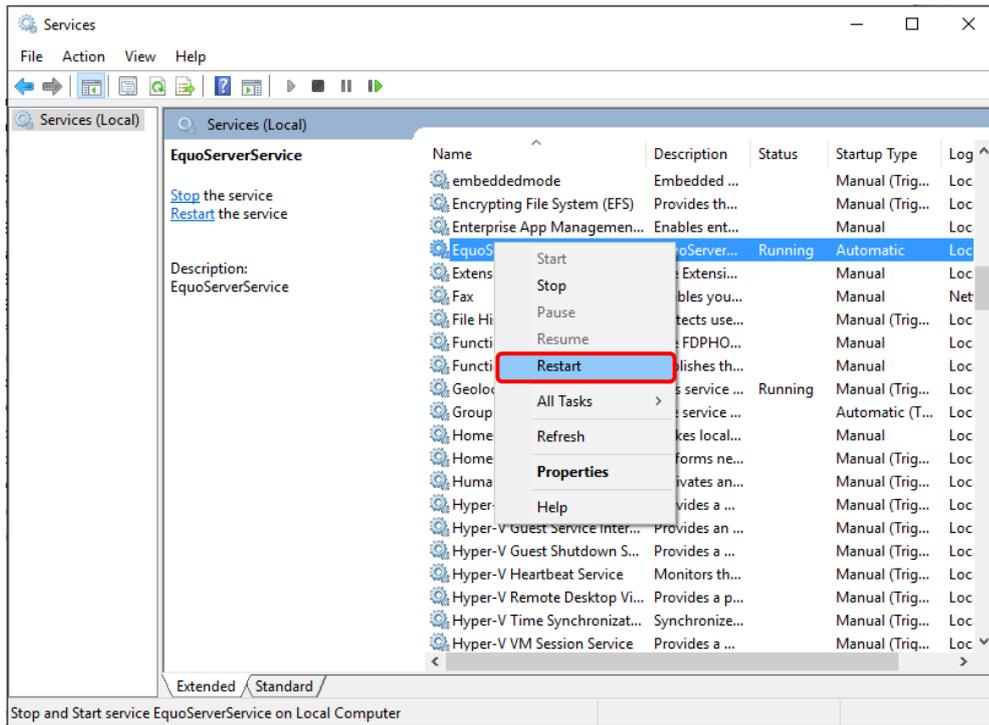


Status	Operation Details
Running	EQ-ServerService is running.
(Blank)	EQ-ServerService is stopped.

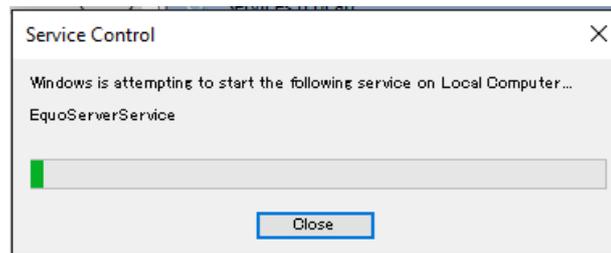
Startup Type	Operation Details
Automatic	EQ-ServerService is automatically started upon the next startup of the computer. This service must be [Automatic].
Manual	EQ-ServerService is not started upon the next startup of the computer.

## ■ Restarting EQ-ServerService

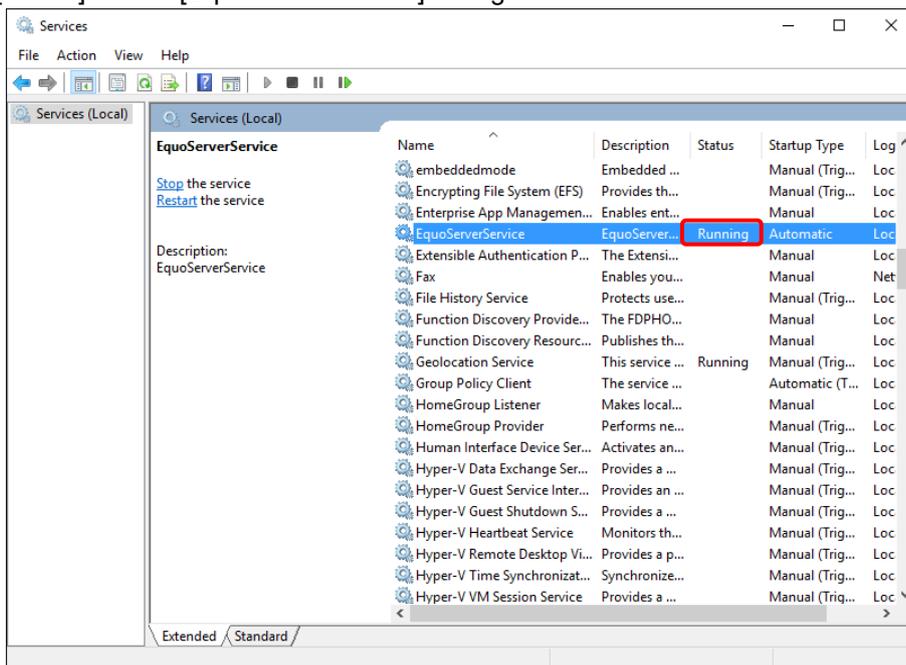
(1) On the [Services] screen, right-click [EquoServerService] and click [Restart].



(2) The following screen appears. Please wait for a while.



(3) The [Status] field of [EquoServerService] changes to Started.



Now EQ-ServerService is successfully restarted.

## 8.7. Perform Multiple Circuit Measurement by KM-N□

KM-N□ can perform measurement of up to four (4) circuits from A to D with the following 5 to 6 patterns.

To perform multiple circuit measurement by KM-N□, assign a node number for each circuit.

For KM-N□ that is designed to perform multiple circuit measurement, you need to register the measurement devices to EQ100 project as many as the number of the circuits.

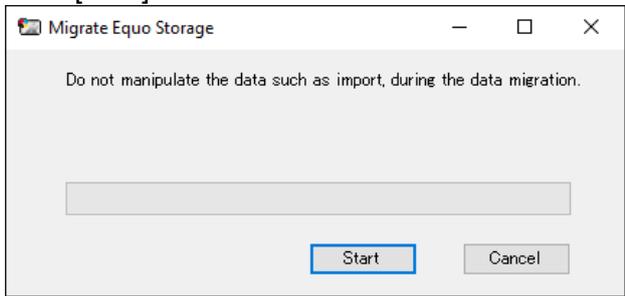
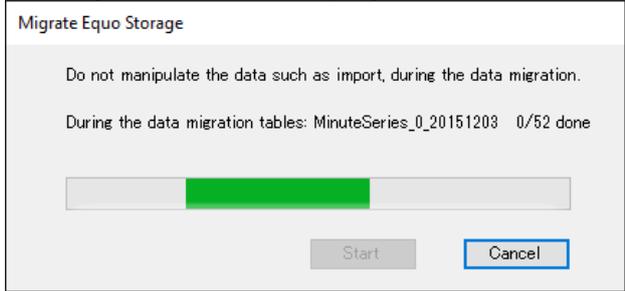
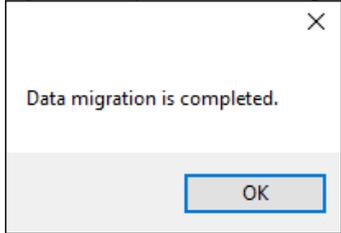
To perform four-circuit measurement of single-phase two-wire by KM-N□, for example, you must register four KM-N1 devices.

Phase-Wire	CT to use			
	CT1	CT2	CT3	CT4
3-phase 4-wire (3P4W) *	3-phase 4-wire (Circuit A)			
1-phase 2-wire (1P2W)	1-phase 2-wire (Circuit A)	1-phase 2-wire (Circuit B)	1-phase 2-wire (Circuit C)	1-phase 2-wire (Circuit D)
1-phase 3-wire (1P3W)	1-phase 3-wire (Circuit A)		1-phase 3-wire (Circuit C)	
3-phase 3-wire (3P3W)	3-phase 3-wire (Circuit A)		3-phase 3-wire (Circuit C)	
1-phase 2-wire voltage assignment (1P2W2)	1-phase 2-wire assignment (Circuit A)	1-phase 2-wire assignment (Circuit B)	1-phase 2-wire assignment (Circuit C)	1-phase 2-wire assignment (Circuit D)
1-phase 3-wire composite (1P3W2)	1-phase 3-wire (Circuit A)		1-phase 2-wire assignment (Circuit C)	1-phase 2-wire assignment (Circuit D)

\* KM-N1 does not support 3-phase 4-wire (3P4W).

## 8.8. Migrate Data from Ver.1.1.6 or Earlier Version

As Ver.1.1.7 uses a different database than previous versions, you need to migrate data from the older version. Installing Ver.1.1.7 on an environment with data of Ver.1.1.6 or earlier remained automatically migrates the configuration information, the latest data for 1 day, and summary result on a day and year basis, while other detail data take too much time to migrate and the installation may not be completed. For this reason, the migration of the detail data shall be manually migrated. Shown below are steps to manually migrate detail data.

Step	Description
(1)	Select [Start] - [All Programs] - [OMRON EQ-Viewer] and start [MigrateEquoStorage].
(2)	Click [Start]. 
(3)	The migration status is displayed. 
(4)	Upon completion a dialog box appears. 

### Precautions for Correct Use

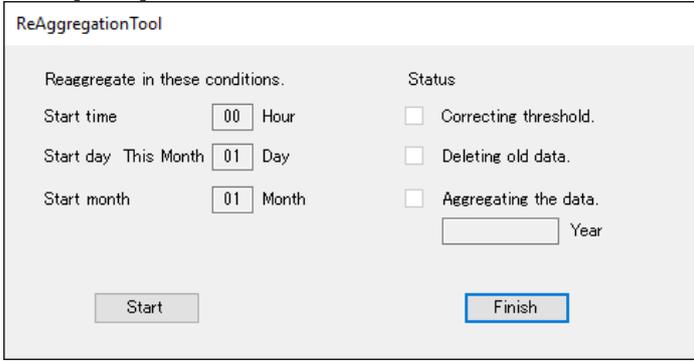
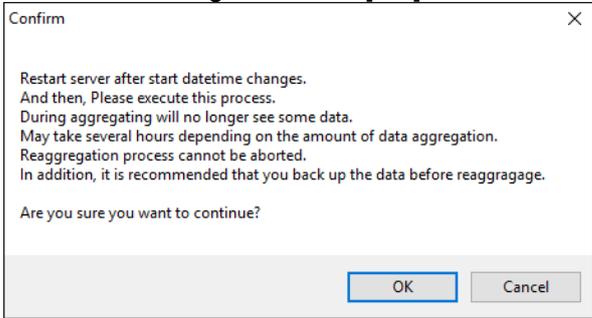
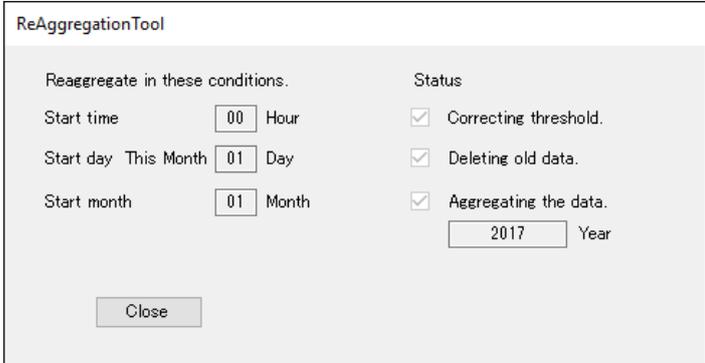
Data are to be migrated starting from the latest one. If data are imported using by the CSV file import function, the data may be overwritten by the data migration tool.

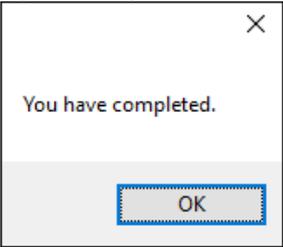
Once data migration is complete, you cannot redo data migration. If you halted the migration, however, the migration can be resumed.

Migration is not available unless the hard disk drive has a sufficient free area. If a message to the effect appears, ensure sufficient free space before migration.

## 8.9. Change Start Date/Time

Use EQ-Manager to change a start date of day, month, and year. Changing the start date causes inconsistency with data previously collected/summarized, resulting in a data display of incorrect values. To avoid the problem, you need to use the recalculation tool to correct data. Shown below are steps to use the recalculation tool.

Step	Description
Preparation	Use EQ-Manager to set a start date. Never fail to write the data to the server and restart it after then.
(1)	Select [Start] - [All Programs] - [OMRON EQ-Viewer] and start [Recalculation Tool].
(2)	Click [Start]. 
(3)	Read the message and click [OK]. 
(4)	The migration status is displayed. 

Step	Description
(5)	Upon completion a dialog box appears. 

### Precautions for Correct Use

After setting a start date using EQ-Manager, always write the data to the server and restart it. If the server is not restarted, the new start date is not reflected.

The recalculation processes data starting from the oldest one. As previous summary results are erased before recalculation, you cannot view day/month/year-basis data until the recalculation is complete.

If EquoServerService is stopped during recalculation, the recalculation is redone from the beginning when restarted.

## 9. Appendix

### 9.1. Troubleshooting

#### ■ EQ-Viewer Common

Item (Situation)	Phenomenon/Problem	Action
Installation	Installation of .NET Framework 3.5 SP1 does not start.	<ul style="list-style-type: none"> <li>- Windows 7 has .NET Framework 3.5 installed and you do not need to install it.</li> <li>- For Windows 10 and Windows Server 2012, you cannot automatically install .NET Framework 3.5. Install .NET Framework 3.5 beforehand. Open [Control Panel], select [Turn Windows features on or off], and enable .NET Framework 3.5.1 for installation. For details, ask Microsoft Corporation.</li> </ul>

#### ■ EQ-Manager: Creation of EQ100 Project

Item (Situation)	Phenomenon/Problem	Action
Measurement Device Registration (Wireless Sensor)	A host device cannot be configured for wireless sensor registration.	Before registering a wireless sensor in measurement device registration, you must register the wireless master unit in the [Connection Device Registration].
Measurement Device Registration	After editing the measurement device registration of the EQ project and writing it to EQ100, past data could not be read any longer.	Write the EQ project before being edited for the measurement device to EQ100. If you accidentally deleted a measurement device being logged by EQ100 from the EQ project, you cannot read the past data even after registering and writing the measurement device with the same setting again to EQ100.
Channel Registration	After editing the channel registration of the EQ project and writing it to EQ100, past data could not be read any longer.	Write the EQ project before being edited for the channel to EQ100. If you accidentally deleted a channel being logged by EQ100 from the EQ project, you cannot read the past data even after registering and writing the same channel of the same measurement device again to EQ100.
Data Type	A registered data type cannot be deleted.	<p>You cannot delete a data type configured for (assigned to) a channel as shown below.</p> <ul style="list-style-type: none"> <li>- Data type configured for a channel</li> <li>- Data type configured for an operation channel</li> </ul> <p>Check the necessity of data types configured for the channel, and modify the channel setting or delete the data type or types.</p>

9. Appendix

Item (Situation)	Phenomenon/Problem	Action
Online with EQ100	Online with EQ100 is not available.	<ul style="list-style-type: none"> <li>- Check that the power of EQ100 should be ON.</li> <li>- Check that a LAN cable should be connected to the LAN connection port of EQ100.</li> <li>- Check that the computer's port (4211) should have been released.</li> <li>- Check the network setting of EQ100, e.g. IP address.</li> <li>- Check the network setting of the computer, e.g. IP address.</li> </ul>
Writing EQ Project through SD Card	The device alarm indicator of EQ100 turned ON, and setting is not available.	The EQ100 project may not have been properly saved in the SD card. See "EQ100 User's Manual" to check.
Operation Monitor (EQ Project)	A status of a measurement device is displayed as "--" and cannot transition to the collecting status.	"--" appears before EQ100 checks the measurement device status. Please wait for a collecting interval configured in the EQ project.
	A status of a measurement device is displayed as "Error".	<ul style="list-style-type: none"> <li>- Check that the power of the measurement device should be ON.</li> <li>- Check the LAN connection/RS-485 wiring between EQ100 and the measurement device.</li> <li>- Communication between EQ100 and the measurement device is available but EQ100 cannot collect measured data. Check the measurement device main body (e.g. main body failure) and setting.</li> <li>- Make sure that neither "Operation Stop Error" nor "Operation Continuation Error" occurred in PLC's CPU unit. If "Low Battery" error occurred in a CPU unit, "Operation Continuation Error" occurs and the EQ100 does not record data from the PLC. Replace the CPU unit's battery before "Low Battery" occurs. * An error due to operation continuation failure does not occur for EQ100 of the firmware version 1.160 or later.</li> </ul>
	A status of a measurement device is displayed as "Communication Error".	<ul style="list-style-type: none"> <li>- Check that the communication setting of the measurement device and the setting in the EQ project should match.</li> <li>- Communication between EQ100 and the measurement device is not available. Check the hard wiring between EQ100 and the measurement device as well as setting of measurement device registration in the EQ project.</li> </ul>
Maintenance (Setting)	The project file is lost. The latest one cannot be recognized any longer.	Connect online and read the project file from EQ100. (See "4.7.3 Reading EQ100 Setting" p4-104.)

■ EQ-Manager: Creation of EQ100 Server Project

Item (Situation)	Phenomenon/Problem	Action
Collecting Device Registration	After editing the collecting device registration of the EQ server project and writing it to EQ100, past data could not be read any longer by EQ-GraphViewer.	Write the EQ server project before being edited for the collecting device to the EQ server. If you accidentally deleted a collecting device being logged by the EQ server from the EQ server project, you cannot read the past data even after registering and writing the collecting device with the same setting again to the EQ server.
Channel Registration	After editing the channel registration of the EQ server project and writing it to EQ100, past data could not be read any longer.	Write the EQ server project before being edited for the channel to the EQ server. If you accidentally deleted a channel being logged by the EQ server from the EQ server project, you cannot read the past data even after registering and writing the same channel of the same collecting device again to the EQ server.
Control Value Setting	A graph view is not available in the control value setting in the monitoring setting	Connect online and stop logging or communication test if being performed. Open the [Control Value Setting] screen, and click the [Edit] button to view a graph.
Data Type	A registered data type cannot be deleted.	You cannot delete a data type configured for (assigned to) a channel as shown below. - Data type configured for a channel - Data type configured for an operation channel  Check the necessity of data types configured for the channel, and modify the channel setting or delete the data type or types.
Operation Monitor (EQ Server Project)	A status of EQ100 is displayed as "--" and cannot transition to the logging status.	- "--" appears before the EQ server checks the collecting device (EQ100) status. Please wait for a collecting interval configured in the EQ project. - The collecting device registered in the EQ server project may not be valid or may have no valid channel. Open the EQ server project written to the EQ server and check the channels.
	A status of EQ100 is displayed as "Error".	- Check that the power of EQ100 should be ON. - Check the connection between the computer and EQ100. - Communication between the EQ server and the collecting device is available but the EQ server cannot collect measured data. Check the EQ100 main body (e.g. main body failure) and setting using the EQ100 Web UI function.

9. Appendix

Item (Situation)	Phenomenon/Problem	Action
	<p>A status of EQ100 is displayed as "Communication Error".</p>	<ul style="list-style-type: none"> <li>- Check that the IP address configured for EQ100 and the IP address of the target EQ100 configured in the EQ server project should match.</li> <li>- Communication between the EQ server and the collecting device is not available. Check the hard wiring between EQ100 and the computer as well as setting of collecting device registration in the EQ server project.</li> </ul>
	<p>A status of EQ100 is displayed as "Mismatch" and cannot transition to the logging status.</p>	<p>The EQ server has a registered channel which does not exist in EQ100, resulting in a mismatch. Open the EQ server project written to the EQ server, check the channels, and write the project again.</p>
<p>Logging</p>	<p>Can I make sure that the EQ server is logging or not?</p>	<p>Open the written EQ server project and connect online. The status is displayed on the status bar.</p>

Item (Situation)	Phenomenon/Problem	Action
CSV File Import	An EQ server project was created but does not appear in the CSV import list.	Write the EQ server project to the EQ server. The list does not show an item that was not written to the EQ server.
	A file was added of a folder was searched in the [Select CSV File] screen but is not displayed in the list.	<ul style="list-style-type: none"> <li>- The project may not be the EQ server project of the target EQ100. Open and import the EQ server project of the target EQ100.</li> <li>- A CSV file may be selected that is not for the target EQ100. Select a CSV file for the target EQ100.</li> <li>- The SNC ID of the EQ100 for CSV import may be incorrect. In the [Collecting Device Registration] screen, specify a correct SNC ID (alphanumeric character). Then connect the EQ server project online and perform [Write Settings]. You can check the SNC ID on the Web screen of EQ100.</li> <li>- You may have selected a wrong CSV file. Check and select a correct CSV file.</li> </ul>
	In the [Execute CSV File Import] screen, an error occurs in the import result.	The content of the CSV file may be corrupt. EQ100 keeps data for 1 week. You can save the data in an SD card again. For details, see "EQ100 User's Manual".
	In the [Execute CSV File Import] screen, a mismatch occurs in the import result.	The channel selected in the [Import Channel Setting] screen is not included in the target CSV file. Import of the target CSV file was not done. Check the channel selected in the [Import Channel Setting] screen again.
Maintenance (Setting)	The project file is lost. The latest one cannot be recognized any longer.	Connect online and read the project file from the EQ server. (See "4.9.3 Reading EQ Server Setting" p4-166.)

## ■ EQ-GraphViewer

Item (Situation)	Phenomenon/Problem	Action
Viewing Graph	A screen is not displayed. Connection timed out.	<ul style="list-style-type: none"> <li>- Check the EQ server IP address to connect. If the computer using EQ-GraphViewer is the EQ server itself, specify "localhost". If the computer you are using is a client computer, specify the IP address of the EQ server.</li> <li>- The number of connected devices may have exceeded the limit.</li> </ul>
	A classified graph is not displayed.	A classified graph can be displayed only for a measurement device that can use the 3-STATE function. Measurement devices that can use the 3-STATE function include KM1-PMU1A, KM1-PMU2A, and KM50-E. For channels that require registration, see "9.5.2 Measurement Device Channel List" (p9-35.).
	A graph cannot be refreshed even though [Auto Update Graph] is being selected.	Check the network environment of the computer and EQ100. Use EQ-Manager to open the EQ server project and use the operation monitor to check the EQ100 status.
	Energy data is displayed in a line graph.	The logarithm view may have been applied to the energy data. Check that the target data type in the [Data Type Setting] of the EQ server project should be energy data.
Changing Setting	After changing the EQ100 setting, a view on EQ-GraphViewer was not refreshed.	To the EQ server project, update the EQ project information you changed.
CSV File Output	Output file letters are garbled.	<p>The character codes used for the software viewing the CSV file and the file may be unmatched.</p> <p>Change the character code of the file.</p>

## 9.2. Notes on Installation Steps

This section describes the steps of preparation for operation and management.

- Enabling .NET Framework 3.5 SP1
- Connection permission of communications port number "4211"
- Disabling Web browser (Internet Explorer) proxy

If you forget any of the above, a problem may occur. Please read and understand the followings.

### 9.2.1. Enabling .NET Framework 3.5 SP1

To utilize EQ-Watcher and attached software of EQ100 (EQ-Viewer), the .NET Framework 3.5 SP1 feature must be enabled beforehand.

If the computer's OS is Windows 10 or Windows Server 2012 R2, the enabling steps are required in addition to the installation. Otherwise an unexpected error or problem may occur during operation and management.

Described below are general steps to enable .NET Framework 3.5 SP1 in Windows 10 and Windows Server 2012 R2.

#### ■ Windows 10

The steps differ for the environment connected to the Internet or not.

Ref.) <http://msdn.microsoft.com/ja-jp/library/vstudio/hh506443.aspx>

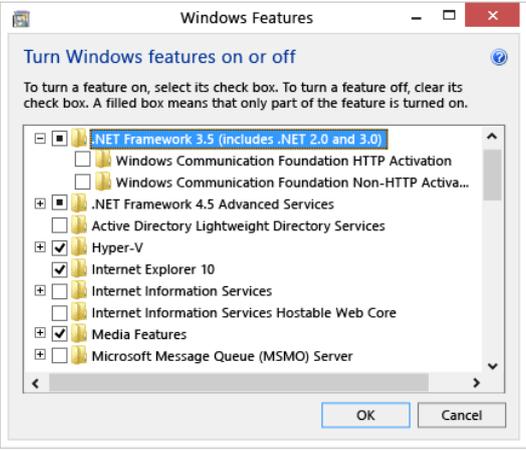
- Connected to the Internet

Select [Control Panel] - [Programs and Features] - [Turn Windows features on or off], and select the [Microsoft .NET Framework 3.5.1] check box.

### Enable the .NET Framework 3.5 in Control Panel

You can enable the .NET Framework 3.5 through the Windows Control Panel. This option requires an Internet connection.

1. Press the Windows key **Windows** on your keyboard, type "Windows Features", and press Enter. The **Turn Windows features on or off** dialog box appears.
2. Select the **.NET Framework 3.5 (includes .NET 2.0 and 3.0)** check box, select **OK**, and reboot your computer if prompted.



- Not Connected to the Internet
- Acquire the Windows 10 installation media.

Set the media in the computer, and perform the following steps to start the enabling process.

If you cannot connect to the Internet, you can enable the .NET Framework 3.5 by using the Deployment Image Servicing and Management (DISM) command-line tool and specifying the installation media (ISO image or DVD) you installed Windows 8 from.

1. In Windows 8 or Windows Server 2012, open a Command Prompt window with administrative credentials (that is, choose **Run as administrator**).
2. To install the .NET Framework 3.5 from installation media located in the `D:\sources\sxs` directory, use the following command:

```
DISM /Online /Enable-Feature /FeatureName:NetFx3 /All /LimitAccess /Source:d:\sources\sxs
```

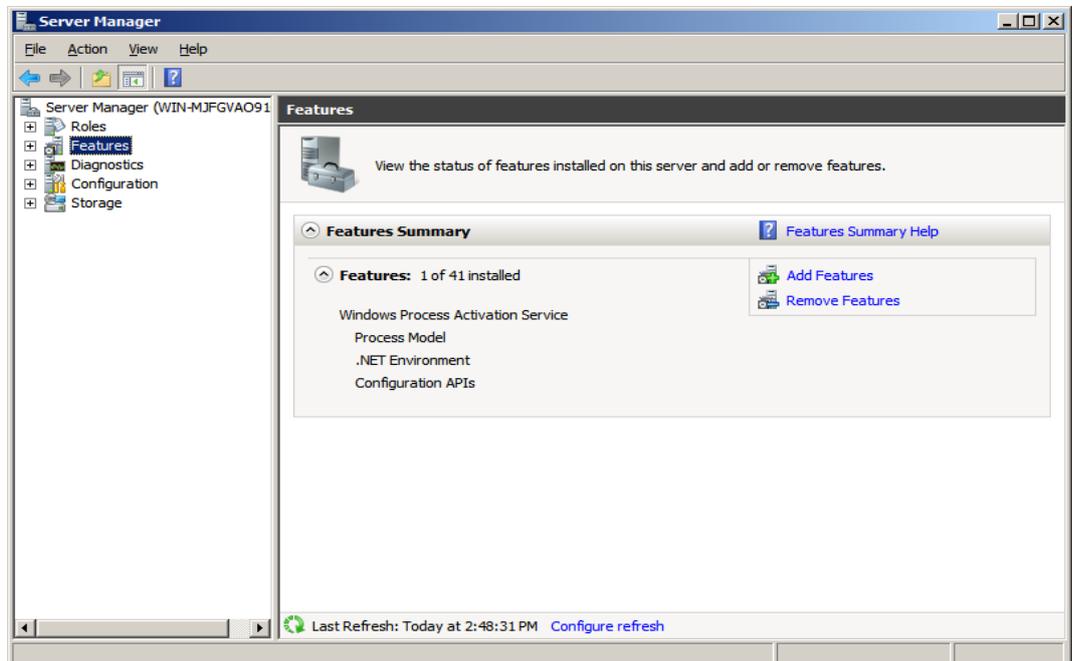
where:

- `/Online` targets the operating system you're running (instead of an offline Windows image).
- `/Enable-Feature /FeatureName:NetFx3` specifies that you want to enable the .NET Framework 3.5.
- `/All` enables all parent features of the .NET Framework 3.5.
- `/LimitAccess` prevents DISM from contacting Windows Update.
- `/Source` specifies the location of the files needed to restore the feature (in this example, the `D:\sources\sxs` directory).

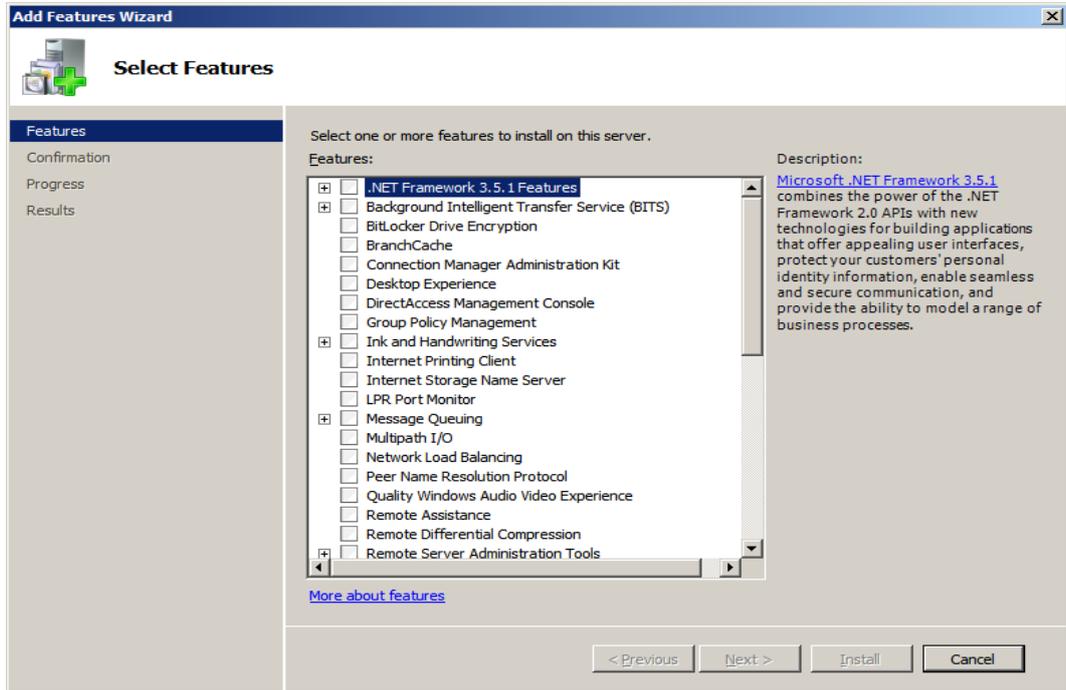
### ■ Windows Server 2012 R2

Follow the steps below to enable .NET Framework 3.5 SP1.

- (1) Start up the Server Manager, click the [Features] node in the left pane, and click the [Add Features] link in the right pane.

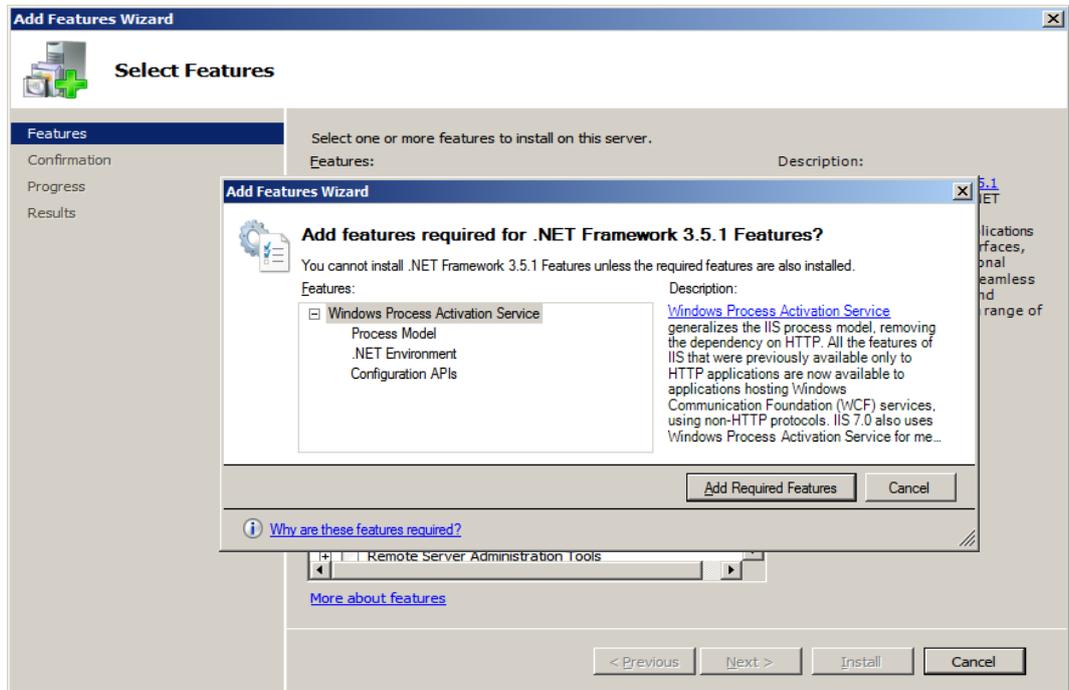


(2) In the [Add Features Wizard] - [Select Features] dialog box, select the [.NET Framework 3.5.1 Features] check box.



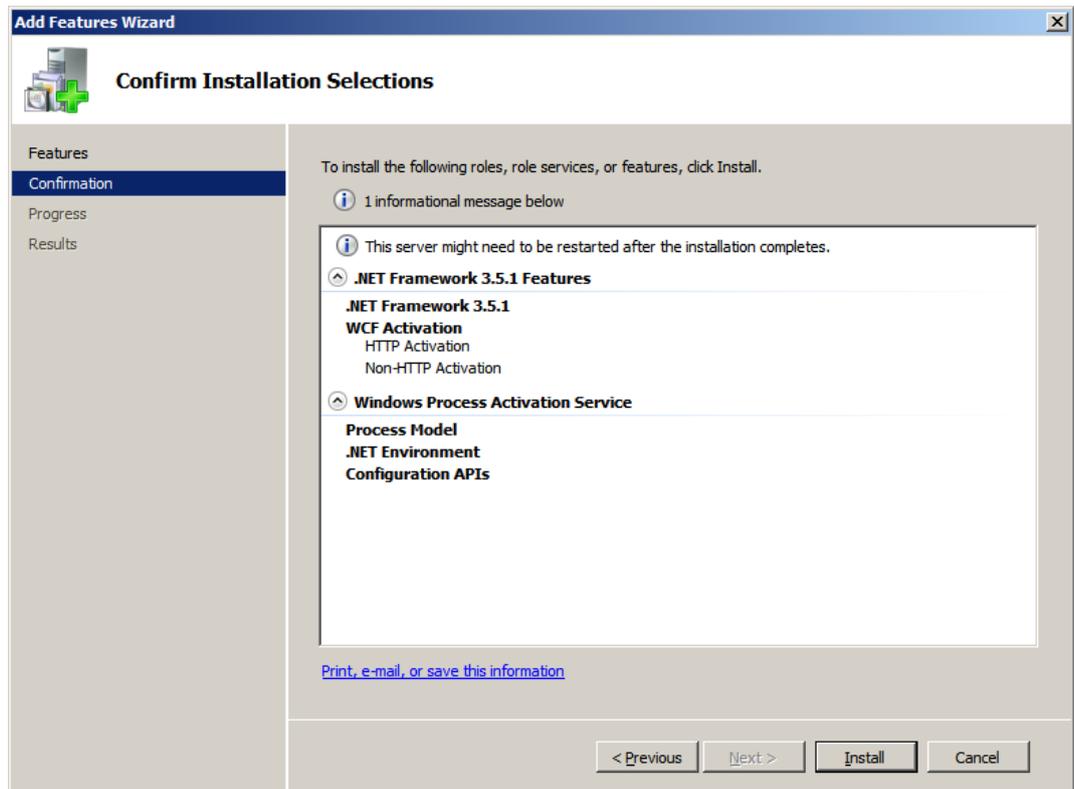
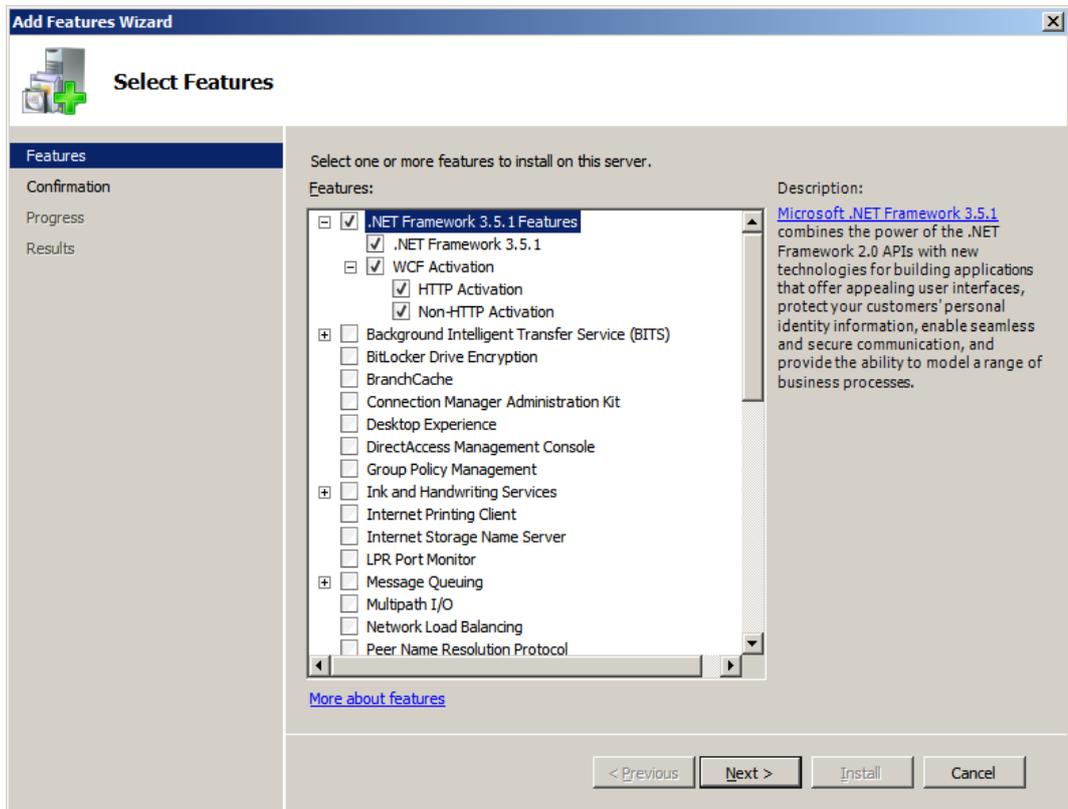
(3) The [Add Features Wizard] dialog box appears.

If you have no service to change from the default, press [Add Required Features]. If you have a service to change, open the node to edit in the [Features] field, and press [Add Required Features].

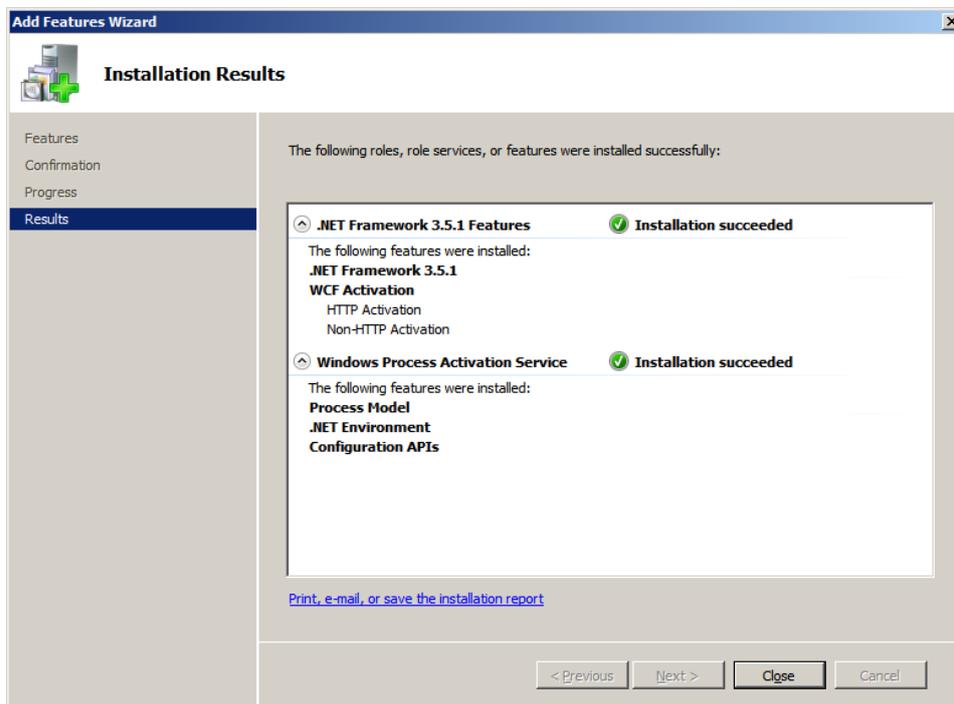


(4) In the [Add Features Wizard] - [Select Features] dialog box is back, press [Next].

The [Confirm Installation Selections] dialog box appears. Check the items to install, and press [Install].



(5) When the installation (.NET Framework enabling) was successful, the following screen appears. Press [Close].



Now .NET Framework 3.5 SP1 of Windows Server 2012 R2 is successfully enabled.

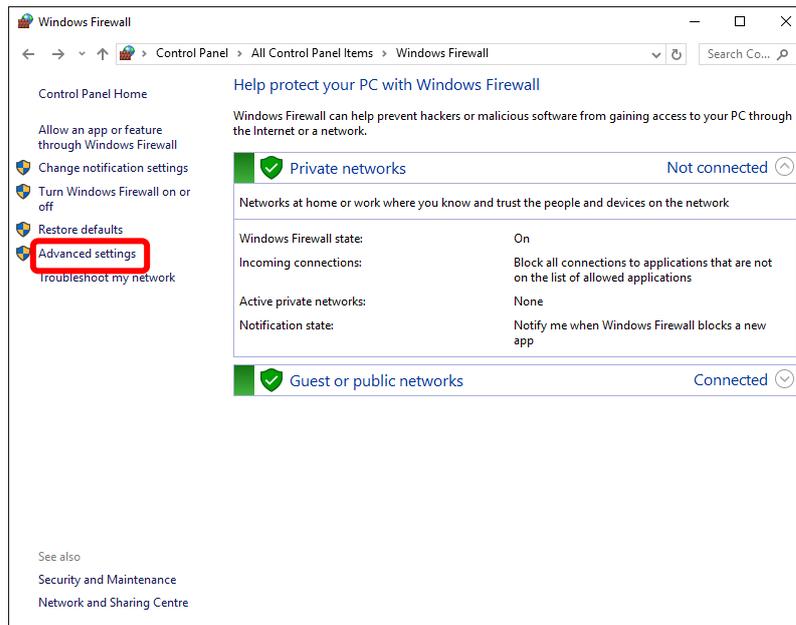
### 9.2.2. Connection Permission of Communications Port Number "4211" (Windows Firewall Setting Change)

To utilize EQ-Watcher and attached software of EQ100 (EQ-Viewer), connection of the communications port number "4211" must be permitted beforehand.

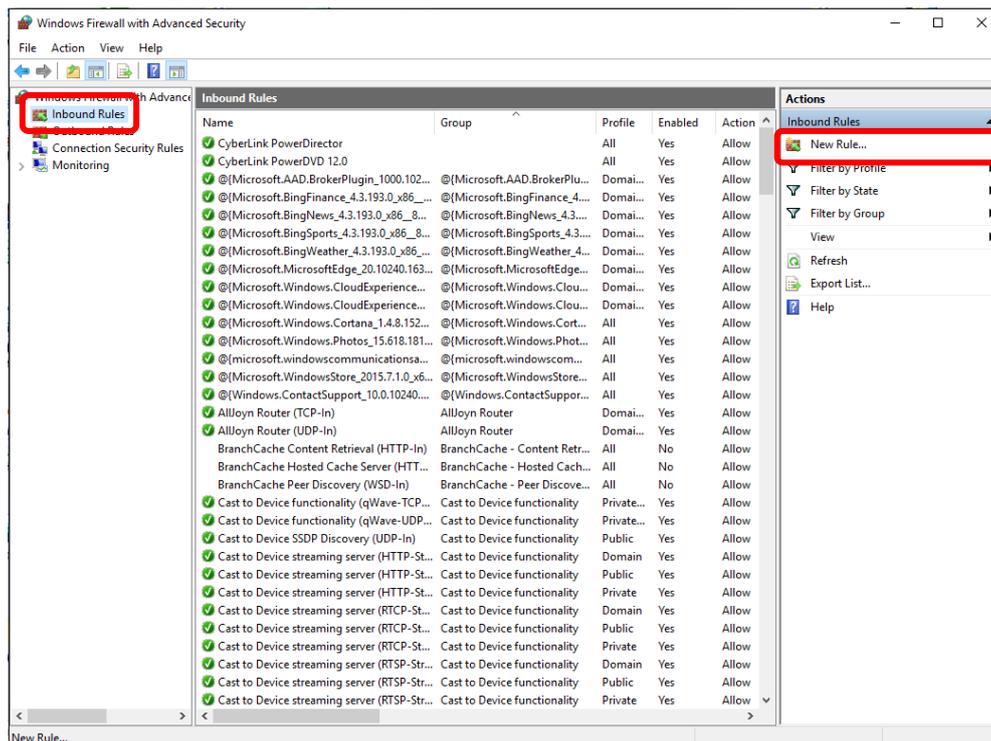
If the computer has Windows Firewall enabled, this port has been disabled. As a result, a problem may occur that a client computer cannot connect to the EQ server.

Described below are steps to permit the connection of the port in the EQ server (for Windows 7).

- (1) On the EQ server, select [Control Panel] - [System and Security] - [Windows Firewall], and click [Advanced settings] in the left pane.



- (2) Click [Inbound Rules] in the left pane, and click [New Rule] in the right pane.



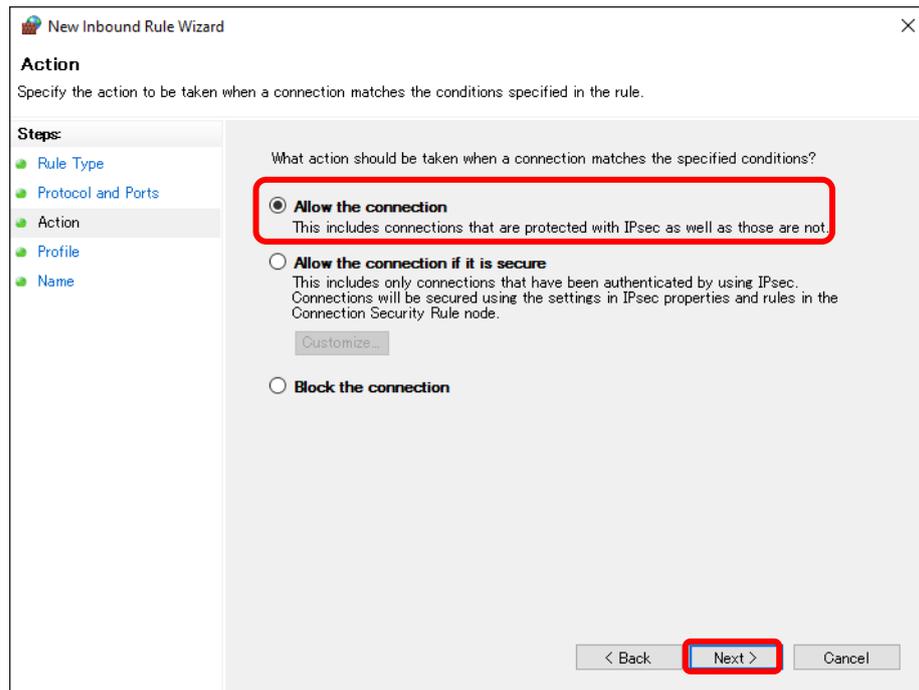
(3) In the [New Inbound Rule Wizard] dialog box, select [Port] and click [Next].

The screenshot shows the 'New Inbound Rule Wizard' dialog box. The title bar reads 'New Inbound Rule Wizard'. The main heading is 'Rule Type' with the instruction 'Select the type of firewall rule to create.' On the left, a 'Steps' pane lists 'Rule Type', 'Protocol and Ports', 'Action', 'Profile', and 'Name', with 'Rule Type' selected. The main area asks 'What type of rule would you like to create?' and offers three radio button options: 'Program' (Rule that controls connections for a program.), 'Port' (Rule that controls connections for a TCP or UDP port.), and 'Predefined:' (Rule that controls connections for a Windows experience.). The 'Predefined:' option has a dropdown menu showing 'AllJoyn Router'. A 'Custom' option (Custom rule.) is also present. At the bottom right, there are '< Back', 'Next >', and 'Cancel' buttons. Red boxes highlight the 'Port' radio button and the 'Next >' button.

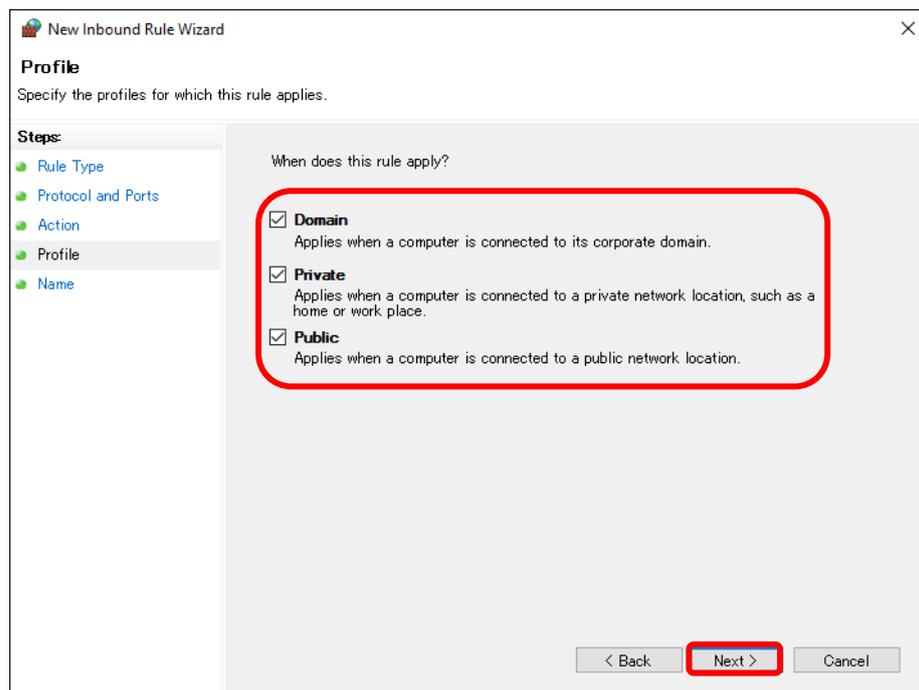
(4) Select [TCP] and [Specific local ports:], enter "4211" in the [Specific local ports:] field, and click [Next].

The screenshot shows the 'New Inbound Rule Wizard' dialog box at the 'Protocol and Ports' step. The title bar reads 'New Inbound Rule Wizard'. The main heading is 'Protocol and Ports' with the instruction 'Specify the protocols and ports to which this rule applies.' On the left, the 'Steps' pane shows 'Rule Type', 'Protocol and Ports', 'Action', 'Profile', and 'Name', with 'Protocol and Ports' selected. The main area asks 'Does this rule apply to TCP or UDP?' with radio buttons for 'TCP' and 'UDP'. Below, it asks 'Does this rule apply to all local ports or specific local ports?' with radio buttons for 'All local ports' and 'Specific local ports:'. The 'Specific local ports:' option is selected, and its text box contains '4211'. Below the text box is the example text 'Example: 80, 443, 5000-5010'. At the bottom right, there are '< Back', 'Next >', and 'Cancel' buttons. Red boxes highlight the 'TCP' radio button, the 'Specific local ports:' radio button, the text box containing '4211', and the 'Next >' button.

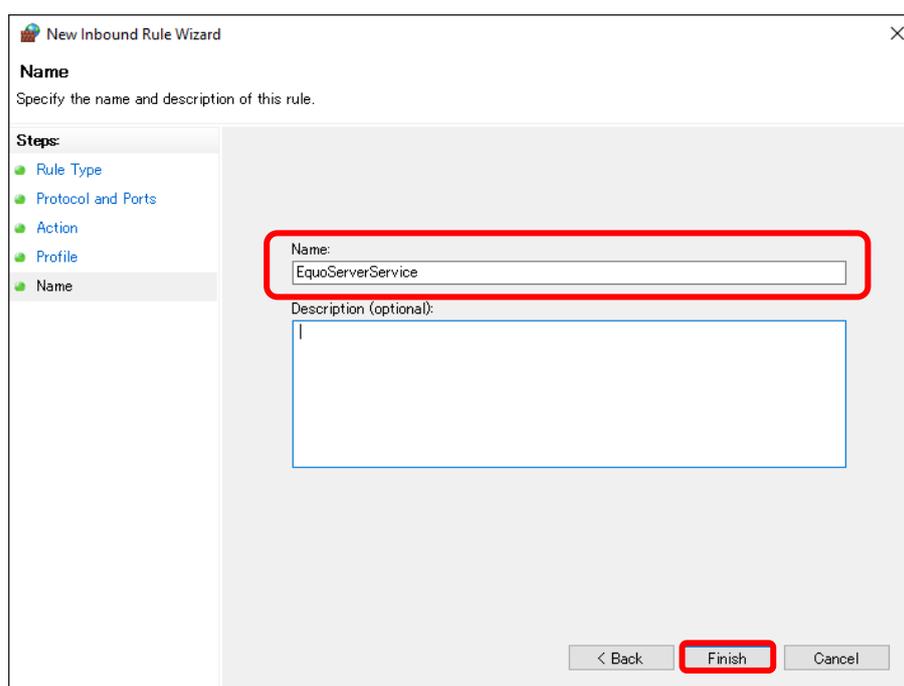
(5) Select [Allow the connection] and click [Next].



(6) Select a profile to apply the rule, and click [Next].



(7) Enter in the [Name] field and click [Finish].



Now Windows Firewall has been configured.

**Reference**

To use the SNTP server for system time synchronization, the port number "123" is typically used. If you need to allow connection of other ports, see the steps described above.

### 9.2.3. Disabling Web Browser (Internet Explorer) Proxy

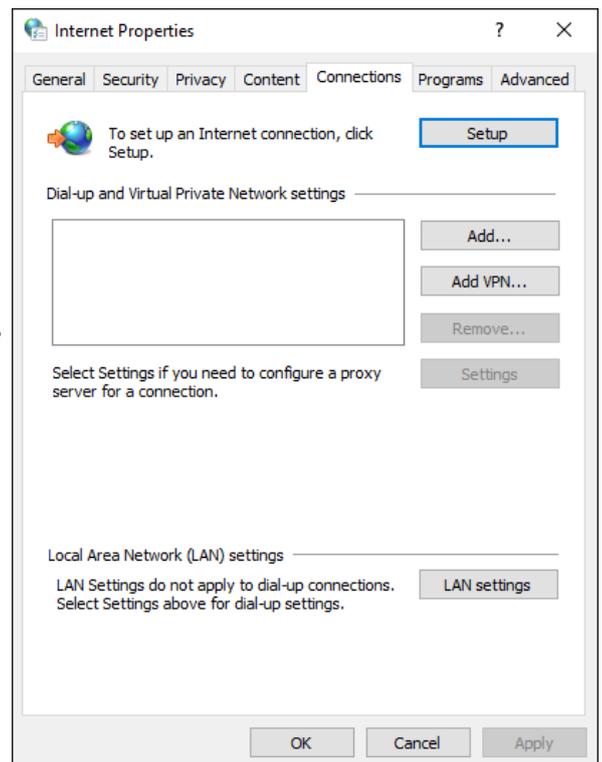
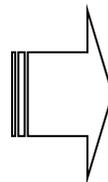
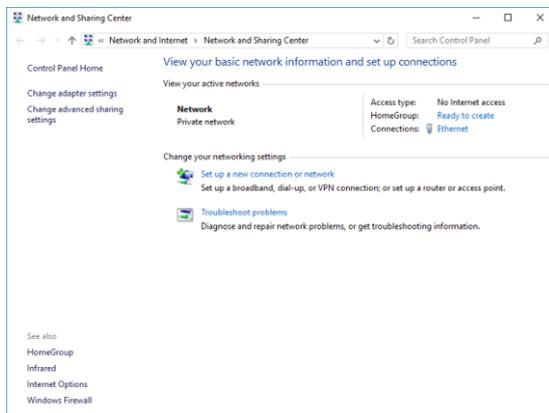
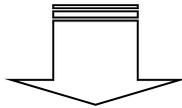
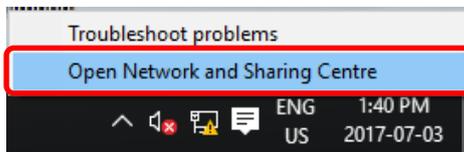
In using the Web UI function or the EQ-Manager via connection from a client computer to EQ100, or in using the data in the application by connecting from the client PC to the EQ server, connection may be disabled depending on the proxy setting. When this happens, ask a system administrator for optimum proxy setting to enable the connection to the EQ or EQ server from the client PC.

If proxy is being enabled in browser software, a problem may occur that logon to the Web UI is not available or the connection is disabled.

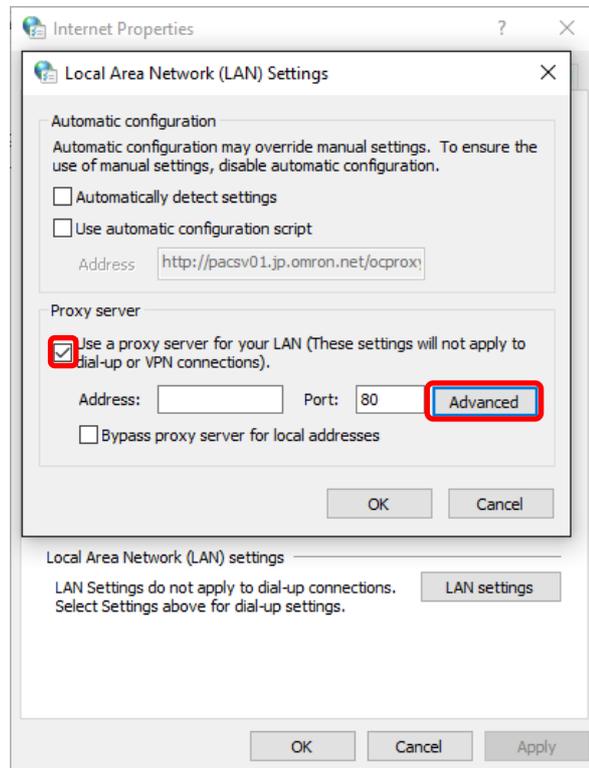
When the setting is changeable by the operator, it needs to be set so that the proxy route connection is not to be applied.

Described below are steps for proxy setting of Internet Explorer.

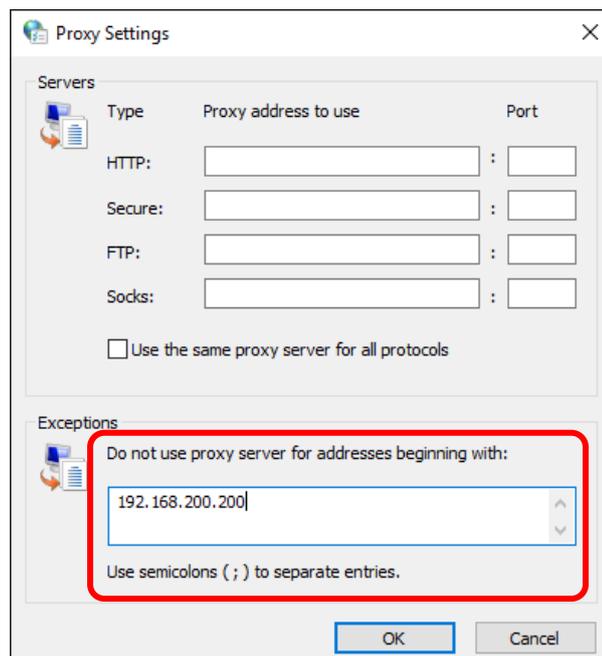
- (1) On Internet Explorer, select [Tool] - [Internet Options]. The [Internet Options] dialog box appears.



- (2) If the [Use a proxy server for your LAN] check box in [Proxy Server] is being selected, clear it and click [OK].



- (3) When there is no checkmark on the [Use a proxy server for your LAN] check box in [Proxy server], there is no need of setting. Check that no checkmark in the [Use automatic configuration script] check box, and press the [Advanced Setting] button. If there is a checkmark on this box, clear it.
- (4) When the [Proxy Settings] screen is displayed, input the IP address to exclude on the [Exceptions] column.



### 9.3. Error Message List

Described below are error messages on EQ-Viewer. Refer to the table to solve the problem.

#### ■ EQ-Manager: Common

Message	Status/Action
<b>Online</b>	
Failed to be online.	Online connection failed.
Connection timed out.	- Connection to EQ100 failed. Check the network and host device. (Check the proxy setting of Internet Explorer as well if proxy is used) - Ask the network administrator for firewall setting. For Windows Firewall, see "9.2.2 Connection Permission of Communications Port Number "4211" (Windows Firewall Setting Change)" (p9-12.).
<b>Logging Start/Stop</b>	
Already started	EQ100 has already started logging.
Failed to start the logging.	Logging could not be started as the EQ project or EQ server project setting (e.g. channel designation) is not valid. Check the details of the project.
Processing the stop task. Please wait for a while.	Processing the stop task of logging you just stopped. To start, please wait for a while.
Failed to start logging due to unsuccessful connection.	Check that the power of EQ100 should be on. Check the network environment of EQ100 and the EQ server.
One or more devices are not connected. Do you want to start logging?	Online connection is not available with one or more devices that are physically connected to EQ100. Check the connection of the device(s).
Already stopped	EQ100 has already stopped logging.
Failed to stop logging due to unsuccessful connection.	Check that the power of EQ100 should be on. Check the network environment of EQ100 and the EQ server.
<b>Test Start/Stop</b>	
Failed to start the communication test.	The test could not be started as the EQ project or EQ server project setting (e.g. channel designation) is not valid. Check the details of the project.
Already stopped	EQ100 has already stopped the test.
<b>Setup Write/Load</b>	
Logging now. Cannot Write Settings.	Please stop logging before writing.
Failed to write due to unsuccessful connection.	Check that the power of EQ100 should be on. Check the network environment of EQ100 and the EQ server.
A new project with a different name. Do you want to write the setting?	The project you are trying to write is different from the previously written project. If you do not need to overwrite the project, please use the previously written project.
No channel with logging enabled. Do you want to write the setting?	A confirmation is displayed when the logging of all the channels are invalid or when only the channel of virtually collected device is valid.
Do you want to save the change to this project file?	The project you opened is being edited. If necessary, save the project file.
Failed to write the setting.	- The content of the project file may be corrupt. Create the project file again.

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Message	Status/Action
The operation channel contains channels with different measurement cycles. The measurement cycles of the channels used in an operation channel must be the same.	Check the settings of operation channels and collecting intervals of the channels used in operation channels. Set the same measurement cycle, or, if logging of the operation channel is not required, disable logging of the operation channel before writing.
A channel used for an operation channel is contained that is not logged. Logging must be enabled for all the channels used in an operation channel.	Check the settings of operation channels and logging configuration of the channels used in operation channels. Enable logging configuration of the channels, or, if logging of the operation channel is not required, disable logging of the operation channel before writing.
The setting that has been edited on other computer is about to be written. Check that it is the currently operating EQ server project. Are you sure you want to write the setting?	An EQ server project that has been edited on other computer is about to be written. If doing so, the previously collected data is no longer displayed as the data cannot be inherited.
When there is a channel with a measurement cycle of 1 minute, the output cycle of the user-specified file cannot be set to 24 hours due to large amount of collected data. Shorten the output cycle.	Set the output cycle to 12 hours or shorter.
<b>Password Setting</b>	
Password Input Error	The password is incorrect. Enter the correct password.
<b>Help</b>	
Failed to open Help File.	The manual file could not be opened. Make sure that the environment allows the use of PDF files.
<b>Internal error</b>	
A failure occurred in the database. (Some kind of disk I/O error occurred) Contact Omron's customer service.	Contact Omron's customer service.
A failure occurred in the database. (The database disk image is malformed) Contact Omron's customer service.	Contact Omron's customer service.

■ EQ-Manager: Creation of EQ Project

Message	Status/Action
<b>Measurement Device Registration</b>	
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
The number of units available for registration will be exceeded.	The number of units available for registration is exceeded. Correct the number of units within the limit.
The number of devices with measurement cycles of less than 1 minute has already reached the specified one.	The number of devices with a measurement cycle of 1 minute is limited to 40 channels per port. Change the EQ100 port or measurement cycle.
Enter numerical data from 1 to 99.	The unit number available for CompoWay/F setting is from 1 to 99.
Enter numerical data from 1 to 254.	The node number available for wireless setting is from 1 to 254.
Enter numerical data from 1 to 14.	The unit number available for CompoWay/F setting using wireless communication is from 1 to 14.
The IP address is already used.	The specified IP address is already used. Change to a unique IP address.
The CompoWay/F unit number is already used.	The specified CompoWay/F unit number is already used. Change to a unique unit number.
The wireless unit ID is already used.	The specified wireless unit ID is already used. Change to a unique unit ID.
You will not be able to view data collected or imported in the past. Are you sure to delete?	If you write a project after deleting a device or a channel from the project, the saved data will not be read. Confirm deletion if necessary.
Cannot delete. An operation channel is contained.	A channel of the target device is included in an operation channel. Deletion cannot be done. Delete the operation channel if necessary before changing.
The channel of the device you changed its measurement cycle is used in an operation channel. Make sure that the measurement cycles of the channels used in an operation channel should be the same.	Make sure that the measurement cycles of the channels used in an operation channel should be the same.
The channel of {device name} is used in an operation channel. Make sure that the measurement cycles of the channels used in an operation channel should be the same.	If a change a measurement cycle is done, the measurement cycles of the channels used in an operation channel will not be the same. Disable logging of the operation channel, or check the measurement cycles of the channels used for the operation channel. If the cycles are different, configure them to the same cycle.
<b>Connection Device</b>	
The number of available slave units to connect to the master unit will be exceeded.	The number of the wireless slave devices connected to the wireless master device exceeded the limit. Reduce the number of the wireless slave devices. The total number of the master, repeater, slave, and sensor devices must be up to 255.
The number of devices available for registration will be exceeded.	The number of devices available for registration exceeded the limit. Reduce the number of devices to connect.
Enter numerical data from 1 to 254.	The node number available for wireless setting is from 1 to 254.
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.

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Message	Status/Action
The CompoWay/F unit number is already used.	The specified CompoWay/F unit number is already used. Change to a unique unit number.
The wireless unit ID is already used.	The specified wireless unit ID is already used. Change to a unique unit ID.
<b>Channel Registration</b>	
The number of channels available for registration will be exceeded.	The total number of channels available for registration exceeded the limit. Reduce the number of channels. Maximum number of channels to register is 500.
The maximum number of channels for 1 minute of the measurement cycle with the same host device of connection will be exceeded.	The number of devices with a measurement cycle of 1 minute is limited to 40 channels per port. Change the EQ100 port or measurement cycle.
The maximum number of channels that can be registered to one group will be exceeded.	The number of channels available for registration to one group exceeded the limit. Either reduce the number of channels in the group or create a new group. The maximum number of channels that can be registered to one group is 50.
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
The maximum number of channels that can be registered to the same host device of connection will be exceeded.	The maximum number of channels that can be registered to the same host device of connection is exceeded. Reduce the number of channels. The maximum number is 200 channels.
Used in an operation channel. Cannot disable.	The target channel is included in an operation channel. As a result you cannot disable logging. Delete the operation channel if necessary before changing.
Cannot delete the channel registered to an operation channel.	The target channel is included in an operation channel. Deletion cannot be done. Delete the operation channel if necessary before changing.
Click the heading of the list to sort the "No." column in ascending order.	You can change the registration order only when the channels are listed in ascending order of the numbers. Click the heading of the list to sort the "No." column in ascending order, then use the up and down arrows to change the order.
<b>Group Registration</b>	
The number of groups available for registration will be exceeded.	The total number of groups available for registration exceeded the limit. Reduce the number of groups. Maximum number of groups to register is 20.
The maximum number of channels that can be registered to one group will be exceeded.	The number of channels available for registration to one group exceeded the limit. Either reduce the number of channels in the group or create a new group. The maximum number of channels that can be registered to one group is 50.
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
<b>Destination Setting</b>	
You cannot register more than 10 items.	The maximum number of email addresses to register is 10.

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Message	Status/Action
<b>Operation Channel Setting</b>	
The number of channels available for an operation expression is exceeded.	The total number of channels available for registration to an operation channel exceeded the limit. Reduce the number of channels. Maximum number of channels available for an operation channel is 32.
The operation expression contains channels with different measurement cycles.	The operation channel contains channels with different measurement cycles. The measurement cycles of the channels used in an operation channel must be the same.
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
The number of channels available for registration will be exceeded.	The total number of operation channels available for registration exceeded the limit. Reduce the number of operation channels. Maximum number of operation channels to register is 100.
An invalid channel is used in an operation expression.	A channel for which logging was disabled is selected for an operation expression. An operation expression cannot be configured that contains a channel specified as disabled. Correct and enter again.
<b>Data Type Setting</b>	
The number of data types available for registration will be exceeded.	The total number of data types available for registration exceeded the limit. Maximum number of data types to register is 100.
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
Cannot delete. Used in a channel.	The data type you try to delete has been assigned to a channel. Either delete the channel or correct the data type. Then delete the data type.
Cannot delete. The data type is system-defined.	You cannot delete data types already registered upon installation. You can delete only those data types that were added later.
Failed to synchronize.	The error might have occurred due to other reasons than the application. Restart the application (EQ-Manager) and synchronize the data type again. If the problem could not be solved, contact Omron.
<b>Operation Monitor</b>	
Connect online.	To use the operation monitor, Online is required. Connect online.

■ EQ-Manager: Creation of EQ Server Project

Message	Status/Action
<b>Collecting Device Registration</b>	
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
The number of EQ terminals available for registration will be exceeded.	The number of EQ100 units available for registration exceeded the limit. Correct the number of EQ100 units within the limit. Maximum number of EQ100 units to register is 10.
You will not be able to view data collected in the past.	If you write a project after deleting a device or a channel from the project, the saved data will not be read. Confirm deletion if necessary.
<b>Channel Registration</b>	
You will not be able to view data collected in the past.	If you write a project after deleting a device or a channel from the project, the saved data will not be read. Confirm deletion if necessary.
Cannot delete the channel registered to an operation channel.	You cannot delete a channel registered to an operation channel. Delete the operation channel that uses the target channel first.
The maximum number of channels that can be registered to one group will be exceeded.	The number of channels available for registration to one group exceeded the limit. Either reduce the number of channels in the group or create a new group. The maximum number of channels that can be registered to one group is 50.
The number of channels available for registration will be exceeded.	The total number of channels available for registration exceeded the limit. Reduce the number of channels. Maximum number of channels to register is 2000.
The maximum number of channels that can be registered to the same host device of connection will be exceeded.	The maximum number of channels that can be registered to the same host device of connection is exceeded. Reduce the number of channels. The maximum number of channels that can be registered to the same host device of connection is 254.
Press the EQ100 project file read button to read the channel information.	To register a channel, specify the target EQ project file to read.
Click the heading of the list to sort the "No." column in ascending order.	You can change the registration order only when the channels are listed in ascending order of the numbers. Click the heading of the list to sort the "No." column in ascending order, then use the up and down arrows to change the order.
A data type added in another computer is read-only. To edit, synchronize the data type.	You cannot assign a data type of read-only to a channel. Before registering a channel and configuring a data type, synchronize data type.
<b>Group Registration</b>	
The number of groups available for registration will be exceeded.	The total number of groups available for registration exceeded the limit. Reduce the number of groups. Maximum number of groups to register is 50.
The maximum number of channels that can be registered to one group will be exceeded.	The number of channels available for registration to one group exceeded the limit. Either reduce the number of channels in the group or create a new group. The maximum number of channels that can be registered to one group is 50.
The channel is already in the group.	You cannot register the same channel to the same group. Register the channel to other group to which the same channel has not been registered.
The number of available characters for input is exceeded.	The number of available characters for input is exceeded. Enter characters within the limit.
<b>Control Value Setting</b>	

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Message	Status/Action
No data to display the graph exists.	There is no graph data of the specified date. Select a date for which collected data exists.
Data Type Setting	
The number of data types available for registration will be exceeded.	The total number of data types available for registration exceeded the limit. Maximum number of data types to register is 100.
CSV File Import	
Connect online.	To perform CSV import, Online is required. Connect online.
Logging now. Cannot import.	CSV import is not available while logging or communication test is performed. Stop logging or communication test if being performed.

### ■ EQ-GraphViewer

Described below are error messages on EQ-GraphViewer.

Message	Status/Action
Connect to the server	
Connection timed out.	<ul style="list-style-type: none"> <li>- Connection to EQ100 failed. Check the network and host device. (Check the proxy setting of Internet Explorer as well if proxy is used)</li> <li>- For Windows Firewall, see "9.2.2 Connection Permission of Communications Port Number "4211" (Windows Firewall Setting Change)" (p9-12.).</li> </ul>
The data format is invalid.	Input of host device is incorrect. Enter a correct IP address.
Scale Upper/Lower Limit Setting	
The input value is invalid.	The input value is invalid.
Favorites Operation	
Maximum number of saved Favorites is 10. Delete Favorites by [Manage Favorites].	The total number of favorites available for registration exceeded the limit. Maximum number of saved Favorites is 10. Delete Favorites by [Manage Favorites].
Favorites name cannot be cleared.	Favorites name is not entered. Enter a name.
CSV File Output	
The path is invalid.	Selectable output destination does not exist. Check the output destination.
You are not authorized.	You cannot create a file as you are not authorized to access to the specified path. Either change the access permission or specify another output destination.
Failed to export to CSV.	Output to a file failed. Check the file output destination status.
Select a channel.	No channel is selected for output. Specify a channel to output to CSV.
Invalid value for Output Period	The specified period of output is invalid. Check the details.
Selectable channel does not exist.	Output is not available because a group without a channel was selected. Select a group to which a channel with data was registered.
Help	

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Message	Status/Action
Failed to open Help File.	The manual file could not be opened. Make sure that the environment allows the use of PDF files.
Others	
Unexpected Error	An unexpected error occurred. Stop and restart EQ-GraphViewer.
The server is busy. Wait for a while and try again.	<p>Wait for a while and try again. If the problem is not solved still, check and perform the following items.</p> <ul style="list-style-type: none"> <li>- Stop and restart EQ-GraphViewer.</li> <li>- If the problem occurred in a client computer under the client-server configuration, check the network environment of the EQ server and the client computer.</li> <li>- EQ-ServerService in the EQ server may have stopped. Check the operation status of the service and restart EQ-ServerService. For details, see "8.6 Check EQ-ServerService Status and Restart" (p.8-6).</li> </ul>

## 9.4. FAQ (Frequently Asked Questions)

Shown below are frequently asked questions and answers for EQ-Viewer:

Item	Question	Answer
Installation	Can I install EQ-Viewer and EQ-Watcher in the same computer?	No. Uninstall either one before installation.
	Will data be inherited upon migration from EQ-Viewer to EQ-Watcher?	Yes it will.
Startup	Is it possible to run two EQ-Manager processes at the same time to view the EQ server project and the EQ project together?	Yes.
Collecting from EQ100	How long is the required collecting time right after starting logging?	It depends on a data amount stored in EQ100. For details, see "1.7 Processing Time" (p1-14.).
	Can I configure a longer maximum collecting period than 30 days in the EQ server project?	No. If you saved data older than 30 days from EQ100 to an SD card, you can import the data from a CSV file.
Project	Is it necessary to enter an SNC ID to register a collecting device in the EQ server project?	An SNC ID of the target EQ100 is required if you want to import CSV offline. It is not necessary if data collecting is performed online.
	Is it possible to assign different names to the same channel of the EQ project and the EQ server project?	Yes.
File Output	Can summary data of all data be outputted to a file?	No. You can output data being viewed on a graph to a CSV file, while the maximum number of channels to output to a file is 50 as the maximum number of channels available for graph view is 50.

## 9.5. Default Setting Values

### 9.5.1. Measurement Device Setting List

#### ■ Power Sensor

Setting Range	
Item	Range
Host Device	RS-485_1/RS-485_2/RS-485_3/RS-485_4/(wireless/RS-485 converter)
Measurement Cycle	1min/5min/10min/30min/60min
Timeout	100ms/200ms/500ms/1s/2s/5s/10s/20s/30s

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
Smart Power Monitor KM-N1-FLK  Power Monitor KM-N2-FLK KM-N3-FLK	LAN	(*1)	-
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
	Smart Power Monitor KM20-B40-FLK	LAN	(*1)
Wireless (*2)		Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
RS-485		Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
Smart Power Monitor KM100-T□-FLK		LAN	(*1)
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
	Smart Power Monitor	LAN	(*1)

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KM50-E1-FLK	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
Timeout		200ms	
Smart Power Monitor KM50-C1-FLK	LAN	(*1)	-
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
	Power Measurement Unit KM1-PMU1A-FLK	LAN	-
Wireless (*2)		Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
RS-485		Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
Dual Power System Measurement Unit KM1-PMU2A-FLK		LAN	-
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
	Pulse/Temperature Input Unit KM1-EMU8A-FLK	LAN	-
Wireless (*2)		Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
Measurement Cycle	10min		

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		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	500ms
CT Expansion Unit KE1-CTD8E	LAN	-	-
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	500ms

\*1: Can be connected to the Power Sensor Station ZN-KMX21.

\*2: Wireless communication to the wireless unit master model WZ-MLAN01 via RS-485 connection of a wireless unit slave (CompoWay/F) model WZ-SRS01.

\*3: Wireless (CompoWay/F) is used as an abbreviation of wireless unit slave (CompoWay/F).

### ■ Power Logger

Setting Range	
Item	Range
Measurement Cycle	1min/5min/10min/30min/60min
Timeout	500ms/1s/2s/5/10s

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
Portable Power Monitor ZN-CTX21	LAN	Host Device	LAN (fixed)
		IP Address	192.168.0.20
		Measurement Cycle	10min
		Timeout	500ms
	Wireless	-	-
	RS-485	-	-

■ Environmental Sensor

Setting Range	
Item	Range
CompoWay/F unit No	1/2/3/4/5/6/7/8/9
Measurement Cycle	1min/5min/10min/30min/60min
Timeout (LAN)	1s/2s/5s/10s/20s/30s
Timeout (Wireless)	500ms/1s/2s/5s/10s

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
Air Particle Sensor ZN-PD03-S	LAN	Host Device	LAN (fixed)
		IP Address	192.168.0.10
		CompoWay/F Unit No	Not applicable
		Measurement Cycle	10min
		Timeout	500ms
		Attached to ZN-TH11-S	None selected
	無線 (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		IP Address	Not applicable
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
		Attached to ZN-TH11-S	None selected
	RS-485	-	-
Air Particle Sensor ZN-PD50-S	LAN	Host Device	LAN (fixed)
		IP Address	192.168.0.10
		CompoWay/F Unit No	Not applicable
		Measurement Cycle	10min
		Timeout	500ms
		Attached to ZN-TH11-S	None selected
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		IP Address	Not applicable
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
		Attached to ZN-TH11-S	None selected
	RS-485	-	-
Air Thermo Station	LAN	Host Device	LAN (fixed)

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Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
ZN-THX21-S		IP Address	192.168.0.20
		Measurement Cycle	10min
		Timeout	500ms
	Wireless	-	-
	RS-485	-	-
Differential Pressure Station ZN-DPX21-S	LAN	Host Device	LAN (fixed)
		IP Address	192.168.0.20
		Measurement Cycle	10min
		Timeout	500ms
	Wireless	-	-
	RS-485	-	-
Power Sensor Station ZN-KMX21	LAN	Host Device	LAN (fixed)
		IP Address	192.168.0.20
		Connection count	1
		Measurement Cycle	10min
		Timeout	500ms
	Wireless	-	-
	RS-485	-	-
Air Flow Station D6FZ-FGX21	LAN	Host Device	LAN (fixed)
		IP Address	192.168.0.20
		Connection count	1
		Measurement Cycle	10min
		Timeout	500ms
	Wireless	-	-
	RS-485	-	-

\*2: Wireless unit master (LAN) WZ-MLAN01 is wirelessly communicated and connected by connecting to the wireless unit slave (CompoWay/F) WZ-SRS01 via RS-485.

\*3: Wireless (CompoWay/F) is used as an abbreviation of wireless unit slave (CompoWay/F).

■ Wireless Unit

Setting Range	
Item	Range
Measurement Cycle	1min/5min/10min/30min/60min

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
Wireless Device Thermo-Humidity Sensor WZ-STH01	LAN	-	-
	Wireless	Host Device	Select from Wireless Master <sup>(*4)</sup> registration
		Wireless Unit ID	1
		Measurement Cycle	10min
RS-485	-	-	
Wireless Device Light Intensity Sensor WZ-SL01	LAN	-	-
	Wireless	Host Device	Select from Wireless Master <sup>(*4)</sup> registration
		Wireless Unit ID	1
		Measurement Cycle	10min
RS-485	-	-	
Wireless Device Thermo-Humidity Light Intensity Sensor WZ-SHTL01	LAN	-	-
	Wireless	Host Device	Select from Wireless Master <sup>(*4)</sup> registration
		Wireless Unit ID	1
		Measurement Cycle	10min
RS-485	-	-	
Wireless Device CO <sub>2</sub> Sensor WZ-SCD01	LAN	-	-
	Wireless	Host Device	Select from Wireless Master <sup>(*4)</sup> registration
		Wireless Unit ID	1
		Measurement Cycle	10min
RS-485	-	-	
Wireless Unit Slave (Pulse Count) WZ-SP01	LAN	-	-
	Wireless	Host Device	Select from Wireless Master <sup>(*4)</sup> registration
		Wireless Unit ID	1
		Measurement Cycle	10min
RS-485	-	-	

\*4: Wireless master (LAN) is used as an abbreviation of wireless unit master (LAN).

■ Other Sensors

Setting Range	
Item	Range
Host Device	RS-485_1/RS-485_2/RS-485_3/RS-485_4
Measurement Cycle	1min/5min/10min/30min/60min
Timeout	100ms/200ms/500ms/1s/2s/5s/10s/20s/30s

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
1/32 DIN Digital Panel Meter K3GN  Digital Panel Meter K3HB	LAN	-	-
	Wireless (*2)	Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
	Digital Temperature Controller E5CC Controller E5EC	LAN	-
Wireless (*2)		Host Device	Wireless Select from (CompoWay/F <sup>(*3)</sup> registration)
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	5s
RS-485		Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms
Air Flow Sensor D6FZ-FGT200 D6FZ-FGT500		LAN	-
	Wireless	-	-
	RS-485	Host Device	RS-485_1
		CompoWay/F Unit No	1
		Measurement Cycle	10min
		Timeout	200ms

\*2: Wireless communication to the wireless unit master (LAN) model WZ-MLAN01 via RS-485 connection of a wireless unit slave (CompoWay/F) WZ-SRS01.

\*3: Wireless (CompoWay/F) is used as an abbreviation of wireless unit slave (CompoWay/F).

### ■ Controller

Setting Range	
Item	Range
Measurement Cycle	1min/5min/10min/30min/60min

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
Programmable Controller CJ1 / CJ2 Series	LAN	Host Device	LAN (fixed)
		IP Address	192.168.250.1
		Measurement Cycle	10min
		Port	9600
Machine Automation Controller NJ Series NX1P Series	Wireless	-	-
	RS-485	-	-

### Precautions for Correct Use

- CPU unit with built-in EtherNet/IP port or EtherNet/IP unit is required.
- The 4th octet of the PLC's IP address and that of EQ100's LAN connection port must not be matched. This also applies even if the PLC is connected to the sub-LAN connection port.
- Make sure that the 4th octets of IP addresses are unique when multiple PLCs are connected.
- If either "Operation Stop Error" or "Operation Continuation Error" occurred in PLC's CPU unit, EQ100 does not perform logging from the PLC.

If "Low Battery" error occurred in a CPU unit, for example, "Operation Continuation Error" occurs and the EQ100 does not record data from the PLC. Replace the CPU unit's battery before "Low Battery" occurs.

- \* The 4th octet of an IP address is, for example, xxx of 192.168.250.xxx.
- \* An error due to operation continuation failure does not occur for EQ100 of the firmware version 1.160 or later.

### ■ Modbus RTU Device

Setting Range	
Item	Range
Host Device	RS-485_1/RS-485_2/RS-485_3/RS-485_4
Measurement Cycle	1min/5min/10min/30min/60min
Timeout	100ms/200ms/500ms/1s/2s/5s/10s/20s/30s

Measurement Device Name	Connection Method	Setting Items	
		Item	Initial Value
Modbus RTU Device ModbusRTU	LAN	-	-
	Wireless	-	-
	RS-485	Host Device	RS-485_1
		Modbus RTU Unit No	1
		Measurement Cycle	10min
Timeout		200ms	

### 9.5.2. Measurement Device Channel List

Shown below are lists of measurement device channels. (In alphabetical order)

\* For measurement device list item "Default Channel Registration", see "4.6.3.2 EQ100 Measurement Device Registration" (p.4-25).

#### ■ Device Name: D6FZ-FGX21 Air Flow Rate Station

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Integrated standard flow rate	kL	Integrated flow rate	Available
2	Instantaneous standard flow rate	L/min	Standard flow rate	No
3	Pressure	kPa	Pressure	No
4	Temperature	°C	Temperature	No
5	Instantaneous volume flow rate	L/min	Volume flow rate	No

#### ■ Device Name: E5CC / E5EC Temperature Controller (Digital Regulator)

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Temperature	°C	Temperature	Available
C0-0003	Heater current 1		No unit	No
C0-0004	Operation amount monitor (heating)		No unit	No
C0-0005	Operation amount monitor (cooling)		No unit	No
C0-0006	Heater current 2		No unit	No
C0-0007	Leakage current 1 monitor		No unit	No
C0-0008	Leakage current 2 monitor		No unit	No

#### ■ Device Name: EQ100 PULSE (EQ100 General-Purpose Input Terminal Measurement Device)

Address	Channel Name	Unit	Data Type	Default Channel Registration
	PULSE		Pulse	Available

#### ■ Device Name: K3GN 1/32 DIN Digital Panel Meter

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0001	Current value		No unit	Available
C0-0002-4	Event input		ON/OFF	No

#### ■ Device Name: K3HB Digital Panel Meter

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0002	Current value		No unit	No
C0-0003	Maximum value		No unit	No
C0-0004	Minimum value		No unit	No

■ Device Name: D6FZ-FGT200/500 Air Flow Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Instantaneous standard flow rate	L/min	Instantaneous flow rate	No
C0-0004	Integrated standard flow rate	kL	Integrated flow rate	Available

■ Device Name: KE1-CTD8E CT Expansion Unit

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0006	Electric current 1	A	Electric current	No
C0-0007	Electric current 2	A	Electric current	No
C0-0008	Electric current 3	A	Electric current	No
C0-0009	Electric current 4	A	Electric current	No
C0-000A	Electric current 5	A	Electric current	No
C0-000B	Electric current 6	A	Electric current	No
C0-000C	Electric current 7	A	Electric current	No
C0-000D	Electric current 8	A	Electric current	No
C0-000E	Electric current 9	A	Electric current	No
C0-000F	Electric current 10	A	Electric current	No
C0-0010	Electric current 11	A	Electric current	No
C0-0011	Electric current 12	A	Electric current	No
C0-0012	Power factor 1		Power factor	No
C0-0013	Power factor 2		Power factor	No
C0-0014	Power factor 3		Power factor	No
C0-0015	Power factor 4		Power factor	No
C0-0016	Power factor 5		Power factor	No
C0-0017	Power factor 6		Power factor	No
C0-0018	Power factor 7		Power factor	No
C0-0019	Power factor 8		Power factor	No
C0-001C	Active power 1	kW	Power	No
C0-001D	Active power 2	kW	Power	No
C0-001E	Active power 3	kW	Power	No
C0-001F	Active power 4	kW	Power	No
C0-0020	Active power 5	kW	Power	No
C0-0021	Active power 6	kW	Power	No
C0-0022	Active power 7	kW	Power	No
C0-0023	Active power 8	kW	Power	No
C0-0024	Reactive power 1	kvar	Reactive Power	No
C0-0025	Reactive power 2	kvar	Reactive Power	No
C0-0026	Reactive power 3	kvar	Reactive Power	No
C0-0027	Reactive power 4	kvar	Reactive Power	No
C0-0028	Reactive power 5	kvar	Reactive Power	No
C0-0029	Reactive power 6	kvar	Reactive Power	No
C0-002A	Reactive power 7	kvar	Reactive Power	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-002B	Reactive power 8	kvar	Reactive Power	No
C0-0080	Active electric energy 1	kWh	Electric energy	Available
C0-0081	Active electric energy 2	kWh	Electric energy	No
C0-0082	Active electric energy 3	kWh	Electric energy	No
C0-0083	Active electric energy 4	kWh	Electric energy	No
C0-0084	Active electric energy 5	kWh	Electric energy	No
C0-0085	Active electric energy 6	kWh	Electric energy	No
C0-0086	Active electric energy 7	kWh	Electric energy	No
C0-0087	Active electric energy 8	kWh	Electric energy	No
C0-0088	Regenerated energy 1	kWh	Regenerated energy	No
C0-0089	Regenerated energy 2	kWh	Regenerated energy	No
C0-008A	Regenerated energy 3	kWh	Regenerated energy	No
C0-008B	Regenerated energy 4	kWh	Regenerated energy	No
C0-008C	Regenerated energy 5	kWh	Regenerated energy	No
C0-008D	Regenerated energy 6	kWh	Regenerated energy	No
C0-008E	Regenerated energy 7	kWh	Regenerated energy	No
C0-008F	Regenerated energy 8	kWh	Regenerated energy	No
C0-0090	Leading reactive energy 1	kvarh	Reactive electric energy	No
C0-0091	Leading reactive energy 2	kvarh	Reactive electric energy	No
C0-0092	Leading reactive energy 3	kvarh	Reactive electric energy	No
C0-0093	Leading reactive energy 4	kvarh	Reactive electric energy	No
C0-0094	Leading reactive energy 5	kvarh	Reactive electric energy	No
C0-0095	Leading reactive energy 6	kvarh	Reactive electric energy	No
C0-0096	Leading reactive energy 7	kvarh	Reactive electric energy	No
C0-0097	Leading reactive energy 8	kvarh	Reactive electric energy	No
C0-0098	Lagging reactive energy 1	kvarh	Reactive electric energy	No
C0-0099	Lagging reactive energy 2	kvarh	Reactive electric energy	No
C0-009A	Lagging reactive energy 3	kvarh	Reactive electric energy	No
C0-009B	Lagging reactive energy 4	kvarh	Reactive electric energy	No
C0-009C	Lagging reactive energy 5	kvarh	Reactive electric energy	No
C0-009D	Lagging reactive energy 6	kvarh	Reactive electric energy	No
C0-009E	Lagging reactive energy 7	kvarh	Reactive electric energy	No
C0-009F	Lagging reactive energy 8	kvarh	Reactive electric energy	No
C0-00A0	Total reactive energy 1	kvarh	Reactive electric	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
			energy	
C0-00A1	Total reactive energy 2	kvarh	Reactive electric energy	No
C0-00A2	Total reactive energy 3	kvarh	Reactive electric energy	No
C0-00A3	Total reactive energy 4	kvarh	Reactive electric energy	No
C0-00A4	Total reactive energy 5	kvarh	Reactive electric energy	No
C0-00A5	Total reactive energy 6	kvarh	Reactive electric energy	No
C0-00A6	Total reactive energy 7	kvarh	Reactive electric energy	No
C0-00A7	Total reactive energy 8	kvarh	Reactive electric energy	No
C0-012A	Energy converted value 1_1		No unit	No
C0-012B	Energy converted value 1_2		No unit	No
C0-012C	Energy converted value 2_1		No unit	No
C0-012D	Energy converted value 2_2		No unit	No
C0-012E	Energy converted value 3_1		No unit	No
C0-012F	Energy converted value 3_2		No unit	No
C0-0130	Energy converted value 4_1		No unit	No
C0-0131	Energy converted value 4_2		No unit	No
C0-0132	Energy converted value 5_1		No unit	No
C0-0133	Energy converted value 5_2		No unit	No
C0-0134	Energy converted value 6_1		No unit	No
C0-0135	Energy converted value 6_2		No unit	No
C0-0136	Energy converted value 7_1		No unit	No
C0-0137	Energy converted value 7_2		No unit	No
C0-0138	Energy converted value 8_1		No unit	No
C0-0139	Energy converted value 8_2		No unit	No

■ Device Name: KM-N1 Smart Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Voltage 1 (instantaneous)	V	Voltage	No
C0-0001	Voltage 2 (instantaneous)	V	Voltage	No
C0-0002	Voltage 3 (instantaneous)	V	Voltage	No
C0-0003	Current 1 (instantaneous)	A	Electric current	No
C0-0004	Current 2 (instantaneous)	A	Electric current	No
C0-0005	Current 3 (instantaneous)	A	Electric current	No
C0-0006	Power factor (instantaneous)		Power factor	No
C0-0007	Frequency (instantaneous)	Hz	Frequency	No
C0-0008	Active power (instantaneous)	kW	Electric energy	No
C0-0009	Reactive power (instantaneous)	kvar	Reactive power	No
C0-0100	Total active power consumption	kWh	Total power consumption	Available
C0-0101	Total regenerated energy	kWh	Total regenerated energy	No

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C0-0102	Total leading reactive power	kvarh	Total reactive power consumption	No
C0-0103	Total lagging reactive power	kvarh	Total reactive power consumption	No
C0-0104	Accumulative total reactive power	kvarh	Total reactive power consumption	No

■ Device Name: KM-N2 Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Voltage 1 (instantaneous)	V	Voltage	No
C0-0001	Voltage 2 (instantaneous)	V	Voltage	No
C0-0002	Voltage 3 (instantaneous)	V	Voltage	No
C0-0003	Electric current 1 (instantaneous)	A	Electric current	No
C0-0004	Electric current 2 (instantaneous)	A	Electric current	No
C0-0005	Electric current 3 (instantaneous)	A	Electric current	No
C0-0006	Power factor (instantaneous)		Power factor	No
C0-0007	Frequency (instantaneous)	Hz	Frequency	No
C0-0008	Active power (instantaneous)	kW	Electric energy	No
C0-0009	Reactive power (instantaneous)	kvar	Reactive Power	No
C0-000A	Voltage (V1-V2)(instantaneous)	V	Voltage	No
C0-000B	Voltage (V1-V3)(instantaneous)	V	Voltage	No
C0-000C	Voltage (V2-V3)(instantaneous)	V	Voltage	No
C0-0100	Total active power consumption	kWh	Total power consumption	Available
C0-0101	Total regenerated energy	kWh	Total regenerated energy	No
C0-0102	Total leading reactive power	kvarh	Total reactive power consumption	No
C0-0103	Total lagging reactive power	kvarh	Total reactive power consumption	No
C0-0104	Accumulative total reactive power	kvarh	Total reactive power consumption	No

■ Device Name: KM-N3 Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Voltage 1 (instantaneous)	V	Voltage	No
C0-0001	Voltage 2 (instantaneous)	V	Voltage	No
C0-0002	Voltage 3 (instantaneous)	V	Voltage	No
C0-0003	Electric current 1 (instantaneous)	A	Electric current	No
C0-0004	Electric current 2	A	Electric current	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
	(instantaneous)			
C0-0005	Electric current 3 (instantaneous)	A	Electric current	No
C0-0006	Power factor (instantaneous)		Power factor	No
C0-0007	Frequency (instantaneous)	Hz	Frequency	No
C0-0008	Active power (instantaneous)	kW	Electric energy	No
C0-0009	Reactive power (instantaneous)	kvar	Reactive Power	No
C0-000A	Voltage (V1-V2)(instantaneous)	V	Voltage	No
C0-000B	Voltage (V1-V3)(instantaneous)	V	Voltage	No
C0-000C	Voltage (V2-V3)(instantaneous)	V	Voltage	No
C0-000D	Active power 1 (instantaneous)	kW	Electric energy	No
C0-000E	Active power 2 (instantaneous)	kW	Electric energy	No
C0-000F	Active power 3 (instantaneous)	kW	Electric energy	No
C0-0010	Reactive power 1 (instantaneous)	kvar	Reactive power	No
C0-0011	Reactive power 2 (instantaneous)	kvar	Reactive power	No
C0-0012	Reactive power 3 (instantaneous)	kvar	Reactive power	No
C0-0100	Total active power consumption	kWh	Total power consumption	Available
C0-0101	Total regenerated energy	kWh	Total regenerated energy	No
C0-0102	Total leading reactive power	kvarh	Total reactive power consumption	No
C0-0103	Total lagging reactive power	kvarh	Total reactive power consumption	No
C0-0104	Accumulative total reactive power	kvarh	Total reactive power consumption	No

■ Device Name: KM100 Smart Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	R-phase voltage (instantaneous value)	V	Voltage	No
C0-0001	T-phase voltage (instantaneous value)	V	Voltage	No
C0-0002	R-phase current (instantaneous value)	A	Electric current	No
C0-0003	T-phase current (instantaneous value)	A	Electric current	No
C0-0004	Active power (instantaneous value)	kW	Power	No
C0-0005	Reactive power (instantaneous value)	kvar	Reactive Power	No
C0-0006	Power factor (instantaneous value)		Power factor	No

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C0-0007	Frequency	Hz	Frequency	No
C0-0008	Electric energy	kWh	Electric energy	Available
C0-0009	Arbitrary electric energy	kWh	Electric energy	No

■ Device Name: KM1-EMU8A Pulse/Temperature Input Unit

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-002C	Temperature 1	°C	Temperature	No
C0-0118	Pulse input ON time 1	s	Second	No
C0-0119	Pulse input ON time 2	s	Second	No
C0-011A	Pulse input ON time 3	s	Second	No
C0-011B	Pulse input ON time 4	s	Second	No
C0-011C	Pulse input ON time 5	s	Second	No
C0-011D	Pulse input ON time 6	s	Second	No
C0-011E	Pulse input ON time 7	s	Second	No
C0-011F	Pulse input count 1		Pulse	Available
C0-0120	Pulse input count 2		Pulse	No
C0-0121	Pulse input count 3		Pulse	No
C0-0122	Pulse input count 4		Pulse	No
C0-0123	Pulse input count 5		Pulse	No
C0-0124	Pulse input count 6		Pulse	No
C0-0125	Pulse input count 7		Pulse	No
C0-013A	Pulse converted value 1_1		No unit	No
C0-013B	Pulse converted value 1_2		No unit	No
C0-013C	Pulse converted value 2_1		No unit	No
C0-013D	Pulse converted value 2_2		No unit	No
C0-013E	Pulse converted value 3_1		No unit	No
C0-013F	Pulse converted value 3_2		No unit	No
C0-0140	Pulse converted value 4_1		No unit	No
C0-0141	Pulse converted value 4_2		No unit	No
C0-0142	Pulse converted value 5_1		No unit	No
C0-0143	Pulse converted value 5_2		No unit	No
C0-0144	Pulse converted value 6_1		No unit	No
C0-0145	Pulse converted value 6_2		No unit	No
C0-0146	Pulse converted value 7_1		No unit	No
C0-0147	Pulse converted value 7_2		No unit	No
C0-0381-10	Event input 1			No
C0-0381-11	Event input 2			No
C0-0381-12	Event input 3			No
C0-0381-13	Event input 4			No
C0-0381-14	Event input 5			No
C0-0381-15	Event input 6			No
C0-0381-16	Event input 7			No



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■ Device Name: KM1-PMU1A Power Measurement Unit

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Voltage 1	V	Voltage	No
C0-0001	Voltage 2	V	Voltage	No
C0-0002	Voltage 3	V	Voltage	No
C0-0003	Voltage 4	V	Voltage	No
C0-0004	Voltage 5	V	Voltage	No
C0-0005	Voltage 6	V	Voltage	No
C0-0006	Electric current 1	A	Electric current	No
C0-0007	Electric current 2	A	Electric current	No
C0-0008	Electric current 3	A	Electric current	No
C0-0012	Power factor 1		Power factor	No
C0-0013	Power factor 2		Power factor	No
C0-0014	Power factor 3		Power factor	No
C0-001A	Frequency 1	Hz	Frequency	No
C0-001C	Active power 1	kW	Power	No
C0-001D	Active power 2	kW	Power	No
C0-001E	Active power 3	kW	Power	No
C0-0024	Reactive power 1	kvar	Reactive Power	No
C0-0025	Reactive power 2	kvar	Reactive Power	No
C0-0026	Reactive power 3	kvar	Reactive Power	No
C0-0080	Active electric energy 1	kWh	Electric energy	Available
C0-0081	Active electric energy 2	kWh	Electric energy	No
C0-0082	Active electric energy 3	kWh	Electric energy	No
C0-0088	Regenerated energy 1	kWh	Regenerated energy	No
C0-0089	Regenerated energy 2	kWh	Regenerated energy	No
C0-008A	Regenerated energy 3	kWh	Regenerated energy	No
C0-0090	Leading reactive energy 1	kvarh	Reactive electric energy	No
C0-0091	Leading reactive energy 2	kvarh	Reactive electric energy	No
C0-0092	Leading reactive energy 3	kvarh	Reactive electric energy	No
C0-0098	Lagging reactive energy 1	kvarh	Reactive electric energy	No
C0-0099	Lagging reactive energy 2	kvarh	Reactive electric energy	No
C0-009A	Lagging reactive energy 3	kvarh	Reactive electric energy	No
C0-00A0	Total reactive energy 1	kvarh	Reactive electric energy	No
C0-00A1	Total reactive energy 2	kvarh	Reactive electric energy	No
C0-00A2	Total reactive energy 3	kvarh	Reactive electric energy	No
C0-0100	3-STATE HIGH energy 1	kWh	Electric energy	No
C0-0101	3-STATE HIGH time 1	s	Second	No
C0-0102	3-STATE HIGH energy 2	kWh	Electric energy	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0103	3-STATE HIGH time 2	s	Second	No
C0-0104	3-STATE HIGH energy 3	kWh	Electric energy	No
C0-0105	3-STATE HIGH time 3	s	Second	No
C0-0108	3-STATE MIDDLE energy 1	kWh	Electric energy	No
C0-0109	3-STATE MIDDLE time 1	s	Second	No
C0-010A	3-STATE MIDDLE energy 2	kWh	Electric energy	No
C0-010B	3-STATE MIDDLE time 2	s	Second	No
C0-010C	3-STATE MIDDLE energy 3	kWh	Electric energy	No
C0-010D	3-STATE MIDDLE time 3	s	Second	No
C0-0110	3-STATE LOW energy 1	kWh	Electric energy	No
C0-0111	3-STATE LOW time 1	s	Second	No
C0-0112	3-STATE LOW energy 2	kWh	Electric energy	No
C0-0113	3-STATE LOW time 2	s	Second	No
C0-0114	3-STATE LOW energy 3	kWh	Electric energy	No
C0-0115	3-STATE LOW time 3	s	Second	No
C0-0126	Power basic unit 1	kWh/	Basic unit	No
C0-0127	Power basic unit 2	kWh/	Basic unit	No
C0-0128	Power basic unit 3	kWh/	Basic unit	No
C0-012A	Energy converted value 1_1		No unit	No
C0-012B	Energy converted value 1_2		No unit	No
C0-012C	Energy converted value 2_1		No unit	No
C0-012D	Energy converted value 2_2		No unit	No
C0-012E	Energy converted value 3_1		No unit	No
C0-012F	Energy converted value 3_2		No unit	No

■ Device Name: KM1-PMU2A Dual Power System Measurement Unit

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	Voltage 1	V	Voltage	No
C0-0001	Voltage 2	V	Voltage	No
C0-0002	Voltage 3	V	Voltage	No
C0-0003	Voltage 4	V	Voltage	No
C0-0004	Voltage 5	V	Voltage	No
C0-0005	Voltage 6	V	Voltage	No
C0-0006	Electric current 1	A	Electric current	No
C0-0007	Electric current 2	A	Electric current	No
C0-0008	Electric current 3	A	Electric current	No
C0-000C	Electric current 7	A	Electric current	No
C0-000D	Electric current 8	A	Electric current	No
C0-000E	Electric current 9	A	Electric current	No
C0-0012	Power factor 1		Power factor	No
C0-0013	Power factor 2		Power factor	No
C0-0016	Power factor 5		Power factor	No
C0-0017	Power factor 6		Power factor	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-001A	Frequency 1	Hz	Frequency	No
C0-001B	Frequency 2	Hz	Frequency	No
C0-001C	Active power 1	kW	Electric Energy	No
C0-001D	Active power 2	kW	Electric Energy	No
C0-0020	Active power 5	kW	Electric Energy	No
C0-0021	Active power 6	kW	Electric Energy	No
C0-0024	Reactive power 1	kvar	Reactive Power	No
C0-0025	Reactive power 2	kvar	Reactive Power	No
C0-0028	Reactive power 5	kvar	Reactive Power	No
C0-0029	Reactive power 6	kvar	Reactive Power	No
C0-0080	Active electric energy 1	kWh	Electric energy	Available
C0-0081	Active electric energy 2	kWh	Electric energy	No
C0-0084	Active electric energy 5	kWh	Electric energy	No
C0-0085	Active electric energy 6	kWh	Electric energy	No
C0-0088	Regenerated energy 1	kWh	Regenerated energy	No
C0-0089	Regenerated energy 2	kWh	Regenerated energy	No
C0-008C	Regenerated energy 5	kWh	Regenerated energy	No
C0-008D	Regenerated energy 6	kWh	Regenerated energy	No
C0-0090	Leading reactive energy 1	kvarh	Reactive electric energy	No
C0-0091	Leading reactive energy 2	kvarh	Reactive electric energy	No
C0-0094	Leading reactive energy 5	kvarh	Reactive electric energy	No
C0-0095	Leading reactive energy 6	kvarh	Reactive electric energy	No
C0-0098	Lagging reactive energy 1	kvarh	Reactive electric energy	No
C0-0099	Lagging reactive energy 2	kvarh	Reactive electric energy	No
C0-009C	Lagging reactive energy 5	kvarh	Reactive electric energy	No
C0-009D	Lagging reactive energy 6	kvarh	Reactive electric energy	No
C0-00A0	Total reactive energy 1	kvarh	Reactive electric energy	No
C0-00A1	Total reactive energy 2	kvarh	Reactive electric energy	No
C0-00A4	Total reactive energy 5	kvarh	Reactive electric energy	No
C0-00A5	Total reactive energy 6	kvarh	Reactive electric energy	No
C0-0100	3-STATE HIGH energy 1	kWh	Electric energy	No
C0-0101	3-STATE HIGH time 1	s	Second	No
C0-0102	3-STATE HIGH energy 2	kWh	Electric energy	No
C0-0103	3-STATE HIGH time 2	s	Second	No
C0-0104	3-STATE HIGH energy 3	kWh	Electric energy	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0105	3-STATE HIGH time 3	s	Second	No
C0-0106	3-STATE HIGH energy 4	kWh	Electric energy	No
C0-0107	3-STATE HIGH time 4	s	Second	No
C0-0108	3-STATE MIDDLE energy 1	kWh	Electric energy	No
C0-0109	3-STATE MIDDLE time 1	s	Second	No
C0-010A	3-STATE MIDDLE energy 2	kWh	Electric energy	No
C0-010B	3-STATE MIDDLE time 2	s	Second	No
C0-010C	3-STATE MIDDLE energy 3	kWh	Electric energy	No
C0-010D	3-STATE MIDDLE time 3	s	Second	No
C0-010E	3-STATE MIDDLE energy 4	kWh	Electric energy	No
C0-010F	3-STATE MIDDLE time 4	s	Second	No
C0-0110	3-STATE LOW energy 1	kWh	Electric energy	No
C0-0111	3-STATE LOW time 1	s	Second	No
C0-0112	3-STATE LOW energy 2	kWh	Electric energy	No
C0-0113	3-STATE LOW time 2	s	Second	No
C0-0114	3-STATE LOW energy 3	kWh	Electric energy	No
C0-0115	3-STATE LOW time 3	s	Second	No
C0-0116	3-STATE LOW energy 4	kWh	Electric energy	No
C0-0117	3-STATE LOW time 4	s	Second	No
C0-0126	Power basic unit 1	kWh/	Basic unit	No
C0-0127	Power basic unit 2	kWh/	Basic unit	No
C0-0128	Power basic unit 3	kWh/	Basic unit	No
C0-0129	Power basic unit 4	kWh/	Basic unit	No
C0-012A	Energy converted value 1_1		No unit	No
C0-012B	Energy converted value 1_2		No unit	No
C0-012C	Energy converted value 2_1		No unit	No
C0-012D	Energy converted value 2_2		No unit	No
C0-0132	Energy converted value 5_1		No unit	No
C0-0133	Energy converted value 5_2		No unit	No
C0-0134	Energy converted value 6_1		No unit	No
C0-0135	Energy converted value 6_2		No unit	No

■ Device Name: KM20 Smart Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C0-0000	P1-P2 voltage (instantaneous value)	V	Voltage	No
C0-0001	P2-P3 voltage (instantaneous value)	V	Voltage	No
C0-0002	I1 current (instantaneous value)	A	Electric current	No
C0-0003	I2 current (instantaneous value)	A	Electric current	No
C0-0004	Active power (instantaneous value)	kW	Power	No
C0-0006	Power factor (instantaneous value)		Power factor	No
C0-0007	Frequency	Hz	Frequency	No
C0-0008	Electric energy	kWh	Electric energy	Available

■ Device Name: KM50-C Smart Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C8-0000	Voltage 1 (instantaneous value)	V	Voltage	No
C8-0001	Voltage 2 (instantaneous value)	V	Voltage	No
C8-0002	Voltage 3 (instantaneous value)	V	Voltage	No
C8-0003	Electric current 1 (instantaneous value)	A	Electric current	No
C8-0004	Electric current 2 (instantaneous value)	A	Electric current	No
C8-0005	Electric current 3 (instantaneous value)	A	Electric current	No
C8-0006	Power factor (instantaneous value)		Power factor	No
C8-0007	Frequency (instantaneous value)	Hz	Frequency	No
C8-0008	Active power (micro)(instantaneous value)	kW	Power	No
C8-0009	Active power (instantaneous value)	kW	Power	No
C8-000A	Reactive power (micro)(instantaneous value)	kvar	Reactive Power	No
C8-000B	Reactive power (instantaneous value)	kvar	Reactive Power	No
C8-000C	Total integral energy	kWh	Electric energy	Available
C8-000D	CO <sub>2</sub> converted value	kgCO <sub>2</sub>	CO <sub>2</sub> Emission	No
C8-000E	Pulse input count total (the day)		Pulse	No
C8-000F	Power basic unit	kWh/	Basic unit	No
C8-001F	Total integral energy (micro)(*1)	kWh	Electric energy	No
C8-0021	Active electric energy (*1)	kWh	Electric energy	No
C8-0023	Regenerated energy (*1)	kWh	Regenerated energy	No
C8-0025	Leading reactive energy (*1)	kvarh	Reactive electric energy	No
C8-0027	Lagging reactive energy (*1)	kvarh	Reactive electric energy	No

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Address	Channel Name	Unit	Data Type	Default Channel Registration
C8-0029	Total reactive energy (*1)	kvarh	Reactive electric energy	No
C8-0033	Total pulse input count 1 (*1)		Pulse	No
C8-0034	Total pulse input count 2 (*1)		Pulse	No
C8-0038	Temperature (*2)	°C	Temperature	No

\*1: Data can be collected by KM50-C of serial No. 1080556 or later only.

\*2: Data can be collected by KM50-C of serial No. 1120040 or later only.

■ Device Name: KM50-E Smart Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
C8-0000	Voltage 1 (instantaneous value)	V	Voltage	No
C8-0001	Voltage 2 (instantaneous value)	V	Voltage	No
C8-0002	Voltage 3 (instantaneous value)	V	Voltage	No
C8-0003	Electric current 1 (instantaneous value)	A	Electric current	No
C8-0004	Electric current 2 (instantaneous value)	A	Electric current	No
C8-0005	Electric current 3 (instantaneous value)	A	Electric current	No
C8-0006	Power factor (instantaneous value)		Power factor	No
C8-0007	Frequency (instantaneous value)	Hz	Frequency	No
C8-0008	Active power (micro)(instantaneous value)	kW	Power	No
C8-0009	Active power (instantaneous value)	kW	Power	No
C8-000A	Reactive power (micro)(instantaneous value)	kvar	Reactive power	No
C8-000B	Reactive power (instantaneous value)	kvar	Reactive power	No
C8-000C	Total integral energy	kWh	Electric energy	Available
C8-000D	CO <sub>2</sub> converted value	kgCO <sub>2</sub>	CO <sub>2</sub> Emission	No
C8-000E	Pulse input count total (the day)		Pulse	No
C8-000F	Power basic unit	kWh/	Basic unit	No
C8-001F	Total integral energy (micro)	kWh	Electric energy	No
C8-0021	Active electric energy (*1)	kWh	Electric energy	No
C8-0023	Regenerated energy (*1)	kWh	Regenerated energy	No
C8-0025	Leading reactive energy (*1)	kvarh	Reactive electric energy	No
C8-0027	Lagging reactive energy (*1)	kvarh	Reactive electric energy	No
C8-0029	Total reactive energy (*1)	kvarh	Reactive electric energy	No
C8-002B	3-STATE HIGH energy (*1)	kWh	Electric energy	No
C8-002C	3-STATE HIGH time 1 (*1)	min	Minute	No
C8-002E	3-STATE MIDDLE energy (*1)	kWh	Electric energy	No
C8-002F	3-STATE MIDDLE time (*1)	min	Minute	No
C8-0031	3-STATE LOW energy (*1)	kWh	Electric energy	No
C8-0032	3-STATE LOW time (*1)	min	Minute	No
C8-0033	Total pulse input count 1 (*1)		Pulse	No
C8-0034	Total pulse input count 2 (*1)		Pulse	No
C8-0038	Temperature (*2)	°C	Temperature	No

\*1: Data can be collected by KM50-E of serial No. 1090001 or later only.

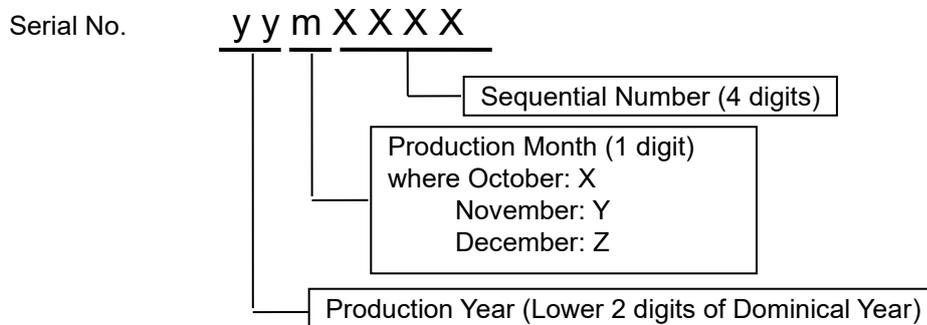
\*2: Data can be collected by KM50-E of serial No. 1120046 or later only.

How to Check Serial No. of KM50-C/KM50-E

The Serial No. (S/N) of KM50-C/KM50-E is on the label attached to the packing and the main body.

**[Serial No. Rule]**

The Serial No. (7 digits) of KM50-C/KM50-E is assigned based on the rule shown below:



■ Device Name: WZ-SCD01 Wireless Device CO<sub>2</sub> Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	CO <sub>2</sub> Concentration	ppm	CO <sub>2</sub> Concentration	Available

■ Device Name: WZ-SL01 Wireless Device Light Intensity Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Illuminance	lx	Illuminance	Available

■ Device Name: WZ-STH01 Wireless Device Thermo-Humidity Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Temperature	°C	Temperature	Available
2	Humidity	%	Humidity	Available

■ Device Name: WZ-STHL01 Wireless Device Thermo-Humidity Light Intensity Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Temperature	°C	Temperature	Available
2	Humidity	%	Humidity	Available
3	Illuminance	lx	Illuminance	Available

■ Device Name: WZ-SP01 Wireless Unit Slave (Pulse Count)

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Pulse input count 1		Pulse	Available
2	Pulse input count 2		Pulse	Available

■ Device Name: ZN-CTX21 Portable Power Monitor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Electric power	kW	Power	No
2	Electric energy	kWh	Electric energy	Available
3	Electric current (CH1)	A	Electric current	No
4	Electric current (CH2)	A	Electric current	No
5	Electric current (CH3)	A	Electric current	No

■ Device Name: ZN-DPX21-S Differential Pressure Station

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Differential pressure	Pa	Differential pressure	Available

■ Device Name: ZN-KMX21 Power Sensor Station

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Electric power	kW	Power	No
2	Electric energy	kWh	Electric energy	Available
3	Power factor		Power factor	No
4	Pulse count 1		Pulse	No
5	Pulse count 2		Pulse	No

■ Device Name: ZN-PD03-S Air Particle Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	0.3um particle count value	/cf	0.3 μm particle	Available
2	0.5um particle count value	/cf	0.5 μm particle	Available
3	1.0um particle count value	/cf	1.0 μm particle	Available
4	Temperature (*)	°C	Temperature	Available
5	Humidity (*)	%	Humidity	Available
6	Dew point (*)	°C	Dew point	Available

\* Valid if ZN-TH11-S attached.

■ Device Name: ZN-PD50-S Air Particle Sensor

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Small particle count value	/cf	Small particle	Available
2	Medium particle count value	/cf	Medium particle	Available
3	Large particle count value	/cf	Large particle	Available
4	Temperature (*)	°C	Temperature	Available
5	Humidity (*)	%	Humidity	Available
6	Dew point (*)	°C	Dew point	Available

\* Valid if ZN-TH11-S attached.

■ Device Name: ZN-THX21-S Air Thermo Station

Address	Channel Name	Unit	Data Type	Default Channel Registration
1	Temperature	°C	Temperature	Available
2	Humidity	%	Humidity	Available

### 9.5.3. Data Type List

Data Type Name	Unit	Logarithm	Energy Data	Deci. Places	Graph Type	Summary Type
Electric energy	kWh	No	Yes	3 digits	Bar	Sum
Temperature	°C	No	No	1 digit	Line	Average
Dew point	°C	No	No	1 digit	Line	Average
Humidity	%	No	No	1 digit	Line	Average
Electric current	A	No	No	3 digits	Line	Average
Power	kW	No	No	4 digits	Line	Average
Power factor		No	No	2 digits	Line	Average
Length (instantaneous)	m	No	No	1 digit	Line	Average
Area (instantaneous)	m <sup>2</sup>	No	No	1 digit	Line	Average
Volume (instantaneous)	m <sup>3</sup>	No	No	1 digit	Line	Average
Speed	m/s	No	No	1 digit	Line	Average
Acceleration	m/s <sup>2</sup>	No	No	1 digit	Line	Average
Frequency	Hz	No	No	1 digit	Line	Average
Weight	kg	No	No	3 digits	Line	Average
Work	J	No	Available	3 digits	Bar	Sum
Pressure	kPa	No	No	1 digit	Line	Average
Rotational Speed	Hz	No	No	1 digit	Line	Average
Pulse		No	No	None	Bar	Sum
pc.		No	No	None	Bar	Sum
Production number		No	No	None	Bar	Sum
Reactive Power	kvar	No	No	4 digits	Line	Average
Foreign object amount	/cf	Available	No	None	Line	Max.
Large particle	/cf	Available	No	None	Line	Max.
Medium particle	/cf	Available	No	None	Line	Max.
Small particle	/cf	Available	No	None	Line	Max.
1.0 µm particle	/cf	Available	No	None	Line	Max.
0.5 µm particle	/cf	Available	No	None	Line	Max.
0.3 µm particle	/cf	Available	No	None	Line	Max.
Differential pressure	Pa	No	No	1 digit	Line	Average
Electric current (R)	A	No	No	3 digits	Line	Average
Current (S)	A	No	No	3 digits	Line	Average
Current (T)	A	No	No	3 digits	Line	Average

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Data Type Name	Unit	Logarithm	Energy Data	Deci. Places	Graph Type	Summary Type
Volume flow rate	L/min	No	No	1 digit	Line	Average
Standard flow rate	L/min	No	No	1 digit	Line	Average
Integrated flow rate	kL	No	Available	3 digits	Bar	Sum
Illuminance	lx	No	No	None	Line	Average
CO <sub>2</sub> Concentration	ppm	No	No	None	Line	Average
Basic unit	kWh/	No	No	3 digits	Line	Average
Regenerated energy	kWh	No	Available	3 digits	Bar	Sum
Reactive electric energy	kvarh	No	Available	3 digits	Bar	Sum
Voltage	V	No	No	1 digit	Line	Average
Second	s	No	No	None	Bar	Sum
Minute	min	No	No	None	Bar	Sum
Time	hour	No	No	None	Bar	Sum
CO <sub>2</sub> emissions (instantaneous)	kgCO <sub>2</sub>	No	No	1 digit	Line	Average
ON/OFF		No	No	3 digits	Line	Average
Volume (total)	m <sup>3</sup>	No	No	1 digit	Bar	Sum
No unit		No	No	3 digits	Line	Average

### Precautions for Correct Use

- The data type Volume (total) has been added. The summary method is different from that of Volume (instantaneous).  
Use Volume (total) when the summary method needs to be the total.

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- iBatis
- Castle.DynamicProxy
- log4net
- Json.NET
- IronRuby
- DotNetZip
- CollapsibleSplitter
- PostgreSQL
- Npgsql

iBatis / Castle.DynamicProxy / IronRuby

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### PostgreSQL / Npgsql

PostgreSQL Database Management System  
(formerly known as Postgres, then as Postgres95)

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