



Mitsubishi Electric Energy Saving Support Software
EcoAdviser
Energy Saving Data Analysis Software
Energy Saving Data Analysis and Diagnosis Software

MODEL

MES3-EAP1-DA

MES3-EAP1-AI

User's Manual

- Before operating the instrument, you should first read thoroughly this operation manual for safe operation and optimized performance of the product. Deliver this user's manual to the end user.

Introduction

Thank you for purchasing our Energy Saving Data Analysis Software or Energy Saving Data Analysis and Diagnosis Software, EcoAdviser, in Mitsubishi Electric Energy Saving Support Software.

This instruction manual provides essential information to install, set up, and operate EcoAdviser. Before use, be sure to thoroughly read the manual to properly use the software.

We recommend that you keep the manual in a safe place for future reference and read it whenever necessary. The manual should be forwarded to the end user.

This manual is designed with the assumption that the user can basically operate a computer, whose operating system (OS) is Windows, where EcoAdviser is to be installed. If you need to know basic operation of Windows, refer to the manual of your OS.

Features

EcoAdviser is an application software and can be used by installing on a computer, which is in the same network with EcoWebServerIII or which is equipped with the Edgecross software platform. EcoAdviser has functions such as analysis using various types of graphs, dashboard creation, and energy-loss diagnosis.

The detailed features are as follows:

- Easy setup

The setup is easy to use each function of EcoAdviser.

- Data extraction of one product from multiple types of products

When you use the equipment where multiple types of products are manufactured, you can extract data of one product from multiple types of products.

- Dashboard creation

You can customize the dashboard to display items, such as graphs, images, and measuring values.

- Input of off-line data

By setting the manual input measuring point, you can input data of off-line, such as production volume.

- Daily/Monthly/Annual report creation

The daily/monthly/annual report is created based on the measuring data.

- An application compatible with Edgecross

By installing EcoAdviser on a computer which is equipped with the Edgecross software, it is possible to use the data of various companies' measuring instruments that Edgecross collects.

The following features are for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

- Extraction of energy-loss from production equipment
EcoAdviser can extract energy-loss from five viewpoints for each equipment.
- Diagnosis of energy-loss factors
The highly correlated items as energy-loss factors are identified as results of this software's diagnosis function, and those items are displayed in a ranking table form.
- Result check of energy saving improvement activities
You can check the two values before and after energy saving improvement activities, such as energy consumption or electricity rate.

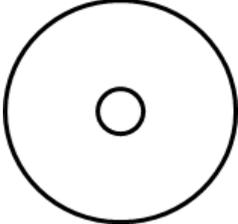
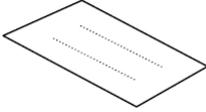
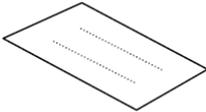
Cautions for use

EcoAdviser (Model: MES3-EAP1-AI) converts energy consumption into the corresponding amount of energy costs using the electricity rate setting.

Energy-loss factor diagnosis indicates the result calculated by the specified program. The correct result may not be obtained due to diagnosis period or data bias. Please use it for your energy saving activities as a reference.

Package contents

When unpacking your package, check all the contents.

Contents	Quantity	Details
 <p>CD-ROM</p>	1	<p>The install program of EcoAdviser</p> <p>*This instruction manual, which lists the Software end user license agreement, is included.</p>
 <p>Hardware key</p>	1	<p>Necessary to run the software</p> <p>*The hardware key of Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) is different from the key of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).</p> <p>Since the two hardware keys are incompatible with each other, use the supplied hardware key.</p> <p>For details, refer to [2.6 Hardware Key].</p>
 <p>Instruction for package contents</p>	1	<p>The instruction document on the package contents of EcoAdviser</p>
 <p>The Software end user license agreement</p>	1	<p>The Software end user license agreement of EcoAdviser</p> <p>*It is also described in this manual.</p>

Network construction and connection

- Please note that we do not provide technical support for network construction and connection.
- When protecting the system from illegal access by external parties, incorporate safety measures against it by the user itself. Our company shall not be liable for any problems arising from illegal access.
We recommend that you observe the following precautions:
 - 1) Use LAN to prevent illegal access from outside.
 - 2) When connecting to Internet, incorporate security measures such as Firewall or VPN.
- Make sure that a computer, where EcoAdviser is installed, can communicate with the device on the network to collect data from EcoWebServerIII via HTTP communication or to collect/output data on the network drive.
- When you remotely operate a computer, where EcoAdviser is installed, by using tools such as remote desktop connection, EcoAdviser does not start under such a condition.
Set up the connection of remote control while EcoAdviser is running.

Storage

To store the hardware key and CD-ROM, avoid the following places:

- The ambient temperature exceeds the range +5 to +45°C.
- The daily average temperature exceeds +35°C.
- The ambient humidity exceeds the range 10 to 90% RH or condensing places.
- Exposure to rain, water droplets, or direct sunlight, or near heating apparatus
- Exposure to excessive vibration or impact
- Exposure to much dust, corrosive gas, salty environment, or oil mist
- Pieces of metal or similar substances are scattered.
- Exposure to strong magnetic fields or large exogenous noise.

After-sales service

If, within one year from the day of purchase or 18 months after manufacturing, whichever comes earlier, a defect in quality is acknowledged and the cause of the defect lies in our company, we will provide a free replacement.

However, even within one year from the purchase day, you will be charged in the following cases:

- The defect is caused by incorrect operation.
- The defect is caused by misuse.

After one year from the purchase day, the charge will be made.

Disposal

Dispose of the product in compliance with the laws and regulations determined by the local government.

Prohibition

No copying or reproduction of this manual, in part or in whole, is permitted without the consent of our company.

Expressions used in this manual

Basically, this manual explains the operation or function of Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) as an example, excluding the functions of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

■ Glossary

The following terms are used in this manual.

Term	Explanation
Common terms	
EcoAdviser	Indicate this software program.
Edgecross	An open edge computing software platform, which is built by Edgecross Consortium members going beyond the bounds of companies and industries, and enables FA and IT cooperation
Computer	A client computer or an industrial computer such as MELIPC, which is produced by Mitsubishi Electric Corporation, where EcoAdviser is to be installed
Collection source	Indicate EcoWebServerⅢ or Edgecross.
Measuring value	Indicate measuring data of each measuring point. The data that EcoAdviser collects from each collection source and the calculated results are managed as measured values.
Product type time period measuring point	A measuring point to extract data of one product from multiple types of products
Calculation measuring point	A measuring point to perform four arithmetic operations on measuring points
Specific consumption measuring point	A measuring point to calculate specific consumption
Manual input measuring point	A measuring point to register data other than collection sources, such as measuring points of off-line
Dashboard	A window (board) where various panels, such as graphs and images can be displayed together.
Pulse	A measuring type of the measuring point that measures a difference value, which is a difference between the previous indication value and the present indication value
Analog value	A measuring type of the measuring point that measures a value at the time of collection
Power factor	A measuring type of the measuring point that measures power factor
Operating status	A measuring type of the measuring point that measures the ON/OFF state of contact or digital signal
IIS	Microsoft Internet Information Services, a web server produced by Microsoft Corporation

Term	Explanation
Terms only for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI)	
Five focusing viewpoints for energy saving	Indicate the following items. For details, refer to [7.1 Outline]. (1) Equipment time-loss (start-up) (2) Equipment time-loss (shut-down) (3-1) Utility time-loss (start-up) (3-2) Utility time-loss (shut-down) (4) Specific consumption (5) Production loss time rate
Energy-loss during the standby/break time	Indicate the following items. For details, refer to [7.1 Outline]. (1) Energy-loss during the standby time (equipment) (2) Energy loss during the standby time (utility) (3) Energy-loss during the break time (equipment) (4) Energy-loss during the break time (utility)
Energy saving viewpoints	Indicate five focusing viewpoints for energy saving and energy-loss during the standby/break time.
Energy-loss diagnosis	Diagnose energy-loss in the equipment. Two methods: Energy-loss extraction and Energy-loss factor diagnosis.
Energy-loss extraction	Calculate each value of the energy saving viewpoint of the equipment using diagnosis data from collection sources. The calculation result is saved as diagnosis data.
Energy-loss factor diagnosis	Diagnose the relationship between the values calculated by energy-loss extraction and the pre-set factors.
Diagnosis data	15/30/60-minute data of five focusing viewpoints for energy saving and energy-loss during the standby/break time of the registered equipment
Diagnosis data from collection sources	Data collected from each collection source every minute. This data is used to perform diagnosis.
Improvement result check	Compare the two data between before and after improvement when you take action to improve. Specify the two periods before and after improvement to display the diagnosis data in a single chart.

■ Related materials

Material name		Ref. No.
Edgecross Basic Software for Windows User's Manual, ECP-BS1-W (Edgecross Basic Software for Windows)		*1
EcoWebServerⅢ User's Manual, Setting edition		
Japanese	三菱省エネデータ収集サーバ EcoServerⅢ 取扱説明書：設定編	IB63915
English	Energy Saving Data Collecting Server EcoWebServerⅢ User's Manual (Setting)	IB63919
Chinese	三菱节能数据收集服务器 使用说明书 设定篇	IB63917
EcoWebServerⅢ User's Manual, Operating edition		
Japanese	三菱省エネデータ収集サーバ EcoServerⅢ 取扱説明書：運用編	IB63914
English	Energy Saving Data Collecting Server EcoWebServerⅢ User's Manual (Operating)	IB63918
Chinese	三菱节能数据收集服务器 使用说明书 运用篇	IB63916

*1: Download from the web site of Edgecross Marketplace.

■ Trademarks

- Microsoft, Windows, and Excel are registered trademarks of Microsoft Corporation in the United States and other countries.
- Ethernet is a trademark of FUJIFILM Business Innovation Corp.
- Edgecross is a registered trademark of General Incorporated Association Edgecross Consortium.
- EcoAdviser is a registered trademark of Mitsubishi Electric Corporation.
- Other company and product names herein are trademarks or registered trademarks of their respective owners.
- In the text, trademark symbols such as "TM" and "®" may not be written.

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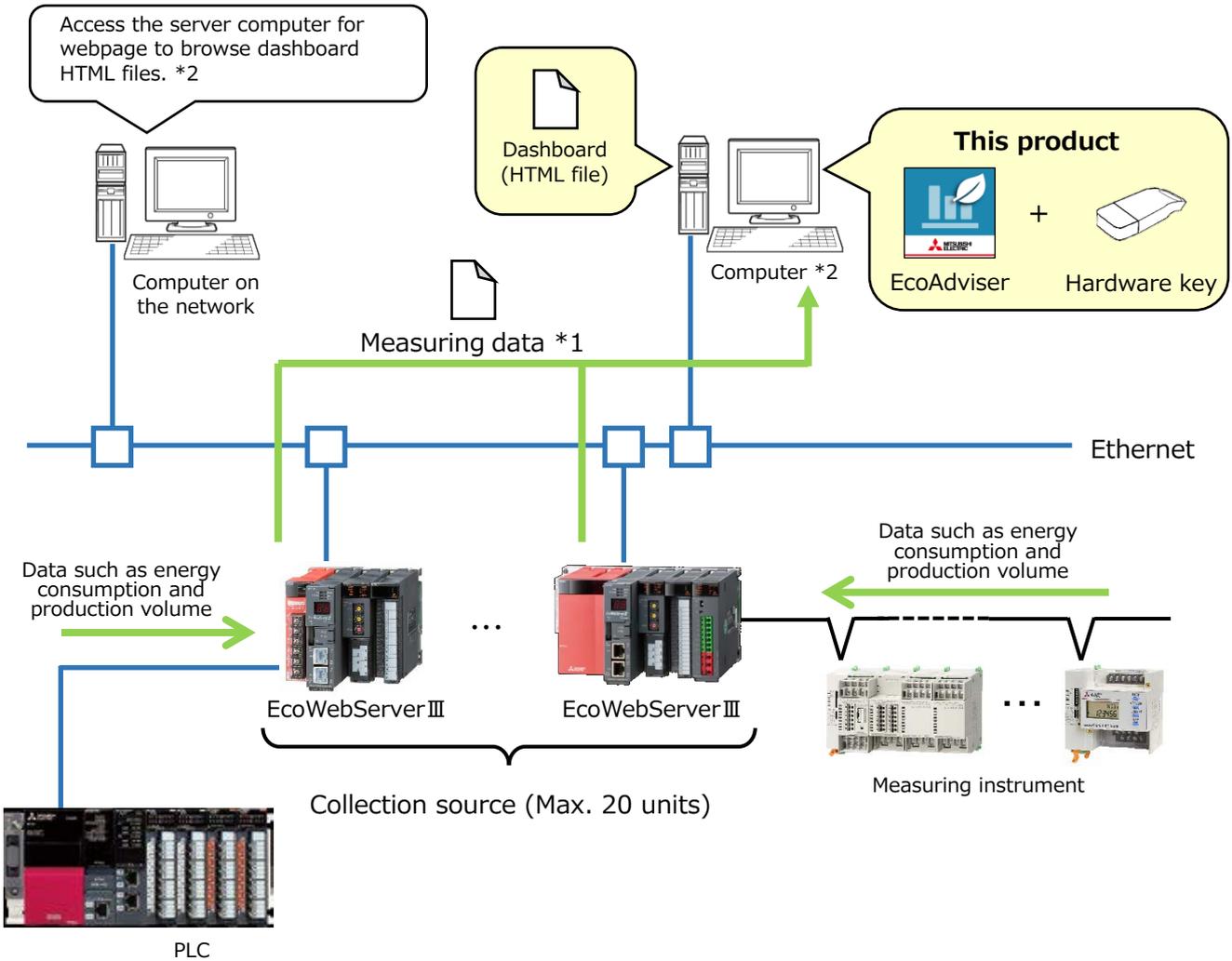
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1. System Information

1.1 System Architecture

The following illustrates some examples of system architecture using EcoAdviser.

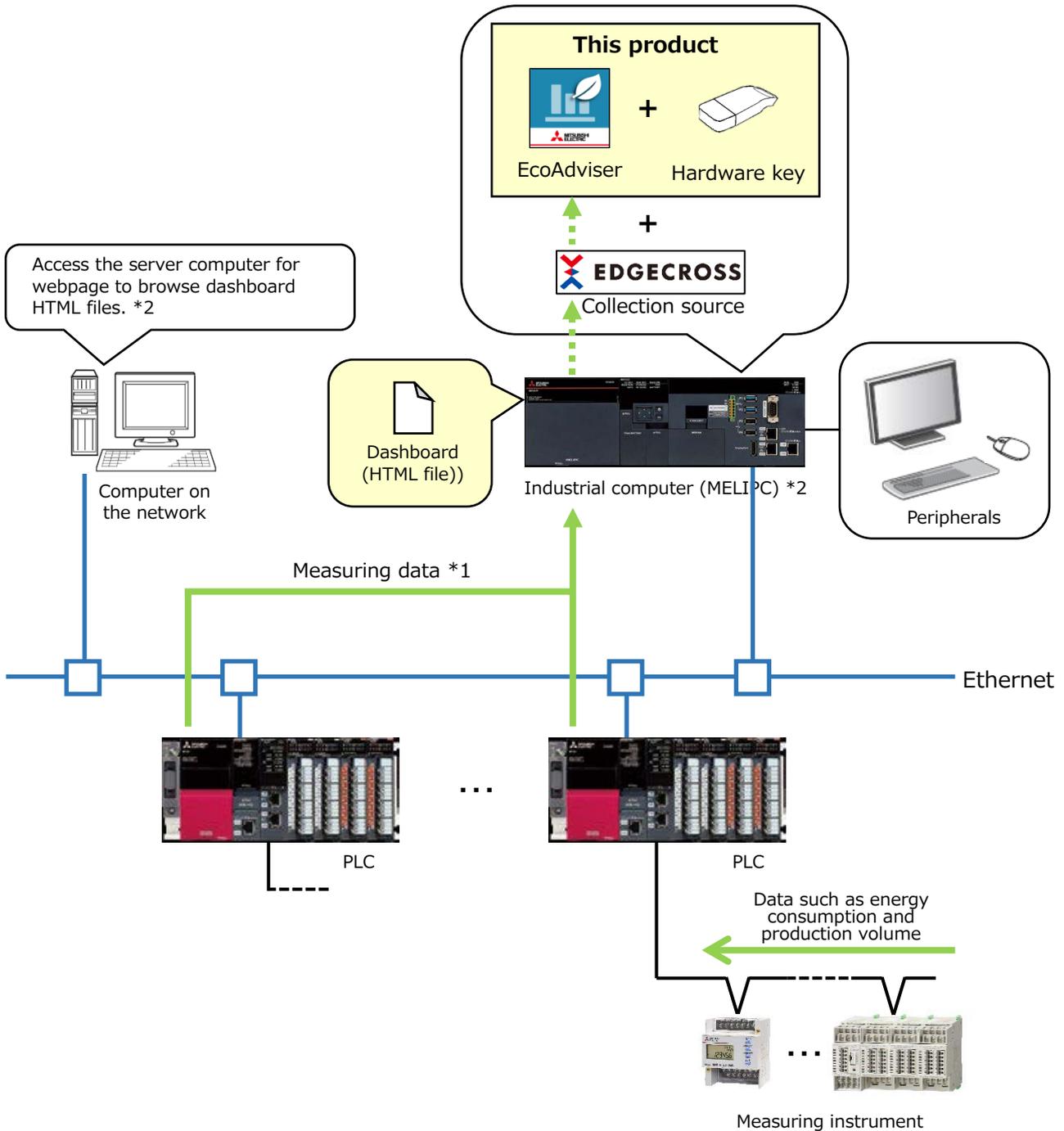
■ When using EcoWebServerⅢ for data collection



*1: EcoAdviser collects measuring data from the zoom (1 min.) data file or demand (daily) data file of EcoWebServerⅢ.

*2: To browse the dashboard HTML file on the computer in the network, activate the web server function, such as IIS, on the computer.
For details about IIS, refer to [12.2 IIS Settings].

■ When using Edgecross for data collection

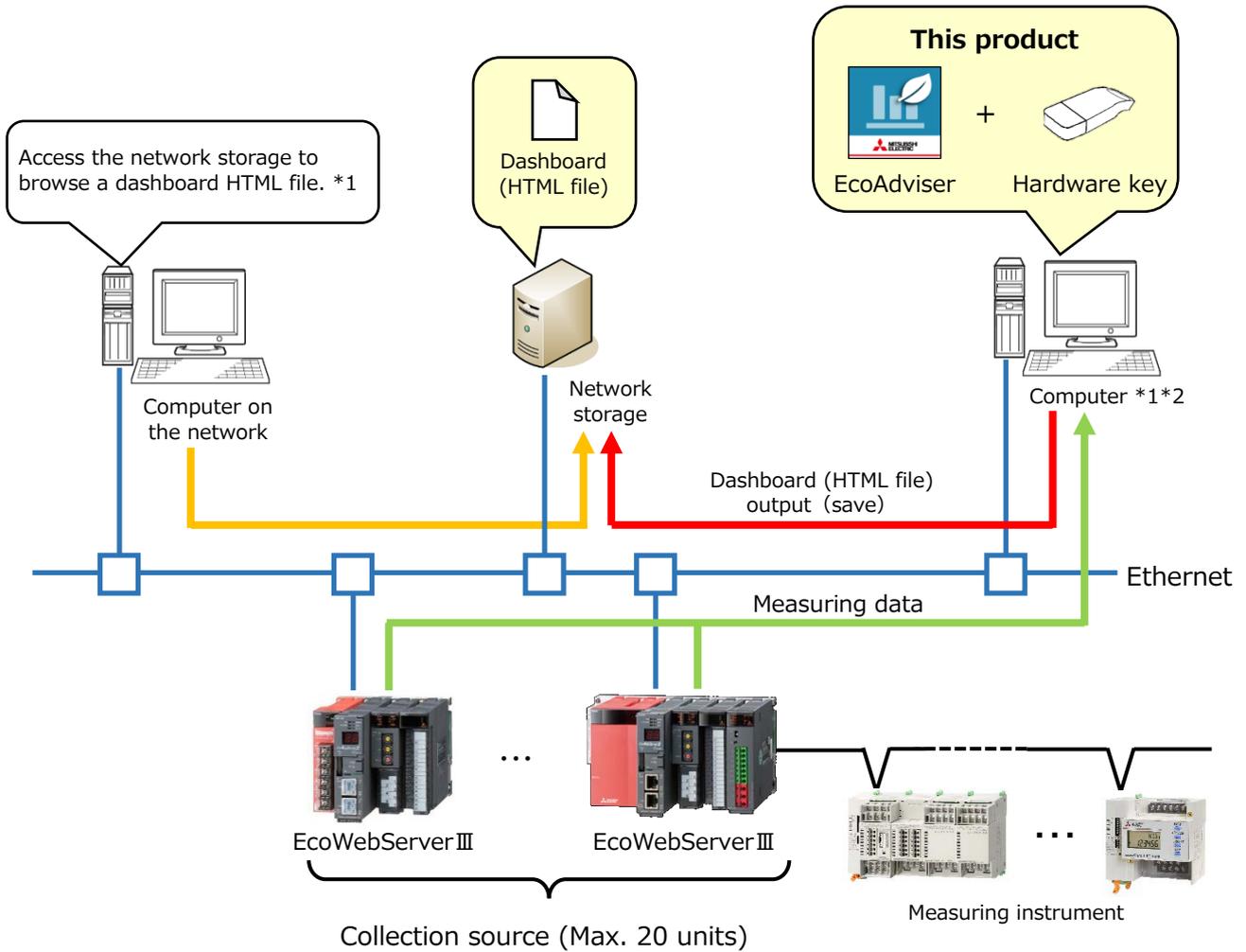


*1: EcoAdviser collects measuring data from the historical data file of Edgecross.

*2: To browse the dashboard HTML file on the computer in the network, activate the web server function, such as IIS, on the computer.
For details about IIS, refer to [12.2 IIS Settings].

*3: If the industrial computer (MELIPC) can communicate with EcoWebServerIII via Ethernet, not only Edgecross but also EcoWebServerIII can be registered as a collection source.

■ When using the network storage



- *1: If you output/save the dashboards HTML file to/in the network storage, you can browse the file by accessing to the network storage from the computer on the network without setting up the web server function such as IIS.
- *2: You can configure the system using the network storage even when using the industrial computer (MELIPC).

1.2 Specifications

1.2.1 Specifications of the software

★: The function of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI)

Item		Specifications
Measuring point settings	Register collection source	Register a collection source and its measuring points.
	Collection source	EcoWebServerⅢ, Edgecross
	Number of collection sources	20 units *1
	Number of measuring points	5680 points *2
	EcoWebServerⅢ	255 points per unit
	EcoWebServerⅢ with the demand monitoring function	Demand period (15 minutes): 284 points per unit *3 Demand period (30 minutes): 282 points per unit *3 Demand period (60 minutes): 280 points per unit *3
	Edgecross	256 points per unit Data type: BOOL, INT, UINT, DINT, UDINT, REAL, LREAL
	Register manual input measuring point	Register a measuring point other than collection sources, such as off-line meters.
	Number of registrations	256 points
	Register product type time period measuring point	Register a measuring point to extract data of one product from multiple types of products.
	Number of registrations	256 points
	Measuring value point	Select from collection sources' measuring points or manual input measuring points.
	Time period measuring point	
	Time period type	0 to 65535
	Register calculation measuring point	Register a measuring point to perform four arithmetic operations on measuring points.
	Number of registrations	256 points
	Available measuring point	Select from collection sources' measuring points, manual input measuring points, or product type time period measuring points. ·200 points can be registered per calculation formula. ·4000 letters can be used per calculation formula.
	Register specific consumption measuring point	Register a measuring point to calculate specific consumption.
	Number of registrations	256 points
	Energy measuring point Production number measuring point	Select from collection sources' measuring points, manual input measuring points, product type time period measuring points, or calculation measuring points.
Measuring point group	Folder tree: 4 hierarchy levels Number of groups : 256 groups Number of measuring points: 256 points per group *7000 measuring points for all groups	

*1: EcoAdviser can register up to 20 units. However, in the case that the collection source is Edgecross, the number of registrations depends on the number of data logging flows of Edgecross.

For more information about the data logging flow, refer to the Edgecross Basic Software for Windows User's Manual.

*2: It varies depending on collection sources to be registered.

When registering 20 units of EcoWebServerⅢ with the demand monitoring function (Demand period 15 minutes), it will be at most 5680 points.

1 System Information

*3: The number of measuring points includes measuring points for demand monitoring. The number of points is the sum of the measuring points (255 points) plus the demand measuring points (the number of points depends on the demand period).

Item		Specifications		
Graph function	Analysis method (Graph type)	Select from time series chart, box plot, pie chart, rank chart, scatter plot, histogram, or pareto chart.		
	Display interval	Select from Hour, Day, Month, or Year. *For box plot, this is set to Hour.		
	Number of saving	300 panels		
Dashboard function	Dashboard creation	Create a dashboard where various types of panels can be displayed.		
		Sheet setting	10 sheets per dashboard	
		Panel type	Graph panel, which is created with the graph function ★Diagnosis panel, which is created using the graph/table of diagnosis result	10 panels per sheet in total of the two types*4
			Number panel, which is created using collected measuring point data	15 panels per sheet
			Image panel, which is created using image files	5 panels per sheet
		Number of saving	5 files	
		Display mode	Display the created dashboard on EcoAdviser.	
		Display settings	Auto-update	Set the automatic update of the data on the dashboard.
			Auto-update timing	After automatic collection
			Tab display	Set the display of the tab for sheet switching.
			Auto-switch	Set the automatic switching of the sheet at regular intervals.
			Auto-switch interval	10/20/30/60/120/180/300 (sec.)
		HTML output	Output the created dashboard to the HTML file.	
		Automatic HTML output function	Set the automatic output to the HTML file at the time of changing the dashboard setting or updating the displayed data.	
	Output timing		After automatic collection	
	Saving destination	Set the saving destination of HTML files to be output.		

*4: Of diagnosis panel, 100 panels for all dashboards can be placed to display the result of energy-loss factor diagnosis.

Item		Specifications	
Report function	Format	Set up the report format.	
	Number of saving	24 report settings (In one setting, each output item of daily, monthly, and annual report is saved.)	
	Number of output items	Daily report	320 items 16 items per sheet × 20 sheets
		Monthly report	320 items 16 items per sheet × 20 sheets
		Annual report	320 items 16 items per sheet × 20 sheets
	Output item	Select from collection sources' measuring points, manual input measuring points, product type time period measuring points, calculation measuring points, or specific consumption measuring points.	
	Report creation	Daily report	Create the daily report of a specified day and save it in the Excel format.
		Monthly report	Create the monthly report of a specified month and save it in the Excel format.
		Annual report	Create the annual report of a specified year and save it in the Excel format.
	Automatic output setting of reports		Set the automatic output of reports.
	Automatic output time	Set the time of automatic output of reports.	
	Saving destination	<ul style="list-style-type: none"> •Set the destination path of daily report files. •Set the destination path of monthly report files. •Set the destination path of annual report files. 	
Data collection function	File collection settings		Collect the logging files stored in the collection source.
	File type	EcoWebServerⅢ	Zoom (1 min.) data file, demand (daily) data file *5
		Edgexross	Historical data file
	Automatic collection		Set the collection for each file type.
		Automatic collection timing	EcoWebServerⅢ: Collection time specified by the user Edgexross: Collection period specified by the user
		Aggregation period	Set the collection period for each of daily/monthly/annual basis.
	Retention period		Set the retention period for each file type.
		15/30/60-minute basis data	2 to 10 years *Default: 10 years
		Day basis data	
		Month basis data	
	Year basis data		
	★Diagnosis data	62 days	
	★Diagnosis data from collection sources		
File deletion timing		Sequentially delete the logging files of expired retention period.	

*5: When the collection source is EcoWebServerⅢ with the demand monitoring function, it is possible to collect the demand (daily) data file.

Item		Specifications
Data input function	Data input	Input 15-min/30-min/60-min data of each measuring point for a user-specified period. *Input at one time: 256 measuring points *Specified period: 31 days
	Export	Output 15-min/30-min/60-min/24-hour data of each measuring point for a user-specified period to the Excel file.
	Import	Input 15-min/30-min/60-min/24-hour data of each measuring point to the imported Excel file.
Calculation function	Available measuring point	Select from product type time period measuring points, calculation measuring points, or specific consumption measuring points. *256 measuring points at one time
	Automatic calculation	Automatically calculate measuring point data.
	Available measuring point	Select from product type time period measuring points, calculation measuring points, or specific consumption measuring points.
	Calculation timing	At the execution of automatic collection
Data output function	Data output	Output the collected measuring point data, which is saved in the file.
	Automatic output settings	Set the automatic output of data files.
	Output group	Max. 30 groups
	Output destination	Set the destination path.
	Available measuring point	Select from collection sources' measuring points, manual input measuring points, product type time period measuring points, calculation measuring points, or specific consumption measuring points.
	Output timing	After automatic collection
Maintenance function	Backup	Back up the setting values and data to the folder
	Restore	Restore the setting values and data backed up from the specified folder
Version *6	EcoAdviser	MES3-EAP1-DA: 1.0.2 MES3-EAP1-AI: 1.0.2
	Historical data access I/F	1.0

*6: The latest version is described.

For the version history, refer to [4.5 Version Information].

Item		Specifications
★Diagnosis settings	Equipment setting	Register the equipment information for energy-loss diagnosis
	Number of registrations	50 pieces
	Energy-loss factor setting	Set the energy-loss factor by equipment
	Number of registrations	20 points per equipment
	Calculation measuring point for diagnosis setting	Register the calculation measuring point for energy-loss diagnosis.
	Number of registrations	150 points
	Available measuring point	Select from collection sources' measuring points other than demand measuring points.
	Electricity rate setting	Set the currency unit and the electricity rate per 1 kWh to convert energy consumption into the amount.
Evaluation reset		Reset the evaluation for energy-loss factor.
★Diagnosis function	Energy-loss diagnosis	Diagnose the following two items for equipment.
	Energy-loss extraction *7	<ul style="list-style-type: none"> •Extract the data of five focusing viewpoints for energy saving and energy-loss during the standby/break time by equipment to rank the equipment in order of energy-loss. •Display daily trends of the energy measuring point, the utility measuring point, and the production number measuring point in a time series chart. Displayable period: The last 366 days from the computer's current time within the diagnostic period.
	Energy-loss factor diagnosis	Diagnose energy-loss factors using the default and additional settings of factors.
	Improvement result check	Compare the data of two periods to check the improvement result by energy saving improvement activities.
	Automatic diagnosis	Automatically perform energy-loss extraction, energy-loss factor diagnosis, and improvement result check.
	Diagnosis panel	Save the graph or table of energy-loss extraction, energy-loss factor diagnosis, or improvement result check.
Number of saving	50 panels	

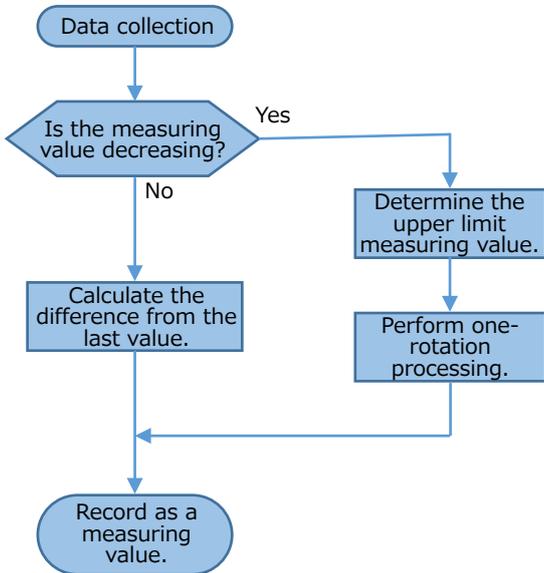
*7: You might not get exact and correct energy-loss extraction because of the energy data with less decimal digits. In that case you should collect the energy with more high-precision and with more low-decimal digits.

1.2.2 Specifications of one-rotation processing of pulse

EcoAdviser executes one-rotation processing for measuring points, whose measuring type is pulse, as the following.

Change the maximum accumulated count value of each collection source to match EcoAdviser.

*Both when the collection source is EcoWebServerⅢ and when CC-Link terminal devices only are used, no setting change is required.



<How to determine the upper limit measuring value>

The upper limit measuring value is determined depending on the digit number of the last value.

The following table shows some examples.

Digit number of the last value	Upper limit measuring value	Example
3 digits	999	The last value: 987, the current value: 123 →Measuring value=1000+123-987 = 136
4 digits	9999	The last value: 9876, the current value: 1234 →Measuring value=10000+1234-9876 = 1358
5 digits	99999	The last value: 98765, the current value: 12345 →Measuring value=100000+12345-98765 = 13580
6 digits	999999	The last value: 987654, the current value: 123456 →Measuring value=1000000+123456-987654 = 135802

2. Preparation for Use

2.1 Computer's Operation Environment

The following table shows the operation environment of the computer where EcoAdviser is to be installed.

Item	Specification	
OS	Microsoft Windows 10 Pro/Enterprise/IoT Enterprise (64-bit) Microsoft Windows 11 Pro/Enterprise (64-bit)	
Language version	Japanese, English, Simplified Chinese	
CPU	Intel® Core™ i3-550 or more recommended	
Memory	4 GB or more recommended	
Hard disk drive	<Energy Saving Data Analysis Software (Model: MES3-EAP1-DA)> Software: 4 GB or more Data: 15 GB or more *1	<Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI)> Software: 4 GB or more Data: 20 GB or more *1
LAN	10/100/1000BASE-T×1	
USB connector (Type A)	1 connector (for connecting the hardware key)	
CD drive	1 drive (for installing EcoAdviser)	
Spreadsheet *2	Microsoft Excel 2016 (32-bit/64-bit) Microsoft Excel 2019 (32-bit/64-bit) Microsoft Excel 2021 (64-bit)	
Display resolution	1024×768 pixels or more	
Input device	A mouse and keyboard	

*1: If you set the storage period of each data and the registration number of each measuring point to the maximum, this capacity will be necessary.

*2: You cannot use the Excel that has been purchased from Microsoft Store.
Use the desktop version of Excel.

When using EcoAdviser, note the following points:

- While EcoAdviser is running, do not open the CSV file collected from the collection source or daily/monthly/annual report in the Excel file. Otherwise, you will fail to save the data.
- For the use conditions and installation conditions, such as power supply voltage, frequency, and earth grounding, on the computer where EcoAdviser is installed, observe the terms and conditions described in the manual of the computer.
- Depending on the settings of power options in the used computer, data collection may stop midway. Set the sleep timer to Never on the computer and then save the setting.
- Synchronize the time of each collection source and the computer. For details, refer to [6.2 Automatic Data Collection].
- The data storage period is limited for collection source. Therefore, collect data periodically.

- This software may run slowly on your computer if there are a lot of saved data or if the software has a large number of registered data, such as measuring points and graph settings.

2.2 Edgexcross's Data File Collection

Set the data period and the number of lines in a file as described below in order that EcoAdviser can collect the data if the collection source is Edgexcross.

*For details on the settings, refer to Edgexcross Basic Software for Windows User's Manual.

2.2.1 Measuring type: analog value, power factor, operating status, pulse whose type is indicated

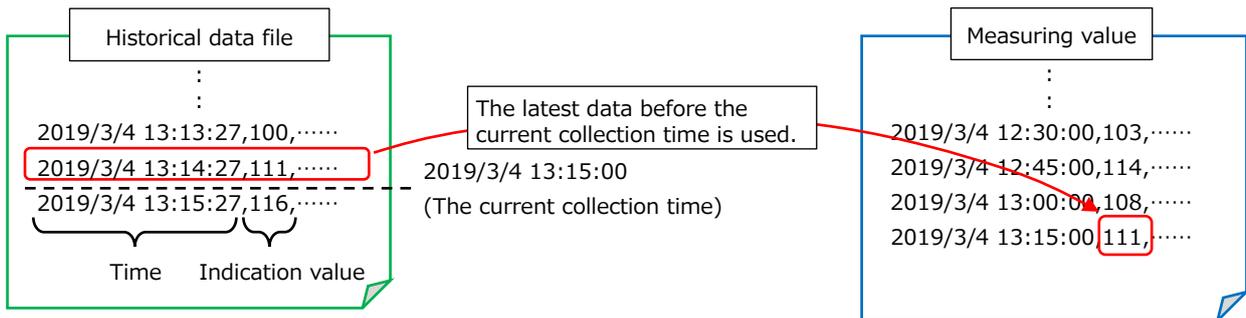
■ Historical data file setting

Data period	Number of file lines
60 seconds	60 lines
30 seconds	120 lines
10 seconds	360 lines

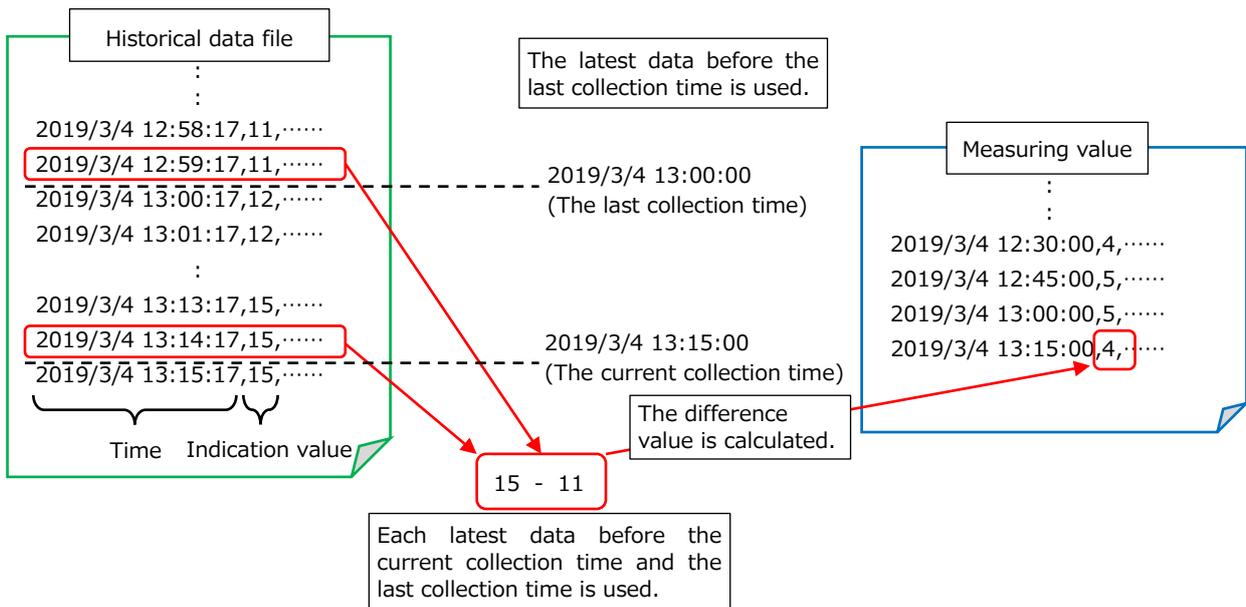
■ Data collection from the historical data file

EcoAdviser collects data of the latest time before the collection time.

<Measuring type: analog value, power factor, operating status>



<Measuring type: pulse whose type is indicated>



2.2.2 Measuring type: pulse whose type is difference

■ Historical data file setting

If a pulse whose type is difference is used for both analysis and diagnosis, two measurement points of the same value must be provided.

One measurement point cannot be used for both analysis and diagnosis.

The data period and the number of file lines vary depending on the function. Refer to the following for setting.

Function	Examples of Use
Analysis	Used for registration to product type time period measuring points, calculation measuring points, and specific consumption measuring points. Used for graphs and reports.
Diagnosis	Used for diagnostic functions.

Function	Data period	Number of file lines	Details
Analysis	3600 sec. (60 min.)	1 line	Match the data period to EcoAdviser. For details, refer to [4.3.4 Collection setting].
	1800 sec. (30 min.)	2 lines	
	900 sec. (15 min.)	4 lines	
Diagnosis	60 sec.	60 lines	

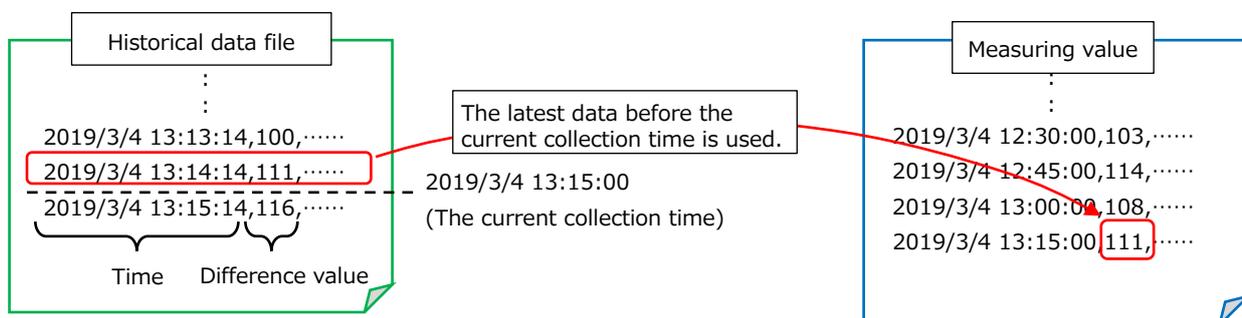
e.g. when you want to use Measuring point A both in the analysis and diagnosis functions, register Measuring point A and Measuring point A' to EcoAdviser.

The data period of EcoAdviser is 15 minutes.

Measuring point	Historical data file setting	
	Data period	Number of file lines
Measuring point A	900 sec.	4 lines
Measuring point A'	60 sec.	60 lines

■ Data collection from the historical data file

EcoAdviser collects data of the latest time before the collection time.



2.2.3 Collectable data type

The following table shows a list of data types that EcoAdviser can collect.

○: Collectable -: Non-collectable

Notice: If you set the real number, it must have max. 14 decimal places.

*If there are any incompatible data types in the historical data definition file, those parts will be skipped.

Data type	Collectable
BOOL	○
INT	○
UINT	○
DINT	○
UDINT	○
LINT	-
ULINT	-
REAL *1	○
LREAL *1	○
STRING	-
WSTRING	-

*1: The data range that can be used on EcoAdviser is 999999999999.999 to -999999999999.999.

Any values greater than the above data range are collected as 999999999999.999 and any smaller values than that range are collected as -999999999999.999.

2.2.4 Other non-collectable conditions

The following historical data cannot be collected by EcoAdviser.

- Historical data file with multiple data of the same time

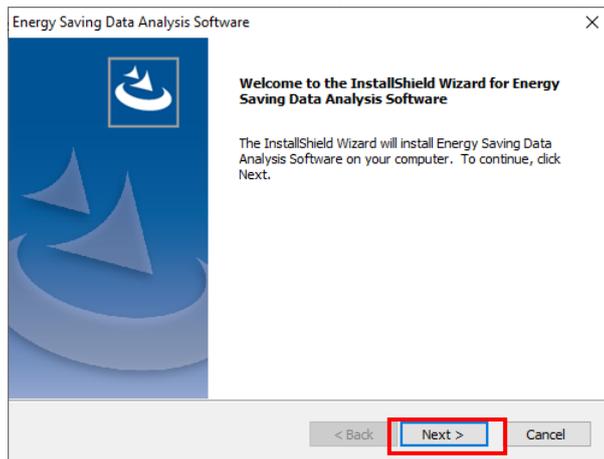
2.3 Installation/Uninstallation

This section describes how to install and uninstall EcoAdviser.

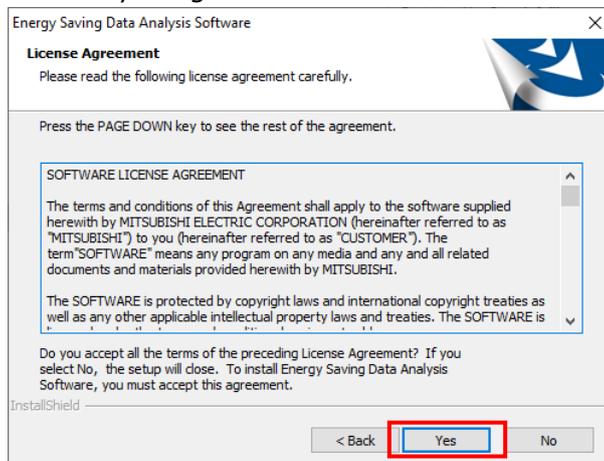
- *1: You must log in as a user with administrative rights to install the software.
- *2: You can install the software on one computer per license.
- *3: The hardware key is not necessary to install but to start the software.

2.3.1 Installing EcoAdviser

- (1) Insert the CD-ROM of EcoAdviser into the CD drive of the computer.
- (2) Open the CD drive and start the installer.
 - *The following is the file name of the installer:
 - MES3-EAP1-DA: setup_MES3-EAP1-DA_x64.exe
 - MES3-EAP1-AI: setup_MES3-EAP1-AI_x64.exe
- (3) The following window appears.
Click the **Next** button.



- (4) The following window appears.
If you agree with the Software end user license agreement, click the **Yes** button.

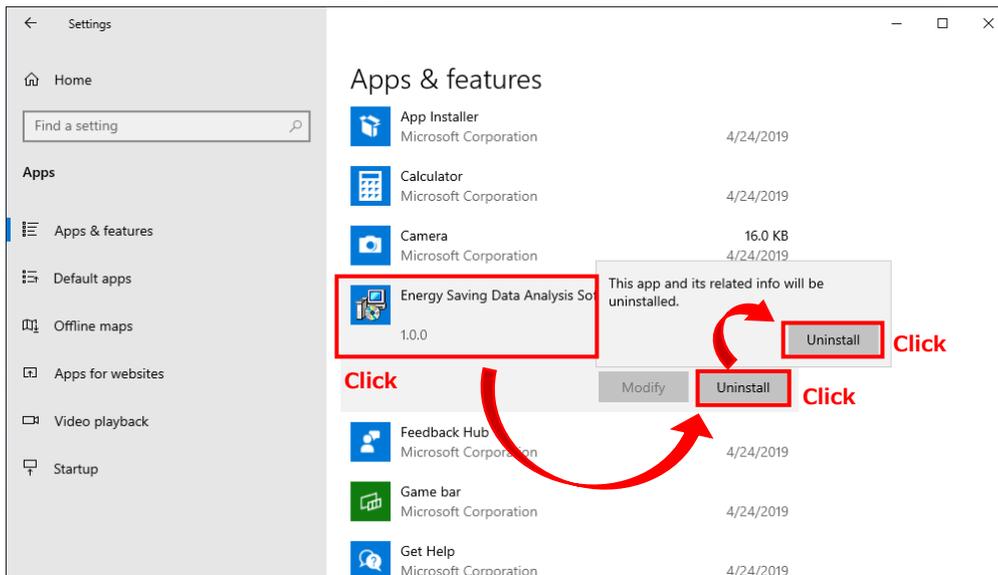


2.3.2 Uninstalling EcoAdviser

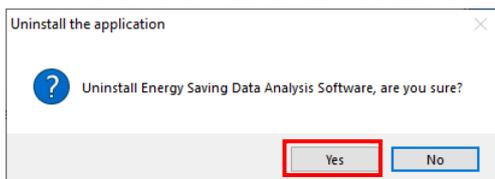
You must log in as a user with administrative rights to uninstall the software.

*Even if you uninstall the software, various setting values and the folders created during operation, such as CSV folders and report folders, are not deleted.

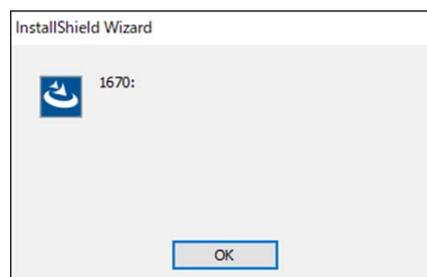
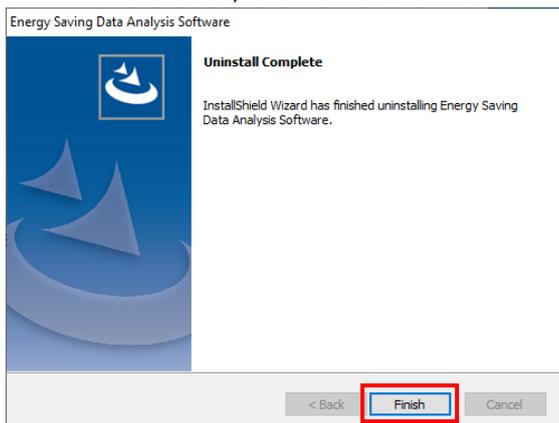
- (1) From the **Start** menu, click **Settings** and then click **Apps**.
Open the **Apps & features** window.
- (2) From the list, select **Energy Saving Data Analysis Software** or **Energy Saving Data Analysis and Diagnosis Software**.
Click the **Uninstall** button.



- (3) The following message appears.
Click the **Yes** button to start the uninstallation.



- (4) When the uninstallation is completed, the following window appears.
Click the **Finish** button to close the window. This is the end of the uninstallation.
If uninstalling while the software is running, the window on the right may appear.
In the case, click on the **OK** button to close it. (Uninstallation is completed.)



2.4 Updating EcoAdviser

This section describes how to update EcoAdviser.

Operation	Details
4.4.1 Backup	Back up the setting values and data of EcoAdviser.
↓	
2.3.2 Uninstalling EcoAdviser	Uninstall the old version of EcoAdviser.
↓	
2.3.1 Installing EcoAdviser	Install the latest version of EcoAdviser.
↓	
4.4.2 Restoration	Restore the setting values and data to the latest version of EcoAdviser.

2.5 Upgrading EcoAdviser (Model: MES3-EAP1-DA → MES3-EAP1-AI)

This section describes how to upgrade the software from Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) to Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI) and the precautions.

Operation	Details
4.4.1 Backup	Back up the setting values and data of Energy Saving Data Analysis Software (Model: MES3-EAP1-DA).
↓	
2.3.2 Uninstalling EcoAdviser	Uninstall Energy Saving Data Analysis Software (Model: MES3-EAP1-DA).
↓	
2.3.1 Installing EcoAdviser	Install Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).
↓	
4.4.2 Restoration	Restore the setting values and data to Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

Note

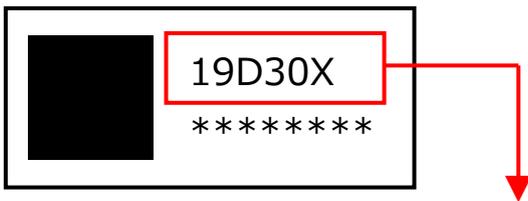
Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) and Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI) cannot coexist.

If you try to install Energy Saving Data Analysis and Diagnosis Software on the computer where Energy Saving Data Analysis Software is installed, the Energy Saving Data Analysis Software will be uninstalled.

The data collected on Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) is impossible to use for diagnosis. To perform the diagnosis, data must be collected from collection sources again.

2.6 Hardware Key

The hardware keys of Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) and Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI) differ. Use the supplied hardware key because the two keys are incompatible. This section describes how to distinguish the hardware key. The seal shown in the figure below is attached to the hardware key. Judge from the number indicated on the seal.



19D305: Energy Saving Data Analysis Software (Model: MES3-EAP1-DA).

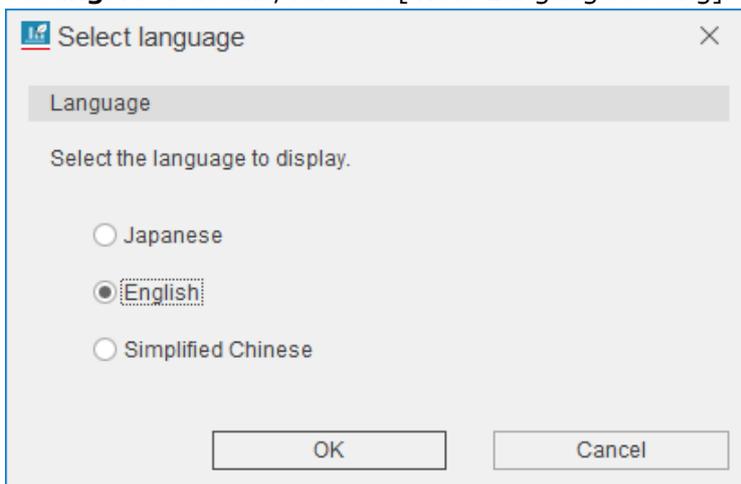
19D306: Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI)

3. Basic Operation Guide

3.1 Start/Exit

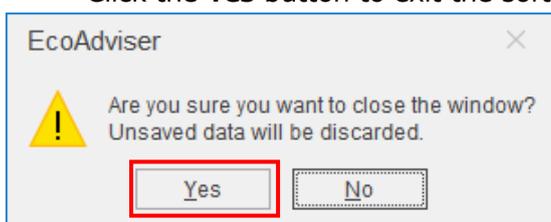
3.1.1 Starting EcoAdviser

- (1) Connect the hardware key to your computer.
- (2) Double-click the shortcut on the desktop.
Otherwise, from the **Start** menu, click **mitsubishi Energy Management** to select **EcoAdviser**.
- (3) The software starts.
*At the first startup, the setting window appears for display language.
Select a language and click the **OK** button.
If you want to change the language setting after the first setup, change it from **System settings**. For details, refer to [4.3.3 Language setting].



3.1.2 Exiting EcoAdviser

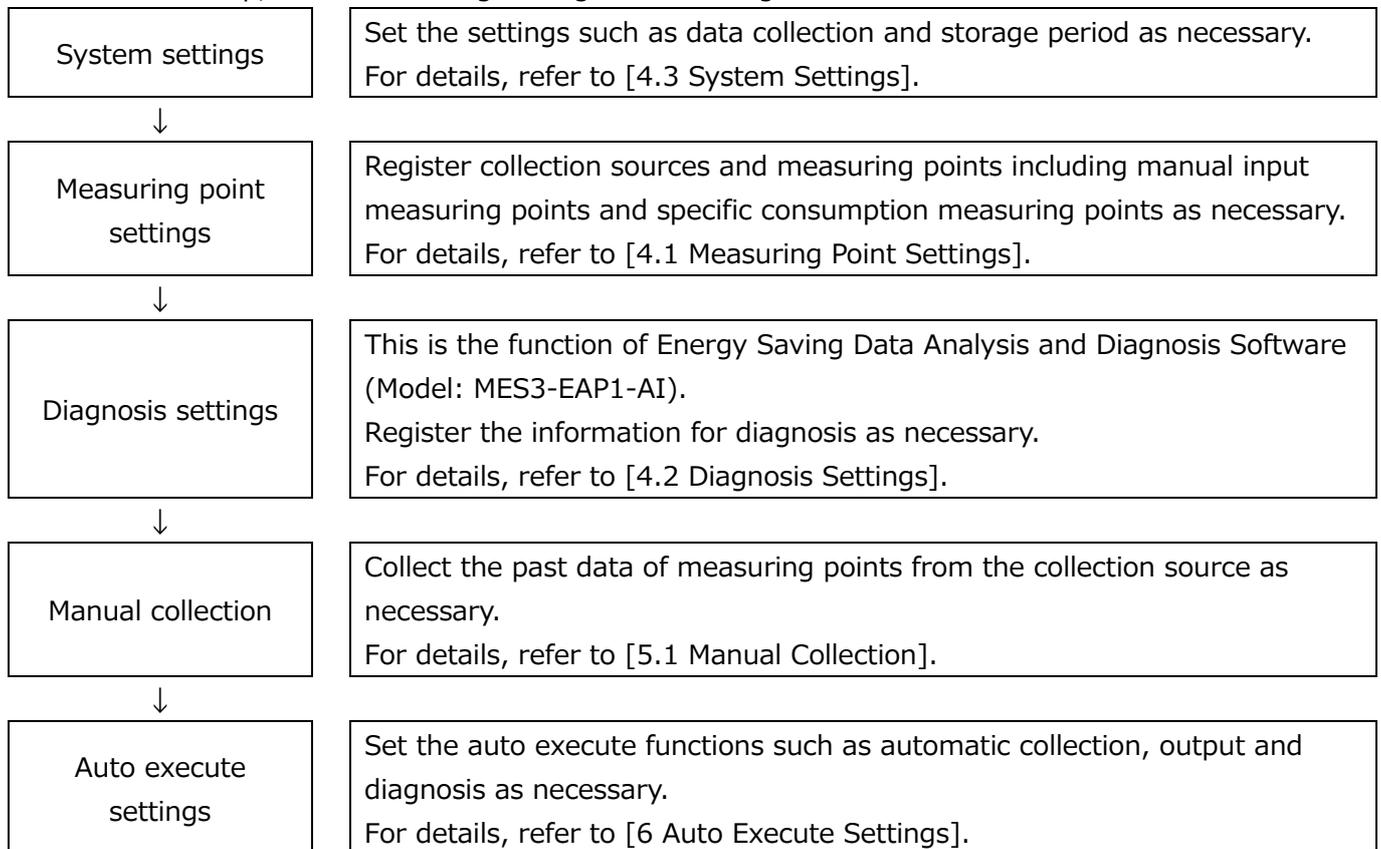
- (1) Click the **x** button at the upper right of the window.
- (2) The following confirmation window appears.
Click the **Yes** button to exit the software.



3.2 Basic Operation Flow

3.2.1 Initial setup

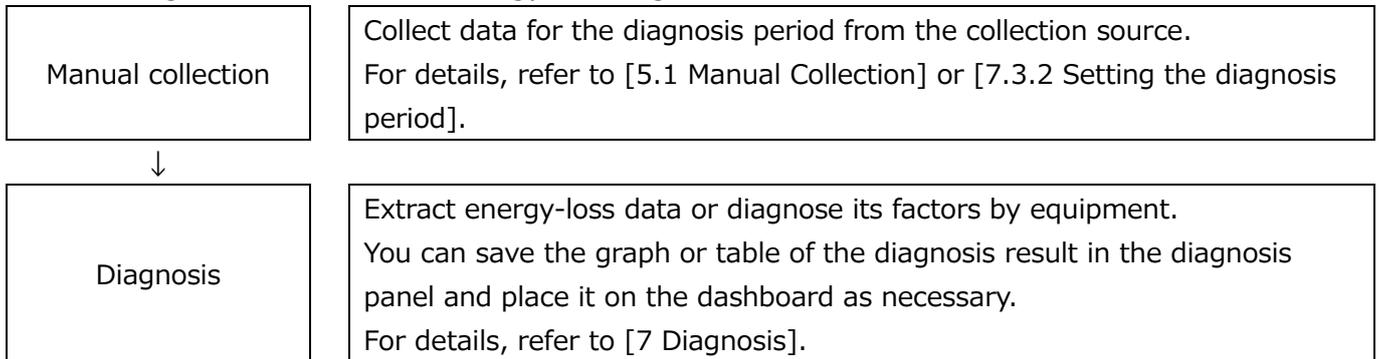
On the first startup, set the following settings before using each function.



3.2.2 Energy-loss diagnosis execution

This is the function of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

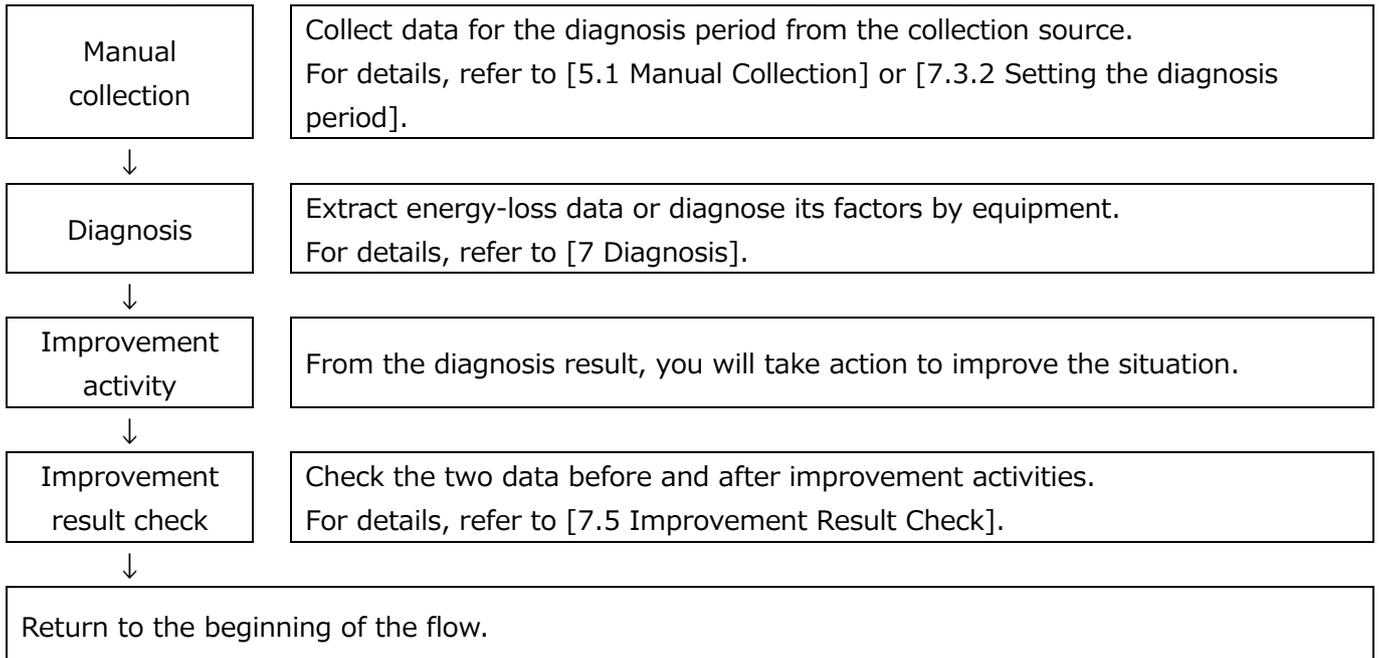
The following is a flow to execute energy-loss diagnosis.



3.2.3 Energy saving activities using the diagnosis function

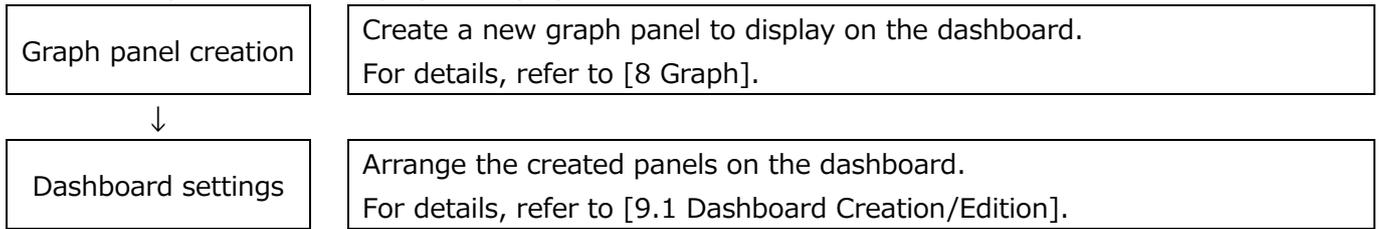
This is the function of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

The following is a flow of improvement activity using the energy-loss diagnosis.



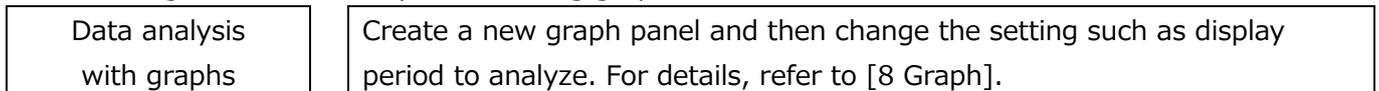
3.2.4 Graph/Data display

The following is a flow to display data/graphs on EcoAdviser or on the web.



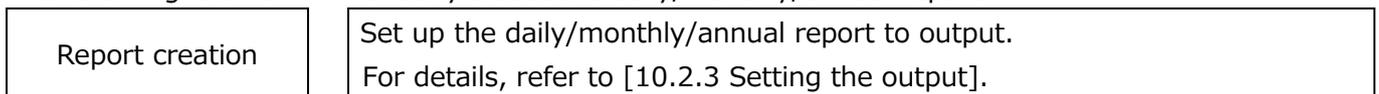
3.2.5 Analysis with graphs

The following is a flow to analyze data using graphs.



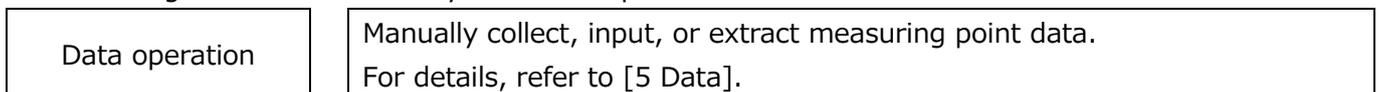
3.2.6 Report creation

The following is a flow to manually create the daily/monthly/annual report.



3.2.7 Manual collection/input of data

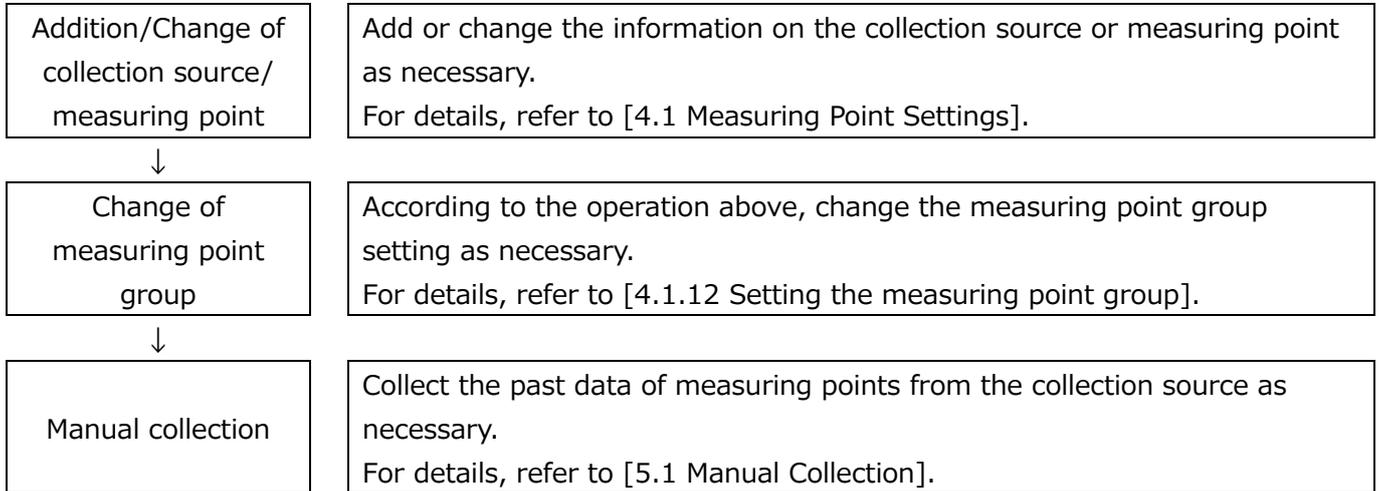
The following is a flow to manually collect or input data.



3.2.8 Setting change after the operation starts
(Addition/Change of collection source/measuring point)

The following is a flow to add/change the information on the collection source/measuring point.

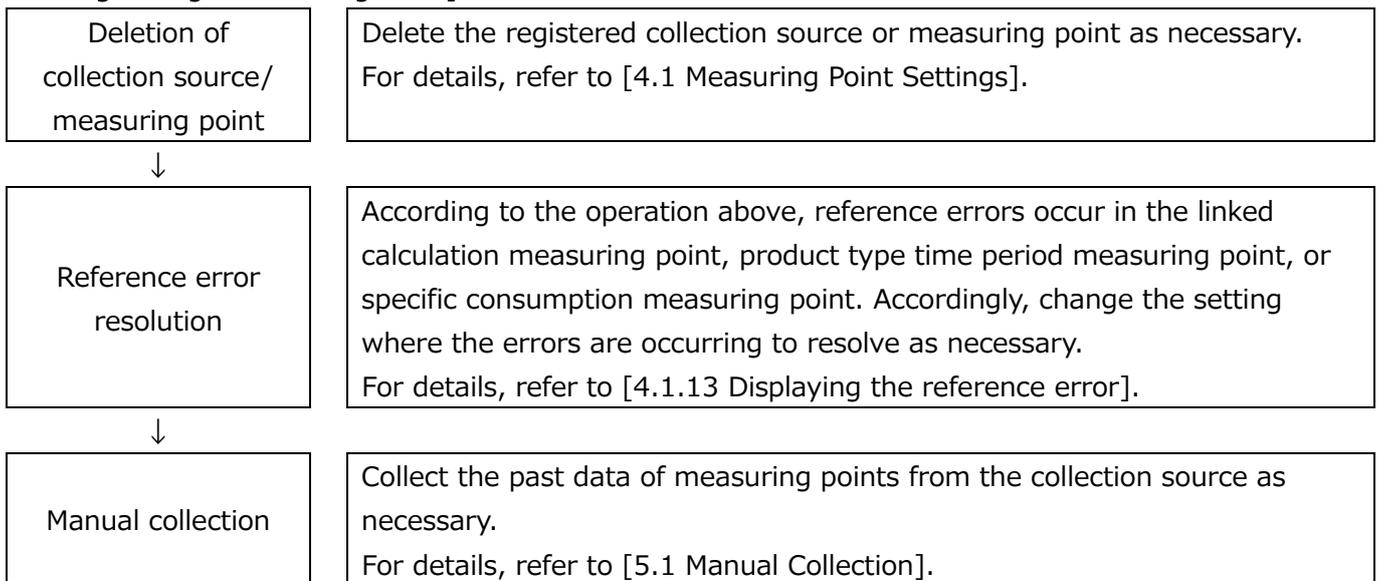
*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), check whether the measuring point is used in the diagnosis setting. If it used, refer to [12.3 Operation for Setting Change about Diagnosis].



3.2.9 Setting change after the operation starts
(Deletion of collection source/measuring point)

The following is a flow to delete the information on the collection source or measuring point.

*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI) check whether the measuring point is used in the diagnosis setting. If used, change the setting value and then delete the measuring point. For details on the setting change, refer to [12.3 Operation for Setting Change about Diagnosis].

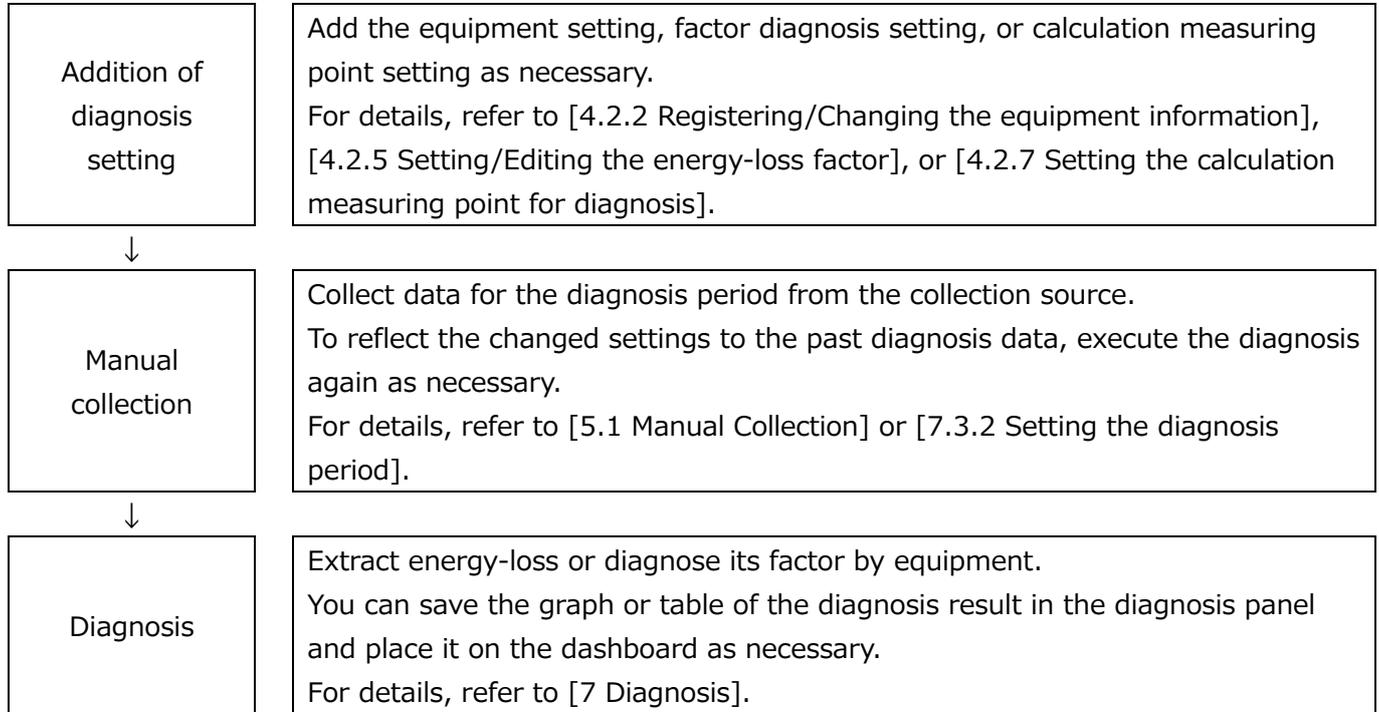


3.2.10 Setting change after the operation starts

(Addition of equipment/factor diagnosis /calculation measuring point setting)

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

The following is a flow to add the diagnosis setting, such as equipment, factor diagnosis, or calculation measuring point.



3.2.11 Setting change after the operation starts

(Change of equipment/factor diagnosis /calculation measuring point setting)

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

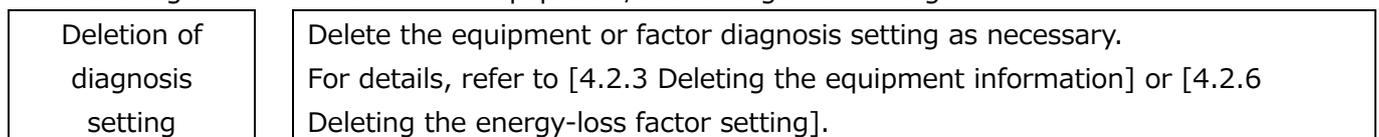
For details on the operation, refer to [12.3 Operation for Setting Change about Diagnosis].

3.2.12 Setting change after the operation starts

(Deletion of equipment/factor diagnosis setting)

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

The following is a flow to delete the equipment/factor diagnosis setting.

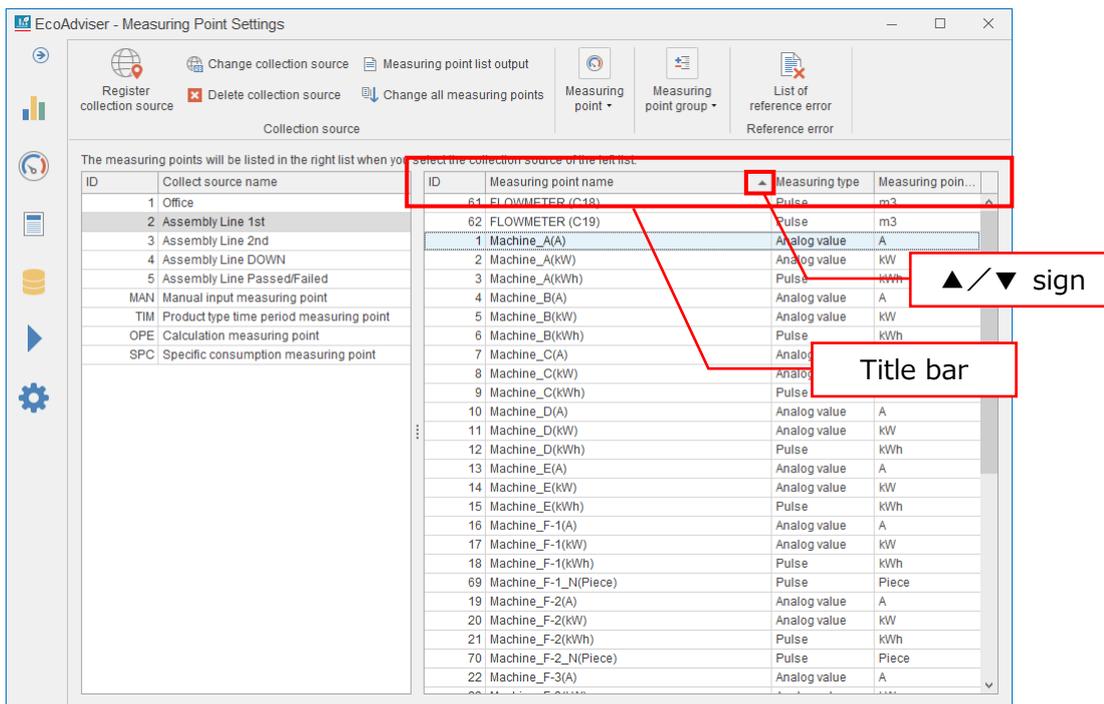


3.3 Useful Function

EcoAdviser is designed to display data in the table format at various settings. To easily select any data from the table, EcoAdviser has the following functions.

3.3.1 Data sorting (ascending/descending order)

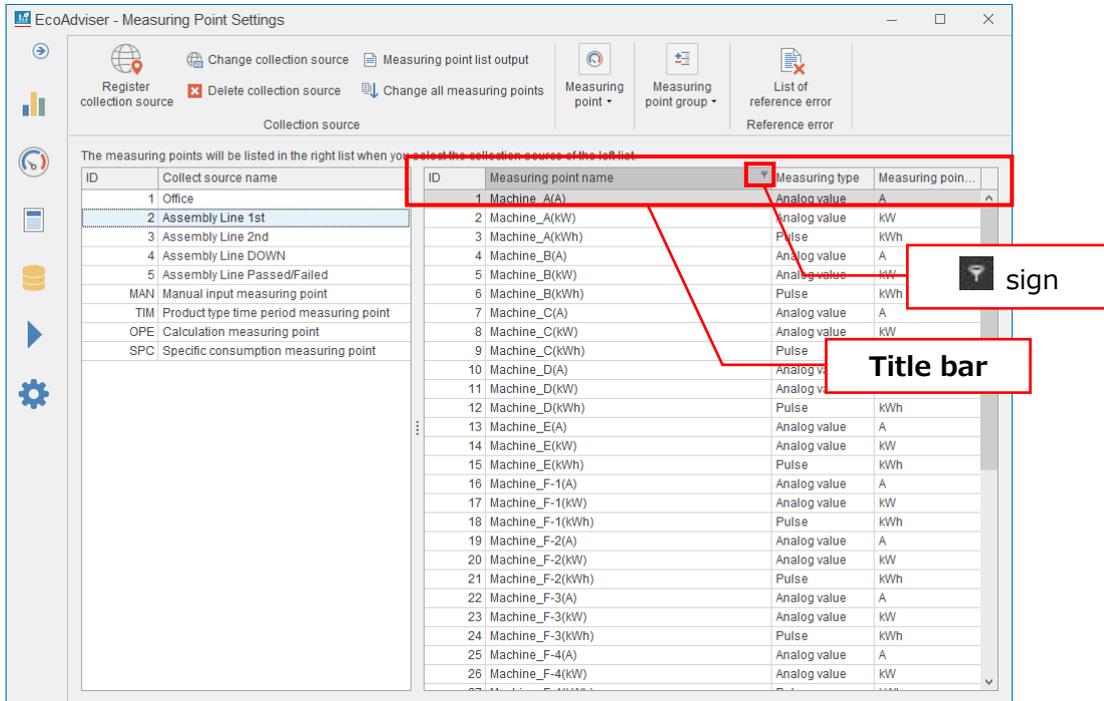
Click the **Title bar** to sort data in ascending or descending order based on the selected column. For ascending sort order, the ▲ sign appears in the selected item. For descending order, the ▼ sign does the same.



3.3.2 Filter

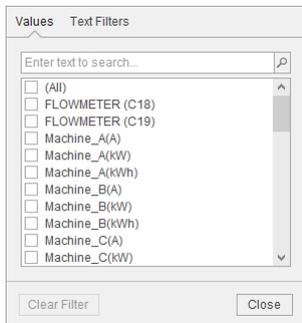
Using the filter function, it is possible to display a specific value only or to search for a value that match any of specified conditions.

By hovering your mouse over the title bar, you see the  sign at the right end of the item column. Click the  sign.



The following window appears.

The actions of the **Values** and **Text Filters** tab are as follows.



(1) The function of the **Values** tab

The filter method varies depending on displayed data.

■ For text

This text box is to search for a text string. Entering the string will show a list of data that contains the same string.

Data with checkmark shows. If there is no checkmark in the box, all data will be displayed.

A list of data Searching for a text string will show data that contains the same string.

This button resets the filter settings.

■ For numeric value

Entering a starting value and ending value will show data that falls within the **From** and **To** value fields. It is also possible to set the values by moving the below gauge.

Moving the gauge will set a starting value and ending value.

This button resets the filter settings.

■ For date

This text box is to search for a text string. Entering the string will show a list of date that contains the same string.

The date, which is year/month/day, is hierarchically displayed. Date with checkmark will be displayed. If there is no checkmark in the box, all data will be displayed.

This button resets the filter settings.

(2) The function of the **Text Filters** tab

The filter method varies depending on displayed data.

■ For text and numeric value

Select a filter condition from the pull down menu.

Enter a value.
The data shows regarding that matches the filter conditions and value.

This button resets the filter settings.

■ For date

Select a filter condition from the pull down menu.

Specify the date.
*The method to specify the date varies depending on the filter condition.

This button resets the filter settings.

■ Filter conditions

Filter conditions			
Text	Numeric value	Date	
Equals	Equals	Specific Date Periods	This Week
Does Not Equal	Does Not equal	Is Same Day	Next Week
Begins With	Is Null	Equals	Last Month
Does Not Begin With	Is Not Null	Does Not Equal	This Month
Ends With	Between	Between	Next Month
Does Not End With	Greater Than	Before	Last Year
Contains	Greater Than Or Equal To	After	This Year
Does Not Contain	Less Than	Yesterday	Next Year
Is Blank	Less Than or Equal To	Today	Year To Date
Is Not Blank	Top N	Tomorrow	All Dates In The Period
Custom Filter	Bottom N	Last Week	Custom Filter
	Above Average		
	Below Average		
	Custom Filter		

* For the filter conditions with yellow, you can select also from the custom filter.
 For the filter conditions with green, you can select at the custom filter only.

■ Custom filter

When selecting Custom filter at the filter condition, set the following two conditions.
 It is possible to search for a value that meets either or both of two conditions.

3.3.3 Measuring point group

This is used to separate measuring points into groups regardless of the types of collection source and measuring point.

By setting this measuring point group, you can easily find measuring points when dragging and dropping.

For details, refer to [4.1.12 Setting the measuring point group].

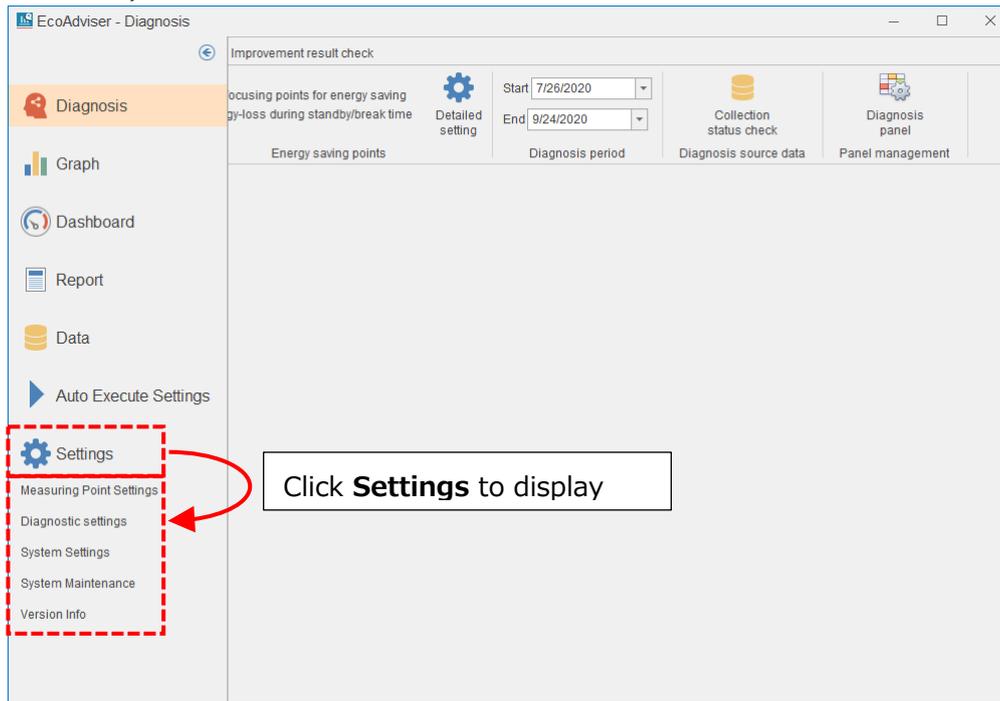
4. Settings

This chapter describes how to set the settings such as measuring point settings and diagnosis settings.

Click the **Settings** button to display the sub menu as the following.

By selecting each sub menu tab, the window shows the setting window.

*The following is the window of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

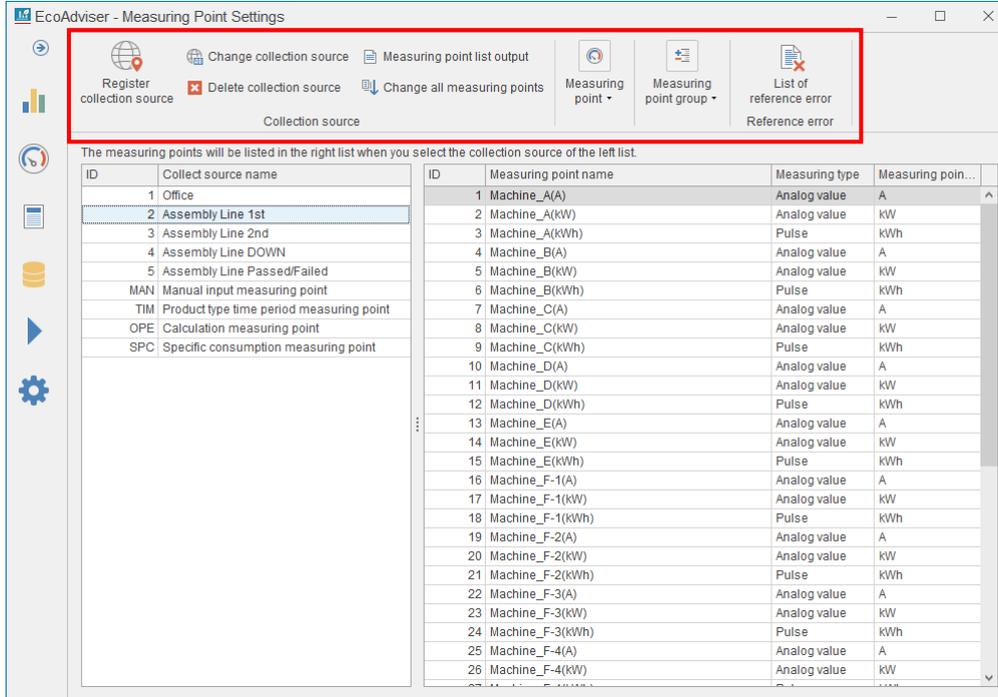


Sub menu	Details	Reference
Measuring point settings	Register, edit, or delete collection sources and measuring points.	4.1
Diagnosis settings	Register the information for diagnosis. *This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).	4.2
System settings	Set system settings, such as retention period and data collection.	4.3
System maintenance	Output logs or back up/restore the setting values/data of EcoAdviser.	4.4
Version information	Check the version of EcoAdviser.	4.5

4.1 Measuring Point Settings

This section describes how to register the information on collection sources and measuring points or change the information.

For details on how to operate the buttons on the window, refer to the following table.



The measuring points will be listed in the right list when you select the collection source of the left list.

ID	Collect source name	ID	Measuring point name	Measuring type	Measuring poin...
1	Office	1	Machine_A(A)	Analog value	A
2	Assembly Line 1st	2	Machine_A(kW)	Analog value	kW
3	Assembly Line 2nd	3	Machine_A(kWh)	Pulse	kWh
4	Assembly Line DOWN	4	Machine_B(A)	Analog value	A
5	Assembly Line Passed/Failed	5	Machine_B(kW)	Analog value	kW
MAN	Manual input measuring point	6	Machine_B(kWh)	Pulse	kWh
TIM	Product type time period measuring point	7	Machine_C(A)	Analog value	A
OPE	Calculation measuring point	8	Machine_C(kW)	Analog value	kW
SPC	Specific consumption measuring point	9	Machine_C(kWh)	Pulse	kWh
		10	Machine_D(A)	Analog value	A
		11	Machine_D(kW)	Analog value	kW
		12	Machine_D(kWh)	Pulse	kWh
		13	Machine_E(A)	Analog value	A
		14	Machine_E(kW)	Analog value	kW
		15	Machine_E(kWh)	Pulse	kWh
		16	Machine_F-1(A)	Analog value	A
		17	Machine_F-1(kW)	Analog value	kW
		18	Machine_F-1(kWh)	Pulse	kWh
		19	Machine_F-2(A)	Analog value	A
		20	Machine_F-2(kW)	Analog value	kW
		21	Machine_F-2(kWh)	Pulse	kWh
		22	Machine_F-3(A)	Analog value	A
		23	Machine_F-3(kW)	Analog value	kW
		24	Machine_F-3(kWh)	Pulse	kWh
		25	Machine_F-4(A)	Analog value	A
		26	Machine_F-4(kW)	Analog value	kW

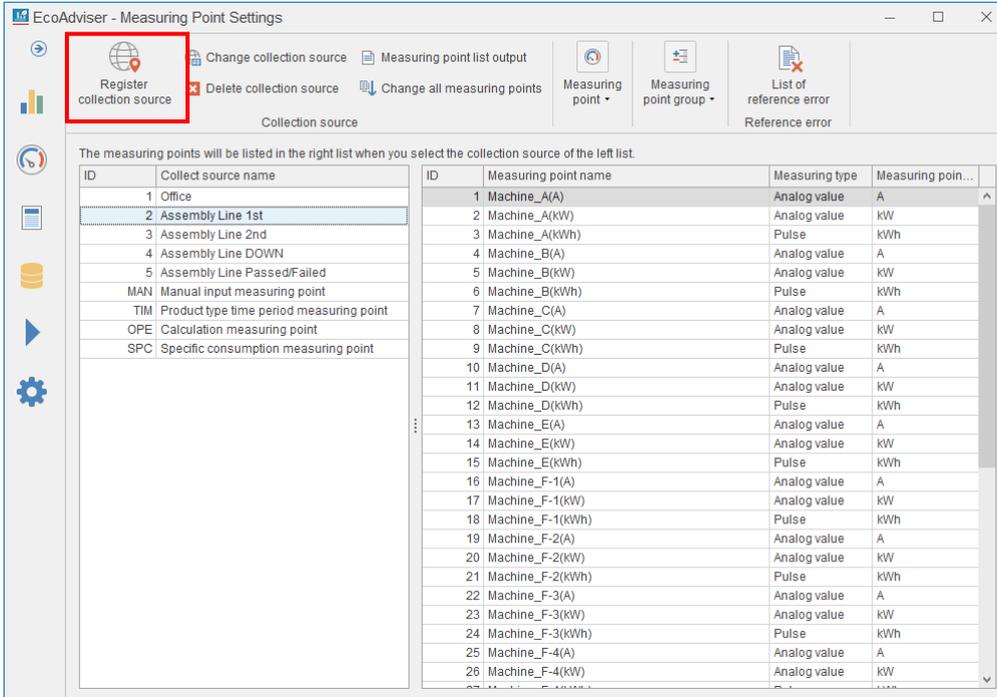
Button	Details	Reference
Register collection source	Register the collection source information. Additionally, register its measuring points.	4.1.1
Change collection source	Change the information of the selected collection source. Additionally, add, change, or delete the information of the collection source's measuring points.	4.1.2
Delete collection source	Delete the registered information of the collection source.	4.1.3
Measuring point list output	Output the selected collection source's measuring points to the Excel file.	4.1.4
Change all measuring points	Change the information of the selected collection source's measuring points in a batch. *No measuring point can be added or deleted.	4.1.5
Register manual input measuring point	Set the manual input measuring point.	4.1.6
Register calculation measuring point	Set the calculation measuring point.	4.1.7
Register product type time period measuring point	Set the product type time period measuring point.	4.1.8
Register specific consumption measuring point	Set the specific consumption measuring point.	4.1.9
Change measuring point	Change the information of the selected measuring point.	4.1.10
Delete measuring point	Delete the information of the selected measuring point.	4.1.11
Measuring point group setting	Set the grouping of measuring points.	4.1.12
List of reference error	Display any measuring points where the reference error is occurring in the list.	4.1.13

4.1.1 Registering the collection source information

You will register the information on the collection source and its measurement points.

*Refer to [1.2.2 Specifications of one-rotation processing of pulse] to change the settings of the collection source as necessary.

(1) Click the **Register collection source** button.



(2) The following window appears.

Input or select item from the pull-down menu.

■ For registration of EcoWebServerⅢ with the HTTP (online) setting

Item	Details
1. Set an ID and name	
Collection source ID	Input the number to manage the collection source. Input range: 1 to 20 *Do not register the same number repeatedly.
Collection source name	Input a name to manage the collection source. *Max. 30 characters
2. Set collection source type	
Collection source type	Select EcoWebServerⅢ from the pulldown menu.
Data collecting	Select HTTP from the pulldown menu.
Connection host	Input the IP address of the connected EcoWebServerⅢ.
Collection source type	Select the model name of the EcoWebServerⅢ from the pulldown menu (listed below). *Otherwise, click the Collect model name button to acquire the model name information. <ul style="list-style-type: none"> •MES3-255B •MES3-255B-DM •MES3-255C •MES3-255C-DM •MES3-255C-EN •MES3-255C-DM-EN •MES3-255C-CN •MES3-255C-DM-CN
3. Set necessary information	
Collection measuring data *1	Select the setting whether to collect the measuring point data at the same time that the collection source is registered from the pulldown menu. Enable: Collect the data to register. Disable: Not collect the data.
Collection demand data *1	This setting is only for EcoWebServerⅢ with the demand monitoring function. Select the setting whether to collect the demand measuring point data at the same time that the collection source is registered from the pulldown menu. Enable: Collect the data to register. Disable: Not collect the data.

*1 : Register the EcoWebServerⅢ that collects measuring data from terminal devices.

4 Settings

If there is any missing data, the number of decimal places will not be read for the measuring point.

■ For registration of EcoWebServerⅢ with the FOLDER (offline) setting

Item	Details
1. Set an ID and name	
Collection source ID	Input the number to manage the collection source. Input range: 1 to 20 *Do not register the same number repeatedly.
Collection source name	Input a name to manage the collection source. *Max. 30 characters
2. Set collection source type	
Collection source type	Select EcoWebServerⅢ from the pulldown menu.
Data collecting	Select FOLDER from the pulldown menu.
Model name	Select the model name of the EcoWebServerⅢ from the pulldown menu (listed below). *Otherwise, click the Collect model name button to acquire the model name information. <ul style="list-style-type: none"> •MES3-255B •MES3-255B-DM •MES3-255C •MES3-255C-DM •MES3-255C-EN •MES3-255C-DM-EN •MES3-255C-CN •MES3-255C-DM-CN

(Continued to the next page.)

Item	Detail
3. Set necessary information	
Collection measuring data	<p>Select the setting whether to collect the measuring point data at the same time that the collection source is registered from the pulldown menu.</p> <p>Enable: Collect the data to register. Disable: Not collect the data.</p>
Collection data folder path *1	<p>When you select 'Enable' at Collection measuring data, set this setting.</p> <p>Click the  button and then specify the folder to collect the zoom (1 min.) data file of the EcoWebServer III.</p>
Data file for measuring point registration *1 *2	<p>When you select 'Enable' at Collection measuring data, set this setting.</p> <p>Click the  button and then specify the zoom (1 min.) data file of the EcoWebServer III.</p>
Collection demand data	<p>This setting is only for EcoWebServer III with the demand monitoring function.</p> <p>Select the setting whether to collect the demand measuring point data at the same time that the collection source is registered from the pulldown menu.</p> <p>Enable: Collect the data to register. Disable: Not collect the data.</p>
Reference destination data folder path *1	<p>When you select 'Enable' at Collection demand data, set this setting.</p> <p>Click the  button and then specify the folder to collect the demand (daily) data file of the EcoWebServer III.</p>
Data file for demand measuring point registration *1 *2	<p>When you select 'Enable' at Collection demand data, set this setting.</p> <p>Click the  button and then specify the demand (daily) data file of the EcoWebServer III.</p>

*1: For details on how to download data files from EcoWebServer III to the computer, refer to [EcoWebServer III User's Manual: Setting Edition].

*2: Specify the data file in which measuring data is collected.

If there is any missing data in the file, the number of decimal places cannot be read for the measuring point.

■ For registration of Edgecross

Item	Details
1. Set an ID and name	
Collection source ID	Input the number to manage the collection source. Input range: 1 to 20 *Do not register the same number repeatedly.
Collection source name	Input a name to manage the collection source. *Max. 30 characters
2. Set collection source type	
Collection source type	Select Edgecross from the pulldown menu
3. Set necessary information	
Collection data folder path	Click the  button and then specify the folder to save the historical data file of Edgecross (data logging flow).
File encoding	Select an encoding of the historical data file for collection from the pulldown menu (listed below). Set the same setting as the data storing setting of Edgecross. ·Shift_JIS ·UTF-8
File name prefix	Input the prefix of the historical data file.
Integration	Select a type of the measuring value of the measuring point that measures pulse from the pull-down menu. ·Indicated The collected data is handled as an indicated value. When the measuring type of the measuring point is set to pulse, the difference between the previous value and the current value is saved as a measuring value. ·Difference *1 The collected data is handled as a difference value. When the measuring type of the measuring point is set to pulse, the collected data itself is saved as a measuring value.
Data file for measuring point registration	Click the  button and then specify the historical data definition file of the Edgecross (data logging flow).

*1: For the difference, set the same data period to Edgecross as EcoAdviser.

If the two data periods differ, incorrect values may be collected.

For details, refer to [2.2.2 Measuring type: pulse whose type is difference].

(3) Click the **Next** button.

*When you want to register the collection source only, click the **Register** button.

Register Collection source

Register Collection source | Register Measuring point

1. Set a ID and Name.

Collection source ID: (Range:1-20)
2

Collection source Name: (maximum30 letters)
Assembly Line 1st

2. Set Collection source Type.

Collection source Type:
EcoWebServerIII

Data collecting:
HTTP

Connection host:
192.168.10.1

Collection source Type:
MES3-255C-DM-EN Collect model name

3. Set necessary information.

Collection measure data:
Enable

Collection demand data:
Enable

Back Next Register Cancel

*The following message appears.

Click the **Yes** button to register the collection source.

This is the end of the operation.

EcoAdviser

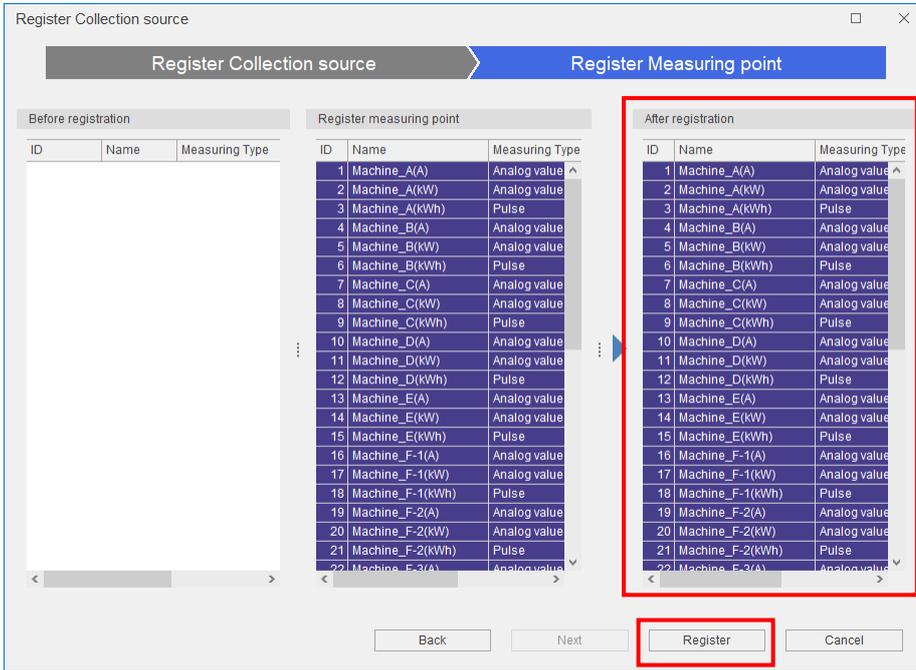
Are you sure you want to register only collection source?
Measuring points are not registered.

Yes No

(4) Clicking the **Next** button shows the following window.

The measuring point data collected from the collection source is displayed.

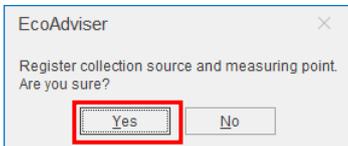
Click the **Register** button.



(5) The following message appears.

Click the **Yes** button to register the collection source and its measuring points.

This is the end of the operation.



Note

- EcoAdviser will not work correctly if the measurement point name is set to 31 or more characters in Edgewise. You should change the measurement point name to no more than 30 characters, referring to [4.1.5 Changing the information of measuring points in a batch] or [4.1.10 Changing the measuring point].
- The measuring points that meet the following conditions may cause the difference between measuring type that registered on the collection source and measuring type that registered on this software.

This software does not work correctly, such as it does not display graphs properly or does not compute precise report results, if measuring types are not registered accurately.

Be sure to change the measuring types by manually if you have registered measuring points that have following conditions.

<In the case the collection source is EcoWebServerIII >

*For details on the setting, refer to [4.1.10 Changing the measuring point].

 - (1) The measuring point whose measuring type is registered as "power factor" on EcoWebServerIII (will be registered as an analog value).
 - (2) The measuring point whose measuring type is registered as "operating status" on EcoWebServerIII (will be registered as an analog value).
 - (3) The measuring point whose point type is registered as "PLC" on EcoWebServerIII (may be registered as a different measuring type).

4 Settings

- (4) The measuring point whose measuring type is registered as " Operating time" on EcoWebServerⅢ(may be registered as an analog value).
- (5) The measuring point whose measuring item is registered as "pulse count value" on EcoWebServerⅢ (will be registered as an analog value).

<In the case the collection source is Edgexcross>

*For details on the setting, refer to [4.1.5 Changing the information of measuring points in a batch] or [4.1.10 Changing the measuring point].

- (1) Every measuring point (will be registered as an analog value).

4.1.2 Changing the collection source information

You will change the selected collection source information.

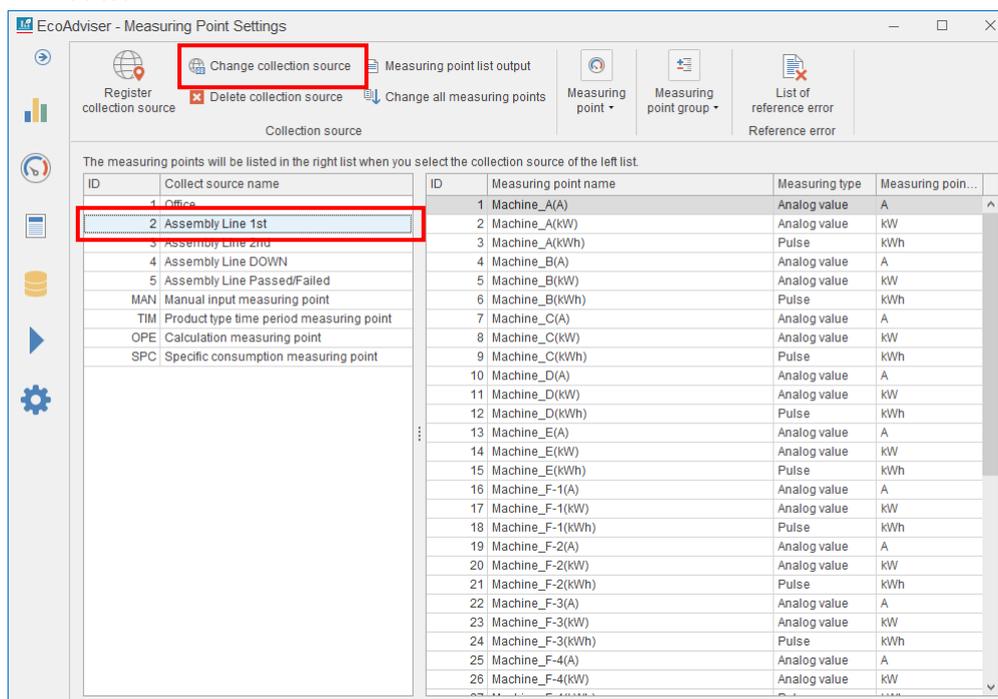
*If you want to change the registered collection source to a new collection source, delete the registered collection source once and register the new collection source. For details on the registration, refer to [4.1.1 Registering the collection source information]. However, the collected data of the currently registered collection source remains and is not deleted.

*If you have changed the name of the measuring point of the collection source, re-registering the measuring point will return to the name before the change. If you want to keep the current name also after the re-registration, re-register the measuring point as the following:

- Execute **Measuring point list output**. For details, refer to [4.1.4].
- Re-register the measuring point from **Change collecting source**.
- Execute **Change all measuring points** to change the measuring point name. For details, refer to [4.1.5].

*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), check whether the measuring point is used in the diagnosis setting. If used, refer to [12.3 Operation for Setting Change about Diagnosis].

- (1) Select the collection source you want to change and then click the **Change collection source** button.



(2) Change the information on the collection source and then click the **Next** button.

*When you want to change the collection source only, click the **Register** button.

Change Collection source

Change Collection source Change Measuring point

1. Set a ID and Name.

Collection source ID: (Range:1-20)
2

Collection source Name: (maximum30 letters)
Assembly Line 1st

2. Set Collection source Type.

Collection source Type:
EcoWebServerfill

Data collecting:
FOLDER

Collection source Type:
MES3-255C-EN

3. Set necessary information.

Collection measure data:
Enable

Collection Data folder path:
C:\Users\三井電機\Documents\ES3_Manufacture A-1\Zoor

Data file for measuring point registration:
C:\Users\三井電機\Documents\ES3_Manufacture A-1\Zoor

Back Next Register Cancel

*The following message appears.

Click the **Yes** button to register the collection source.

This is the end of the operation.

In this case, no information on any measuring point is changed.

EcoAdviser

Are you sure you want to register only collection source?
Measuring points are not registered.

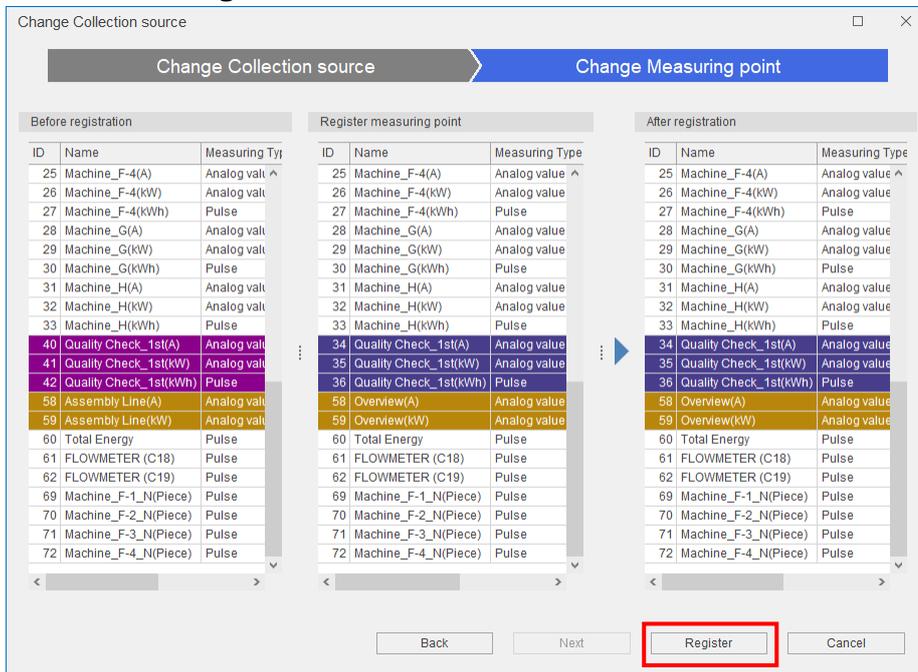
Yes No

(3) Clicking the **Next** button shows the following window.

The measuring point data is displayed.

Any measuring points whose information has been changed are displayed with colors.

Click the **Register** button.

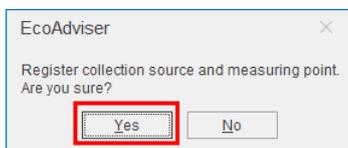


Color	Details
Yellow	Change or measuring point name, measuring type, measuring point unit, or the number of decimal places; change of some items above
Purple	Deleted measuring point
Navy	Added measuring point

(4) The following message appears.

Click the **Yes** button to register the change.

This is the end of the operation.

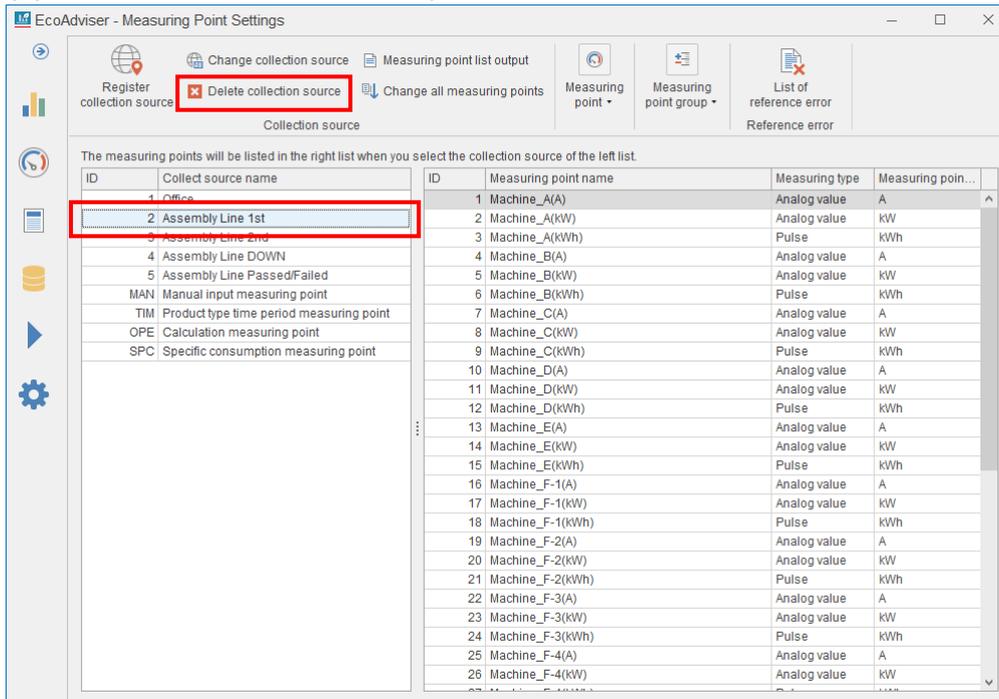


4.1.3 Deleting the collection source information

You will delete the collection source and its measurement points.

*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), check whether the measuring point is used in the diagnosis setting. If used, change the setting value and then delete the measuring point. For details, refer to [12.3 Operation for Setting Change about Diagnosis].

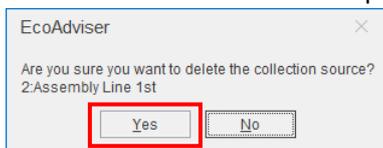
(1) Select the collection source you want to delete and then click the **Delete collection source** button.



(2) The following message appears.

Click the **Yes** button to delete the collection source.

This is the end of the operation.



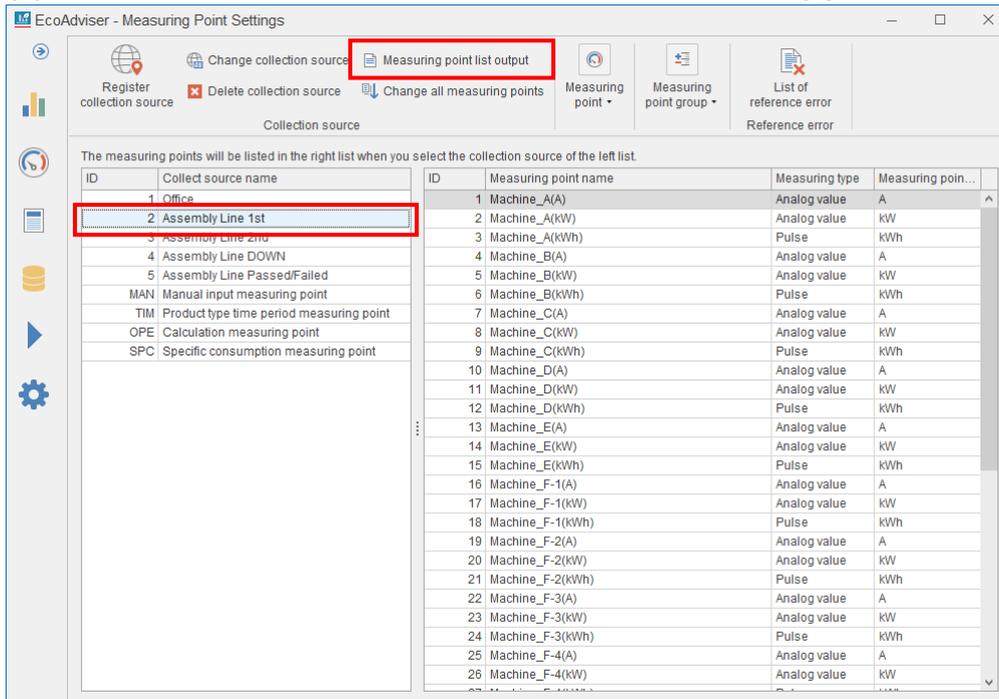
4.1.4 Outputting the measuring point list

You will output the information on measuring points of the selected collection source to the Excel file. For details on the output file format, refer to [12.1 File Format].

*It is impossible to output the information of multiple collection sources into one file.

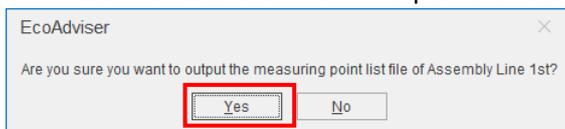
*To output the information of the set measuring point such as the manual input measuring point or product type time period measuring point, select the item.

(1) Select the collection source and then click the **Measuring point list output** button.



(2) The following message appears.

Click the **Yes** button to output the file.

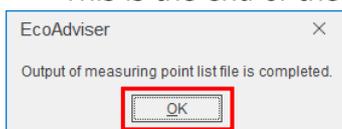


(3) Save the output file.

(4) When the saving is completed, the following message appears.

Click the **OK** button to close the message.

This is the end of the operation.



4.1.5 Changing the information of measuring points in a batch

You will change the information of the collection source's measuring points in a batch.

- *When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), check whether the measuring point is used in the diagnosis setting. If used, refer to [12.3 Operation for Setting Change about Diagnosis].
- *The information of the manual input measuring point, calculation measuring point, product type time period measuring point, or specific consumption measuring point cannot be changed in a batch.
- *It is impossible to add or delete any measuring point.
- *This function is executed by reading the edited measuring point list file. For the file format, refer to [12.1 File Format].

The following table shows a list of changeable items.

Measuring point		Changeable item *1
EcoWebServer III	Measuring point	Measuring point name
	Demand measuring point	Measuring point name
Edgecross	Measuring point	Measuring point name, measuring type, measuring point unit, multiplying factor *2

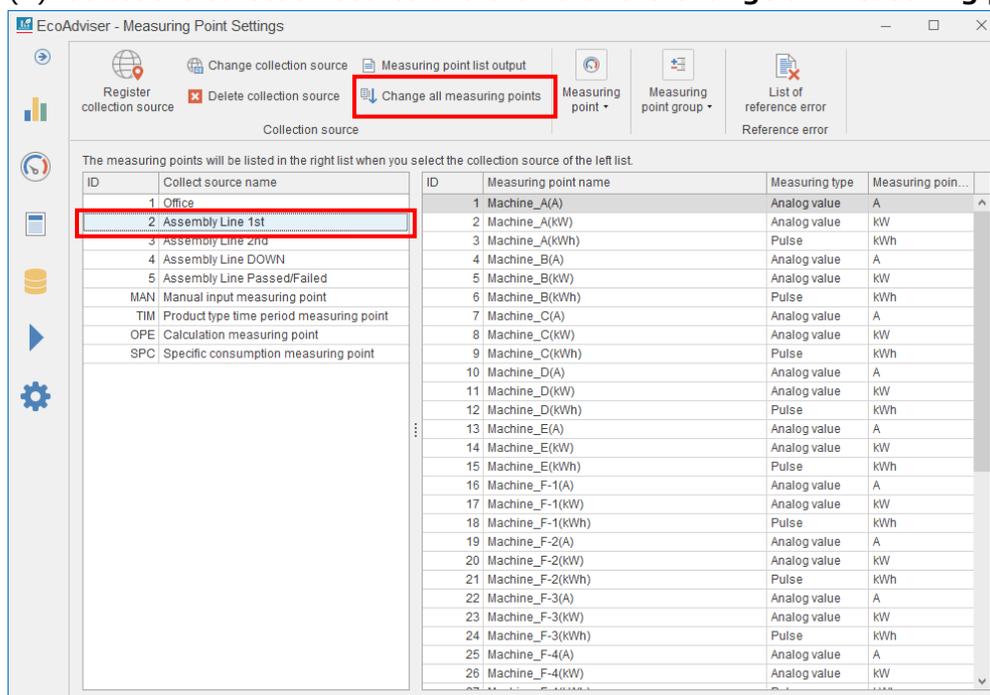
*1: Changeable items are different from ones in the **Change measuring point** function.

*2: The setting range varies depending on the measuring type and data type.

For the setting change, refer to the following table.

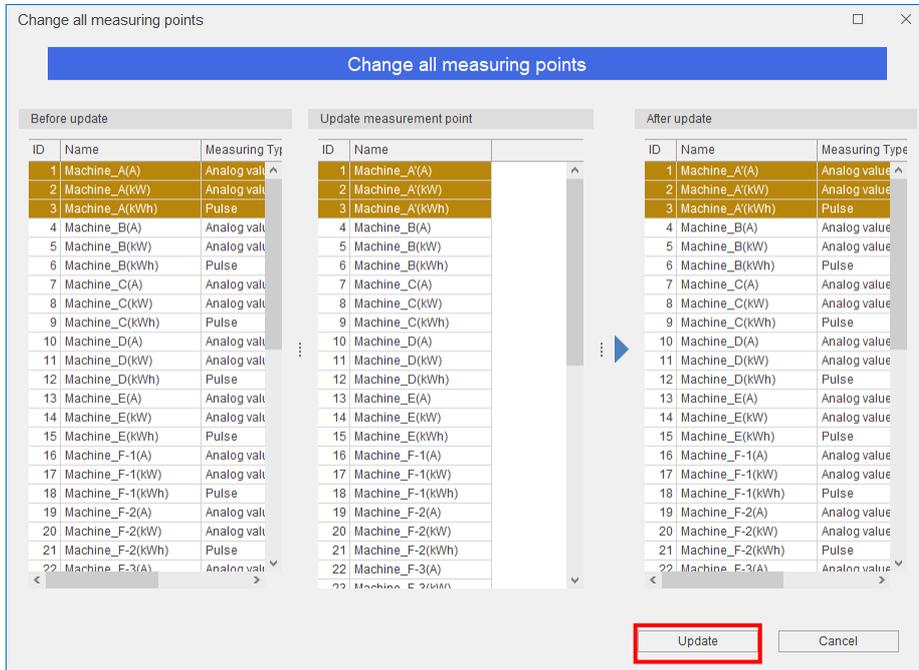
Measuring type	Data type	Multiplying factor (setting range)
Pulse, analog value, power factor	INT, UINT	0.00001 to 99999
	DINT, UDINT	0.00001 to 1
	Others	Unavailable
Operating status		Unavailable

(1) Select the collection source and then click the **Change all measuring points** button.

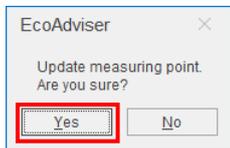


- (2) Select the measuring point list file to execute the read.
- (3) The following window appears.

It shows that any measuring points whose information has been changed are displayed with yellow. Click the **Update** button.



- (4) The following message appears. Click the **Yes** button to reflect the change. This is the end of the operation.



4.1.6 Registering the manual input measuring point

What is the manual input measuring point?

The manual input measuring point is the data that neither cannot be collected by automatically nor be collected by metering device can be treated as if it were on-line measuring data by using this function.

(1) Click the **Register manual input measuring point** button.

The screenshot shows the 'EcoAdviser - Measuring Point Settings' window. At the top, there are several action buttons. The button 'Register Manual input measuring point' is highlighted with a red rectangle. Below the buttons, there are two main sections: 'Collection source' and 'Measuring point'.

Collection source table:

ID	Collect source name
1	Office
2	Assembly Line 1st
3	Assembly Line 2nd
4	Assembly Line DOWN
5	Assembly Line Passed/Failed
MAN	Manual input measuring point
TIM	Product type time period measuring point
OPE	Calculation measuring point
SPC	Specific consumption measuring point

Measuring point table:

ID	Measuring point name	Measuring type	Measuring point unit
1	Machine_A(A)	Analog value	A
2	Machine_A(kW)	Analog value	kW
3	Machine_A(kWh)	Pulse	kWh
4	Machine_B(A)	Analog value	A
5	Machine_B(kW)	Analog value	kW
6	Machine_B(kWh)	Pulse	kWh
7	Machine_C(A)	Analog value	A
8	Machine_C(kW)	Analog value	kW
9	Machine_C(kWh)	Pulse	kWh
10	Machine_D(A)	Analog value	A
11	Machine_D(kW)	Analog value	kW
12	Machine_D(kWh)	Pulse	kWh
13	Machine_E(A)	Analog value	A
14	Machine_E(kW)	Analog value	kW
15	Machine_E(kWh)	Pulse	kWh
16	Machine_F-1(A)	Analog value	A
17	Machine_F-1(kW)	Analog value	kW
18	Machine_F-1(kWh)	Pulse	kWh
19	Machine_F-2(A)	Analog value	A
20	Machine_F-2(kW)	Analog value	kW
21	Machine_F-2(kWh)	Pulse	kWh
22	Machine_F-3(A)	Analog value	A
23	Machine_F-3(kW)	Analog value	kW
24	Machine_F-3(kWh)	Pulse	kWh
25	Machine_F-4(A)	Analog value	A
26	Machine_F-4(kW)	Analog value	kW

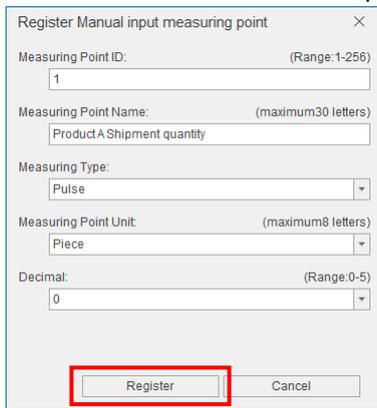
(2) Input each item or select it from the pull-down menu.

Item	Details
Measuring point ID	Input the ID of the measuring point. Input range: 1 to 256 *Do not register the same ID repeatedly.
Measuring point name	Input a name of the measuring point. *Max. 30 characters
Measuring type	Select pulse or analog value from the pulldown menu.
Measuring point unit	Input the unit of the measuring point or select it from the pull-down menu (listed below). * Max. 8 characters can be input. When measuring type is analog value. <ul style="list-style-type: none"> •A •mA •kA •V •kV •W •kW •MW •Hz •N •kN •Pa •kPa •MPa •% •C •deg •kvar •kVA When measuring type is pulse. <ul style="list-style-type: none"> •Wh •kWh •MWh •J •Piece •Set •m2 •m3 •l •kl •Second •Minute •Hour •varh •kvarh •Mvarh •VAh •kVAh •MVAh •count •h •min •x250ms •kg •Time(s)
Decimal *1	Select the number of decimal places for the measuring value from the pulldown menu. The selectable range: 0 to 5, blank

*1: If it is set to blank, the rounding off will not be executed.

(3) Click the **Register** button.

This is the end of the operation.



Register Manual input measuring point

Measuring Point ID: (Range:1-256)
1

Measuring Point Name: (maximum30 letters)
Product A Shipment quantity

Measuring Type:
Pulse

Measuring Point Unit: (maximum8 letters)
Piece

Decimal: (Range:0-5)
0

Register Cancel

4.1.7 Registering the calculation measuring point

What is calculation measuring point?

It is used to perform four arithmetic operation on measuring points.

Note

■ Timing of calculation

The calculation timing is as follows:

- After automatic collection → For details, refer to [6 Auto Execute Settings].
- After manual collection → For details, refer to [5.1 Manual Collection].

*This applies to only the calculation measuring points where manually collected measuring points are included in the calculation formula.

- After manual data input → For details, refer to [5.4 Manual Input/Edition].
- At manual data calculation → For details, refer to [5.2 Manual Calculation].

■ Occurrence of data missing

Note that in the following cases, calculation measuring point data will be missed. It is displayed in blank.

- There is even one data missing in the measuring point set to the calculation formula.
 - Data of the measuring point set to the calculation formula becomes zero, which causes zero division.
- *From the reasons above, if product type time period measuring points are included in the calculation formula, the calculation result may be missing.

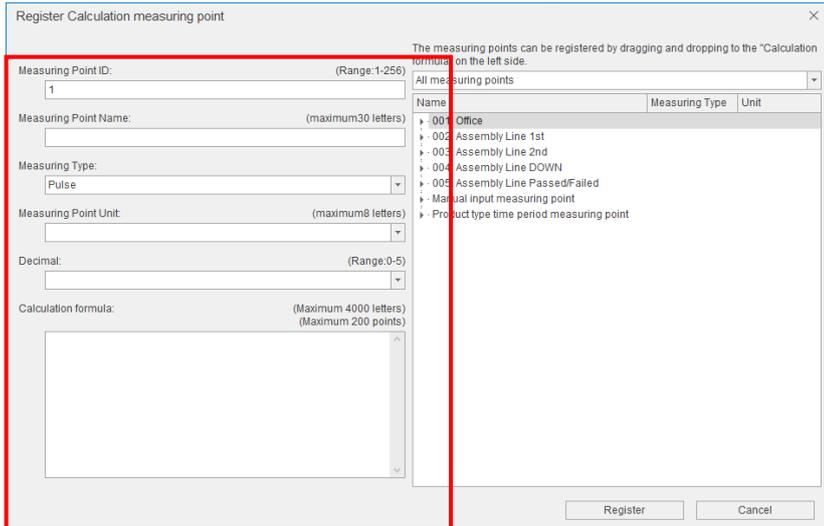
(1) Click the **Register calculation measuring point** button.

The screenshot shows the 'EcoAdviser - Measuring Point Settings' window. The 'Register Calculation measuring point' button is highlighted with a red box. The window displays two tables:

ID	Collect source name
1	Office
2	Assembly Line 1st
3	Assembly Line 2nd
4	Assembly Line DOWN
5	Assembly Line Passed/Failed
MAN	Manual input measuring point
TIM	Product type time period measuring point
OPE	Calculation measuring point
SPC	Specific consumption measuring point

ID	Measuring point name	Measuring type	Measuring point unit
1	Machine_A(A)	Analog value	A
2	Machine_A(kW)	Analog value	kW
3	Machine_A(kWh)	Pulse	kWh
4	Machine_B(A)	Analog value	A
5	Machine_B(kW)	Analog value	kW
6	Machine_B(kWh)	Pulse	kWh
7	Machine_C(A)	Analog value	A
8	Machine_C(kW)	Analog value	kW
9	Machine_C(kWh)	Pulse	kWh
10	Machine_D(A)	Analog value	A
11	Machine_D(kW)	Analog value	kW
12	Machine_D(kWh)	Pulse	kWh
13	Machine_E(A)	Analog value	A
14	Machine_E(kW)	Analog value	kW
15	Machine_E(kWh)	Pulse	kWh
16	Machine_F-1(A)	Analog value	A
17	Machine_F-1(kW)	Analog value	kW
18	Machine_F-1(kWh)	Pulse	kWh
19	Machine_F-2(A)	Analog value	A
20	Machine_F-2(kW)	Analog value	kW
21	Machine_F-2(kWh)	Pulse	kWh
22	Machine_F-3(A)	Analog value	A
23	Machine_F-3(kW)	Analog value	kW
24	Machine_F-3(kWh)	Pulse	kWh
25	Machine_F-4(A)	Analog value	A
26	Machine_F-4(kW)	Analog value	kW

(2) Input each item or select it from the pull-down menu.



Item	Details
Measuring point ID	Input the ID of the measuring point. Input range: 1 to 256 *Do not register the same ID repeatedly.
Measuring point Name	Input a name of the measuring point. *Max. 30 characters
Measuring type	Select pulse or analog value from the pull-down menu.
Measuring point Unit	Input the unit of the measuring point or select it from the pull-down menu (listed below). * Max. 8 characters When measuring type is analog value. •A •mA •kA •V •kV •W •kW •MW •Hz •N •kN •Pa •kPa •MPa •% •C •deg •kvar •kVA When measuring type is pulse. •Wh •kWh •MWh •J •Piece •Set •m2 •m3 •l •kl •Second •Minute •Hour •varh •kvarh •Mvarh •VAh •kVAh •MVAh •count •h •min •x250ms •kg •Time(s)
Decimal *1	Select the number of decimal places for the measuring value from the pull-down menu. The selectable range: 0 to 5, blank

4 Settings

Calculation formula	<p>Input a calculation formula.</p> <p>Drag and drop a measuring point from the right box of the window to add to the calculation formula.</p> <p>*you can select from collection sources' measuring points, manual input measuring points, or product type time period measuring points.</p> <p>Input range: 4000 characters</p> <p>Available characters: +, -, /, *, (,)</p> <p>Number of measuring points: 200 points</p> <p>*Use the period (.) for the decimal point.</p> <p>*The fractions of the calculation result are rounded off according to the setting of the number of decimal places.</p>
---------------------	---

*1: If it is set to blank, the rounding off will not be executed.

- (3) Click the **Register** button to register the calculation measuring point.
This is the end of the operation.

Register Calculation measuring point

The measuring points can be registered by dragging and dropping to the "Calculation formula" on the left side.

Measuring Point ID: (Range:1-256)
1

Measuring Point Name: (maximum30 letters)
Sales Dept Bill

Measuring Type: Pulse

Measuring Point Unit: (maximum8 letters)
\$

Decimal: (Range:0-5)
0

Calculation formula: (Maximum 4000 letters)
(Maximum 200 points)
[001_0028]*150

All measuring points

Name	Measuring Type	Unit
001: Office		
002: Assembly Line 1st		
003: Assembly Line 2nd		
004: Assembly Line DOWN		
005: Assembly Line Passed/Failed		
Manual input measuring point		
Product type time period measuring point		

Register Cancel

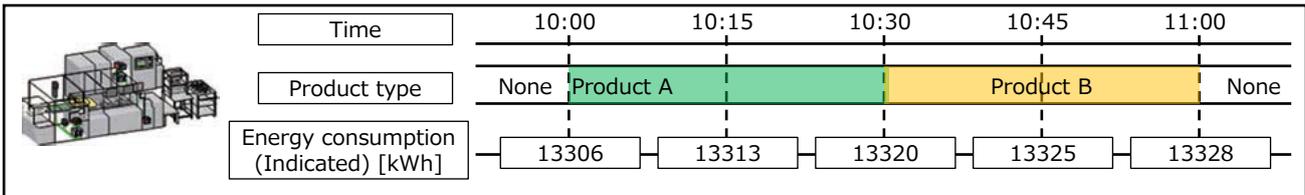
4.1.8 Registering the product type time period measuring point

What is the product type time period measuring point?

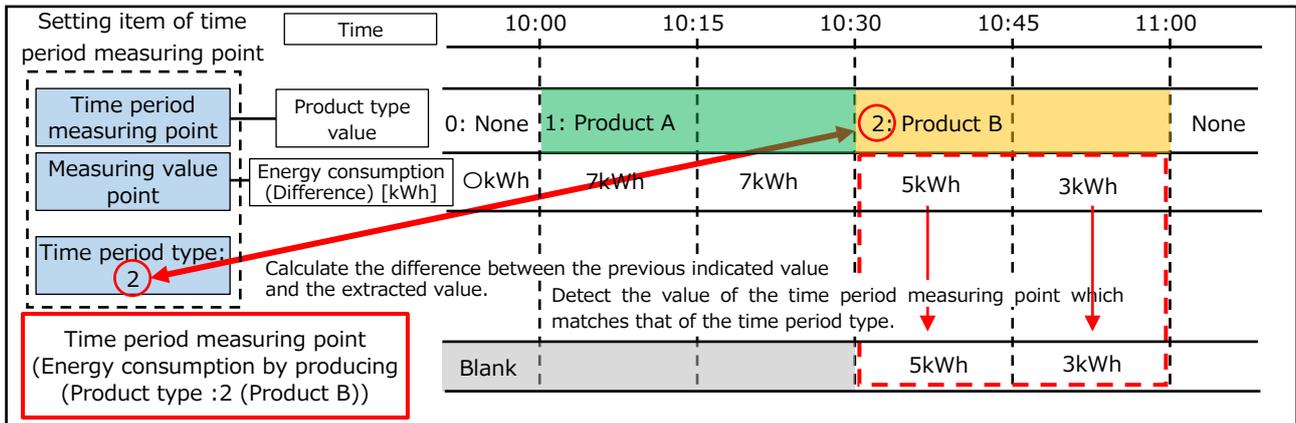
When you use the equipment that can manufacture multiple types of products, you can set this product type time period measuring point. By setting the items in the following table, the software can extract the data regarding a product you choose.

Setting item	Details
Time period measuring point	Measuring point to distinguish the product type being manufactured. (Measuring type: Analog value) e.g. Product A manufactured ⇒ Measuring value: 1, Product B manufactured ⇒ Measuring value: 2
Measuring value point	Measuring point for extraction (Measuring type: Pulse)
Time period type	Product type value which is picked up with user's demands from time period measuring point

E.g. the case you want to measure energy consumption of equipment when product B is being manufactured



Measure the energy consumption when product B is being manufactured using the product type time period measuring point.

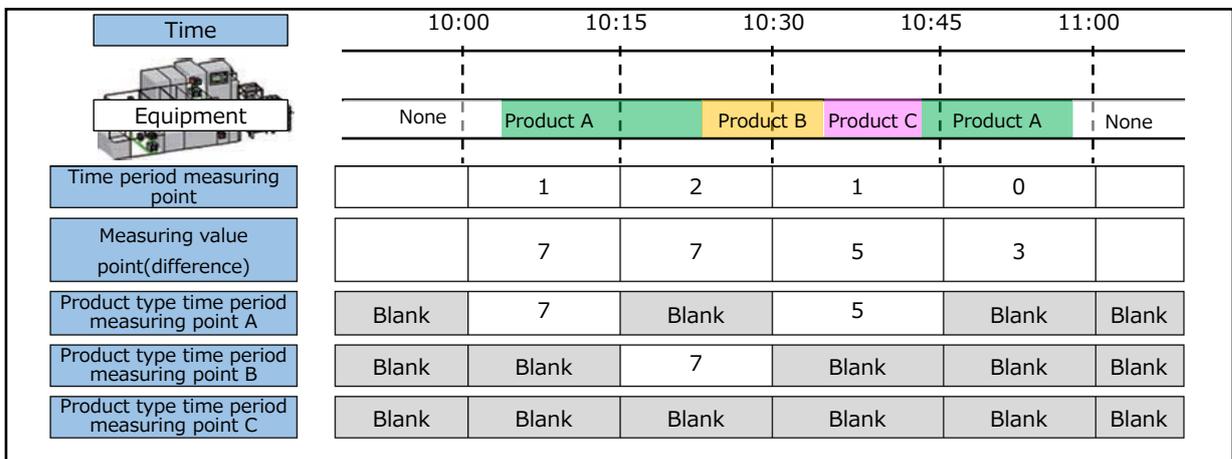


Note

When the manufacturing time is shorter than the data period, the measuring point may not be detected.

<Example>

- Data period: 15 minutes
- Time period measuring point: Manufacturing product A⇒1, Manufacturing product B⇒2, Manufacturing product C⇒3
- Product time period measuring point A: Time period type=1
- Product time period measuring point B: Time period type=2
- Product time period measuring point C: Time period type=3



(1) Click the **Register product type time period measuring point** button.

The screenshot shows the 'EcoAdviser - Measuring Point Settings' window. At the top, there are several action buttons. The button 'Register Product type time period measuring point' is highlighted with a red box. Below the buttons, there are two main tables. The left table is titled 'Collection source' and the right table is titled 'Measuring point'.

Collection source table:

ID	Collect source name
1	Office
2	Assembly Line 1st
3	Assembly Line 2nd
4	Assembly Line DOWN
5	Assembly Line Passed/Failed
MAN	Manual input measuring point
TIM	Product type time period measuring point
OPE	Calculation measuring point
SPC	Specific consumption measuring point

Measuring point table:

ID	Measuring point name	Measuring type	Measuring point unit
1	Machine_A(A)	Analog value	A
2	Machine_A(kW)	Analog value	kW
3	Machine_A(kWh)	Pulse	kWh
4	Machine_B(A)	Analog value	A
5	Machine_B(kW)	Analog value	kW
6	Machine_B(kWh)	Pulse	kWh
7	Machine_C(A)	Analog value	A
8	Machine_C(kW)	Analog value	kW
9	Machine_C(kWh)	Pulse	kWh
10	Machine_D(A)	Analog value	A
11	Machine_D(kW)	Analog value	kW
12	Machine_D(kWh)	Pulse	kWh
13	Machine_E(A)	Analog value	A
14	Machine_E(kW)	Analog value	kW
15	Machine_E(kWh)	Pulse	kWh
16	Machine_F-1(A)	Analog value	A
17	Machine_F-1(kW)	Analog value	kW
18	Machine_F-1(kWh)	Pulse	kWh
19	Machine_F-2(A)	Analog value	A
20	Machine_F-2(kW)	Analog value	kW
21	Machine_F-2(kWh)	Pulse	kWh
22	Machine_F-3(A)	Analog value	A
23	Machine_F-3(kW)	Analog value	kW
24	Machine_F-3(kWh)	Pulse	kWh
25	Machine_F-4(A)	Analog value	A
26	Machine_F-4(kW)	Analog value	kW

(2) Input each item or select it from the pull-down menu.

Item	Input	Details
Measuring point ID	1 to 256	Input the ID of the measuring point. *Do not register the same ID repeatedly.
Measuring point name	Max. 30 characters	Input a name of the measuring point.
Measuring type	-	Pulse fixed
Measuring point unit	-	The same unit as the measuring value point is selected.
Decimal	0 to 16	The same number of decimal places as the measuring value point is selected.
Measuring value point	Collection sources' measuring points or manual input measuring points *The measuring type is limited to pulse.	Set a measuring point to measure energy consumption of equipment. *Drag and drop the measuring point from the right box of the window.
Time period measuring point	Collection sources' measuring points or manual input measuring points *The measuring type is limited to analog value.	Set a measuring point to distinguish the product type being manufactured. *Drag and drop the measuring point from the right box of the window.
Time period type	0 to 65535	Set the value of the time period measuring point you want to extract.

- (3) Click the **Register** button to register the product type time period measuring point.
 This is the end of the operation.

Register Product type time period measuring point

The measuring point can be registered by dragging and dropping to the "Measuring value point" and "Time period measuring point" on the left side.

All measuring points

Name	Measuring Type	Unit
002_0027: Machine_F-4(kWh)	Pulse	kWh
002_0028: Machine_G(A)	Analog value	A
002_0029: Machine_G(kW)	Analog value	KW
002_0030: Machine_G(kWh)	Pulse	kWh
002_0031: Machine_H(A)	Analog value	A
002_0032: Machine_H(kW)	Analog value	KW
002_0033: Machine_H(kWh)	Pulse	kWh
002_0034: Quality Check_1st(A)	Analog value	A
002_0035: Quality Check_1st(kW)	Analog value	KW
002_0036: Quality Check_1st(kWh)	Pulse	kWh
002_0058: Overview(A)	Analog value	A
002_0059: Overview(kW)	Analog value	KW
002_0060: Total Energy	Pulse	kWh
002_0061: FLOWMETER (C18)	Pulse	m3
002_0062: FLOWMETER (C19)	Pulse	m3
002_0069: Machine_F-1_N(Piece)	Pulse	Piece
002_0070: Machine_F-2_N(Piece)	Pulse	Piece
002_0071: Machine_F-3_N(Piece)	Pulse	Piece
002_0072: Machine_F-4_N(Piece)	Pulse	Piece
003: Assembly Line-2nd		
004: Assembly Line DOWN		
005: Assembly Line Passed/Failed		
Manual input measuring point		

Measuring Point ID: (Range:1-256)
 1

Measuring Point Name: (maximum30 letters)
 Gas leak A

Measuring Type: (Integrated value only)
 Pulse

Measuring Point Unit: (Automatic selection)
 m3

Decimal: (Range:0-16)
 2

Measuring value point: (Integrated value only)
 002_0061: FLOWMETER (C18)[m3]

Time period measuring point: (Instantaneous value only)
 002_0058: Overview(A)[A]

Time period type: (Range:0-65535)
 0

Register Cancel

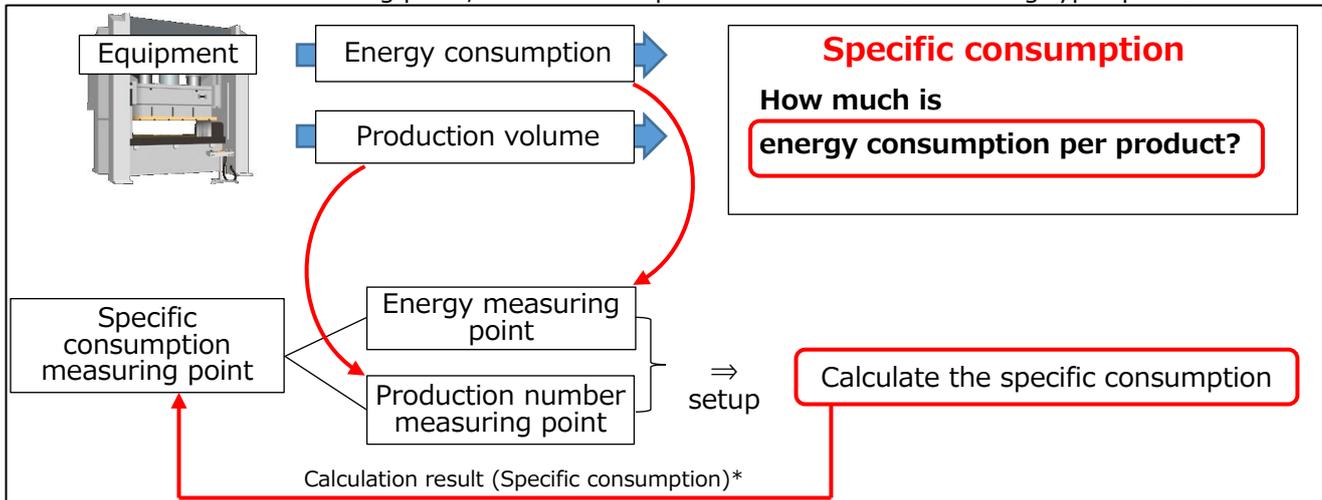
4.1.9 Registering the specific consumption measuring point

What is specific consumption measuring point?

It is used to calculate the specific consumption.

By setting the following items, you can analyze the specific consumption.

- Energy measuring point, which measures energy consumption (Measuring type: pulse)
- Production number measuring point, which counts production volume (Measuring type: pulse)



*Specific consumption = Energy measuring point / Production number measuring point

Note

Note that in the following cases, data missing will occur.

- ① When the value of either energy measuring point or production number measuring point is missing, the value of the specific consumption measuring point becomes missing.
- ② Both when the value of energy measuring point is other than zero or blank and when the value of production number measuring point is zero, the value of the specific consumption measuring point becomes missing.

	10:00	10:15	10:30	10:45	11:00
Energy measuring point	Pulse A	Pulse B	Missing (blank)	Pulse D	0
Production number measuring point	Pulse a	Missing (blank)	Pulse c	0	0
Specific consumption measuring point	Specific consumption 1	Missing (blank)	Missing (blank)	Missing (blank)	0

①

②

(1) Click the **Register specific consumption measuring point** button.

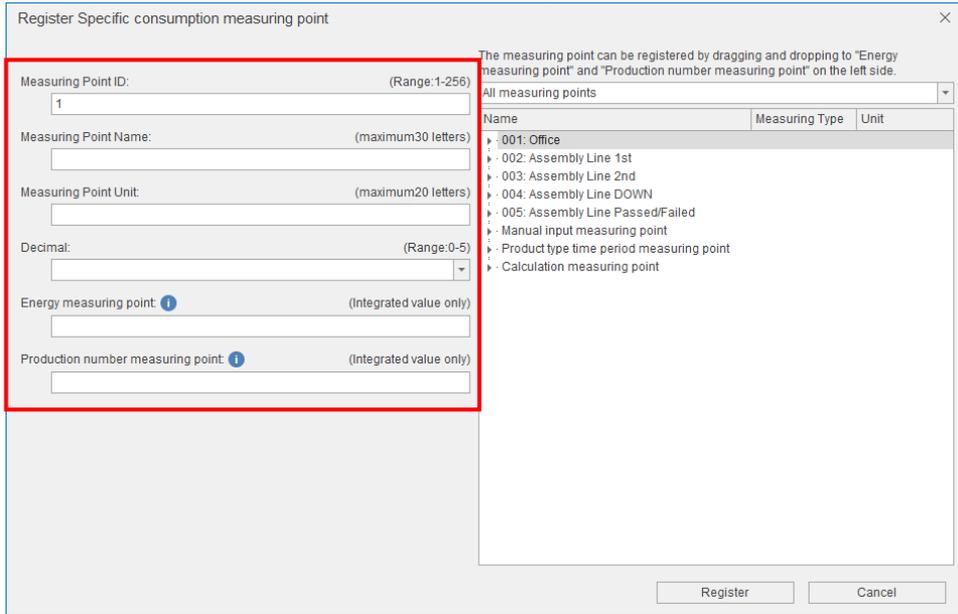
The screenshot shows the 'EcoAdviser - Measuring Point Settings' window. At the top, there are several action buttons. The button 'Register Specific consumption measuring point' is highlighted with a red box. Below the buttons, there are two main panels. The left panel, titled 'Collection source', contains a table with the following data:

ID	Collect source name
1	Office
2	Assembly Line 1st
3	Assembly Line 2nd
4	Assembly Line DOWN
5	Assembly Line Passed/Failed
MAN	Manual input measuring point
TIM	Product type time period measuring point
OPE	Calculation measuring point
SPC	Specific consumption measuring point

The right panel, titled 'Measuring point', contains a table with the following data:

ID	Measuring point name	Measuring type	Measuring point unit
1	Machine_A(A)	Analog value	A
2	Machine_A(kW)	Analog value	kW
3	Machine_A(kWh)	Pulse	kWh
4	Machine_B(A)	Analog value	A
5	Machine_B(kW)	Analog value	kW
6	Machine_B(kWh)	Pulse	kWh
7	Machine_C(A)	Analog value	A
8	Machine_C(kW)	Analog value	kW
9	Machine_C(kWh)	Pulse	kWh
10	Machine_D(A)	Analog value	A
11	Machine_D(kW)	Analog value	kW
12	Machine_D(kWh)	Pulse	kWh
13	Machine_E(A)	Analog value	A
14	Machine_E(kW)	Analog value	kW
15	Machine_E(kWh)	Pulse	kWh
16	Machine_F-1(A)	Analog value	A
17	Machine_F-1(kW)	Analog value	kW
18	Machine_F-1(kWh)	Pulse	kWh
19	Machine_F-2(A)	Analog value	A
20	Machine_F-2(kW)	Analog value	kW
21	Machine_F-2(kWh)	Pulse	kWh
22	Machine_F-3(A)	Analog value	A
23	Machine_F-3(kW)	Analog value	kW
24	Machine_F-3(kWh)	Pulse	kWh
25	Machine_F-4(A)	Analog value	A
26	Machine_F-4(kW)	Analog value	kW

(2) Input each item or select it from the pull-down menu.

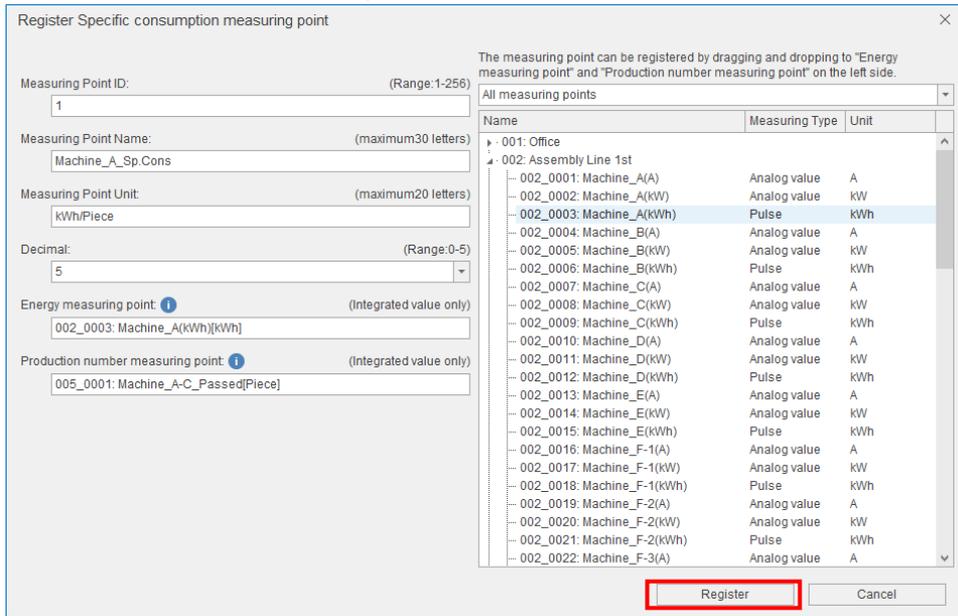


Item	Details
Measuring point ID	Input the ID of the measuring point. Input range: 1 to 256 *Do not register the same ID repeatedly.
Measuring point name	Input a name of the measuring point. *Max. 30 characters
Measuring point unit	Input a unit of the measuring point * Max. 20 characters
Decimal *1	Select the number of decimal places for the measuring value from the pull-down menu. *The fractions of the calculation result are rounded off according to the setting of the number of decimal places. The selectable range: 0 to 5, blank
Energy measuring point	Set a measuring point to measure energy consumption. *Drag and drop the measuring point from the right box of the window.
Production number measuring point	Set a measuring point to measure production volume. *Drag and drop the measuring point from the right box of the window.

*1: If it is set to blank, the rounding off will not be executed.

*2: The measuring type is analog value for specific consumption measuring point.

- (3) Click the **Register** button to register the specific consumption measuring point.
This is the end of the operation.

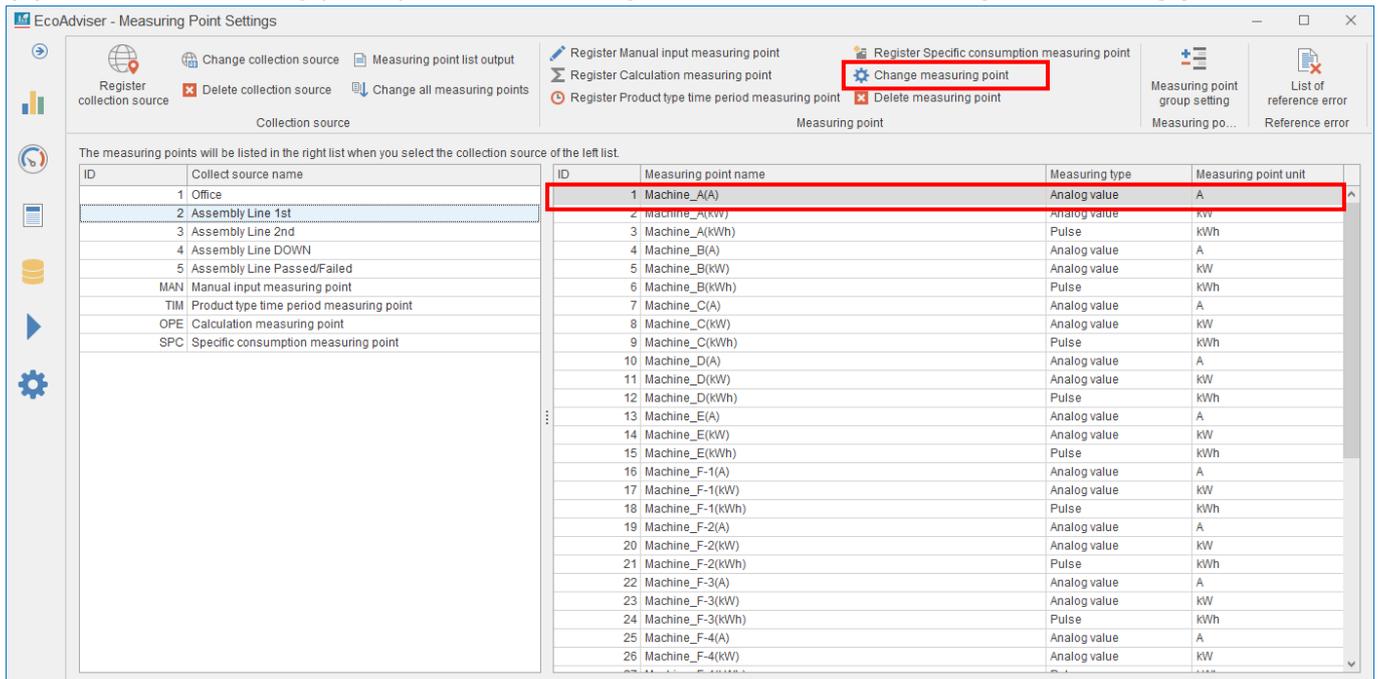


4.1.10 Changing the measuring point

You will change the information on the selected measuring point.

*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), check whether the measuring point is used in the diagnosis setting. If it used, refer to [12.3 Operation for Setting Change about Diagnosis].

- (1) Select a measuring point you want to change and then click the **Change measuring point** button.

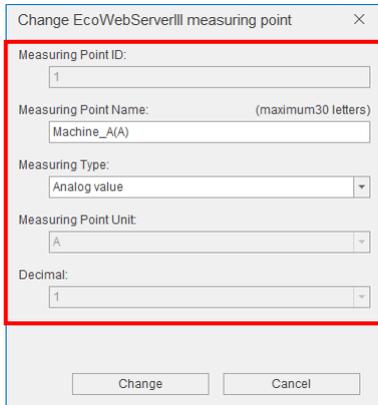


(2) The following window appears.

Change the setting.

*The changeable items vary depending on the measuring point.

The following example illustrates a change of the measuring point of EcoWebServerⅢ.



Measuring point		Changeable item
EcoWebServerⅢ	Measuring point	Measuring point name, measuring point type
	Demand measuring point	Measuring point name
Edgecross	Measuring point	Measuring point name, measuring point type, measuring point unit, multiplying factor *1, the number of decimal places
Manual input measuring point		Measuring point name, measuring point type, measuring point unit, the number of decimal places
Calculation measuring point		Measuring point name, measuring point type, measuring point unit, the number of decimal places, calculation formula
Product type time period measuring point		Measuring point name, measuring value point, time period measuring point, time period type
Specific consumption measuring point		Measuring point name, measuring point unit, the number of decimal places, energy measuring point, production number measuring point

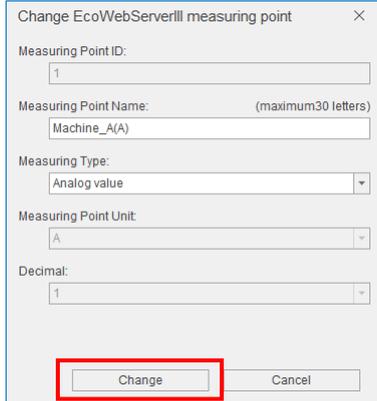
*1: The setting range varies depending on the measuring type and the data type.

For the setting change, refer to the following table.

Measuring type	Data type	The setting range of Multiplying factor
Pulse, analog value, power factor	INT, UINT	0.00001 to 99999
	DINT, UDINT	0.00001 to 1
	Others	Unavailable
Operating status		Unavailable

*2: The changed settings are not reflected to the collection source.

(3) Click the **Change** button.



Change EcoWebServerIII measuring point

Measuring Point ID: 1

Measuring Point Name: (maximum30 letters)
Machine_A(A)

Measuring Type: Analog value

Measuring Point Unit: A

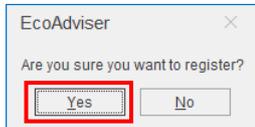
Decimal: 1

Change Cancel

(4) The following window appears.

Click the **Yes** button to register the change.

This is the end of the operation.



EcoAdviser

Are you sure you want to register?

Yes No

4.1.11 Deleting the measuring point

You will delete the selected measuring point.

*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI) check whether the measuring point is used in the diagnosis setting. If it used, change the setting value and then delete the measuring point. For details on the setting change, refer to [12.3 Operation for Setting Change about Diagnosis].

*It is impossible to restore any measuring points that you have already deleted. Note that do not operate accidentally.

*Even if you delete the measuring point, its data collected/calculated in the past is not deleted. When you register a new measuring point to the ID, the data of the deleted measuring point will be treated as the past data.

To delete the past data, refer to [5.4 Manual Input/Edition] and input blank to the past data.

4 Settings

(1) Select a measuring point you want to delete and then click the **Delete measuring point** button.

The screenshot shows the 'EcoAdviser - Measuring Point Settings' window. The interface includes a sidebar with navigation icons, a top toolbar with various action buttons, and a main table of measuring points. The 'Delete measuring point' button in the toolbar is highlighted with a red box. The table below shows the list of measuring points, with the first row (ID 1, Machine_A(A)) highlighted in blue.

ID	Measuring point name	Measuring type	Measuring point unit
1	Machine_A(A)	Analog value	A
2	Machine_A(kW)	Analog value	kW
3	Machine_A(kWh)	Pulse	kWh
4	Machine_B(A)	Analog value	A
5	Machine_B(kW)	Analog value	kW
6	Machine_B(kWh)	Pulse	kWh
7	Machine_C(A)	Analog value	A
8	Machine_C(kW)	Analog value	kW
9	Machine_C(kWh)	Pulse	kWh
10	Machine_D(A)	Analog value	A
11	Machine_D(kW)	Analog value	kW
12	Machine_D(kWh)	Pulse	kWh
13	Machine_E(A)	Analog value	A
14	Machine_E(kW)	Analog value	kW
15	Machine_E(kWh)	Pulse	kWh
16	Machine_F-1(A)	Analog value	A
17	Machine_F-1(kW)	Analog value	kW
18	Machine_F-1(kWh)	Pulse	kWh
19	Machine_F-2(A)	Analog value	A
20	Machine_F-2(kW)	Analog value	kW
21	Machine_F-2(kWh)	Pulse	kWh
22	Machine_F-3(A)	Analog value	A
23	Machine_F-3(kW)	Analog value	kW
24	Machine_F-3(kWh)	Pulse	kWh
25	Machine_F-4(A)	Analog value	A
26	Machine_F-4(kW)	Analog value	kW

(2) The following window appears.

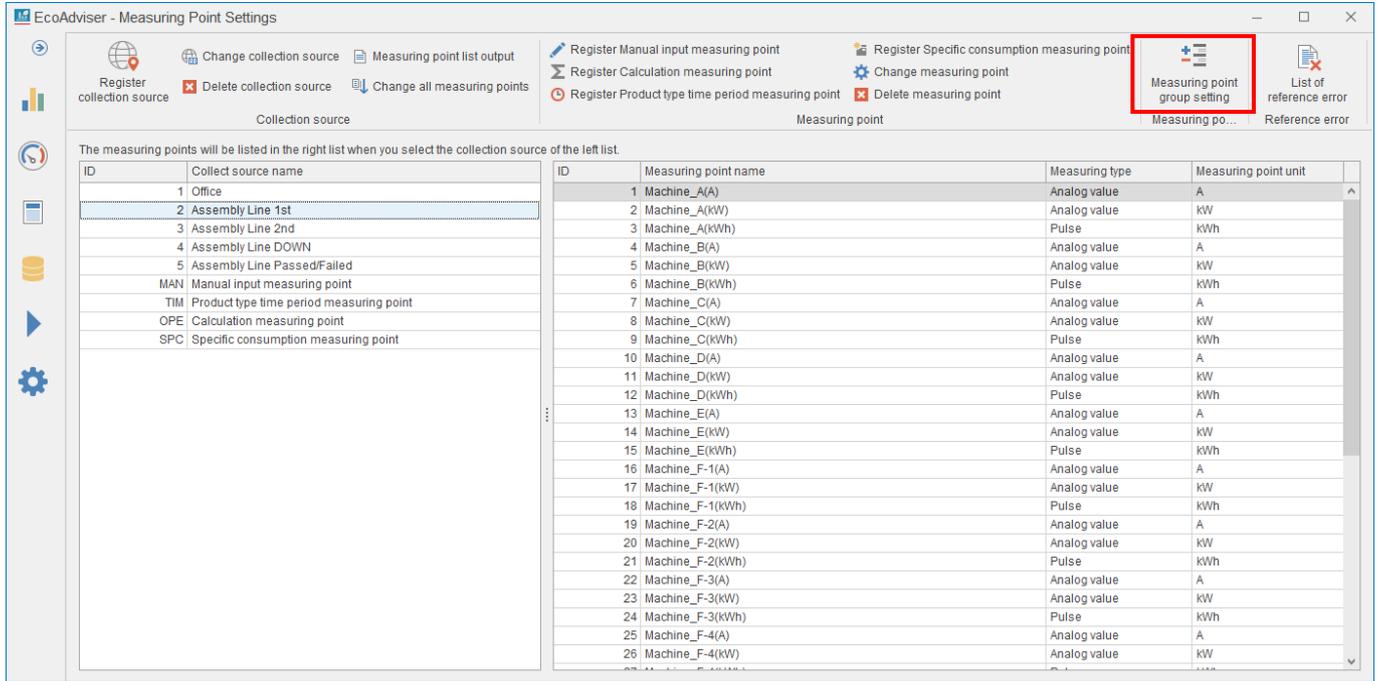
Click the **Yes** button to delete the measurement point.

This is the end of the operation.

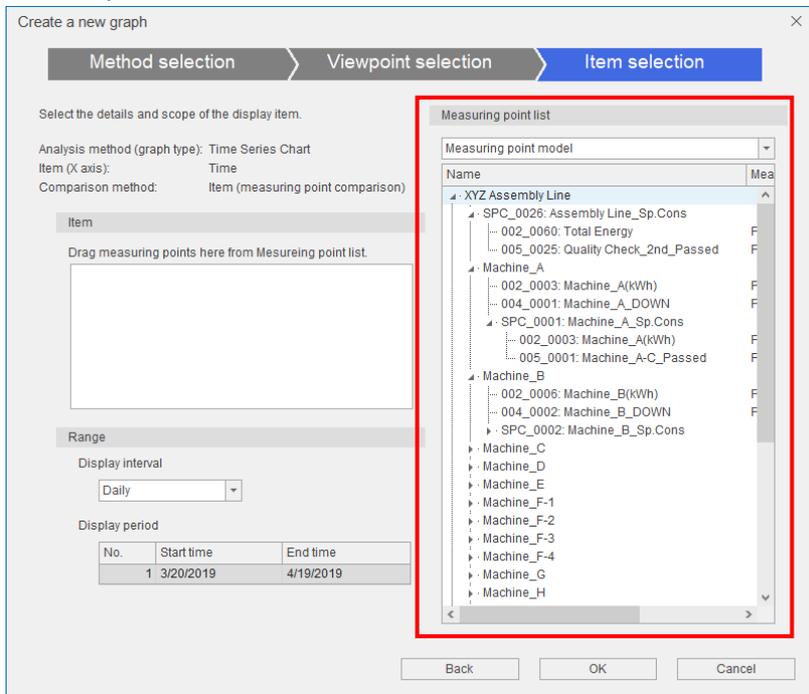
The screenshot shows a confirmation dialog box titled 'EcoAdviser'. The text inside the dialog asks: 'Are you sure you want to delete measuring point? 002_0001: Machine_A(A)[A]'. There are two buttons: 'Yes' and 'No'. The 'Yes' button is highlighted with a red box.

4.1.12 Setting the measuring point group

From the **Measuring point group setting** button, you will set the measuring point group. By setting the measuring point group, you can easily find measuring points when dragging and dropping.



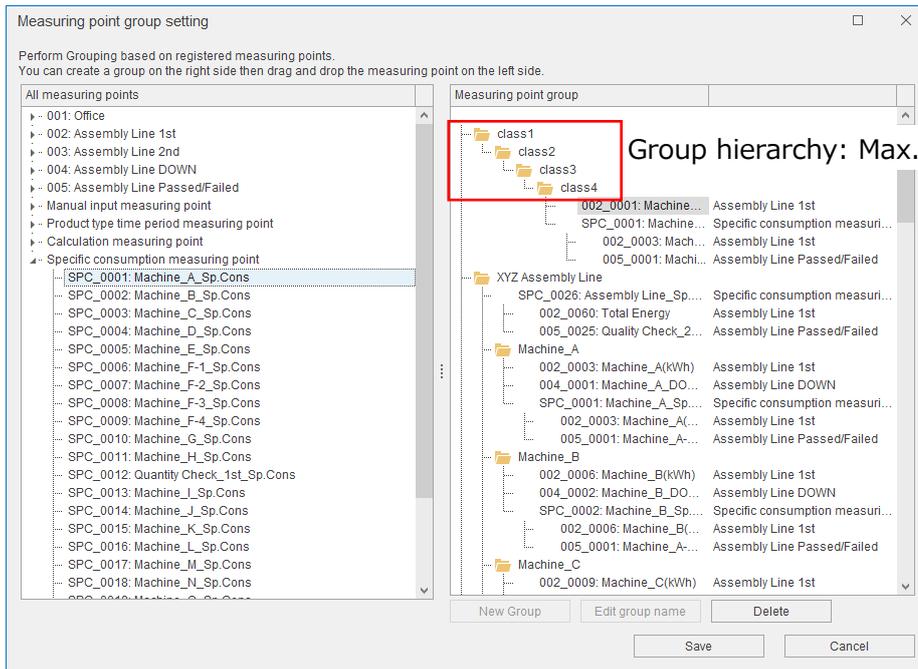
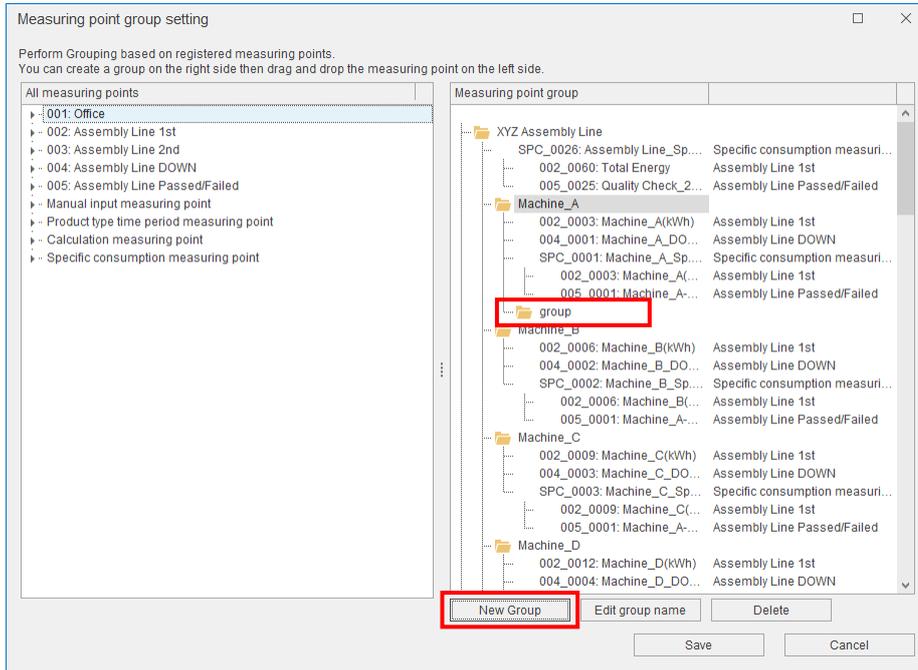
<Example>



(1) Adding the group

Click the **New group** button to create a new group below the selected group.

*The number of group hierarchy is max. 4 levels.



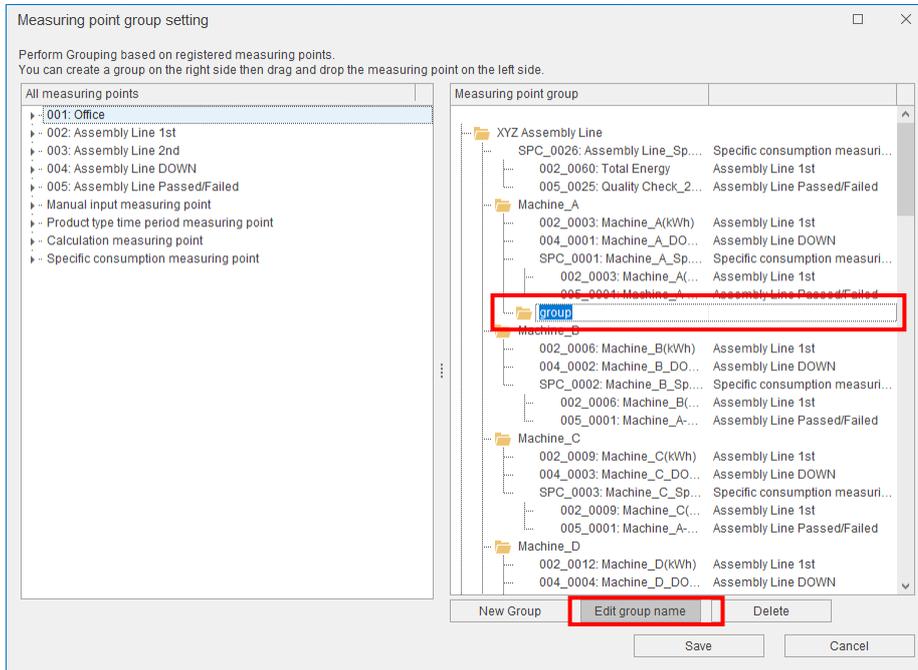
Group hierarchy: Max. 4 levels

(2) Changing the group name

Select a group and then click the **Edit group name** button to input a group name.

After the name input, press the **Enter** key on the keyboard to complete the change.

The group name is up to 32 characters long.



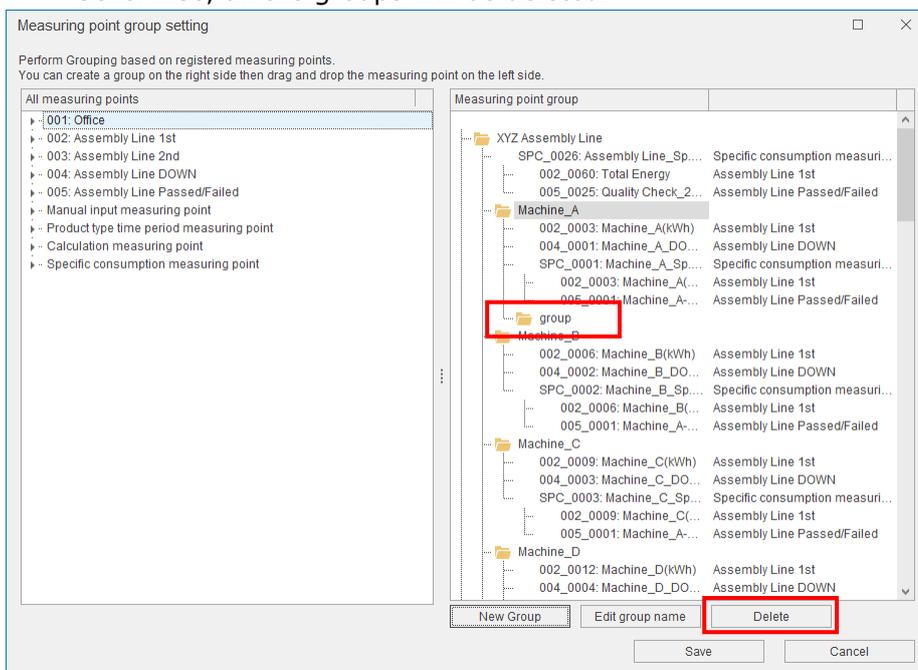
(3) Deleting the group including measuring points

Select a group and then click the **Delete** button to delete the group.

*The confirmation message does not appear at the time of deletion.

Note that do not click the **Delete** button with the top of the Measuring point group box selected.

Otherwise, all the groups will be deleted.



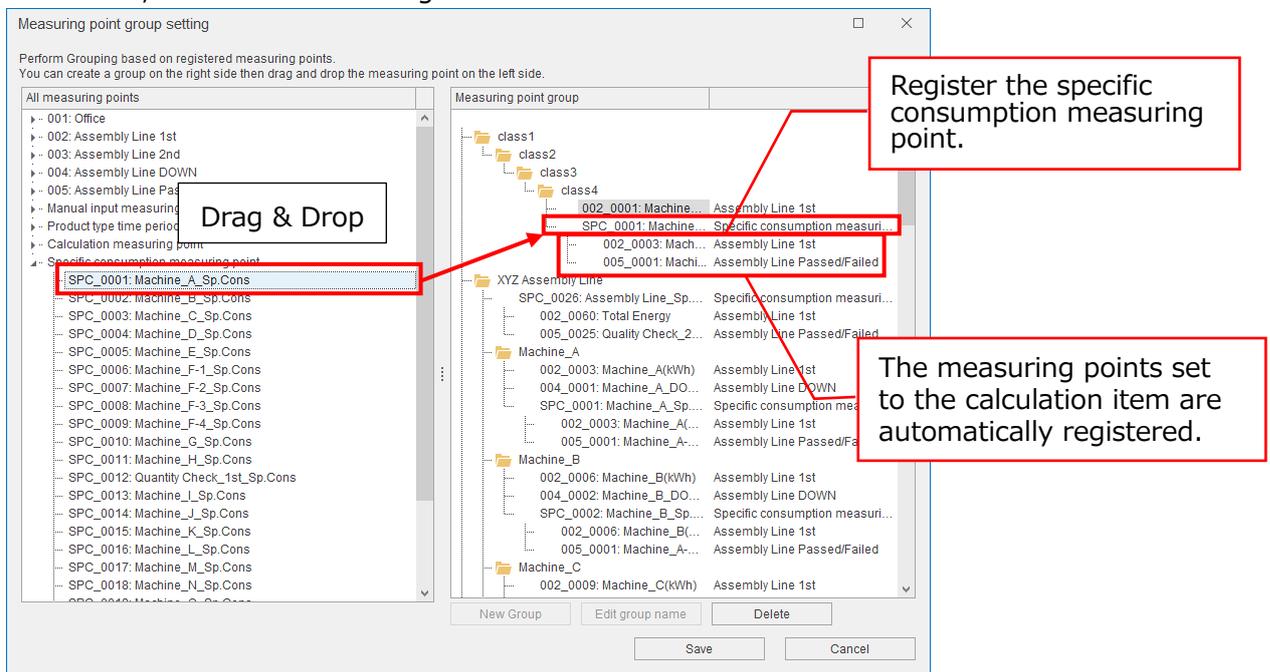
(4) Adding the measuring point to the group

Drag and drop a measuring point from the all measuring points box to the Measuring point group box to add the measuring point to any group.

The following is the precautions at the time of registration.

- The number of registrations is 256 measuring points per group.
 - * 7000 points for all groups
- It is possible to register the same measuring point to other groups.
- When you register the product type time period measuring point, calculation measuring point, or specific consumption measuring point to the group, the measuring points set to the calculation item are also registered to the group. It is possible to delete the added measuring points, which are included in the number of registrations.

For details, refer to the following window.

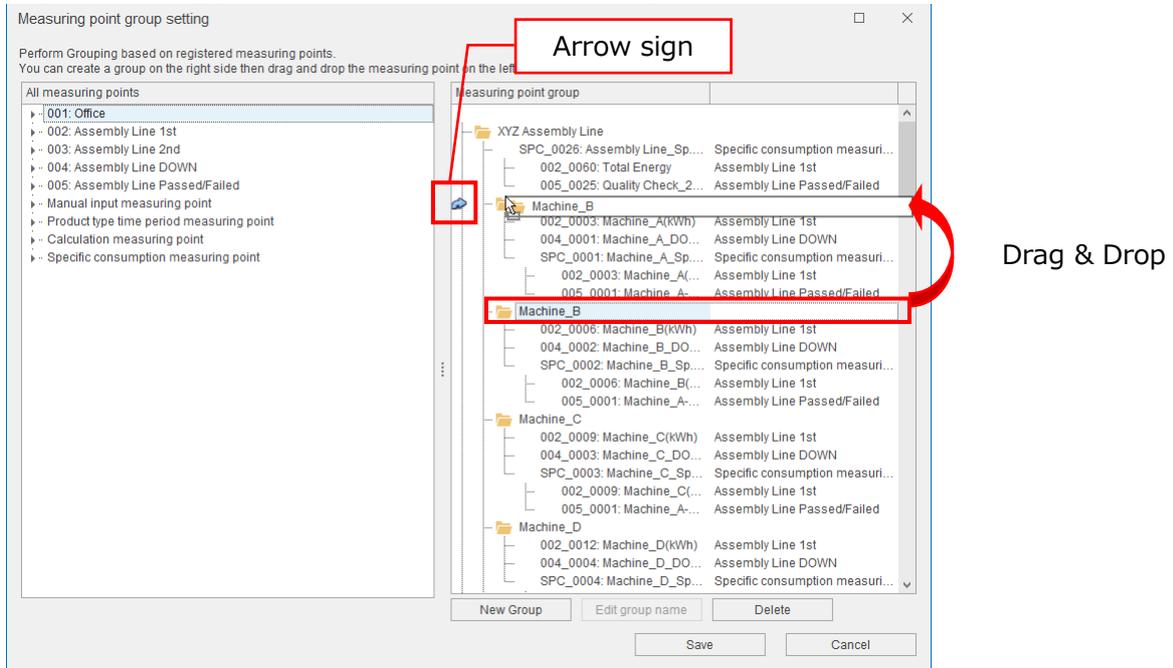


(5) Sorting the groups/measuring points

Drag and drop a measuring point or group to change the order or hierarchy level.

With the green arrow, you can move a selected item to the lower level of a group where the mouse cursor is placed over.

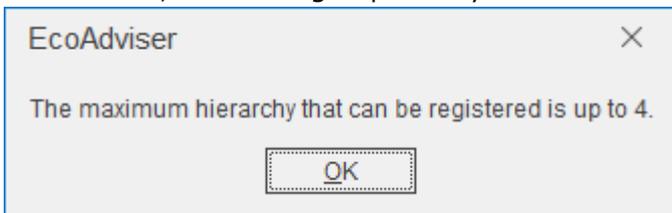
With the blue arrow, you can move a selected item to right above or right below a group/measuring point where the mouse cursor is placed over.



Arrow sign	Details
	Move a selected item to the lower level of a group where the mouse cursor is placed over.
	Move a selected item to right above a group/measuring point where the mouse cursor is placed over
	Move a selected item to right below a group/measuring point where the mouse cursor is placed over

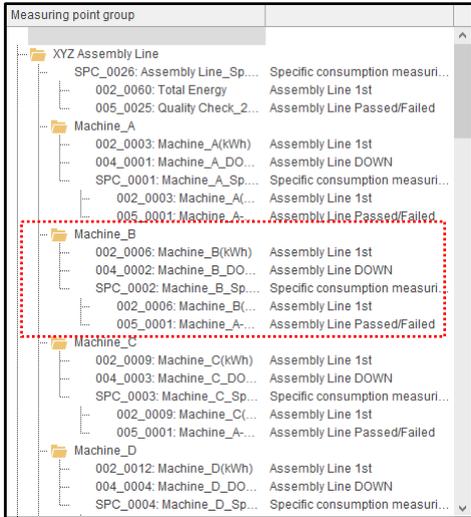
* If you drag and drop multiple groups at one time, the following message may appear.

In that case, move the group one by one.

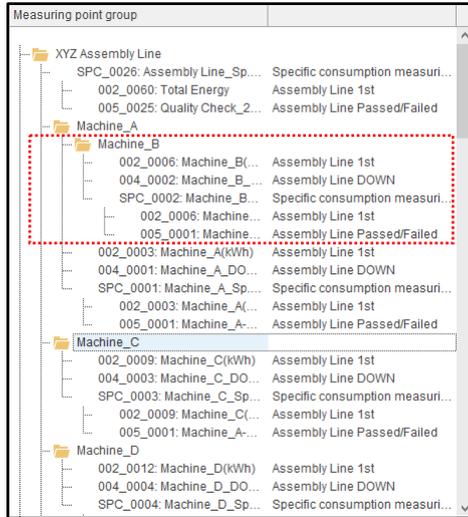


<Example>

In order to move 'Machine_B' group to above '002_003: Machine_A (kWh)' in 'Machine_A' group, drag 'Machine_B' group and drop it when the cursor  is placed over '002_003: Machine_A (kWh).'



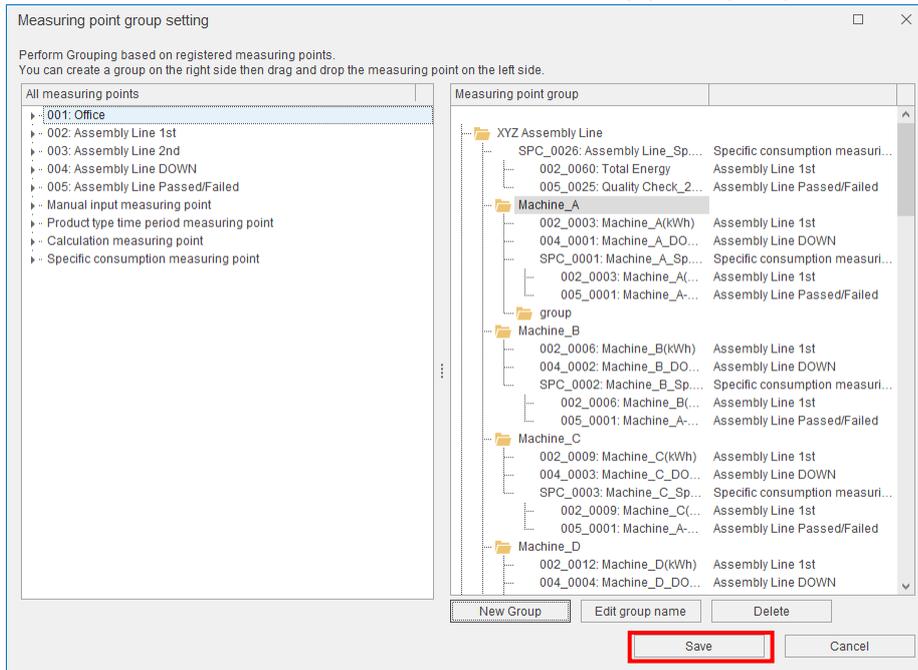
Before change



After change

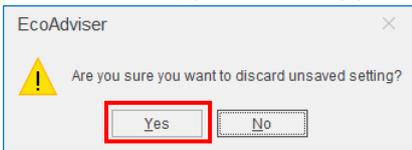
(6) Saving the measuring point group

Click the **Save** button to save the set measuring point group.



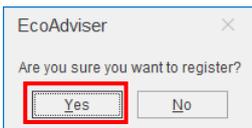
* When you want to end the operation without saving the setting, click the **Cancel** button.

The following window appears. Click the **Yes** button to end without saving.



The following window appears.

Click the **Yes** button to save the measuring point group setting.



4.1.13 Displaying the reference error list

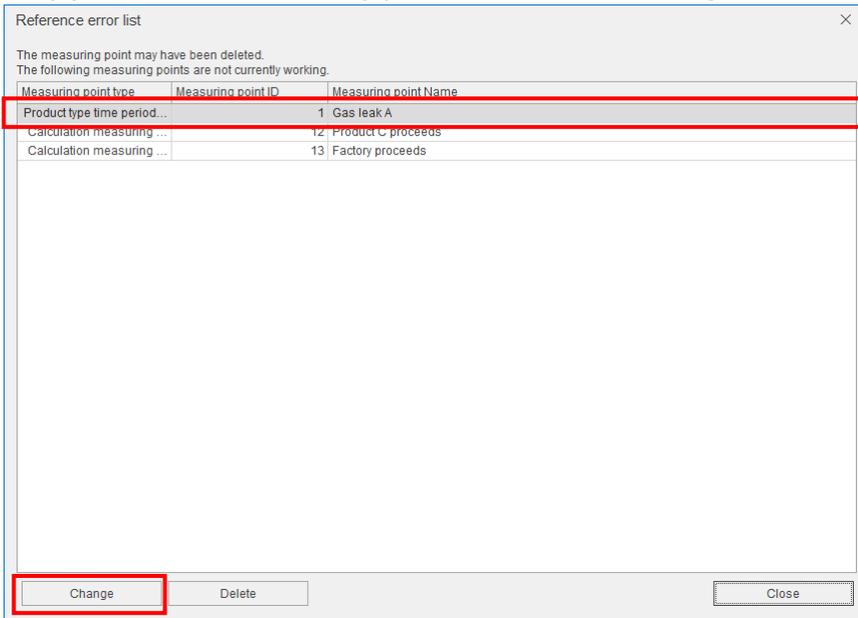
For calculation measuring point, product type time period measuring point, and specific consumption measuring point, any measuring points where the reference error is occurring are displayed in the list. The measuring points with the error are not measured.

Accordingly, change the setting or delete the measuring point.

*The reference errors occurring in the diagnosis setting are not displayed on this window.

(1) Changing the setting of the measuring point

(a) Select the measuring point and click the **Change** button.

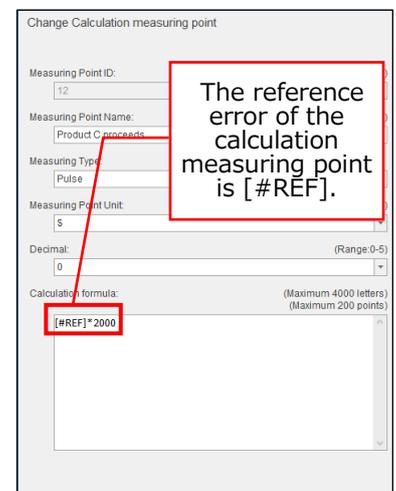
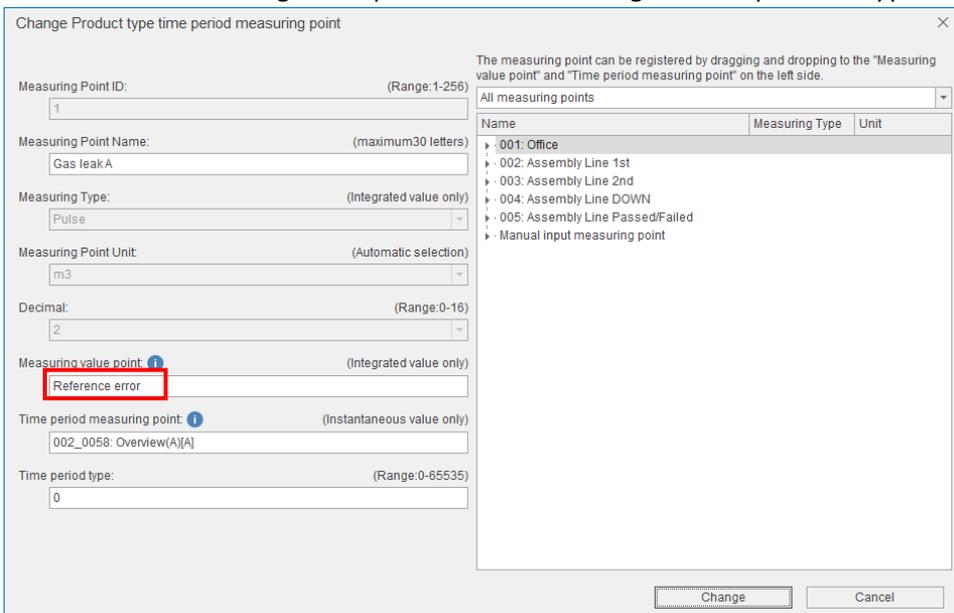


(b) The following window appears to change the measuring point setting.

Reset the item where **Reference error** is displayed and then click the **Change** button.

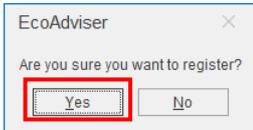
*The displayed window varies depending on the measuring point type.

The following example illustrate a change of the product type time period measuring point.



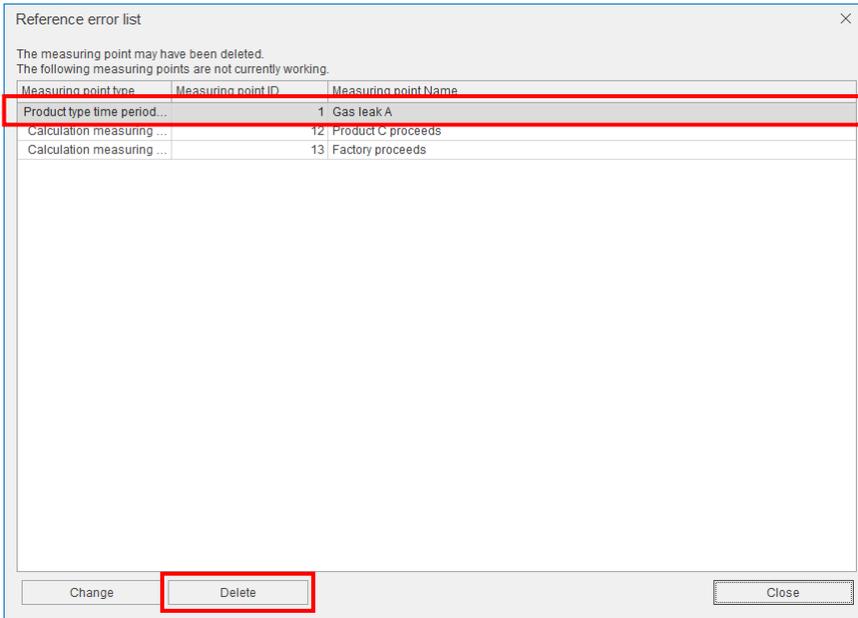
4 Settings

- (c) The following message appears.
Click the **Yes** button to change the setting.
This is the end of the operation.

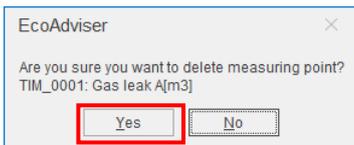


(2) Deleting the measuring point

- (a) Select the measuring point and then click the **Delete** button.



- (b) The following message appears.
Click the **Yes** button to delete the measuring point.
This is the end of the operation.

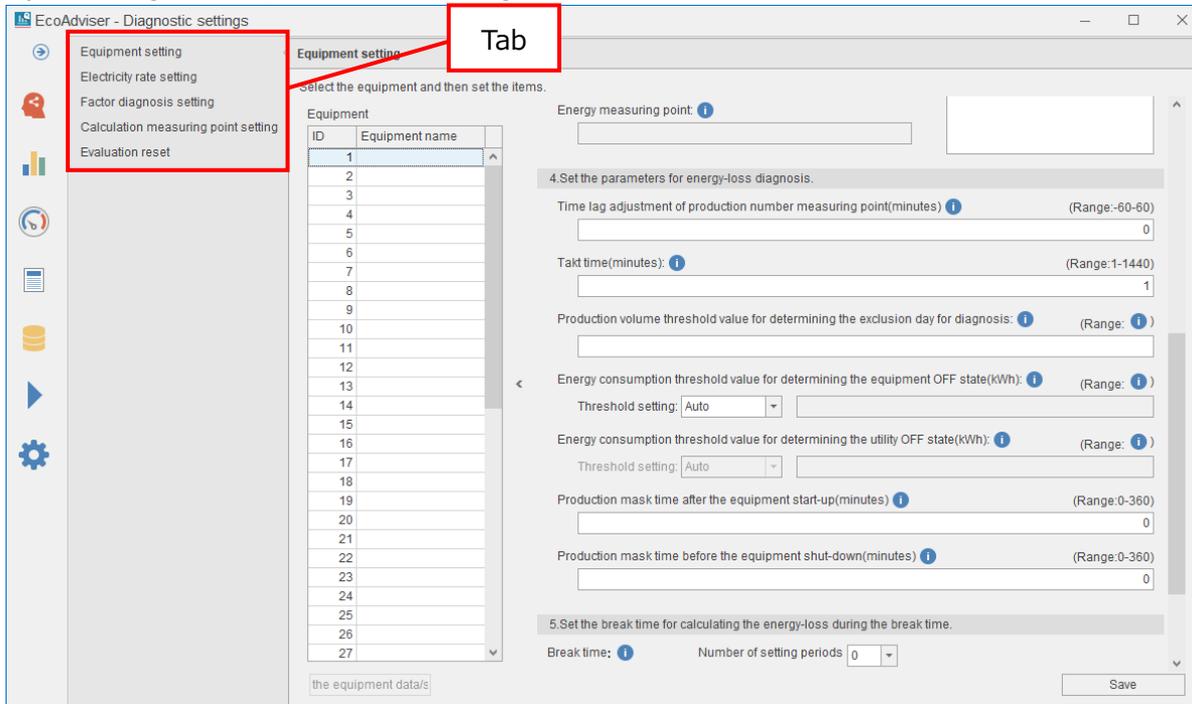


4.2 Diagnosis Settings

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

You will register the settings for diagnosis.

By selecting the tab, switch the setting item.



Tab	Details	Reference
Equipment setting	Register, change, or delete the equipment information for energy-loss diagnosis.	4.2.2 4.2.3
Electricity rate setting	Register the setting to convert energy consumption to the amount for energy-loss diagnosis.	4.2.4
Factor diagnosis setting	Register, change, or delete the energy-loss factor for equipment.	4.2.5 4.2.6
Calculation measuring point setting	Register, change, or delete the calculation measuring point for energy-loss diagnosis.	4.2.7 4.2.8 4.2.9
Evaluation reset	Reset the evaluation for energy-loss factor.	4.2.10

4.2.1 About the diagnosis function

For the outline of the diagnosis function, refer to [7.1].

4.2.2 Registering/Changing the equipment information

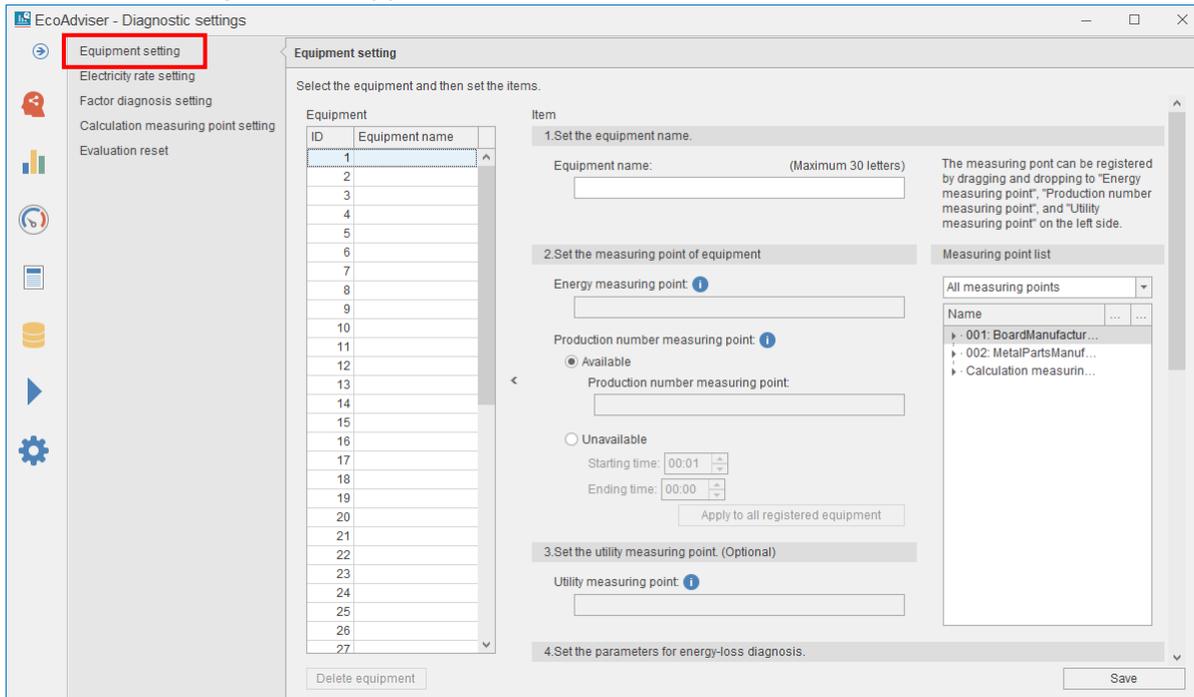
You will register or change the information on a piece of equipment.

*The number of registrations is 50.

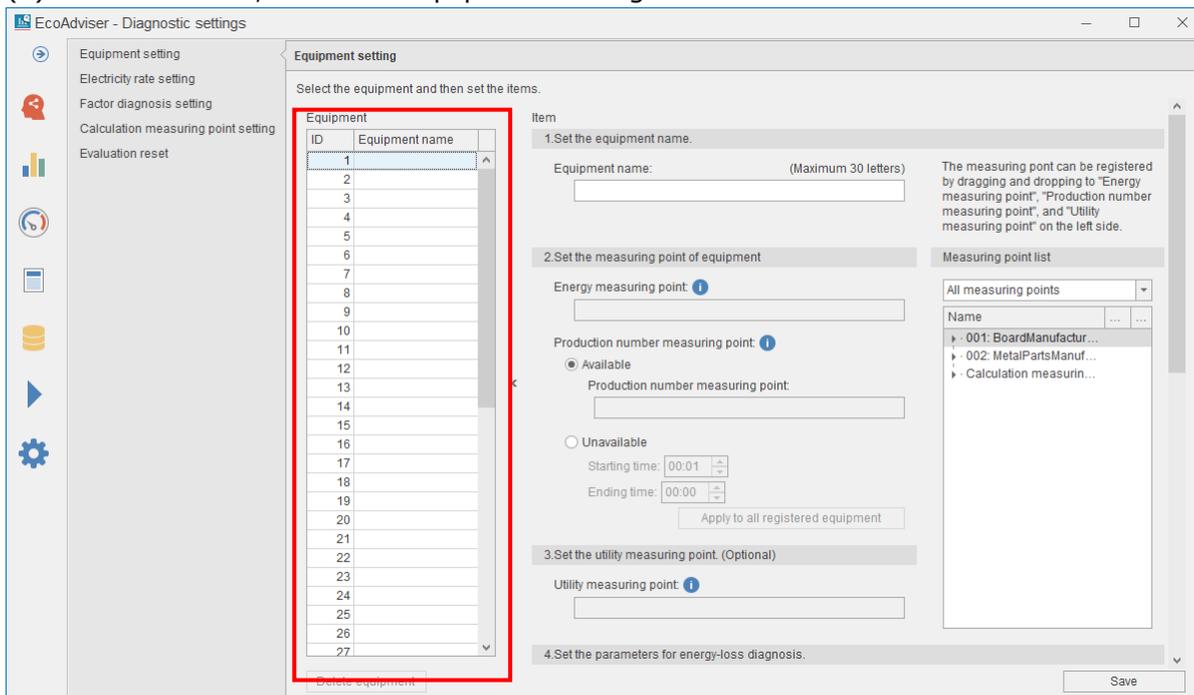
*If you will change the setting after the operation starts, refer to [12.3 Operation for Setting Change about Diagnosis].

(1) Select **Equipment setting**.

The following window appears.



(2) From the table, select the equipment for registration.



(3) The selected equipment information is displayed on the right of the window.

Set the items listed below.

To register each measuring point, drag and drop a measuring point from the measuring point list on the right.

For details on the items, refer to the next page.

Item		Necessary/ Option	Input
Equipment name		Necessary	Max. 30 characters
Energy measuring point		Necessary	Select from collection sources' measuring points whose measuring type is pulse or calculation measuring point for diagnosis.
Available	Production number measuring point	Necessary *Select 'Available' or 'Unavailable.'	*It is impossible to select the manual input measuring point, calculation measuring point, product type time period measuring point, specific consumption measuring point, or demand measuring point.
Unavailable	Starting time Ending time		
Utility measuring point		Option	Select from collection sources' measuring points whose t measuring type is pulse or calculation measuring point for diagnosis. * It is impossible to select the manual input measuring point, calculation measuring point, product type time period measuring point, specific consumption measuring point, or demand measuring point.
Time lag adjustment of production number measuring point		Option	-60 to 60 Default: 0
Takt time		Option	1 to 1440 Default: 1
Production volume threshold value for determining the exclusion day for diagnosis		Option	0 to 999999999999
Energy consumption threshold value for determining the equipment off state		Option	Automated or manual Default: Automated 0 to 99999999999.999 *Set any values up to 15 significant digits with max. 5 decimal places. Default: non setting
Energy consumption threshold value for determining the utility off state		Option	Automated or manual Default: Automated 0 to 99999999999.999 *Set any values up to 15 significant digits with max. 5 decimal places. Default: non setting
Production mask time after the equipment start-up		Option	0 to 360 Default: 0
Production mask time before the equipment shut-down		Option	
Break time	Number of setting periods	Option	0 to 3 Default: 0
	Starting time	Option	0:00 to 23:59
	Ending time	Option	

Note

By clicking the **Apply to all registered equipment** button in each setting item of Production number measuring point and Break time, the present setting will be reflected to all registered equipment.

(4) Click the **Save** button to save the registration.

<Explanation of some setting items in the above table>

■ Energy measuring point

You will register a measuring point that measures the equipment electric energy.

You will also register any measuring points other than electric energy, such as measuring water, gas, and air usage by converting it into the corresponding value using the calculation measuring point in order to use for diagnosis. See the example below.

<Example> Unit price of electric energy=20, Unit price of water=30

Register [Measuring point of water usage'/20×30] in the calculation formula for calculation measuring point for diagnosis.

■ Production number measuring point

You will register a measuring point that measures the equipment production volume.

When there is no measuring point that measures the equipment production volume, the equipment time-loss (start-up) and equipment time-loss (shut-down) of the energy saving viewpoint are calculated from the set working hours (starting time and ending time). However, the specific consumption and production loss time rate will not be calculated.

*For the difference between the production number measuring point and working hours, refer to [Note: Production number measuring point and working hours].

■ Working hours (starting time and ending time)

You will set the starting time and ending time of working hours.

*Be sure to set the working hours excluding the set day aggregation period (hour).

If the set time were included in the working hours, five focusing viewpoints for energy saving and energy-loss during the standby/break time would not be measured.

*For the difference between the production number measuring point and working hours, refer to [Note: Production number measuring point and working hours].

■ Utility measuring point

You will register a measuring point that measures the utility electric energy related to the equipment, such as air conditioning, lighting, or compressors.

You will also register any measuring points other than electric energy, such as measuring water, gas, and air usage by converting it into the corresponding value using the calculation measuring point in order to use for diagnosis. By registering this measuring point, the utility start-up time and utility shut-down time of the energy saving viewpoint will be calculated. See the example below.

<Example> Unit price of electric energy=20, Unit price of water=30

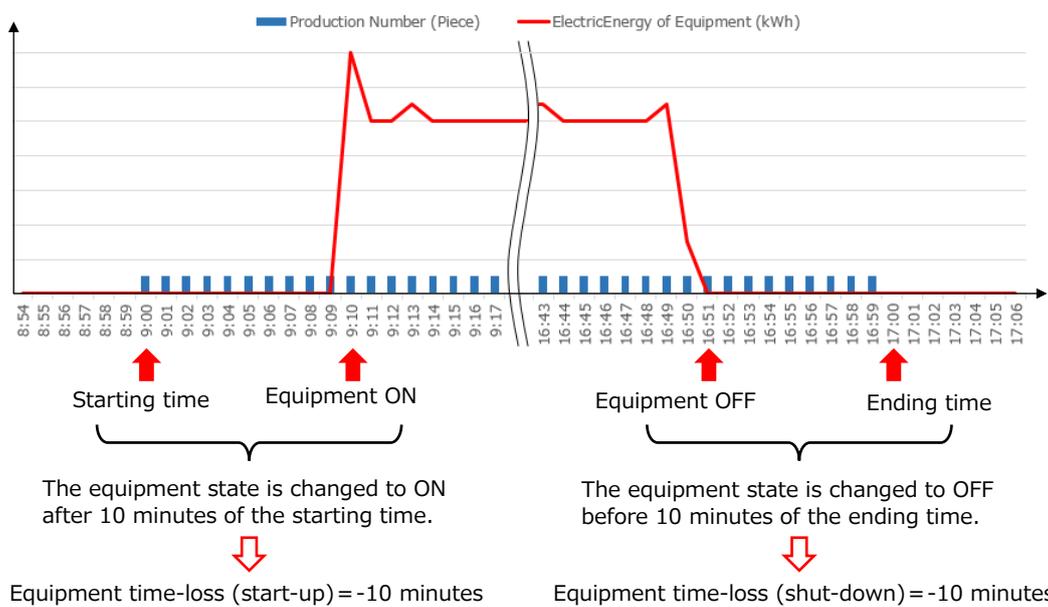
Register [Measuring point of water usage'/20×30] in the calculation formula for calculation measuring point for diagnosis.

Note: Production number measuring point and working hours

To determine the operating state or standby state of the equipment, it is necessary to set either the production number measuring point, which measures the number of production, or the working hours. The details of each setting are as follows.

Item		Production number measuring point	Working hours (starting time, ending time)
Number of production		Measuring value of the production number measuring point	1 is recorded from the starting time to ending time on the production data.
Five focusing viewpoints for energy saving	Equipment time-loss (start-up)	Time period from the change to the equipment ON state to the start of production	Time period from the change to the equipment ON state to the starting time *When the equipment changes to the ON state after the starting time, the equipment time-loss (start-up) becomes zero.
	Equipment time-loss (shut-down)	Time period from the end of production to the change to the equipment OFF state	Time period from the ending time to the change to the equipment OFF state *When the equipment changes to the OFF state before the ending time, the equipment time-loss (shut-down) becomes zero.
	Specific consumption	Specific consumption from the start to the end of production	No measurement
	Production loss time rate	Time rate of the production number measuring point that measures 0 from the start to the end of production	No measurement

The following example illustrates the equipment time-loss (start-up) and the equipment time-loss (shut-down) have negative value according to the working hours.

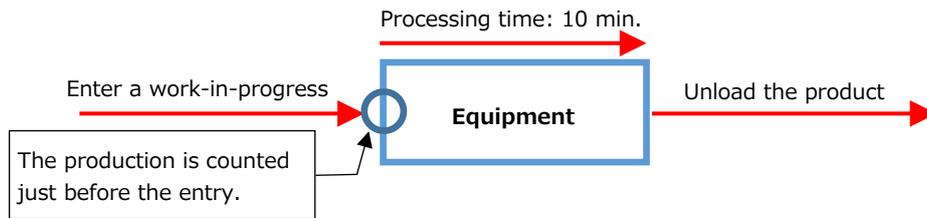


■ Time lag adjustment of production number measuring point

You will set the time difference between the time production volume is counted and the one a work-in-progress is put into the equipment.

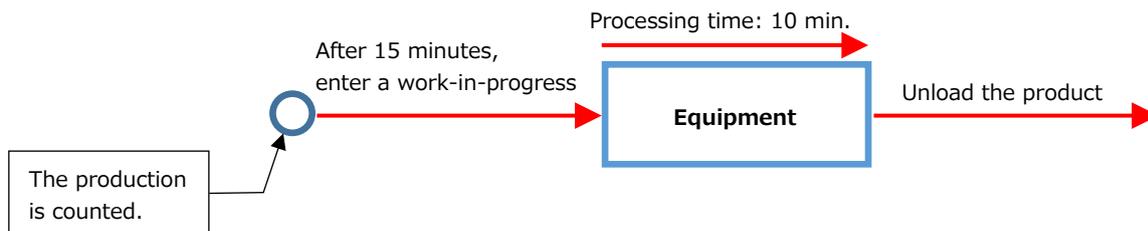
When the point which measures the production volume is not just before the entry into the equipment, the value of the energy saving viewpoint is not calculated correctly. Accordingly, this setting enables the software to calculate that value correctly.

Example 1: The production is counted just before the entry into the equipment.
 ⇒Time lag adjustment of production number measuring point=0 min. (No setting)



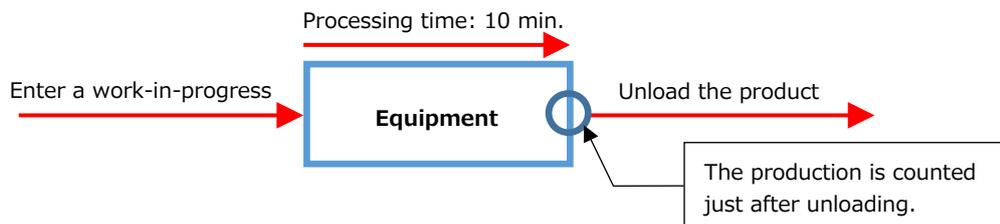
Example 2: The production is counted 15 minutes before the entry into the equipment.
 ⇒Time lag adjustment of production number measuring point=Positive value

Time lag adjustment of production number measuring point=15 min.



Example 3: The production is counted just after or after unloading the product.
 ⇒Time lag adjustment of production number measuring point=Negative value

Time lag adjustment of production number measuring point=10 min.

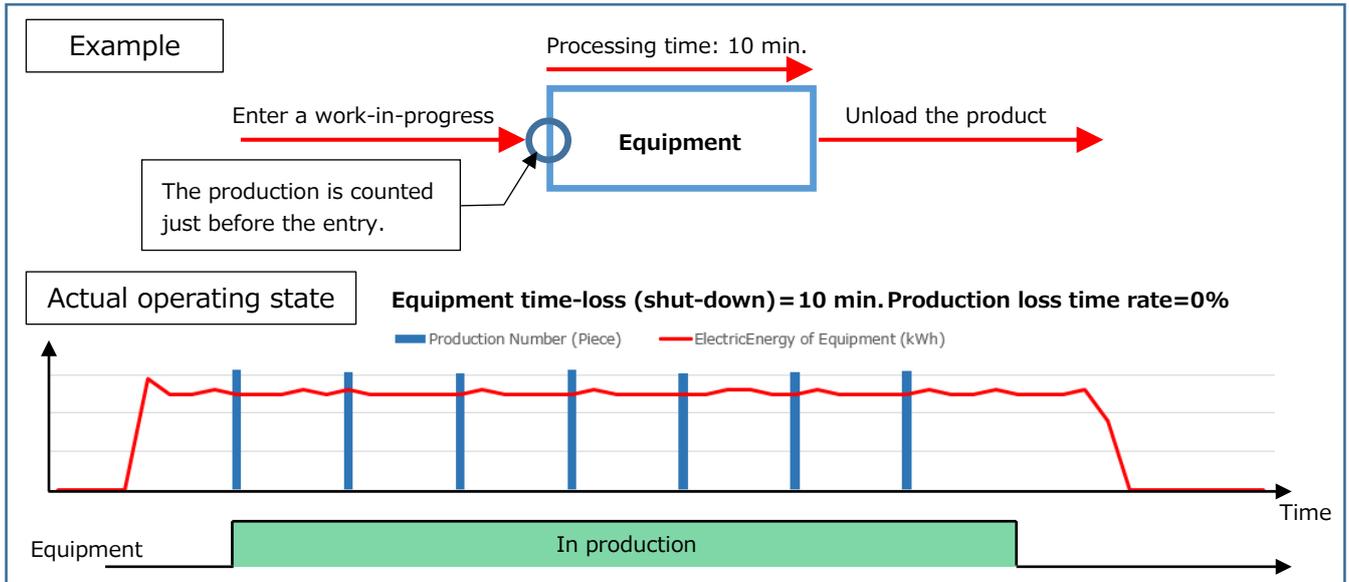


■ Takt time

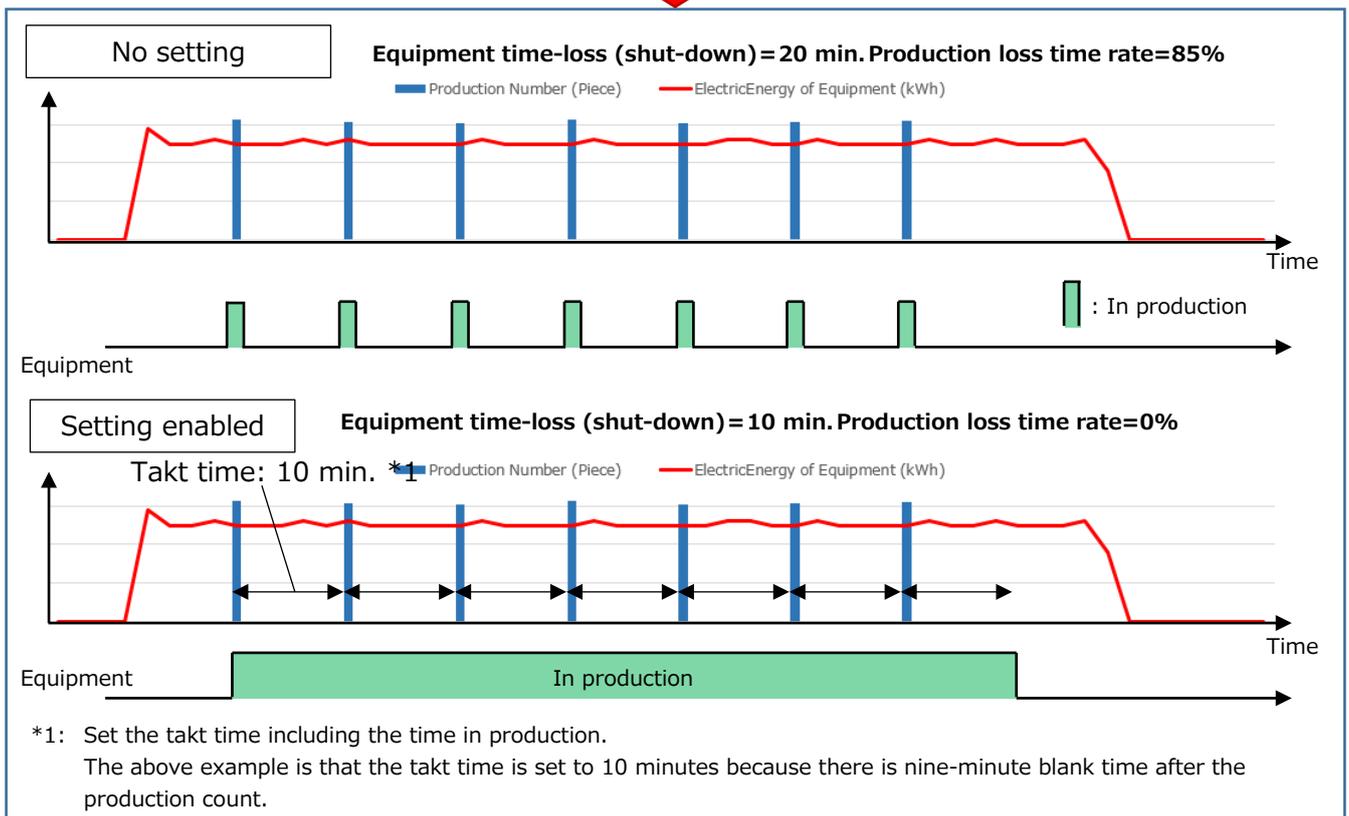
You will set the time difference between the time a work-in-progress is just entered into the equipment and the one the product is just unloaded.

The actual takt time is set by rounding up in minutes. For example, for two minutes and 10 seconds, enter three minutes. For any equipment that takes long time to produce, the equipment time-loss (shut-down) and production loss time rate of the energy saving viewpoint will not be calculated correctly. Accordingly, when this takt time is set, the software handles the production count as a non-zero value even if the actual value is zero during the set time. By using this setting, the software calculates the value of the energy saving viewpoint close to the actual operation.

*This function is disabled when the production number measuring point is not set.



Would like to calculate the value of the energy saving viewpoint close to the actual operation.



*1: Set the takt time including the time in production.
The above example is that the takt time is set to 10 minutes because there is nine-minute blank time after the production count.

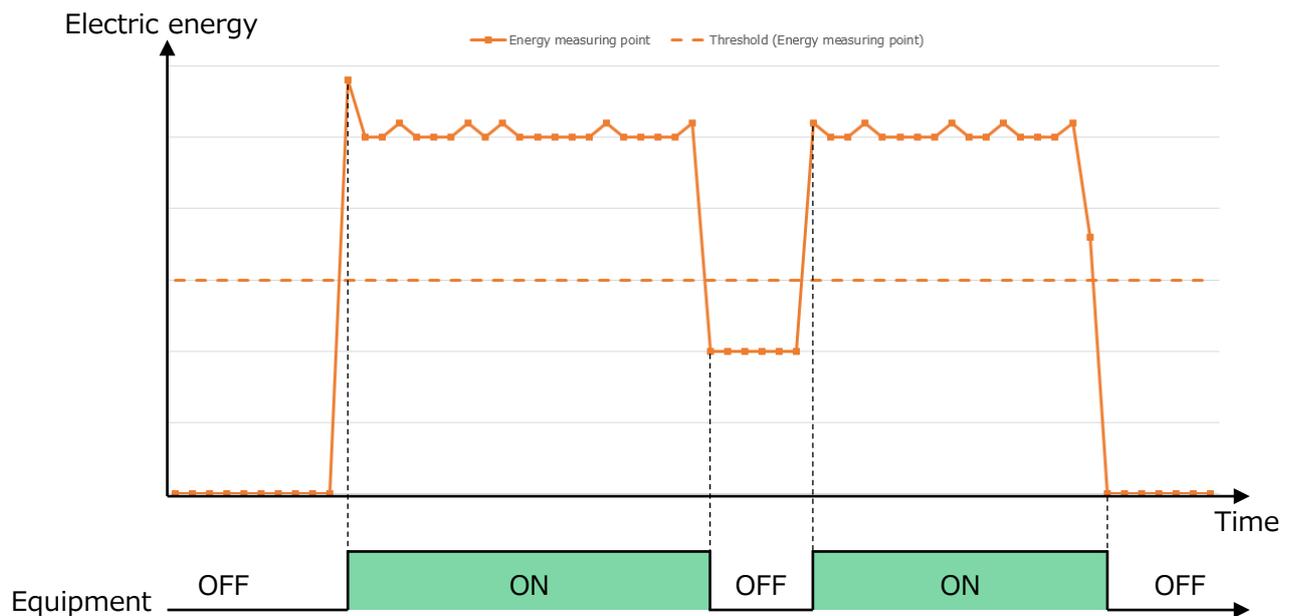
■ Production volume threshold value for determining the exclusion day for diagnosis

You will set the threshold value of daily production volume in order to exclude any specific days from diagnosis. If there is any singular day with low production due to reasons such as the equipment maintenance, it may result in a singular diagnostic result. Accordingly, this setting enables the software to calculate each value of five focusing viewpoints for energy saving and execute the energy-loss factor diagnosis, excluding any days when the production volume is this threshold value or less.

■ Energy consumption threshold value for determining the equipment OFF state

You will set the threshold value of one-minute electric energy for determining the equipment OFF state. This setting enables the software to calculate the value of the energy saving viewpoint by judging one-minute electric energy with the threshold or less as the OFF state and other cases as the ON state. If the threshold is incorrect, the value of the energy saving viewpoint will not be calculated correctly. It is strongly recommended that the threshold value should be set by manual because a value calculated by the automatic setting is a reference value.

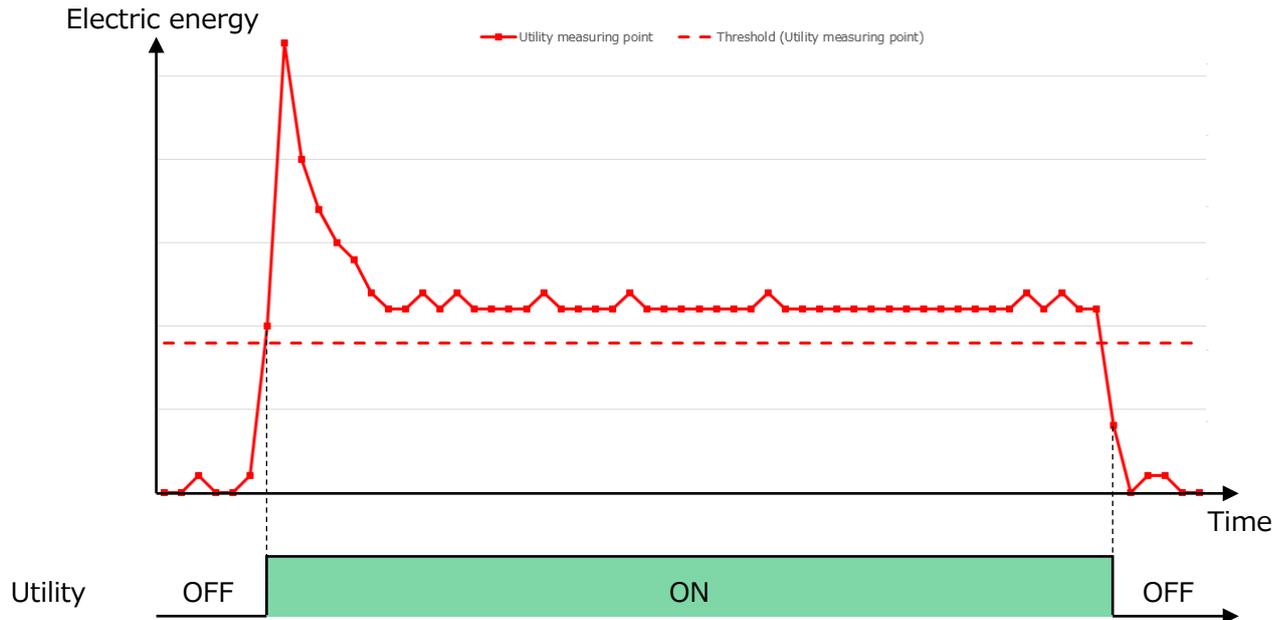
When this setting is set manually, execute the diagnosis once and set a value by referring to the daily graph. For the daily graph, refer to [7.4.3 Checking values of the energy saving viewpoint].



■ Energy consumption threshold value for determining the utility OFF state

You will set the threshold value of one-minute electric energy for determining the utility OFF state. This setting enables the software to calculate the value of the energy saving viewpoint by judging one-minute electric energy with the threshold or less as the OFF state and other cases as the ON state. If the threshold is incorrect, the value of the energy saving point will not be calculated correctly. It is strongly recommended that the threshold value should be set by manual because a value calculated by the automatic setting is a reference value.

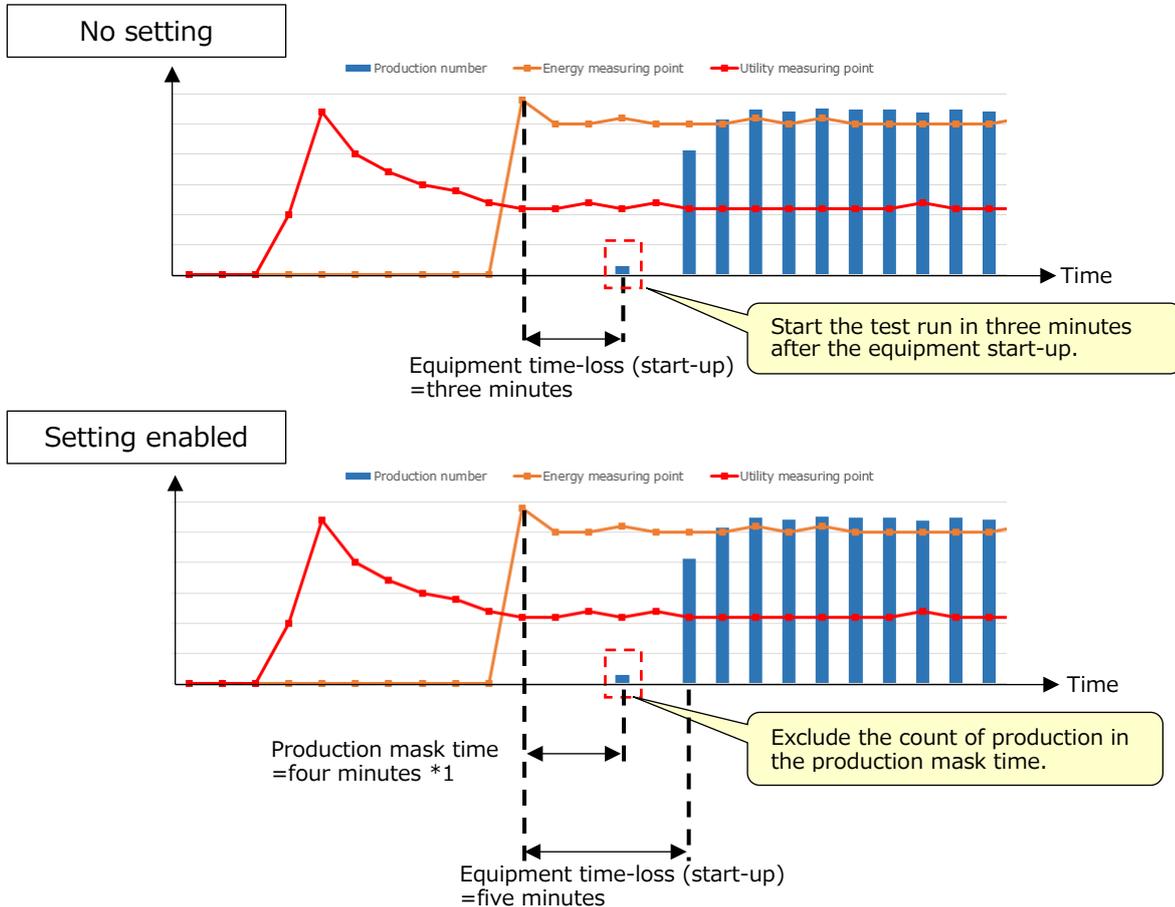
When this setting is set manually, execute the diagnosis once, and set a value by referring to the daily graph. For the daily graph, refer to [7.4.3 Checking values of the energy saving viewpoint].



■ Production mask time after the equipment start-up

You will set the time to exclude the count of production after the equipment start-up.

When unwanted production is counted due to maintenance, test runs, or the like after the equipment start-up, the equipment time-loss (start-up) of the energy saving viewpoint will not be calculated correctly. Accordingly, this setting enables the software to calculate the value of the energy saving viewpoint, excluding the count of production for the set time after the the equipment start-up.

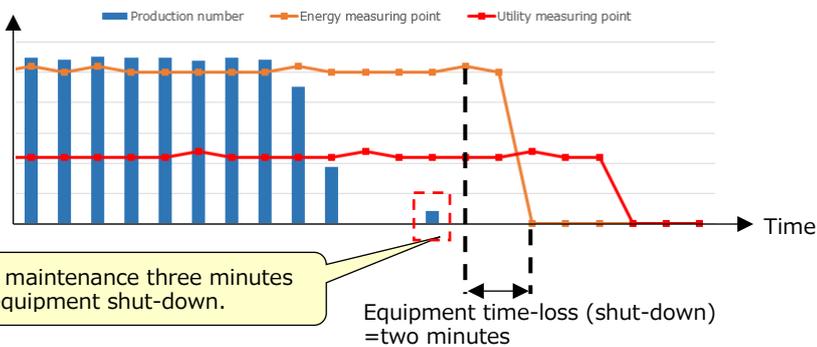


*1: When the production mask time is set to one minute, the count of production at the equipment start-up is excluded. When the count of production is excluded for n minute after the equipment start-up, set the time of adding one minute to n for the production mask time.

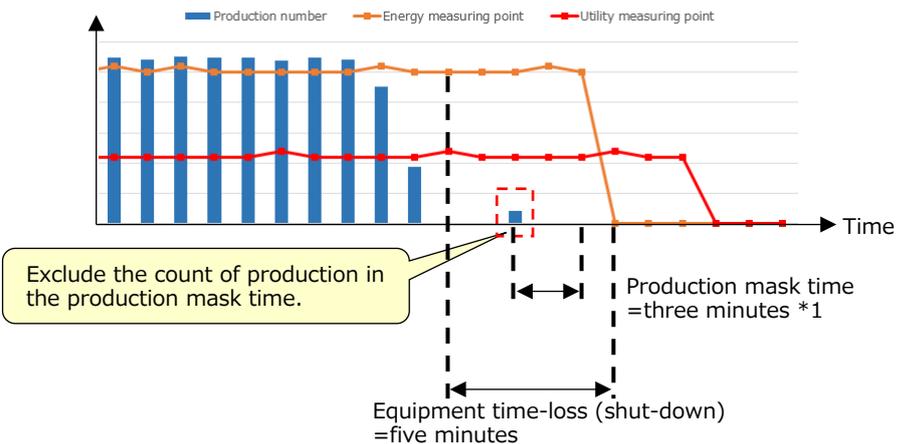
■ Production mask time before the equipment shut-down

You will set the time to exclude the count of production before the equipment shut-down. If unwanted production is counted due to maintenance, test runs, or the like before the equipment shut-down, the equipment time-loss (shut-down) of the energy saving viewpoint will not be calculated correctly. Accordingly, this setting enables the software to calculate the value of the energy saving viewpoint, excluding the count of production for the set time before the equipment shut-down.

No setting



Setting enabled



*1: When the production mask time is set to one minute, the count of production at the equipment start-up is excluded. When the count of production is excluded for n minute after the equipment start-up, set the time of adding one minute to n for the production mask time.

■ Break time

You will set the starting time and ending time for the break time. Be sure to set the break time not including the set day aggregation period (hour). By using this setting, the software calculates energy-loss during the break time. Additionally, setting not only the break time but also the specific time enables the software to calculate the energy-loss of equipment and utility corresponding to those times.

(1) Number of set periods

Select the number of break times.

(2) Starting time/Ending time

Set the starting time and ending time for the break time.

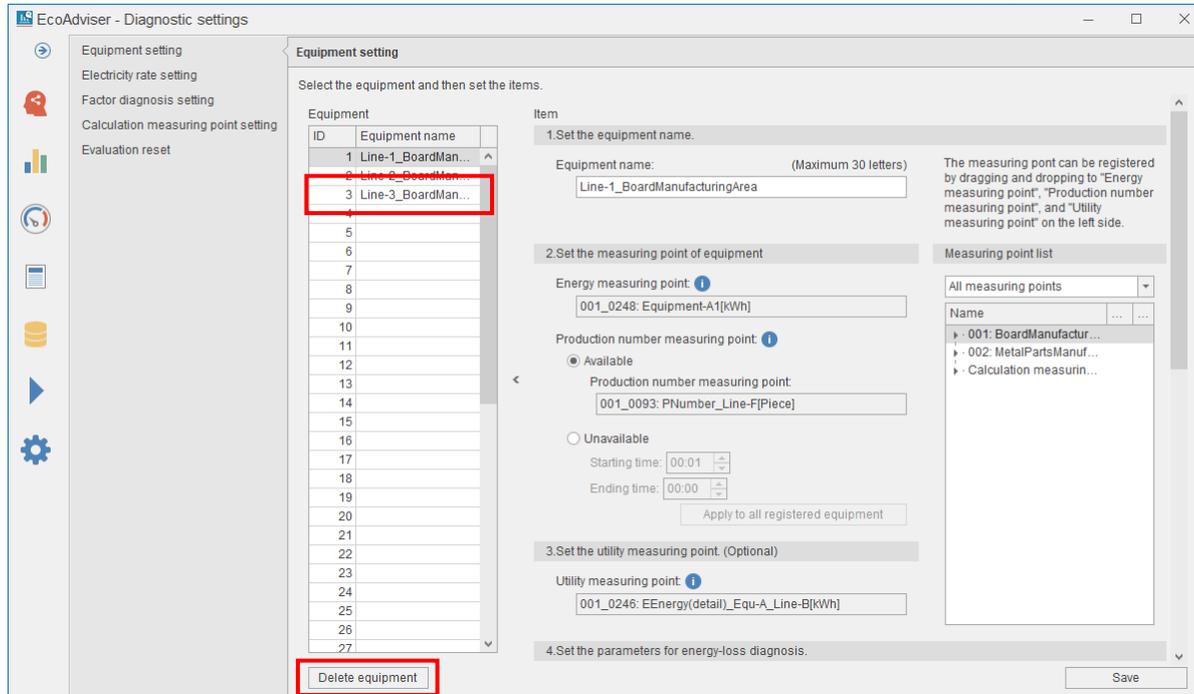
4.2.3 Deleting the equipment information

You will delete the registered information of equipment.

*The energy-loss factors set in [4.2.5 Setting/Editing the energy-loss factor] are also deleted.

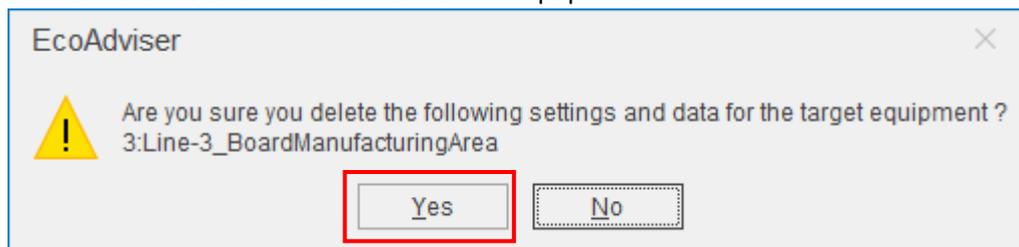
*It may take some time to delete the settings and data related to the equipment.

(1) Select the equipment you want to delete and then click the **Delete equipment** button.



(2) The following message appears.

Click the **Yes** button to delete the equipment.



(3) When the deletion is completed, the following message appears.

Click the **OK** button to close the message.



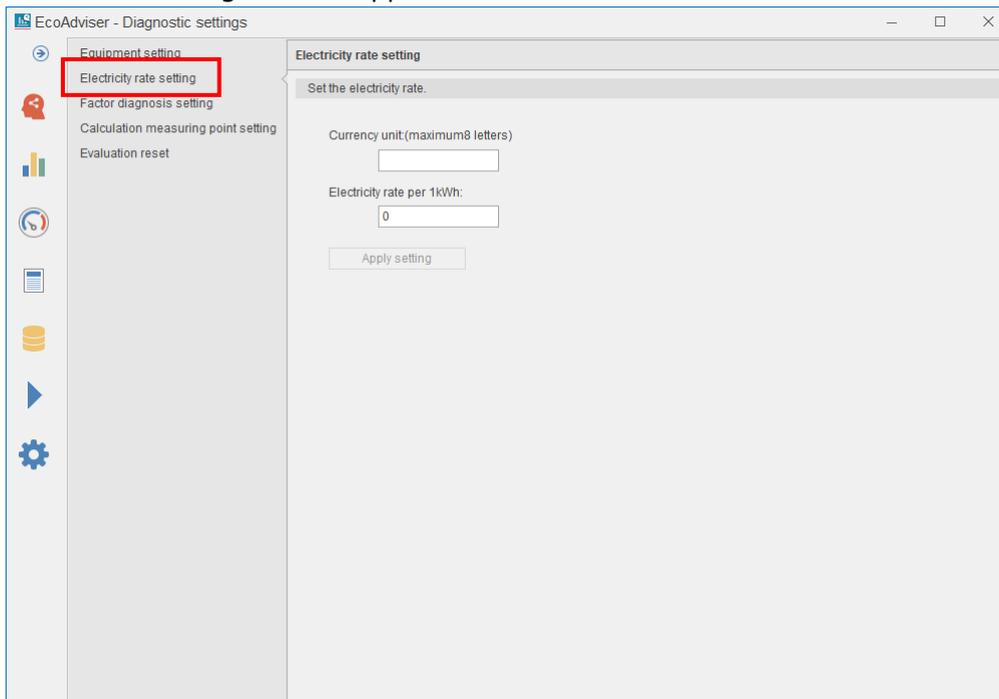
4.2.4 Setting the electricity rate

You will set the electricity rate setting to convert energy consumption to the corresponding electricity charge.

*If you change the setting after the operation starts, refer to [12.3 Operation for Setting Change about Diagnosis].

(1) Select the **Electricity rate setting** tab.

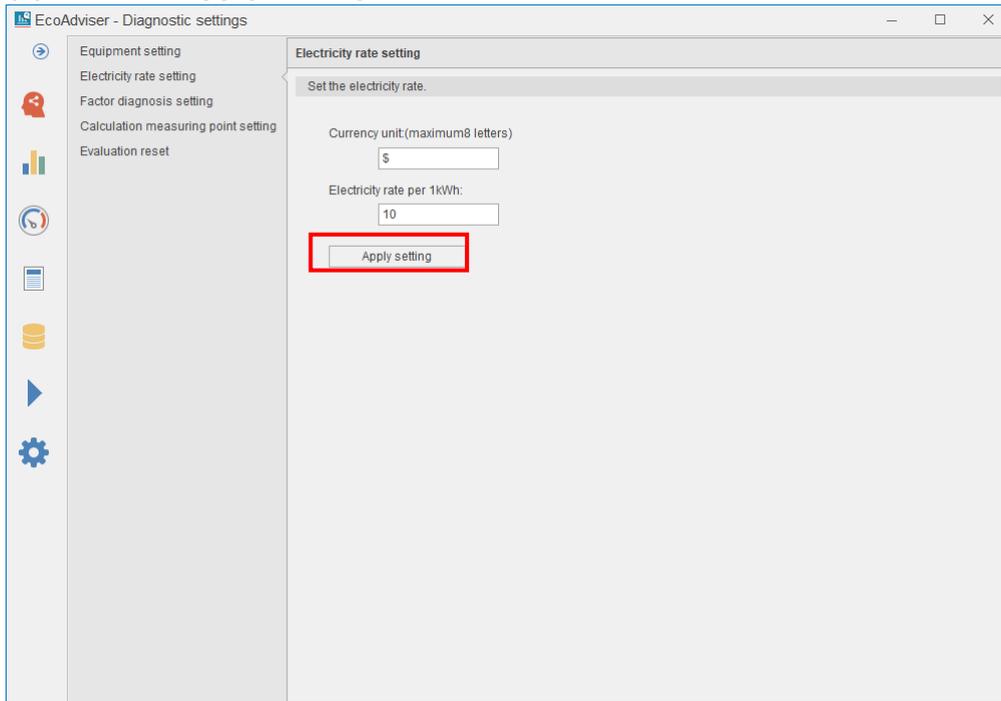
The following window appears.



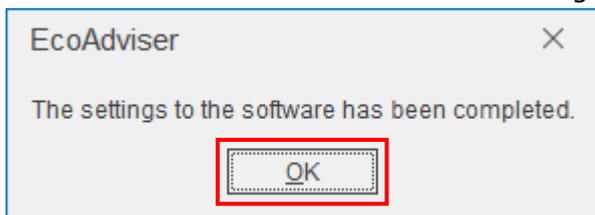
(2) Input each item.

Item	Input	Details
Currency unit	Max. 8 characters	Set the unit.
Electricity rate per 1 kWh	0 to 999999999999.999 Default: 0	Set the electricity rate per 1 kWh to convert energy consumption to the corresponding amount. The input value is max. 5 decimal places. *When you keep the default setting, the following functions will not properly operate: <ul style="list-style-type: none"> •Worst ranking •Conversion of the amount of improvement result •Conversion of the amount of energy-loss during the standby/break time

(3) Click the **Apply setting** button.



(4) When the setting is completed, the following message appears.
Click the **OK** button to close the message.



4.2.5 Setting/Editing the energy-loss factor

You can set any measuring point as an energy-loss factor.

The registered energy-loss factor is used for energy-loss factor diagnosis together with the default energy-loss factors.

*If you change the setting after the operation starts, refer to [12.3 Operation for Setting Change about Diagnosis].

* The following items are the default energy-loss factors in EcoAdviser.

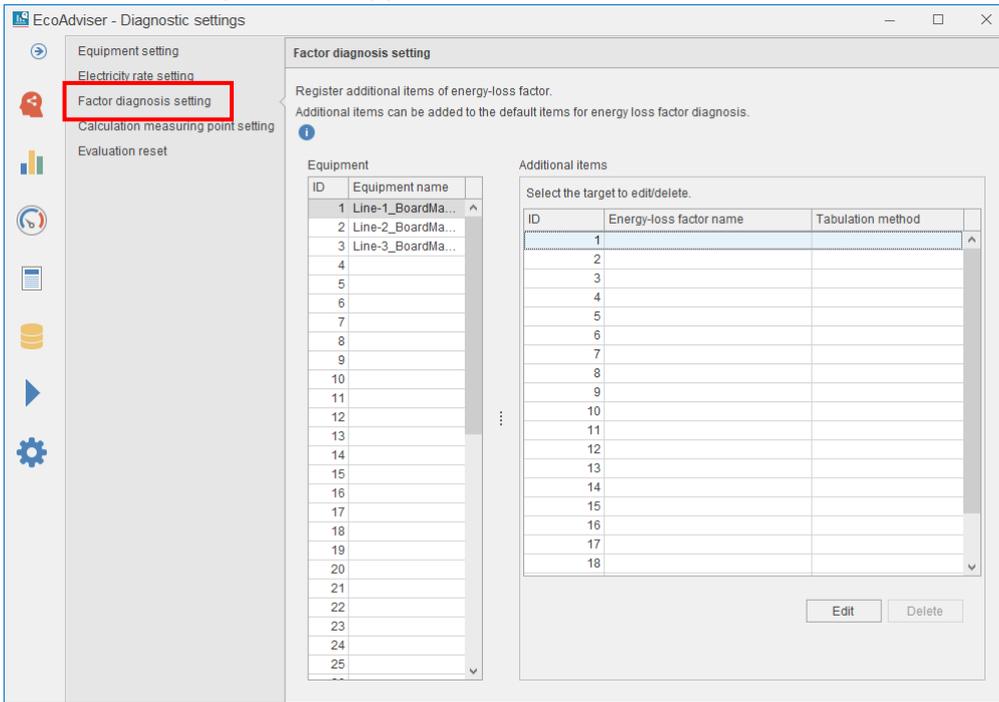
(○: Available -: Unavailable)

Energy-loss factor	5 focusing viewpoints for energy saving					
	Equipment time-loss (start-up)	Equipment time-loss (shut-down)	Utility time-loss (start-up)	Utility time-loss (shut-down)	Specific consumption	Production loss time rate
Equipment start-up time	○	-	○	-	○	○
Equipment shut-down time	-	○	-	○	○	○
Manufacturing starting time	○	○	○	○	○	○
Manufacturing ending time	○	○	○	○	○	○
Manufacturing ending time (the previous day)	○	○	○	○	○	○
Utility start-up time	-	-	○	-	-	-
Utility shut-down time	-	-	-	○	-	-
The worst time of production loss time rate	-	-	-	-	-	○
The worst time of specific consumption	-	-	-	-	○	-
Day of week	○	○	○	○	○	○
Workday type	○	○	○	○	○	○
Early/Middle/Late month	○	○	○	○	○	○
Month	○	○	○	○	○	○
Production volume (the previous day)	○	○	○	○	○	○
Production volume	○	○	○	○	○	○
Number of production stop	-	-	-	-	○	○
Time of production stop	-	-	-	-	○	○

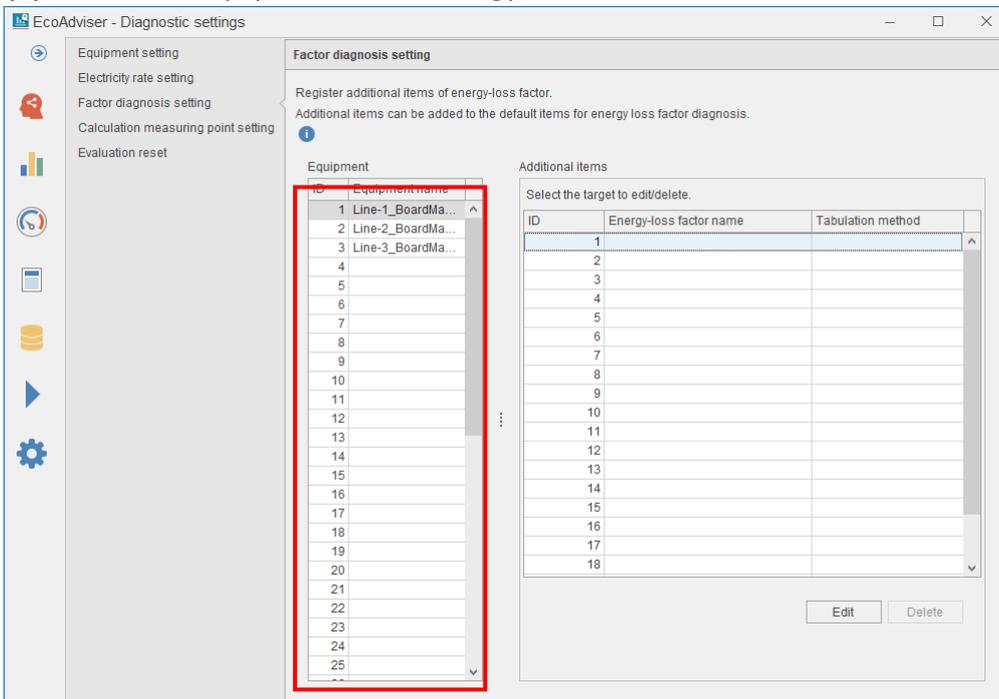
Energy-loss factor	Details
Equipment start-up time	Start-up time of equipment by the hour from 0 to 23 o'clock
Equipment shut-down time	Shut-down time of equipment by the hour from 0 to 23 o'clock
Manufacturing starting time	Start-up time of production by the hour from 0 to 23 o'clock
Manufacturing ending time	Shut-down time of production by the hour from 0 to 23 o'clock
Manufacturing ending time (the previous day)	Shut-down time of production on the previous day by the hour from 0 to 23 o'clock
Utility start-up time	Start-up time of utility by the hour from 0 to 23 o'clock
Utility shut-down time	Shut-down time of utility by the hour from 0 to 23 o'clock
Worsening time of production loss time rate	Time of the highest rate when the production loss time rate is calculated by the hour from the start to the end of production in the time from 0 to 23 o'clock
Worsening time of specific consumption	Time of the highest rate when the specific consumption is calculated by the hour from the start to the end of production in the time from 0 to 23 o'clock
Day of week	Diagnosis day (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday)
Workday type	Four types: [Previous day: Workday, Next day: Workday] [Previous day: Workday, Next day: Non-workday] [Previous day: Non-workday, Next day: Workday] [Previous day: Non-workday, Next day: Non-workday]
Early/Middle/Late month	Early month: 1 st to 10 th , Middle month: 11 th to 20 th , Late month: from 21 st
Month	Month of the diagnosis day
Production volume (the previous day)	Production volume on the previous day
Production volume	Production volume on the day
Number of production stop	Number of the period in non-production from the starting time to the ending time of production on the day
Time of production stop	Total time of the period in non-production from the starting time to the ending time of production on the day

(1) Select the **Factor diagnosis setting** tab.

The following window appears.



(2) Select the equipment to set energy-loss factors.



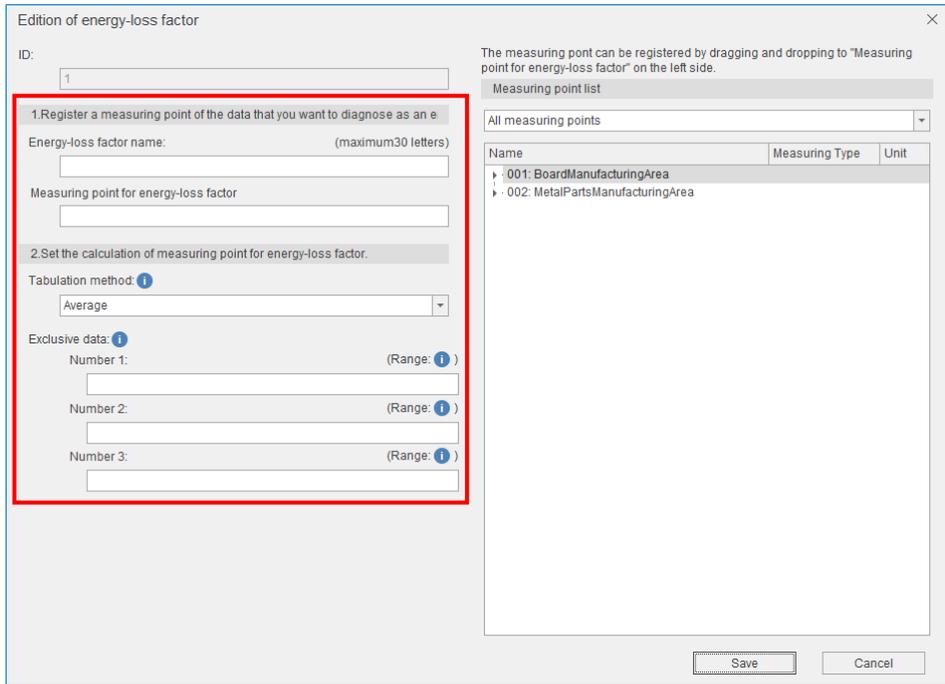
- (3) A list of energy-loss factors you have registered is displayed.
Select the saving destination and then click the **Edit** button.

The screenshot shows the 'EcoAdviser - Diagnostic settings' window. The left sidebar contains navigation icons and labels: 'Equipment setting', 'Electricity rate setting', 'Factor diagnosis setting', 'Calculation measuring point setting', and 'Evaluation reset'. The main area is titled 'Factor diagnosis setting' and contains the following text: 'Register additional items of energy-loss factor. Additional items can be added to the default items for energy loss factor diagnosis.' Below this text are two tables. The 'Equipment' table has columns 'ID' and 'Equipment name' and lists items 1 through 25. The 'Additional items' table has columns 'ID', 'Energy-loss factor name', and 'Tabulation method' and lists items 1 through 18. A red box highlights the 'Additional items' table. At the bottom right of the main area, there are 'Edit' and 'Delete' buttons, with the 'Edit' button also highlighted by a red box.

ID	Equipment name
1	Line-1_BoardMa...
2	Line-2_BoardMa...
3	Line-3_BoardMa...
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

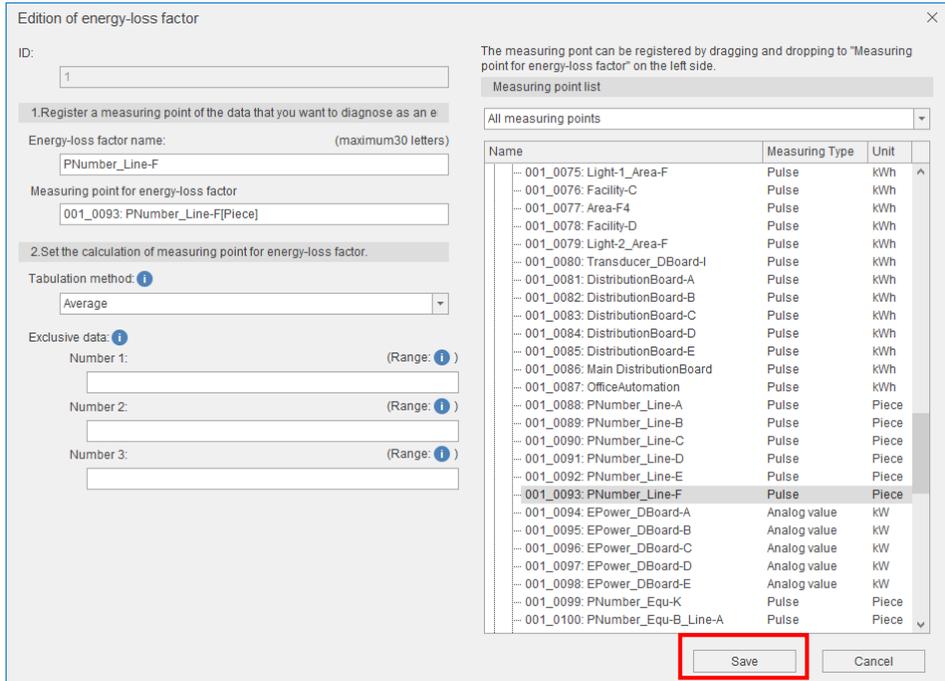
ID	Energy-loss factor name	Tabulation method
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		

(4) The following window appears.
Set each item.



Item		Input	Details						
Energy-loss factor name		Max. 30 characters	Register a name of the energy-loss factor. By setting the measuring point for energy-loss factor, the measuring point's name is automatically set.						
Measuring point for energy-loss factor		Select from collection sources' measuring points	Register a measuring point that can become the energy-loss factor. Drag and drop the measuring point from the measuring point list box on the right of the window for registration.						
Tabulation method		<ul style="list-style-type: none"> ·Mode ·Average (Default) ·Maximum ·Minimum 	Select the method to aggregate data of the energy-loss factors by the day. The selected method is used for energy-loss factor diagnosis. Refer to the following examples. <table border="1" style="margin-left: 20px; width: 100%;"> <thead> <tr> <th>Energy-loss factor data</th> <th>Tabulation method</th> </tr> </thead> <tbody> <tr> <td>Numerical value (e.g. temperature, humidity)</td> <td>Average, maximum, minimum</td> </tr> <tr> <td>Number (e.g. production type ID)</td> <td>Mode</td> </tr> </tbody> </table>	Energy-loss factor data	Tabulation method	Numerical value (e.g. temperature, humidity)	Average, maximum, minimum	Number (e.g. production type ID)	Mode
Energy-loss factor data	Tabulation method								
Numerical value (e.g. temperature, humidity)	Average, maximum, minimum								
Number (e.g. production type ID)	Mode								
Exclusive data	Numerical value 1 Numerical value 2 Numerical value 3	-999999999999.999 to 999999999999.999 *Set any values up to 15 significant digits with max. 16 decimal places. Default: Blank	By setting this item, the set numerical values are excluded to aggregate the data. When you keep the default setting, no exclusive data is set. For example, if you want to register the occurrence of an error as an energy loss factor, set the value representing the normal status of equipment to exclusion data.						

(5) Click the **Save** button.

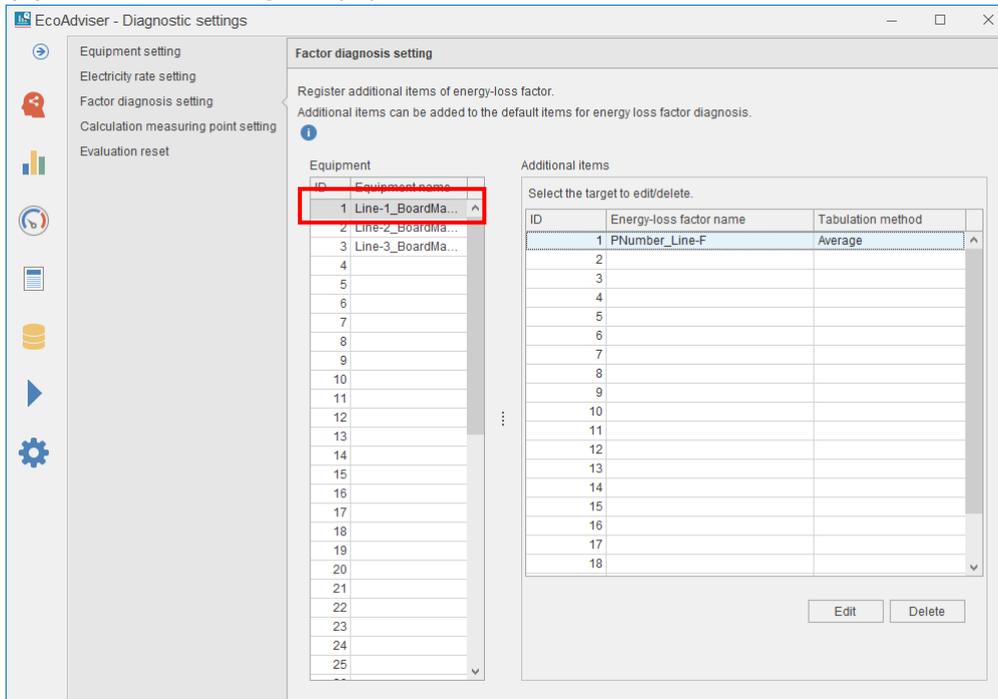


(6) When the saving is completed, the display switches to the diagnosis settings window.

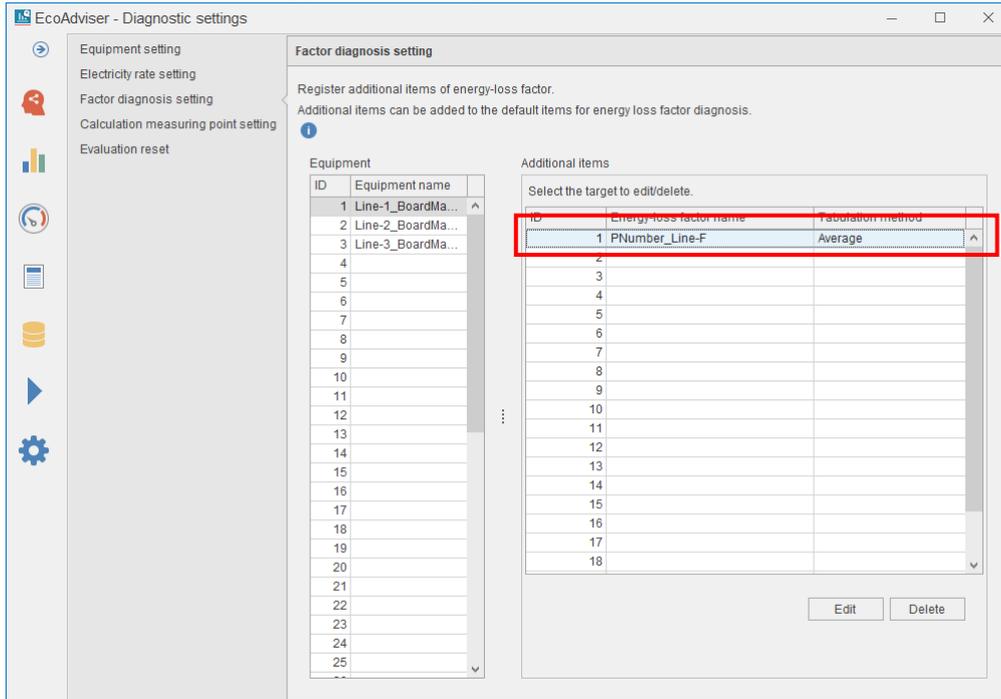
4.2.6 Deleting the energy-loss factor setting

You will delete the registered energy-loss factor setting.

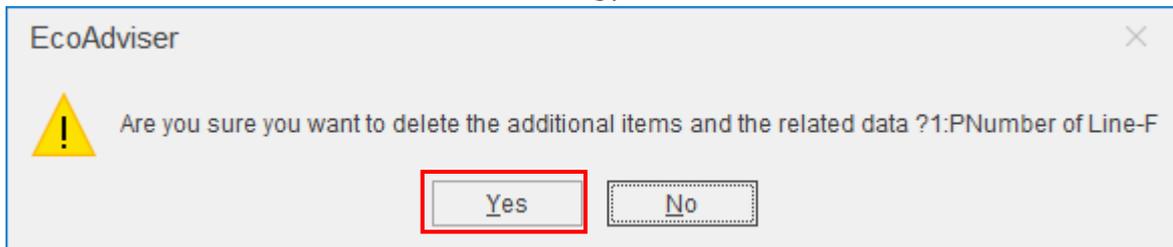
(1) Select the target equipment.



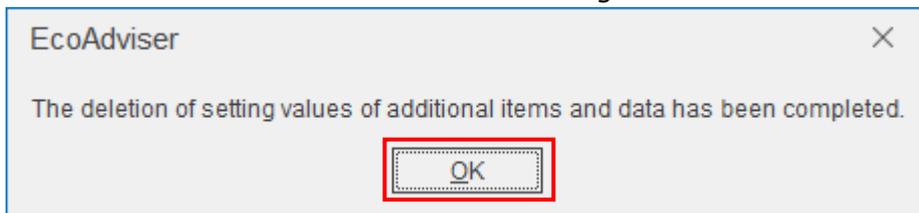
(2) Select the energy-loss factor you want to delete and then click the **Delete** button.



(3) The following message appears.
Click the **Yes** button to delete the energy-loss factor.



(4) When the deletion is completed, the following message appears.
Click the **OK** button to close the message.



4.2.7 Setting the calculation measuring point for diagnosis

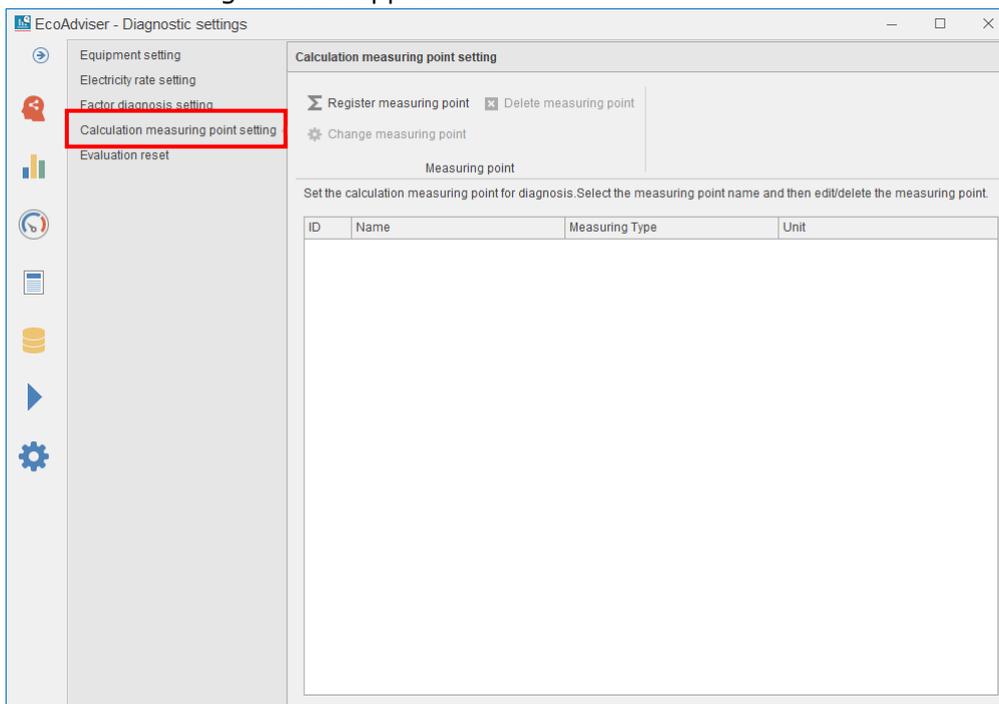
This is used to register calculation measuring points to the equipment setting.

It is different from the calculation measuring point set in [4.1.7 Registering the calculation measuring point] as the following points:

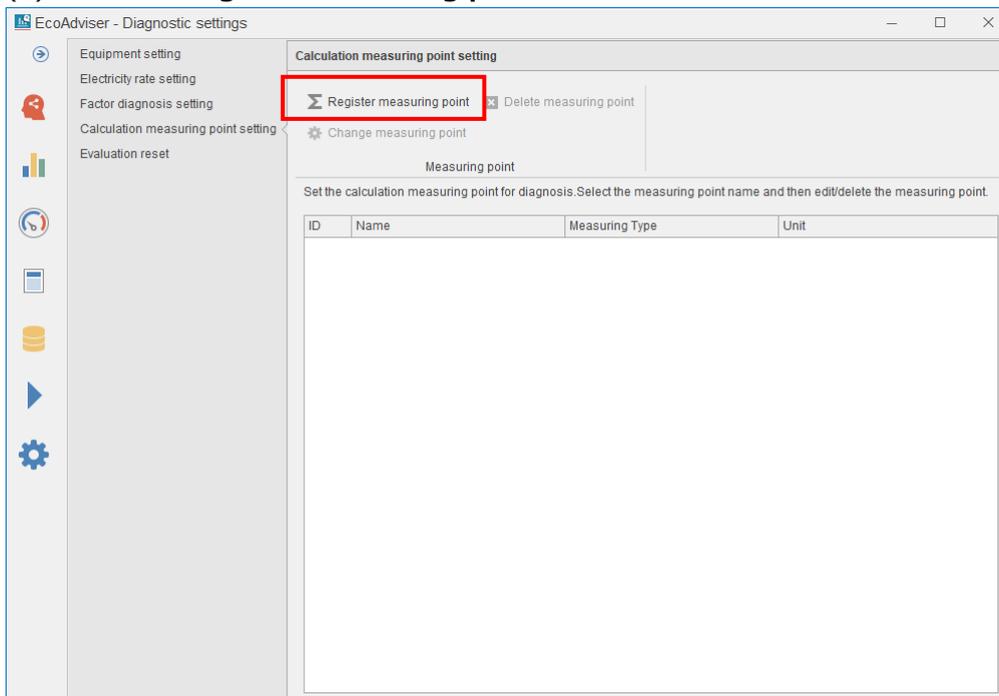
- Collection sources' measuring points excluding demand measuring points can be set to the calculation formula.
- The measuring type is pulse only.

(1) Select the **Calculation measuring point setting** tab.

The following window appears.

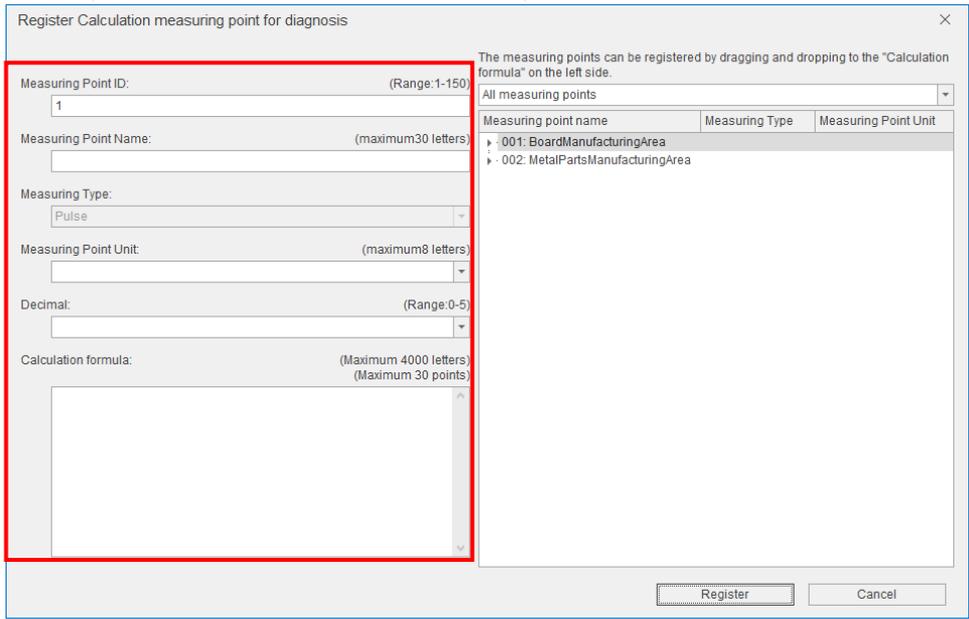


(2) Click the **Register measuring point** button.



(3) The following window appears.

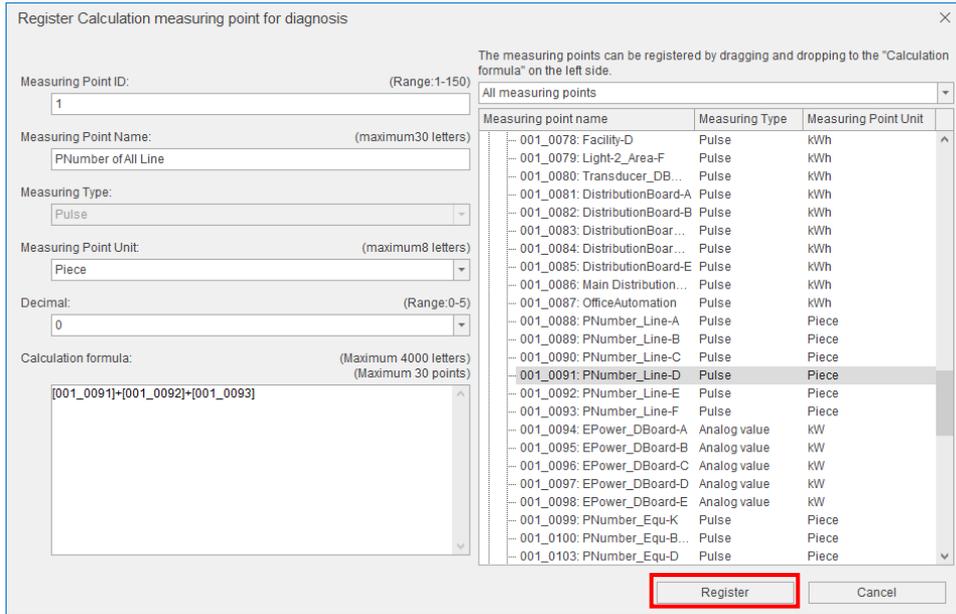
Input each item or select from the pulldown menu.



Item	Details
Measuring point ID	Input the ID of the measuring point. Input range: 1 to 150 *Do not register the same ID repeatedly.
Measuring point name	Input a name of the measuring point. *Max. 30 characters
Measuring type	Pulse fixed
Measuring point unit	Input a unit of the measuring point or select it from the pull-down menu (listed below). *Max. 8 characters <ul style="list-style-type: none"> •Wh •kWh •MWh •J •Piece •Set •m2 •m3 •l •kl •Second •Minute •Hour •varh •kvarh •Mvarh •VAh •kVAh •MVAh •count •h •min •x250ms •kg •Time(s)
Decimal point *1	Select the number of decimal places for the measuring value from the pull-down menu. The selectable range: 0 to 5, blank
Calculation formula	Input a calculation formula. Drag and drop a measuring point from the right box of the window to add to the calculation formula. *You can select from collection sources' measuring points excluding demand measuring points. Input range: Max. 4000 characters Available characters: +, -, /, *, (,) Number of measuring points: 30 points *Use the period (.) for the decimal point. *The fractions of the calculation result are rounded off according to the setting of the number of decimal places.

*1: If it is set to blank, the rounding off will not be executed.

(4) Click the **Register** button.



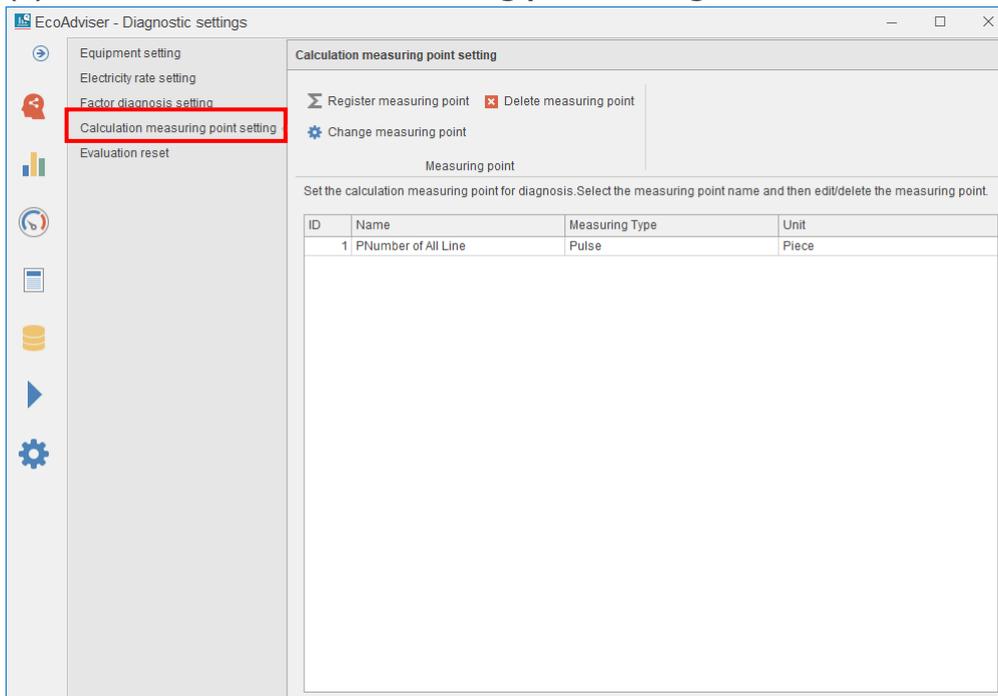
(5) When the registration is completed, the display switches to the diagnosis settings window.

4.2.8 Changing the calculation measuring point for diagnosis setting

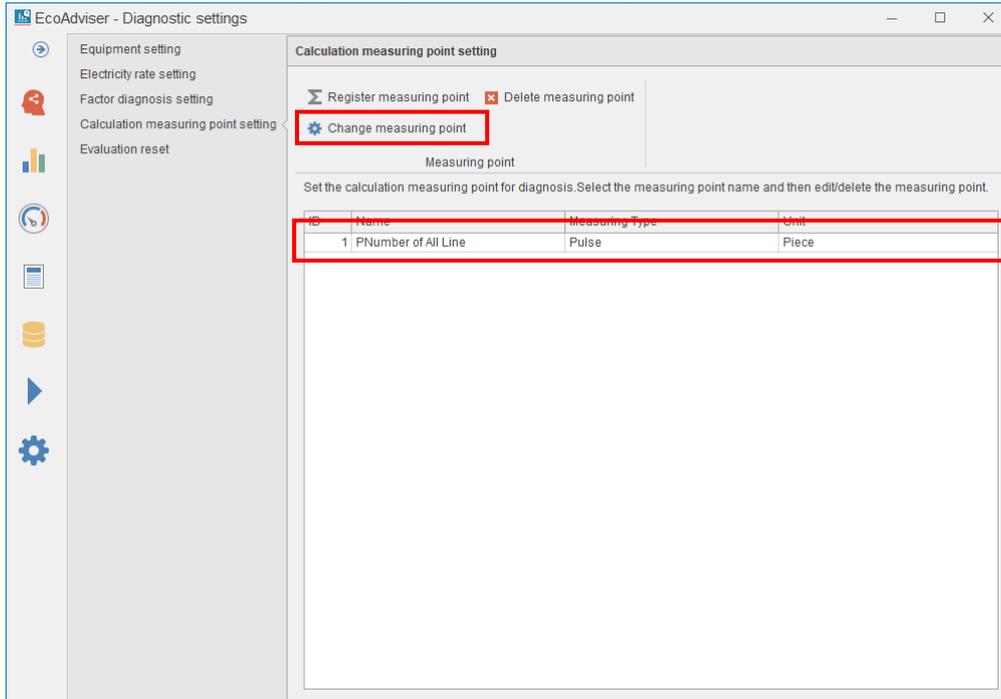
You will change the setting of the selected calculation measuring point for diagnosis.

*When you want to change the setting after the operation starts, refer to [12.3 Operation for Setting Change about Diagnosis].

(1) Select the **Calculation measuring point setting** tab.

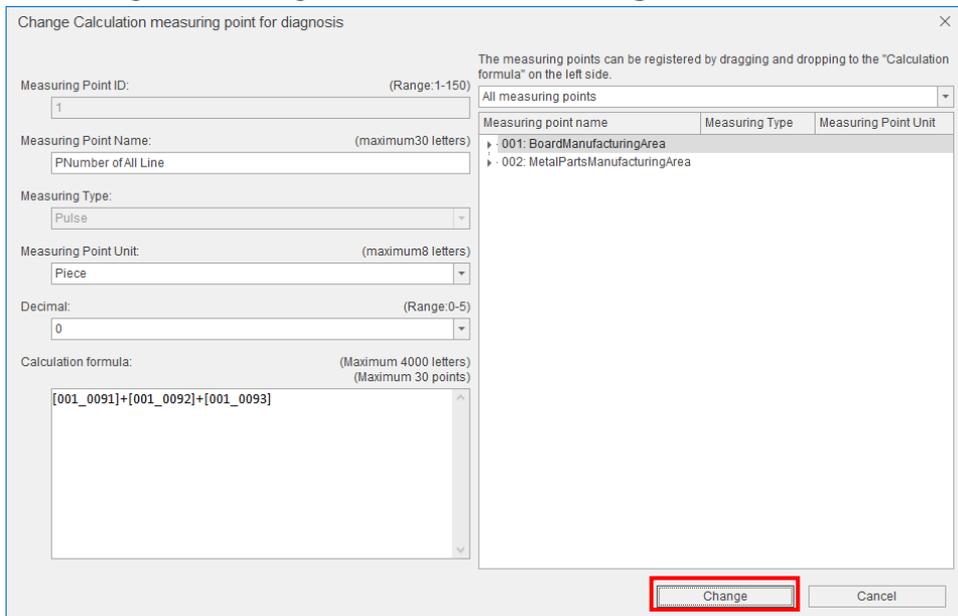


(2) Select a measuring point you want to change and then click the **Change measuring point** button.



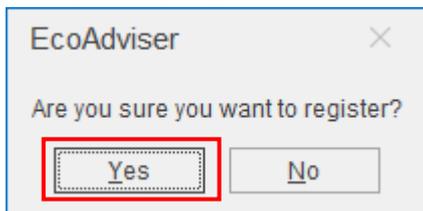
(3) The following window appears.

Change the setting and then click the **Change** button.



(4) The following message appears.

Click the **Yes** button.



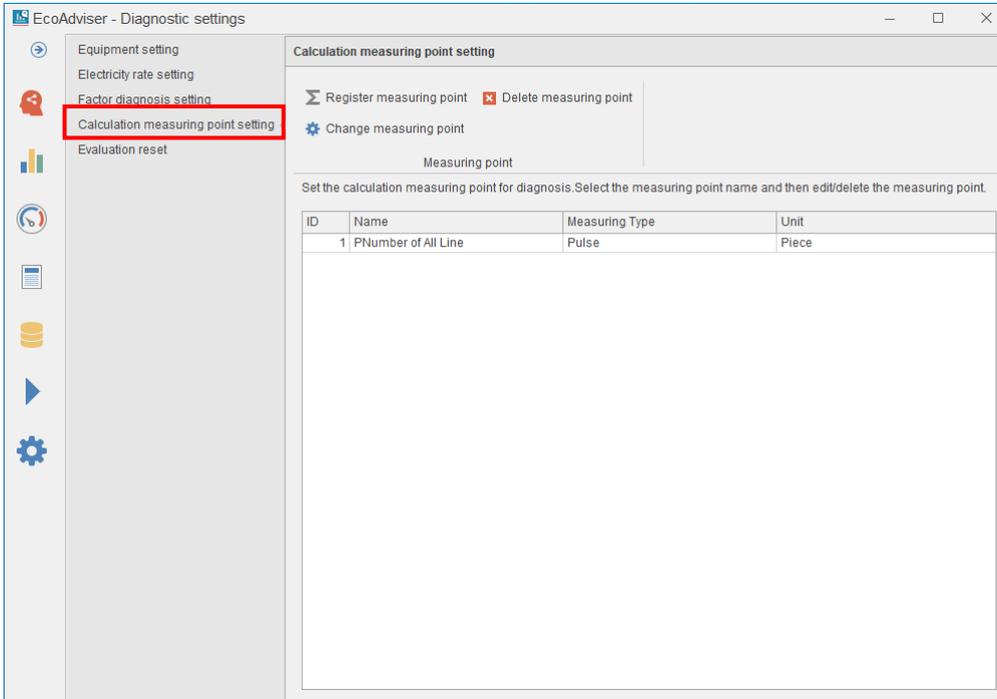
(5) When the registration is completed, the display switches to the diagnosis settings window.

4.2.9 Deleting the calculation measuring point for diagnosis

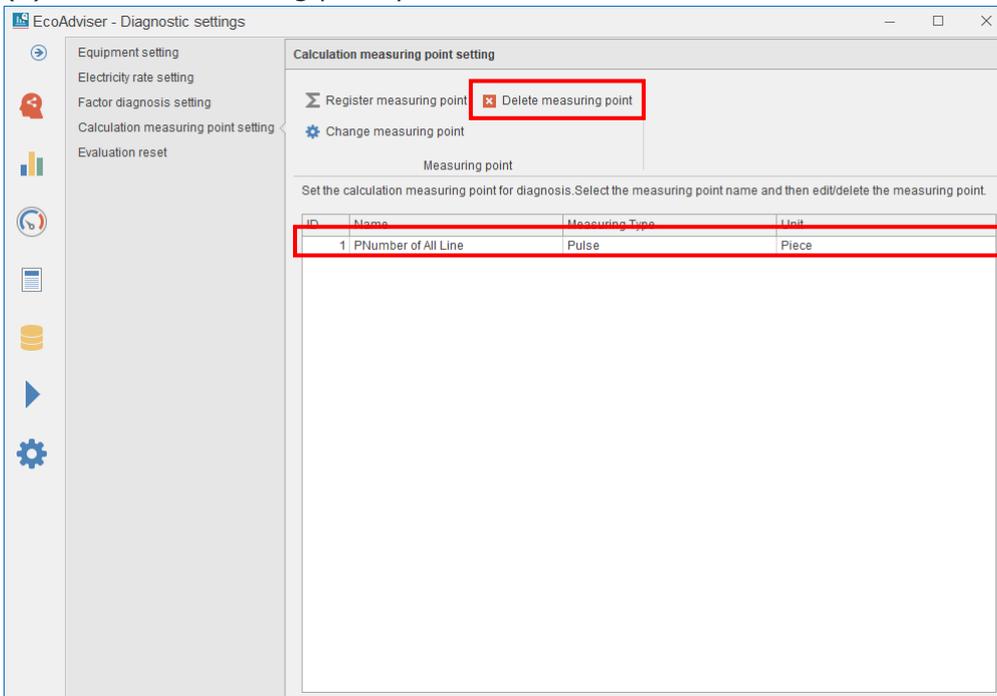
You will delete the calculation measuring point for diagnosis.

Check whether the measuring point is used in the equipment setting or the factor diagnosis setting. If used, refer to [12.3 Operation for Setting Change about Diagnosis].

(1) Select the **Calculation measuring point setting** tab.



(2) Select a measuring point you want to delete and then click the **Delete measuring point** button.



(3) The following message appears.

Click the **Yes** button to delete the measuring point.

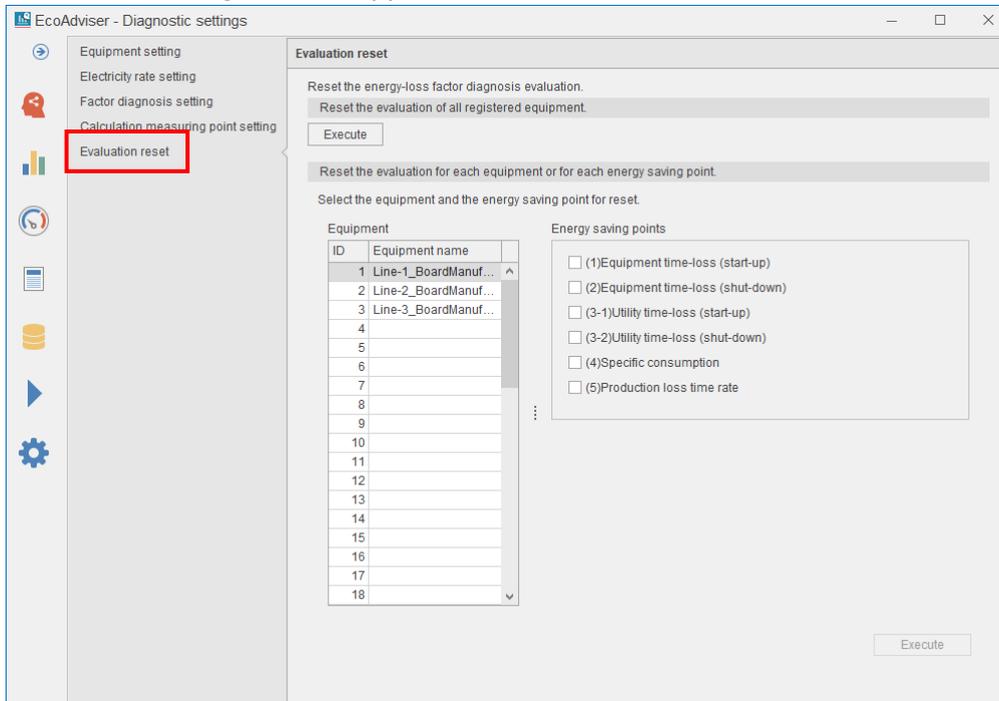


4.2.10 Resetting the evaluation

This function is used to reset the evaluation executed in the energy-loss factor diagnosis ([7.4.5]). You can reset it for all equipment or by selecting the equipment and its viewpoints.

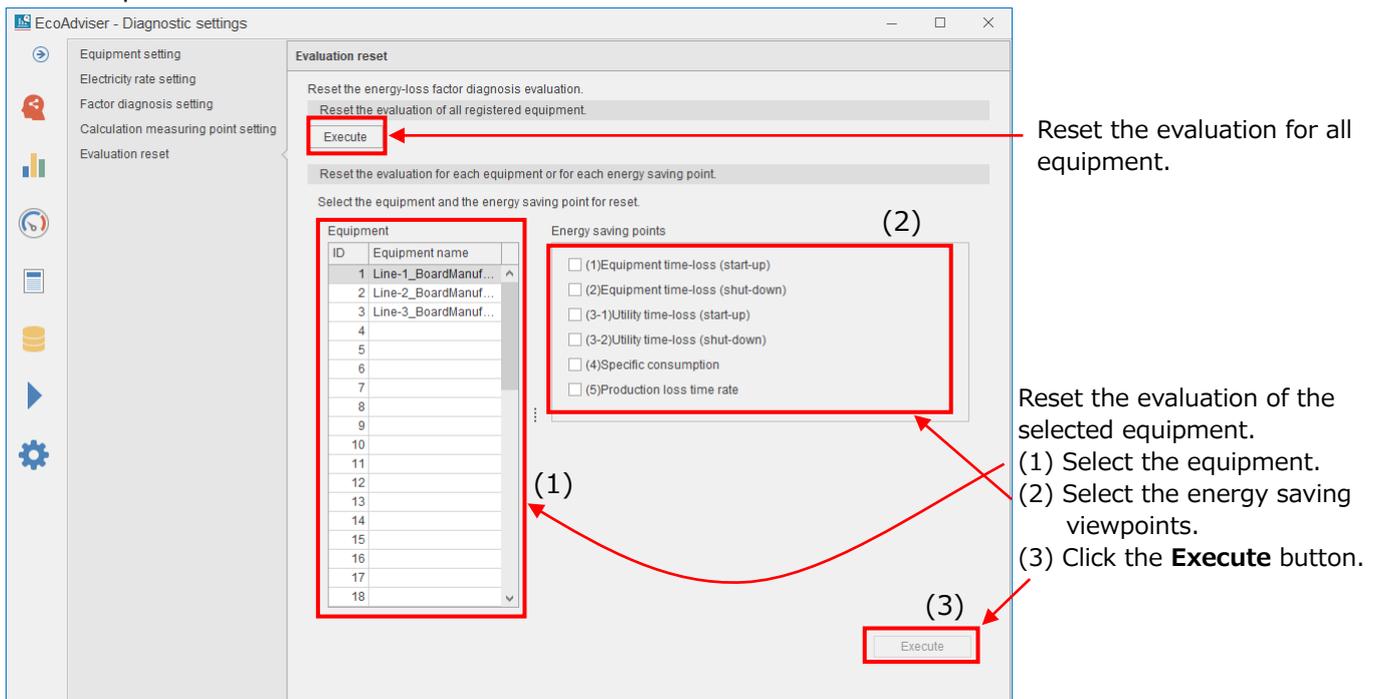
(1) Select the **Evaluation reset** tab.

The following window appears.



(2) When you want to reset the evaluation for all equipment, click the **Execute** button.

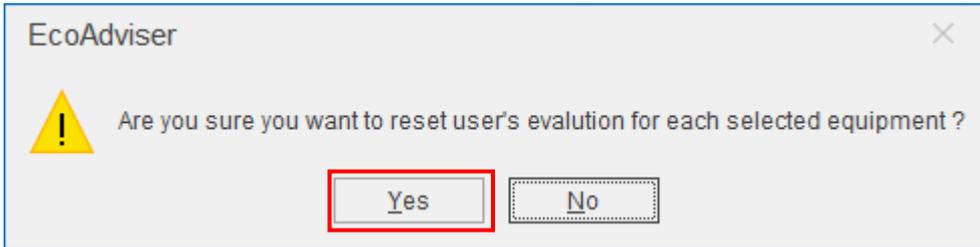
To reset the evaluation of the selected energy saving viewpoints, select the equipment and its viewpoints and then click the **Execute** button.



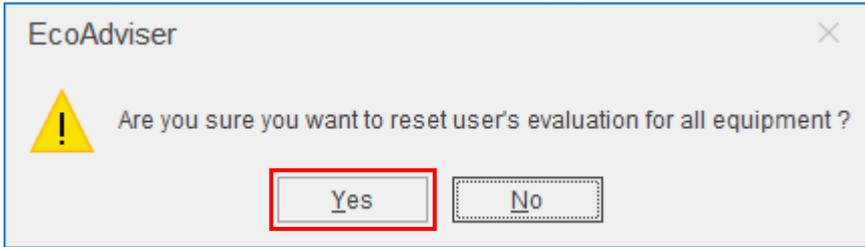
(3) The following message appears.

Click the **Yes** button to reset the user's evaluation.

<If you reset the evaluation by selecting the equipment and its viewpoints>



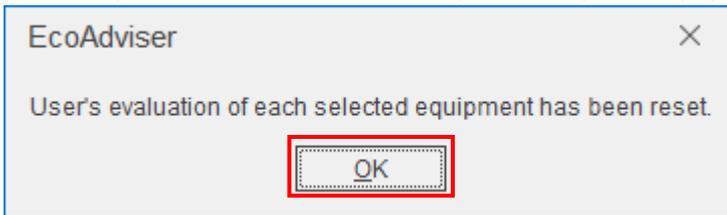
<If you reset the evaluation for all equipment>



(4) When the reset is completed, the following message will appear.

Click the **OK** button to close the message.

<If you reset the evaluation by selecting the equipment and its viewpoints>



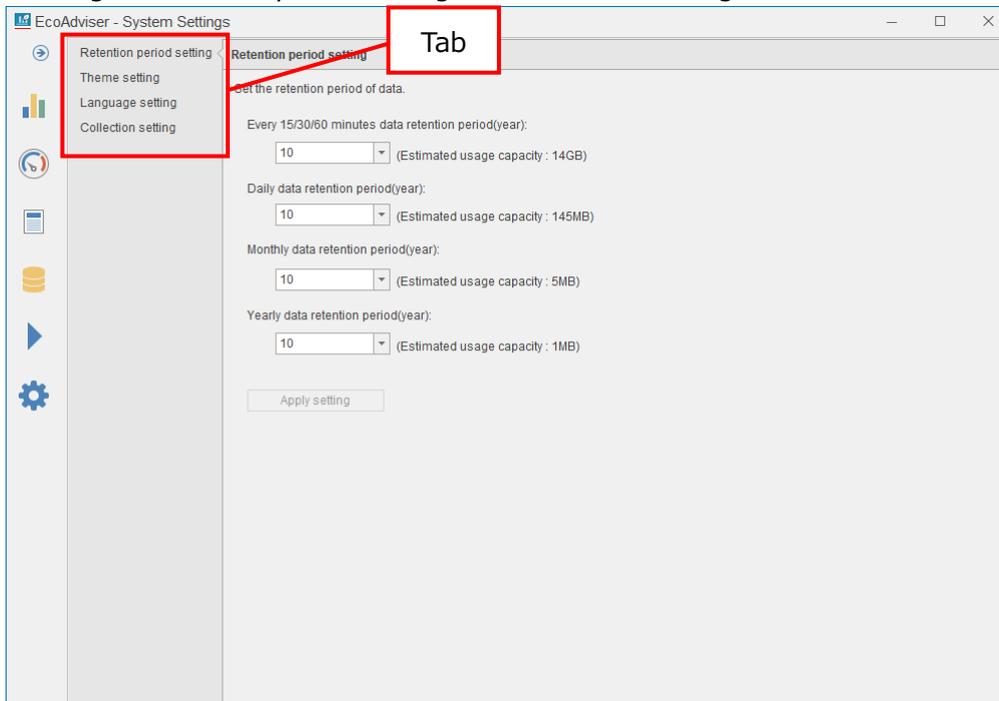
<If you reset the evaluation for all equipment>



4.3 System Settings

This section describes the system settings.

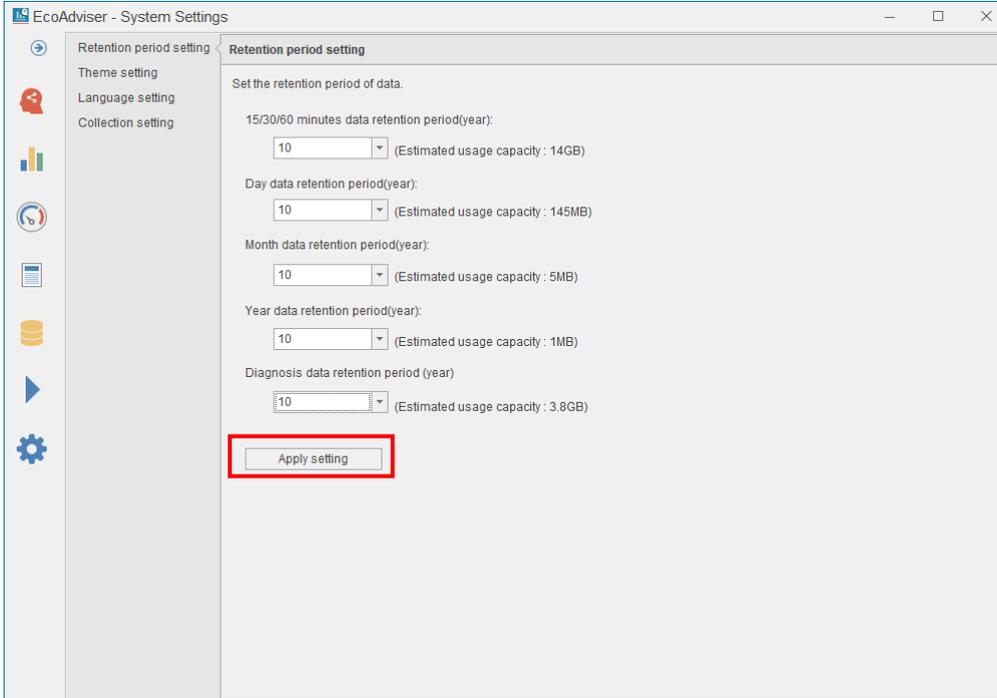
Clicking the **Tab** in System settings switches the setting item.



4.3.1 Retention period setting

You will set the retention period for each data.

Select a retention period from the pull-down menu and then click the **Apply setting** button to reflect the setting.



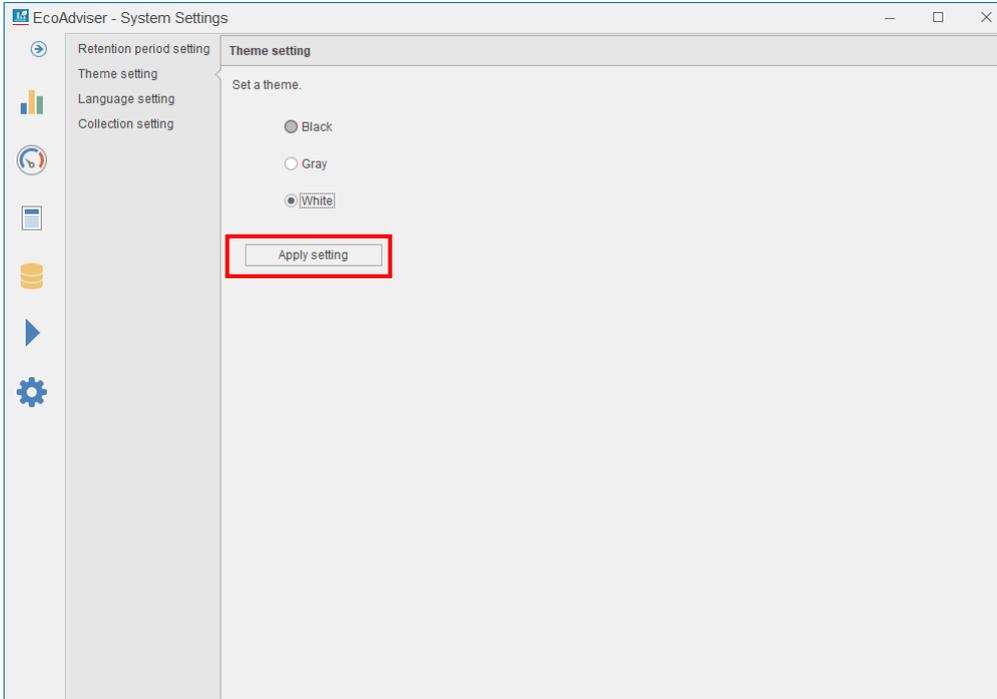
Item	Setting
15/30/60-minute basis data retention period	2 to 10 years *Default: 10 years
Day data retention period	
Month data retention period	
Year data retention period	
Diagnosis data retention period *1	

*1: This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

4.3.2 Theme setting

You will set the theme color of EcoAdviser.

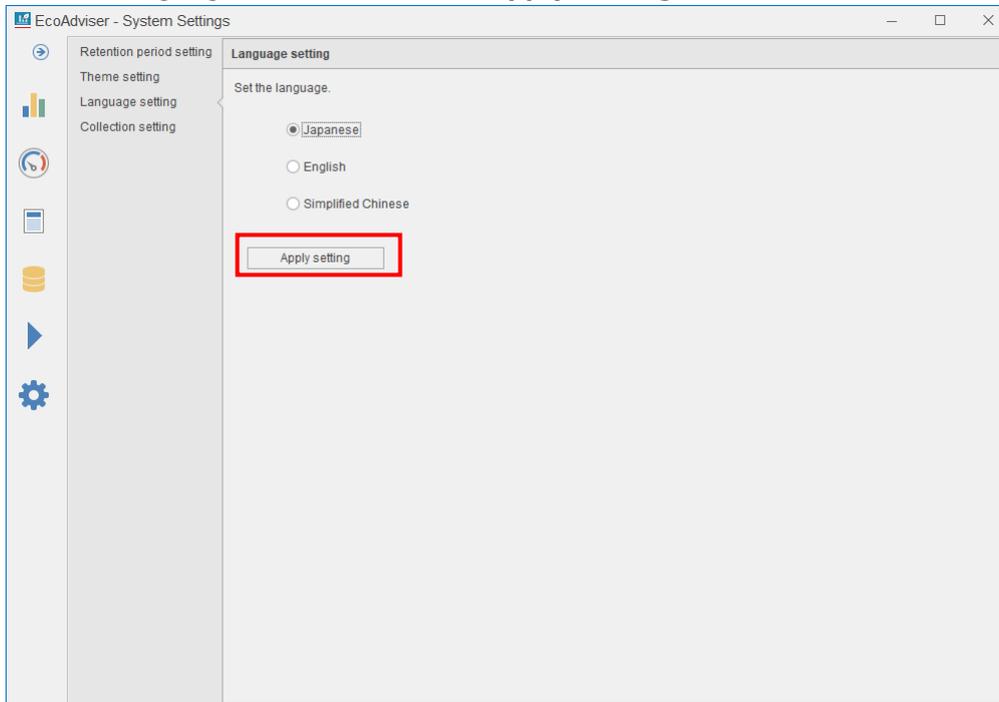
Select a color and then click the **Apply setting** button to reflect the setting.



4.3.3 Language setting

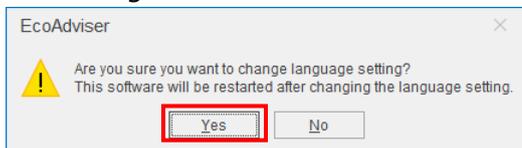
You will set the display language.

Select a language and then click the **Apply setting** button to reflect the setting.



When changing the setting, you see the following message.

The change will be reflected after restart.



Supplement

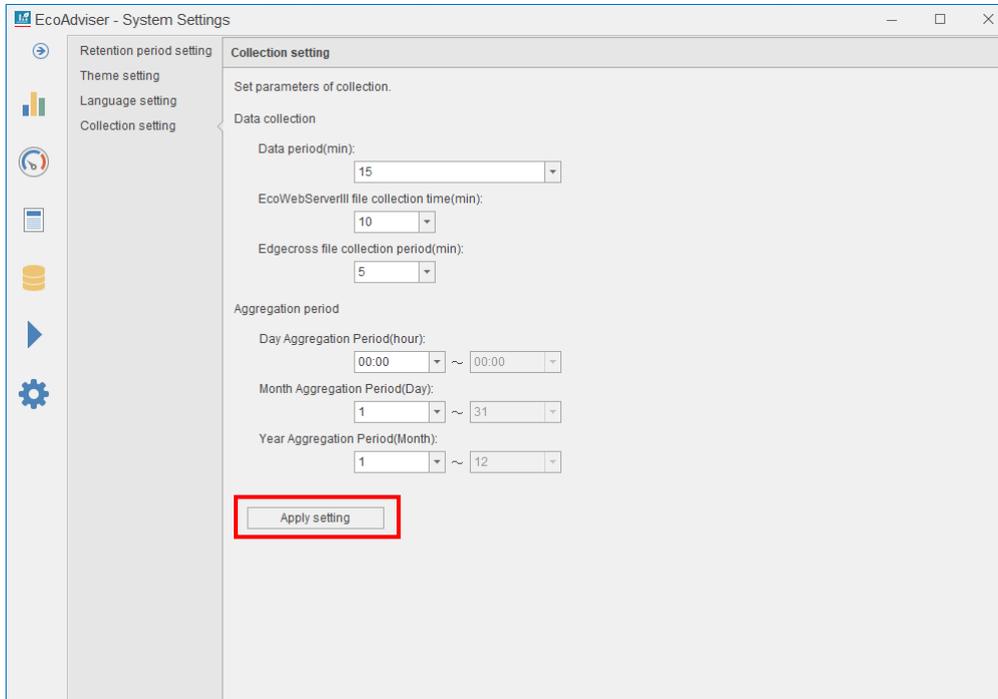
The date format of EcoAdviser is changed depending on the language setting.

Language setting	Date format
Japanese	YYYY/MM/DD hh:mm
English	MM/DD/YYYY hh:mm AM/PM
Simplified Chinese	YYYY/MM/DD hh:mm

4.3.4 Collection setting

You will set the data collection from the collection sources.

The displayed values are default settings. If you want to change the setting, select any desired setting and then click the **Apply setting** button to reflect the change.



Item	Details
Data collection	Set the time and period to collect data from the collection sources.
Data period (min) *1	15/30/60 *Default: 15
EcoWebServerⅢ file collection time (min)	10/20/30/40/50 *Default: 10 *Automatically collect at the set minute of every hour.
Edgecross file collection period (min)	5/10/15/30/60 *Default: 5 *Automatically collect every set minute. For details on the collection timing, refer to the below table for the automatic collection time.
Aggregation period *2	Set the period to collect Day/Month/Year basis data.
Day aggregation period (hour) *3	00:00 to 23:00 *Default: 00:00 It affects aggregate calculation of daily, monthly, and yearly data. *It can be set by the hour.
Month aggregation period (day)	1 to 31 *Default: 1 It affects aggregate calculation of monthly and yearly data. *When the set day does not exist in the month, the beginning day of the next month is applicable. <Example> The default setting is changed to 30. ·January: Jan. 30 to Feb. 28 (In a leap year, it is Feb. 29) ·February: Mar. 1 to Mar. 29 ·March: Mar. 30 to Apr. 29
Year aggregation period (month)	1 to 12 *Default: 1 It affects aggregate calculation of yearly data.

- *1: When you change the data period during operation, the past data will not be updated to the new data period. The availability of a new data period depends on the period before and after the change.
- (1) When you change the data period to a shorter period (60 minutes to 30 minutes, 30 minutes to 15 minutes), the past data appears to be missing periodically. In that case, you will need to manually collect the data for the relevant period.
- (2) When you change the data period to a longer period (15 minutes to 30 minutes, 30 minutes to 60 minutes), the integrated value may appear abnormal. The past data is not available for new data period.
- *2: When you change the aggregation period, the past data is not re-collected using the changed period. Accordingly, if you change it at other than the first setup, note that the past data may not correspond to the setting value after change.
- *3: When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), note the following points.
- Be sure to set the day aggregation period (hour) to out-of-office hours for each equipment. Otherwise, the five focusing viewpoints for energy saving and standby power cannot be measured.
 - Be sure to set the day aggregation period (hour) to out-of-break time for each equipment. Otherwise, the break time cannot be calculated and that will become blank.

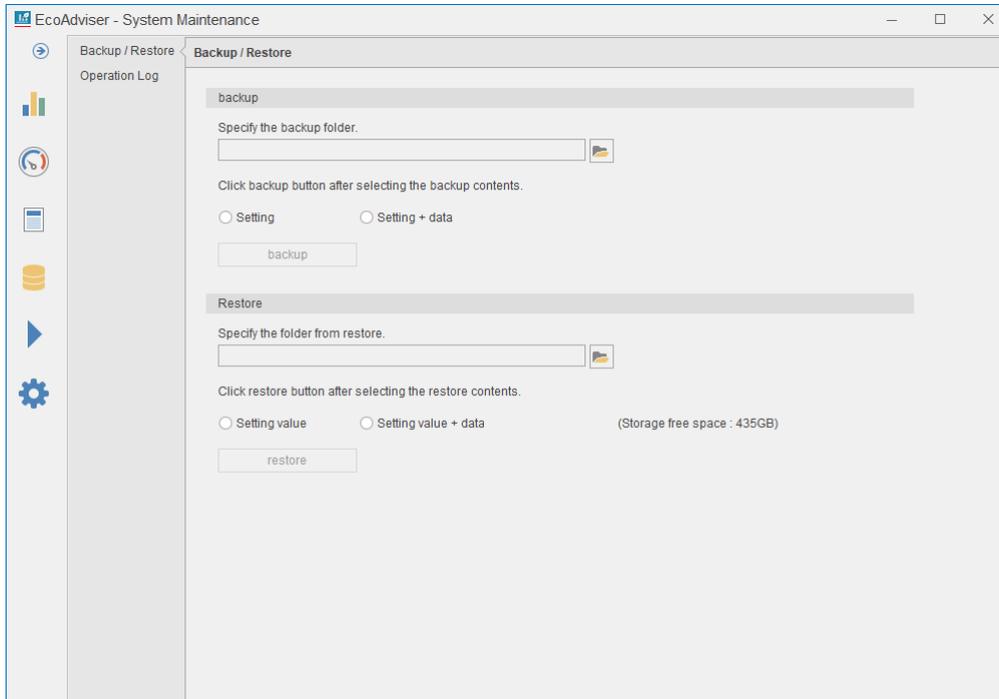
■ Automatic collection time of Edgecross (●: Collection)

Automatic file collection cycle	00 min	05 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	50 min	55 min
5 minutes	●	●	●	●	●	●	●	●	●	●	●	●
10 minutes	●		●		●		●		●		●	
15 minutes	●			●			●			●		
30 minutes	●						●					
60 minutes	●											

4.4 System Maintenance

This section describes the operation for maintenance.

It is possible to back up/restore the setting values/data or to set the settings for operation logs.



4.4.1 Backup

You will back up the setting values or both the values and data.

Caution

- The following table shows the transition of the setting values between Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) and Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

○ : Available – : Unavailable

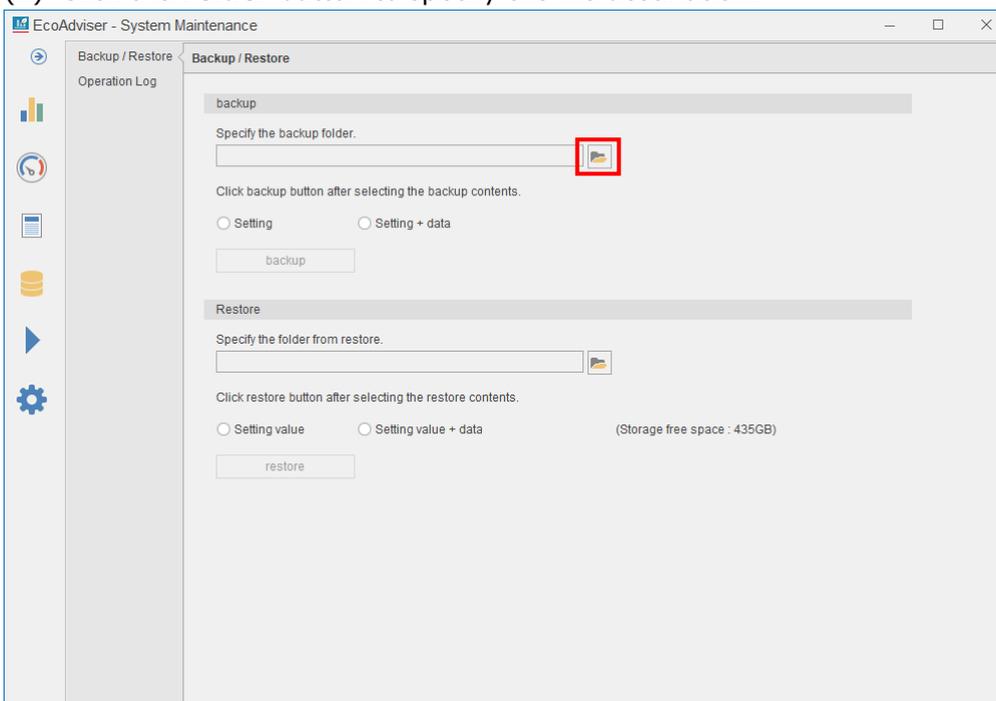
		Restoration	
		MES3-EAP1-DA	MES3-EAP1-AI
Backup	MES3-EAP1-DA	○	○
	MES3-EAP1-AI	–	○

*Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) does not have the diagnosis function. If you have transferred the setting values from Energy Saving Analysis Data Software (Model: MES3-EAP1-DA) to Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), to use the diagnosis function, you must set the settings.

- You should restore with the latest version of EcoAdviser.
When you restore with an older version, your settings and data may not be restored successfully.

(1) Set all the auto execute settings to OFF.
For details, refer to [6 Auto Execute Settings].

(2) Click the **Folder** button to specify the file destination.



(3) Select the backup contents.

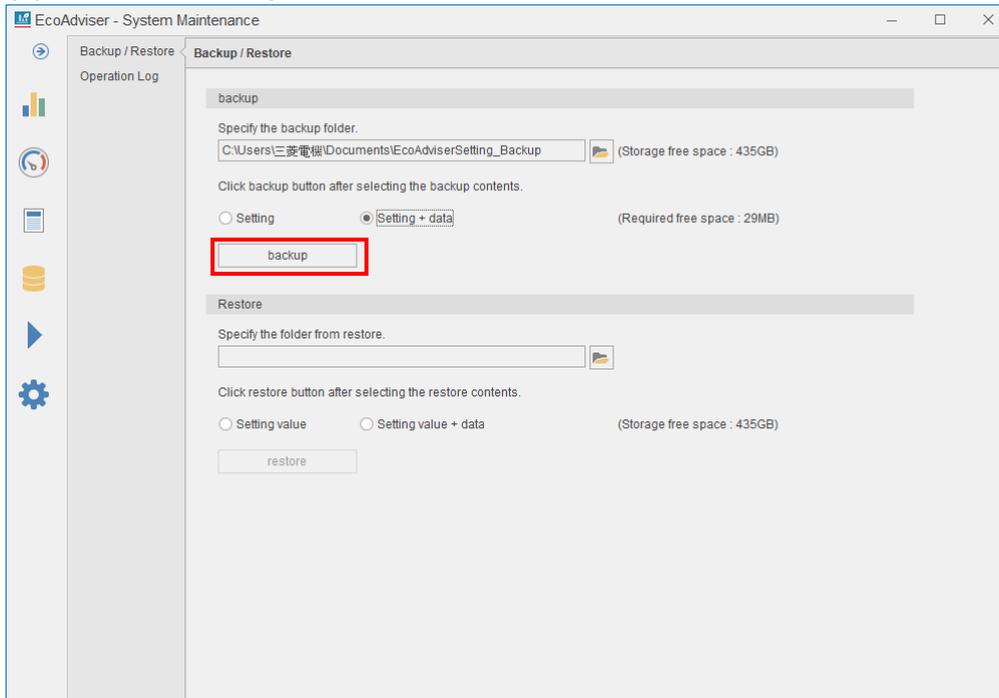
*When you use Energy Saving Data Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), select **setting + data**. If you back up or restore the setting only, the diagnosis will fail due to the difference between the past diagnosis data and the setting contents.

Backup contents	Details
Setting	Back up the setting values, such as diagnosis setting *1, graph panel, dashboard, and report.
Setting + data	Back up the setting values, such as diagnosis setting *1, graph panel, dashboard, and report, and the data, such as collected data of each measuring point, diagnosis data *1, and operation logs.

*1: This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

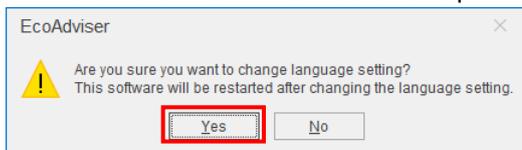
*2: Any files output by the customer are not backed up.

(4) Click the **backup** button.



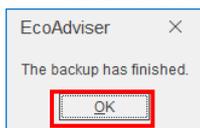
(5) The following message appears.

Click the **Yes** button to back up.



(6) When the backup is completed, the following message appears.

Click the **OK** button to close the window.



(7) Make sure that the following files are backed up.

If the file name or extension is different (uppercase, lowercase, etc.), contact the nearest Mitsubishi Sales Office or dealer.

Backup contents	Setting	Setting + data
Energy Saving Data Analysis Software (Model: MES3-EAP1-DA)	DashboardConfig folder Template folder EcoAdviserSettings.db SystemInfo.xml	DashboardConfig folder Template folder EcoAdviser.db EcoAdviserLog.db EcoAdviserSettings.db SystemInfo.xml
Energy Saving Data Analysis and Diagnosis Software (Model: MES3- EAP1-AI)	DashboardConfig folder Template folder EcoAdviserSettings.db EcoAdviserDiagnosisSettings.db EcoAdviserDiagnosisSettingsLog.db SystemInfo.xml SystemInfoDiagnosis.xml	DashboardConfig folder Template folder EcoAdviser.db EcoAdviserLog.db EcoAdviserSettings.db EcoAdviserDiagnosis.db EcoAdviserDiagnosisSettings.db EcoAdviserDiagnosisSettingsLog.db SystemInfo.xml SystemInfoDiagnosis.xml

* Depending on the state of use, the folder of DashboardConfig or Template may not exist.

(8) Be sure to turn ON, which had previously turned OFF on procedure (1).

For details, refer to [6 Auto Execute Settings].

(9) If the automatic collection time has passed during this operation, manually collect data as necessary.

This is the end of the operation.

4.4.2 Restoration

You will restore the backed-up setting values or both them and the backed-up data.

Caution

● The following table shows the transition of the setting values between Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) and Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

○ : Available – : Unavailable

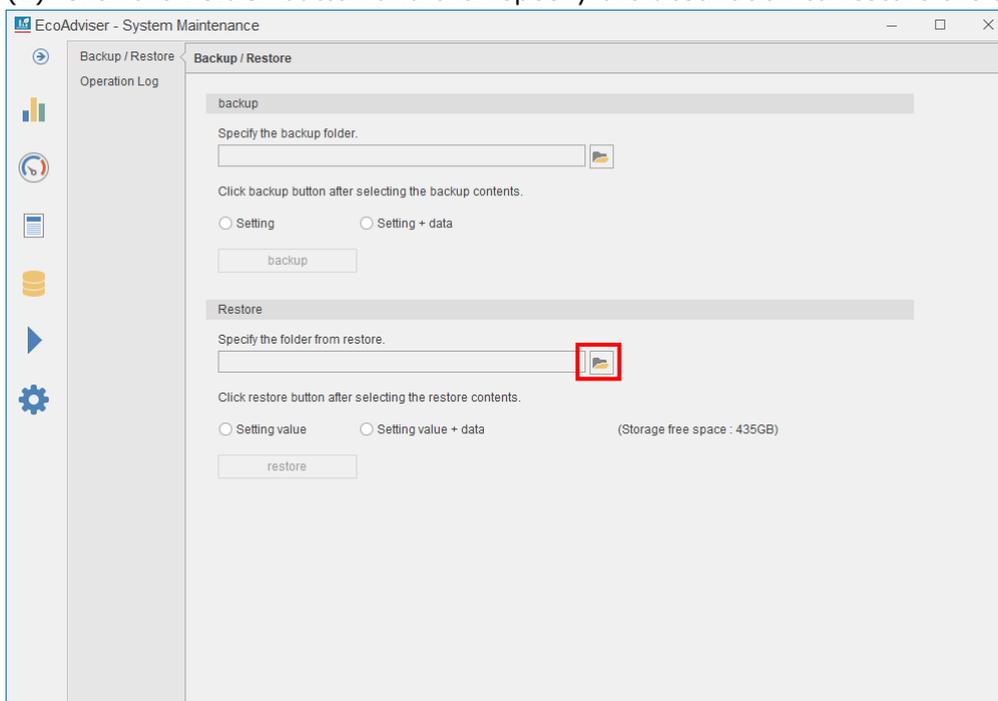
		Restoration	
		MES3-EAP1-DA	MES3-EAP1-AI
Backup	MES3-EAP1-DA	○	○
	MES3-EAP1-AI	–	○

*Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) does not have the diagnosis function. If you have transferred the setting values from Energy Saving Analysis Data Software (Model: MES3-EAP1-DA) to Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), to use the diagnosis function, you must set the settings.

● You should restore with the latest version of EcoAdviser. When you restore with an older version, your settings and data may not be restored successfully.

(1) Set all the auto execute settings to OFF.
For details, refer to [6 Auto Execute Settings].

(2) Click the **Folder** button and then specify the destination to restore the setting values and data.



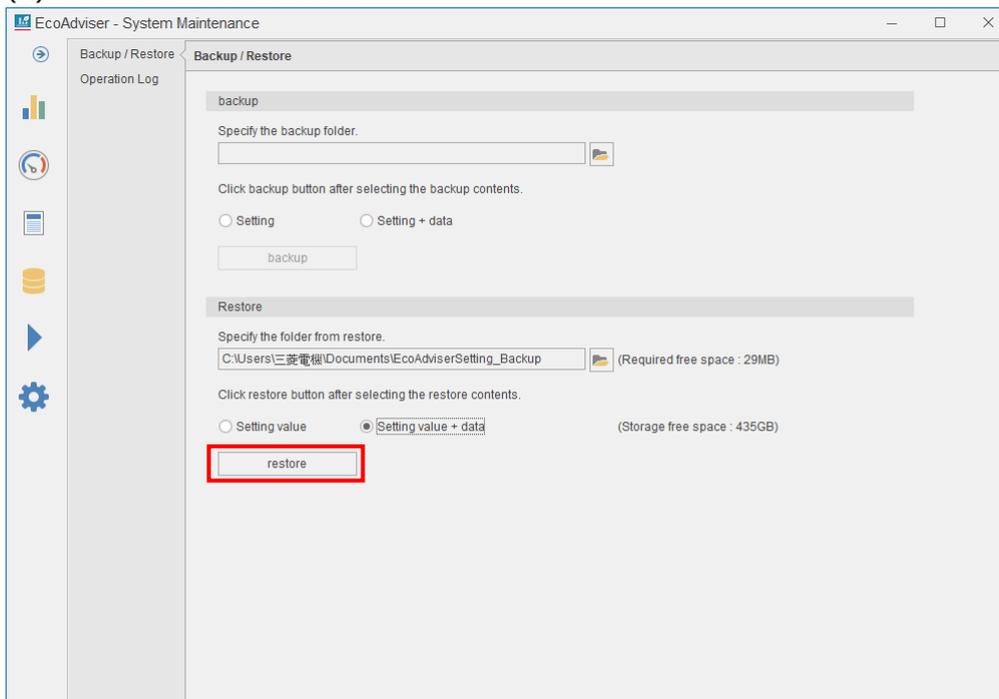
(3) Select the restoration contents.

Restoration contents	Details
Setting value	Restore the setting values, such as graph panel, dashboard, and report.
Setting value + data	Restore the setting values, such as graph panel, dashboard, and report, and the data, such as collected data of each measuring point and operation logs.

*It is possible to restore the setting values only from the backup file of 'Setting values and data.'

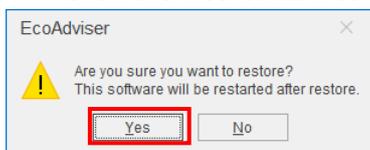
*Any files output by the customer are not restored.

(4) Click the **restore** button.



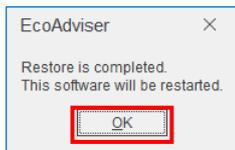
(5) The following message appears.

Click the **Yes** button to execute the restoration.



(6) When the restoration is completed, the following message appears.

Click the **OK** button and then restart EcoAdviser.



(7) After the restoration, confirm the folder reference of each file.

If the folder reference is not correct, set it correctly.

- Data folder path of the reference of the collection source → [4.1.2 Changing]
- Output destination setting of data → [5.3.4 Creating the automatic output setting (File setting)]
- Output destination setting of dashboard HTML files → [9.3.2 Setting the automatic dashboard output]
- Output destination setting of reports → [10.2.1 Setting the output destination]

(8) Be sure to turn ON, which had previously turned OFF on procedure (1) .

For details, refer to [6 Auto Execute Settings].

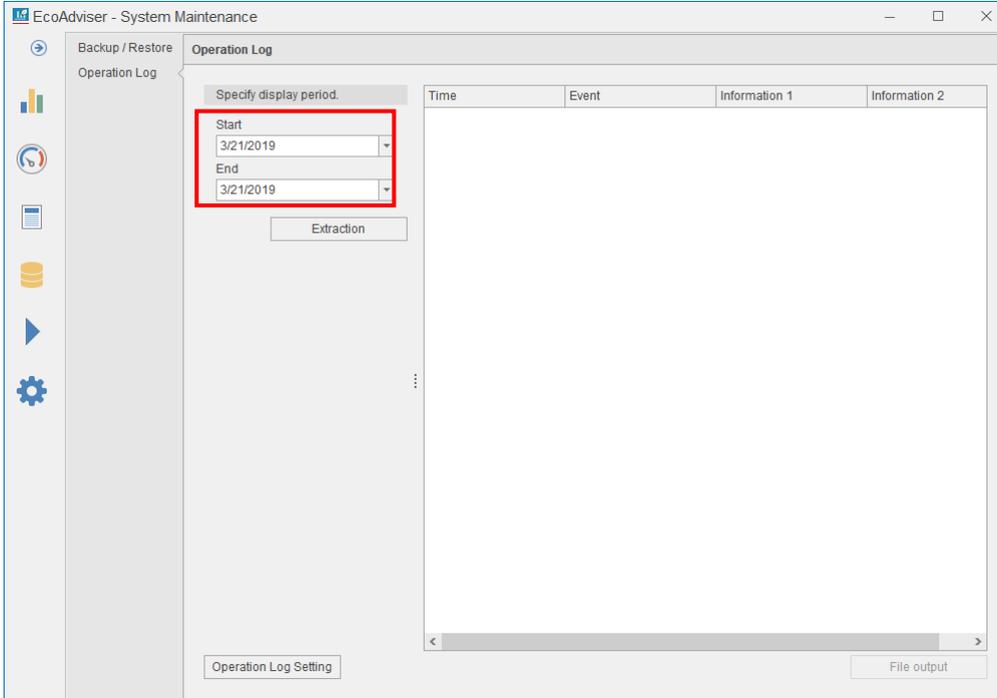
(9) If the automatic collection time has passed during this operation, manually collect data as necessary.

This is the end of the operation.

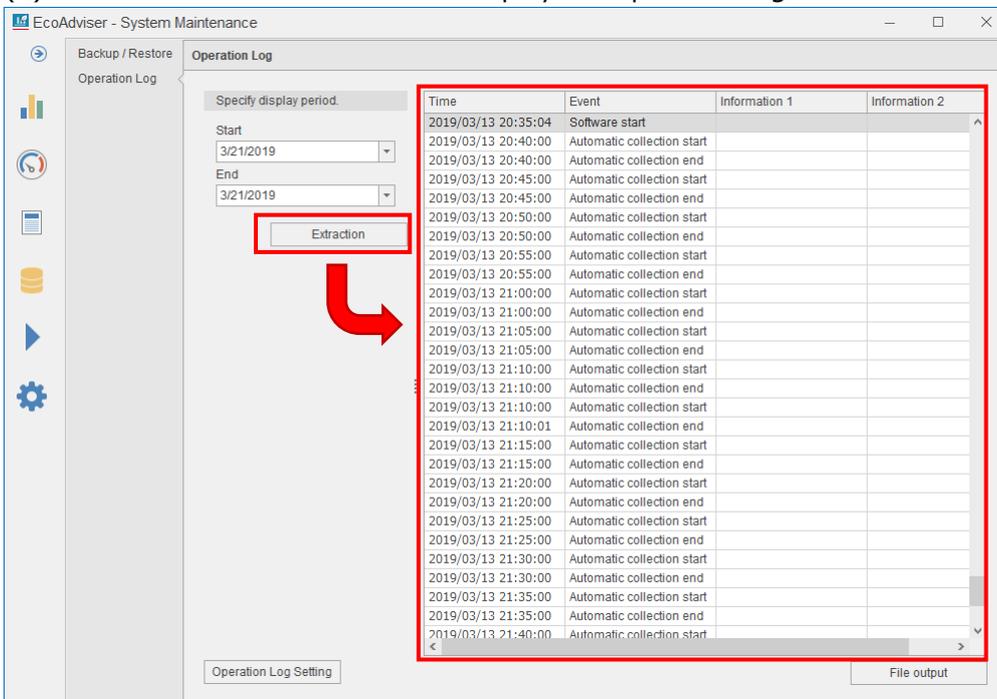
4.4.3 Operation log display

You will display the operation logs and save them in the file.
For the format of the output file, refer to [12.1 File Format].

(1) Select a period from the pull-down menus of **Start** and **End** to extract



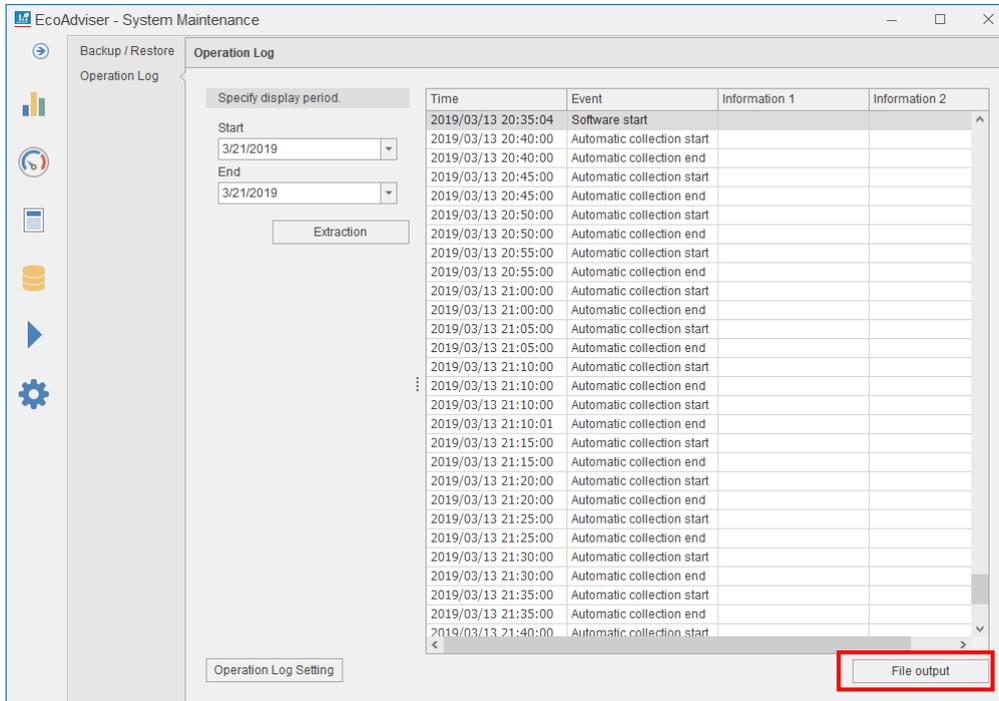
(2) Click the **Extraction** button to display the operation logs for the selected period.



(3) If you want to save the extracted operation logs in the file, click the **File output** button and then select the destination to save in the file.

When the saving is completed, the window returns to the previous one.

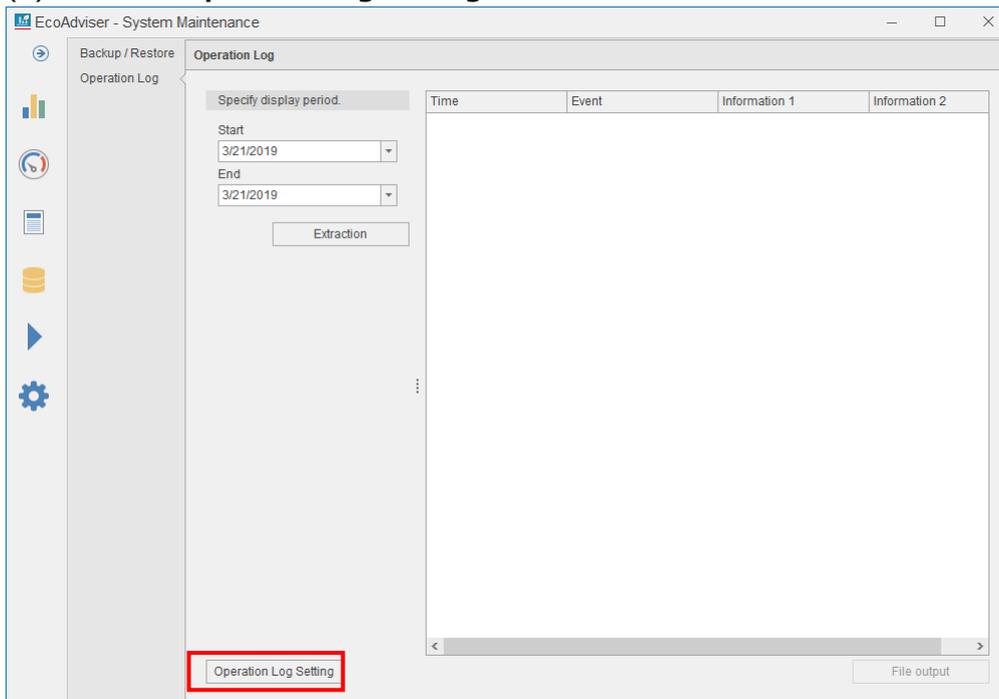
This is the end of the operation.



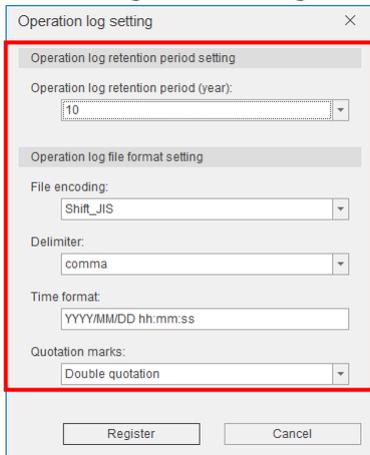
4.4.4 Operation log setting

You will change the setting of operation logs.

(1) Click the **Operation log setting** button.



(2) The following window appears
Change the setting.



Item	Details																																			
Operation log retention period (Year)	Select a period from the pull-down menu. *The selectable range: 1 to 10																																			
File encoding	Select an encoding to be output to CSV files from the pull-down menu. •Shift_JIS •UTF-8																																			
Delimiter	Select a delimiter to be output to CSV files from the pull-down menu. •Comma •Tab •Semicolon •Space																																			
Date format	<p>Input a date format to be output to CSV files. The following characters are converted to the corresponding date information for output.</p> <table border="1"> <thead> <tr> <th>Input characters</th> <th>Date information after conversion</th> <th>Input characters</th> <th>Date information after conversion</th> </tr> </thead> <tbody> <tr> <td>YYYY</td> <td>The dominical year (4 digits)</td> <td>.s</td> <td rowspan="9">Number of digits in seconds after the decimal point (1 to 9)</td> </tr> <tr> <td>YY</td> <td>The dominical year (Lower 2 digits)</td> <td>.ss</td> </tr> <tr> <td>MM</td> <td>Month (2 digits)</td> <td>.sss</td> </tr> <tr> <td>DD</td> <td>Day (2 digits)</td> <td>.ssss</td> </tr> <tr> <td>hh</td> <td>Hour (2 digits, 00 to 23)</td> <td>.sssss</td> </tr> <tr> <td>mm</td> <td>Minute (2 digits)</td> <td>.ssssss</td> </tr> <tr> <td>ss</td> <td>Second (2 digits)</td> <td>.sssssss</td> </tr> <tr> <td>ms</td> <td>Millisecond (3 digits)</td> <td>.ssssssss</td> </tr> <tr> <td>us</td> <td>Microsecond (6 digits)</td> <td>.sssssssss</td> </tr> <tr> <td>ns</td> <td>Nanosecond (9 digits)</td> <td></td> </tr> </tbody> </table> <p>*The year (four digits) and the year (last two digits) cannot be used simultaneously. Furthermore, milliseconds, microseconds, nanoseconds, and the number of digits in seconds after the decimal point (such as .s) cannot be used simultaneously. (Ex.1) YYYY/MM/DD hh:mm:ss:ms ... 2019/04/01 10:11:22:333 (Ex.2) YYYY/MM/DD hh:mm:ss:.sssssssss ... 2019/04/01 10:11:22:333000000</p>	Input characters	Date information after conversion	Input characters	Date information after conversion	YYYY	The dominical year (4 digits)	.s	Number of digits in seconds after the decimal point (1 to 9)	YY	The dominical year (Lower 2 digits)	.ss	MM	Month (2 digits)	.sss	DD	Day (2 digits)	.ssss	hh	Hour (2 digits, 00 to 23)	.sssss	mm	Minute (2 digits)	.ssssss	ss	Second (2 digits)	.sssssss	ms	Millisecond (3 digits)	.ssssssss	us	Microsecond (6 digits)	.sssssssss	ns	Nanosecond (9 digits)	
Input characters	Date information after conversion	Input characters	Date information after conversion																																	
YYYY	The dominical year (4 digits)	.s	Number of digits in seconds after the decimal point (1 to 9)																																	
YY	The dominical year (Lower 2 digits)	.ss																																		
MM	Month (2 digits)	.sss																																		
DD	Day (2 digits)	.ssss																																		
hh	Hour (2 digits, 00 to 23)	.sssss																																		
mm	Minute (2 digits)	.ssssss																																		
ss	Second (2 digits)	.sssssss																																		
ms	Millisecond (3 digits)	.ssssssss																																		
us	Microsecond (6 digits)	.sssssssss																																		
ns	Nanosecond (9 digits)																																			
Quotation mark	Select a quotation mark to be output to CSV files from the pull-down menu. •Double quotation •Quotation																																			

(3) To save the changed setting, click the **Register** button.

When you do not change, click the **Cancel** button.

This is the end of the operation.

Operation log setting

Operation log retention period setting

Operation log retention period (year):
10

Operation log file format setting

File encoding:
Shift_JIS

Delimiter:
comma

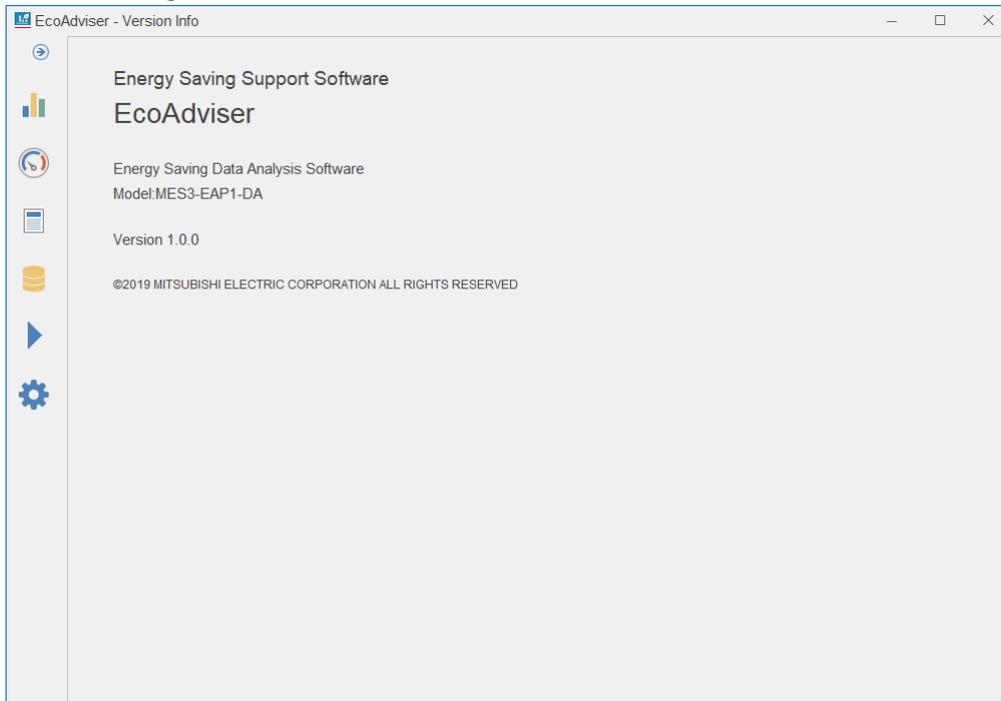
Time format:
YYYY/MM/DD hh:mm:ss

Quotation marks:
Double quotation

Register Cancel

4.5 Version Information

The following shows the version information of EcoAdviser.



<Version history>

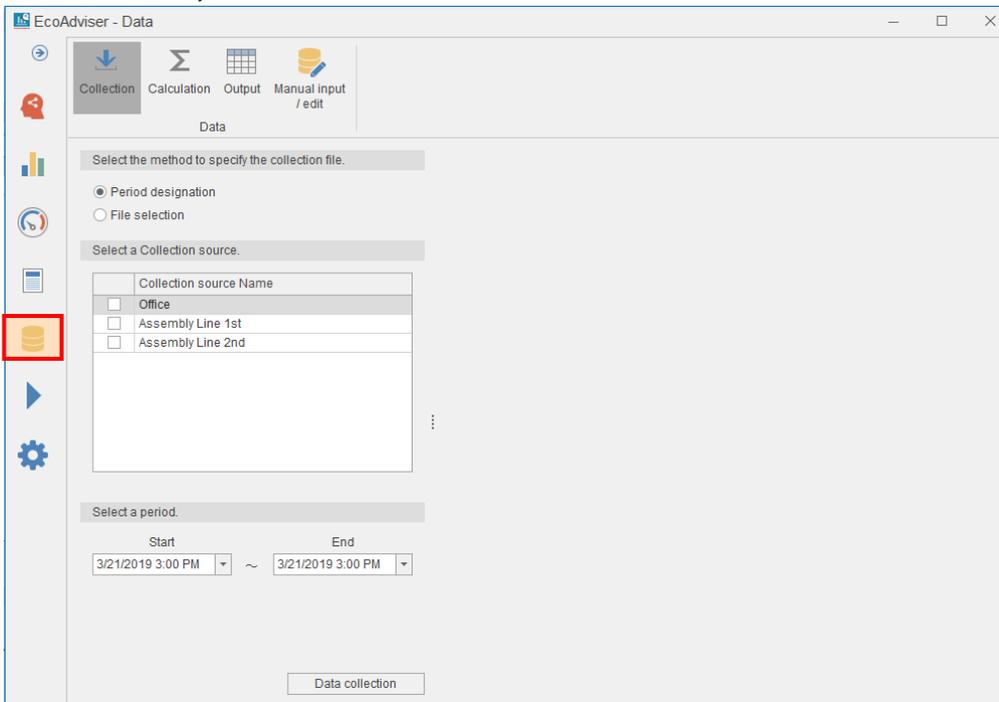
EcoAdviser		Historical data Access I/F	Changed contents
MES3-EAP1-DA	MES3-EAP1-AI		
1.0.0	-	1.0	<ul style="list-style-type: none"> ● MES3-EAP1-DA First edition
1.0.1	1.0.0		<ul style="list-style-type: none"> ● MES3-EAP1-DA (1) Implemented the displaying function with comma-separated values in the number panel on the dashboard function. (2) Implemented the saving function that the data regarding automatic execution at rebooting this software. <ul style="list-style-type: none"> ● MES3-EAP1-AI First edition
1.0.2	1.0.2		<ul style="list-style-type: none"> • The notation of time has been improved to show the start and end time. Example: 22:00 → 22:00-23:00 • In registering a collection source (EcoWebServer III), measurement points such as reactive energy are now registered as integrated values (measurement type: pulse).

5. Data

This chapter explains measuring data collection, calculation, extraction, and input.

Click the **Data** button in the left menu on the window to enter the data window.

*The following window is an example of Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).



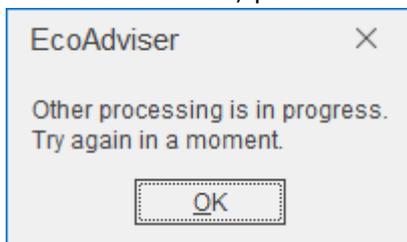
5.1 Manual Collection

This section describes how to manually collect the logging files from the collection source.

*It may take some time when there are many files to collect.

*If you try to manually collect data while the function of auto execute settings is in process, the following message will appear and the operation cannot be performed.

After a short wait, perform it.

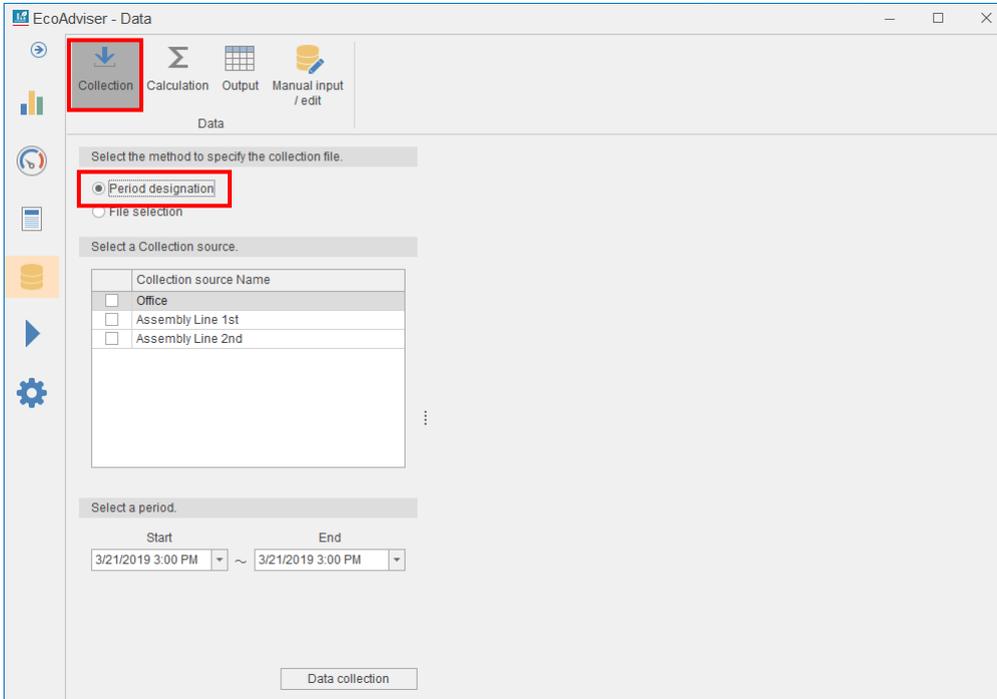


5.1.1 Specifying the period

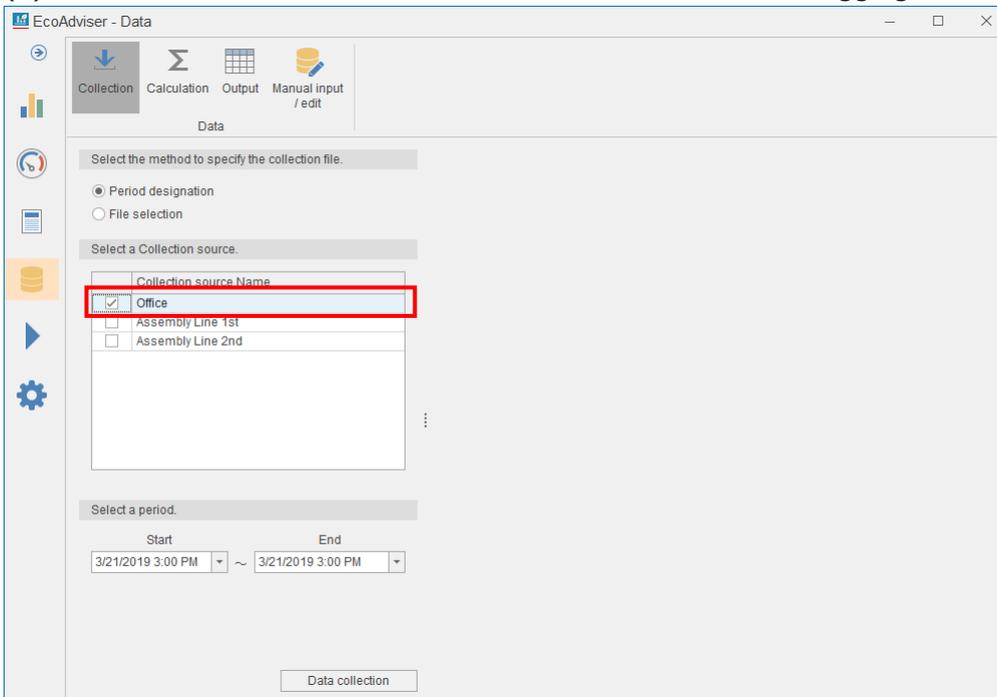
This is a method to collect the logging files by specifying a period.

*The method is available only when the collection source is EcoWebServer III. To collect data manually from EcoWebServer III with FOLDER or Edgecross, refer to [5.1.2 Selecting the file].

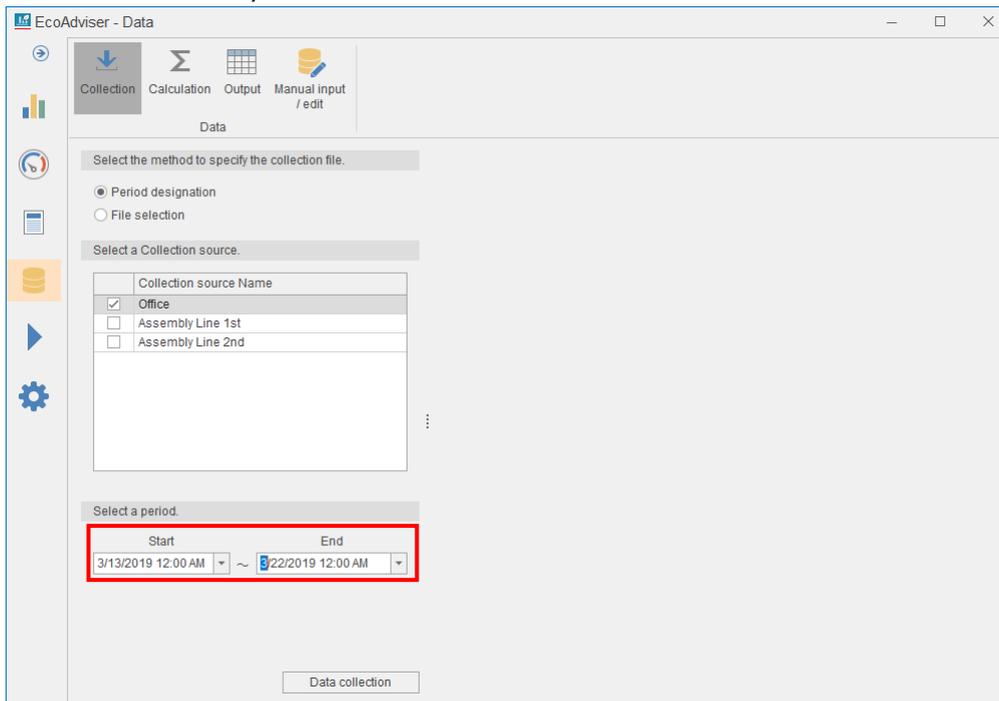
(1) Click the **Collection** button and then select the period designation.



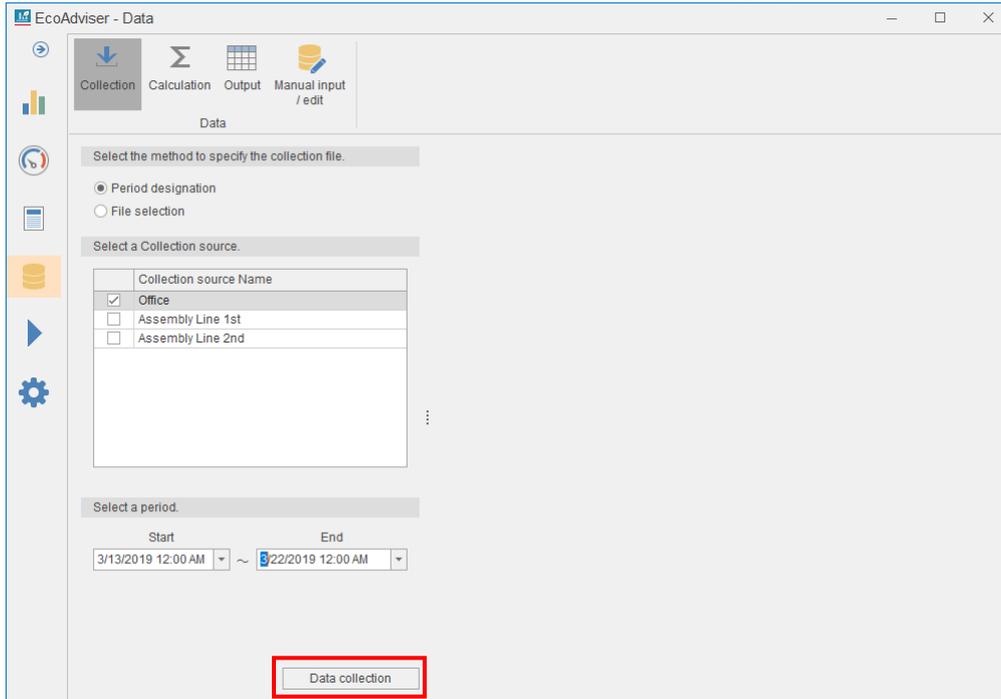
(2) Select the checkbox of a collection source to collect the logging files.



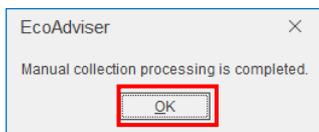
- (3) Set the period from the pull-down menus of **Start** and **End**.
*Max. 62 days



(4) Click the **Data collection** button to collect the logging files for the specified period.



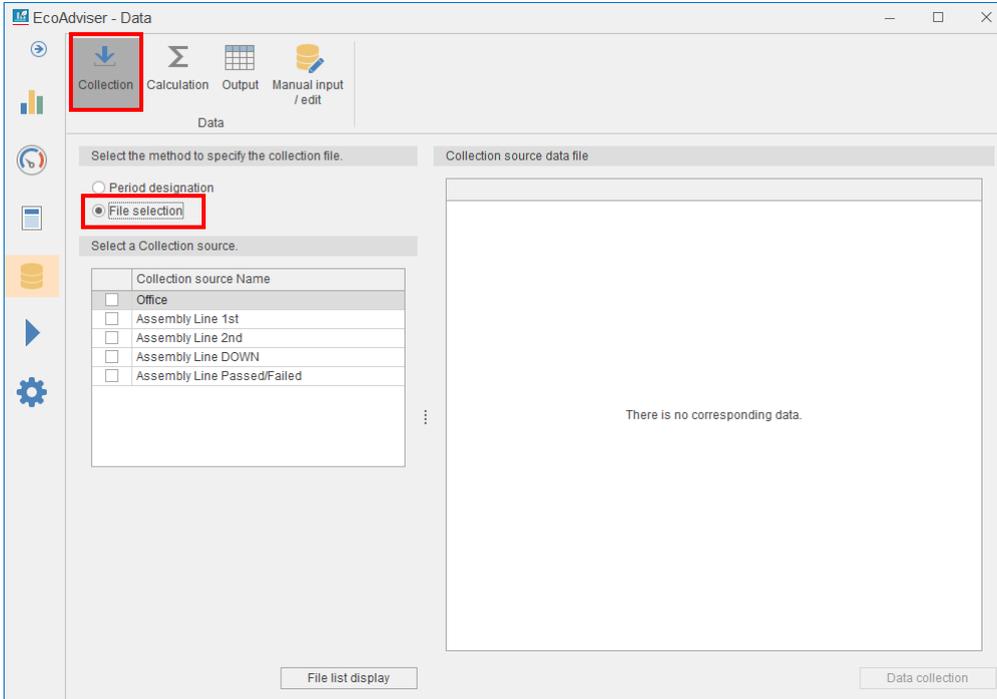
(5) When the collection is completed, the following message appears. Click the **OK** button to close the message. This is the end of the operation.



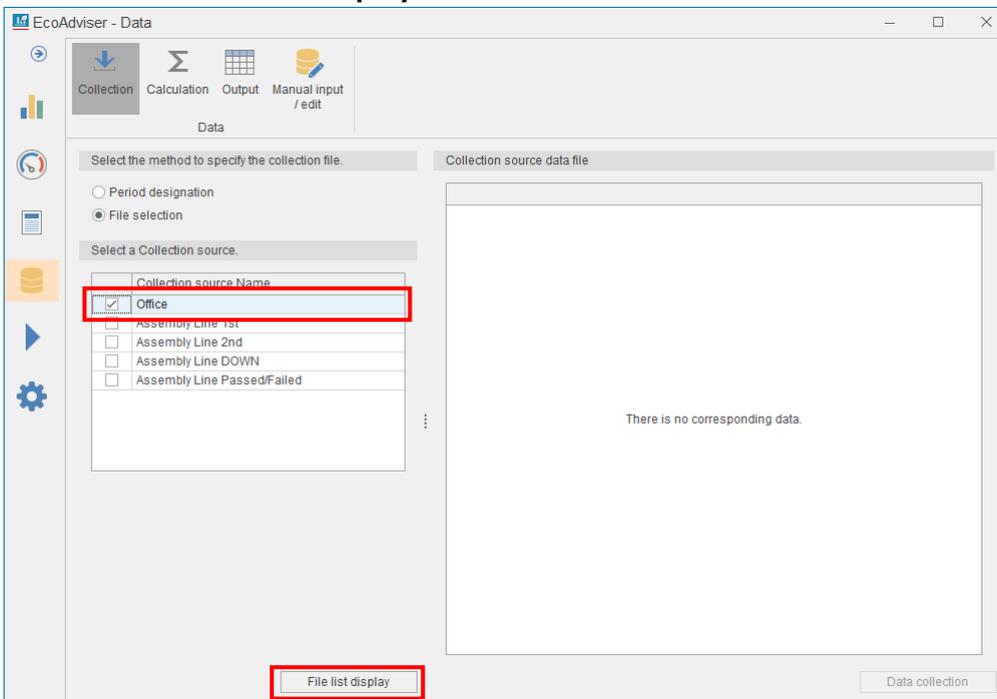
5.1.2 Selecting the files

This is a method to collect by specifying logging files.

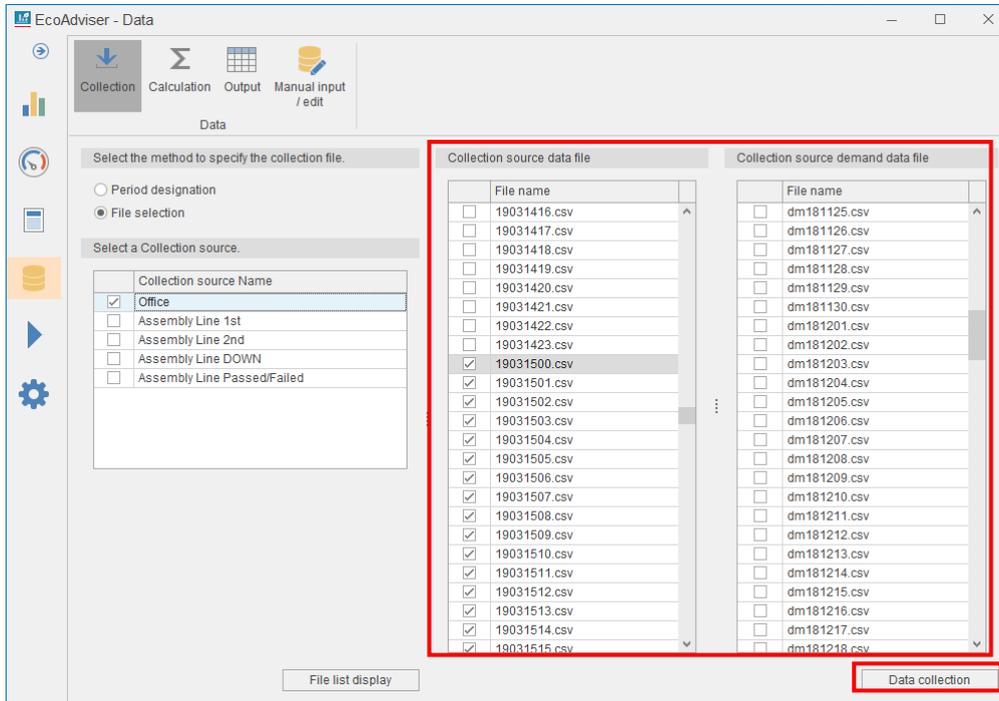
(1) Select **File selection**.



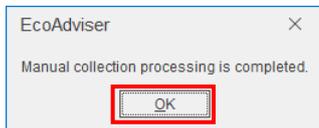
(2) Select the checkbox of a collection source to collect the logging files. Click the **File list display** button.



- (3) A list of files is displayed on the right side of the window.
Select the checkboxes of any files you want to collect and then click the **Data collection** button.
- *Max. 62 days
 - *The files that have been automatically collected are displayed in green.



- (4) When the collection is completed, the following message appears.
Click the **OK** button to close the message.
This is the end of the operation.



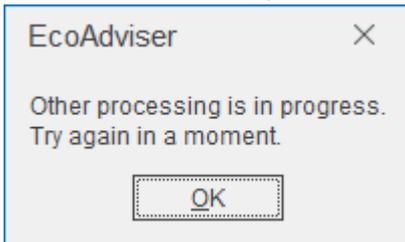
5.2 Manual Calculation

For product type time period measuring point, calculation measuring point, and specific consumption measuring point, the measuring point data can be re-calculated for any specified period.

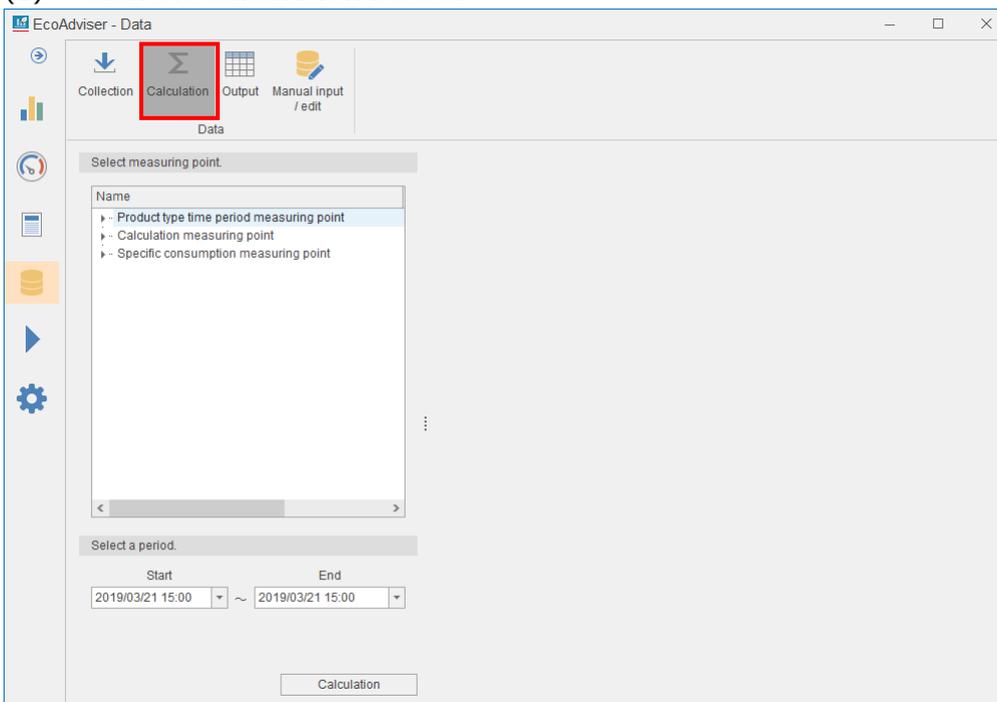
This function is used, when you have added or changed the information of the measuring point after the operation starts, to calculate the past data using the calculation formula after the change.

*If you try to manually calculate data while the function of auto execute settings is in process, the following message will appear and the operation cannot be performed.

After a short wait, perform it.

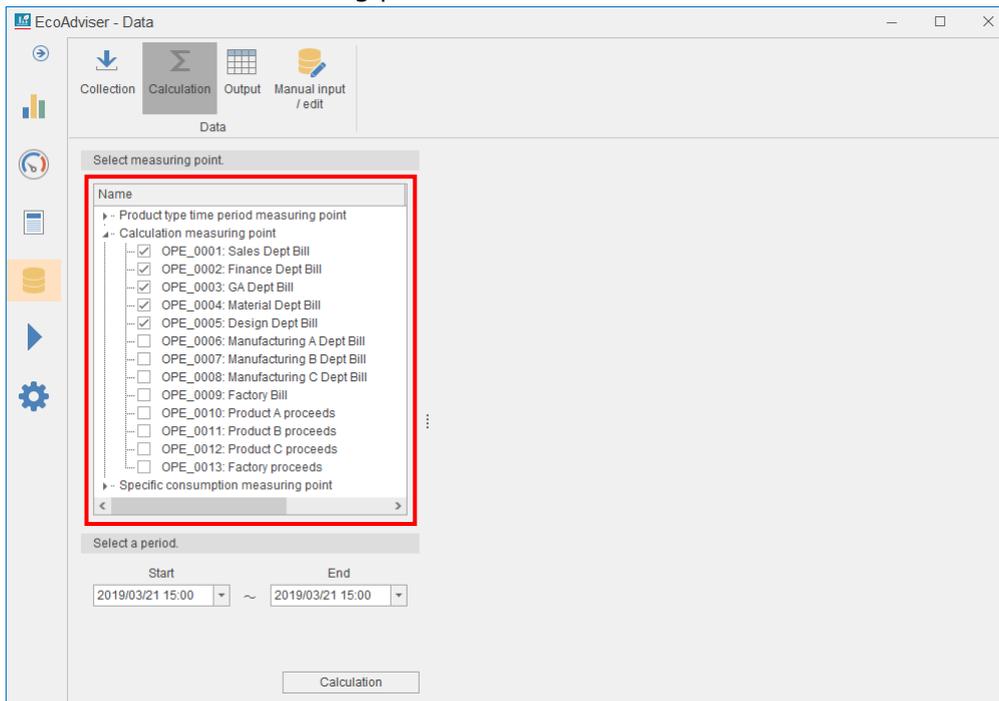


(1) Click the **Calculation** button.



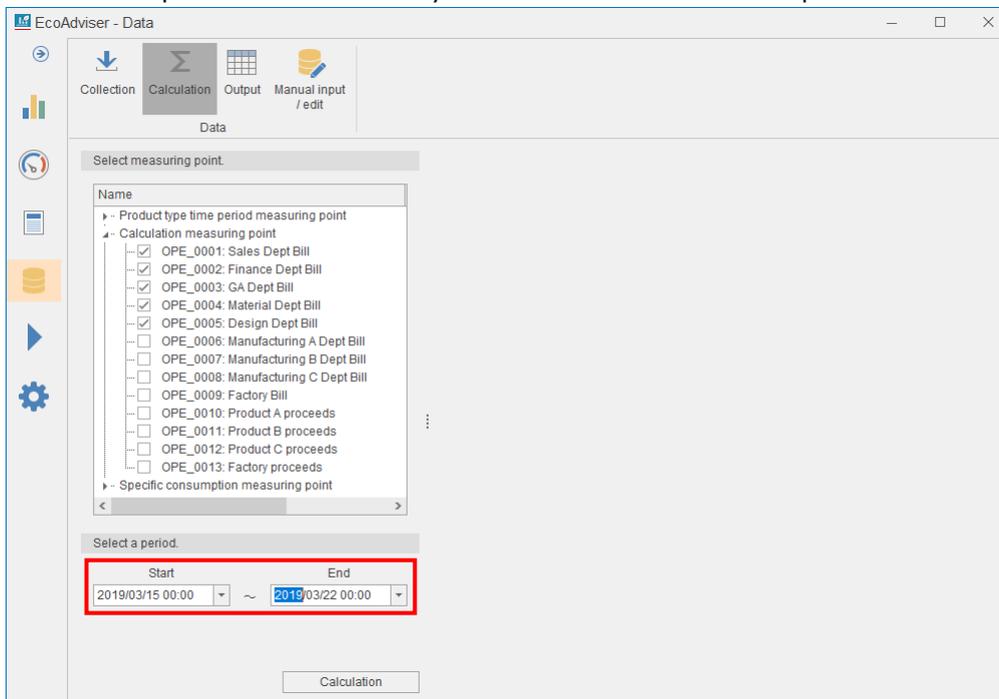
(2) Select the checkboxes of any measuring points you want to recalculate.

*Max. 256 measuring points

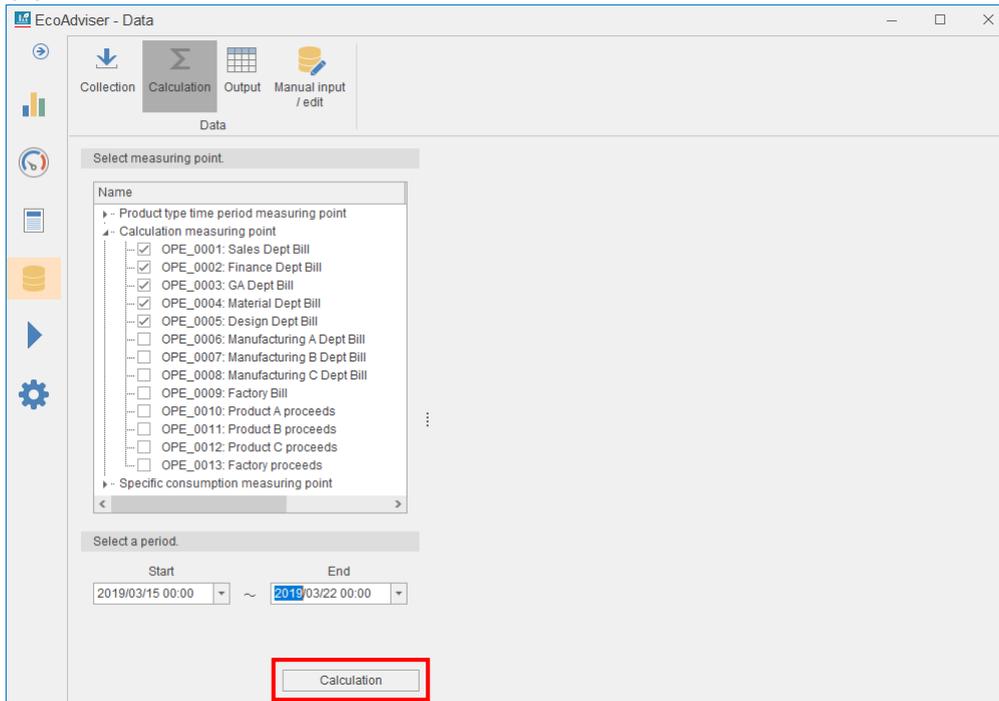


(3) Specify the period you want to calculate from the pull-down menus of **Start** and **End**. Set the year, month, day, and time.

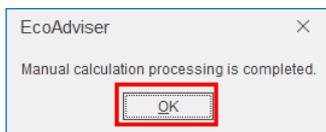
*The period is max. 62 days within the data retention period.



(4) Click the **Calculation** button.



(5) When the calculation is completed, the following message appears.
Click the **OK** button to close the message.
This is the end of the operation.



5.3 Output

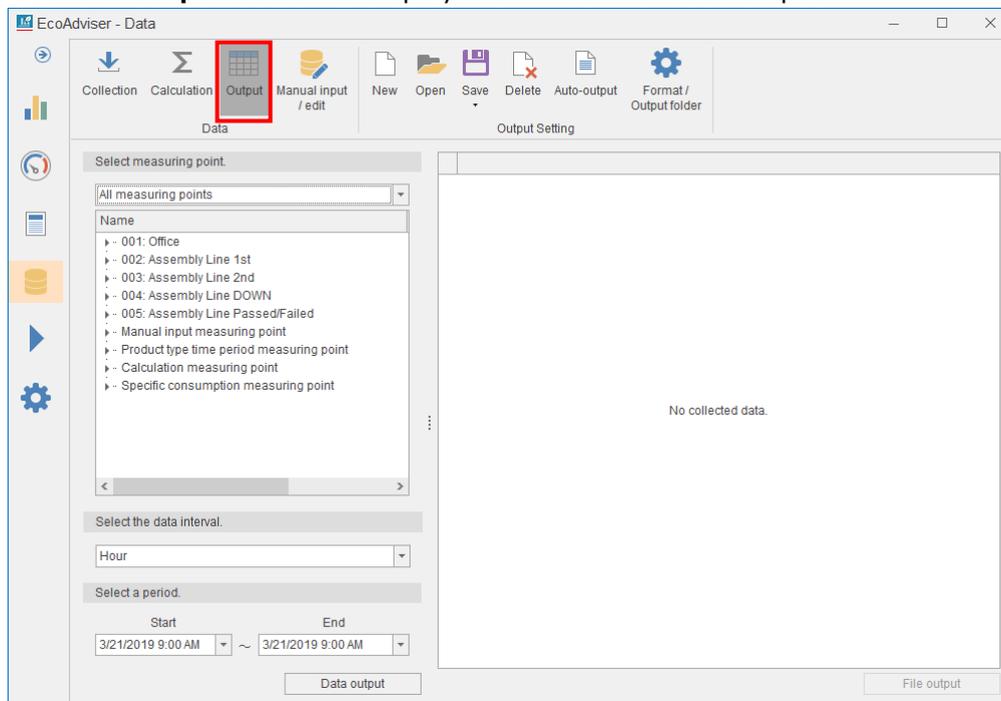
This section explains how to output data of collection sources' measuring points, manual input measuring points, product type time period measuring points, calculation measuring points, specific consumption measuring points, and energy saving evaluation value measuring points registered in EcoAdviser.

*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), the energy saving evaluation value measuring points can be output for each equipment registered in the equipment setting. For five focusing viewpoints for energy saving and energy-loss during the standby/break time, refer to [7.1 Outline].

*It is possible to import the output file into other system.

*For the format of the output file, refer to [12.1 File Format].

Click the **Output** button to display the window for data output.



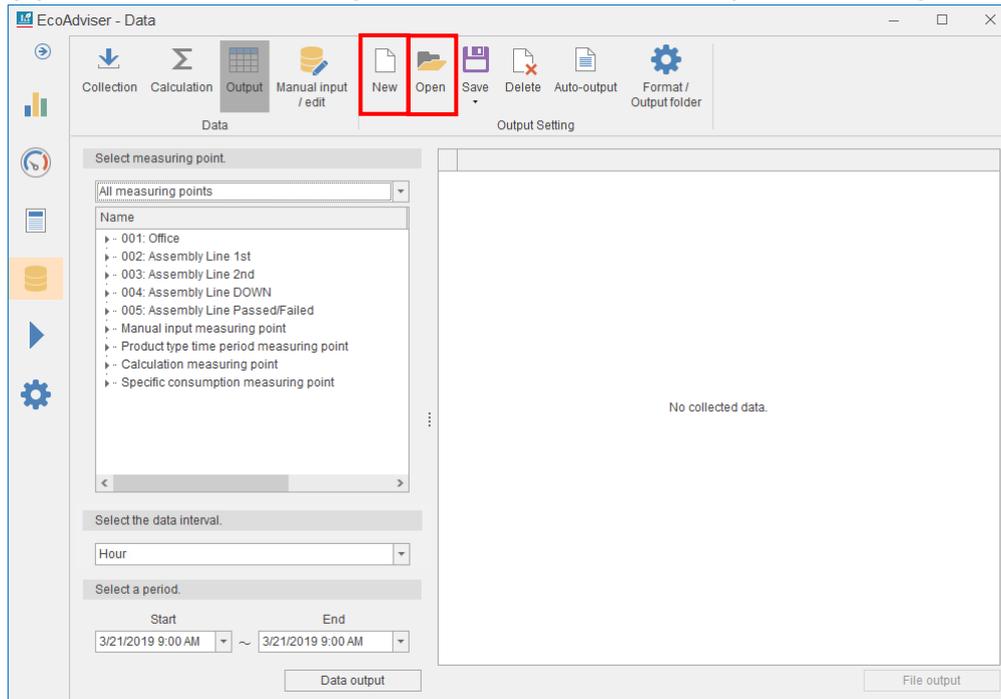
5.3.1 Creating the automatic output setting (measuring point setting)

You will set the setting for measuring points to automatically extract data or automatically output files.

*If the setting is overwritten and saved, the automatic output setting will be cancelled. For details, refer to [5.3.3].

*For any settings with the energy saving evaluation value measuring point selected, automatic output cannot be performed.

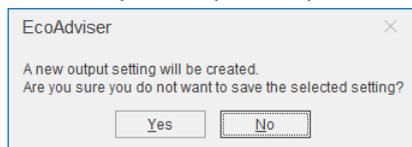
(1) To set a new setting, click the **New** button. To open an existing setting, click the **Open** button.



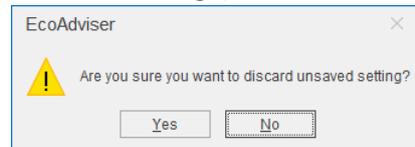
(2) The following confirmation message appears.

If you continue the operation without saving the current settings, click the **Yes** button.

If you stop the operation and save the settings, click the **No** button.



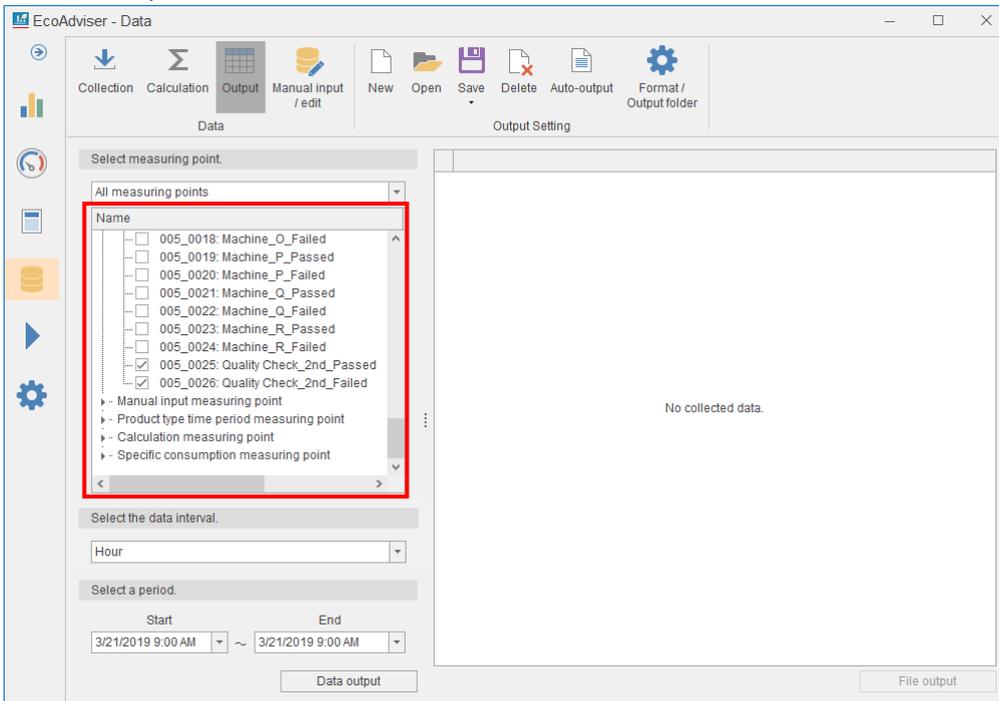
(For newly creating)



(For opening)

(3) Select the checkboxes of any measuring points you want to output.

*For any settings with the energy saving evaluation value measuring point selected, automatic output cannot be executed.



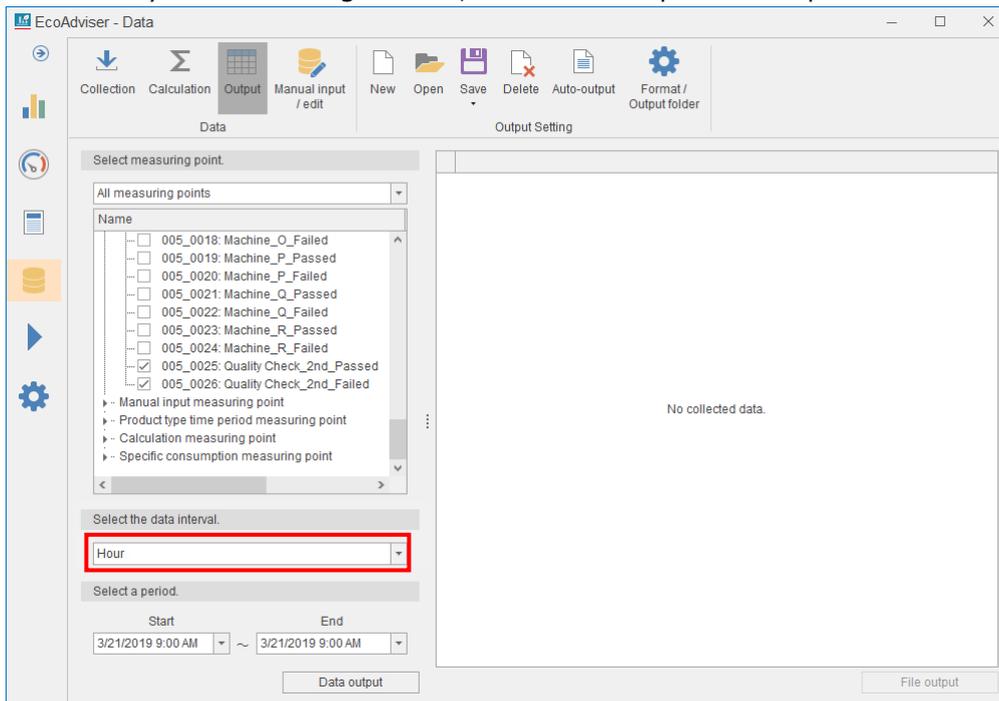
*When you use Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), the following energy saving evaluation value measuring points can be output for each equipment registered in the equipment setting.

For five focusing viewpoints for energy saving and energy-loss during the standby/break time, refer to [7.1 Outline].

ID	Name	Details
0001	Equipment time-loss (start-up)	Output values of five focusing viewpoints for energy saving.
0002	Equipment time-loss (shut-down)	
0003	Utility time-loss (start-up)	
0004	Utility time-loss (shut-down)	
0005	Production loss time rate	
0006	Specific consumption	
0010	Energy-loss during the standby time (equipment)	Output values of energy-loss during the standby/break time. For energy-loss during the break time, data is output as the following: ·Total of energy-loss during the break time Output the total value of energy-loss for every break time. ·Energy-loss during the break time 1/2/3 Output each value of energy-loss during the break time 1, 2, and 3.
0011	Energy-loss during the standby time (utility)	
0012	Energy-loss during the break time (equipment)	
0013	Energy-loss during the break time (utility)	
0014	Energy-loss during the break time (equipment) 1	
0015	Energy-loss during the break time (utility) 1	
0016	Energy-loss during the break time (equipment) 2	
0017	Energy-loss during the break time (utility) 2	
0018	Energy-loss during the break time (equipment) 3	
0019	Energy-loss during the break time (utility) 3	

(4) Select period to output data from the pull-down menu.

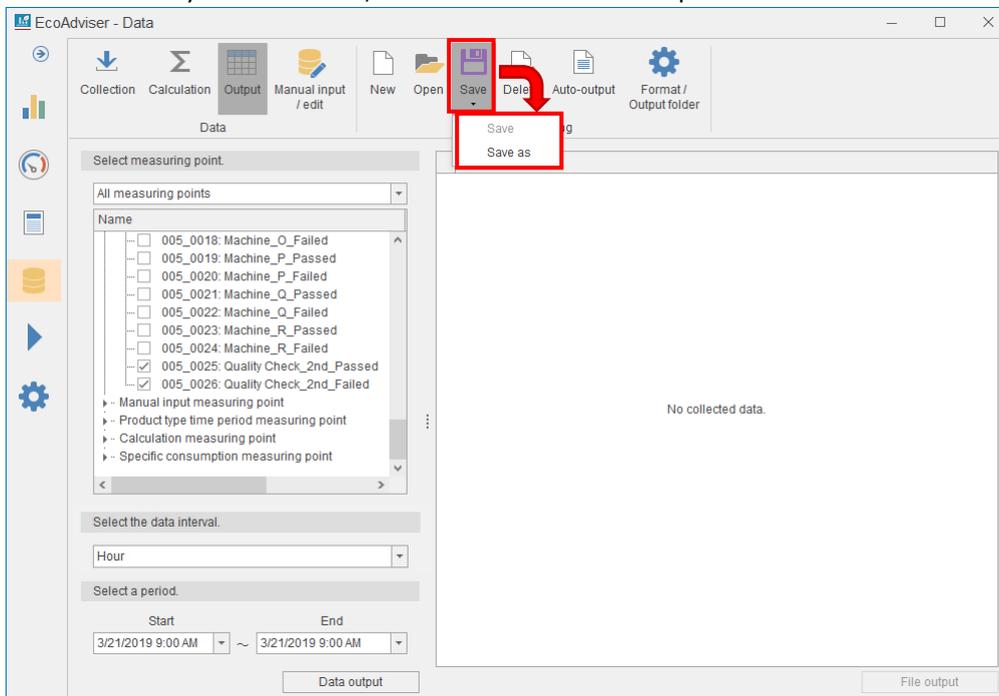
*Only for the setting of Hour, automatic output can be performed.



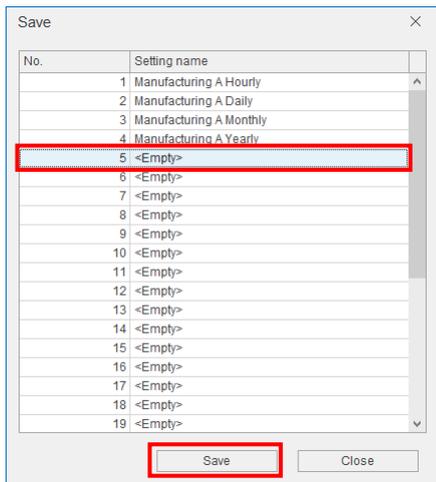
(5) Click the **Save** button and then select **Save as**.

*When you have opened an existing setting, select **Save** to overwrite.

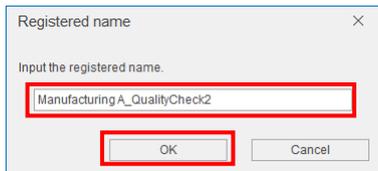
When you overwrite, this is the end of the operation.



- (6) The following window appears.
Select a line and then click the **Save** button.



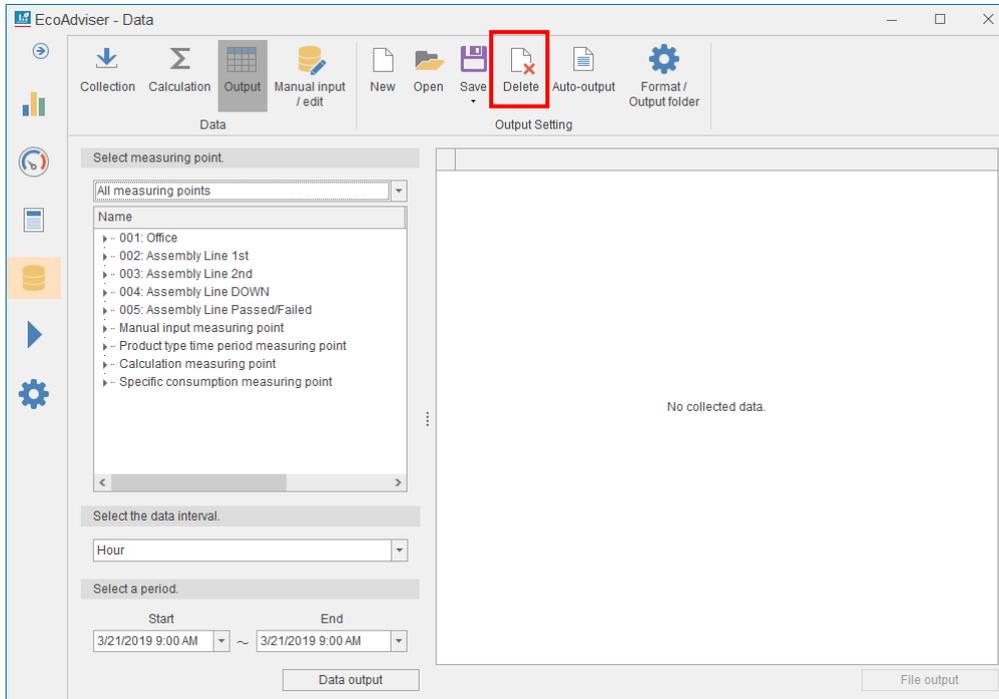
- (7) The following window appears.
Input a registration name (setting name) and then click the **OK** button.
This is the end of the operation.



5.3.2 Deleting the automatic output setting (measuring point setting)

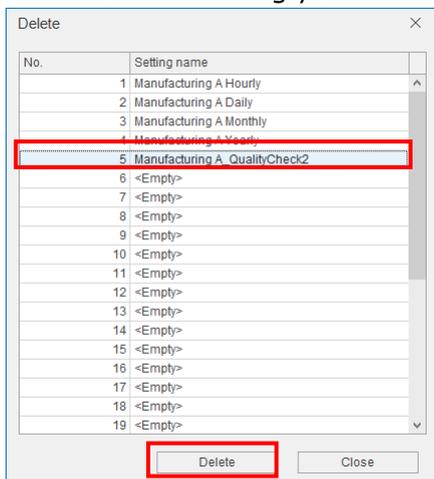
You will delete the registered setting for measuring points to automatically extract data or automatically output files.

(1) Click the **Delete** button.



(2) The following window appears.

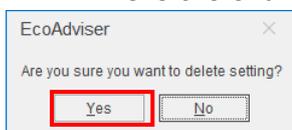
Select a setting you want to delete and then click the **Delete** button.



(3) The following confirmation message appears.

Click the **Yes** button to delete the setting.

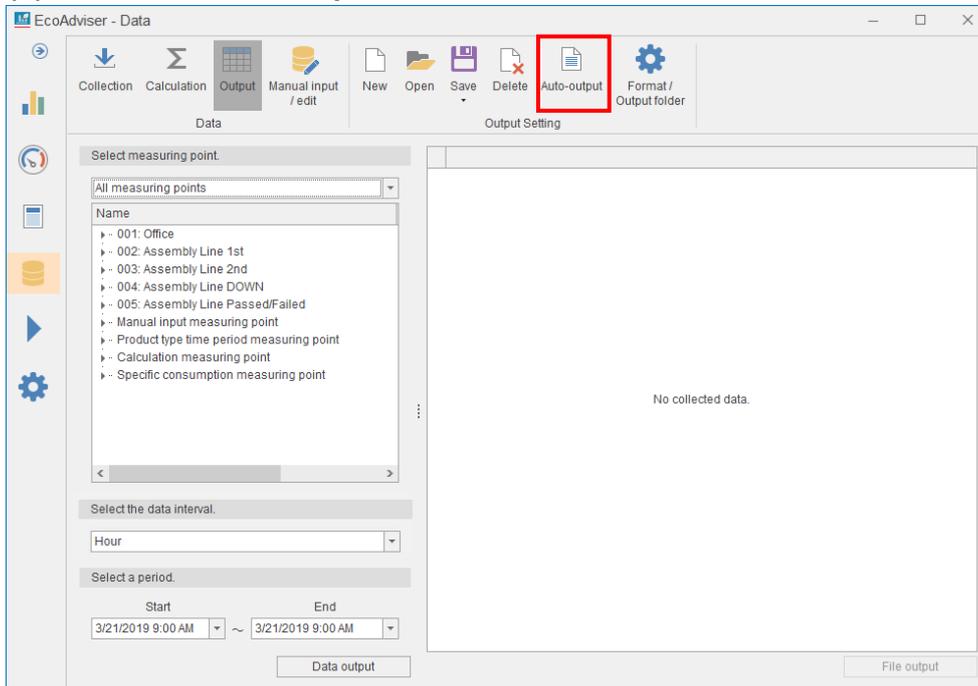
This is the end of the operation.



5.3.3 Selecting the automatic output setting

You will select the setting to output files using the automatic output function.

(1) Click the **Auto-output** button.

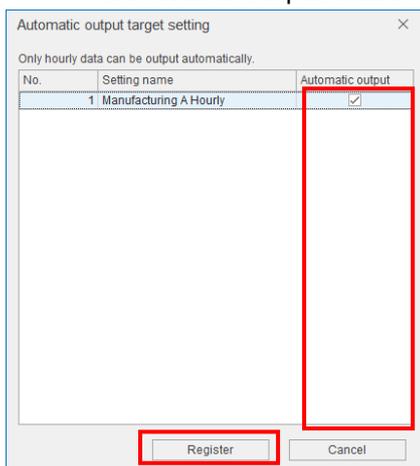


(2) The following window appears.

Select the checkbox of a setting you want to output and then click the **Register** button.

*Only for the setting of Hourly, automatic output can be performed.

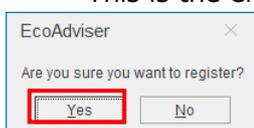
*For any settings with the energy saving evaluation value measuring point not selected, automatic output can be performed.



(3) The following confirmation message appears.

Click the **Yes** button to save the setting.

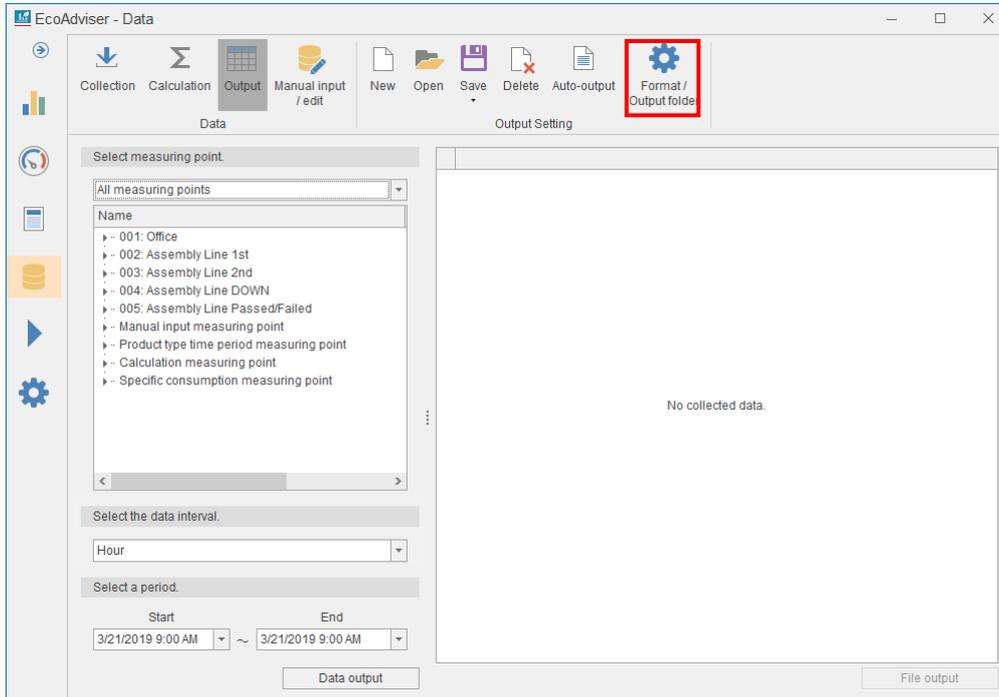
This is the end of the operation.



5.3.4 Creating the automatic output setting (File setting)

You will set the output file format and the output destination.

(1) Click the **Format/Output folder** button.



- (2) The following window appears.
 Input each item or select from the pull-down menu.
 Click the **Register** button.
 This is the end of the operation.

Item	Details																																			
File encoding	Select an encoding to be output to CSV files from the pull-down menu. •Shift_JIS •UTF-8																																			
Decimal point	Select a decimal point displayed from the pull-down menu. •Period •Comma																																			
Delimiter	Select a delimiter to be output to CSV files from the pull-down menu. •Comma •Tab •Semicolon •Space																																			
Date format	Input a date format to be output to CSV files. The following characters are converted to the corresponding date information for output. <table border="1" data-bbox="336 1294 1445 1693"> <thead> <tr> <th>Input characters</th> <th>Date information after conversion</th> <th>Input characters</th> <th>Date information after conversion</th> </tr> </thead> <tbody> <tr> <td>YYYY</td> <td>The dominical year (4 digits)</td> <td>.s</td> <td rowspan="9">Number of digits in seconds after the decimal point (1 to 9)</td> </tr> <tr> <td>YY</td> <td>The dominical year (Lower 2 digits)</td> <td>.ss</td> </tr> <tr> <td>MM</td> <td>Month (2 digits)</td> <td>.sss</td> </tr> <tr> <td>DD</td> <td>Day (2 digits)</td> <td>.ssss</td> </tr> <tr> <td>hh</td> <td>Hour (2 digits, 00 to 23)</td> <td>.sssss</td> </tr> <tr> <td>mm</td> <td>Minute (2 digits)</td> <td>.ssssss</td> </tr> <tr> <td>ss</td> <td>Second (2 digits)</td> <td>.sssssss</td> </tr> <tr> <td>ms</td> <td>Millisecond (3 digits)</td> <td>.ssssssss</td> </tr> <tr> <td>us</td> <td>Microsecond (6 digits)</td> <td>.sssssssss</td> </tr> <tr> <td>ns</td> <td>Nanosecond (9 digits)</td> <td></td> </tr> </tbody> </table> <p>*The year in four digits and in the last two digits cannot be used simultaneously. In addition, milliseconds, microseconds, nanoseconds, and the number of digits in seconds after the decimal point (such as .s) cannot be used simultaneously. <ex. 1> YYYY/MM/DD hh:mm:ss:ms 2019/04/01 10:11:22:333 <ex. 2> YYYY/MM/DD hh:mm:ss:.sssssssss 2019/04/01 10:11:22:333000000</p>	Input characters	Date information after conversion	Input characters	Date information after conversion	YYYY	The dominical year (4 digits)	.s	Number of digits in seconds after the decimal point (1 to 9)	YY	The dominical year (Lower 2 digits)	.ss	MM	Month (2 digits)	.sss	DD	Day (2 digits)	.ssss	hh	Hour (2 digits, 00 to 23)	.sssss	mm	Minute (2 digits)	.ssssss	ss	Second (2 digits)	.sssssss	ms	Millisecond (3 digits)	.ssssssss	us	Microsecond (6 digits)	.sssssssss	ns	Nanosecond (9 digits)	
Input characters	Date information after conversion	Input characters	Date information after conversion																																	
YYYY	The dominical year (4 digits)	.s	Number of digits in seconds after the decimal point (1 to 9)																																	
YY	The dominical year (Lower 2 digits)	.ss																																		
MM	Month (2 digits)	.sss																																		
DD	Day (2 digits)	.ssss																																		
hh	Hour (2 digits, 00 to 23)	.sssss																																		
mm	Minute (2 digits)	.ssssss																																		
ss	Second (2 digits)	.sssssss																																		
ms	Millisecond (3 digits)	.ssssssss																																		
us	Microsecond (6 digits)	.sssssssss																																		
ns	Nanosecond (9 digits)																																			
Quotation mark	Select a quotation mark to be output to CSV files from the pull-down menu. •None •Double quotation •Quotation																																			
Time column name	Input a column name of the time data. *The date is displayed in the date format above.																																			
Data file output folder	Specify the destination of automatic output of data files. *Default: C:\¥Users¥(User Name)¥Documents¥MES3-EAP1¥DataFileOut																																			

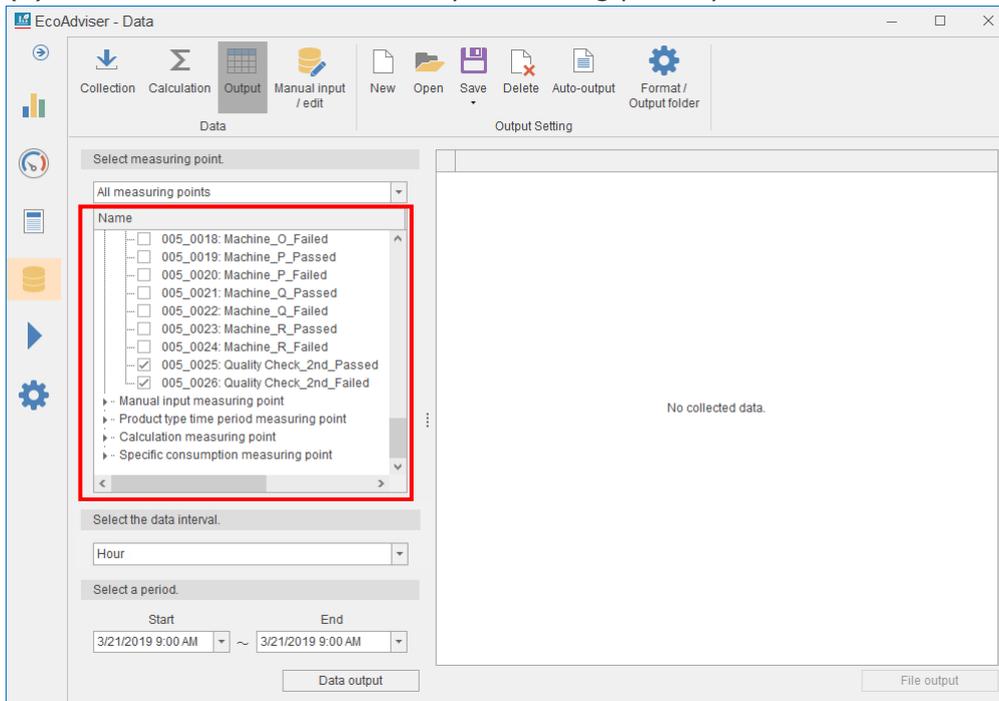
5.3.5 Automatic output of data files

To perform automatic output, set the automatic data output to ON in the auto execute settings. For details, refer to [6 Auto Execute Settings].

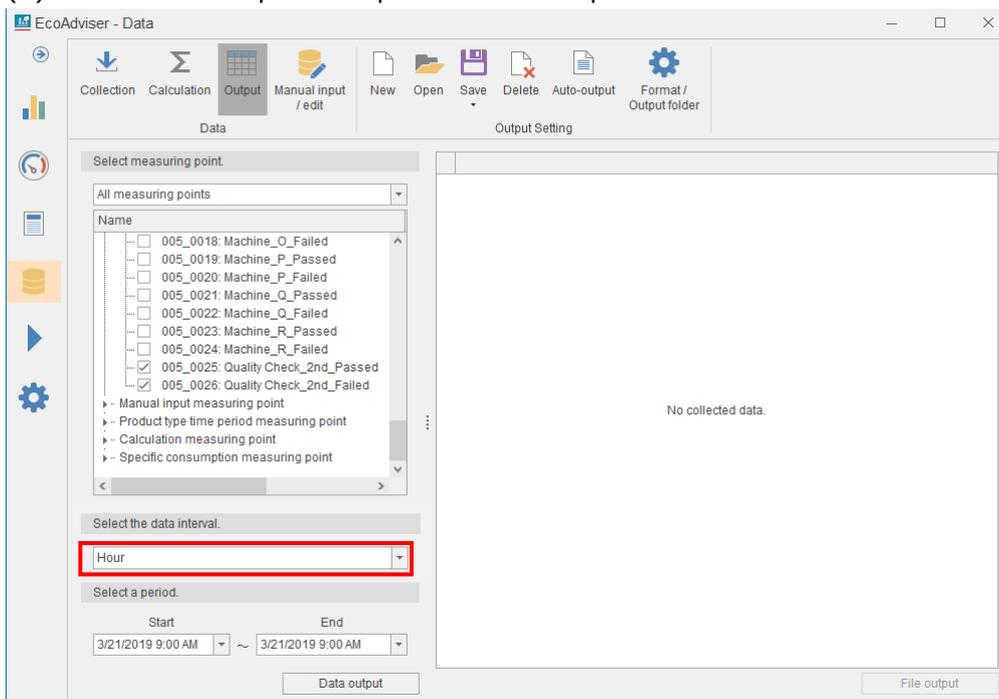
5.3.6 Manual output of data files

You will output the measuring point data and files.

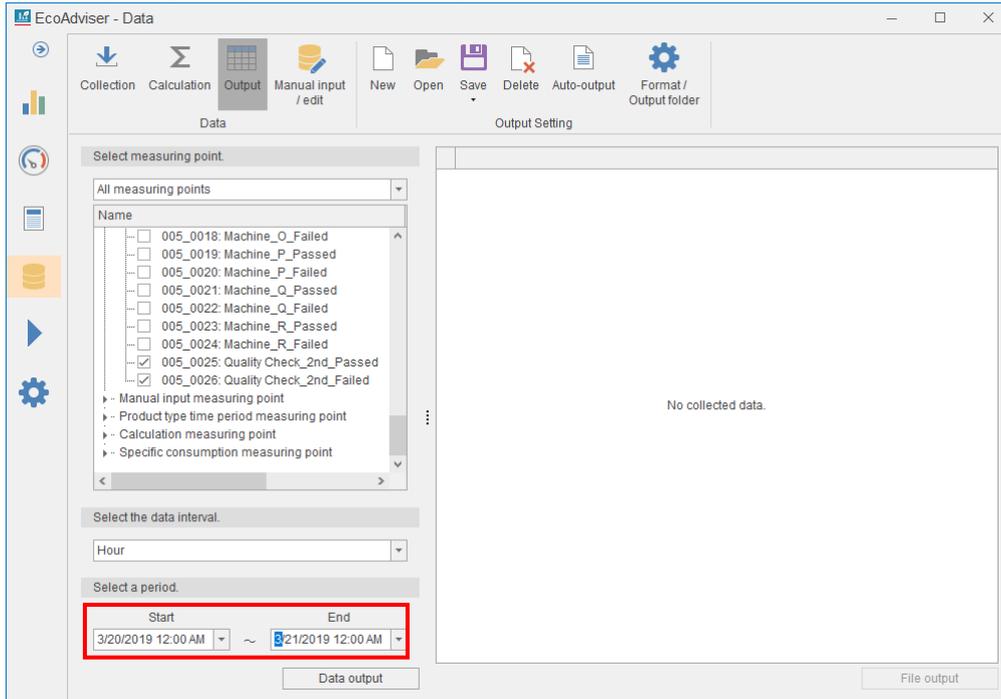
(1) Select the checkboxes of any measuring points you want to extract.



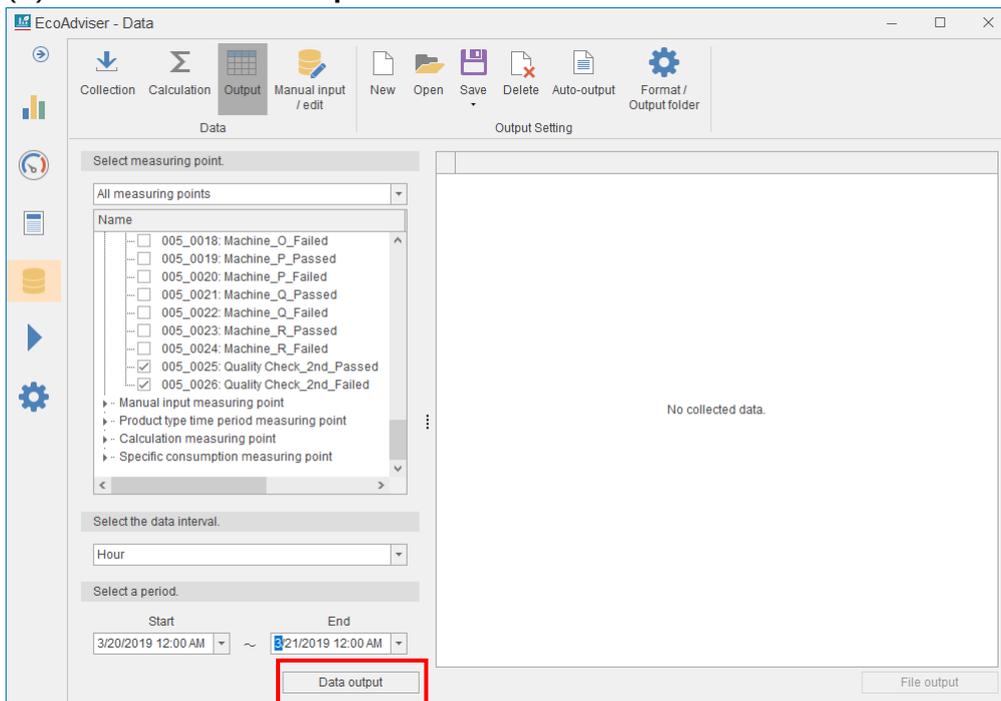
(2) Select an output data period from the pull-down menu.



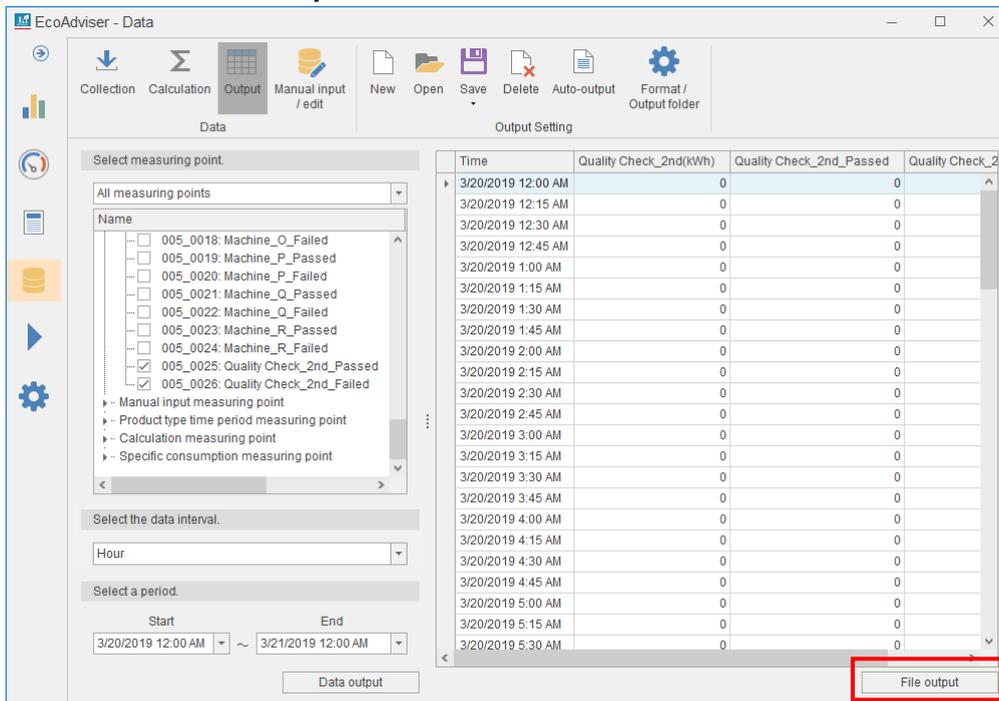
(3) Specify the period from the pull-down menus of **Start** and **End** to output data.



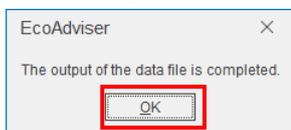
(4) Click the **Data Output** button.



- (5) Data of each measuring point is displayed on the right side of the window.
Click the **File output** button.



- (6) Specify the destination and then save the extracted data in CSV files.
When the file output is completed, the following message appears.
Click the **OK** button to close the message.
This is the end of the operation.

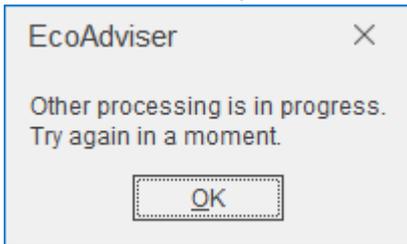


5.4 Manual Input/Edition

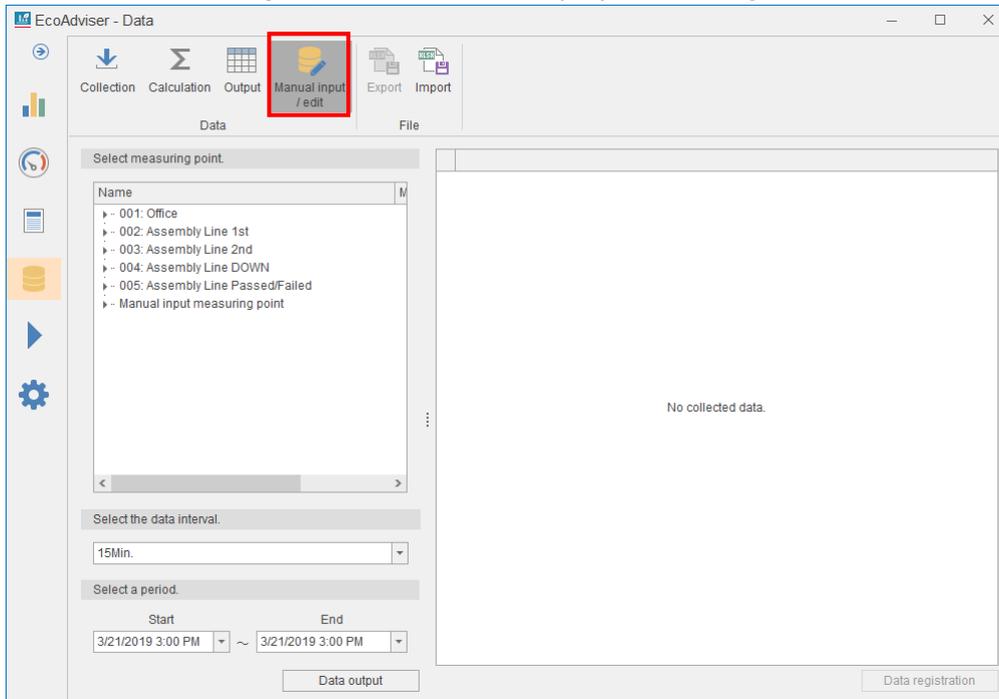
This section explains how to input and edit collection sources' measuring points and manual input measuring points' measuring data.

*If you try to manually input/edit data while the function of auto execute settings is in process, the following message will appear and the operation cannot be performed.

After a short wait, perform it.



Click the **Manual input/edit** button to display the setting menu on the window.

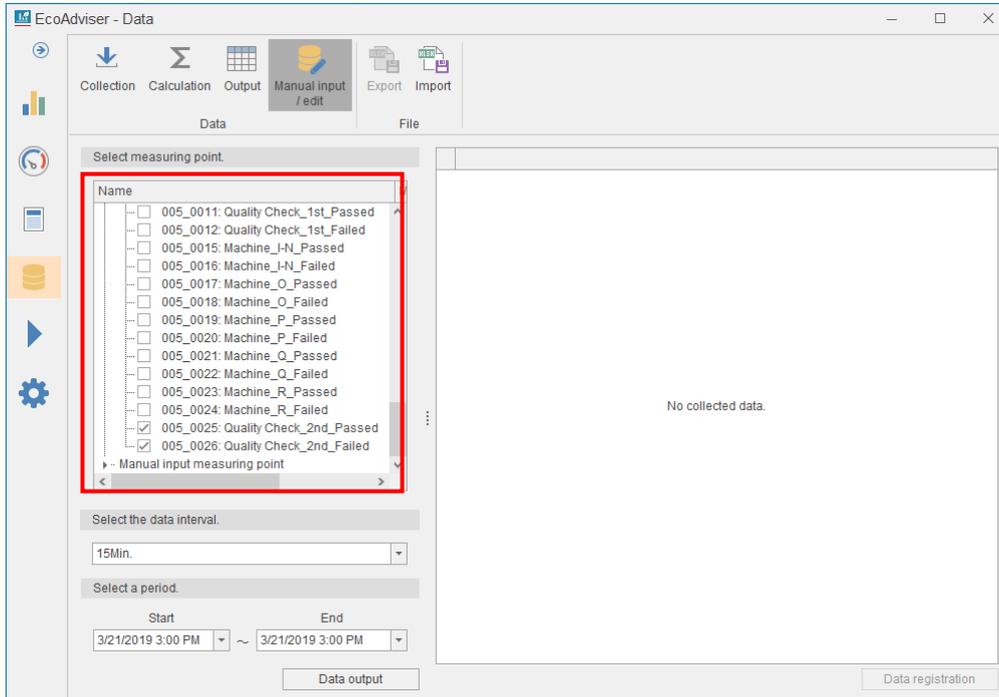


5.4.1 Inputting/Editing measuring data

You will input data of any measuring points for any period.

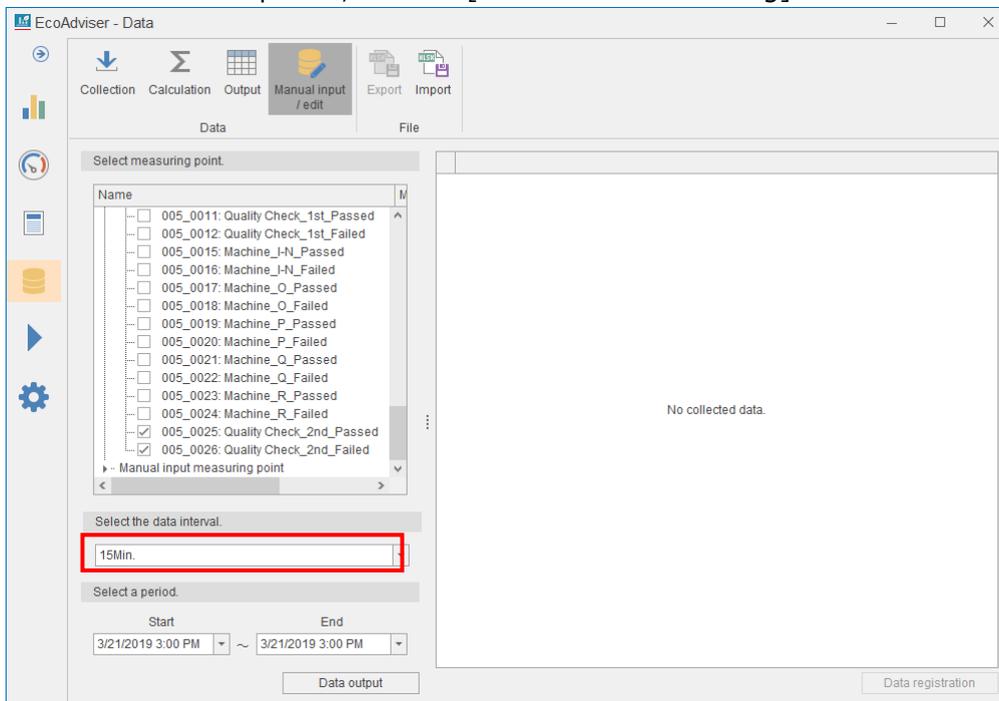
- (1) Select the checkboxes of any measuring points you want to input/edit.

*Max. 256 measuring points



- (2) Select the data period to input/edit from the pull-down menu.

For the data period, refer to [4.3.4 Collection setting].



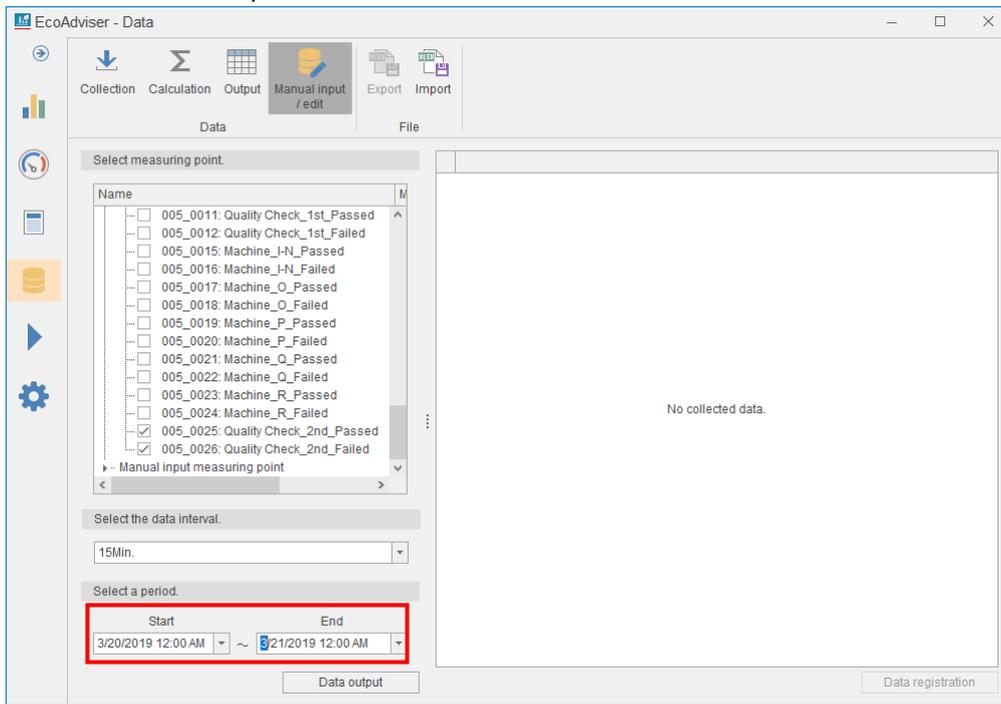
The setting range: 15M/30M/60M/24H

Caution

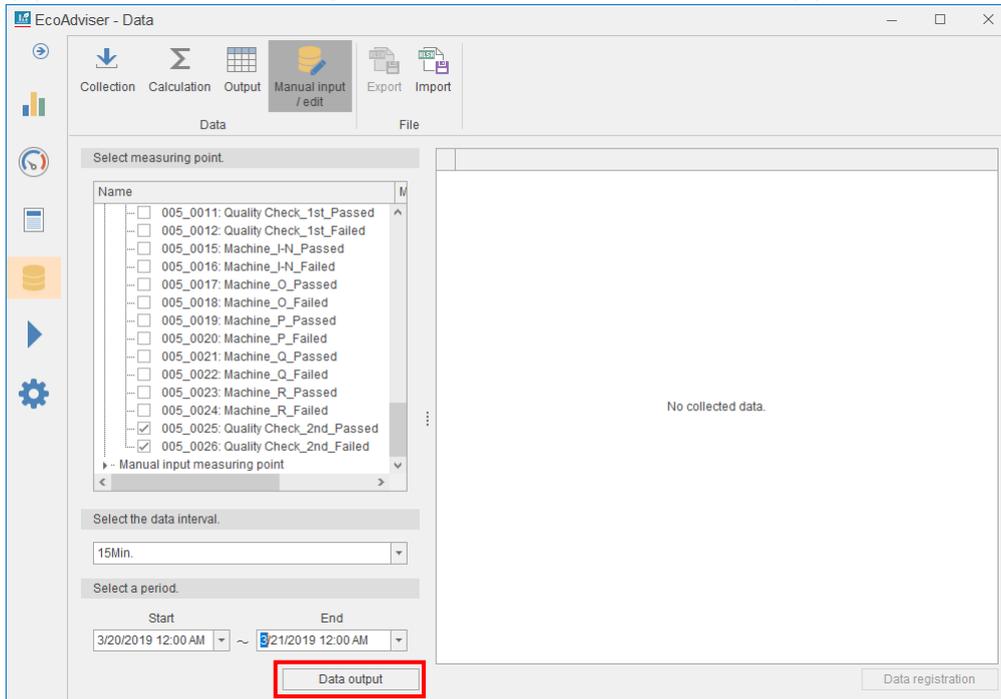
You must input data in the data period of the relevant data.

When you input data at a different data period than the data period of the relevant data (e.g., input data at a 15-minute period for data with a 30-minute period), this may result in abnormal data, such as blank data.

- (3) Specify the period from the pull-down menus of **Start** and **End** to input/edit data
 *Max. 31 days



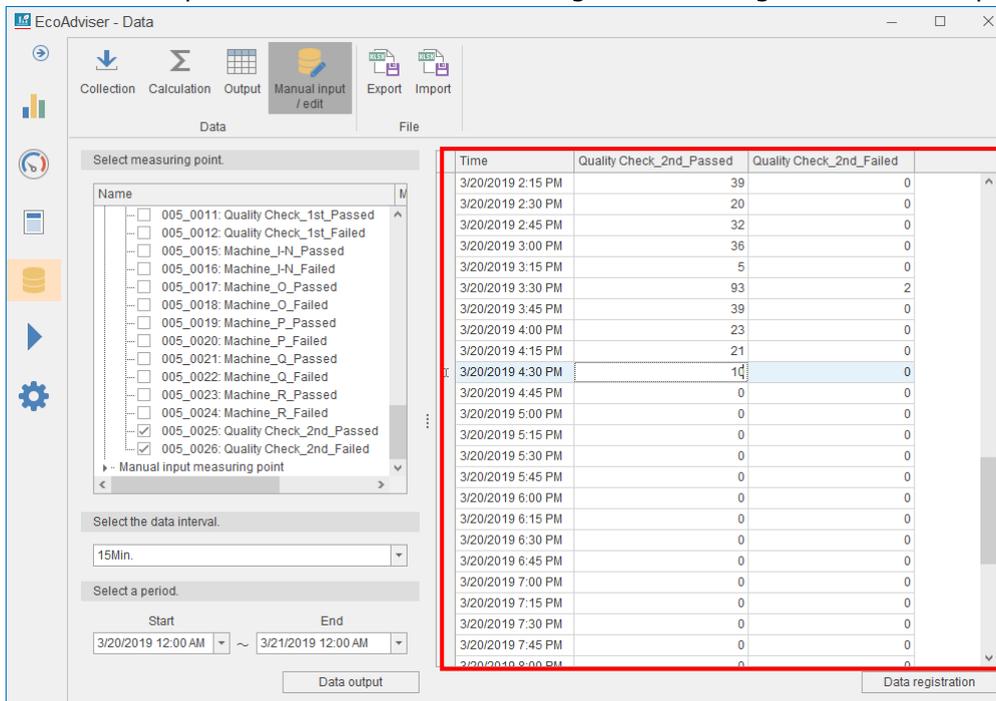
- (4) Click the **Data output** button to extract the measuring point data.



- (5) The extracted data is displayed on the right side of the window.
Input or change the data.

The input range: -999999999999.999 to 999999999999.999

*The input value is rounded according to the setting of the decimal places of the measuring point.



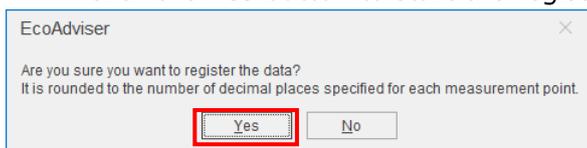
The screenshot shows the EcoAdviser - Data window. On the left, there is a sidebar with icons for Collection, Calculation, Output, Manual input / edit, Export, and Import. Below these are sections for 'Select measuring point' (with a list of measuring points and checkboxes), 'Select the data interval' (set to 15Min), and 'Select a period' (Start: 3/20/2019 12:00 AM, End: 3/21/2019 12:00 AM). The main area displays a table with the following data:

Time	Quality Check_2nd_Passed	Quality Check_2nd_Failed
3/20/2019 2:15 PM	39	0
3/20/2019 2:30 PM	20	0
3/20/2019 2:45 PM	32	0
3/20/2019 3:00 PM	36	0
3/20/2019 3:15 PM	5	0
3/20/2019 3:30 PM	93	2
3/20/2019 3:45 PM	39	0
3/20/2019 4:00 PM	23	0
3/20/2019 4:15 PM	21	0
3/20/2019 4:30 PM	14	0
3/20/2019 4:45 PM	0	0
3/20/2019 5:00 PM	0	0
3/20/2019 5:15 PM	0	0
3/20/2019 5:30 PM	0	0
3/20/2019 5:45 PM	0	0
3/20/2019 6:00 PM	0	0
3/20/2019 6:15 PM	0	0
3/20/2019 6:30 PM	0	0
3/20/2019 6:45 PM	0	0
3/20/2019 7:00 PM	0	0
3/20/2019 7:15 PM	0	0
3/20/2019 7:30 PM	0	0
3/20/2019 7:45 PM	0	0
3/20/2019 8:00 PM	0	0

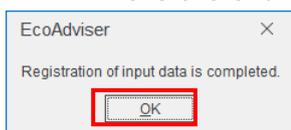
- (6) Click the **Data registration** button.

*If you have changed the information of the measuring point, repeat this procedure from the beginning.

- (7) The following confirmation message appears.
Click the **Yes** button to start the registration of data.



- (8) When the data registration is completed, the following message appears.
Click the **OK** button to close the message.
This is the end of the operation.

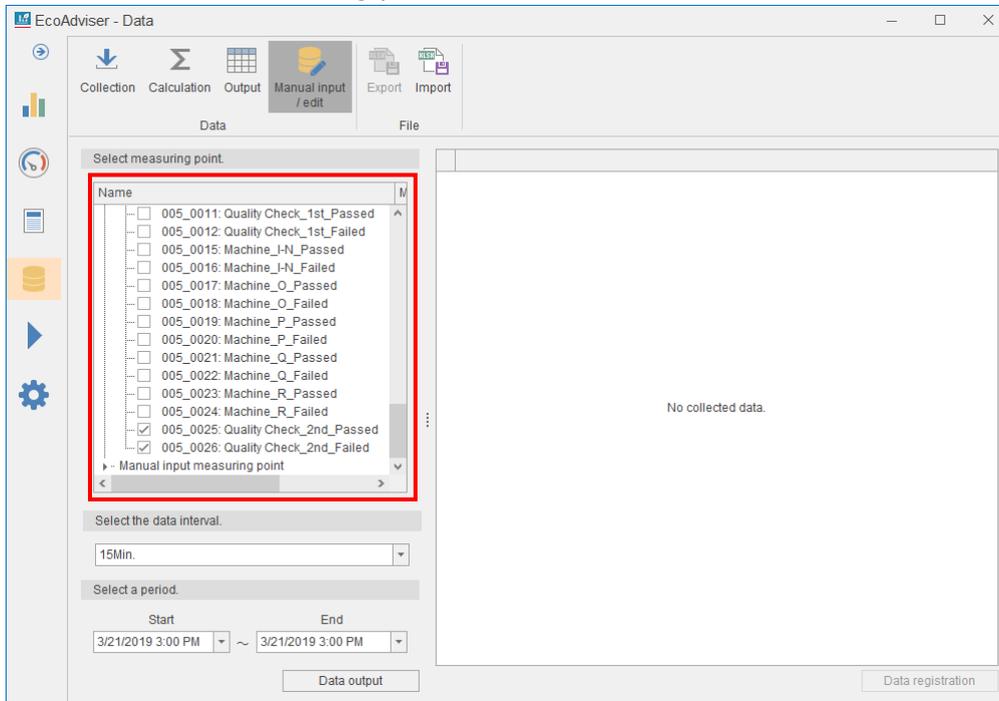


5.4.2 Exporting measuring data

You will output the data displayed on the window to the Excel file for inputting measuring data. For the format of the output file, refer to [12.1 File Format].

- (1) Select the checkboxes of any measuring points you want to export.

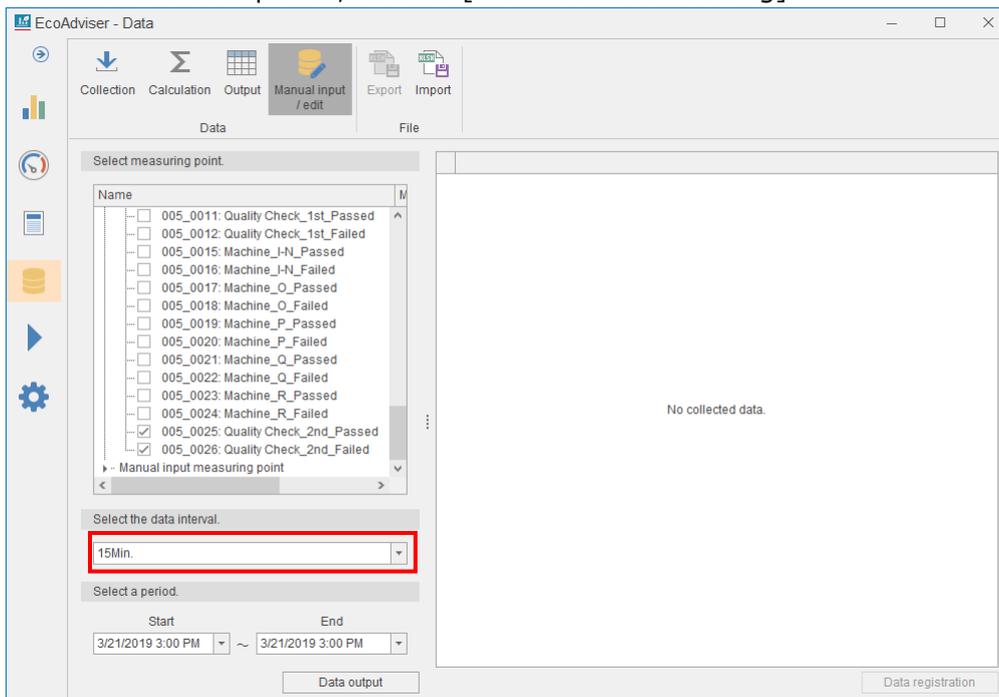
*Max. 256 measuring points



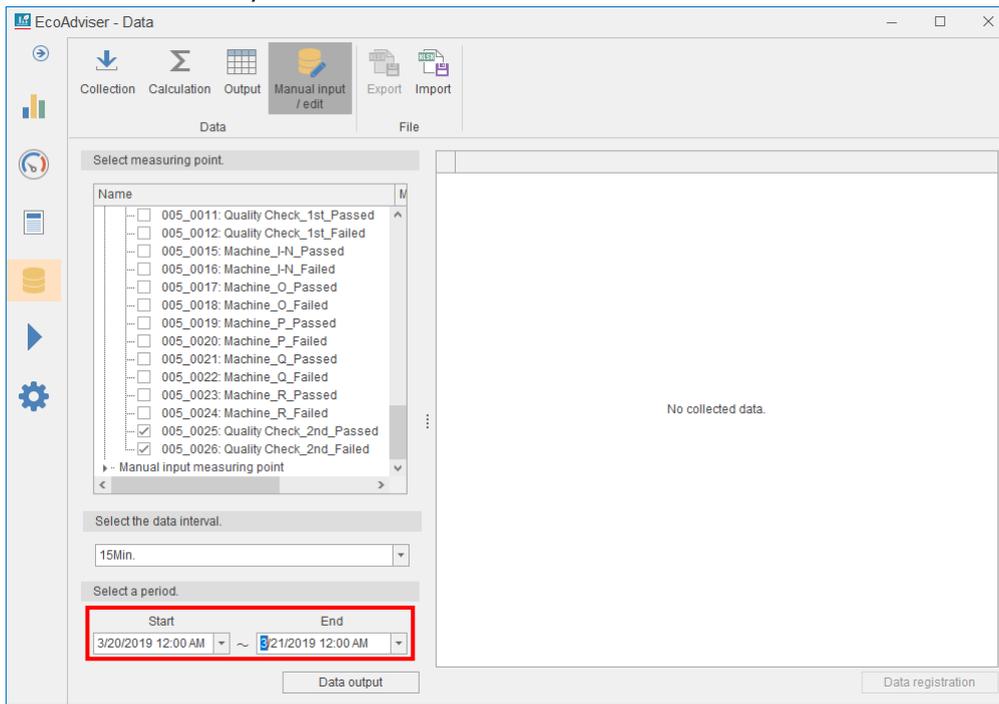
- (2) Select a period from the pull-down menu to export data.

When selecting from 15, 30, or 60 minutes, set the same data period as EcoAdviser (which is set in System Settings)

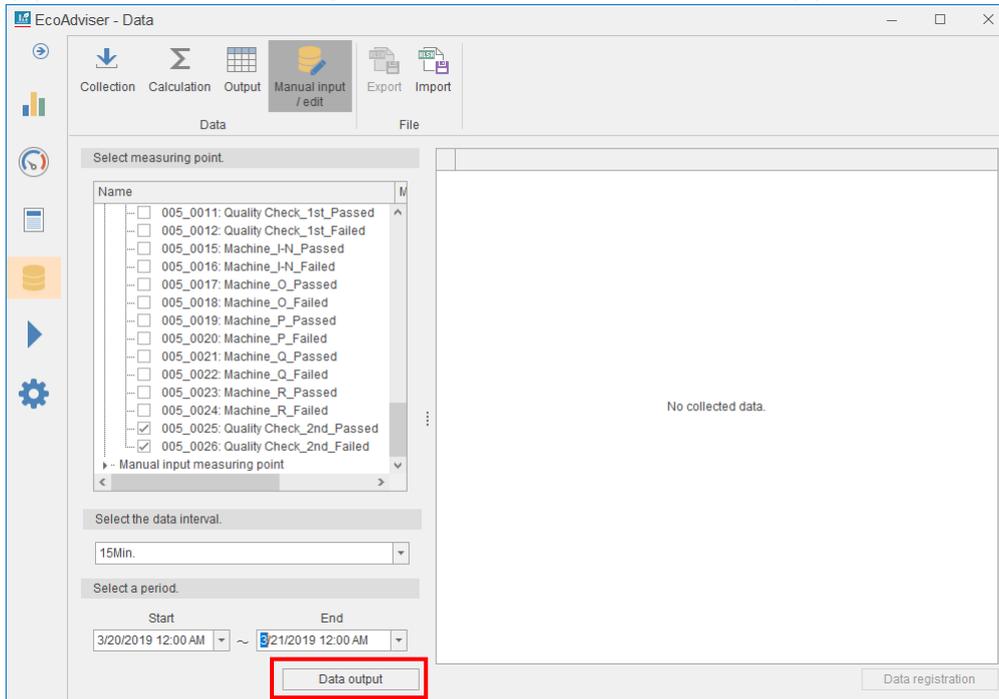
For the data period, refer to [4.3.4 Collection setting].



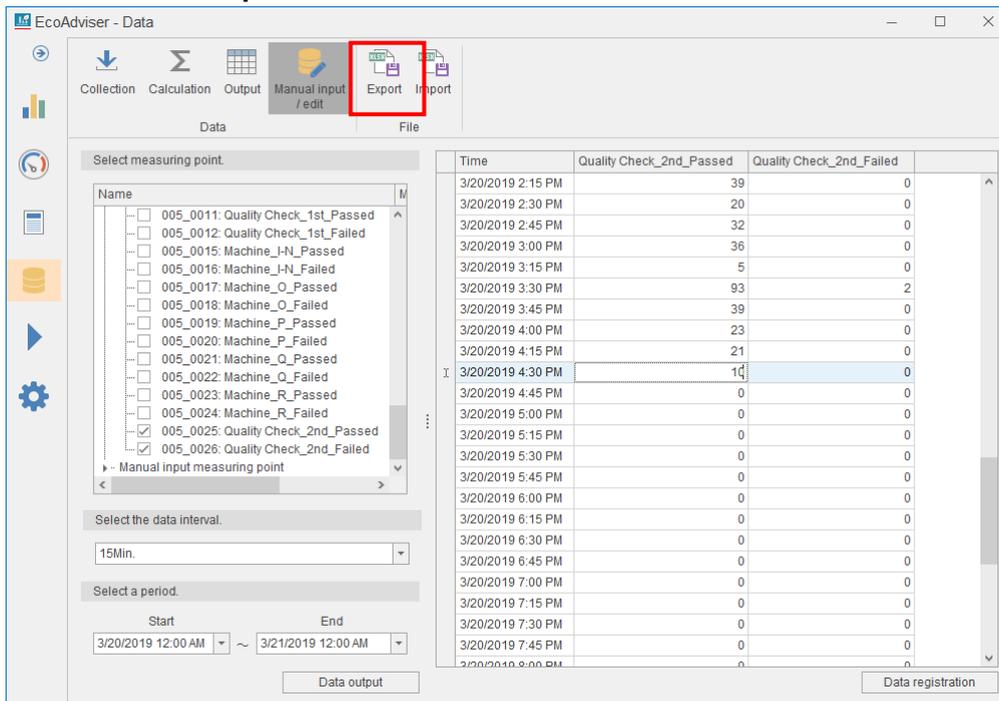
- (3) Specify the period from the pull-down menus of **Start** and **End** to export data.
 *Max. 31 days



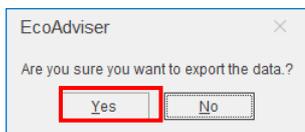
- (4) Click the **Data output** button to extract the measuring point data.



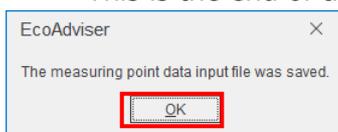
- (5) The extracted data is displayed on the right side of the window.
Click the **Export** button.



- (6) The following confirmation message appears.
Click the **Yes** button to export data.



- (7) When the export is completed, the following message appears.
Click the **OK** button to close the message.
This is the end of the operation.



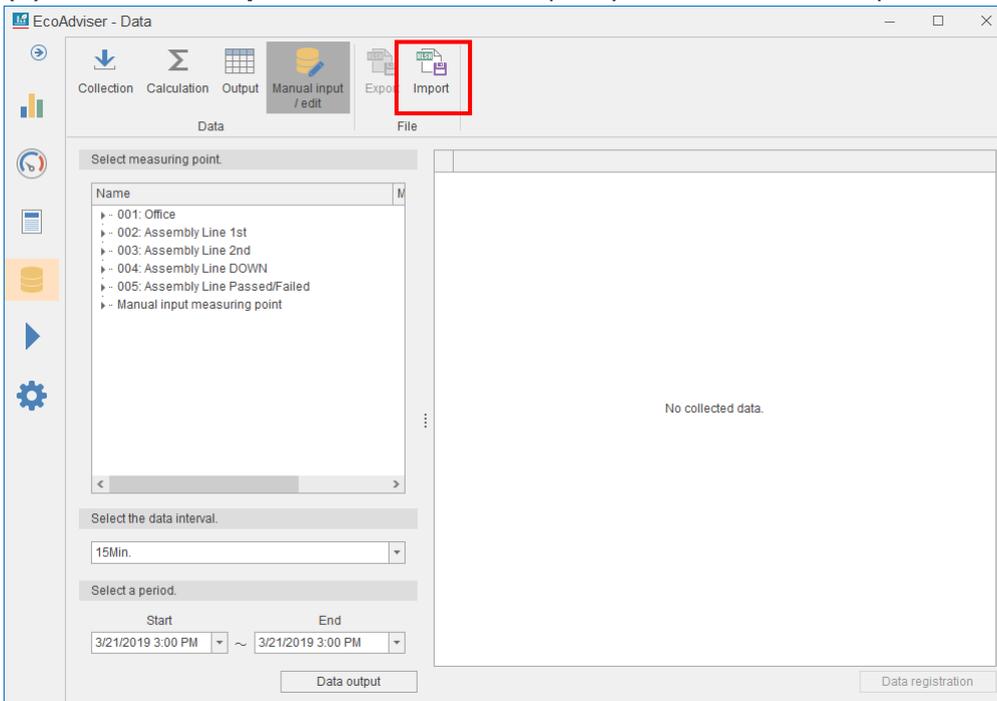
5.4.3 Importing measuring data

You will import the Excel file where measuring data has been manually input.

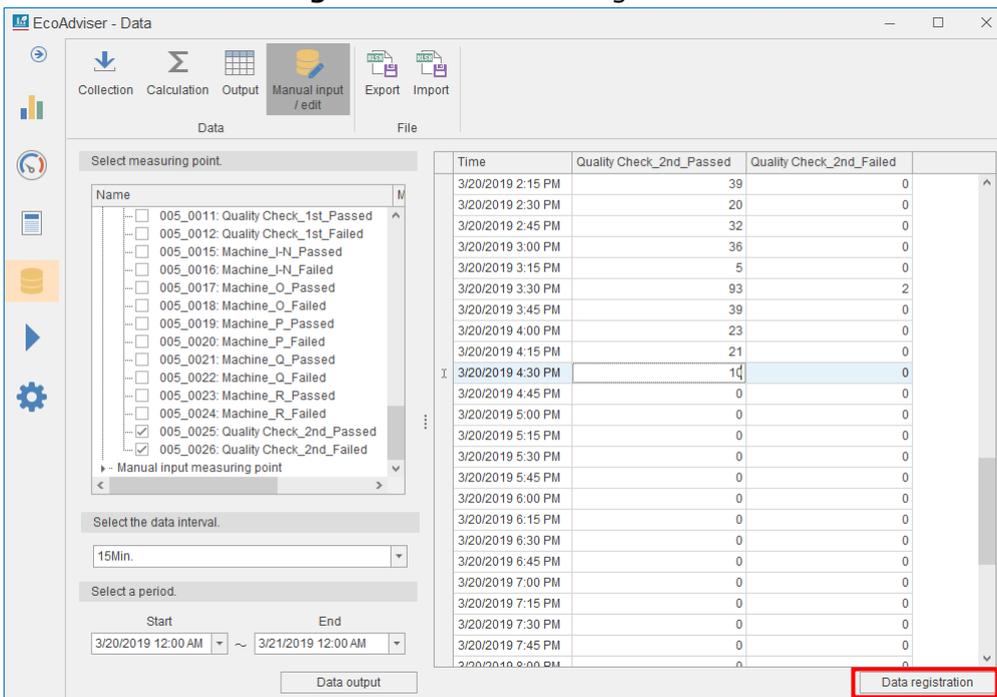
*Data imported at one time is 256 measuring points and 2976 lines (15-minute period data for 31 days).

*For the imported data, use the same data period as EcoAdviser.

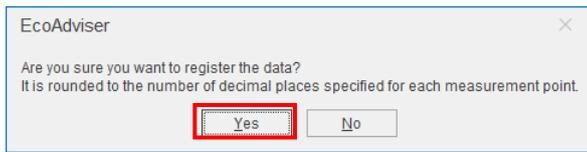
(1) Click the **Import** button and then specify the Excel file to import.



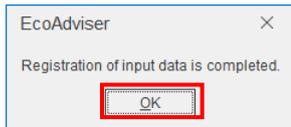
(2) The imported data is displayed on the right side of the window.
Click the **Data registration** button to register the data.



- (3) The following confirmation message appears.
Click the **Yes** button to start the data registration.



- (4) When the data registration is completed, the following message appears.
Click the **OK** button to close the message.
This is the end of the operation.



6. Auto Execute Settings

This chapter explains the functions of automatic execution.

Click the **Auto execute settings** button to enter the setting window.



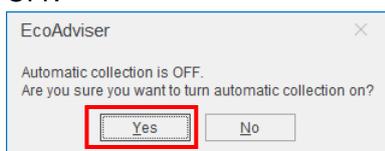
Setting	Details
Automatic collection	Collect data from the collection sources at the specified period (time). For details on the period (time) or the aggregation period for automatic collection, refer to [4.3.4 Collection setting].
Automatic report output *1	Output the report (daily/monthly/annual report) at the set date. For details on the output date and destination, refer to [10.2.1 Setting the output destination]. For the output report, refer to [10.2.2 Setting the automatic output].
Automatic data output *1	Output the data of the set measuring points to CSV files after automatic collection. For details, refer to [5.3 Output].
Automatic dashboard HTML output *1	Output the dashboard HTML file after automatic collection. For details on the output dashboard HTML file, refer to [9.3.2 Setting the automatic dashboard output].
Automatic dashboard update *1	Update the graphs and measuring values displayed on the dashboard on EcoAdviser after automatic collection.
Automatic diagnosis *1	This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI). Once a day, EcoAdviser diagnoses energy-loss. *In the time period after the Day aggregation period (time) with two hours, EcoAdviser diagnoses after automatic collection.

*1: To set this function to ON, the automatic collection setting must be ON.

If the setting is OFF, the following message will appear.

Click the **Yes** button to switch both this function and the automatic collection setting to ON.

In addition, if the automatic collection setting is switched to OFF, this function will also change to OFF.



6.1 Cautions

- This software has to be running in order that the Automatic collection can properly work.
Turn on your computer, activate this software, and then use this function while the software is still running. Furthermore, turn off sleep timer on your computer before starting Automatic collection, otherwise, this function cannot work properly.
- While you manually collect, calculate, input, or edit data or you perform energy-loss diagnosis, the function of auto execute settings does not work.
After the operation is completed, the function will work.
- When you restart EcoAdviser, the settings remain at the last end.
- Automatic collection may fail if the computer is heavily loaded. If it fails, collect the data manually.
The following shows some examples of the occurrence:
 - The automatic collection timing has passed during the processing of the software, and at least one hour has passed without executing the automatic collection.
 - A RAM shortage has occurred in other applications or software using CPU, RAM, or HDD.
 - Low-speed HDDs are used (slow processing).
 - HTTP communication is performed with a collection source of EcoWebServerIII under the condition of slow communication speed.
 - Automatic diagnosis is executed without even a manual diagnosis execution. (It takes longer to process if no-diagnosis day is diagnosed for a long time.)
 - The time of automatic report output is set near the run time of automatic diagnosis. (It takes longer to process report output or automatic diagnosis.)
- This function cannot collect data whose collection period is a duration that Automatic collection has not been functioned. Collect the data mentioned above manually, if necessary.

6.2 Automatic Data Collection

This section describes the details of automatic data collection.

6.2.1 Base time of automatic collection

EcoAdviser automatically collect data from the collection sources based on the current time of the computer.

If the time of the collection source is different from that of the computer, the latest logging file may not be collected.

Be sure to synchronize the time of each collection source and the computer regularly. The difference is 3 minutes or less as a guide.

*For Edgexross of collection sources, if the computer's time is ahead, data may not be collected from the collection source.

6.2.2 Data file of automatic collection

The following table shows the latest files to collect.

Collection source	Logging file type	The latest file
EcoWebServerIII	Zoom (1 min.) data file	Time of one hour before the computer's clock
	Demand (daily) data file	Date of one hour before the computer's clock
Edgexcross	Historical data file	The hindmost file by sorting the file name in ascending order. *1

*1: Note the following points for collected historical data files.

- When the first number and last number in the files are 00000001 and FFFFFFFF respectively, sort the files by putting 00000001 below FFFFFFFF to determine the latest file.
- For any files that neither are collected due to matters such as prefix change or errors nor are latest, you have to execute data collection.

6.3 Automatic Data Output

This section describes the details of automatic data output.

6.3.1 Data file of automatic output

EcoAdviser outputs the file according to the setting set at [5.3 Output].

The output file name is created using the number of the setting. If the same number file has already existed in the output destination, the file will be overwritten.

*For details on the file format, refer to [12.1 File Format].

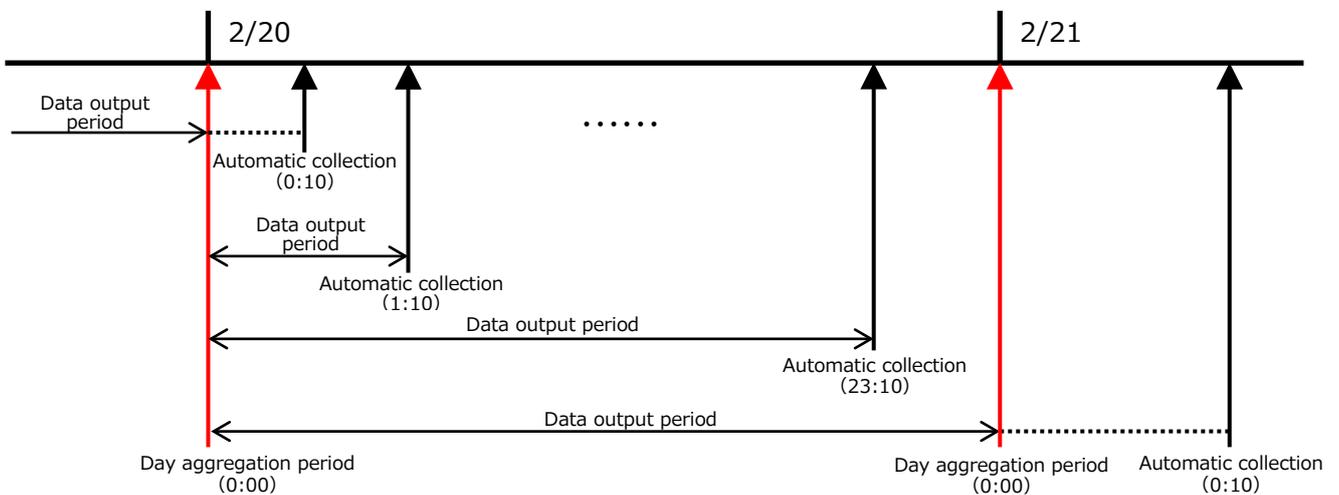
6.3.2 Data period of automatic output

At every automatic collection, EcoAdviser outputs 15/30/60-minute basis data from the day aggregation period to the automatic collection time.

The following illustration is an action example under the following settings:

- Data period: 15 minutes
- Day aggregation period: 0:00
- Automatic collection time for EcoWebServerⅢ: 10 minutes (every hour)

At the automatic collection executed at the same hour as the day aggregation period, data of the previous day is output. After that, data from the day aggregation period to the automatic collection time is output.



Auto collection time	Output data period
2/20 0:10	2/19 0:15 to 2/20 0:00
2/20 1:10	2/20 0:15 to 2/20 1:00
⋮	⋮
2/20 23:10	2/20 0:15 to 2/20 23:00
2/21 0:10	2/20 0:15 to 2/21 0:00

6.4 Automatic Diagnosis

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

This section describes the automatic diagnosis.

6.4.1 Timing of automatic diagnosis

Once a day, EcoAdviser automatically executes the diagnosis after automatic collection.

However, this executes when the automatic collection time is after the day aggregation period (hour) with two hours.

6.4.2 Details of automatic diagnosis

EcoAdviser automatically executes the following diagnoses.

- Energy-loss diagnosis → Refer to [7.3.3].
- Energy-loss factor diagnosis → Refer to [7.4.5].

The items of the energy saving viewpoint for diagnosis are ones selected at [7.2].

The diagnosis period is for days set at the last diagnosis with the previous day is the ending day.

*When the diagnosis is never executed, the term is 62 days.

<Example>

Diagnosis period of the last diagnosis: Jan. 1, 2020 to Jan. 15, 2020 (for 15 days)

→Diagnosis period of automatic diagnosis: 15 days before to the previous day (for 15 days)

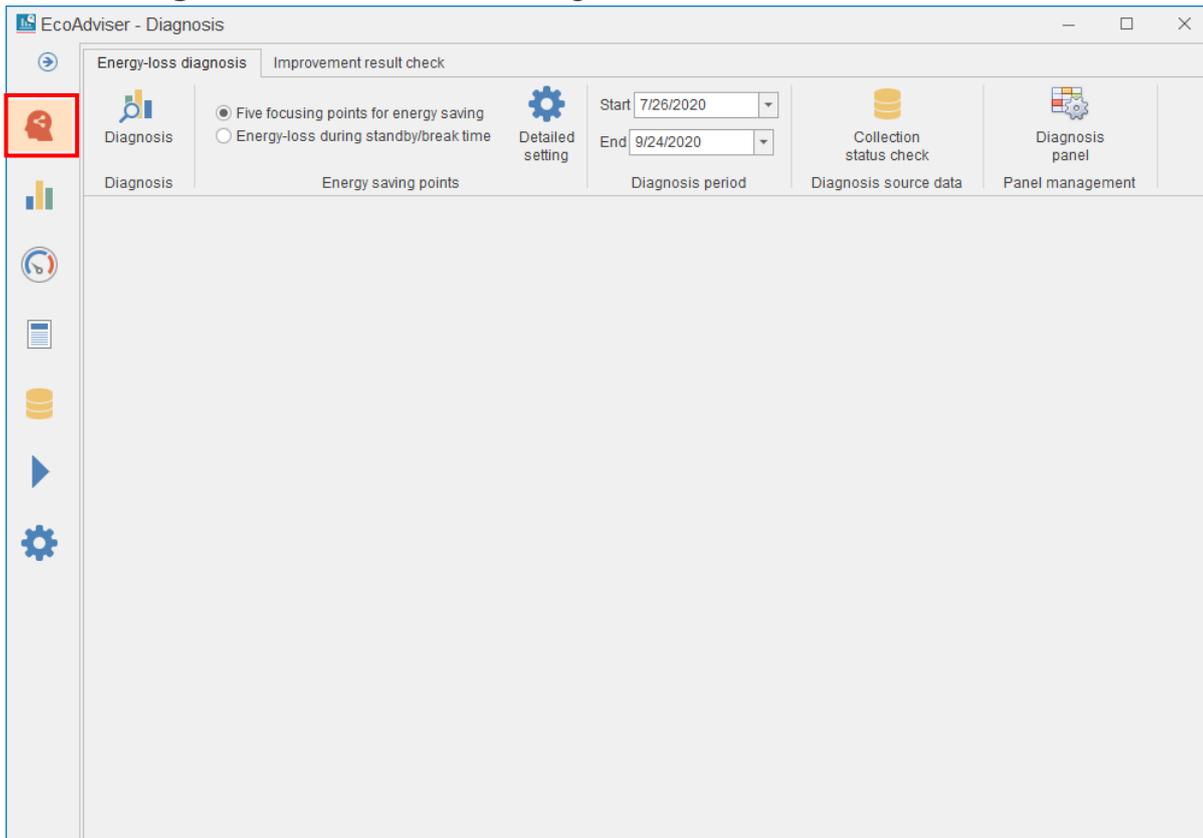
7. Diagnosis

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

This chapter explains the operations for diagnosis execution.

On the following window, you can check the result of energy-loss diagnosis or the improvement result by energy saving activities.

Click the **Diagnosis** button to enter the diagnosis window.



7.1 Outline

This section explains the outline of diagnosis function.

The diagnosis function diagnoses energy-loss of the equipment registered in [4.2 Diagnosis Settings].

The diagnosis has two types: energy-loss extraction and energy-loss factor diagnosis.

·Energy-loss extraction

The energy saving viewpoint enables EcoAdviser to calculate values by equipment and convert into the amount. The result of energy-loss ranks the equipment.

·Energy-loss factor diagnosis

The five focusing viewpoints for energy saving enables EcoAdviser to diagnoses how much factors, such as time, day, and production volume, cause energy-loss. It is possible to diagnose factors including the product type by setting. The user evaluates the effectiveness of the result of energy-loss factor diagnosis by AI, and AI performs diagnosis considering the evaluation at the following diagnosis.

The energy-loss diagnosis requires calculation of each value of the energy saving viewpoint.

For the energy saving viewpoint, refer to [What is energy saving viewpoint?] in the next page.

■What is energy saving viewpoint?

It is used to diagnose the equipment where energy-loss is occurring.

The following table explains each item of the energy saving viewpoint.

Energy saving viewpoint		Details
Five focusing viewpoints for energy saving	(1) Equipment time-loss (start-up)	Time period from the equipment ON state to the start of production
	(2) Equipment time-loss (shut-down)	Time period from the end of production to the change to the equipment OFF state
	(3-1) Utility time-loss (start-up)	The difference between the time of change to the utility ON state and the time of change to the equipment ON state *Depending on the case, it may be negative value.
	(3-2) Utility time-loss (shut-down)	The difference between the time of change to the utility OFF state and the time of change to the equipment OFF state *Depending on the case, it may be negative value.
	(4) Specific consumption	The specific consumption from the start to the end of production
	(5) Production loss time rate	Time rate of no production from the start to the end of production in the day *Data during the break time is included in the calculation.
Energy-loss during the standby/break time	(1) Energy-loss during the standby time (equipment)	Energy consumption of the equipment during the equipment OFF state
	(2) Energy-loss during the standby time (utility)	Energy consumption of the utility during the utility OFF state
	(3) Energy-loss during the break time (equipment)	Energy consumption of the equipment during the break time *It is calculated regardless of the production status.
	(4) Energy-loss during the break time (utility)	Energy consumption of the utility during the break time *It is calculated regardless of the equipment ON/OFF state and the production status.

*1: The start of production and the end of production are defined as the following:

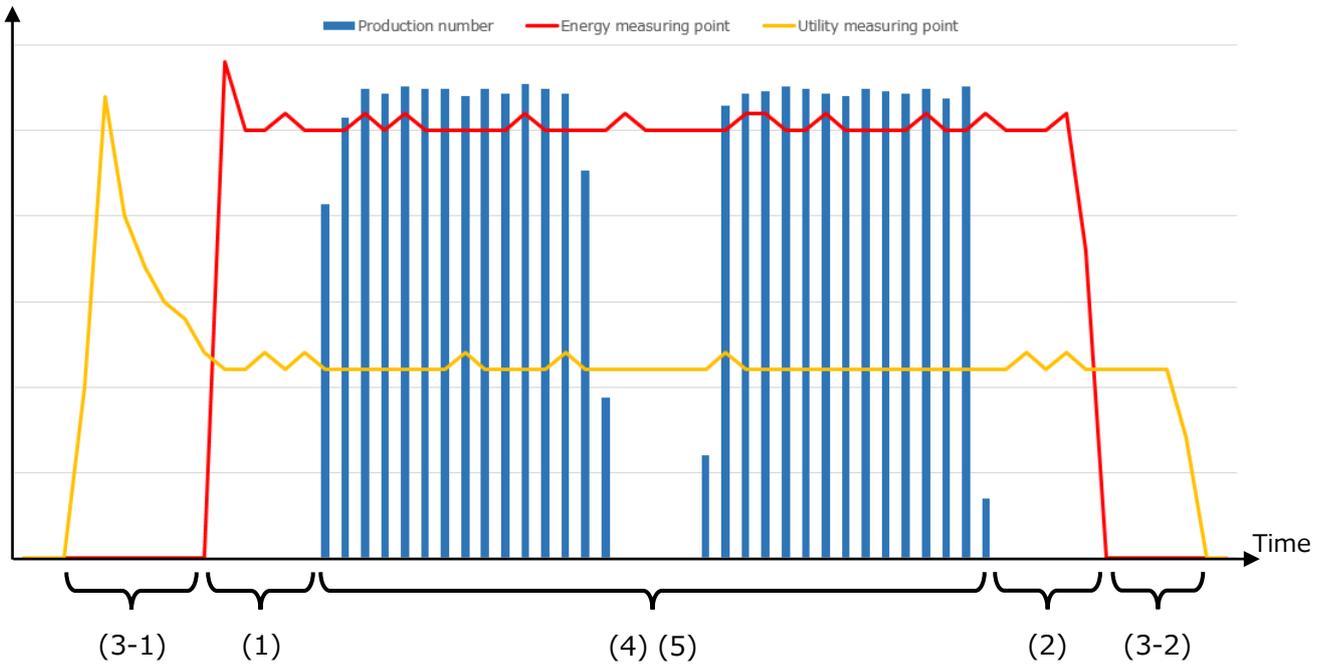
Start of production: The time of the first count of production volume after the equipment start-up

End of production: The time of the last count of production volume before the equipment shut-down

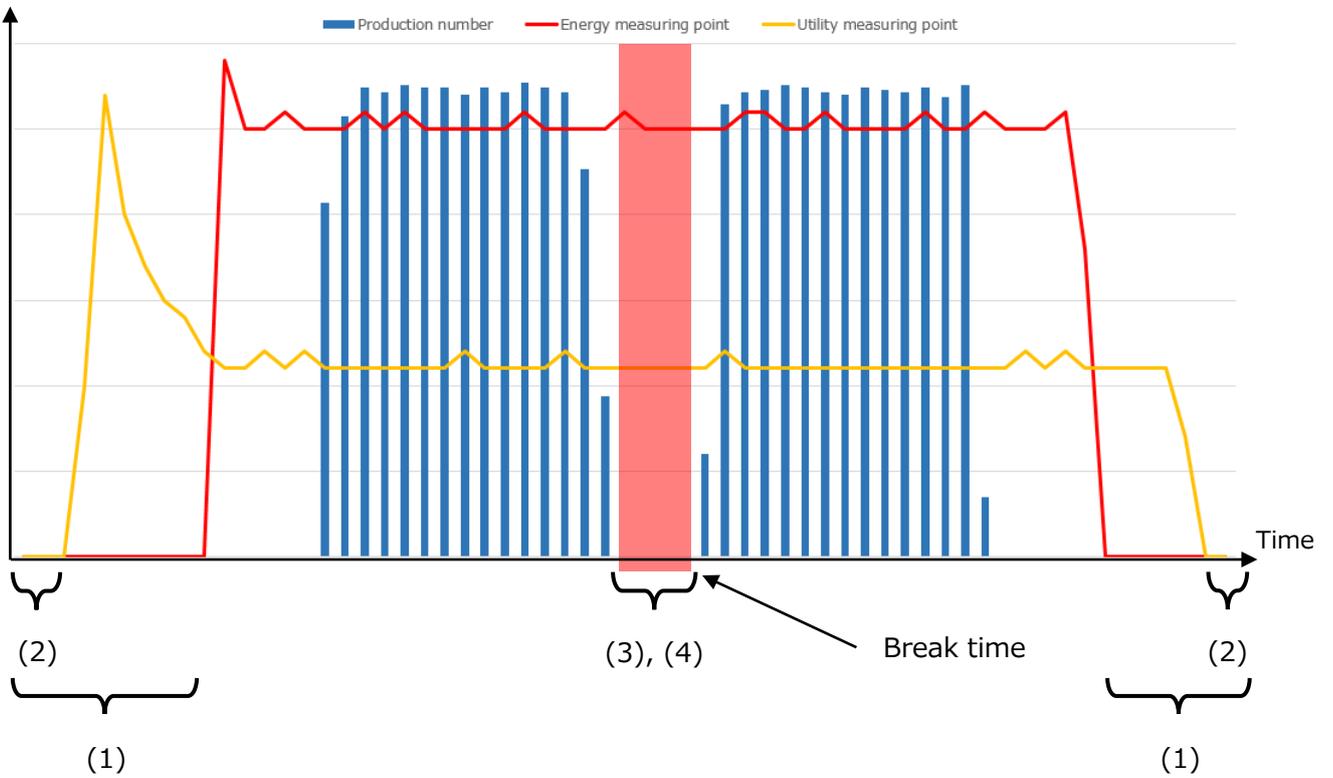
*2: The equipment ON/OFF state is determined by the energy consumption threshold value for determining the equipment off state. The utility ON/OFF state is determined by the energy consumption threshold value for determining the utility off state.

For details, refer to [4.2.2 Registering/Changing the equipment information].

<Five focusing viewpoints for energy saving>



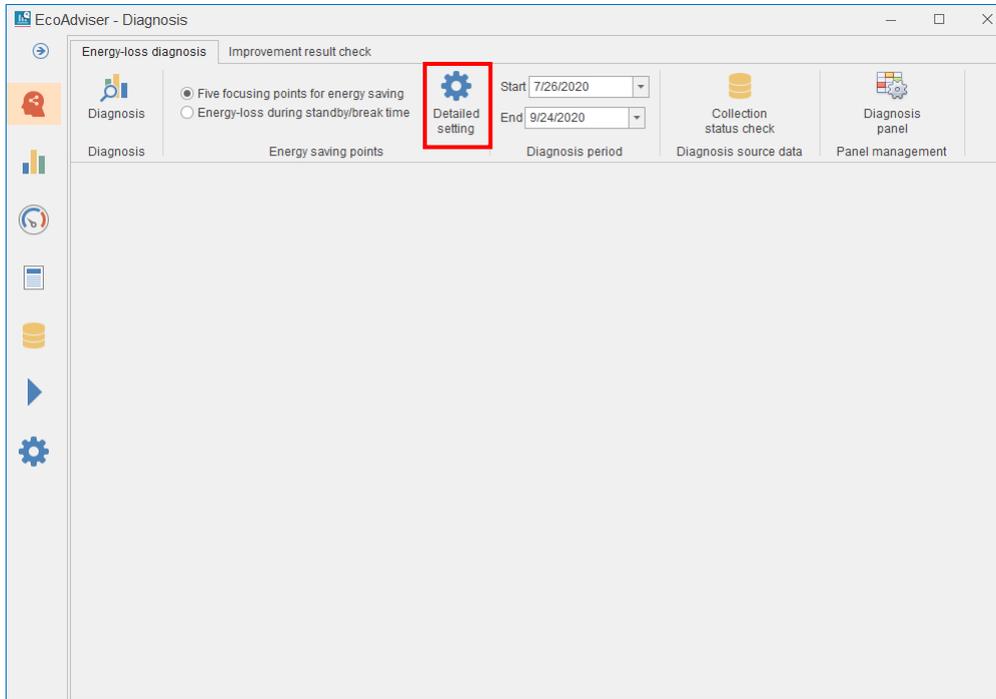
<Energy-loss during the standby/break time>



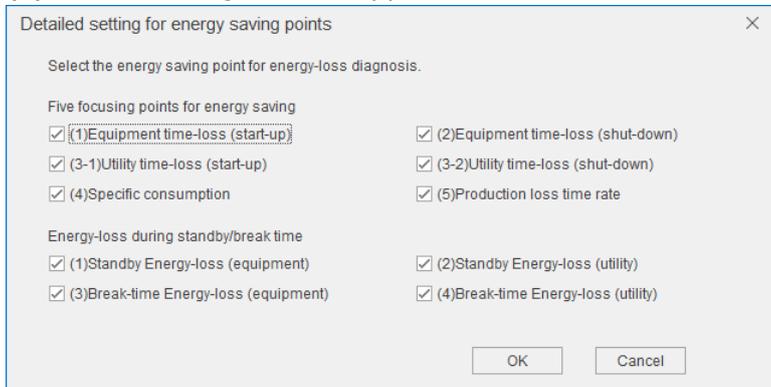
7.2 Energy-Loss Diagnosis Settings

You will set the energy saving viewpoint used for diagnosis.

(1) Click the **Detailed setting** button.



(2) The following window appears.



Click items of the energy saving viewpoint you want to use for diagnosis to check the boxes and then click the **OK** button.

If you click the **Cancel** button or click the **x** button to close the window, the setting will not be saved.

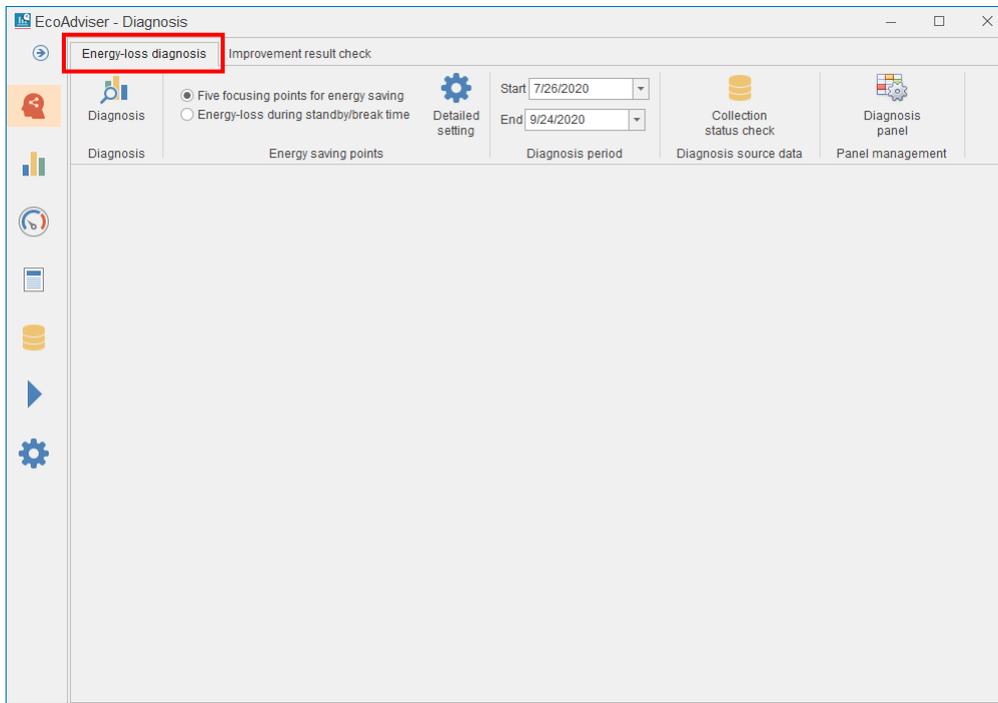
*The default setting is all the boxes checked.

*If you change the settings after the operation starts, refer to [12.3 Operation for Setting Change about Diagnosis].

*It is impossible to set different settings for each diagnosis target (equipment).

7.3 Energy-Loss Diagnosis by Manual Operation

You will execute energy-loss diagnosis of the registered equipment from the **Energy-loss diagnosis** tab.



7.3.1 Collecting the data used for diagnosis

The diagnosis requires diagnosis data from collection sources.

The diagnosis data from collection sources can be stored for 62 days.

If you want to diagnose data for more than 62 days, collect data and execute diagnosis several times.

For example, when you want to diagnose the data from Jun. 1, 2020 to Aug 31, 2020, collect and diagnose data two times: 1st: Jun. 1, 2020 to Jul. 31, 2020; 2nd: Aug. 1, 2020 to Aug. 31, 2020

Accordingly, before diagnosis execution, check that the diagnosis data from collection sources is stored for the period you want to diagnose.

Note

Diagnosis data from collection sources is 1-minute data collected from collection sources.

The storage period is for 62 days before the last collection day. Any expired data is deleted.

<Example 1> Data collection order: Nov. 1, 2019 to Dec. 31, 2019; Jan. 1, 2020 to Jan. 31, 2020

Storage period: Dec. 1, 2019 to Jan. 31, 2020

The data from Nov. 1, 2019 to Nov. 30, 2019 is deleted.

<Example 2> Data collection order: Dec. 1, 2019 to Jan. 31, 2020; Nov. 1, 2019 to Nov. 30, 2019

Storage period: Sep. 30, 2019 to Nov. 30, 2019

The data from Dec. 1, 2019 to Jan. 31, 2020 is deleted.

* These are also true that if you collect 1-minute data from multiple collection sources sequentially.

<Example 3>

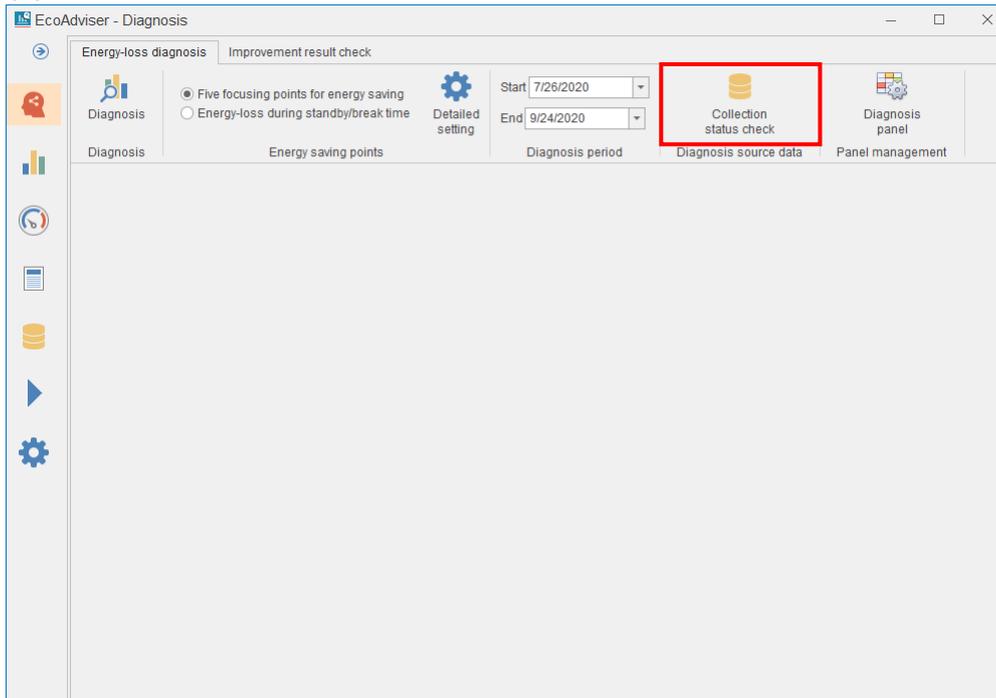
First, Diagnosis data is collected from collection source 1 Jul. 1 to Aug. 31.

Second, Diagnosis data is collected from collection source 2 Jul. 1 to Aug. 15.

This operation leads to the result that the data from Aug. 16 to Aug. 31 will be deleted.

To avoid this situation, diagnosis data is collected from collection source 2 first, and then diagnosis data is collected from collection source 1.

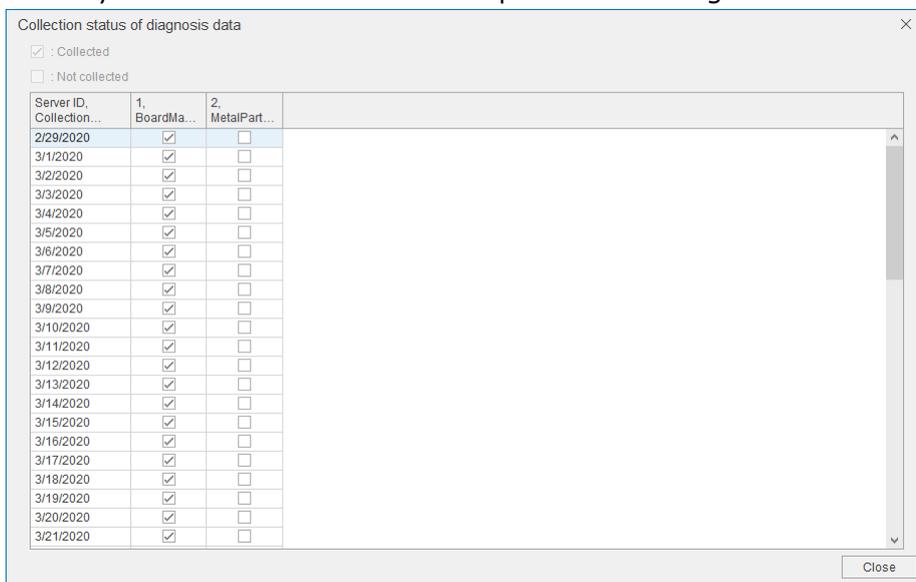
(1) Click the **Collection status check** button.



(2) The following window appears.

The diagnosis data from collection sources currently stored is displayed.

Any boxes with the checkmark represent that diagnosis data from collection sources is stored.



When all the boxes are checked for the period you want to diagnose, move to [7.3.2 Setting the diagnosis].

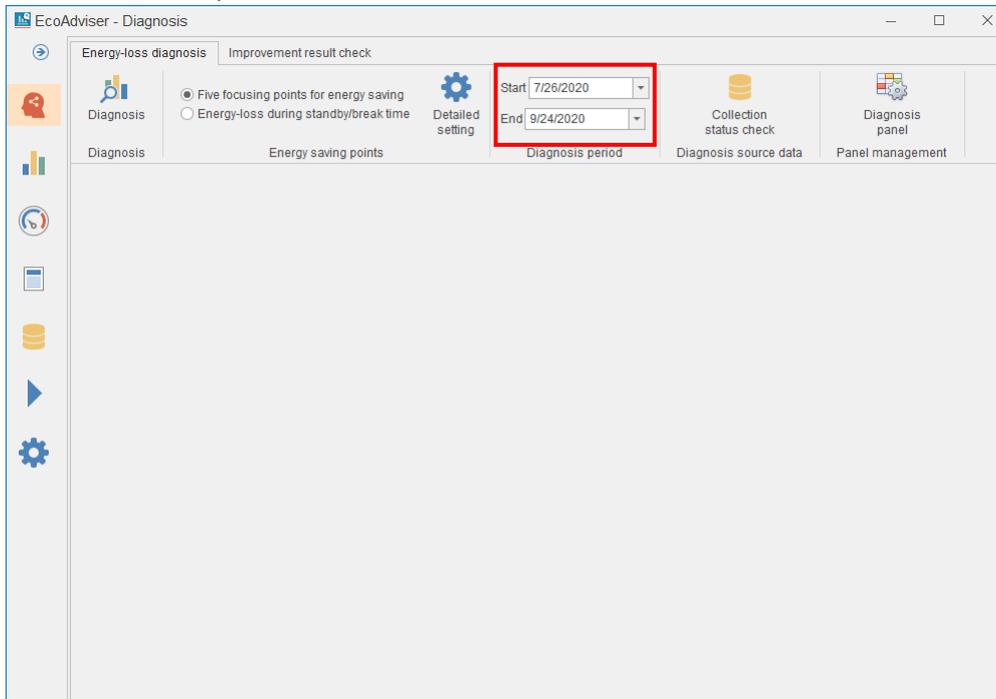
If there is any box without the checkmark in that period, move to [5.1 Manual Collection] in order to collect data of the date from the collection source.

*When there is even one data of the date, the box is checked. For diagnosis of the date, two-hour or more continuous serial data is required. Even if the box is checked, there is a case that the diagnosis result may not be displayed.

7.3.2 Setting the diagnosis period

You will set the diagnosis period.

Select from the pulldown menus of **Start** and **End**.



Item	Details
Start	Set the start date of the diagnosis period
End	Set the end date of the diagnosis period

*It is possible to set max. 366 days for diagnosis period.

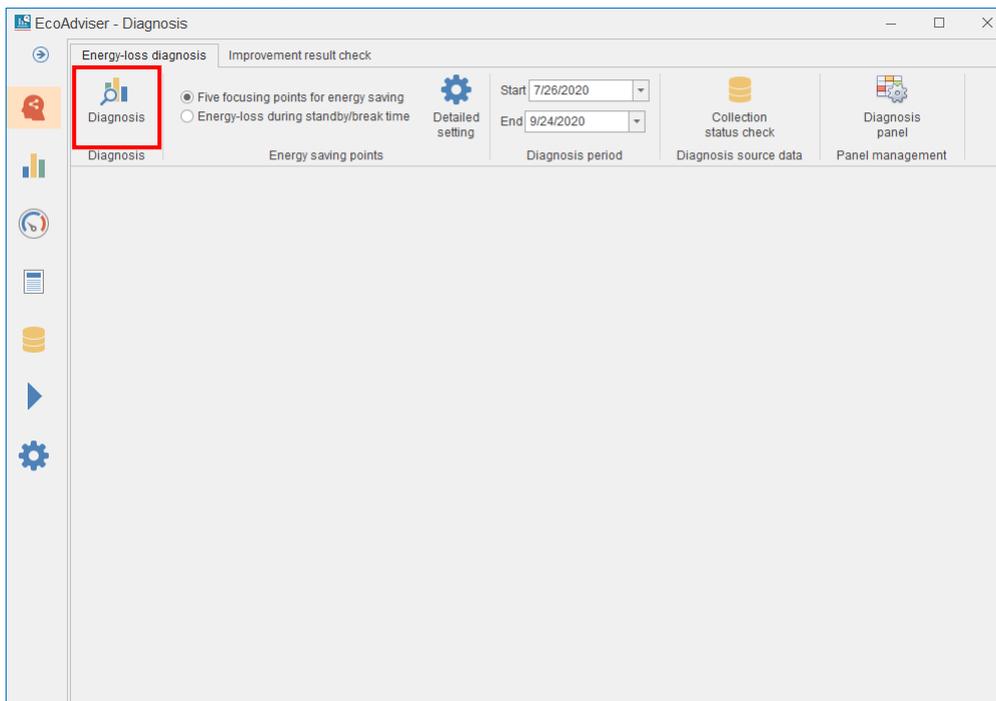
7.3.3 Executing energy-loss diagnosis

You will execute energy-loss diagnosis.

Click the **Diagnosis** button to execute the diagnosis.

The result is displayed on the window. For details on how to check the result, refer to [7.4 Energy-Loss Diagnosis Result Check].

*If you want to cancel the diagnosis midway, click the **×** button on the upper right of the window to exit EcoAdviser. For details, refer to [3.1.2 Exiting EcoAdviser]. In such case, the diagnosis is not disabled and not saved.



7.4 Energy-Loss Diagnosis Result Check

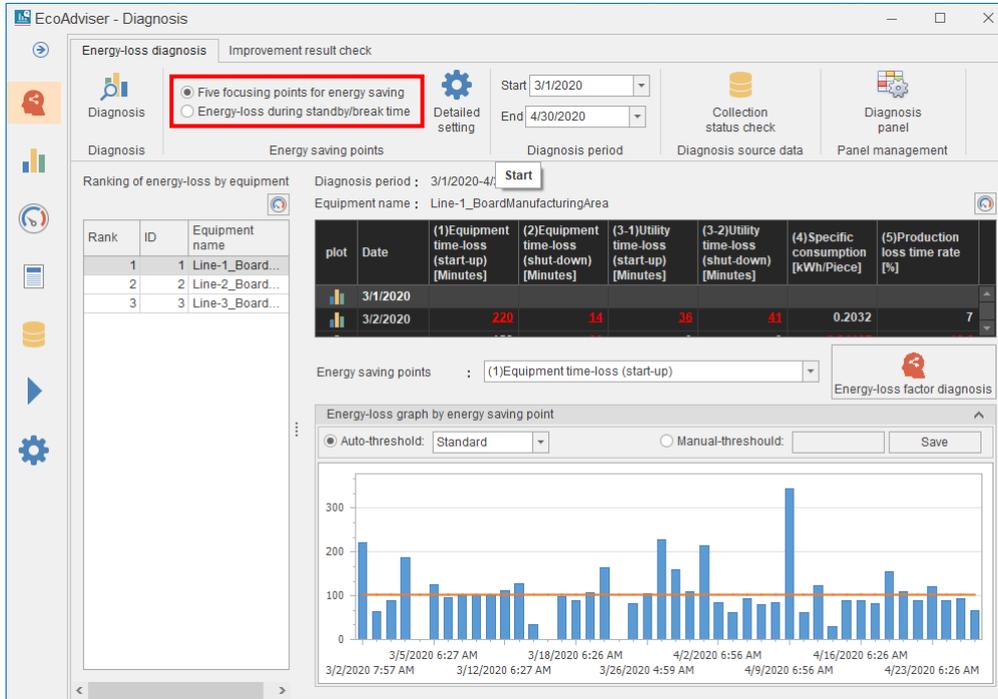
This section explains how to check the result of energy-loss diagnosis or its operation.

No.	Item	Details	Reference
(1)	Switching the energy saving viewpoint	Select an energy saving viewpoint to display the result of energy-loss diagnosis. Depending on the selected item, the display (2) to (5) on the window is changed.	7.4.1
(2)	Energy-loss worst ranking	Rank the equipment according to energy-loss. By selecting the equipment, the values of energy saving viewpoint, the graph display of energy saving viewpoint, and the energy-loss factor diagnosis are displayed.	7.4.2
(3)	Value of energy saving viewpoint	Display the value of each energy saving viewpoint item for the equipment selected at the energy-loss worst ranking.	7.4.3
(4)	Graph display of energy saving viewpoint	Display the graph of each energy saving viewpoint item for the equipment selected at the energy-loss worst ranking.	7.4.4
(5)	Energy-loss factor diagnosis	Rank the pre-set energy-loss factors in order of relevance with energy-loss.	7.4.5

7.4.1 Switching the energy saving viewpoint

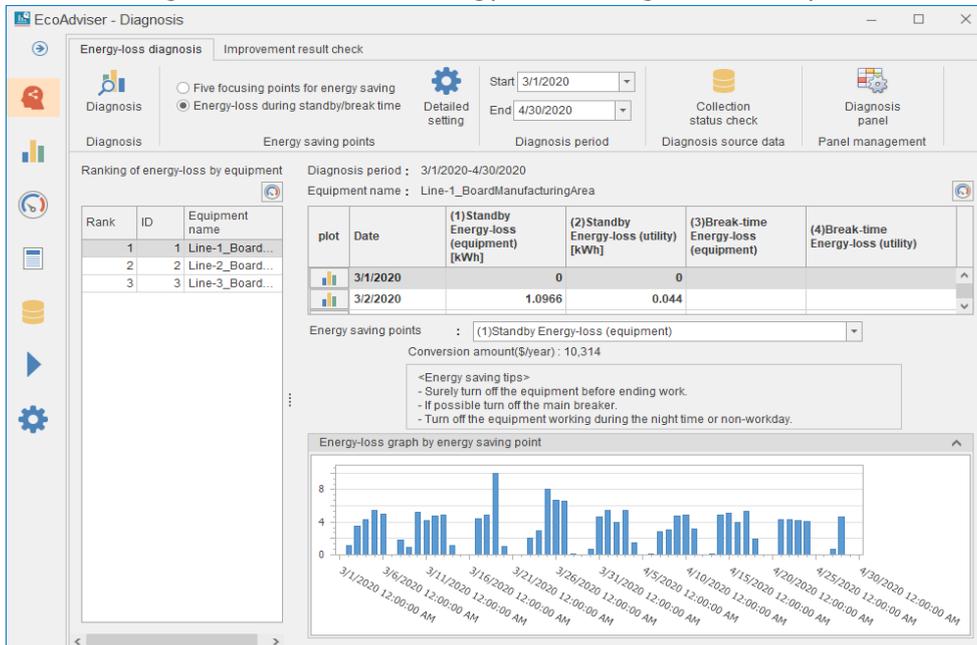
You will switch the energy saving viewpoint from the radio button. The result is displayed according to the setting set at [7.2 Energy-Loss Diagnosis Setting].

Select the energy saving viewpoint from the radio button. The following is the window of five focusing viewpoints for energy saving.



Radio button	Details
Five focusing viewpoints for energy saving	Display the diagnosis result of five focusing viewpoints for energy saving.
Energy-loss during standby/break time	Display the diagnosis result of energy-loss during the standby/break time.

The following is the window of energy-loss during the standby/break time.



7.4.2 Checking the energy-loss worst ranking

You will check the ranking for energy-loss by equipment.

The screenshot shows the 'EcoAdviser - Diagnosis' window. The 'Ranking of energy-loss by equipment' table is highlighted with a red box. The table contains the following data:

Rank	ID	Equipment name
1	1	Line-1_Board...
2	2	Line-2_Board...
3	3	Line-3_Board...

Below the table, there is a table of energy loss data for two dates:

plot	Date	(1)Equipment time-loss (start-up) [Minutes]	(2)Equipment time-loss (shut-down) [Minutes]	(3-1)Utility time-loss (start-up) [Minutes]	(3-2)Utility time-loss (shut-down) [Minutes]	(4)Specific consumption [kWh/Piece]	(5)Production loss time rate [%]
	3/1/2020						
	3/2/2020	220	14	36	41	0.2032	7

■ Saving the ranking table

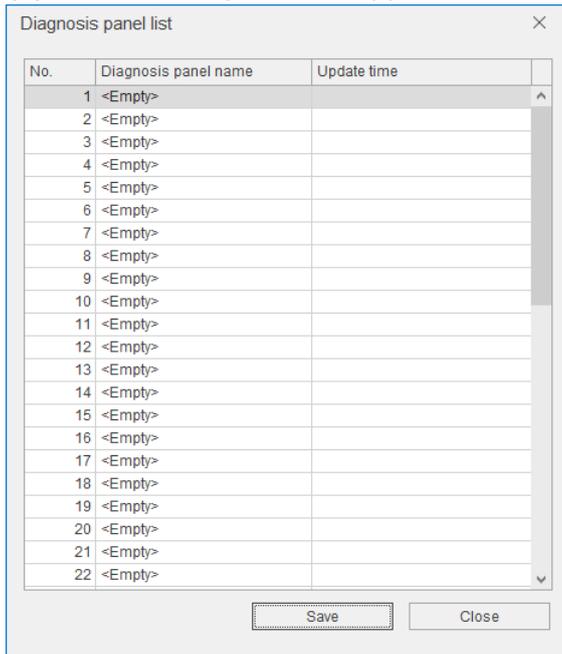
The ranking table currently displayed is saved in the diagnosis panel.

The saved panel is available on the dashboard.

(1) Click  (dashboard icon).

The screenshot shows the 'EcoAdviser - Diagnosis' window with the dashboard icon in the left sidebar highlighted with a red box. The dashboard icon is a circular icon with a gear and a play button.

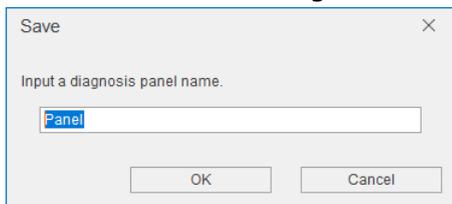
(2) The following window appears.



(3) Select the saving destination and then click the **Save** button.

(4) The following window appears.

Enter a name to register the diagnosis panel and then click the **OK** button.



(5) When the saving is completed, the window closes.

7.4.3 Checking values of the energy saving viewpoint

You will check values of the energy saving viewpoint in the table.

■ Table

The details of the table are describe as follows.

Diagnosis period : 3/1/2020-4/30/2020 (1)							
Equipment name : Line-1_BoardManufacturingArea (2) (3)							
plot	Date	(1)Equipment time-loss (start-up) [Minutes]	(2)Equipment time-loss (shut-down) [Minutes]	(3-1)Utility time-loss (start-up) [Minutes]	(3-2)Utility time-loss (shut-down) [Minutes]	(4)Specific consumption [kWh/Piece]	(5)Production loss time rate [%]
	3/1/2020						
	3/2/2020	220	14	36	41	0.2032	7
	3/3/2020	152	20	0	6	0.24107	18.6
	3/4/2020	187	0	386	0	0.28133	24.8
	3/5/2020	125	13	-9	234	0.22755	15.1
	3/6/2020	96	3	-11	405	0.18813	7.8
	3/7/2020						
	3/8/2020						
	3/9/2020	100	16	8	25	0.22546	10.1

No.	Item name	Details
(1)	Diagnosis period	Display the diagnosis period you set. For details, refer to [7.3.2].
(2)	Equipment name	Display the equipment selected at the energy-loss worst ranking.
(3)	Energy saving viewpoint	Display items of the energy saving viewpoint you set. For details, refer to [7.2] or [7.4].
(4)	Values	Display each value*1 of the energy saving viewpoint. When there is any deterioration point*2 in the day, it is displayed in red with underline.

*1: Each figure is displayed as a summed value in each category on each day, respectively (except for both the specific consumption and the production loss time rate).

*2: This applies to only five focusing viewpoints for energy saving.

The deterioration point means the date with the amount of energy-loss equals to the threshold value or more. Even if without any energy-loss, however, the deterioration point might be identified, while the threshold value is set to be zero.

For details on how to set the threshold to determine any deterioration points, refer to [7.4.4].

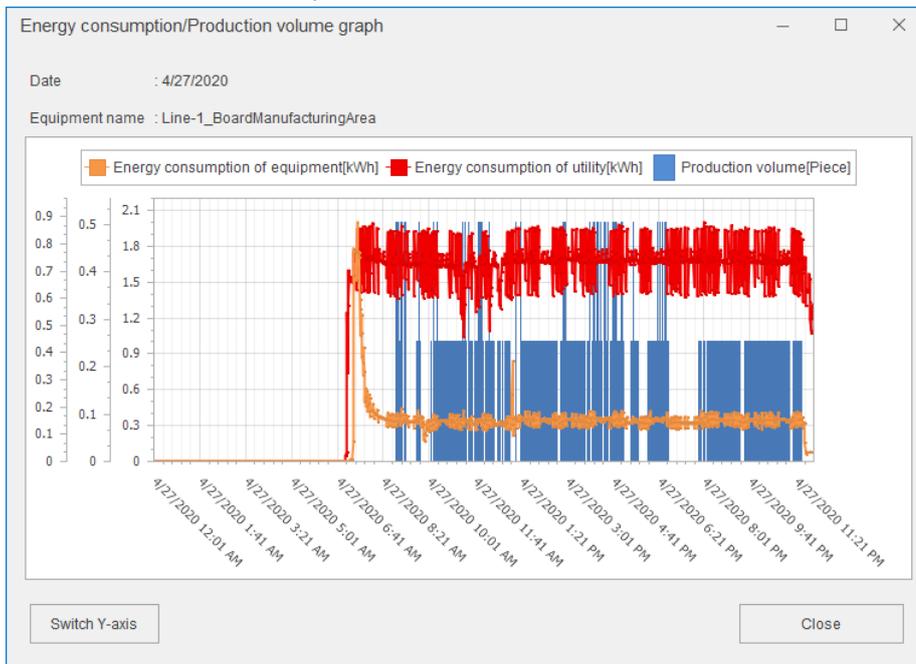
■ Display of energy consumption/production volume graph

The energy consumption/production volume graph can be displayed for 366 days before the present time of the used computer in the diagnosis period.

*Only one window is used to display the graph.

If you try to display several windows, the warning message will appear and the graph will not be displayed.

In order to display the graph for the date that user specified, the diagnosis data of the same date must be stored. Furthermore, those data must be two-hour or more continuous serial data.

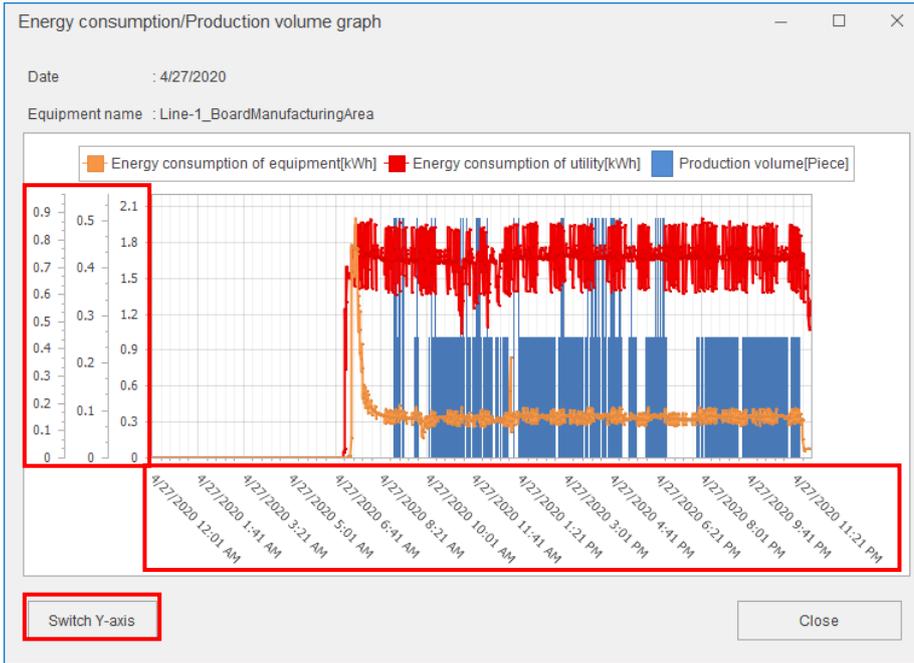


(1) Click  (graph icon) next to the date where you want to display in the graph.

Diagnosis period : 3/1/2020-4/30/2020
 Equipment name : Line-1_BoardManufacturingArea

plot	Date	(1)Equipment time-loss (start-up) [Minutes]	(2)Equipment time-loss (shut-down) [Minutes]	(3-1)Utility time-loss (start-up) [Minutes]	(3-2)Utility time-loss (shut-down) [Minutes]	(4)Specific consumption [kWh/Piece]	(5)Production loss time rate [%]
	3/1/2020						
	3/2/2020	220	14	36	41	0.2032	7
	3/3/2020	152	20	0	6	0.24107	18.6
	3/4/2020	187	0	386	0	0.28133	24.8
	3/5/2020	125	13	-9	234	0.22755	15.1
	3/6/2020	96	3	-11	405	0.18813	7.8
	3/7/2020						
	3/8/2020						
	3/9/2020	100	16	8	25	0.22546	10.1

(2) The following window appears.



The following table shows the items for graph operation.

Item	Details
Vertical axis	<p>Display the graph scale. The vertical axis has two types:</p> <ul style="list-style-type: none"> ● Display the graphs of energy measuring point and utility measuring point with different vertical axes. *Default ● Display the graphs with one vertical axis. <p>When the vertical axis is displayed for each graph, the graph display order is energy measuring point, utility measuring point, and production volume from the left.</p> <p>*By clicking the Switching the vertical axis button, change the display style.</p>
Horizontal axis	<p>Display the day aggregation period (hour) from the date to the next day.</p> <p>*The sampling interval of the graph is 1 minute.</p>
Switching the vertical axis	<p>Switch the display style of the vertical axis.</p>

■ Saving values of the energy saving viewpoint

The table of the energy saving viewpoint currently displayed table is saved in the diagnosis panel. The saved panel is available on the dashboard.

(1) Click  (dashboard icon).

Diagnosis period : 3/1/2020-4/30/2020
 Equipment name : Line-1_BoardManufacturingArea

plot	Date	(1)Equipment time-loss (start-up) [Minutes]	(2)Equipment time-loss (shut-down) [Minutes]	(3-1)Utility time-loss (start-up) [Minutes]	(3-2)Utility time-loss (shut-down) [Minutes]	(4)Specific consumption [kWh/Piece]	(5)Production loss time rate [%]
	3/1/2020						
	3/2/2020	220	14	36	41	0.2032	7
	3/3/2020	152	20	0	6	0.24107	18.6
	3/4/2020	187	0	386	0	0.28133	24.8
	3/5/2020	125	13	-9	234	0.22755	15.1
	3/6/2020	96	3	-11	405	0.18813	7.8
	3/7/2020						
	3/8/2020						
	3/9/2020	100	16	8	25	0.22546	10.1

(2) The following window appears.

Diagnosis panel list

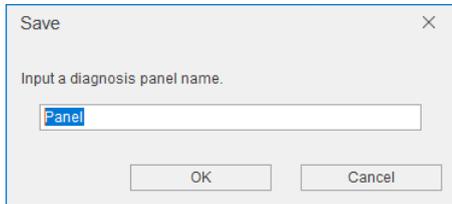
No.	Diagnosis panel name	Update time
1	<Empty>	
2	<Empty>	
3	<Empty>	
4	<Empty>	
5	<Empty>	
6	<Empty>	
7	<Empty>	
8	<Empty>	
9	<Empty>	
10	<Empty>	
11	<Empty>	
12	<Empty>	
13	<Empty>	
14	<Empty>	
15	<Empty>	
16	<Empty>	
17	<Empty>	
18	<Empty>	
19	<Empty>	
20	<Empty>	
21	<Empty>	
22	<Empty>	

Save Close

(3) Select the saving destination and then click the **Save** button.

(4) The following window appears.

Enter a name to register the diagnosis panel and then click the **OK** button.



(5) When the saving is completed, the window closes.

7.4.4 Displaying the energy saving viewpoint in the graph

The diagnosis result is displayed in the graph for the selected energy saving viewpoint. When you select the setting of five focusing viewpoints for energy saving, the energy-loss factor diagnosis is displayed. For details, refer to [7.4.5].

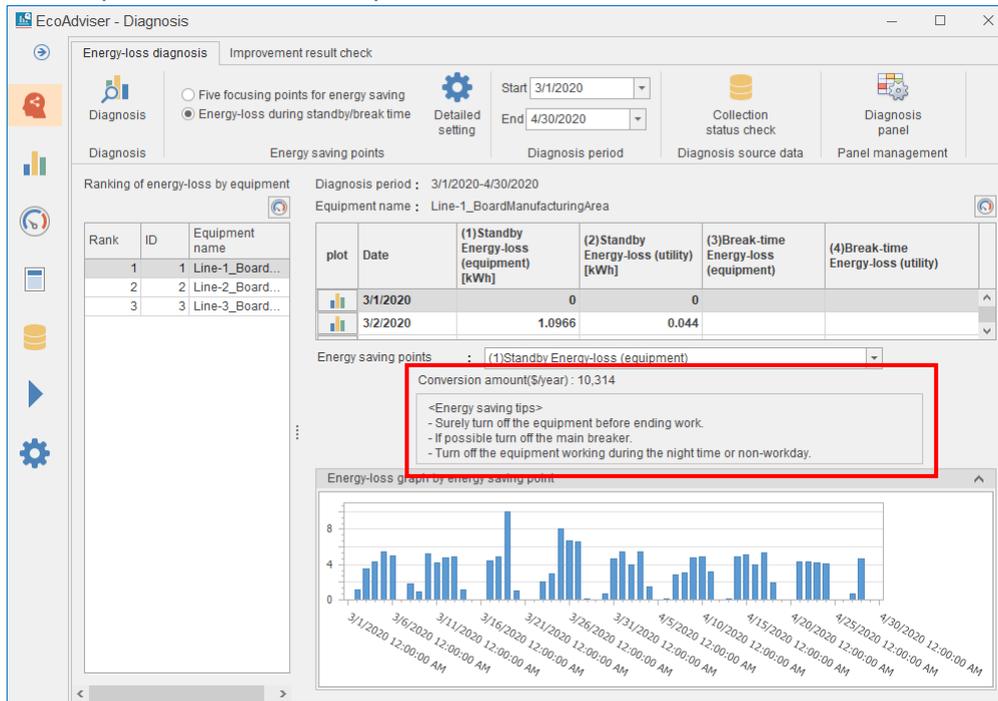
■ Advice for energy saving

When you select the energy-loss during the standby/break time, the energy saving result and the energy saving tips are displayed.

The energy saving result is displayed as follows:

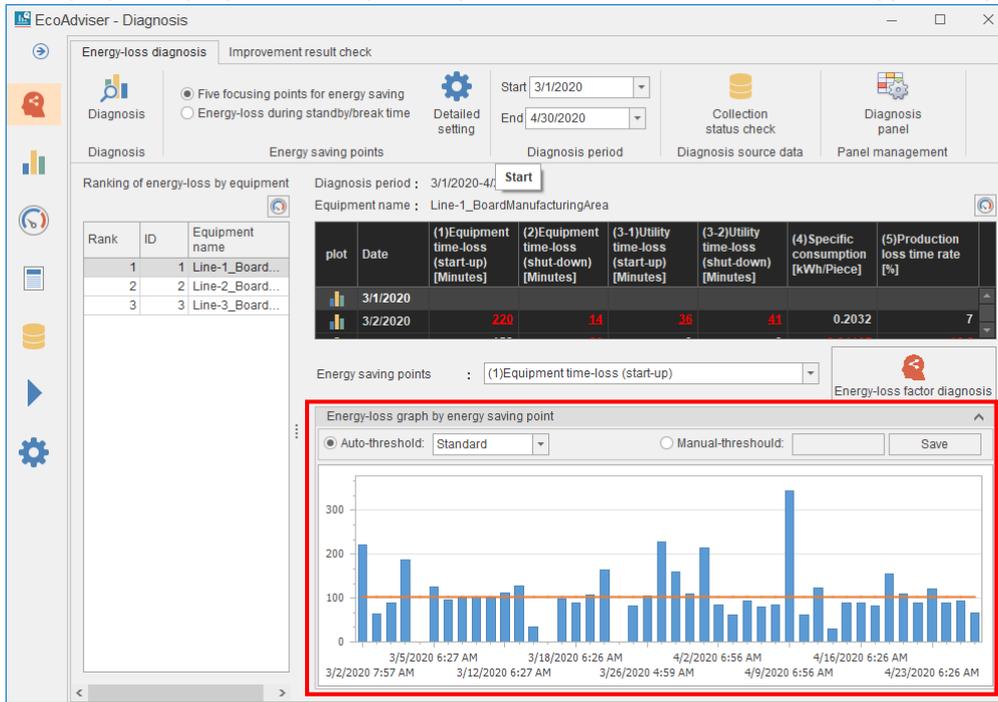
·Conversion amount [*** /year]: XX

·*** represents the currency unit and XX is the amount of conversion of energy-loss set at [4.2.4].



■ Detailed graph

The graph display varies depending on a selected item of the energy saving viewpoint.



Energy saving viewpoint		Details of graph
Five focusing viewpoints for energy saving	(1) Equipment time-loss (start-up)	Data is displayed for when the energy saving viewpoint you set is measured. The time without data is not displayed. ·Display period: diagnosis period ·Display interval: every minute
	(2) Equipment time-loss (shut-down)	
	(3-1) Utility time-loss (start-up)	
	(3-2) Utility time-loss (shut-down)	
	(4) Specific consumption	
energy-loss during the standby/break time	(5) Production loss time rate	When there is no data, 0 is displayed in the data on the day. ·Display period: diagnosis period ·Display interval: Day
	(1) Energy-loss during the standby time (equipment)	
	(2) Energy-loss during the standby time (utility)	
	(3) Energy-loss during the break time (equipment)	
	(4) Energy-loss during the break time (utility)	

When you select the five focusing viewpoints for energy saving, the values are displayed in the blue bar graph and the threshold is displayed with the orange line.

The point at the threshold or more is recorded as a deterioration point.

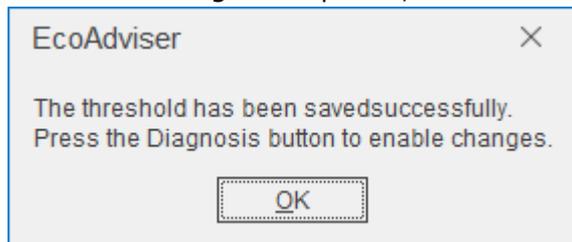
To set, select or input the threshold and then click the **Save** button.

If the threshold is zero, it may be extracted as a deterioration point even if there is actually no energy-loss.

*To change the setting after the operation starts, refer to [12.3 Operation for Setting Change about Diagnosis].

Setting item		Details
Automated-threshold	High	The threshold is automatically calculated using the data.
	Standard *Default	When you want to extract more deterioration points, set to High. For less extraction, set to Low.
	Low	
Manual-threshold *Setting range: -999999999999.999 to 999999999999.999		Input any value to set the threshold.

When the saving is completed, the following message appears.



7.4.5 Checking the energy-loss factor diagnosis result

This function can be used when you select the setting of five focusing viewpoints for energy saving. For the target energy saving viewpoint, the energy-loss factors are displayed in the ranking or in the graph. By analyzing the result, you can effectively take action to improve energy-loss.

The screenshot shows the 'EcoAdviser - Diagnosis' interface. The main window displays 'Energy-loss diagnosis' for the period 6/1/2023 to 6/30/2023 for equipment 'Line-1_BordManufacturingArea'. It includes a table for 'Ranking of energy-loss by equipment' and an 'Energy-loss graph by energy saving point'. A red box highlights the 'Energy-loss factor diagnosis' button, which opens a detailed dialog box.

Energy-loss factor diagnosis Dialog Box:

Diagnosis period: 6/1/2023 - 6/30/2023
 Equipment name: Line-1_BordManufacturingArea
 Energy saving points: (1)Equipment time-loss (start-up)

Rank	Energy-loss factor (type)	Energy-loss factor (detail)	Expected improved result[\$/Year]	Does this information help you ?
1	Production volume	1000~1100[piece]	73	<input type="radio"/> Yes <input type="radio"/> No
2	Manufacturing ending time	11 PM - 12 AM	69	<input type="radio"/> Yes <input type="radio"/> No
3	Day of the week	Thursday	90	<input type="radio"/> Yes <input type="radio"/> No
4	Manufacturing ending time	1 AM - 2 AM	47	<input type="radio"/> Yes <input type="radio"/> No
5	Production volume (the previ...	1180~1310[piece]	26	<input type="radio"/> Yes <input type="radio"/> No

Tips:
 Using Every Production volume Equipment time-loss (start-up)(average) graphs, you can compare operational statuses which losses are high and low. Then you can find some energy-saving activities. E.g., check if you have turned on the equipment TOO EARLY in order to inspect, maintain equipment or to prepare and

Every Production volume Equipment time-loss (start-up)(average) graph

Production Volume Range [piece]	Count (n)
~800	1
800~900	4
900~1000	3
1000~1100	4
1100~1200	7
1200~1300	1
1300~1400	2
1400~	1

Equipment time-loss (start-up) graph focusing on Production volume_1000~1100[piece]

Date	Time	Energy Loss (Minutes)
6/9/2023	4:04 AM	~200
6/14/2023	6:04 AM	~120
6/15/2023	4:04 AM	~200
6/23/2023	4:04 AM	~200

■ Checking the ranking table

The following example explains how to check the energy-loss factor diagnosis result.

Some energy-loss factors may not be displayed in this ranking table because the following reason.

The lack of, or insufficient number of data regarding the energy-loss factor(detail) can lead to the result which has no reliable correlation.

Item	Details
Rank	Rank in order of relevance. *For details on the ranking, refer to [■ Evaluation standard of ranking] on the next page.
Energy-loss factor (type)	Indicate the energy-loss factor.
Energy-loss factor (detail)	Indicate detailed data of the energy-loss factor.
Expected improvement result	Indicate an expected result when you have improved the energy-loss.
Does this information help you?	Evaluate the advice. For details on the evaluation, refer to [■ Evaluation standard of ranking] on the next page.

Energy-loss factor diagnosis

Diagnosis period: 6/1/2023 - 6/30/2023
Equipment name: Line-1_BordManufacturingArea
Energy saving points: (1)Equipment time-loss (start-up)

Rank	Energy-loss factor (type)	Energy-loss factor (detail)	Expected improved result(\$/Year)	Does this information help you ?
1	Production volume	1000~1100[piece]	73	<input type="radio"/> Yes <input type="radio"/> No
2	Manufacturing ending time	11 PM - 12 AM	69	<input type="radio"/> Yes <input type="radio"/> No
3	Day of the week	Thursday	90	<input type="radio"/> Yes <input type="radio"/> No
4	Manufacturing ending time	1 AM - 2 AM	47	<input type="radio"/> Yes <input type="radio"/> No
5	Production volume (the previ...	1180~1310[piece]	26	<input type="radio"/> Yes <input type="radio"/> No

Apply evaluation

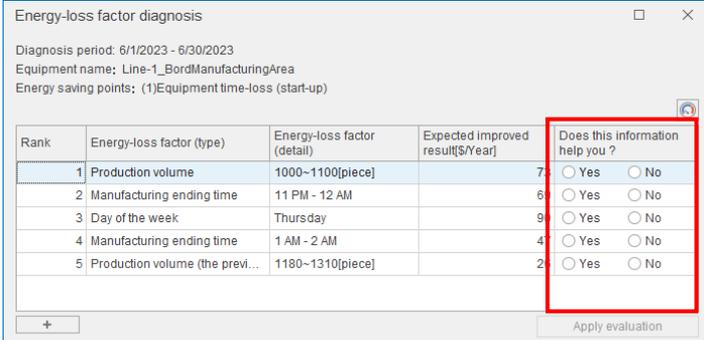
Rank	details
1	If you improve the equipment time-loss (start-up) of the production volume (on the day) between 1000 and 1100 pieces, the cost can be reduced by 73 dollars per year.
2	If you improve the equipment time-loss (start-up) between 11 pm and 12 am of manufacturing ending time, the cost can be reduced by 69 dollars per year.
3	If you improve the equipment time-loss (start-up) on Thursday, the cost can be reduced by 90 dollars per year.
4	If you improve the equipment time-loss (start-up) between 1 am and 2 am of manufacturing ending time, the cost can be reduced by 47 dollars per year.
5	If you improve the equipment time-loss (start-up) of the production volume on the previous day between 1180 and 1310 pieces, the cost can be reduced by 26 dollars per year.

■ Evaluation standard of ranking

EcoAdviser ranks energy-loss factors based on the possibility of energy-loss diagnosed by EcoAdviser and the evaluation by the user.

To reflect your evaluation to EcoAdviser, click the **Apply to evaluation** button to close the window. Otherwise, your evaluation will not be reflected.

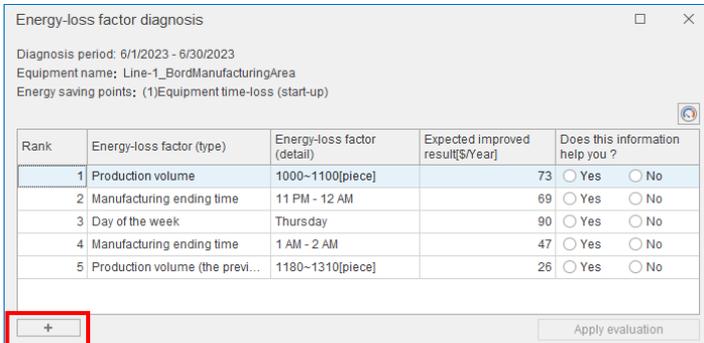
If you want to cancel the selection, click the selected radio button.



Answer selection	Details
Yes	Raise the evaluation
No	Lower the evaluation
No selection	No change in evaluation

■ Switching the ranking display

By clicking the + or - button, you can switch the display of the sixth factor and later.



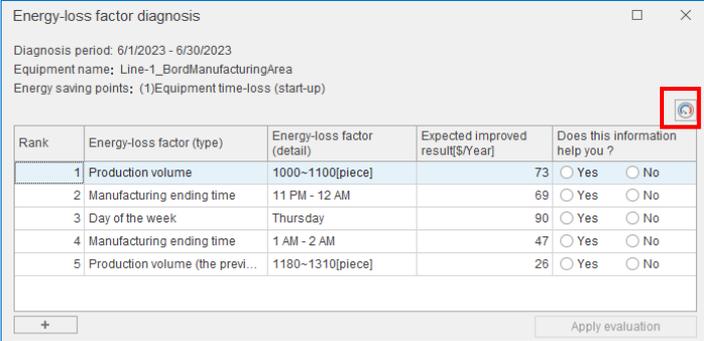
Button	Details
+	Display the sixth factor and later.
-	Hide the sixth factor and later.

■ Saving the ranking table

The ranking table currently displayed is saved in the diagnosis panel.

The panel is available on the dashboard.

(1) Click  (dashboard icon).



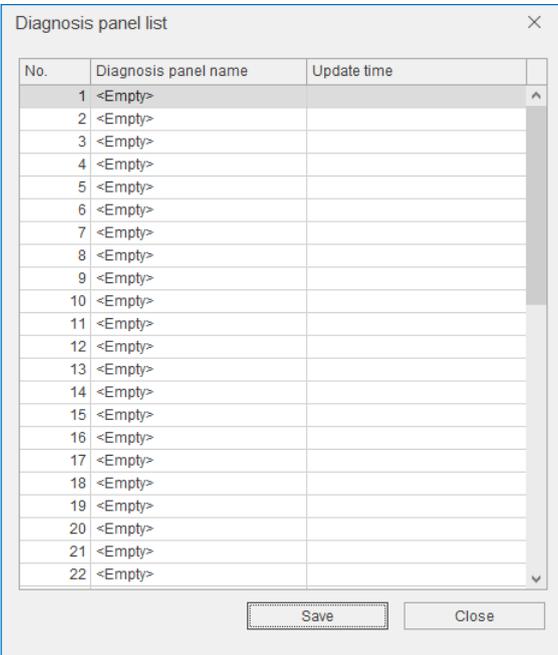
Energy-loss factor diagnosis

Diagnosis period: 6/1/2023 - 6/30/2023
 Equipment name: Line-1_BordManufacturingArea
 Energy saving points: (1)Equipment time-loss (start-up)

Rank	Energy-loss factor (type)	Energy-loss factor (detail)	Expected improved result(\$/Year)	Does this information help you ?
1	Production volume	1000~1100[piece]	73	<input type="radio"/> Yes <input type="radio"/> No
2	Manufacturing ending time	11 PM - 12 AM	69	<input type="radio"/> Yes <input type="radio"/> No
3	Day of the week	Thursday	90	<input type="radio"/> Yes <input type="radio"/> No
4	Manufacturing ending time	1 AM - 2 AM	47	<input type="radio"/> Yes <input type="radio"/> No
5	Production volume (the previ...	1180~1310[piece]	26	<input type="radio"/> Yes <input type="radio"/> No

+ Apply evaluation

(2) The following window appears.



Diagnosis panel list

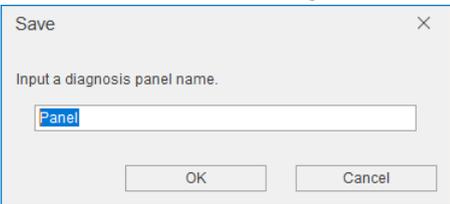
No.	Diagnosis panel name	Update time
1	<Empty>	
2	<Empty>	
3	<Empty>	
4	<Empty>	
5	<Empty>	
6	<Empty>	
7	<Empty>	
8	<Empty>	
9	<Empty>	
10	<Empty>	
11	<Empty>	
12	<Empty>	
13	<Empty>	
14	<Empty>	
15	<Empty>	
16	<Empty>	
17	<Empty>	
18	<Empty>	
19	<Empty>	
20	<Empty>	
21	<Empty>	
22	<Empty>	

Save Close

(3) Select the saving destination and then click the **Save** button.

(4) The following window appears.

Enter a name to register the diagnosis panel and then click the **OK** button.



Save

Input a diagnosis panel name.

Panel

OK Cancel

(5) When the saving is completed, the window closes.

■ Advice

The advice is displayed regarding the energy-loss factor selected in the ranking table.

Energy-loss factor diagnosis □ ×

Diagnosis period: 6/1/2023 - 6/30/2023
 Equipment name: Line-1_BordManufacturingArea
 Energy saving points: (1)Equipment time-loss (start-up)

Rank	Energy-loss factor (type)	Energy-loss factor (detail)	Expected improved result(\$/Year)	Does this information help you ?
1	Production volume	1000~1100[piece]	73	<input type="radio"/> Yes <input type="radio"/> No
2	Manufacturing ending time	11 PM - 12 AM	69	<input type="radio"/> Yes <input type="radio"/> No
3	Day of the week	Thursday	90	<input type="radio"/> Yes <input type="radio"/> No
4	Manufacturing ending time	1 AM - 2 AM	47	<input type="radio"/> Yes <input type="radio"/> No
5	Production volume (the previ...	1180~1310[piece]	26	<input type="radio"/> Yes <input type="radio"/> No

+ Apply evaluation

<Tips>
 Using Every Production volume Equipment time-loss (start-up)(average) graphs, you can compare operational statuses which losses are high and low. Then you can find some energy-saving activities.
 E.g., check if you have turned on the equipment TOO EARLY in order to inspect, maintain equipment or to prepare and

■ Graph display of energy-loss factor

When you click the energy-loss factor in the ranking table, the corresponding five focusing viewpoints for energy saving data is displayed in the graph.



The first graph shows the data distribution and the average value of the five focusing viewpoints for energy saving regarding the energy-loss factor.

The horizontal axis shows the energy-loss factor (detail), and the vertical axis shows the average value of the five focusing viewpoints for energy saving.

n=X, which is any number, displayed above the bar graph represents the number of data of energy-loss factor (detail).

The second graph shows the data of the five focusing viewpoints for energy saving regarding the energy-loss factor (detail)selected in the ranking table.

The value of the five focusing viewpoints for energy saving is displayed in the bar graph, and the threshold value shown as the deterioration point value is displayed in the orange line.

Five focusing viewpoints for energy saving	Details of graph
(1) Equipment time-loss (start-up)	Data is displayed for when the energy saving viewpoint you set is measured. The time without data is not displayed. · Display interval: every minute
(2) Equipment time-loss (shut-down)	
(3-1) Utility time-loss (start-up)	
(3-2) Utility time-loss (shut-down)	
(4) Specific consumption	
(5) Production loss time rate	· Display interval: Day

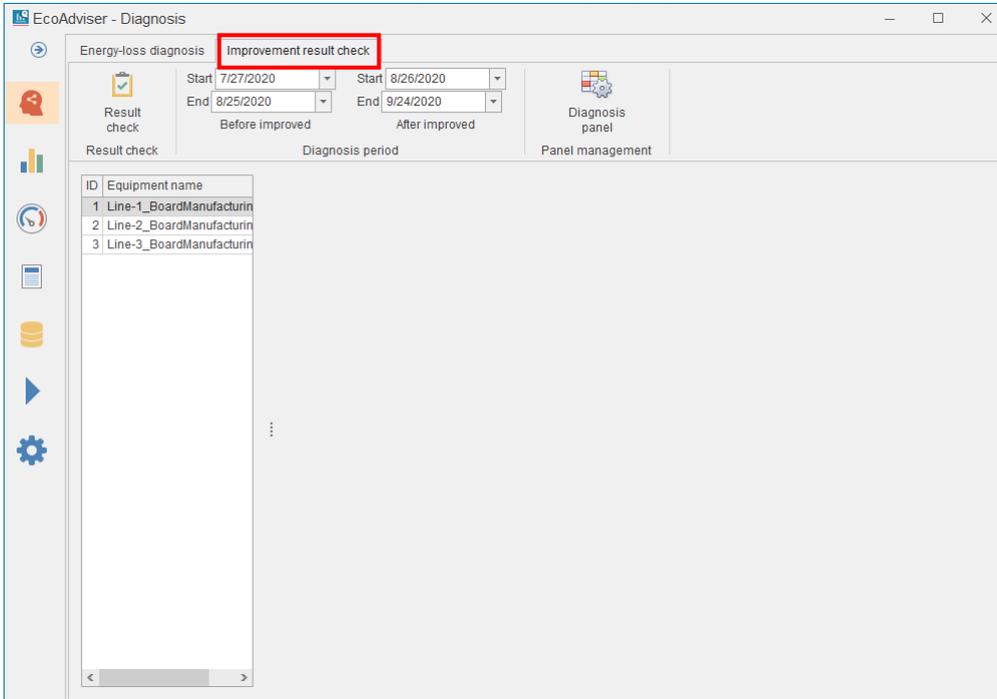
Note

Some energy-loss factors whose five focusing viewpoints have high average value tend to be easily picked up in ranking table. Although, if some energy-loss factors have one or more following facts, they might not be displayed in there.

- Insufficient number of corresponding data
- Already applied to the evaluation, “Does this information help you?”
- Some extremely high or large values make the average bigger

7.5 Improvement Result Check

By clicking the **Improvement result check** tab, you can check the improvement result for energy saving activities. The two graphs of energy consumption and energy saving viewpoint shows the comparison before and after improvement by equipment.

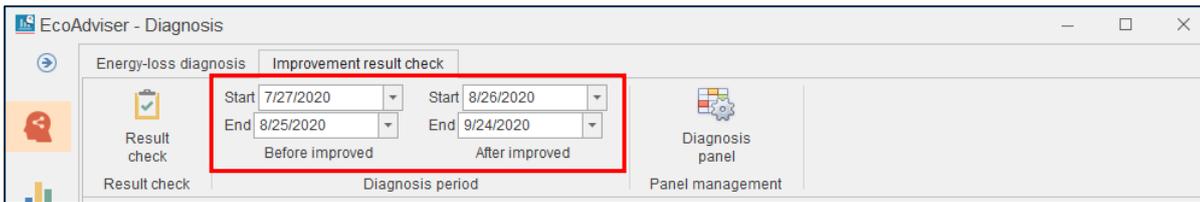


7.5.1 Checking the improvement result

You will check the improvement result.

(1) Select the diagnosis period from the pulldown menu.

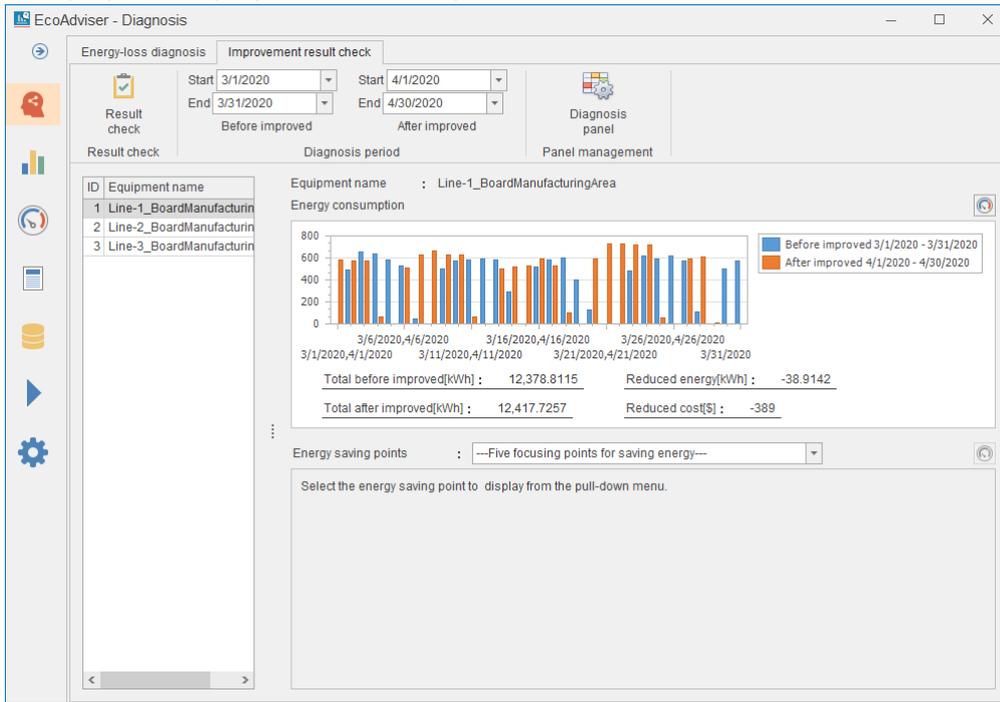
*If you include the date of no energy-loss diagnosis execution, the result of the date will be displayed in blank.



Item		Details
Before improvement	Start	Set max. 365 days for the period.
	End	*The start day must be set to a day before the end day.
After improvement	Start	Set max. 365 days for the period.
	End	*The start day must be set to a day before the end day.

(2) Click the **Check result** button.

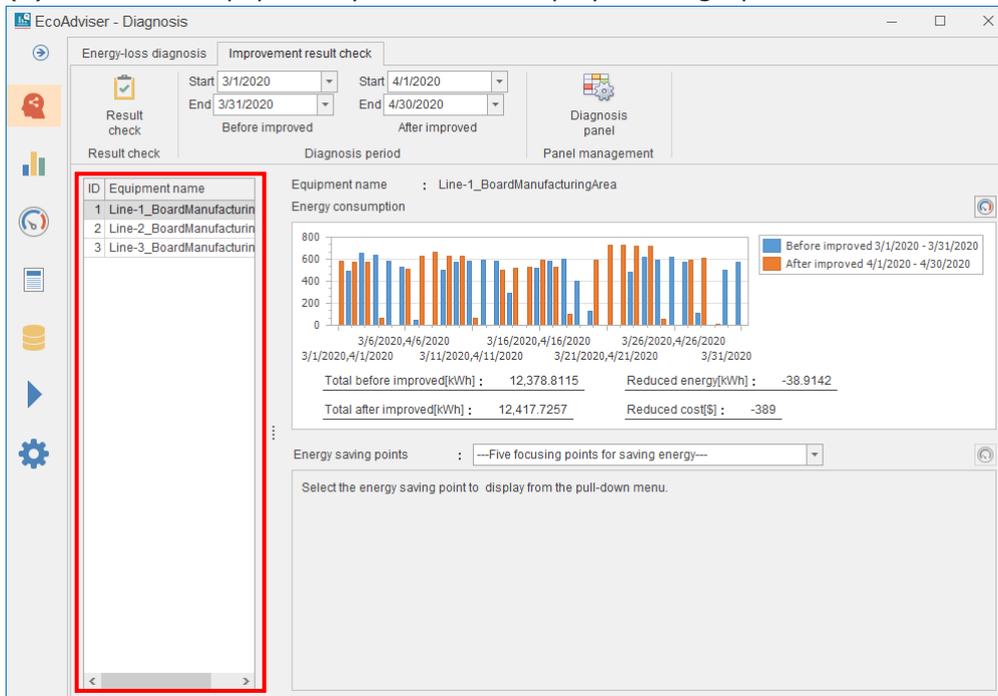
The graph is displayed for the set period.



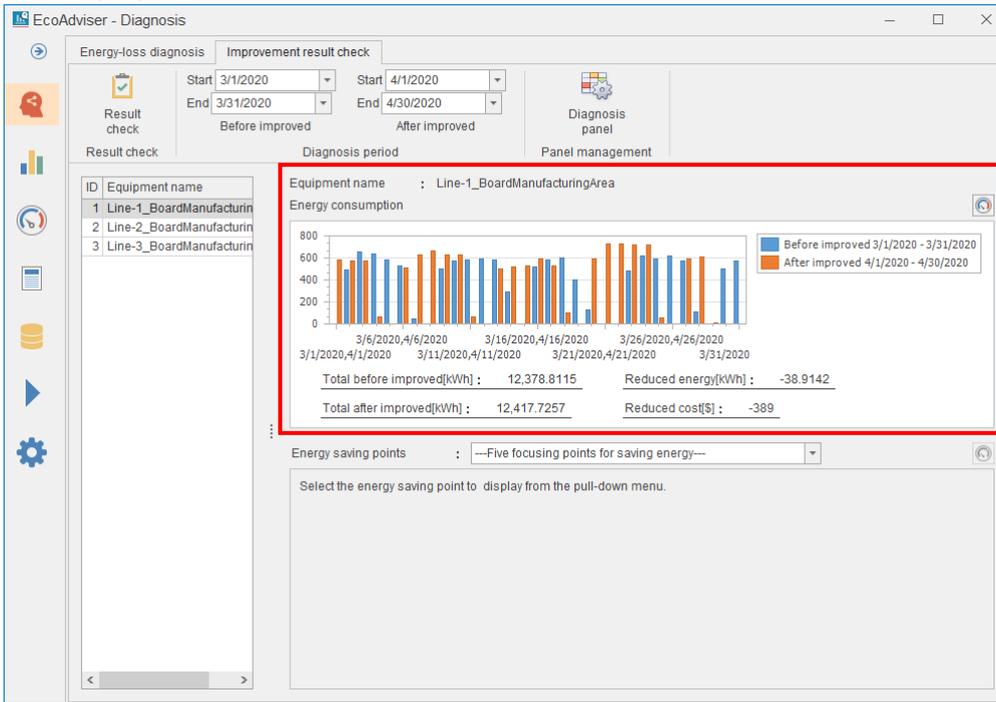
7.5.2 Switching the display of improvement result

You will switch the graphs displayed on the **Improvement result check** tab to the ones of any energy saving viewpoint item of any equipment.

(1) Select the equipment you want to display in the graph from the table on the left of the window.



(2) The graphs of energy consumption and energy saving viewpoint of the selected equipment are displayed.



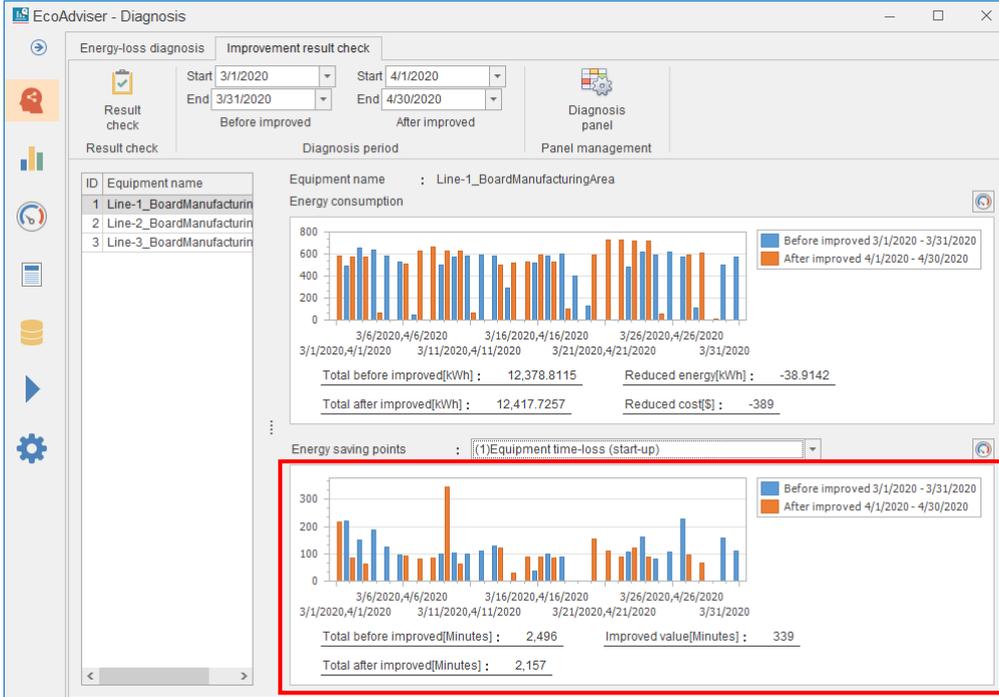
Item	Details
Total before improvement	<p>Indicate the total value of energy consumption before improvement activities. It is a sum of energy measuring point and utility measuring point before improvement for the period. The number of decimal places is displayed according to energy measuring point or utility measuring point, whichever is larger.</p> <p>*If you save the graph in the diagnosis panel and view it on the dashboard, total before improvement will not appear.</p>
Total after improvement	<p>Indicate the total value of energy consumption after improvement activities. It is a sum of energy measuring point and utility measuring point after improvement for the period. The number of decimal places is displayed according to energy measuring point or utility measuring point, whichever is larger.</p> <p>*If you save the graph in the diagnosis panel and view it on the dashboard, total after improvement will not appear.</p>
Reduced energy consumption	<p>Indicate the reduced energy consumption through improvement activities. It is a value that the sum of energy measuring point and utility measuring point after improvement is subtracted from the sum of the measuring points before improvement.</p> <p>The unit is the same as energy measuring point.</p> <p>The number of decimal places is displayed according to energy measuring point or utility measuring point, whichever is larger.</p>
Reduced cost	<p>Indicate the reduced cost through improvement activities. It is a sum of reduced energy consumption multiplied by the electricity rate (integer value).</p> <p>For the electricity rate, refer to [4.2.4 Setting the electricity rate].</p>

(3) Select an item of the energy saving viewpoint to display in the graph from the pulldown menu.

The screenshot shows the 'EcoAdviser - Diagnosis' window. The 'Improvement result check' tab is active, displaying a comparison of energy consumption before and after improvements for the equipment 'Line-1_BoardManufacturingArea'. The 'Energy saving points' dropdown menu is highlighted with a red box and currently shows '--Five focusing points for saving energy--'. Below the dropdown, there is a text prompt: 'Select the energy saving point to display from the pull-down menu.'

Category	Value
Total before improved[kWh]	12,378.8115
Reduced energy[kWh]	-38.9142
Total after improved[kWh]	12,417.7257
Reduced cost[\$]	-389

(4) The graph of the selected item is displayed on the bottom of the window.

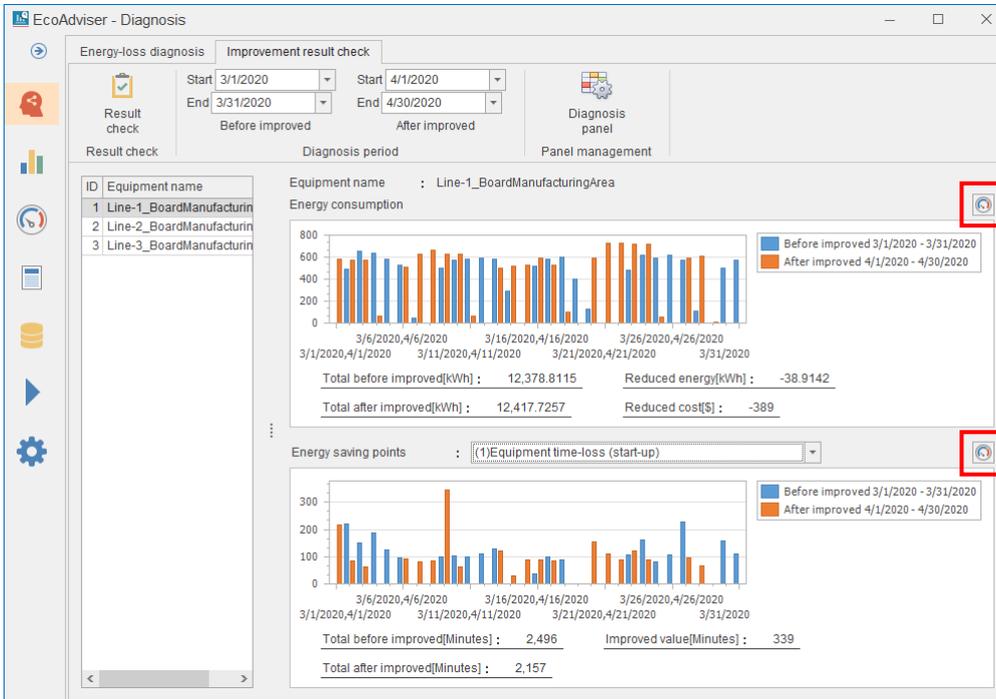


Item	Details
<p>Total before improvement/ Total after improvement</p>	<p>Indicates the total value before improvement activities and the total value after improvement activities for energy saving viewpoint.</p> <p>The value varies depending on the item of the energy saving viewpoint as follows.</p> <ul style="list-style-type: none"> ●Production loss time rate <ul style="list-style-type: none"> ·Sum of the time of no production from production start to production end / sum of the time from production start to production end × 100 (during the period) ·Unit: % ●Specific consumption <ul style="list-style-type: none"> ·Sum of energy measuring point / sum of production volume (during the period) ·Unit: same as each unit of the energy saving viewpoint ●Other items of the energy saving viewpoint <ul style="list-style-type: none"> ·Sum of the item of the energy saving viewpoint (during the period) <p>*The number of decimal places and the unit are the same as the energy saving viewpoint.</p> <p>*If you save the graph in the diagnosis panel and view it on the dashboard, total before improvement will not appear.</p>
<p>Improved value</p>	<p>Indicates the amount of energy-loss improved through improvement activities.</p> <p>The value is that total after improvement is deducted from total before improvement.</p> <p>The number of decimal places is the same as total before improvement and total after improvement.</p> <p>The unit is point for production loss time rate.</p> <p>For other items of the energy saving viewpoint, the unit is the same as total before improvement and total after improvement.</p>

7.5.3 Saving the graph in the panel

Each graph currently displayed is saved in the diagnosis panel.
The saved panel is available on the dashboard.

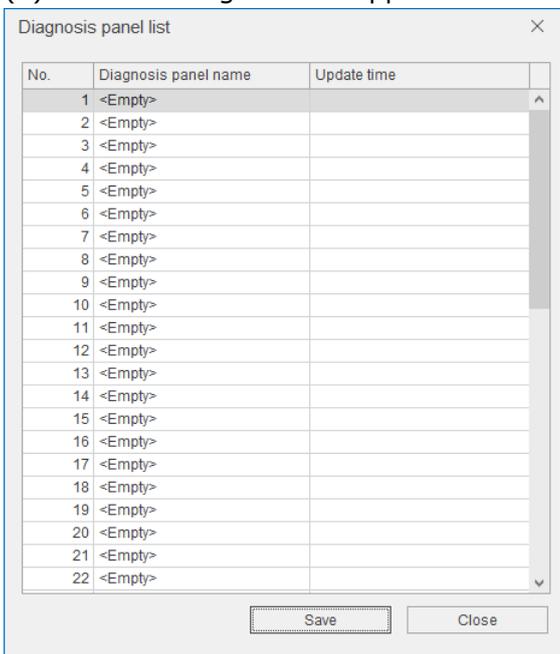
(1) Click  (dashboard icon).



The screenshot shows the 'EcoAdviser - Diagnosis' window. It features a sidebar with various icons, including a dashboard icon. The main area displays 'Improvement result check' for 'Line-1_BoardManufacturingArea'. It includes two bar charts: 'Energy consumption' and 'Energy saving points'. Both charts compare data 'Before improved' (blue bars) and 'After improved' (orange bars) for the periods 3/1/2020 - 3/31/2020 and 4/1/2020 - 4/30/2020. Summary statistics are provided below each chart. Two red boxes highlight the dashboard icons in the top right and bottom right corners of the graph area.

Category	Before improved (3/1/2020 - 3/31/2020)	After improved (4/1/2020 - 4/30/2020)
Energy consumption (kWh)	12,378.8115	12,417.7257
Reduced energy (kWh)	-	-38.9142
Reduced cost (\$)	-	-389
Energy saving points (Minutes)	2,496	2,157
Improved value (Minutes)	-	339

(2) The following window appears.



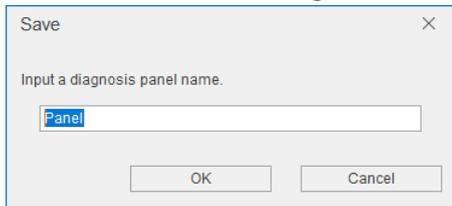
The screenshot shows the 'Diagnosis panel list' window. It contains a table with 22 rows. The 'Diagnosis panel name' column for all rows is empty. The window has 'Save' and 'Close' buttons at the bottom.

No.	Diagnosis panel name	Update time
1	<Empty>	
2	<Empty>	
3	<Empty>	
4	<Empty>	
5	<Empty>	
6	<Empty>	
7	<Empty>	
8	<Empty>	
9	<Empty>	
10	<Empty>	
11	<Empty>	
12	<Empty>	
13	<Empty>	
14	<Empty>	
15	<Empty>	
16	<Empty>	
17	<Empty>	
18	<Empty>	
19	<Empty>	
20	<Empty>	
21	<Empty>	
22	<Empty>	

(3) Select the saving destination and then click the **Save** button.

(4) The following window appears.

Enter a name to register the diagnosis panel and then click the **OK** button.



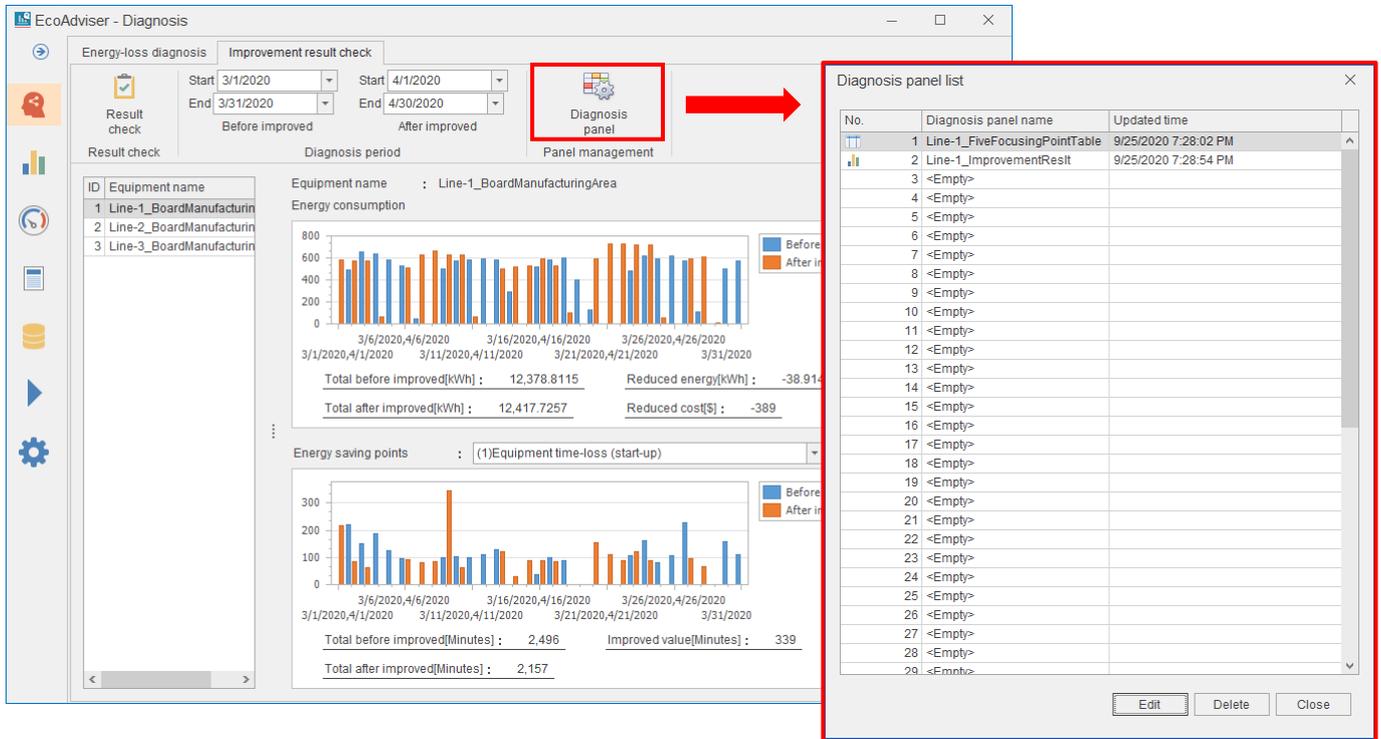
The image shows a standard Windows-style dialog box titled "Save" with a close button (X) in the top right corner. The main text inside the dialog reads "Input a diagnosis panel name." Below this text is a text input field containing the word "Panel". At the bottom of the dialog, there are two buttons: "OK" on the left and "Cancel" on the right.

(5) When the saving is completed, the window closes.

7.6 Other Function

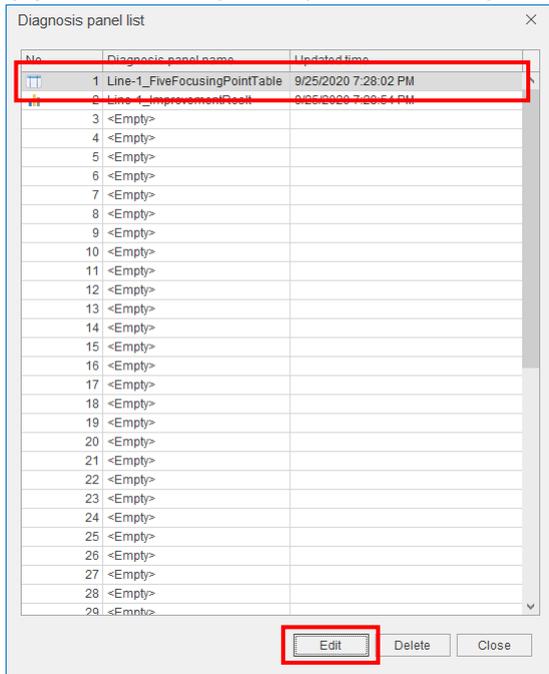
7.6.1 Managing the diagnosis panels

When you click the **Diagnosis panel** button, the window starts up to display a list of saved diagnosis panels. This list window is used for managing the panels such as changing the panel name or deleting the panel.



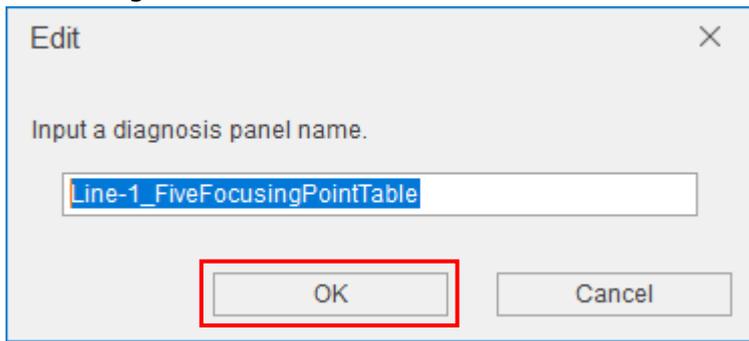
■ Changing the diagnosis panel name

(1) Select a diagnosis panel to change the name and then click the **Change** button.



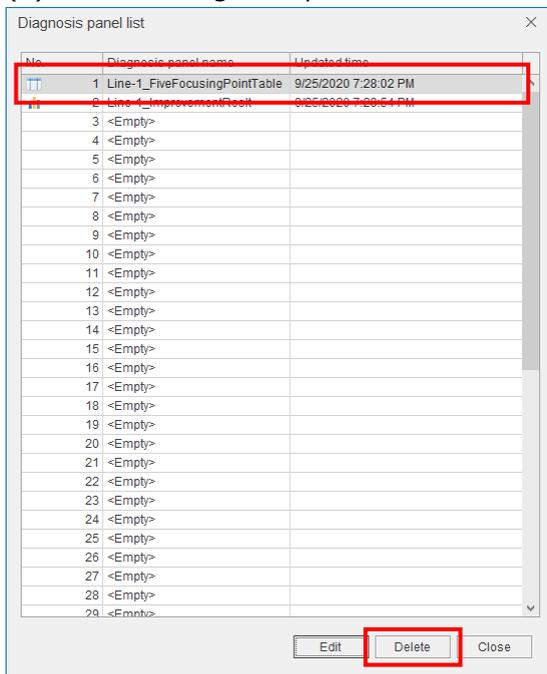
(2) The following window appears.

Change the name and then click the **OK** button.



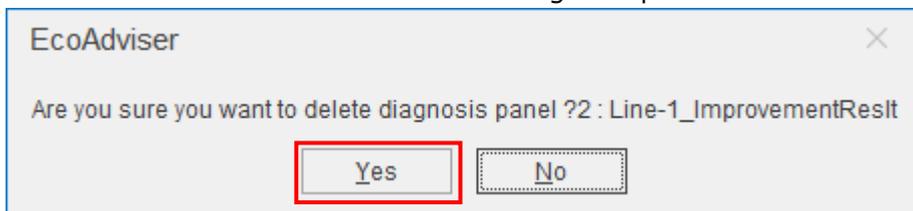
■ Deleting the diagnosis panel

(1) Select a diagnosis panel to delete and then click the **Delete** button.



(2) The following message appears.

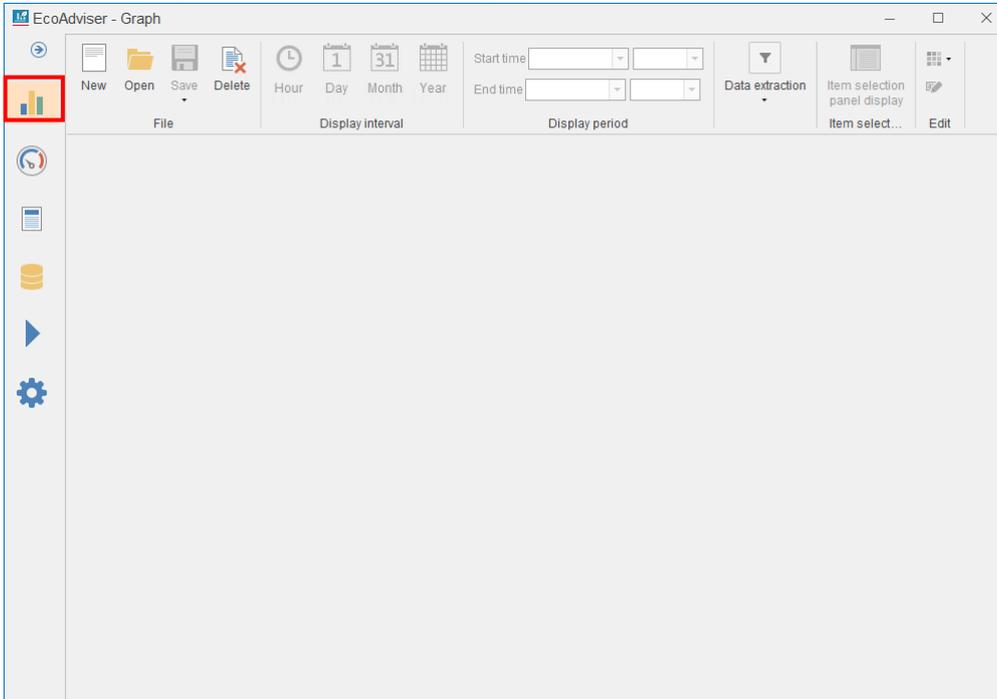
Click the **Yes** button to delete the diagnosis panel.



8. Graph

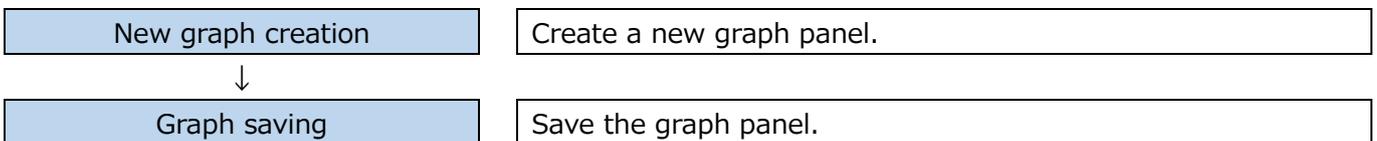
This chapter explains how to create a graph and a graph panel displayed on the dashboard and to analyze data using the created graph.

Click the **Graph** button to enter the graph window.



8.1 Creation/Saving of Graph Panel

This section describes necessary information on how to create a graph panel. The following shows the procedures to create the panel.

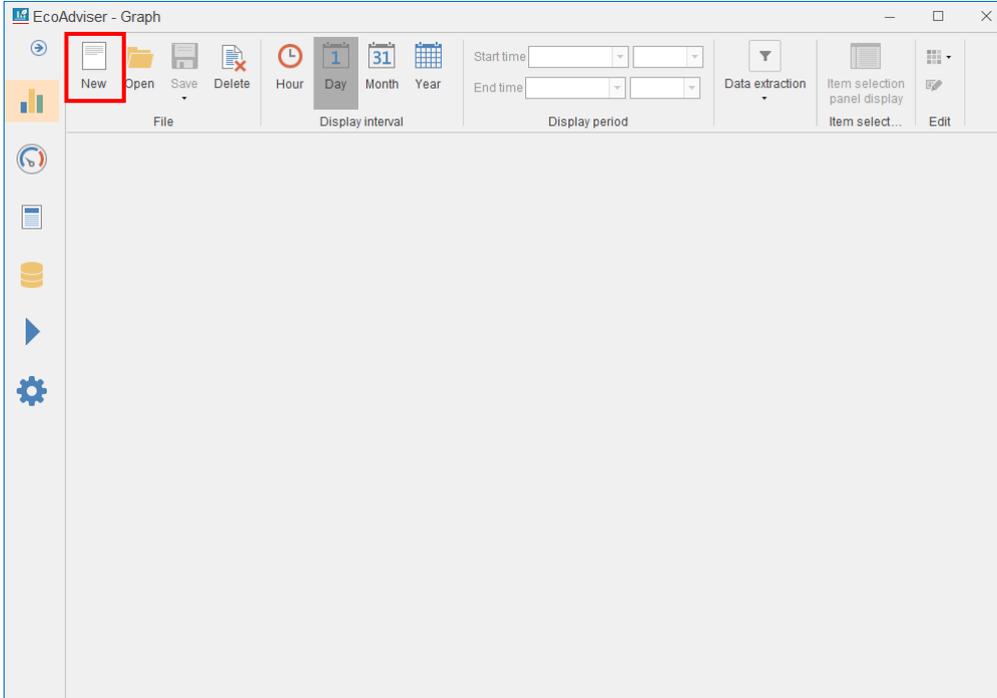


8.1.1 How to create the graph

From the **New** button, a graph will be created.

*A maximum of 4 graphs can be displayed at one time.

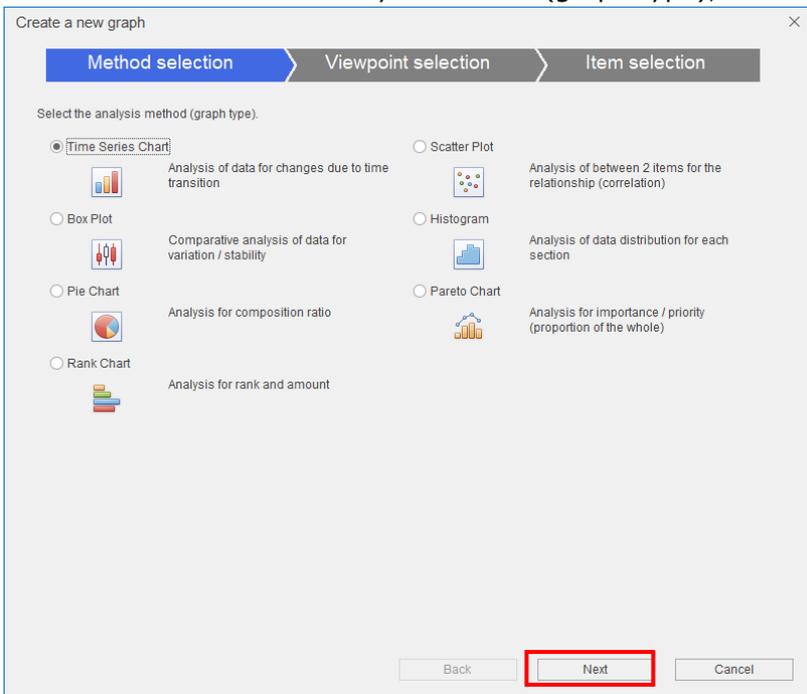
(1) Click the **New** button.

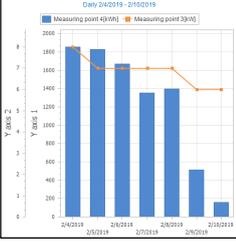
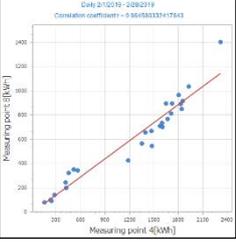
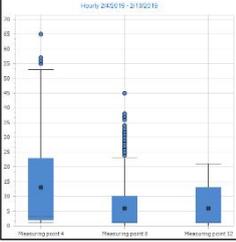
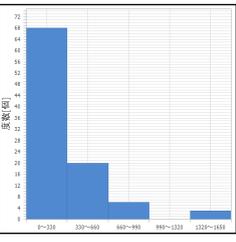
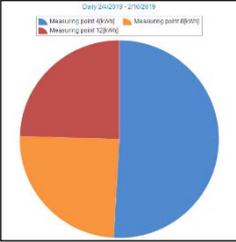
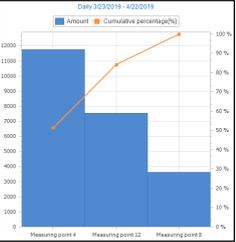
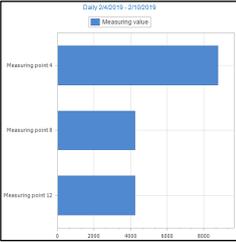


(2) The following window appears.

Select a graph you want to create and then click the **Next** button.

For details on the analysis method (graph type), refer to the below table.



Analysis method (Graph type)	Details	Analysis method (Graph type)	Details
 <p>Time series chart</p>	<p>Used at comparing data change in time transition.</p>	 <p>Scatter plot</p>	<p>Used at examining the relationship (correlation) between two measuring points.</p>
 <p>Box plot</p>	<p>Used at comparing the variation/stability of data.</p>	 <p>Histogram</p>	<p>By dividing the range from the maximum value to the minimum value during display period into equal parts according to partition number, the distribution of measuring data is displayed by division. Used at checking the distribution of measuring data.</p>
 <p>Pie chart</p>	<p>Used at checking the percentage of measuring data. *1</p>	 <p>Pareto chart</p>	<p>Used at checking the cumulative ratio of size of measuring data. *1 *2</p>
 <p>Rank chart</p>	<p>Used at comparing the size and rank of measuring data. *1</p>		

*1: It is not possible to register measuring points whose measuring type is power factor.

In addition, do not register measuring points with a negative value.

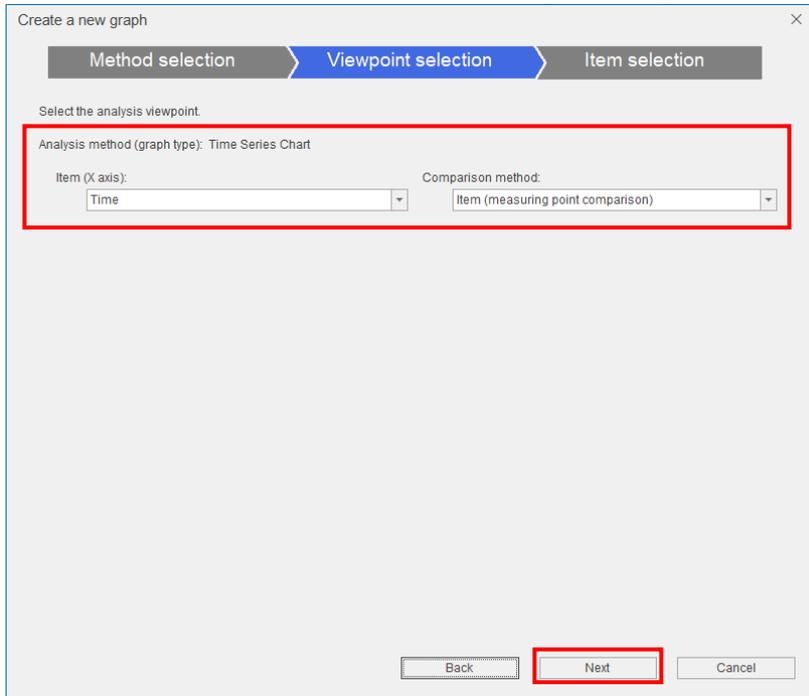
*2: The aggregation range of each stacked graph in the histogram is as follows. (N is measuring point data.)

a-b ($a \leq N < b$), b-c ($b \leq N < c$), c-d ($c \leq N < d$), ..., r-s ($r \leq N < s$), s-t ($s \leq N \leq t$)

(3) The following window appears.

*The window is an example for selecting Time series chart at the graph type.
Select an analysis viewpoint and then click the **Next** button.

For details on the selection for analysis viewpoint, refer to the following table.



Analysis method (Graph type)	Analysis viewpoint	Number of measuring points
Time series chart	Item (X axis) : Time Comparison method: Item (Measuring point comparison) *1	12 points
	Item (X axis) : Time Comparison method: Item (Date comparison) *1	1 point
Box plot	Comparison method: Item (Measuring point comparison) *1	12 points
	Comparison method: Item (Date comparison)	1 point
Pie chart	Comparison method: Item (Measuring point comparison) *2	12 points
	Comparison method: Item (Date comparison) *1	1 point
Rank chart	Comparison method: Item (Measuring point comparison) *2	12 points
	Comparison method: Item (Date comparison) *1	1 point
Scatter plot	X axis: Measuring point Y axis: Measuring point	1 point for each
Histogram	Division number (Select from 5, 10, 15, or 20)	1 point
Pareto chart	Comparison method: Item (Measuring point comparison) *2	12 points
	Comparison method: Item (Date comparison) *1	1 point

Displayed data varies depending on the measuring point and measuring type.

- *1: When measuring type is Analog value or for specific consumption measuring point, data by the display interval shows.
When measuring type is Pulse or for product type time period measuring point, accumulated data by the display interval shows.
- *2: When measuring type is Analog value or for specific consumption measuring point, the first data of the display period shows.
When measuring type is Pulse or for product time period measuring point, accumulated data of the display period shows.

(4) The following window appears.

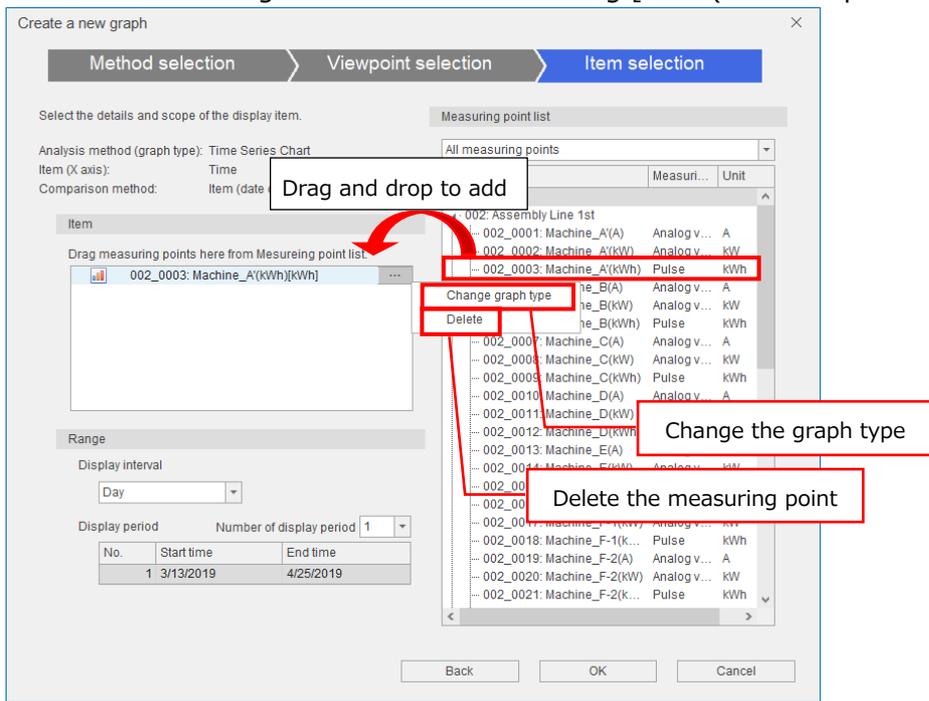
Drag and drop a measuring point from the measuring point list to the item box to display in the graph.

For the number of registrations of measuring points, refer to the previous table.

From the ... button to the right of the measuring point, you can perform the following operations.

- Delete: Delete a measuring point in the item box
- Change graph type: Change the displayed graph type.
- *This is available for time series chart.

The following is the window of selecting [item (date comparison)] at the analysis viewpoint.



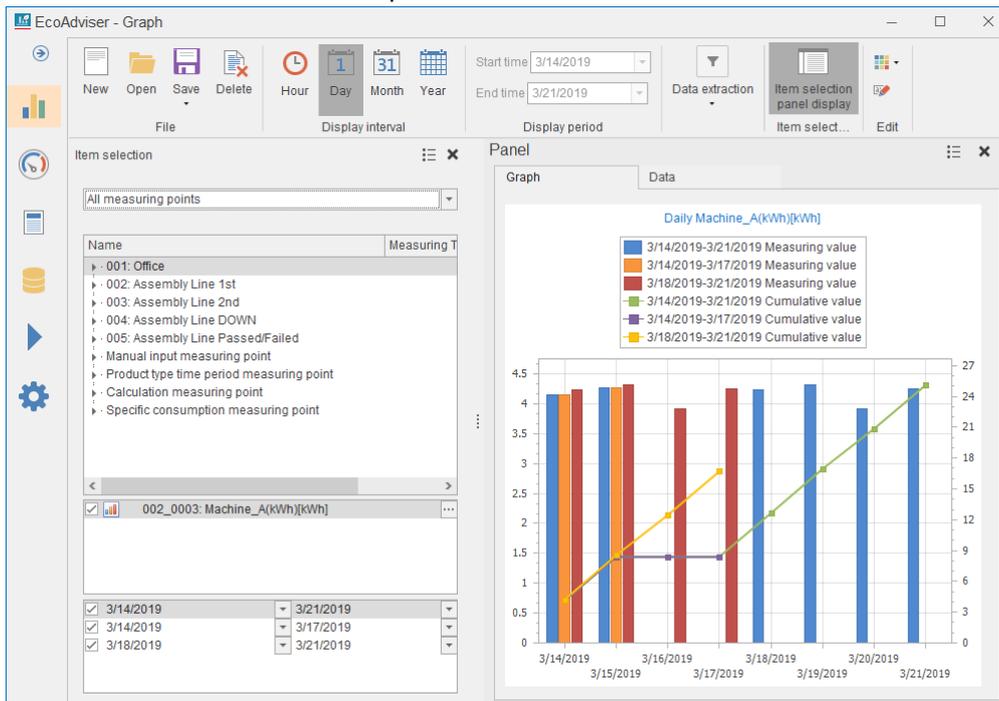
(5) Set the displayed range and then click the **OK** button.

Item	Details
Display interval	Select a display interval for measuring data from the pull-down menu. *When the analysis method is Box plot, this setting is not available. The display interval is Hourly. •Hour •Day •Month •Year
The number of display period	When the analysis method and analysis viewpoint are Time series chart and Item (date comparison) respectively, this setting is available. Select the number of display period from the pull-down menu. The selectable range: 1 to 3
Display period	Set the Start time and End time from the pull-down menu to specify the display period. The maximum range varies depending on the display interval settings. Hourly : 7 days (168 hours) *In the case of the box plot, it is 31 days. Day : 365 days Month : 120 months Year : 10 years

Note

- The display period of the box plot is specified by date. However, the start time of the day is 0 o'clock regardless of the Day Aggregation Period.
- When the analysis method and analysis viewpoint are Time series chart and Item (date comparison) respectively, the graph is displayed based on the following points:
 - The horizontal axis of graph is based on the longest display period.
 - *The date of the axis is displayed based on the Display period No.1.
 - Each graph is displayed aligning to the left.
 - When the measuring point is Pulse, the measured value and accumulated value are displayed.
 - *The graph type can be changed for measured value only.

- (6) The graph is displayed.
This is the end of the operation.



8.1.2 How to save the graph

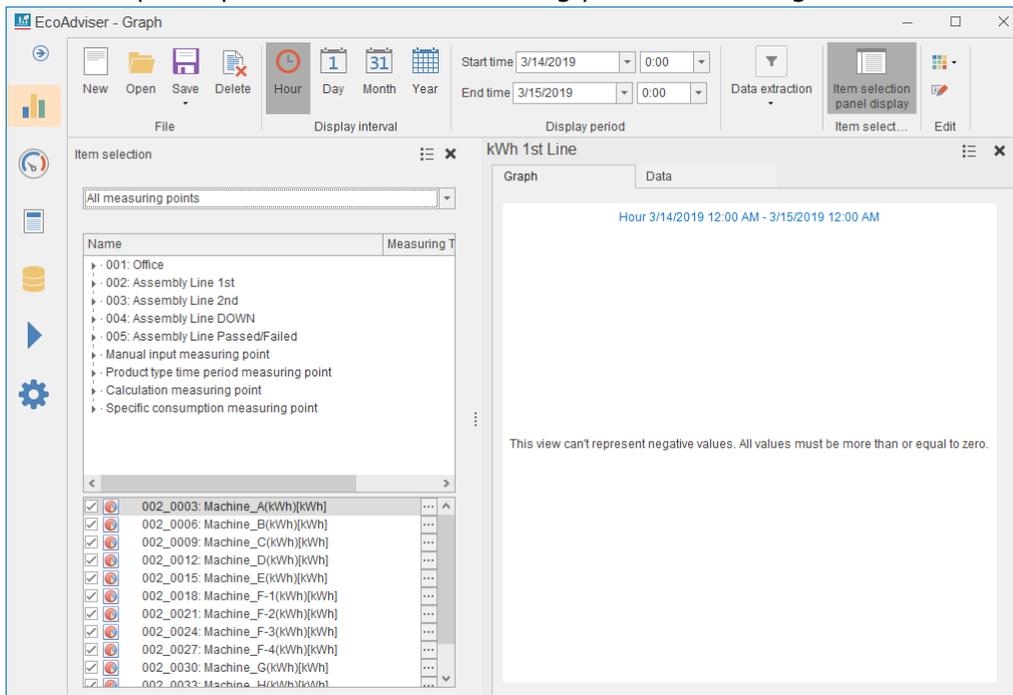
From the **Save** button, a graph will be saved.

*If you want to delete without saving, do not execute the following operation.

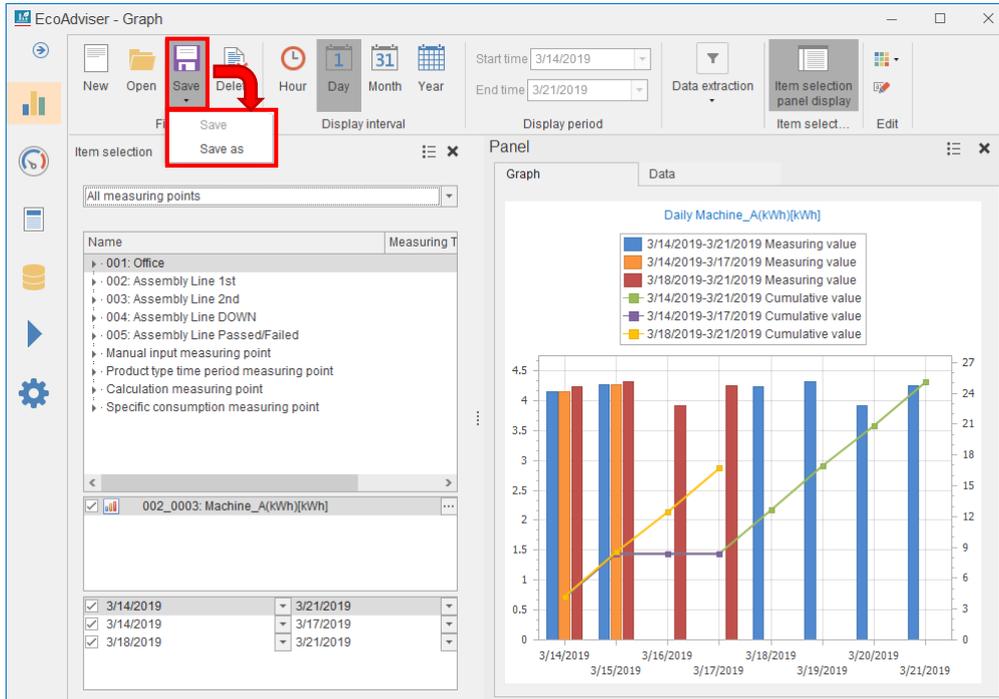
Click the **X** button to close the graph window.

*Save a graph when it is properly displayed.

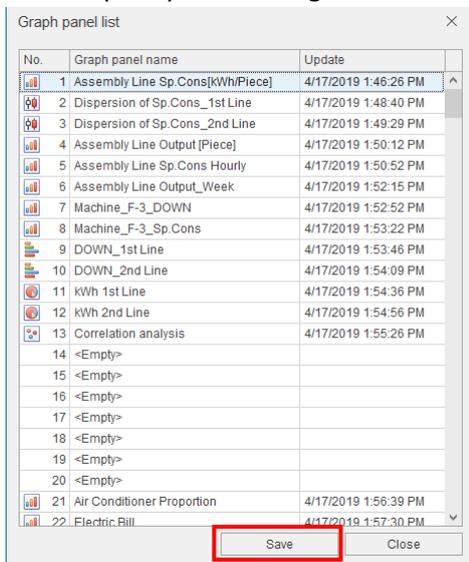
Bad example: a pie chart where measuring points with a negative value have been registered.



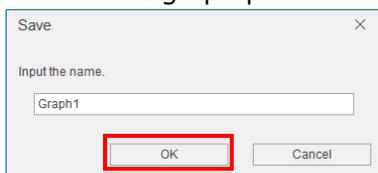
- Click the **Save** button and then select **Save as**.
When you have opened an existing graph, select **Save** to overwrite it.
This is the end of the operation for overwrite save.



- The following window appears.
Specify the saving location and then click the **Save** button.



- The following window appears.
Input a name of the graph panel to save and then click the **OK** button.
*The graph panel name is displayed when the graph is arranged on the dashboard.

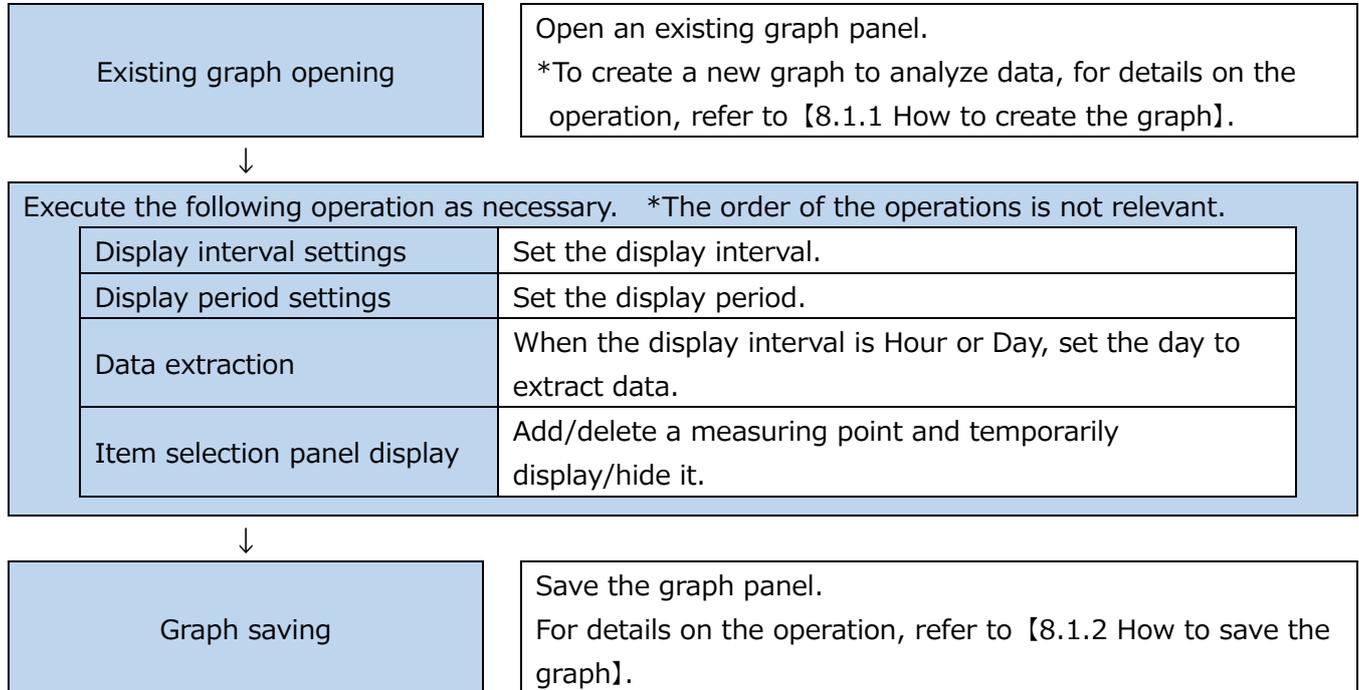


- When the saving is completed, the window is closed.
This is the end of the operation.

8.2 Data Analysis/Graph Edition

This section describes how to analyze data with graph view and edit an existing graph.

The following shows the procedures to analyze data and edit the existing graph.

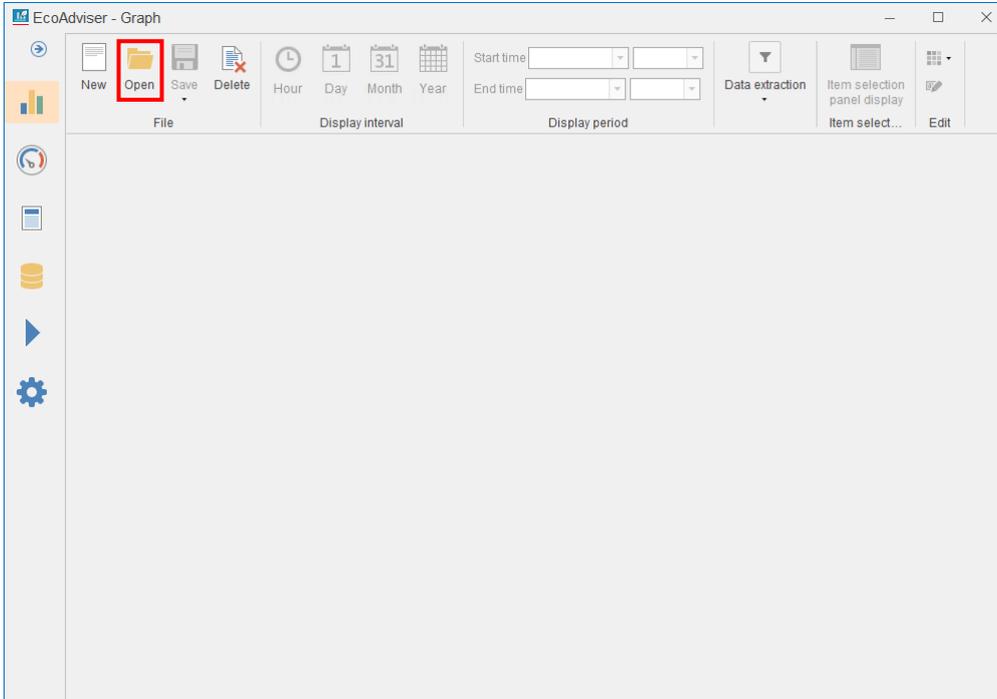


8.2.1 Opening the existing graph

You will open an existing graph.

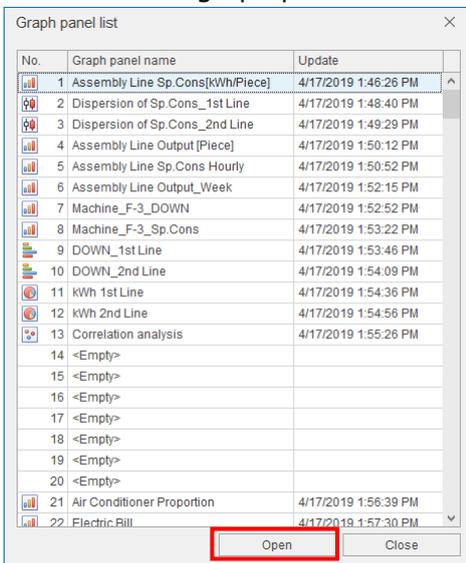
*A maximum of 4 graphs can be displayed at one time.

(1) Click the **Open** button.

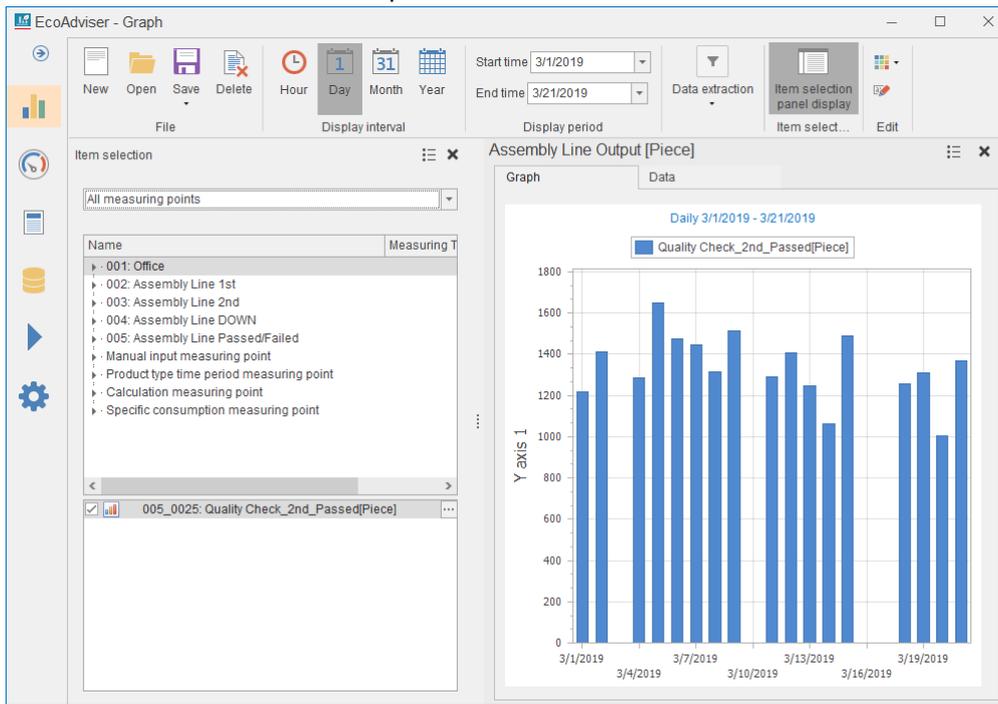


(2) The following window appears.

Select a graph panel and then click the **Open** button.



- (3) The selected graph panel is displayed on the graph window.
This is the end of the operation.

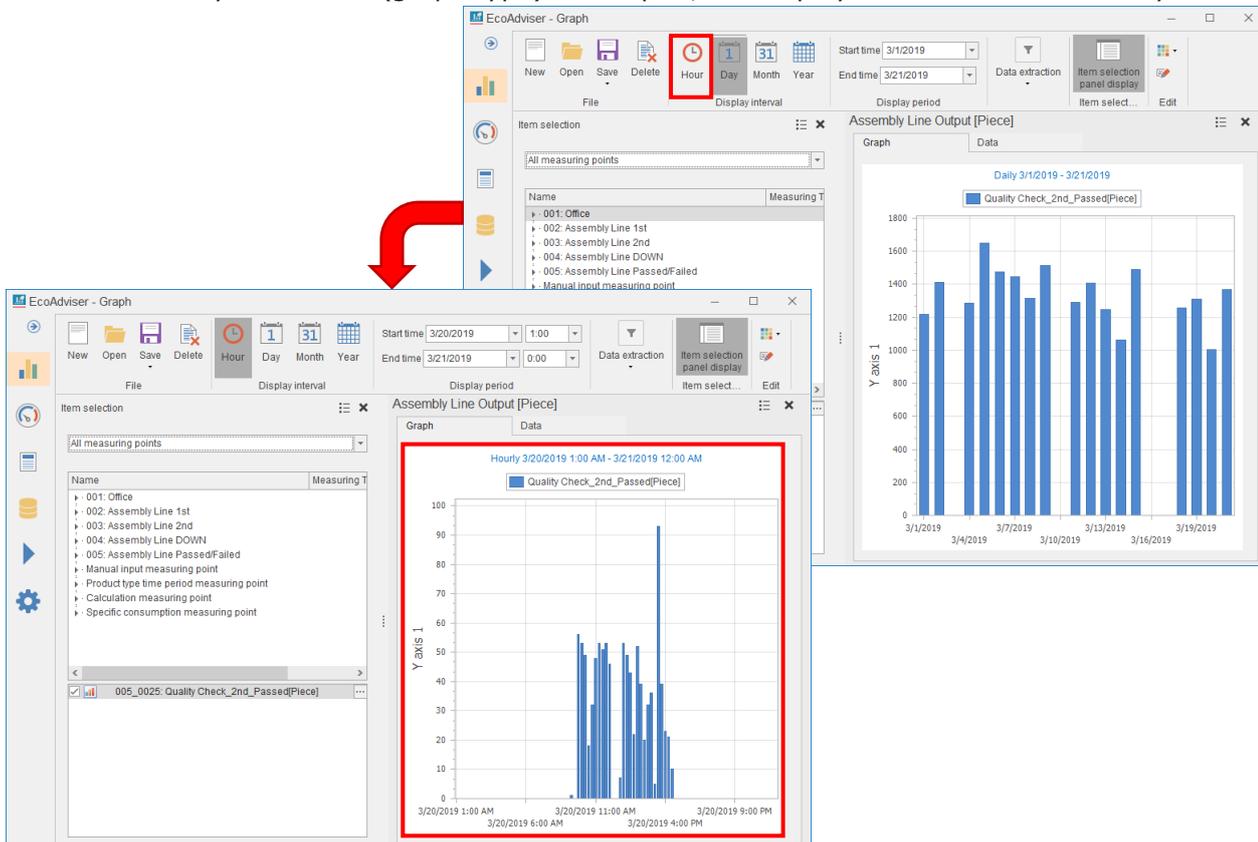


8.2.2 Setting the display interval

You will set the data display interval of the selected graph panel.

By clicking the **Hour**, **Day**, **Month**, or **Year** button on the top of the window, it is possible to switch the interval of graph data.

*When the analysis method (graph type) is Box plot, the display interval is automatically set to Hourly.

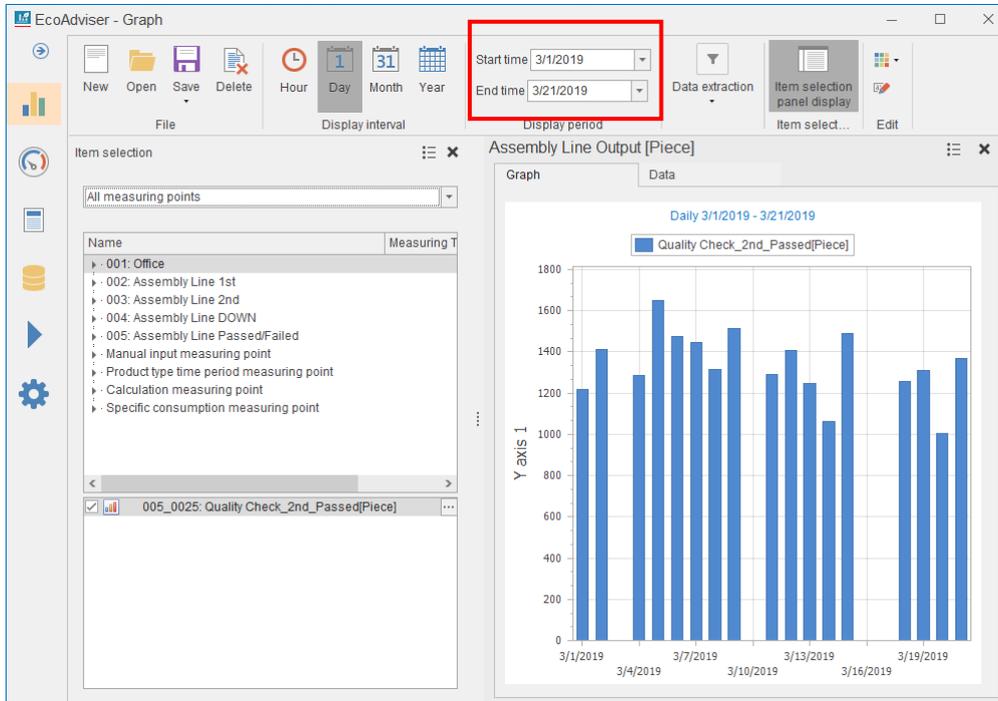


8.2.3 Setting the display period

You will set the data display period of the selected graph panel.

Set the **Start time** and **End time** from the pull-down menu to display data for a period.

*When the analysis method and analysis viewpoint are Time series chart and Item (date comparison) respectively, the display period can be changed from the **Item selection panel display** button.



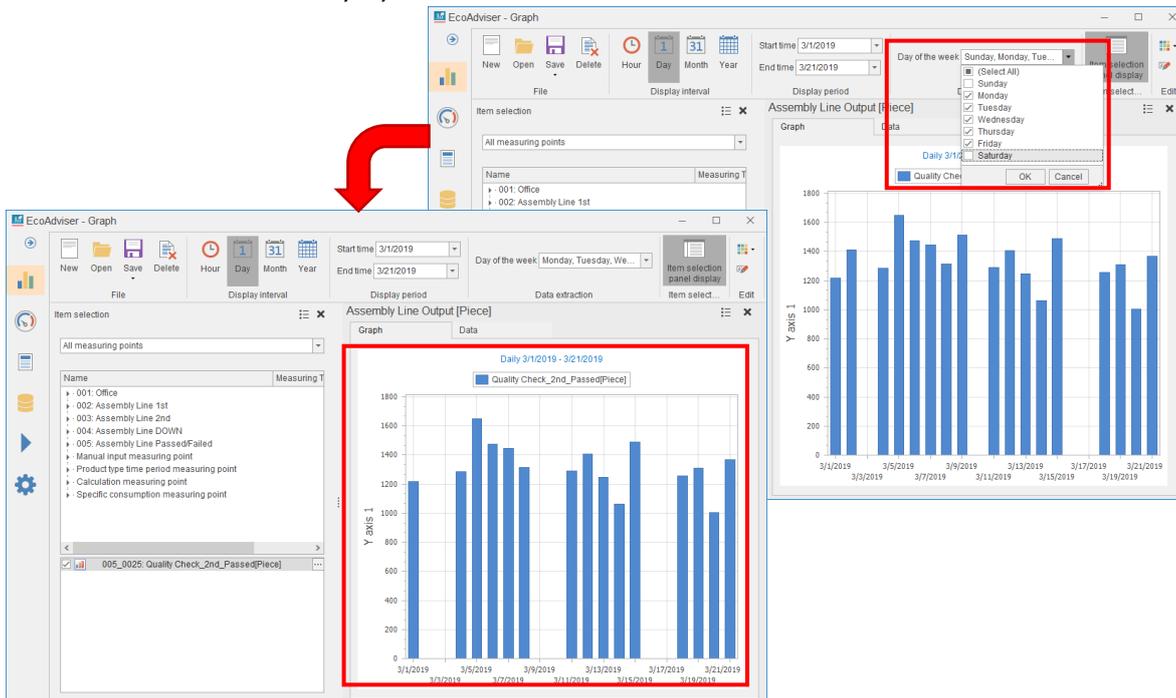
8.2.4 Extracting the data

You will set the day to extract data of the selected graph panel.

*When the display interval is set to Hour or Day, this setting is available.

Click the **Data extraction** button.

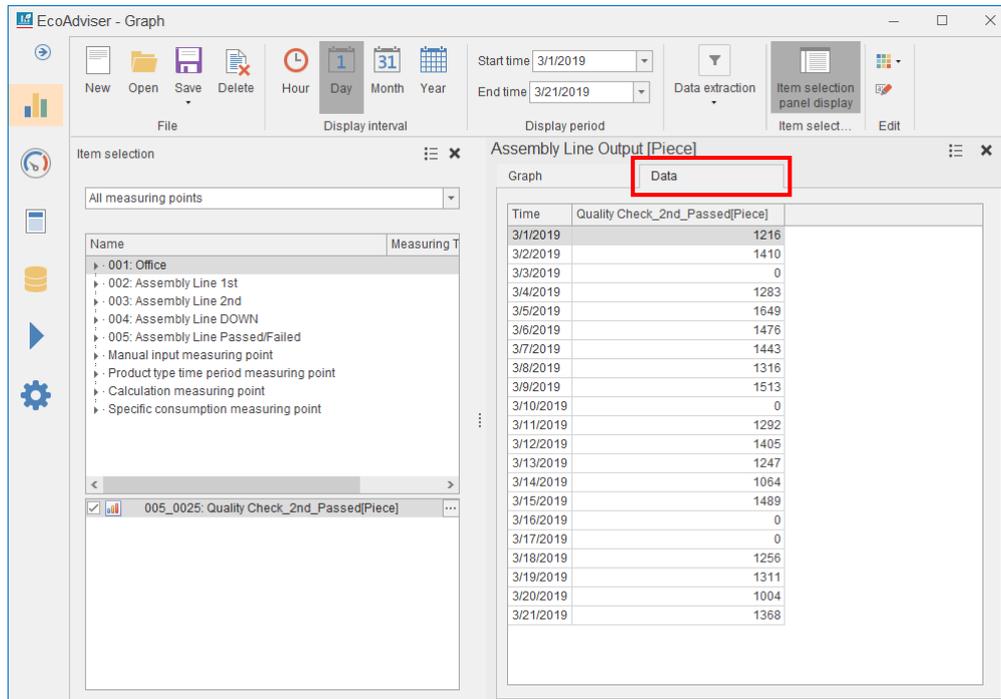
Select the checkbox of days you want to extract data for and then click the **OK** button.



8.2.5 Displaying the data (numeric values)

The numeric values of data in the graph will be displayed.

Select the **Data** tab in the Panel to check data in format.



8.2.6 Operating the item selection panel

This subsection describes the operations about the Item selection panel.

Click the **Item selection panel display** button to display/hide the panel.

*When you create a new graph panel or open an existing graph panel, it is automatically displayed.

The following table shows possible operations in the item selection panel.

Item	Details
Move item selection panel	Change the displayed position of the item selection panel.
Add/Delete measuring point	Add/Delete a measuring point to display in the graph.
Change display period	Change the start date and end date for display period.
Show/Hide data	Set the Show/Hide of graph data on each measuring point or display period.
Change graph type	Change the graph type. *When the analysis method is Time series chart, this function is available.
Set display axis	Set the vertical axis of graph. *When the analysis method is Time series chart, this function is available.

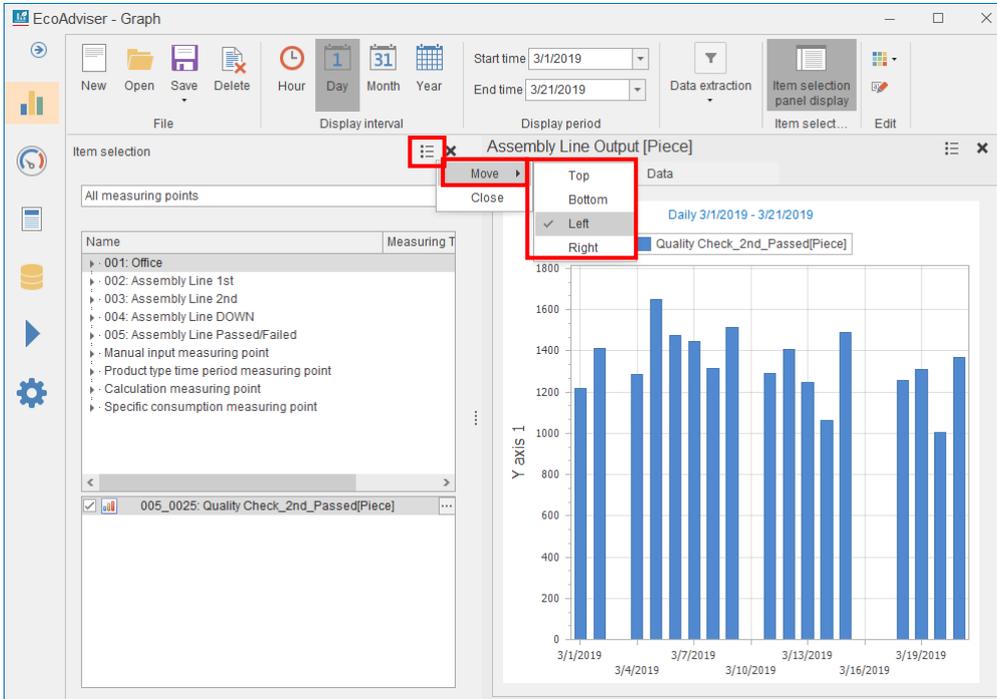
■ Move item selection panel

It is possible to change the displayed position of the item selection panel.

Click the  sign on the upper right of the panel.

Select **Move** and then select any position to display.

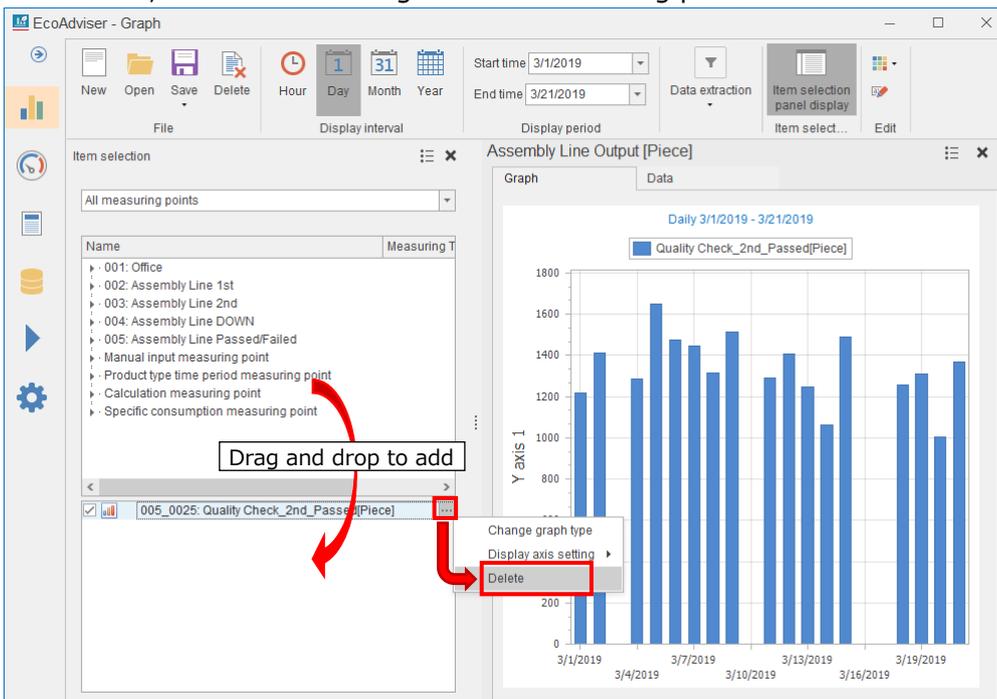
By dragging  between the item selection panel and graph, you can adjust the displayed area.



■ Add/Delete measuring point

To add a measuring point to display in the graph, drag and drop the measuring point from the upper frame to the bottom frame.

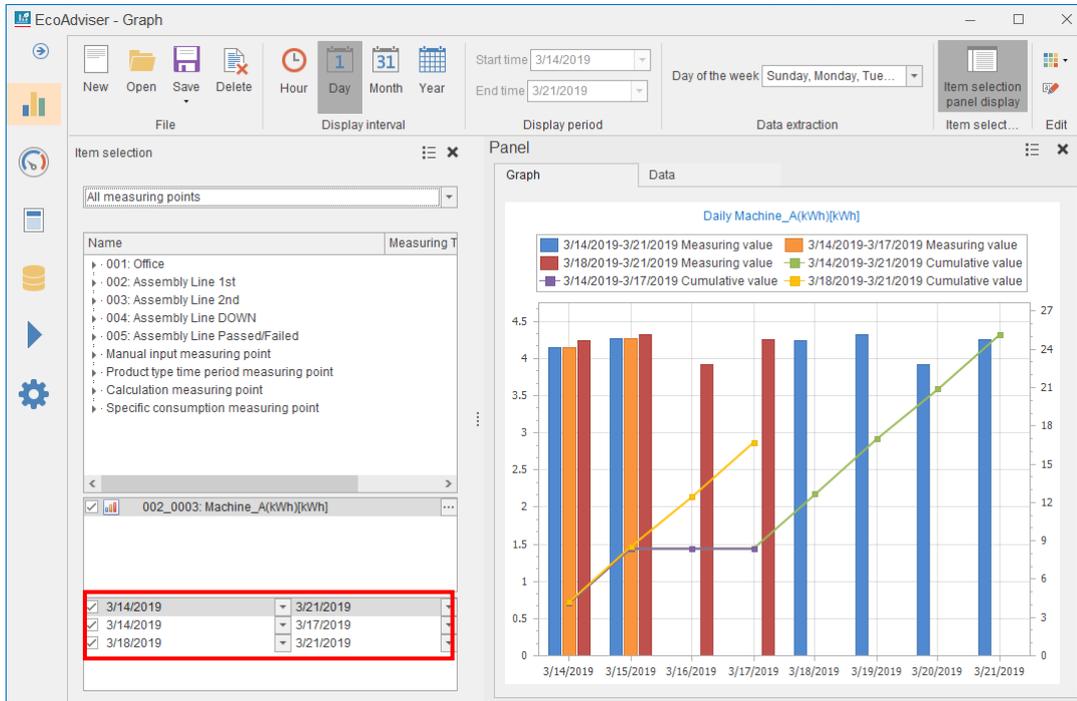
To delete it, click  to the right of the measuring point in the bottom frame and then select **Delete**.



■ Change display period

When the analysis method and analysis viewpoint are Time series chart and Item (date comparison) respectively, this function is available.

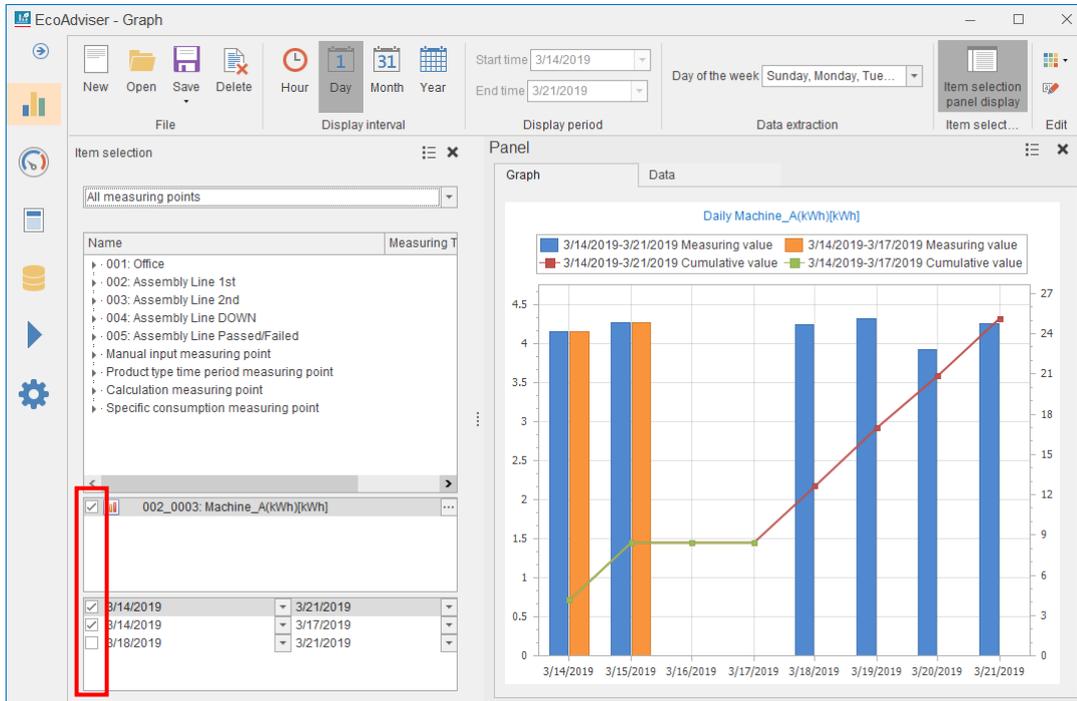
It is possible to change the start date and end date for display period.



Display interval	Maximum display period
Hourly	7 days (168 hours) *In the case of the box plot, 31 days.
Day	365 days
Month	120 months
Year	10 years

■ Show/Hide data

You can set the Show/Hide of graph data on each measuring point or display period. To display data, select the checkbox to the left of a measuring point or display period. To hide, remove the checkmark.



■ Change graph type

When the graph type is Time series chart, the graph type can be changed to a similar graph type or overlaid graph type.

Click ... to the right of a measuring point in the bottom frame.

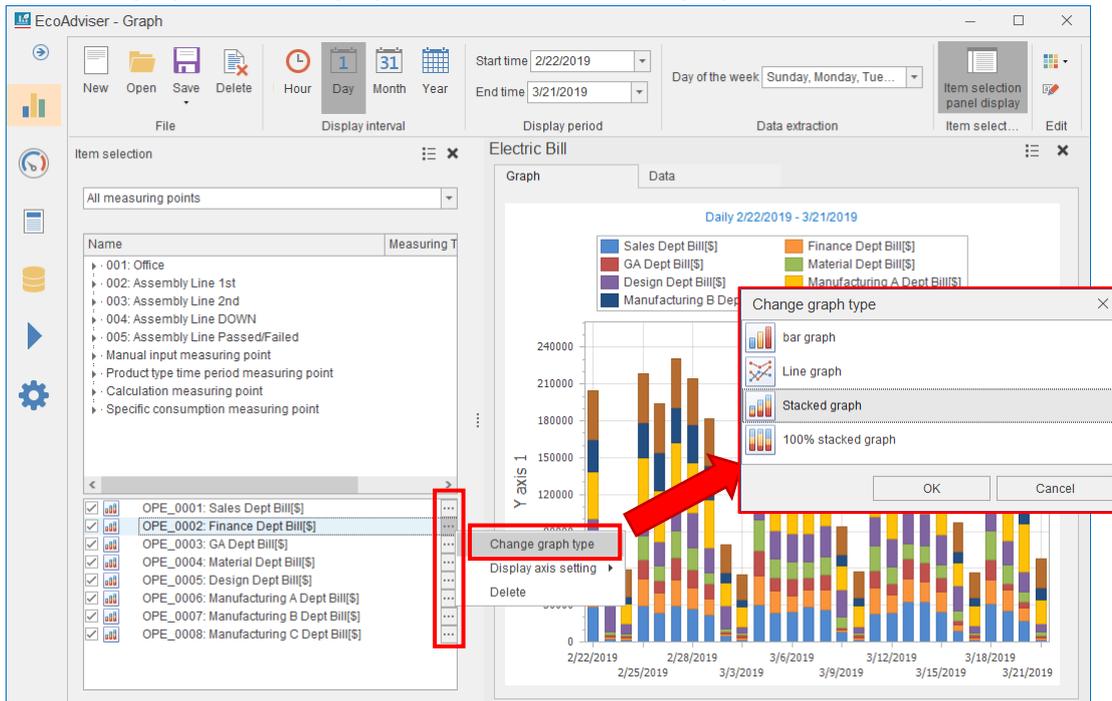
Select **Change graph type** and then select any graph type.

*The graph type to display has the following conditions:

- For 100% stacked graph, set every measuring point to the same display axis.
- The 100% stacked graph cannot be displayed along with other charts.

If you set one measuring point to display in the 100% stacked graph, every measuring point will be also displayed in the 100% stacked graph.

- The bar graph, stacked graph, and 100% stacked graph cannot be displayed at the same time.



8 Graph

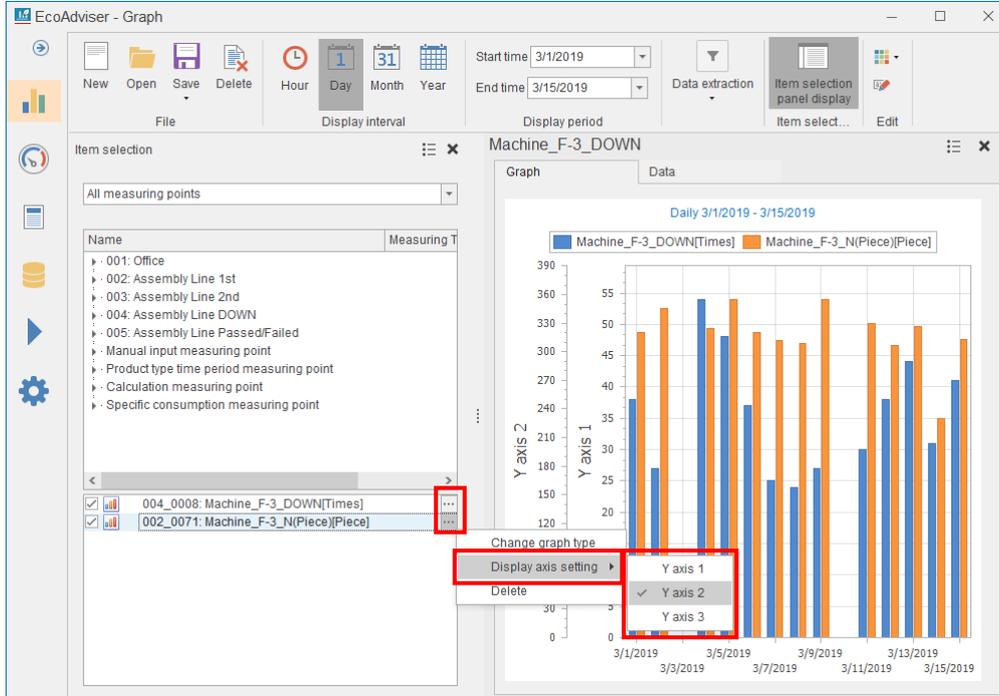
■ Set display axis

When the graph type is Time series chart, the display axis can be divided into.

Click **⋮** to the right of a measuring point in the bottom frame.

Select **Display axis setting** and then select any axis.

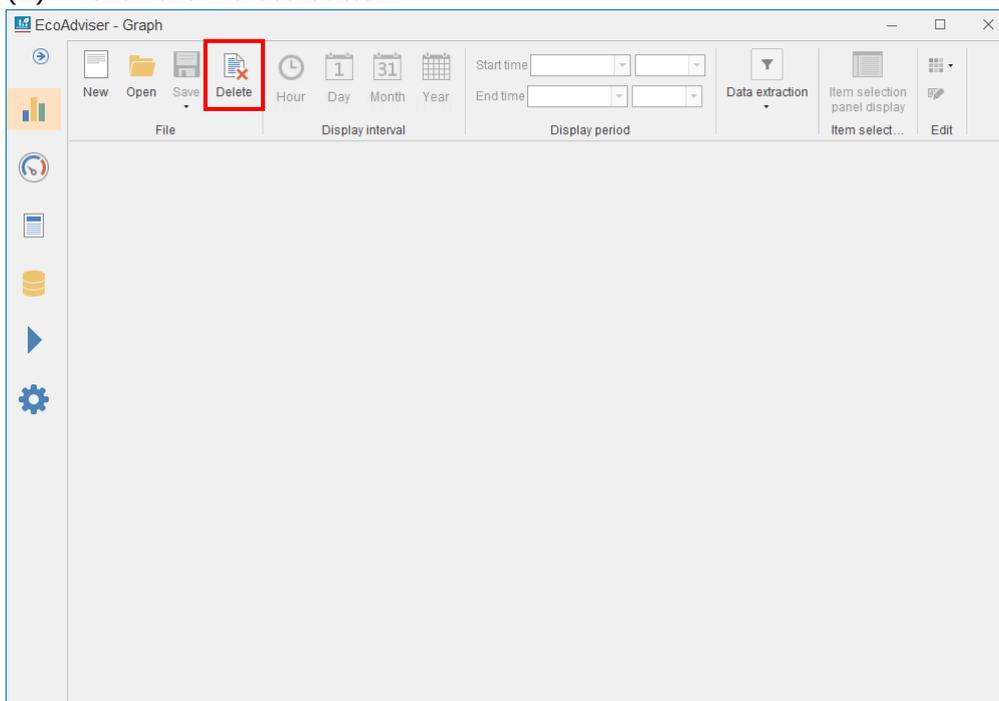
The display axis can be divided into a maximum of 3.



8.3 Deletion of Graph Panel

You will delete a saved graph panel.

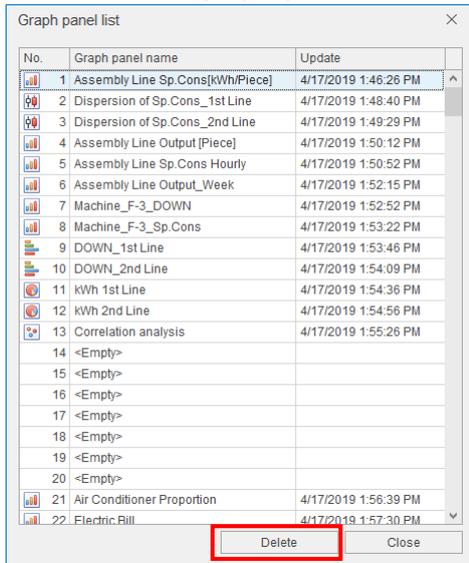
(1) Click the **Delete** button.



8 Graph

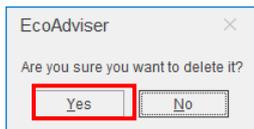
(2) The following window appears.

Select a graph you want to delete and then click the **Delete** button.



(3) The following confirmation message appears.

Click the **Yes** button to delete.



(4) When the deletion is completed, the window is closed.

This is the end of the operation.

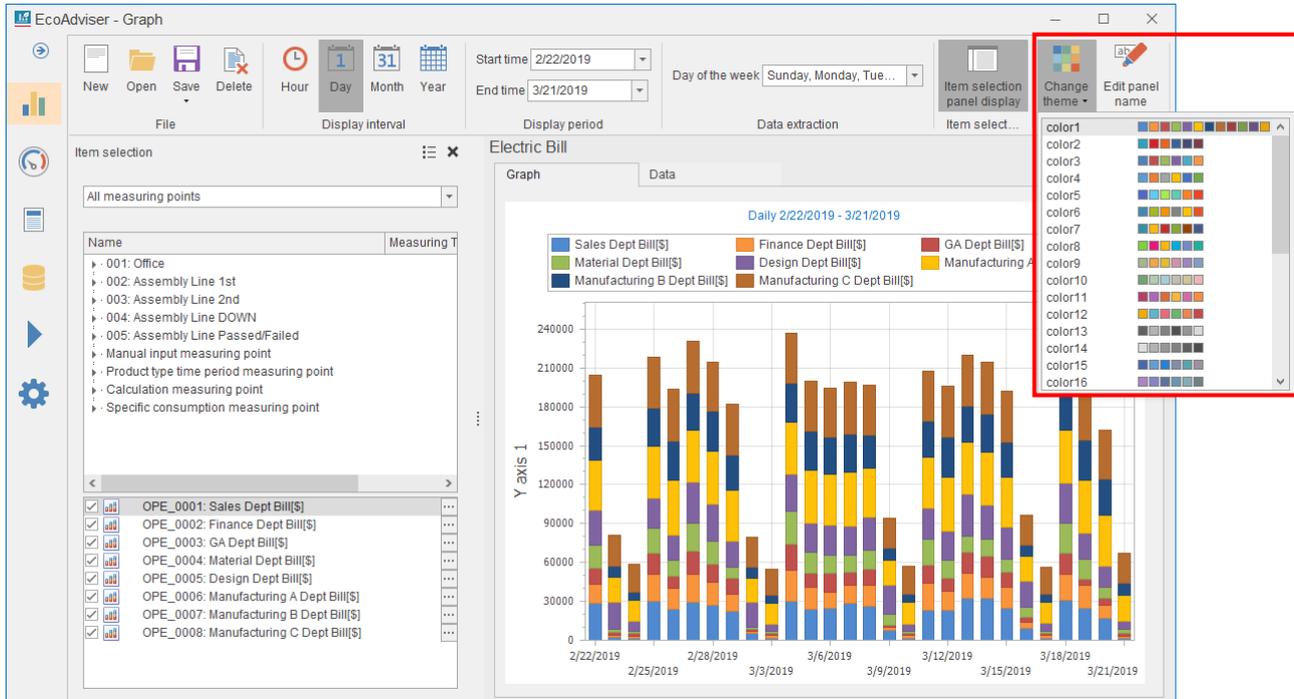
8.4 Change of Other Settings

This section describes how to set the graph color and panel name.

8.4.1 Setting the theme

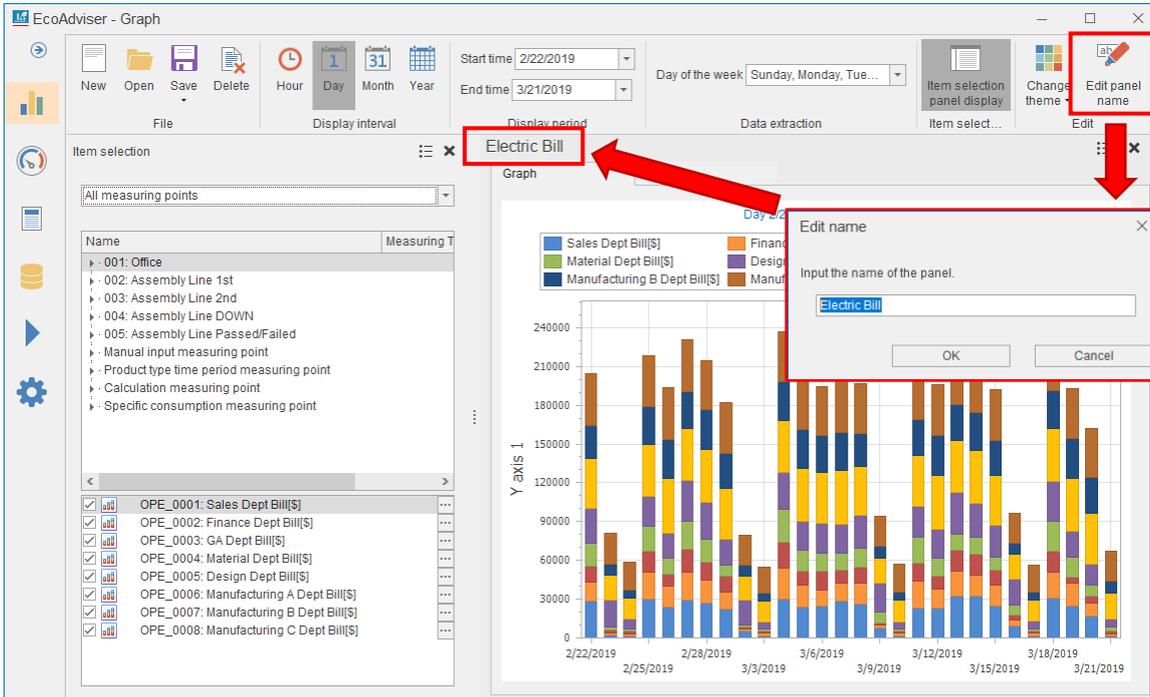
You will set the theme color of a selected graph panel.

Click the **Change theme** button and then select a color from the pull-down menu.



8.4.2 Setting the panel name

You will set the panel name (panel title) of a selected graph panel.
Click the **Edit panel name** button and then input a panel name.

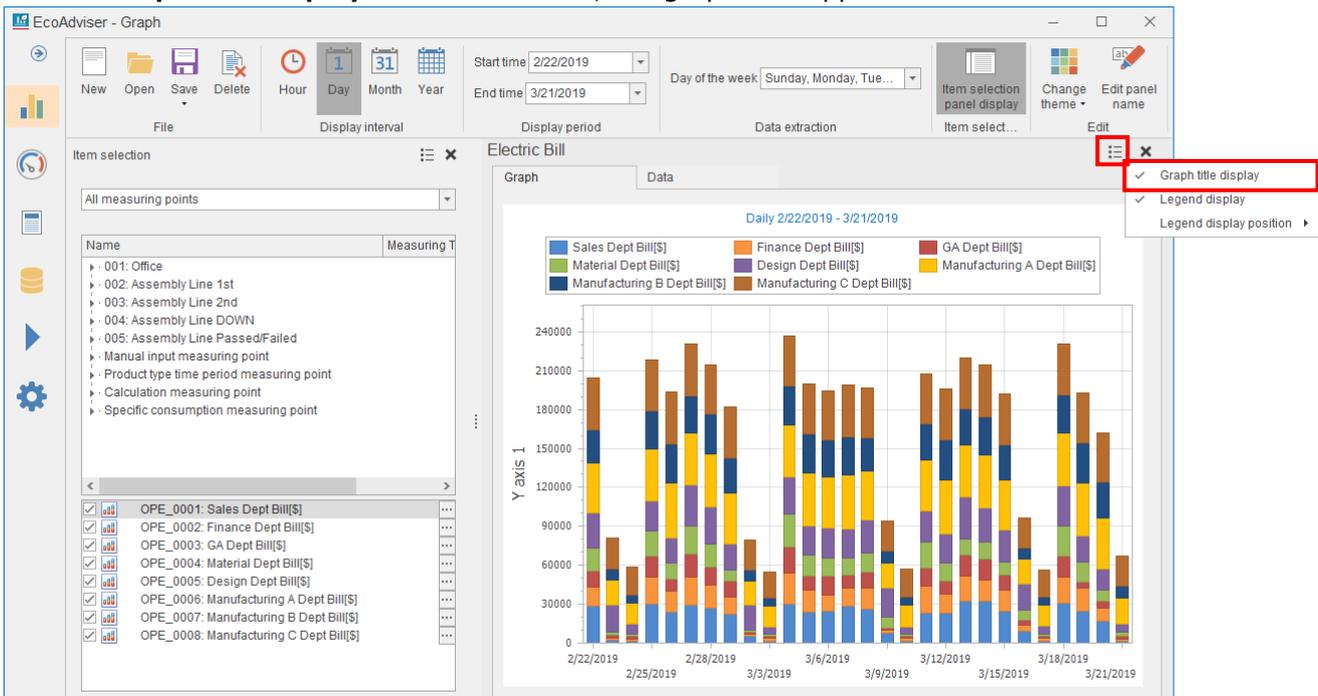


8.4.3 Displaying/Hiding the graph title

You will set the Show/Hide of the graph title.

Click the  sign on the upper right of the graph and then select **Graph title display** to switch the Show/Hide settings.

*When **Graph title display** has a checkmark, the graph title appears.



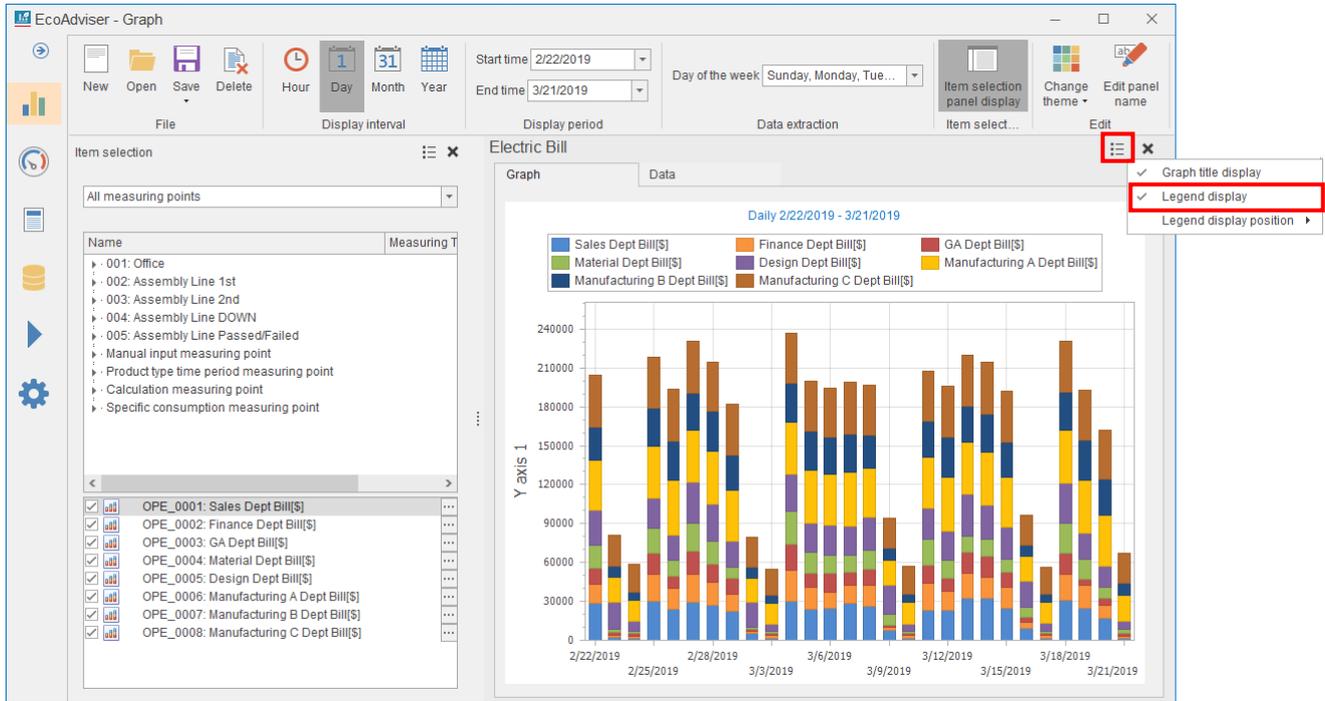
8.4.4 Displaying/Hiding the legend

You will set the Show/Hide of the graph legend.

Click the  sign on the upper right of the graph and then select **Legend display** to switch the Show/Hide settings.

*When **Legend display** has a checkmark, the legend appears.

*When the window is small or when the graph is displayed in smaller size due to display of multiple graphs, the legend is not displayed regardless of this setting.

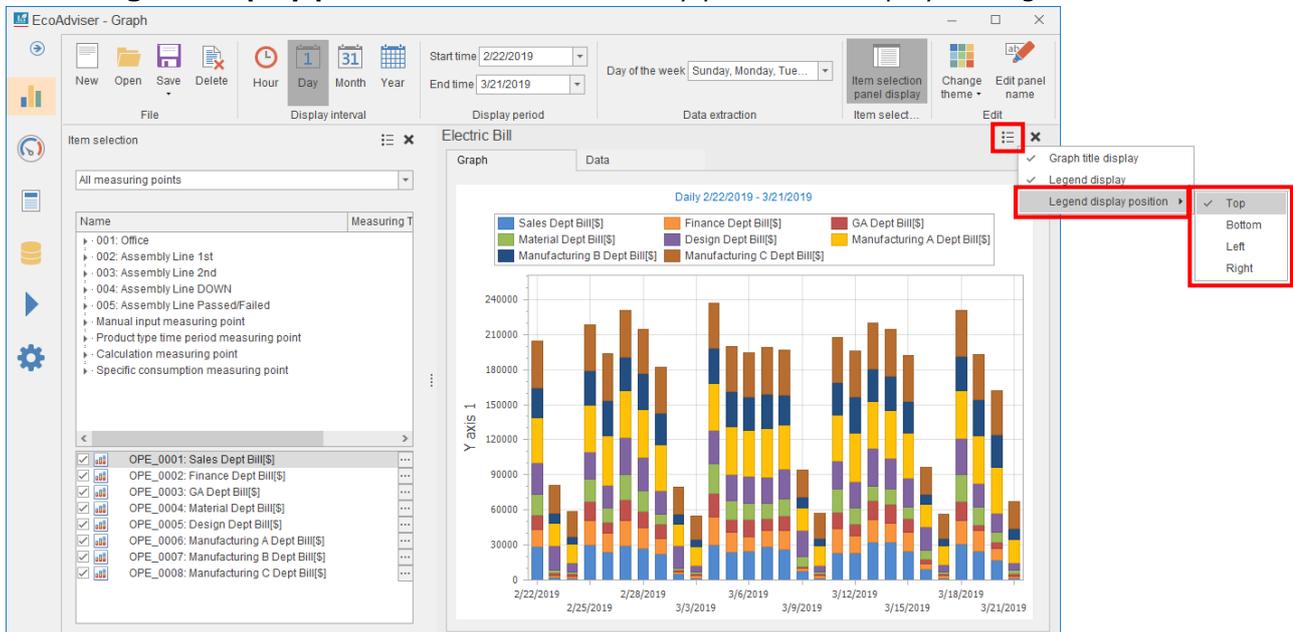


8.4.5 Setting the legend display position

You will set the displayed position of the graph legend.

Click the  sign on the upper right of the graph.

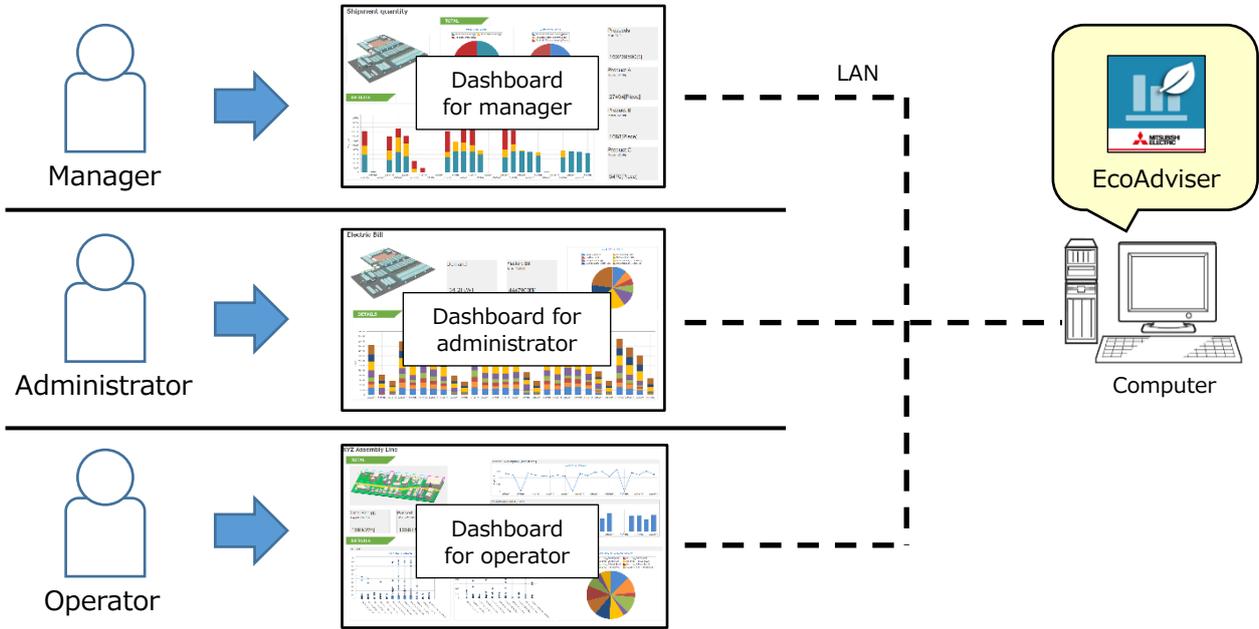
Select **Legend display position** and then select any position to display the legend.



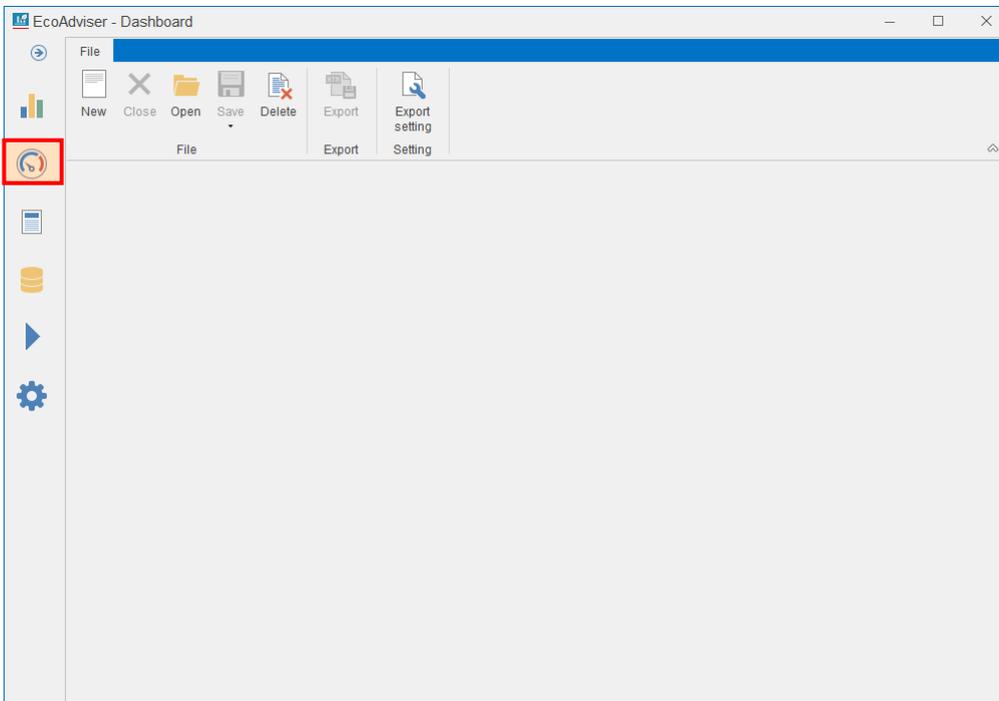
9. Dashboard

This chapter explains how to create dashboards.

It is possible to create various dashboards according to the use application, and you can take advantage of the dashboards in various scenes.

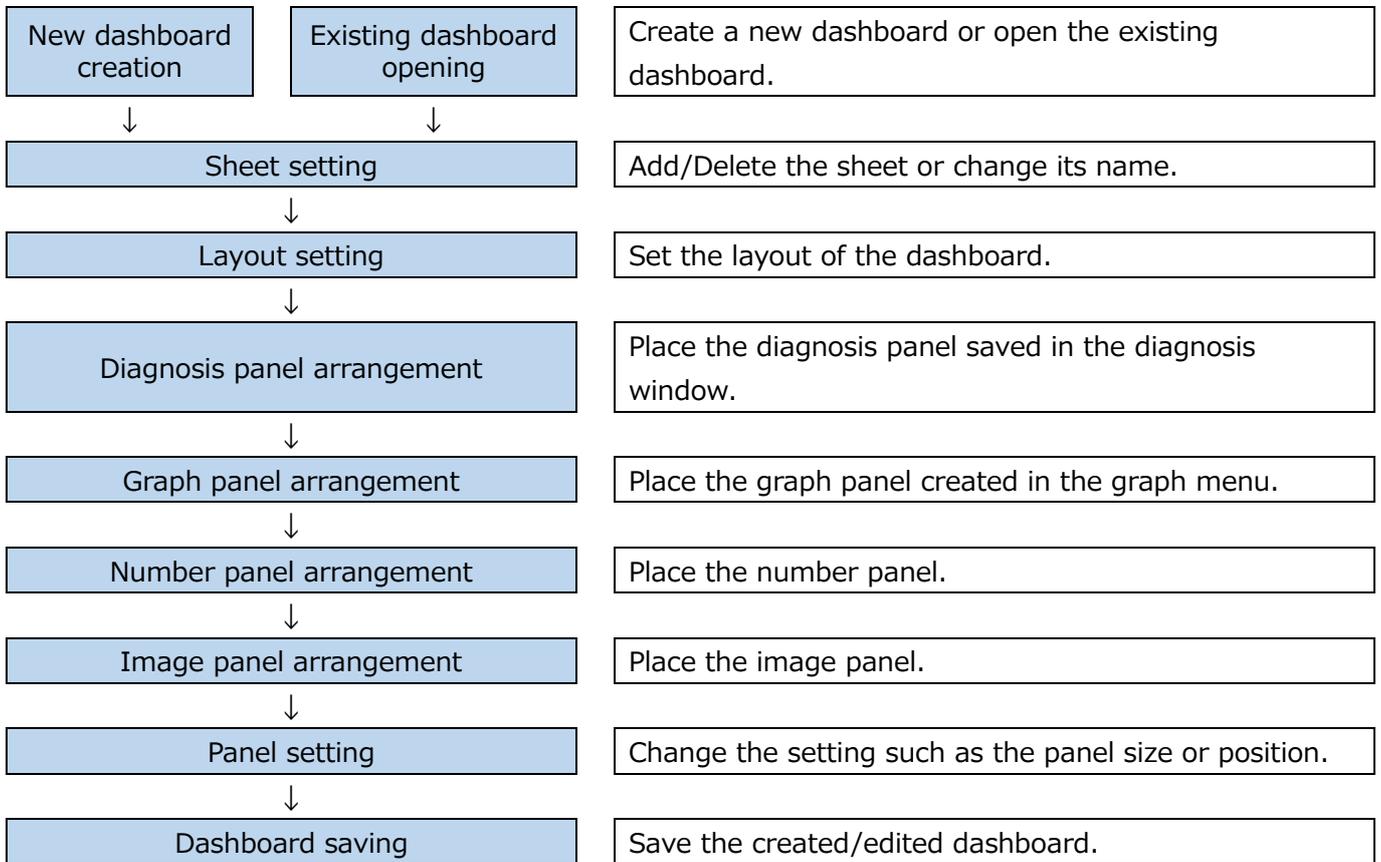


Click the **Dashboard** button on the left menu to enter the dashboard window.



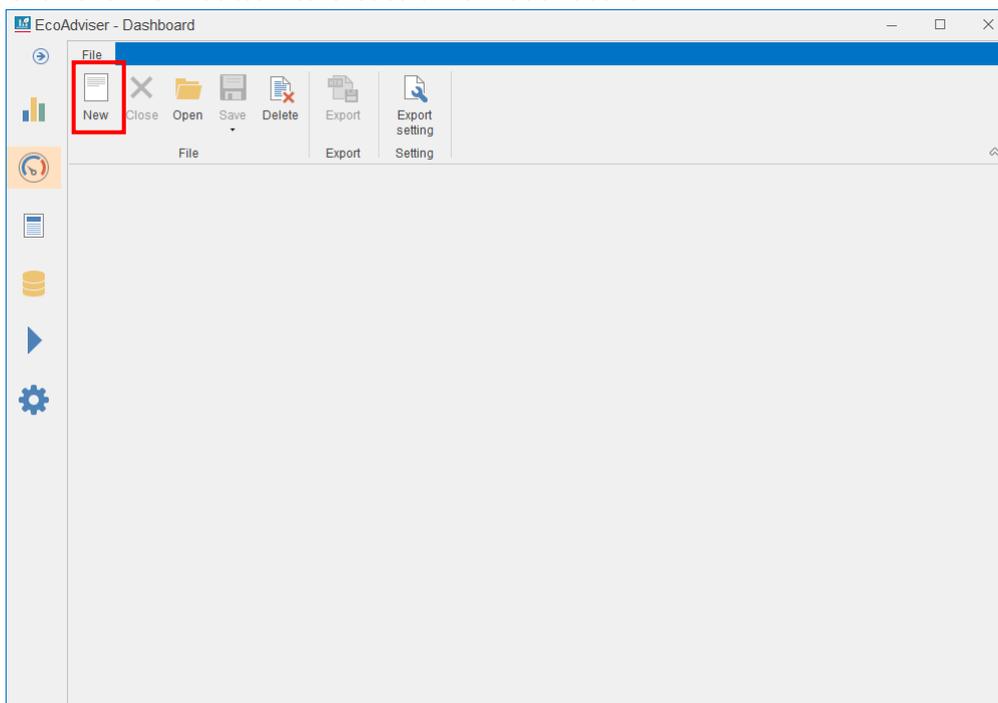
9.1 Dashboard Creation/Edition

The following items are basic operations about the dashboard.



9.1.1 Creating a new dashboard

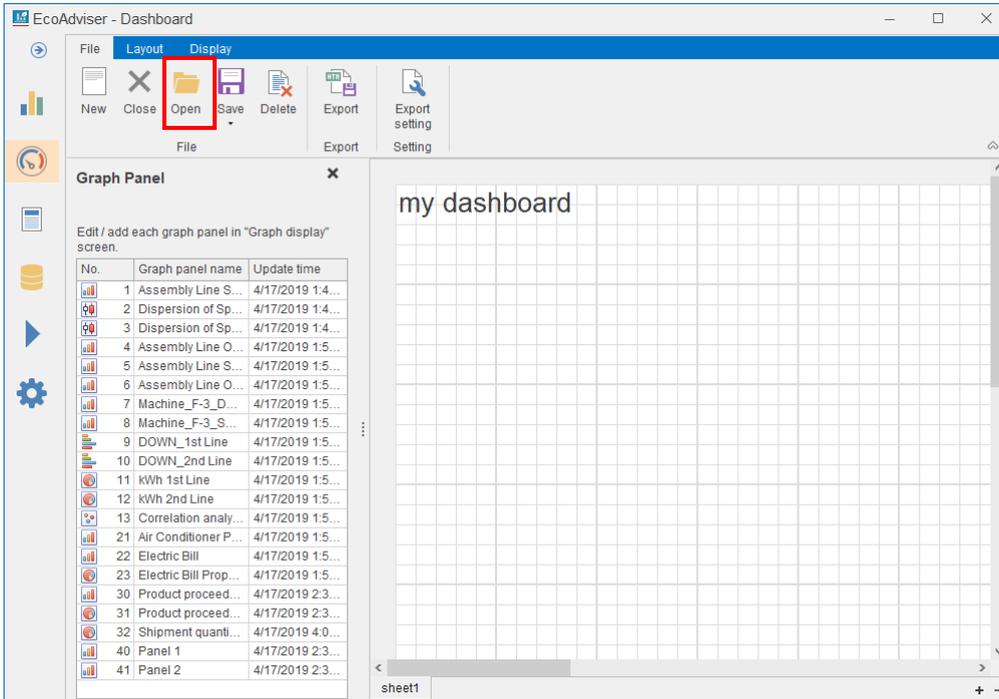
Click the **New** button to create a new dashboard.



9.1.2 Opening the existing dashboard

You will open the existing dashboard.

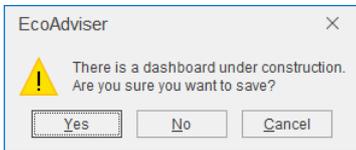
(1) Click the **Open** button.



*When you have already opened a dashboard, the following message will appear.

Click the **Yes** button to save.

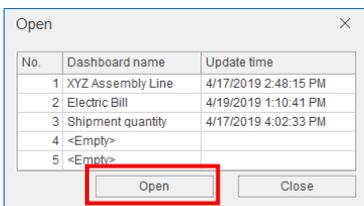
Click the **No** button not to save.



(2) The following window appears.

Select a dashboard and then click the **Open** button.

This is the end of the operation.



9.1.3 Setting the sheet

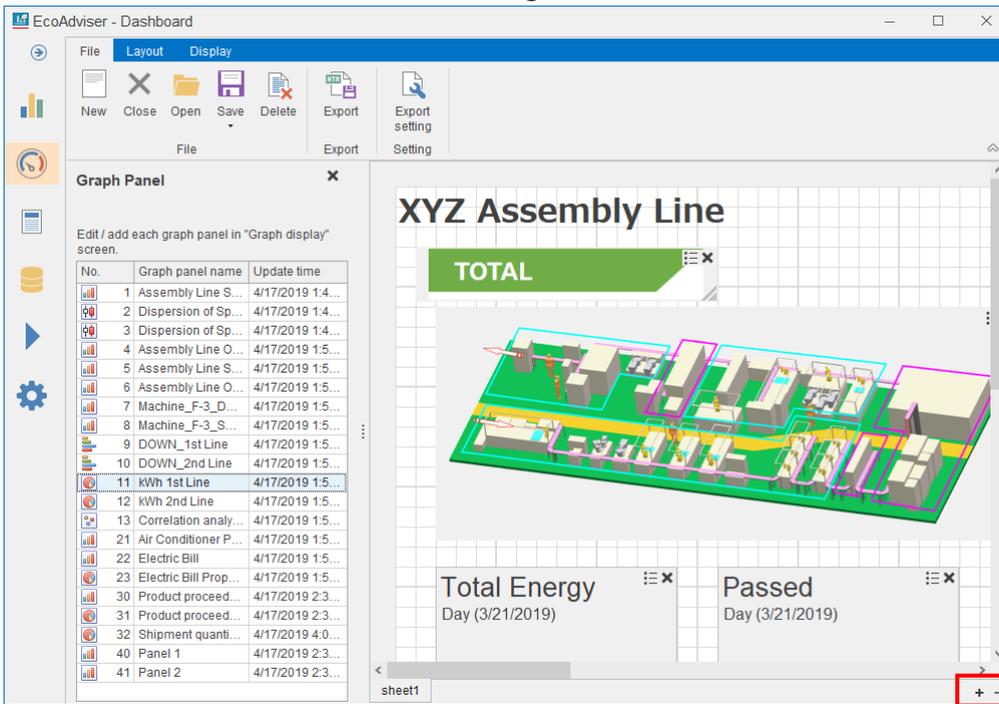
You will add/delete the sheet or change its name.
It is possible to set several sheets to the dashboard.

(1) Adding/Deleting the sheet

Click the + or - button to add or delete the sheet.

*The layout setting varies depending on the sheet of the dashboard.

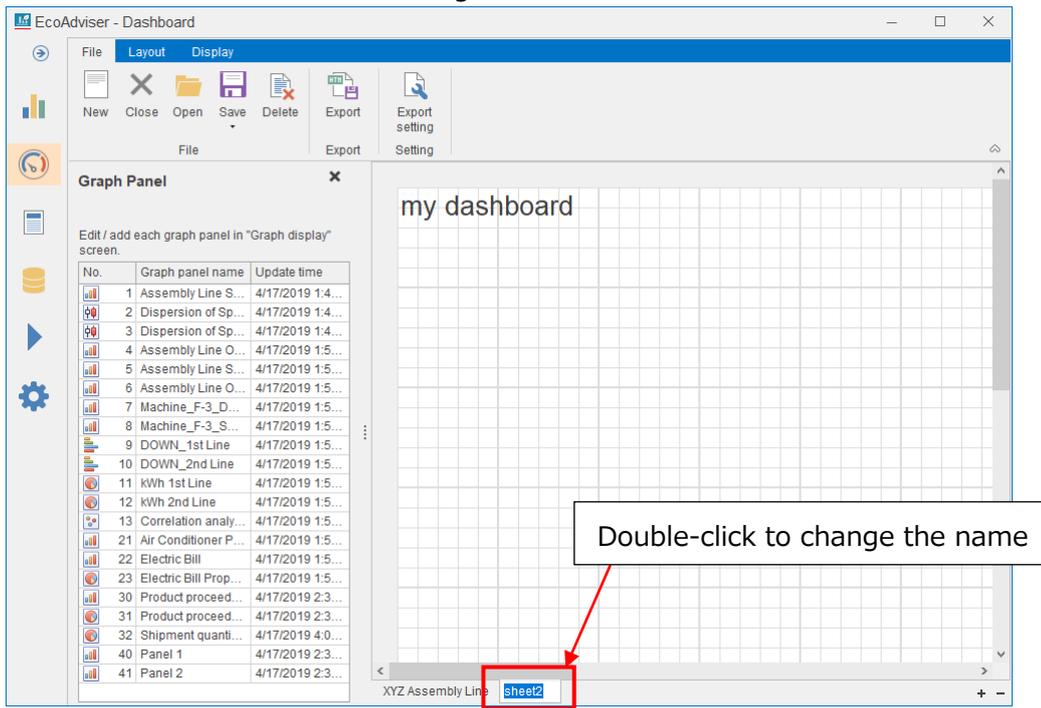
The added sheet has the default setting.



Button	Action
+	Add a new sheet at the last. *The added sheet is the default setting.
-	Delete the selected sheet.

(2) Changing the sheet name

Double-click the sheet tab to change the name.



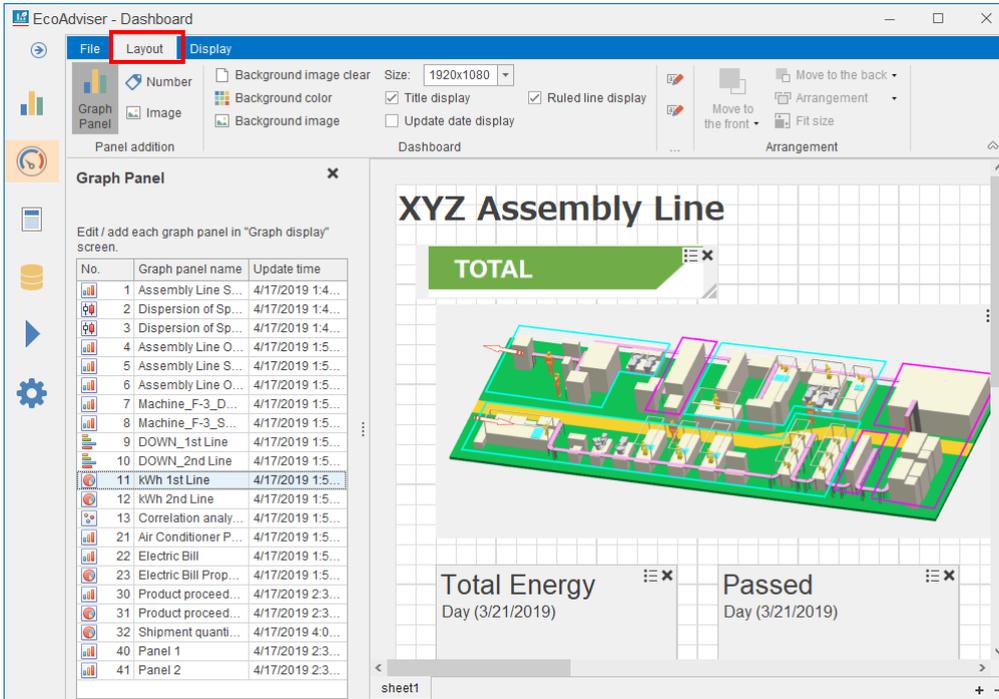
(3) Sorting the sheets

Drag and drop the sheet to change the position.

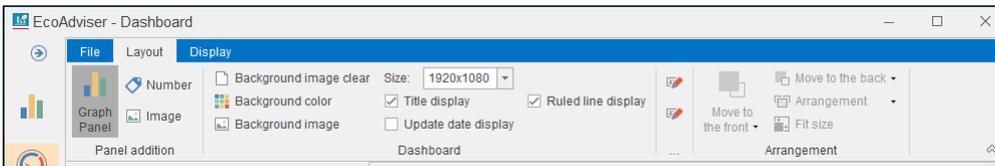
9.1.4 Setting the layout

You will set the layout of the dashboard from the **Layout** tab.

*The layout setting varies depending on the sheet.



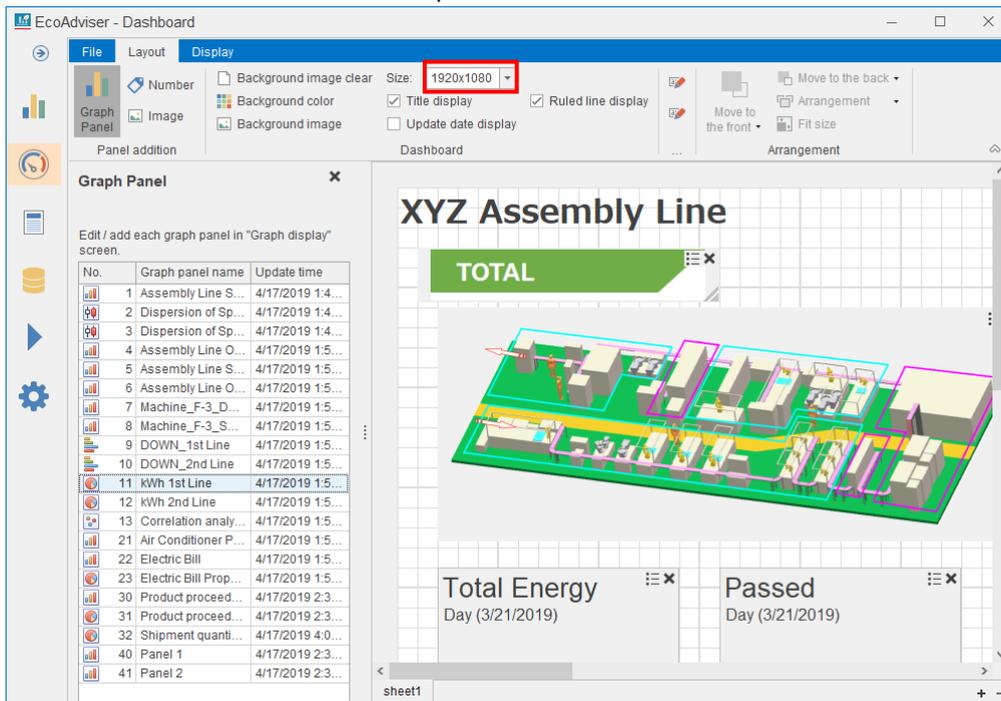
The **Layout** tab provides the following settings.



	Setting item
(1)	Size
(2)	Background color
(3)	Background image
(4)	Title change
(5)	Title display
(6)	Title format
(7)	Update date display
(8)	Update date format
(9)	Ruled line display

(1) Size setting

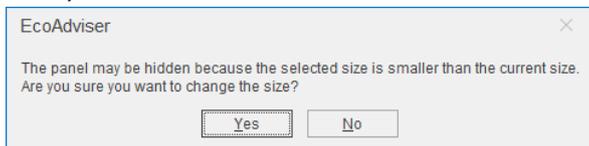
Set the dashboard size from the pull-down menu.



Settings: 1920x1080, 1680x1050, 1600x900, 1440x900, 1400x1050, 1366x768, 1360x768, 1280x1024, 1280x960, 1280x800, 1280x768, 1280x720, 1280x600, 1152x864, 1024x768, 800x600

*Default: 1920x1080

*If you reduce the size of the dashboard with panels arranged, you may not handle the panels because they are out of the dashboard.

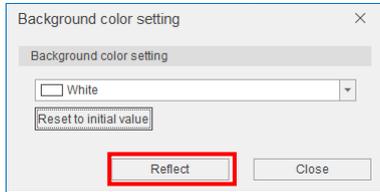


(2) Background color setting

Click the **Background color** button to show the following window.

Select a background color from the pull-down menu and then click the **Reflect** button to set the background color.

In addition, clicking the **Reset to initial value** button sets the default background color.



(3) Background image setting

Click the **Background image** button and then select an image file (.png, .jpg, .bmp, .gif) to set the background image of the dashboard.

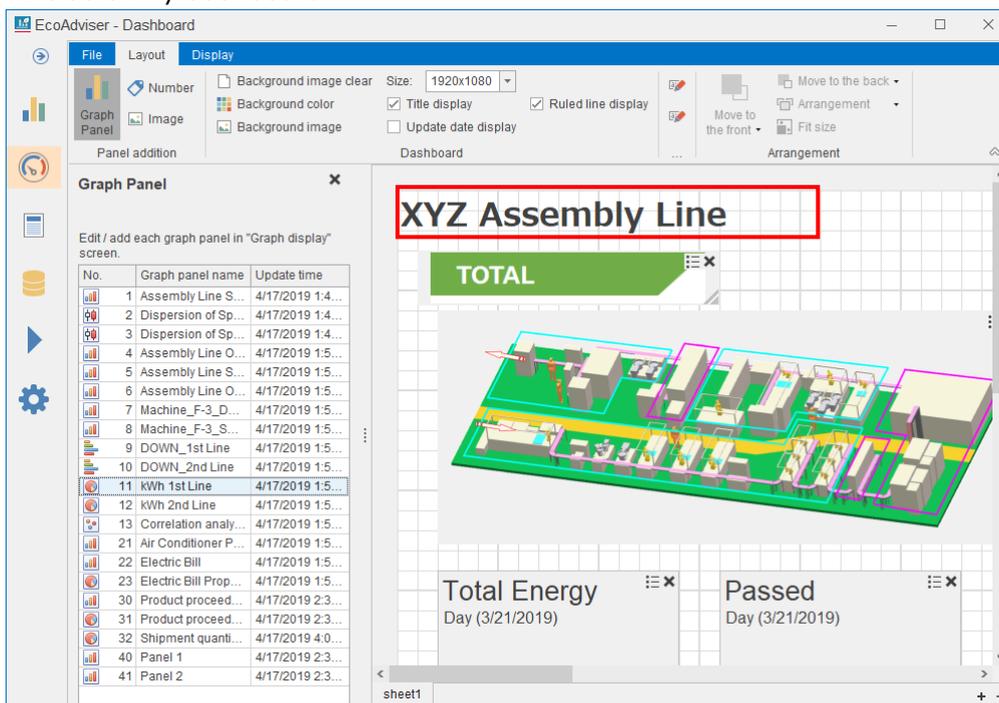
*The background image is automatically expanded or reduced with keeping the aspect ratio.

(4) Title change

Click the title of the dashboard and then change the title.

Press the **Enter** key to determine the change.

*Default: my dashboard



(5) Title display setting

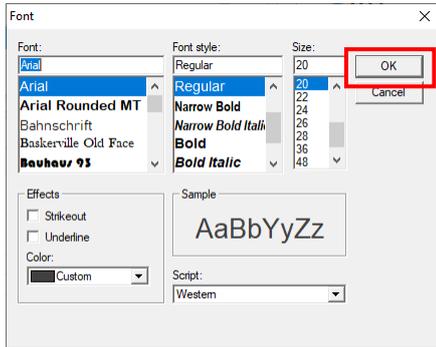
Select the checkbox of **Title display** to display the dashboard title.

To hide the title, remove the checkmark.

(6) Title format setting

Click the **Title format** button to show the following window.

Set the format of the dashboard title and then click the **OK** button.

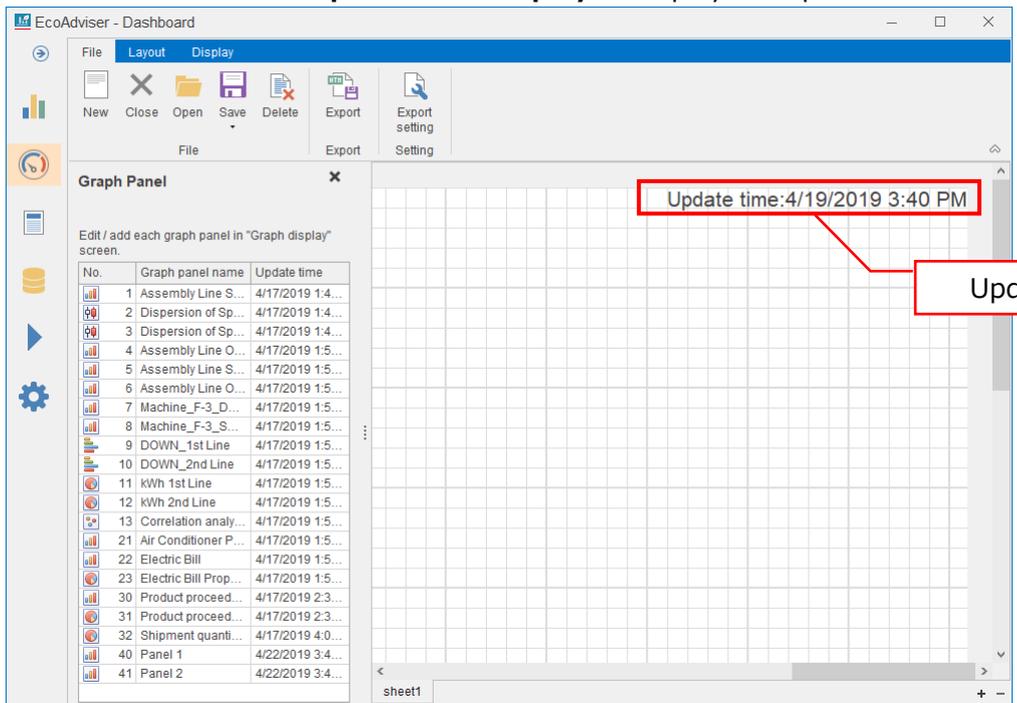


The window is closed and the format setting is reflected.

(7) Update date display setting

This is used to set the update date displayed on the dashboard for display mode or for display in the html file.

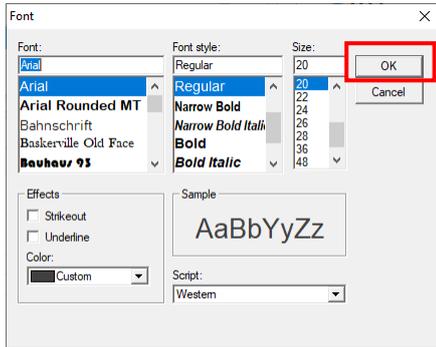
Select the checkbox of **Update date display** to display the update date.



(8) Update date format setting

Click the **Update time format** button to show the following window.

Set the format of the update date of the dashboard and then click the **OK** button.



The window is closed and the format setting is reflected.

(9) Ruled line display setting

This is used to set the ruled line display for dashboard edition mode.

*Under display mode or under display in the html file, the ruled line is hidden regardless of the setting.

Select the checkbox of **Ruled line display** to display the ruled line.

The following table shows the difference between the states of Show and Hide.

Ruled line display	Details
Show	Change the position and size of the panel according to the ruled line. *If the position/size of the panel is changed under deviating from the ruled line, it will be changed by the width of the ruled line under keeping the deviation.
Hide	Change the panel to any size or change the position freely.

9.1.5 Placing the diagnosis panel

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

You will place the diagnosis panel on the dashboard.

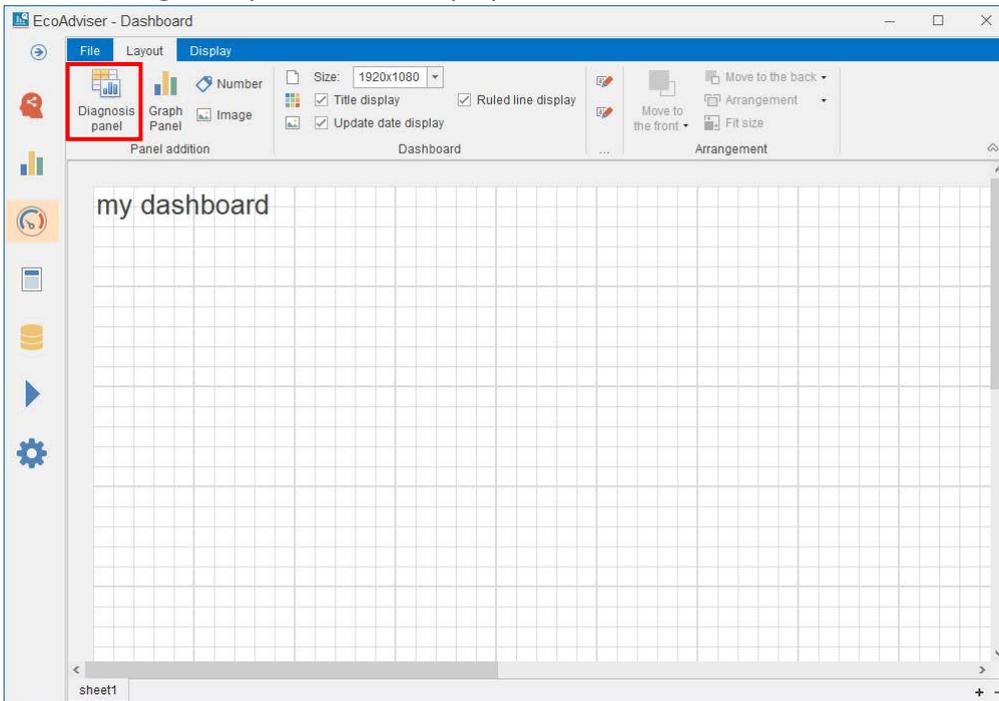
*It is possible to place 10 panels per sheet in total with graph panels.

*Of diagnosis panel, max. 100 panels for all dashboards can be placed to display the result of energy-loss factor diagnosis.

*The graphs and measuring values displayed on the panel keeps the state at the time of saving.

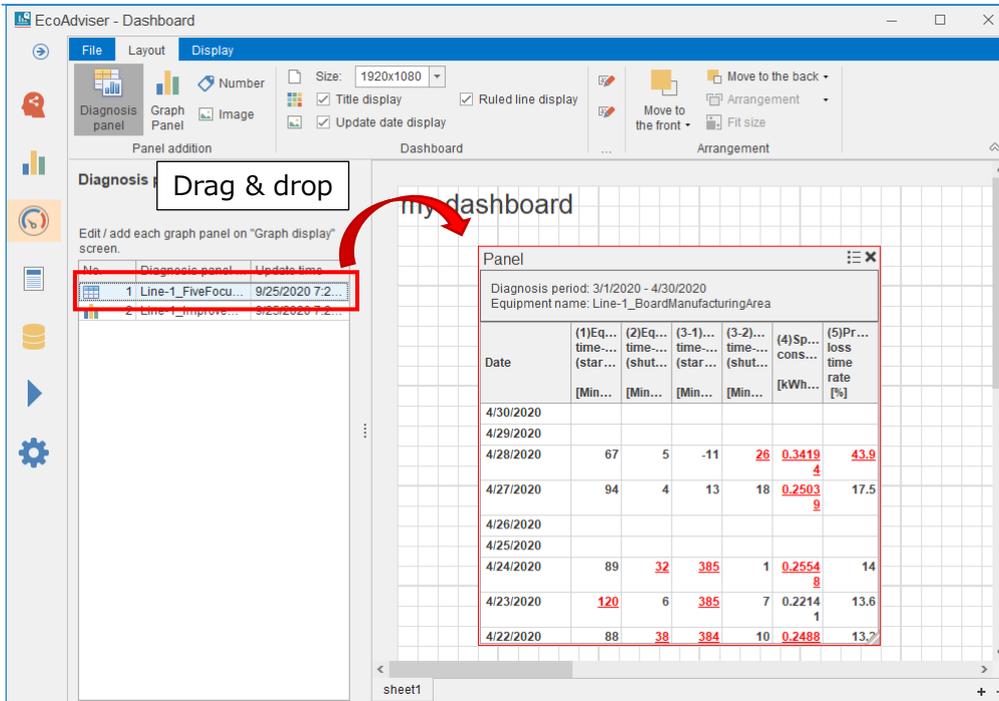
(1) Click the **Diagnosis panel** button.

The diagnosis panel box is displayed on the left of the window.



(2) Drag and drop a panel to place on the dashboard.

9 Dashboard



9.1.6 Placing the graph panel

You will place the graph panel on the dashboard.

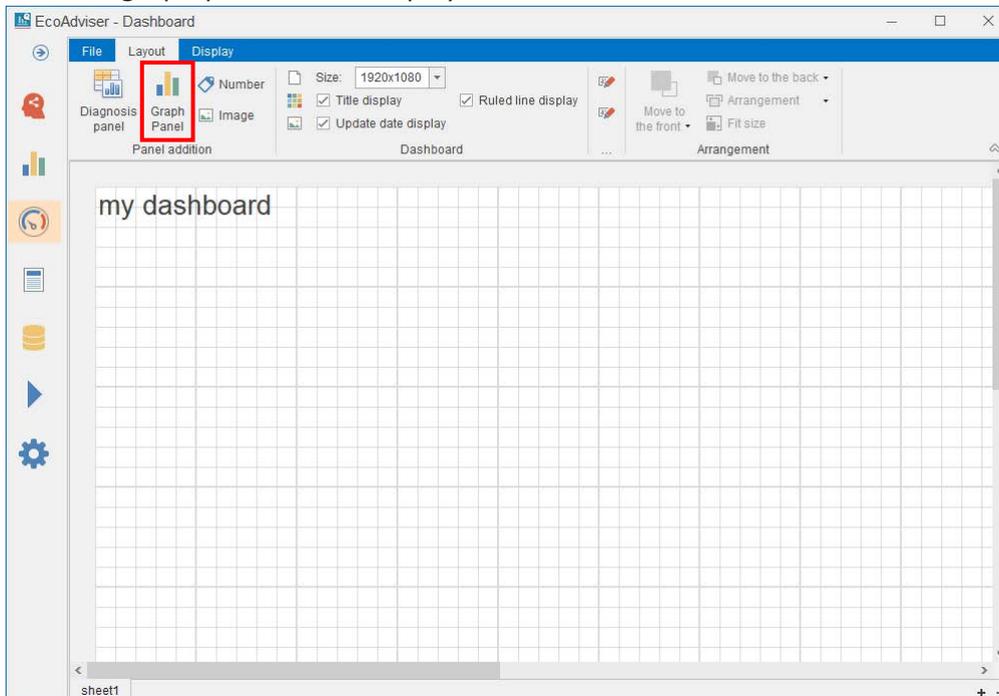
*It is possible to place 10 panels per sheet in total with diagnosis panels.

*In the graph panel box, the graphs created in the graph menu are displayed.

For details how to create graphs, refer to [8.1 Creation/Saving of Graph Panel].

(1) Click the **Graph panel** button.

The graph panel box is displayed on the left of the window.



(2) Drag and drop a panel you want to place from the graph panel box to the dashboard.

9 Dashboard

The screenshot shows the EcoAdviser Dashboard interface. On the left is a 'Graph Panel' list with columns for 'No.', 'Graph panel name', and 'Update time'. A red box highlights row 11, 'kWh 1st Line', and a red arrow points to it with the text 'Drag & Drop'. The main dashboard area, titled 'my dashboard', contains a pie chart titled 'kWh 1st Line' for the period 'Hour 3/14/2019 12:00 AM - 3/15/2019 12:00 AM'. The chart is divided into 11 segments, each corresponding to a machine or quality check category listed in the legend: Machine_A, Machine_B, Machine_C, Machine_D, Machine_E, Machine_F-1, Machine_F-2, Machine_F-3, Machine_F-4, Machine_G, Machine_H, and Quality Check_1st.

No.	Graph panel name	Update time
1	Assembly Line S...	4/17/2019 1:4...
2	Dispersion of Sp...	4/17/2019 1:4...
3	Dispersion of Sp...	4/17/2019 1:4...
4	Assembly Line D...	4/17/2019 1:5...
5	Assembly Line D...	4/17/2019 1:5...
6	Assembly Line D...	4/17/2019 1:5...
7	Assembly Line D...	4/17/2019 1:5...
8	Machine_F-3_S...	4/17/2019 1:5...
9	DOWN_1st Line	4/17/2019 1:5...
10	DOWN_2nd Line	4/17/2019 1:5...
11	kWh 1st Line	4/17/2019 1:5...
12	kWh 2nd Line	4/17/2019 1:5...
13	Correlation analy...	4/17/2019 1:5...
21	Air Conditioner P...	4/17/2019 1:5...
22	Electric Bill	4/17/2019 1:5...
23	Electric Bill Prop...	4/17/2019 1:5...
30	Product proceed...	4/17/2019 2:3...
31	Product proceed...	4/17/2019 2:3...
32	Shipment quanti...	4/17/2019 4:0...
40	Panel 1	4/17/2019 2:3...
41	Panel 2	4/17/2019 2:3...

my dashboard

kWh 1st Line

Hour 3/14/2019 12:00 AM - 3/15/2019 12:00 AM

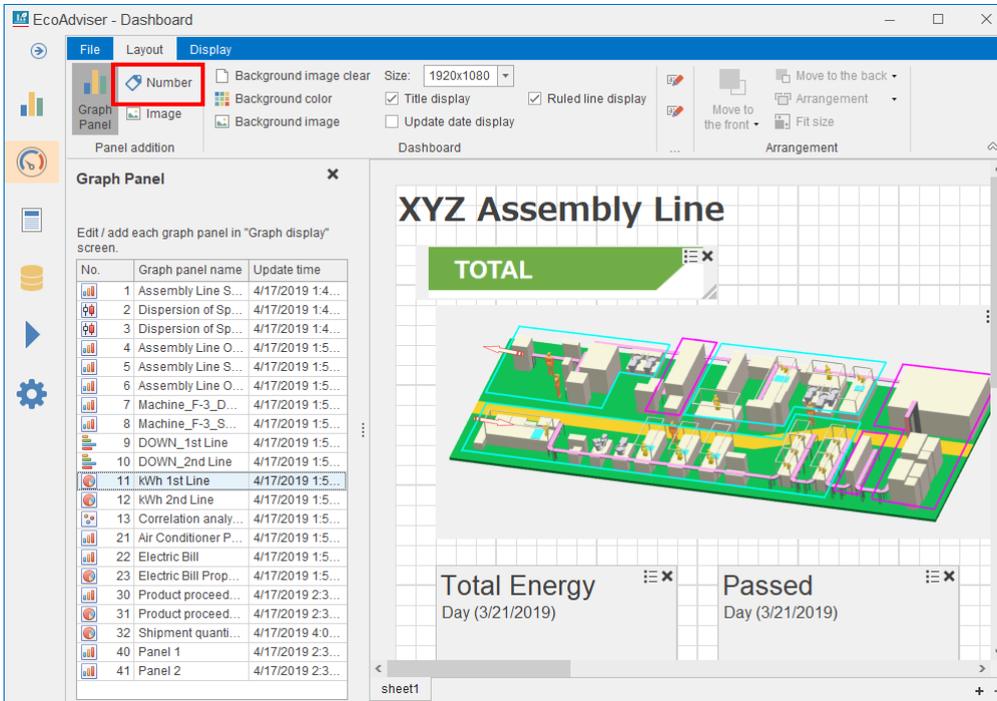
- Machine_A(KWh)[KWh]
- Machine_B(KWh)[KWh]
- Machine_C(KWh)[KWh]
- Machine_D(KWh)[KWh]
- Machine_E(KWh)[KWh]
- Machine_F-1(KWh)[KWh]
- Machine_F-2(KWh)[KWh]
- Machine_F-3(KWh)[KWh]
- Machine_F-4(KWh)[KWh]
- Machine_G(KWh)[KWh]
- Machine_H(KWh)[KWh]
- Quality Check_1st(KWh)[KWh]

sheet1

9.1.7 Placing the number panel

You will create the panel where measuring point data is displayed.
 Max. 15 panels can be set per sheet.

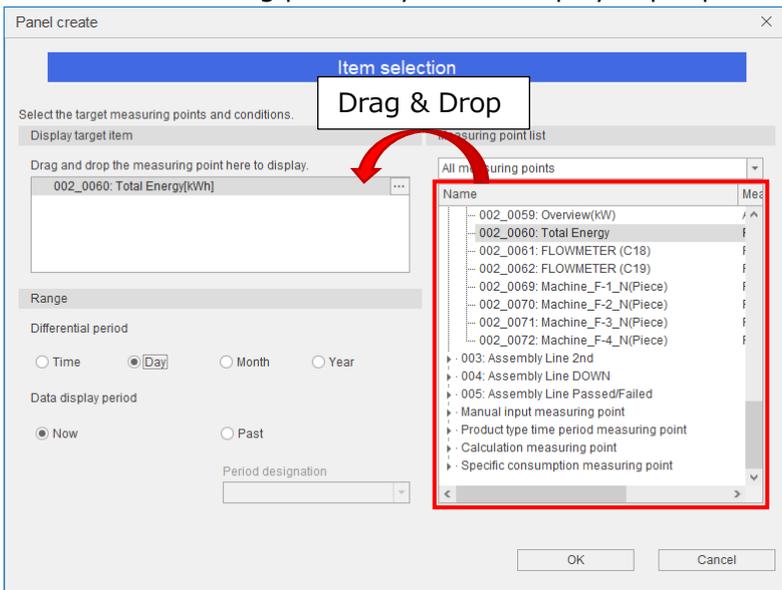
(1) Click the **Number** button.



(2) The following window appears.

Drag and drop a measuring point you want to display from the Measuring point list box to the Display target item box.

*One measuring point only can be displayed per panel.



(3) Set the **Range** items.

Item	Details
Differential period*1	This setting is available when the measuring type is Pulse for the displayed measuring point. Set the period for calculating Pulse.
Time	Calculate the difference from the value of the previous hour.
Day	Calculate the difference from the value of the previous day.
Month	Calculate the difference from the value of the previous month.
Year	Calculate the difference from the value of the previous year.
Data display period	Set the data display period.
Now	Display the current value.
Past	Display the past value. The display date must be set from the pulldown menu of Period designation.

*1: Each differential period is shown below, respectively.

<Example> Collection setting Data period(min):15

EcoWebServerⅢ file collection time(min):10

Day Aggregation Period(hour): 08:00 ~ 08:00

Month Aggregation Period(Day): 16 ~ 15

Year Aggregation Period(Month): 4 ~ 3

Present Date and Time: 10/25/2021 5:20PM

Difference period (Time) is

between present collected value at (10/25/2021 5:00PM)

and previous collected value at (10/25/2021 4:00PM).

Difference period (Day) is

between present collected value at (10/25/2021 5:00PM)

and the value at start date-time on the "Day Aggregation Period" (10/25/2021 8:00AM).

Difference period (Month) is

between present collected value at (10/25/2021 5:00PM)

and the value at start date-time on the "Month Aggregation Period" (10/16/2021 8:00AM).

Difference period (Year) is

between present collected value at (10/25/2021 5:00PM)

and the value at start date-time on the "Year Aggregation Period" (4/16/2021 8:00AM).

(4) Click the **OK** button.

The window is closed and the number panel is created.

This is the end of the operation.

Caution

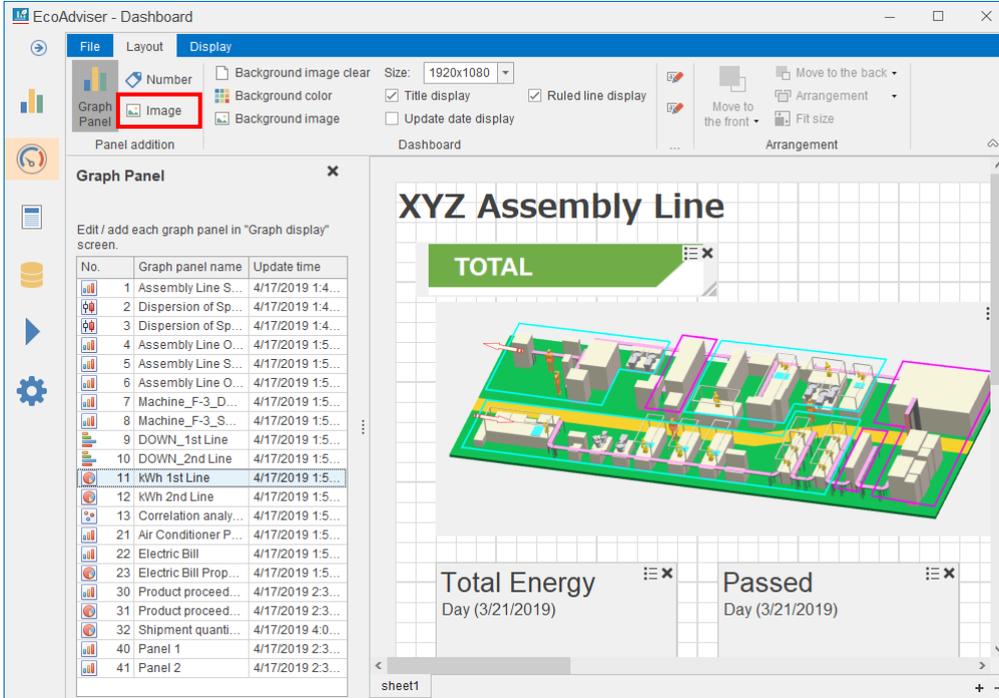
When data is very small, the displayed value may be zero.

(e.g., the data is 0.000000001)

9.1.8 Placing the image panel

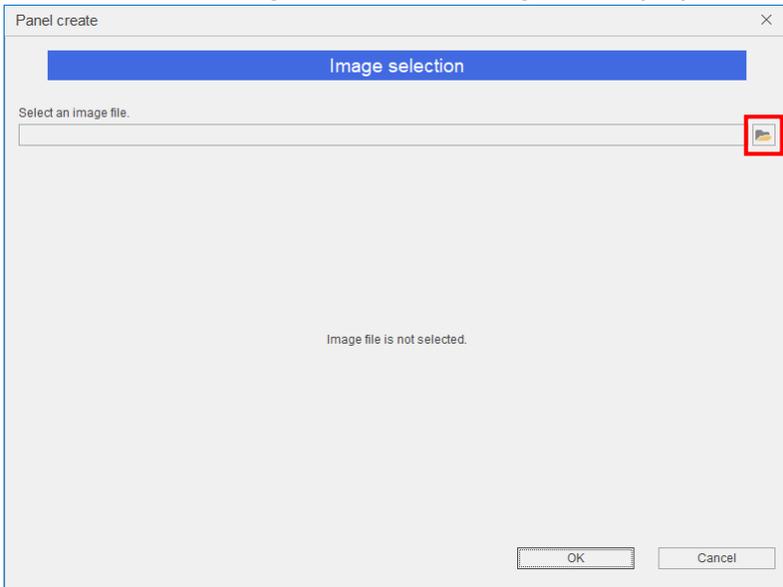
A panel will be created to display any image file (.png, .jpg, .bmp, .gif) .
 Max. five panels can be created per sheet.

(1) Click the **Image** button.

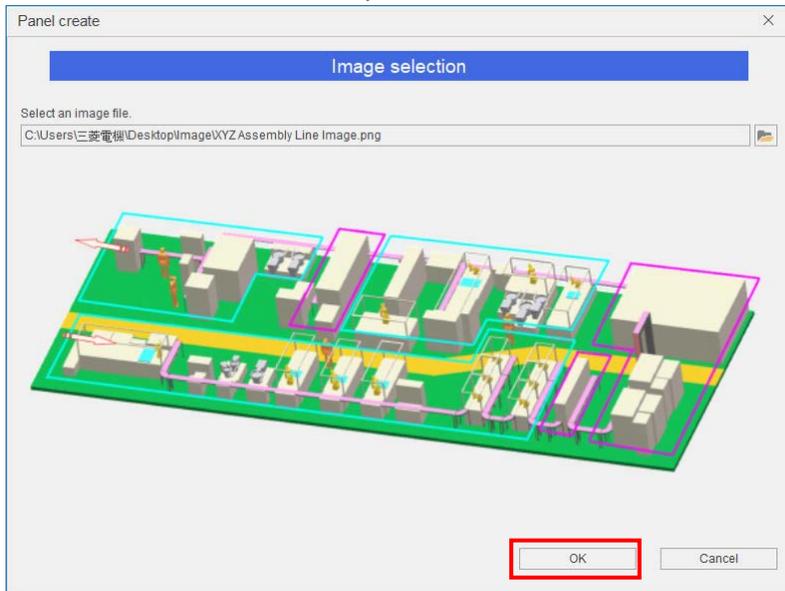


(2) The following window appears.

Click the  sign to select an image for display.



- (3) After the selection, the sample image is displayed on the window.
Click the **OK** button to create the panel.
This is the end of the operation.



9.1.9 Changing the panel settings

The following table shows a list of setting functions available for each panel.

(●: Available -: Unavailable)

	Setting function	Graph panel	Diagnosis panel *1	Number panel	Image panel	Details
(1)	Position change	●	●	●	●	Change the panel position.
(2)	Size change	●	●	●	●	Change the panel size.
(3)	Panel title change	●	●	●	-	Change the panel title.
(4)	Panel title display	●	●	●	-	Set the panel title display.
(5)	Panel title format	●	●	●	-	Set the panel title format.
(6)	Legend display	●	● *2	-	-	Set the legend display.
(7)	Legend display position	●	● *2	-	-	Set the legend display position.
(8)	Wrap display	-	● *3	-	-	Set the display method when the characters in the table do not fit in the cell.
(9)	Measuring point information display	-	-	●	-	Set the measuring point information display.
(10)	Measuring point information format	-	-	●	-	Set the measuring point information format.
(11)	Measuring value display position	-	-	●	-	Set the measuring value display position.
(12)	Measuring value format	-	-	●	-	Set the measuring value format.
(13)	Background color	-	-	●	-	Set the panel background color.
(14)	Reorder	●	●	●	●	Change the panel display order.
(15)	Data display period	●	●	-	-	Set the panel data display period.

*1: This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

*2: This function is available only for any panels with graph display.

*3: This function is available only for any panels with table display.

(1) Position change

Drag and drop the selected panel to move to any position.

Clicking some panels with pressing the **Ctrl** key enables to select them at the same time.

In that case, the **Arrangement** button is available for arrangement.

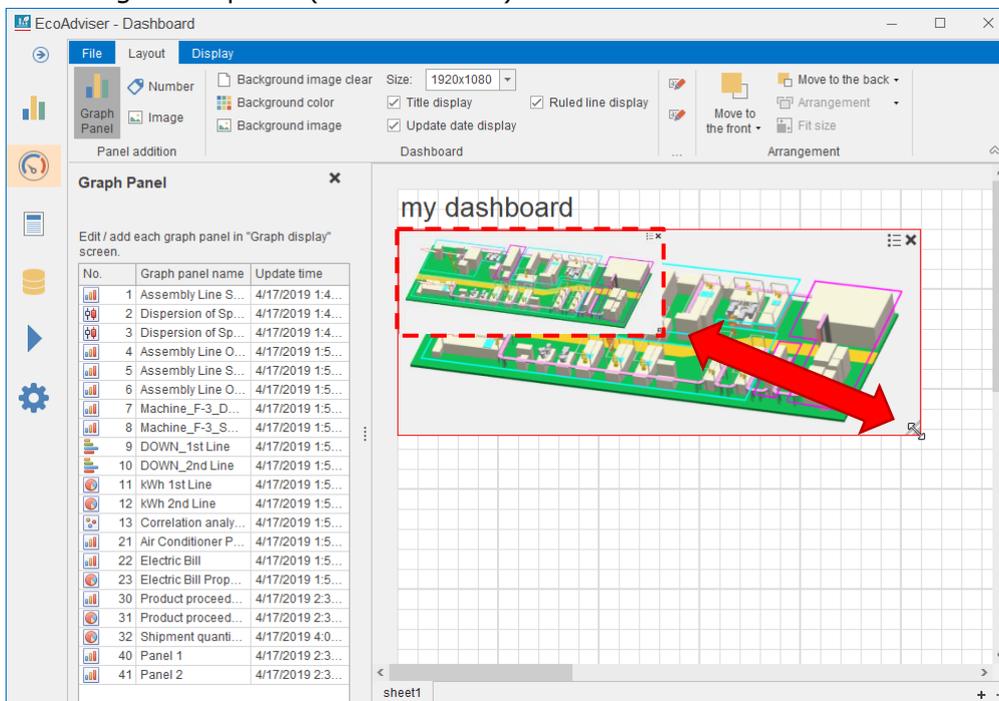
Arrangement item	Details
Left align	Align the horizontal position according to the left side of the leftmost panel in the selected panels.
Align center right and left	Align the horizontal position to the center line between the selected panels.
Align right	Align the horizontal position according to the right side of the rightmost panel in the selected panels.
Align top	Align the vertical position according to the top side of the topmost panel in the selected panels.
Align center top and bottom	Align the vertical position to the center line between the selected panels.
Align bottom	Align the vertical position according to the bottom side of the bottommost panel in the selected panels.

(2) Size change

Drag the bottom right corner of the panel to change the panel to any size.

Clicking some panels with pressing the **Ctrl** key enables to select them at the same time.

When you click the **Fit size** button with the panels selected, the size of other panel is changed according to the panel (with red circle) which is clicked at the end in the selected panels.

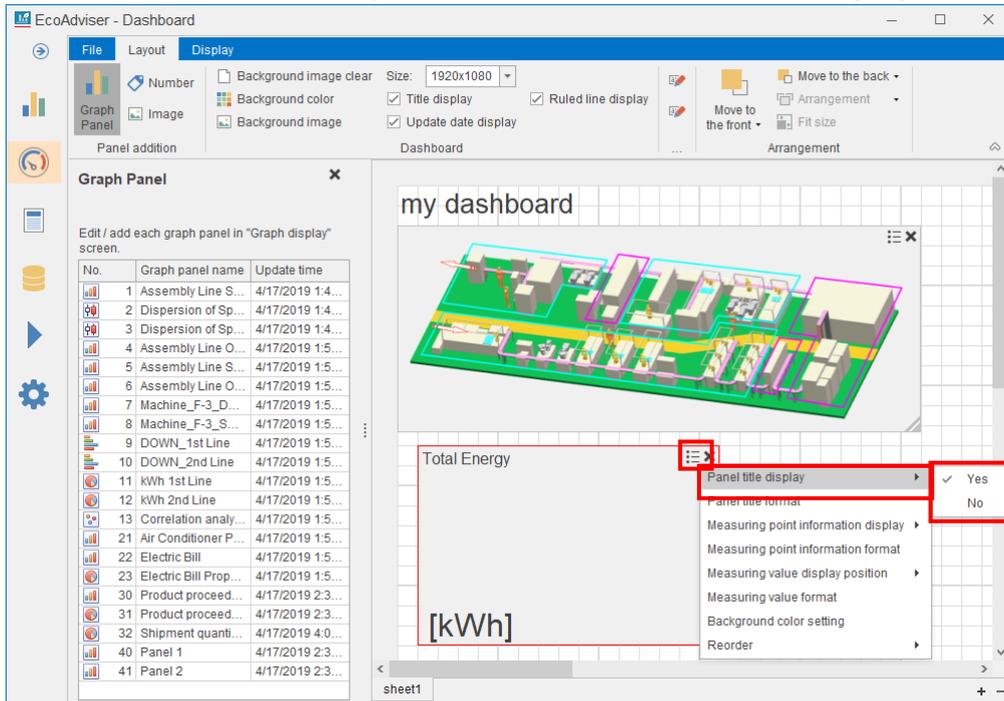


(3) Panel title change

Click the panel title to change its name.

(4) Panel title display

Click the  button on the panel and then select **Panel title display** to set.

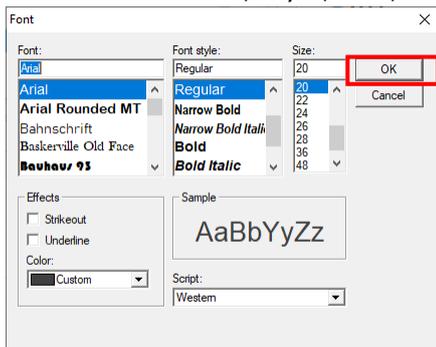


Setting	Details
Yes	Display the panel title.
No	Not display the panel title.

(5) Panel title format

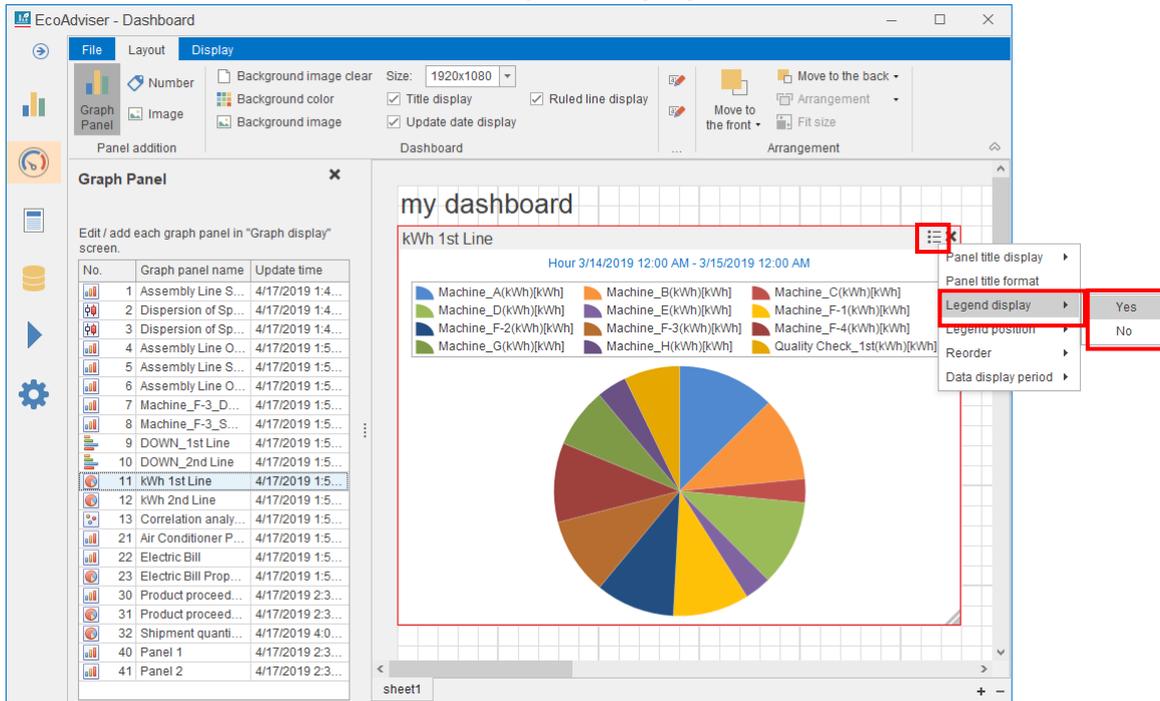
Click the  button and then select **Panel title format**.

Set the font name, style, size, and character decoration and then click the **OK** button.



(6) Legend display

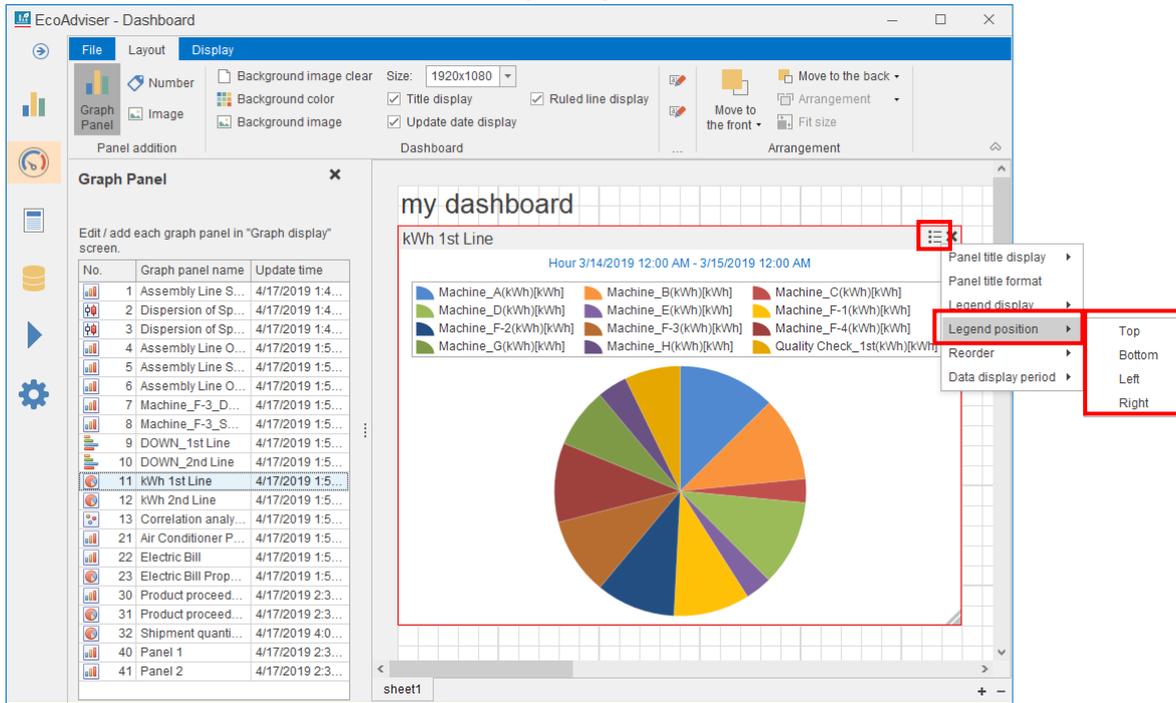
Click the  button and then select **Legend display** to set.



Setting	Details
Yes	Display the legend.
No	Not display the legend.

(7) Legend display position

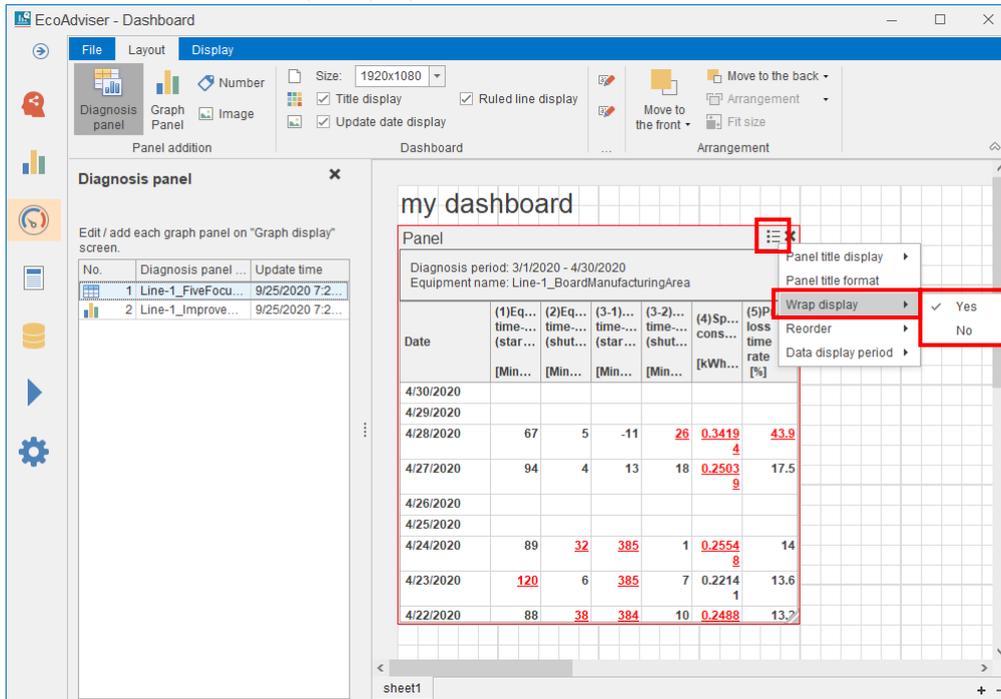
Click the  button and then select **Legend position** to set.



Setting	Details
Top	Display the legend above the graph.
Bottom	Display the legend below the graph.
Left	Display the legend at left side of the graph.
Right	Display the legend at right side of the graph.

(8) Wrap display

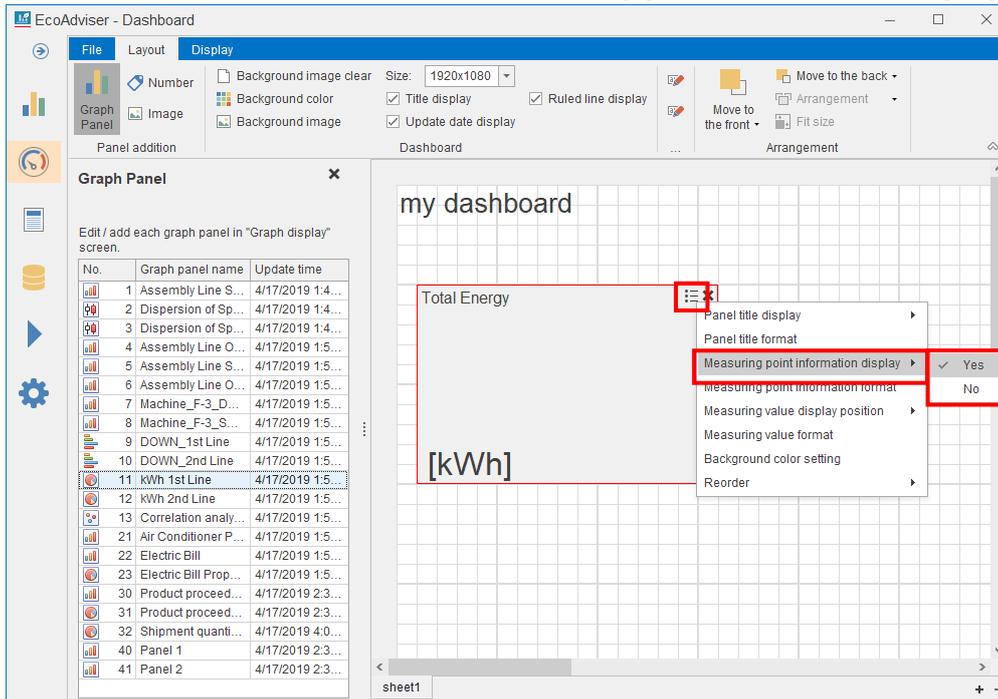
Select  and set wrap display.



Setting	Details
Yes	Display the full text by wrapping characters by cell width.
No	Display the characters in a cell on a single line. If the full text cannot be displayed due to the cell width, the text is displayed until midway and ... is displayed at the end.

(9) Measuring point information display

Click the  button and then select **Measuring point information display** to set.

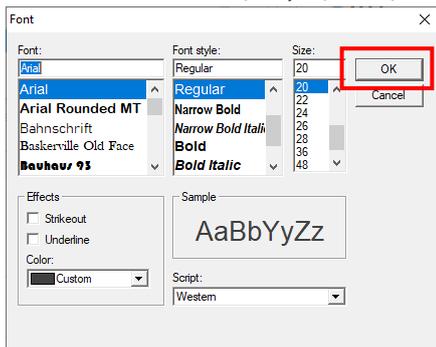


Setting	Details
Yes	Display the measuring point information.
No	Not display the measuring point information.

(10) Measuring point information format

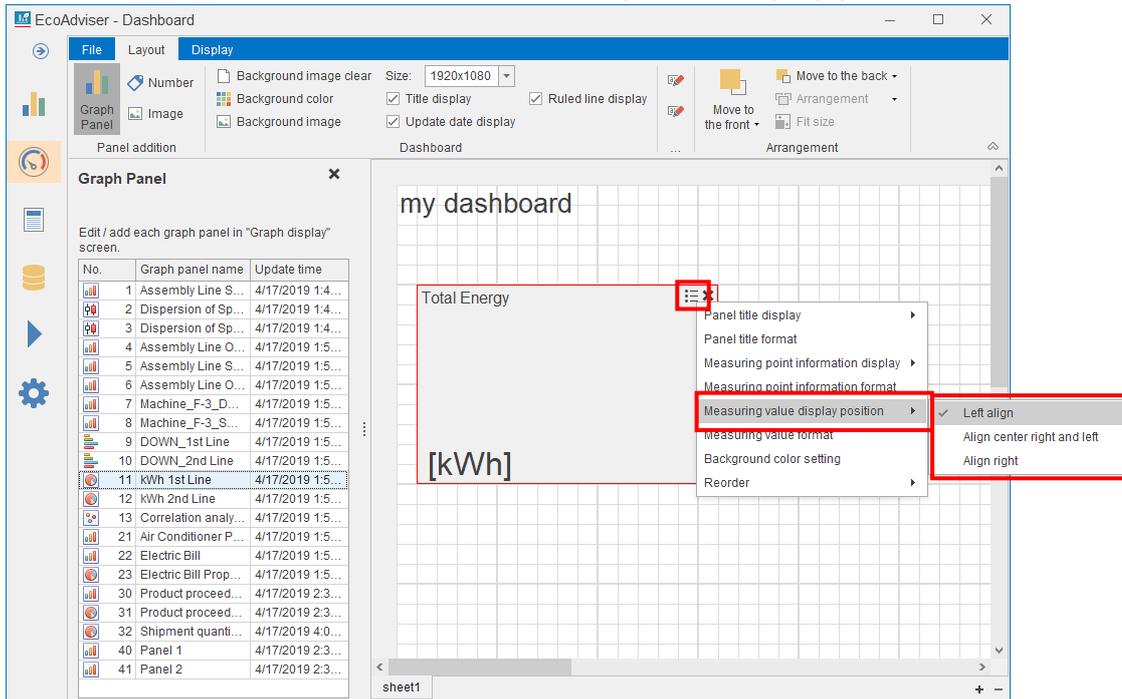
Click the  button and then select **Measuring point information format**.

Set the font name, style, size, and character decoration and then click the **OK** button.



(11) Measuring value display position

Click the  button and then select **Measuring value display position** to set.

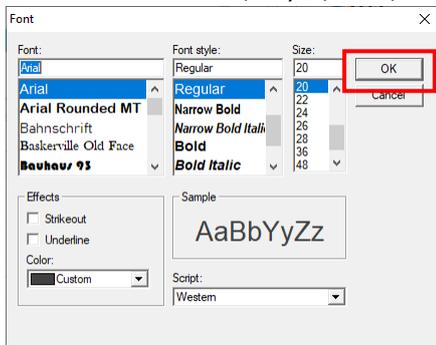


Setting	Details
Left align	Display the measuring value with aligning the horizontal position to the left side of the panel.
Align center right and left	Display the measuring value with aligning the horizontal position to the center of the panel.
Align right	Display the measuring value with aligning the horizontal position to the right side of the panel.

(12) Measuring value format

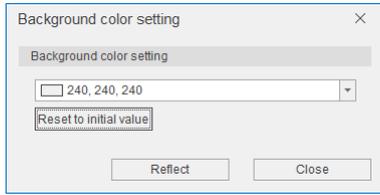
Click the  button and then select **Measuring value format**.

Set the font name, style, size, and character decoration and then click the **OK** button.



(13) Background color

Click the  button and then select **Background color setting**.
 Select a color and then click the **Reflect** button.

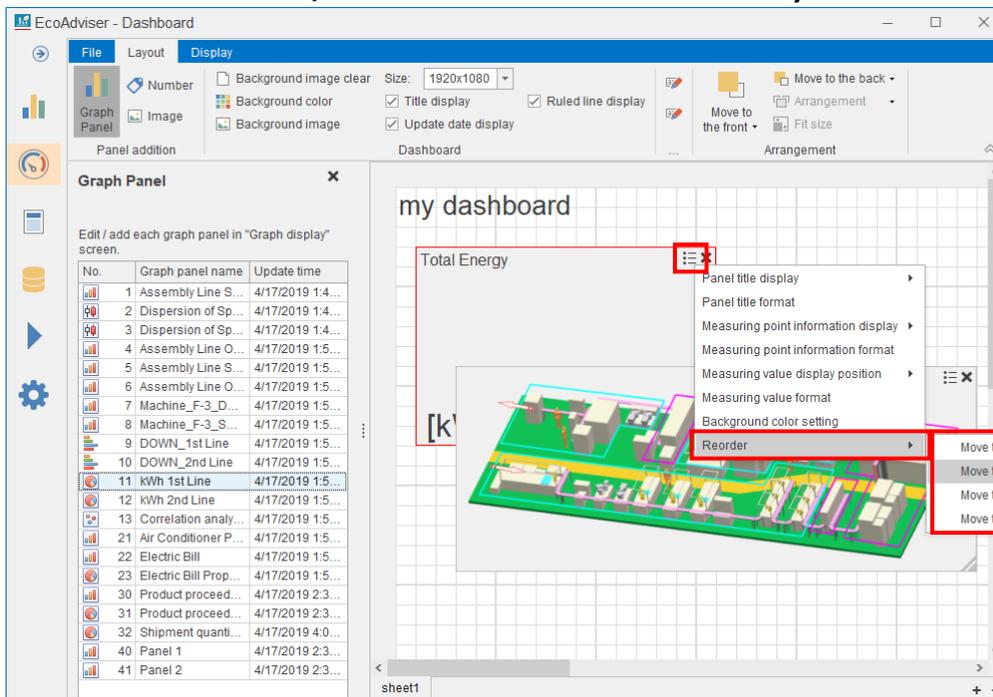


(14) Reorder

This is used for setting the front display of the panel when some panels overlap.

Click the  button and then select **Reorder** to set.

The **Move to the front/Move to the back** button in the **Layout** tab is also available for this setting.



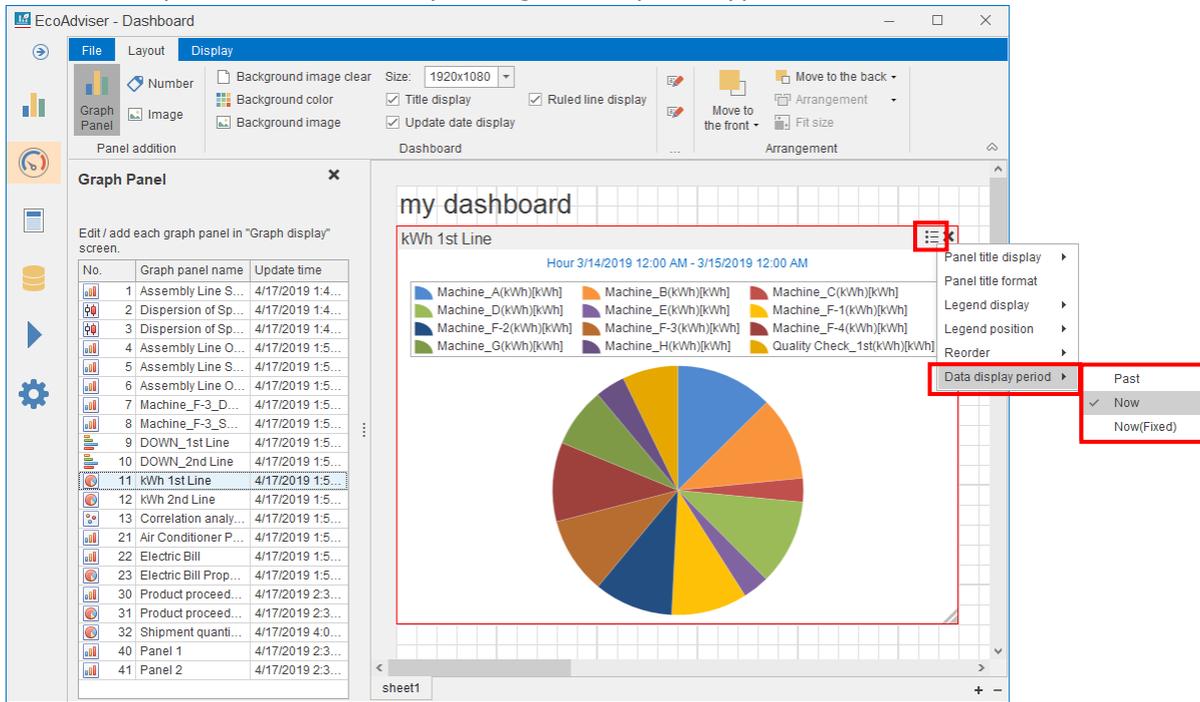
Setting	Details
Moving to the front	Move the panel to the front.
Moving to the front most	Move the panel to the frontmost.
Moving to the back	Move the panel to the back.
Moving to the backmost	Move the panel to the backmost.

(15) Data display period

Set the display data of the panel.

Click the  button and then select **Data display period** to set.

*The items you can set differ depending on the panel type.



■ For diagnosis panels

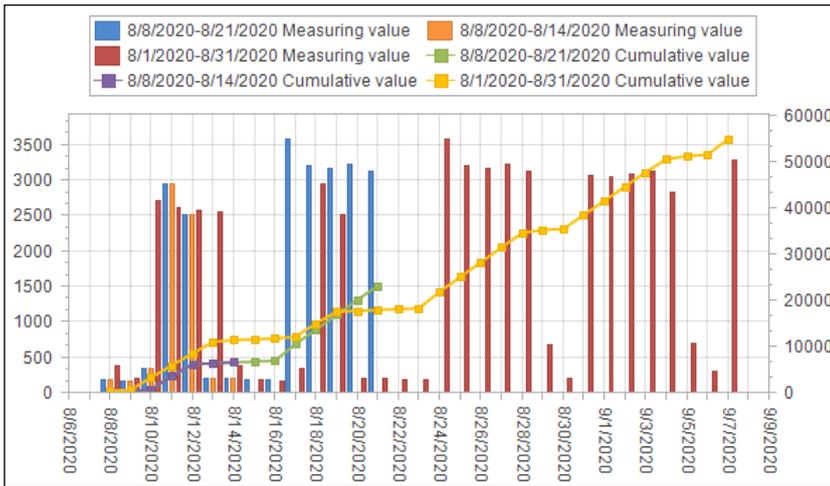
Setting	Details
Past	Display graphs and data in the diagnosis period when the panel has been saved.
Now	Display graphs and data with the most recent automatic diagnosis result.

■ For graph panels

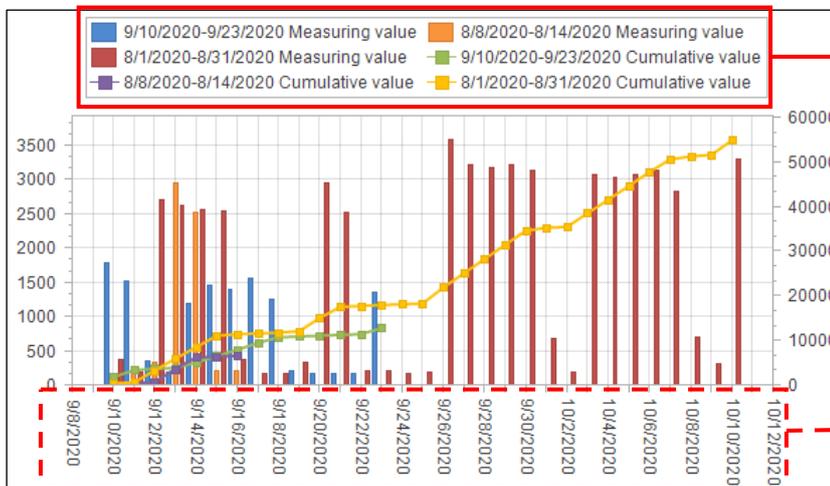
Setting	Details										
Past	Display the graph/data of the display interval and display period set at the time of saving in the panel. The graph will not be updated.										
Now	Display the graph/data of the display interval and display period, whose end date is the latest time, set at the time of saving in the panel. When auto-update is enabled, data is updated after automatic collection.										
Now (Fixed)	<p>Display the graph of the display interval and display period set in the Graph window with the following graph update interval.</p> <p>When auto-update is enabled, data is updated after automatic collection.</p> <p>If you wish to display a daily graph for a month, set the display period to the 1st through the 31st of any month when creating the graph.</p> <table border="1"> <thead> <tr> <th>Display interval</th> <th>Graph update interval</th> </tr> </thead> <tbody> <tr> <td>Hourly</td> <td>24 hours</td> </tr> <tr> <td>Day</td> <td>31 days (1 month)</td> </tr> <tr> <td>Month</td> <td>12 months</td> </tr> <tr> <td>Year</td> <td>10 years</td> </tr> </tbody> </table> <p>For details, refer to an example in the next page.</p>	Display interval	Graph update interval	Hourly	24 hours	Day	31 days (1 month)	Month	12 months	Year	10 years
Display interval	Graph update interval										
Hourly	24 hours										
Day	31 days (1 month)										
Month	12 months										
Year	10 years										

*If the graph of the target panel is the time series chart, comparison method: item (date comparison), the display period set at the first time at the time of graph creation is updated. If the first display period is set to hidden, the graph will not be updated.

Data display period: Past



Data display period: Now



Of the three display periods in the graph, only the display period No. 1 is updated according to the current time.
 <Display periods at the graph created>
 Display period No1 : 8/8/2020~8/21/2020
 Display period No2 : 8/8/2020~8/14/2020
 Display period No3 : 8/1/2020~8/31/2020

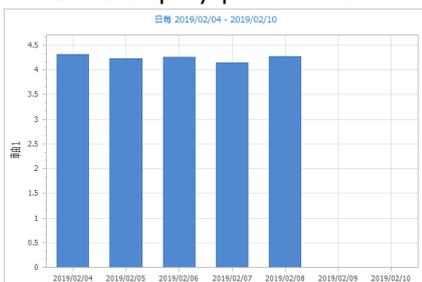
The time axis is displayed based on the display period No.1.
 The graphs for display period No.2 and No.3 do not change and do not match the displayed time axis.

<Example 1>

Each graph illustrates each setting of the data display period when the graph is created in the Graph window using the following display settings.

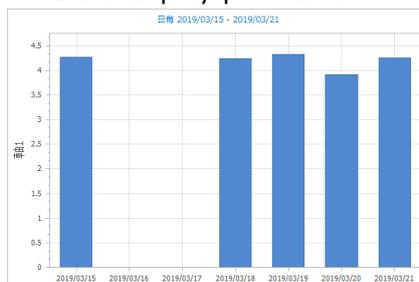
- Display interval: Day
- Display period: February 4, 2019 to February 10, 2019
- Current time: March 21, 2019

Data display period: Past



Display from February 4, 2019 to February 10, 2019

Data display period: Now



Display from March 15, 2019 to March 21, 2019

The end date is the latest time.

Data display period: Now (Fixed)



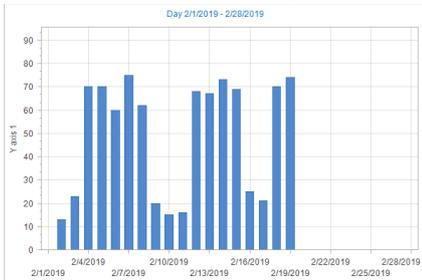
Display from March 4, 2019 to March 10, 2019

<Example 2>

Each graph illustrates different current dates of the 'Past (Fixed)' setting when the graph is created in the Graph window using the following display settings.

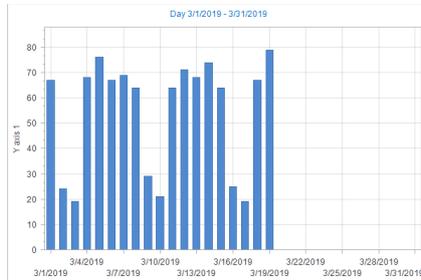
- Display interval: Day
- Display period: March 1, 2019 to March 31, 2019

Current date: February 20, 2019



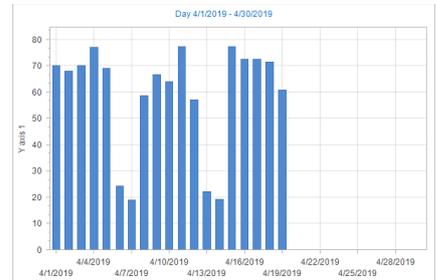
Display from February 1, 2019 to February 28, 2019

Current date: March 20, 2019



Display from March 1, 2019 to March 31, 2019

Current date: April 20, 2019



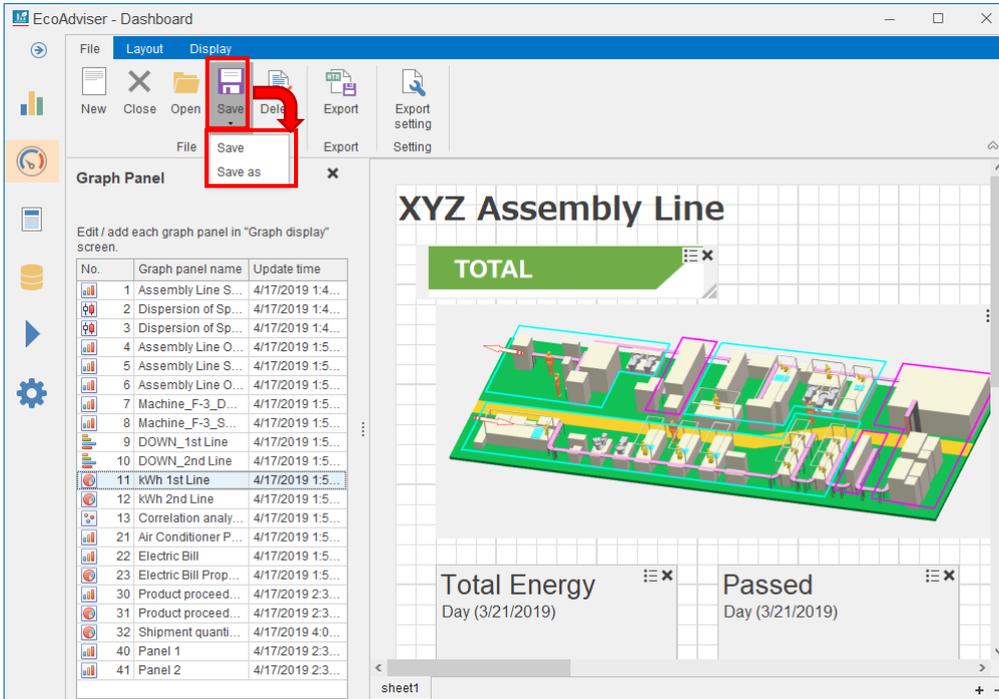
Display from April 1, 2019 to April 30, 2019

*If the display interval is Day and a period longer than 31 days is set for the display period, one month of data will be displayed with the first day of the display period as the start day. In the above example, since the start date of the display period is the 1st, data for one month from the 1st to the end of the month will be displayed.

9.1.10 Saving the dashboard

You will save the created/edited dashboard.

Select a saving format from the **Save** button in the **File** tab.

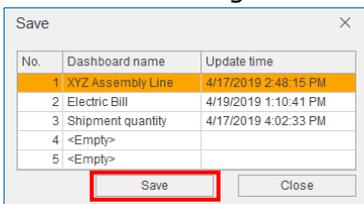


(1) Save

While modifying an existing dashboard, you can use this function.
The existing dashboard is overwritten.

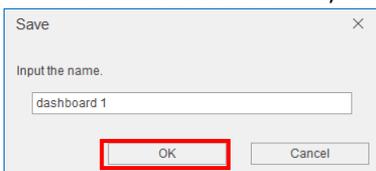
(2) Save as

The following window appears.
Select a saving destination and then click the **Save** button.



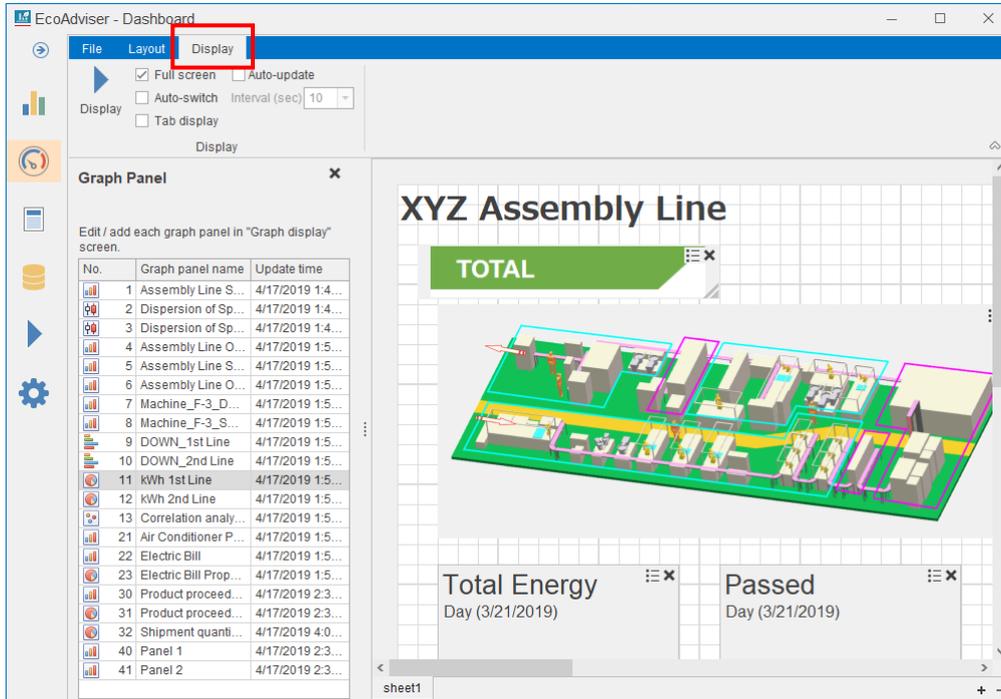
(3) The following window appears.

Input a dashboard name and then click the **OK** button.
The window is closed, and the saving is completed.



9.2 Dashboard Display Function

Click the **Display** tab to enter the display setting window.



9.2.1 Setting the display function

You will set the following items with the checkbox or from the pulldown menu.

Setting item	Details
Full screen display	The window setting for display mode ·Checked: Maximize the window and hide the left menu ·Non-checked: Keep the current size of the window and display the left menu.
Auto-update	Automatically update the data on the dashboard after automatic collection. *The automatic collection of the latest data must be complete. When the automatic collection is invalid, the automatic dashboard update also becomes invalid.
Auto-switch	Switch the sheets to display at regular intervals when multiple sheets are set. *The display order is from the left to the right. *The switching interval can be set from the pulldown menu of Interval (sec).
Interval (sec)	*This setting is used only when Auto-switch is selected. Select the interval from the pulldown menu (listed below). ·10, 20, 30, 60, 120, 180, 300 (sec)
Tab display	Display the tab to switch the sheet.

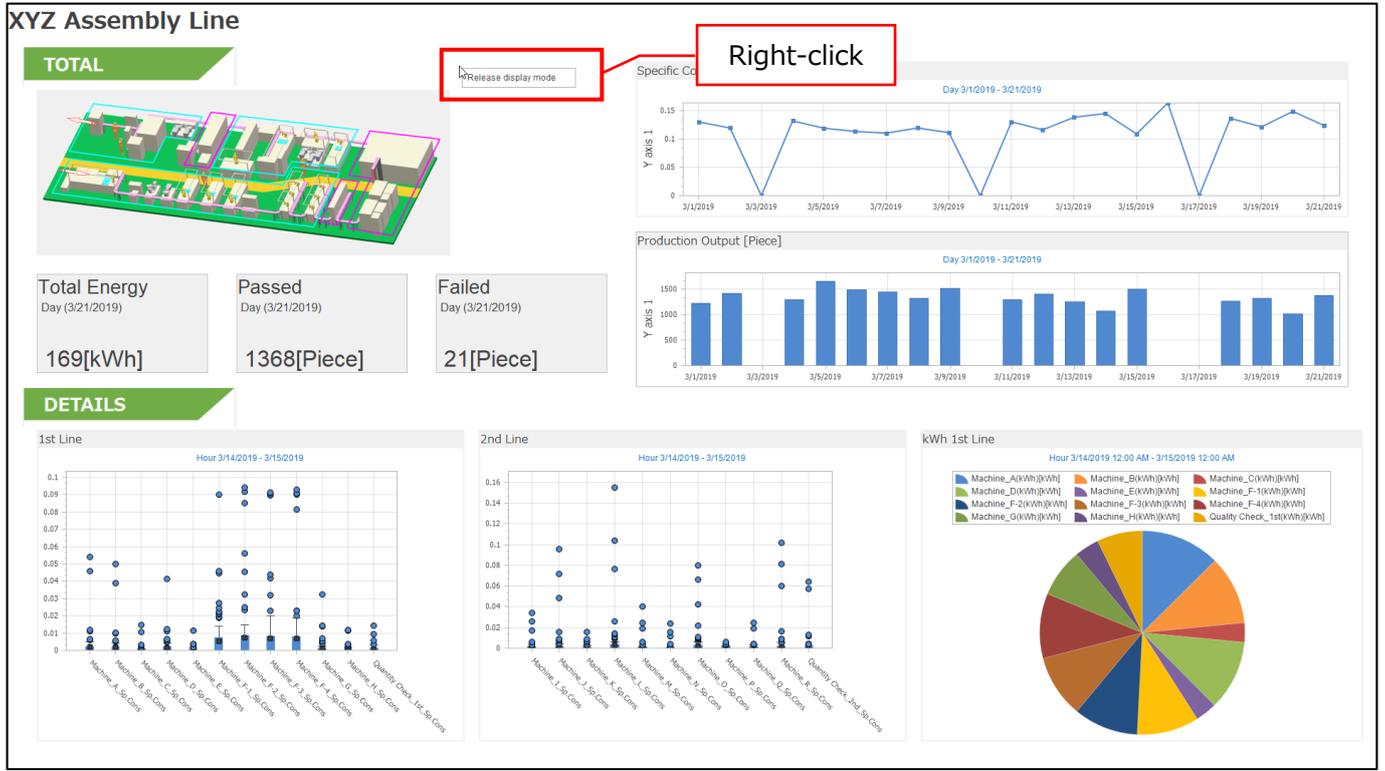
Note: When you want to save the display settings, save the dashboard.

For details, refer to [9.1.10 Saving the dashboard].

9.2.2 Switching to the display mode

Click the **Display** button to switch to the display mode.

To cancel the display mode, press the **Esc** key on the keyboard or right-click the dashboard and then select **Release display mode**.

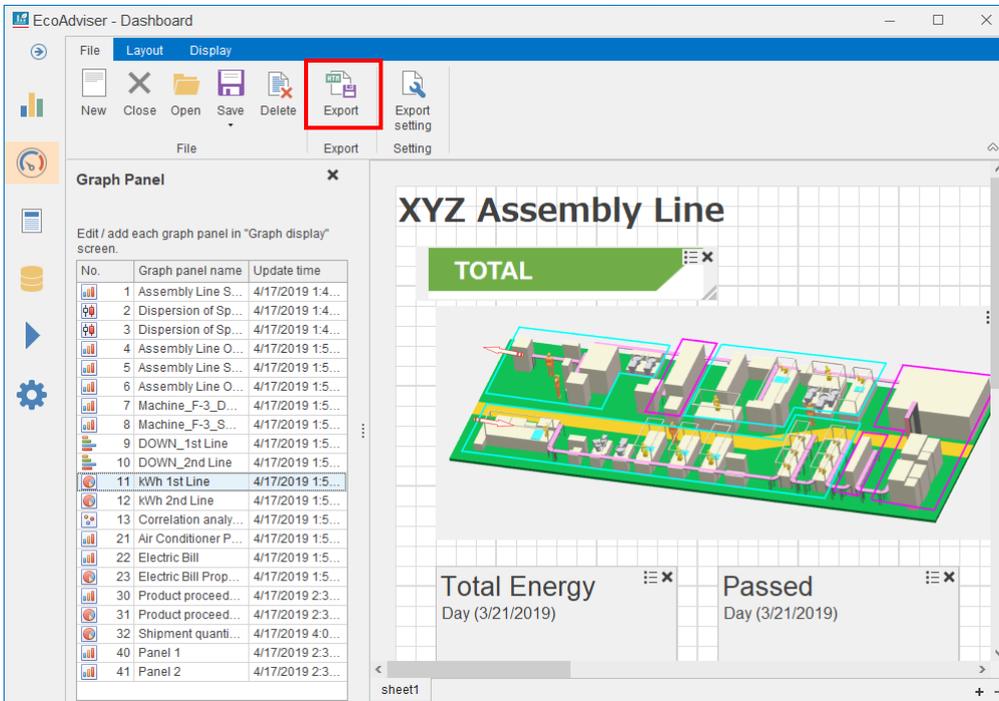


9.3 Dashboard Output Function

This section describes the dashboard output to the HTML file.

9.3.1 Executing the dashboard output

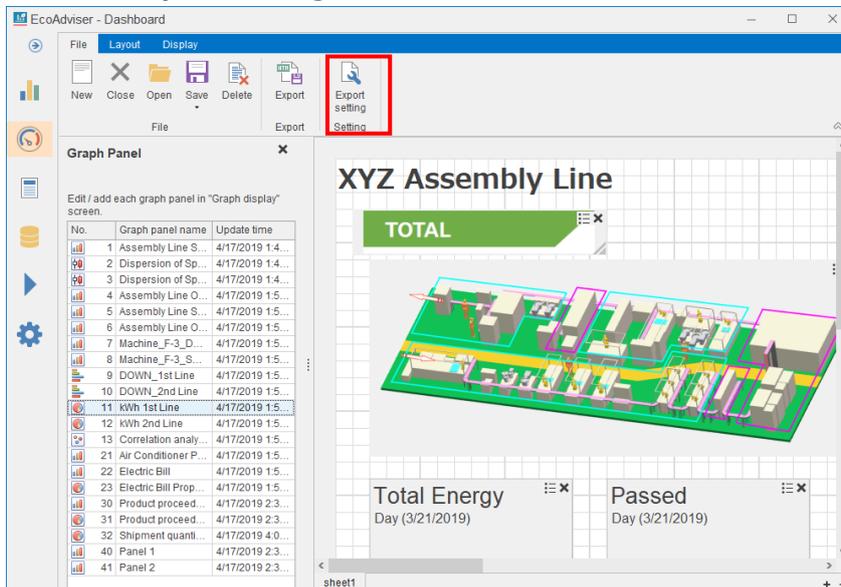
Click the **Export** button to output the currently opened dashboard HTML file.



9.3.2 Setting the automatic dashboard output

You will set the automatic output of the dashboard HTML file after automatic collection.

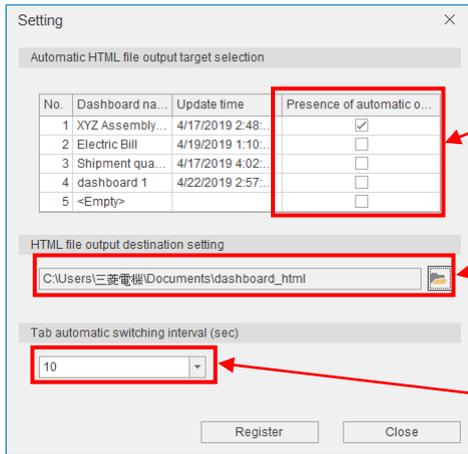
- (1) In Auto execute settings, set the automatic dashboard HTML output to ON.
For details, refer to [6 Auto Execute Settings].
- (2) Click the **Export setting** button in the **File** tab on the dashboard.



9 Dashboard

(3) The following window appears.

Set each item.



Select the checkbox of a dashboard you want to output.

*Only one checkbox can be selected.

Set the output destination of HTML files.
When you use the web server functionality, refer to [12.2.2 Activating the access right to the folder].

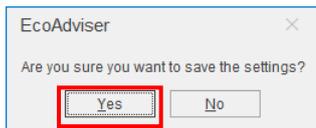
Set the automatic switching interval of the sheets.

Item	Details
Automatic HTML file output target selection	Select the checkbox of a dashboard you want to output. * Only one checkbox can be selected.
HTML file output destination setting	Set the output destination of dashboard HTML files. When you use the web server functionality, refer to [12.2.2. Activating the access right to the folder].
Automatic switching interval	Set the automatic switching interval of the sheets from the pulldown menu. <ul style="list-style-type: none"> •10 •20 •30 •60 •120 •180 •300

(4) Click the **Register** button.

(5) The following message appears.

Click the **Yes** button to save the settings.



(6) When the saving is completed, the window is closed.

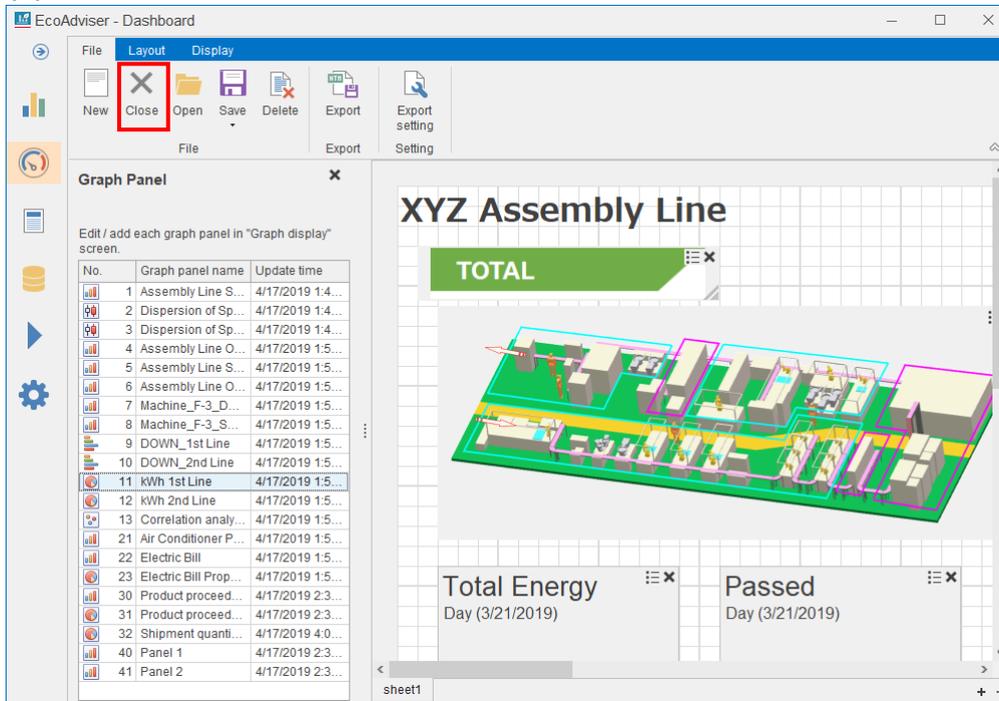
This is the end of the operation.

9.4 Dashboard Closing

You will close the currently opened dashboard.

*The dashboard is not saved at closing. Therefore, save the dashboard before closing.

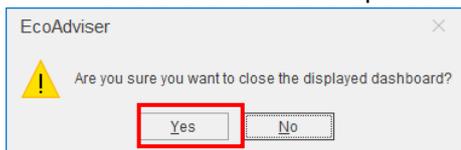
(1) Click the **Close** button.



(2) The following message appears.

Click the **Yes** button to close the dashboard.

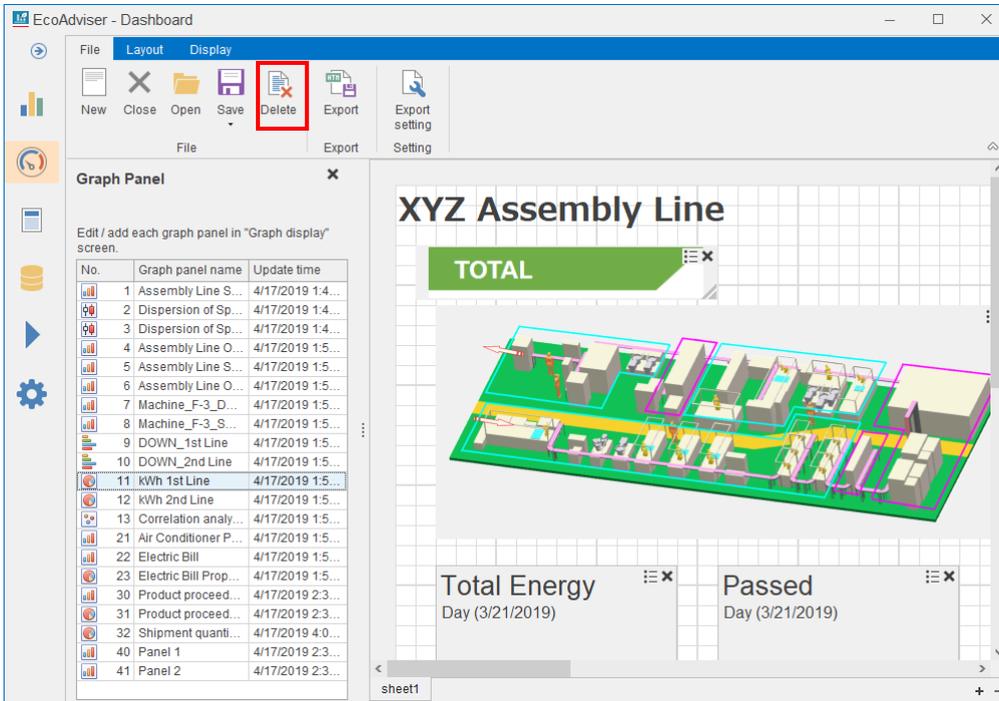
This is the end of the operation.



9.5 Dashboard Deletion

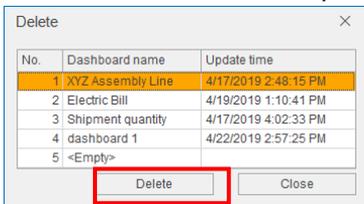
You will delete the created dashboard.

(1) Click the **Delete** button.



(2) The following window appears.

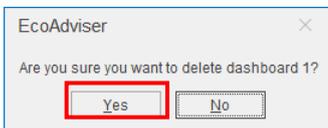
Select a dashboard you want to delete and then click the **Delete** button.



(3) The following message appears.

Click the **Yes** button to delete the dashboard.

This is the end of the operation.



10. Report

This chapter describes the report window.

On this window, you will set the daily/monthly/annual report or output it.

Click the **Report** button on the left menu of the window to enter the report window.

The screenshot shows the 'EcoAdviser - Report' window. On the left is a vertical menu with icons for 'Report setting', 'Output setting', and 'Setting'. The 'Report' icon is highlighted with a red box. The main area is divided into three sections:

- 1. Select the setting name of form setting.** A dropdown menu is present.
- 2. Select output type.** A dropdown menu is set to 'Daily', with a 'Preview' button below it.
- 3. Add the output date.** Fields for 'Start' and 'End' with dropdown arrows.

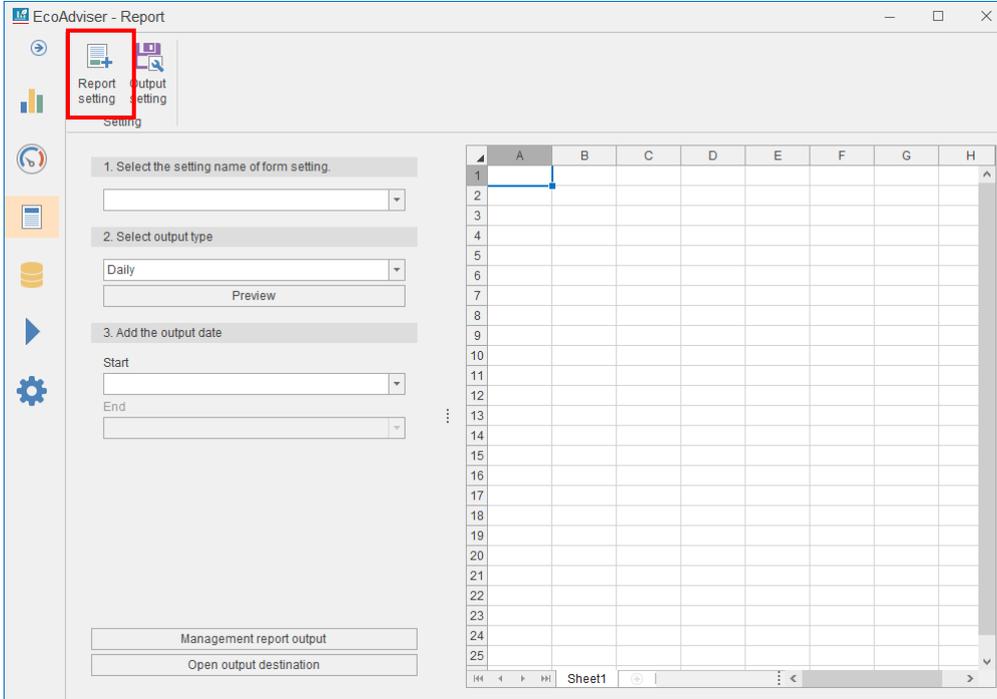
At the bottom of the main area are two buttons: 'Management report output' and 'Open output destination'. To the right is a spreadsheet grid with columns A-H and rows 1-25. The 'Sheet1' tab is visible at the bottom.

10.1 Report Setting

10.1.1 Setting the report setting

This subsection describes how to set the settings for report format and output items.

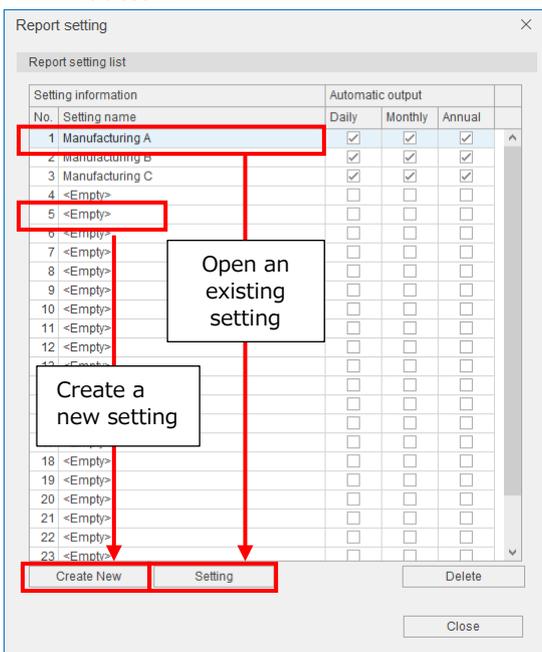
(1) Click the **Report setting** button.



(2) The following window appears.

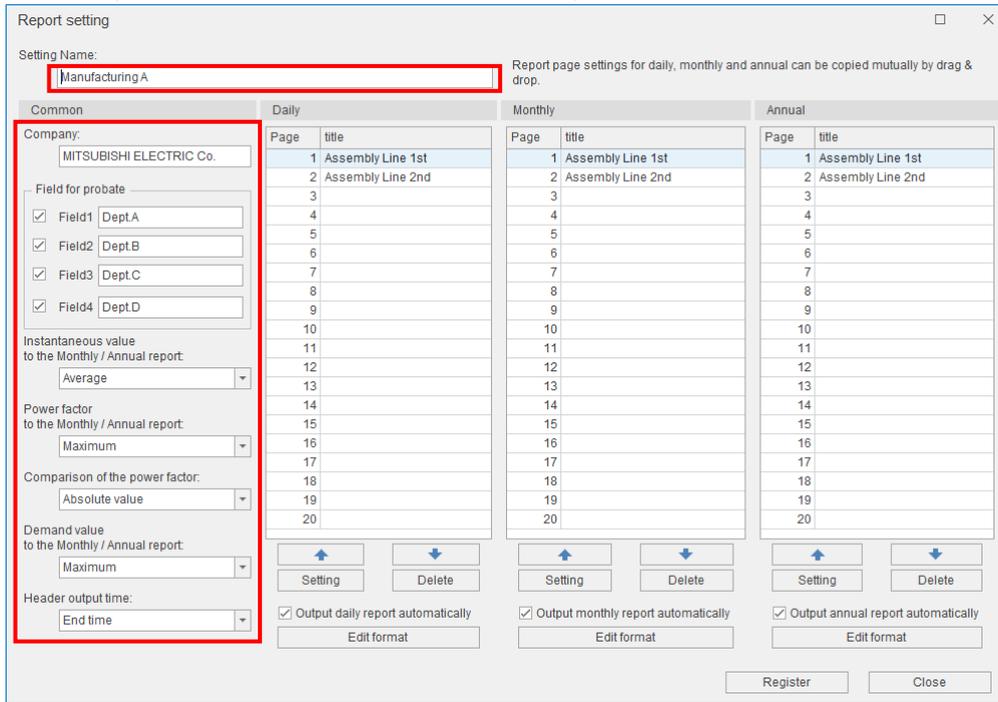
When creating a new report setting, select the setting name of <Empty> and then click **Create New**.

When opening an existing report setting, select the existing one and then click the **Setting** button.



(3) The following window appears.

Input each item or select it from the pull-down menu.



Item	Details
Setting name	Setting name for this report It is displayed at the setting name in the Report setting list. A maximum of 30 characters are allowed in the input field.
Company name *1	Input a company name to be output to the daily/monthly/annual report. A maximum of 64 characters are allowed in the input field. Do not use the following characters for the initial character. [, ;, #
Field for probate 1 to 4 *1	Output the field with checkmark only to the daily/monthly/annual report. Input a headline to be output to the field. A maximum of 8 characters are allowed in the input field
Instantaneous value to the Monthly/Annual report	Set the Analog value to be output to the monthly/annual report. Select a setting item from the pull-down menu. •Average (Daily average/Monthly average) •Maximum (Daily maximum/Monthly maximum) •Minimum (Daily minimum/Monthly minimum)
Power factor to the Monthly/Annual report	Set the value of power factor to be output to the monthly/annual report. Select a setting item from the pull-down menu. •Maximum (Daily maximum/Monthly maximum) •Minimum (Daily minimum/Monthly minimum)
Comparison of the power factor	Set the comparison method at calculating power factor. Select a setting item from the pull-down menu. •Absolute value *2 •-0%<100%<0%

Item	Detail
Demand value to the Monthly/Annual report	Set the demand value to be output to the monthly/annual report. Select a setting item from the pull-down menu. •Average (Daily average/Monthly average) •Maximum (Daily maximum/Monthly maximum) •Minimum (Daily minimum/Monthly minimum)
Header output time *3	Set the time (day for monthly report/month for annual report) to be output to the header of daily/monthly/annual report. Select a setting item from the pull-down menu. •Start time: Display the start time of data collection period. •End time: Display the end time of data collection period. <Example> The integrated value from 1 : 00 to 2 : 00 is output. For the start time, 1:00 – 2:00 is output. For the end time, 2:00 is output.

*1: When you use the single quotation mark (') for the initial character, the first character (') will be hidden.

It is counted as the number of input characters.

*2: For the selection of Absolute value, if the measuring type is power factor and the same absolute values exist (Example: -99.5% and 99.5%), the previous measured value is handled as the maximum value or minimum value.

-3: For the header output time, the range set at the aggregation period is output. For the aggregation period, refer to [4.3.4 Collection setting].

<Example 1> When the Day aggregation period is 0 : 00, data from 0 : 00 to 0 : 00 of the next day is output to daily report.

<Example 2> When the Day aggregation period is 3 : 00, data from 3 : 00 to 3 : 00 of the next day is output to daily report.

■ Reference (Daily report)

*For the format of each report, refer to [12.1 File Format].

Output time of header

Company name Approval column

Assembly Line 1st														Dept.A	Dept.B	Dept.C	Dept.D	
3/19/2019, Tue														MITSUBISHI ELECTRIC Co.				
Time	Total Energy	Group A			Group B			Group C					Quality Check_1st(kWh)					
		Machine_A(kWh)	Machine_B(kWh)	Machine_C(kWh)	Machine_D(kWh)	Machine_E(kWh)	Machine_F-1(kWh)	Machine_F-2(kWh)	Machine_F-3(kWh)	Machine_F-4(kWh)	Machine_G(kWh)	Machine_H(kWh)						
1:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
2:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
3:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
4:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
5:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
6:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
7:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
8:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
9:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
10:00	9	0.2886	0.2366	0.0584	0.2436	0.0692	0.3280	0.3410	0.3176	0.3190	0.1924	0.0924	0.1688					
11:00	19	0.5230	0.4484	0.1262	0.4560	0.1382	0.3988	0.4216	0.4044	0.4212	0.2874	0.1372	0.2778					
12:00	17	0.4948	0.4328	0.1226	0.4466	0.1362	0.4012	0.4214	0.4036	0.4190	0.2870	0.1398	0.2696					
13:00	18	0.4878	0.4270	0.1252	0.4320	0.1386	0.3856	0.4056	0.3860	0.4016	0.2834	0.1382	0.2650					
14:00	15	0.4632	0.4154	0.1220	0.4232	0.1366	0.3800	0.3926	0.3768	0.3772	0.2726	0.1352	0.2520					
15:00	18	0.5044	0.4348	0.1224	0.4310	0.1346	0.3914	0.4042	0.3754	0.3756	0.2832	0.1344	0.2692					
16:00	19	0.5162	0.4408	0.1232	0.4604	0.1372	0.3960	0.4168	0.4048	0.4308	0.2812	0.1352	0.2734					
17:00	22	0.5106	0.4366	0.1234	0.4552	0.1362	0.4012	0.4262	0.4186	0.4294	0.2858	0.1368	0.2792					
18:00	20	0.5158	0.4404	0.1256	0.4604	0.1382	0.4074	0.4258	0.4108	0.4258	0.2826	0.1358	0.2794					
19:00	16	0.4930	0.4204	0.1234	0.4300	0.1358	0.3992	0.4110	0.3954	0.4102	0.2818	0.1376	0.2672					
20:00	20	0.5014	0.4344	0.1250	0.4370	0.1370	0.4004	0.4168	0.3968	0.3970	0.2782	0.1344	0.2722					
21:00	8	0.2226	0.2006	0.0632	0.1946	0.0444	0.1518	0.1594	0.1512	0.1572	0.1246	0.0610	0.1430					
22:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
23:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
0:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Day Total	201	5.5014	4.7682	1.3606	4.8700	1.4822	4.4408	4.6424	4.4414	4.5640	3.1402	1.5180	3.0168					
Maximum	22	0.5230	0.4484	0.1262	0.4604	0.1386	0.4074	0.4262	0.4186	0.4308	0.2874	0.1398	0.2794					
Minimum	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Average	8	0.2292	0.1987	0.0567	0.2029	0.0618	0.1850	0.1934	0.1851	0.1902	0.1308	0.0633	0.1257					

(4) Select a page (line) of daily/monthly/annual report you want to edit and then click the **Setting** button.

*The following example illustrates daily report settings.

Report setting □ ×

Setting Name: Report page settings for daily, monthly and annual can be copied mutually by drag & drop.

Common	Daily		Monthly		Annual	
	Page	title	Page	title	Page	title
Company: MITSUBISHI ELECTRIC Co.	1	Assembly Line 1st	1	Assembly Line 1st	1	Assembly Line 1st
	2	Assembly Line 2nd	2	Assembly Line 2nd	2	Assembly Line 2nd
	3		3		3	
	4		4		4	
	5		5		5	
	6		6		6	
	7		7		7	
	8		8		8	
	9		9		9	
	10		10		10	
	11		11		11	
	12		12		12	
	13		13		13	
	14		14		14	
	15		15		15	
	16		16		16	
	17		17		17	
	18		18		18	
	19		19		19	
	20		20		20	

Field for probate

Field1 Dept.A

Field2 Dept.B

Field3 Dept.C

Field4 Dept.D

Instantaneous value to the Monthly / Annual report:

Power factor to the Monthly / Annual report:

Comparison of the power factor:

Demand value to the Monthly / Annual report:

Header output time:

Output daily report automatically Output monthly report automatically Output annual report automatically

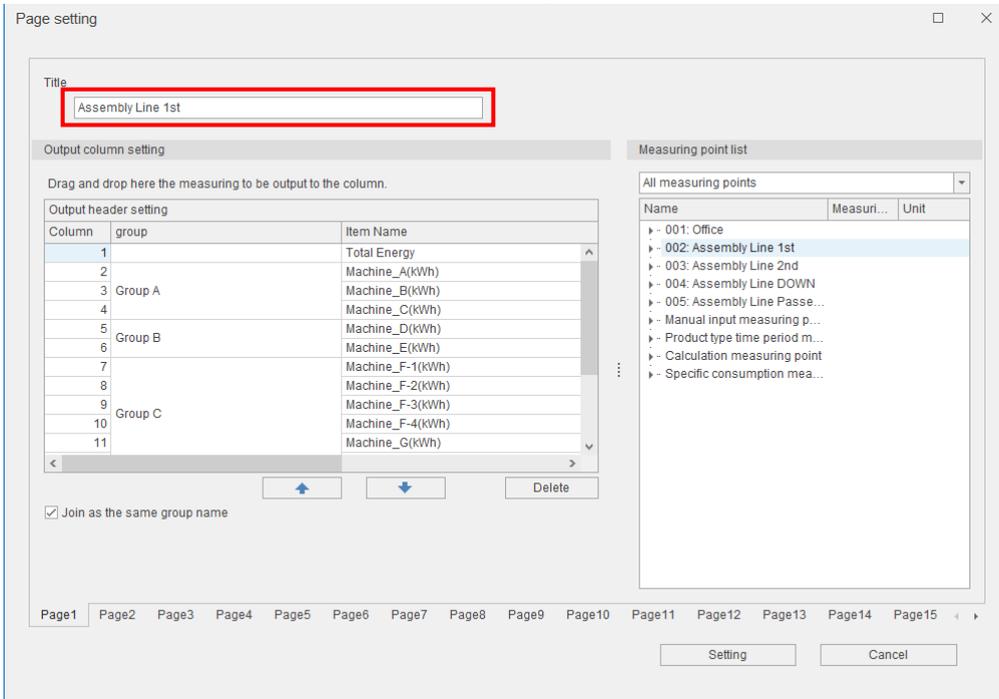
(5) The following window appears.

Input a title of the report.

A maximum of 32 characters are allowed in the input field.

* When you use the single quotation mark (') for the initial character, the first character (') will be hidden.

It is counted as the number of input characters.



■ Reference (Daily report)

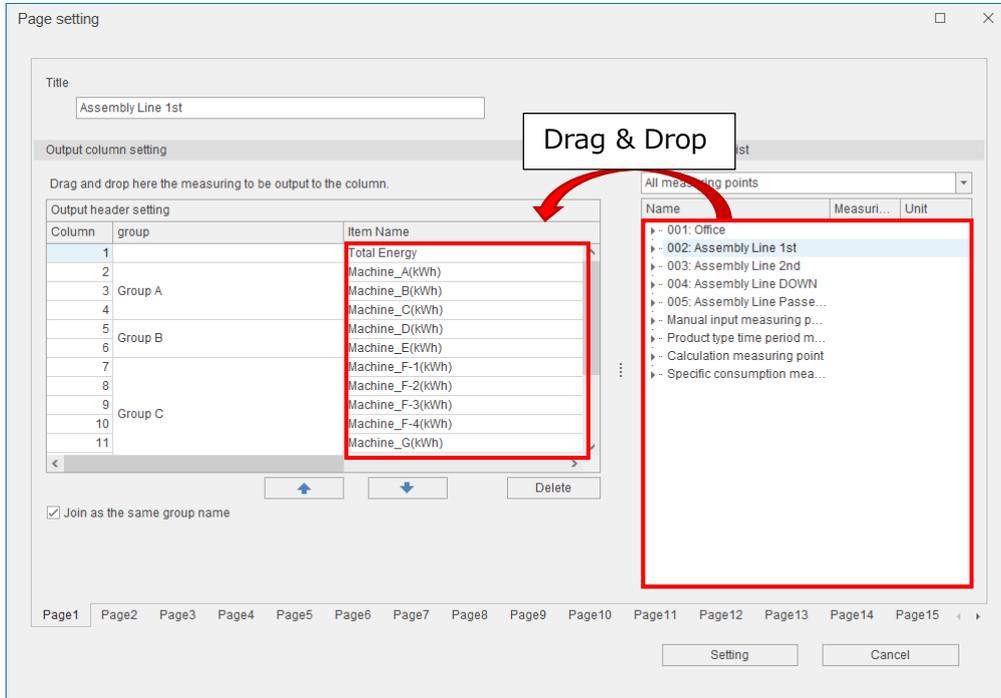
*For the format of each report, refer to [12.1 File Format].

Title

Assembly Line 1st

3/19/2019, Tue														MITSUBISHI ELECTRIC Co.				
Time	Group A			Group B			Group C							Quality Check_1st(kWh)	Dept. A	Dept. B	Dept. C	Dept. D
	Total Energy	Machine_A(kWh)	Machine_B(kWh)	Machine_C(kWh)	Machine_D(kWh)	Machine_E(kWh)	Machine_F-1(kWh)	Machine_F-2(kWh)	Machine_F-3(kWh)	Machine_F-4(kWh)	Machine_G(kWh)	Machine_H(kWh)						
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh						
1:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
2:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
3:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
4:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
5:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
6:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
7:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
8:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
9:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
10:00	9	0.2686	0.2366	0.0584	0.2436	0.0692	0.3280	0.3410	0.3176	0.3190	0.1924	0.0924	0.1688					
11:00	19	0.5230	0.4484	0.1262	0.4560	0.1382	0.3986	0.4216	0.4044	0.4212	0.2874	0.1372	0.2778					
12:00	17	0.4948	0.4328	0.1226	0.4466	0.1362	0.4012	0.4214	0.4036	0.4190	0.2870	0.1398	0.2696					
13:00	18	0.4878	0.4270	0.1252	0.4320	0.1386	0.3858	0.4056	0.3860	0.4016	0.2834	0.1382	0.2650					
14:00	15	0.4632	0.4154	0.1220	0.4232	0.1366	0.3800	0.3926	0.3768	0.3772	0.2726	0.1352	0.2520					
15:00	18	0.5044	0.4348	0.1224	0.4310	0.1346	0.3914	0.4042	0.3754	0.3756	0.2832	0.1344	0.2692					
16:00	19	0.5162	0.4408	0.1232	0.4604	0.1372	0.3960	0.4168	0.4048	0.4308	0.2812	0.1352	0.2734					
17:00	22	0.5106	0.4366	0.1234	0.4552	0.1362	0.4012	0.4262	0.4186	0.4294	0.2858	0.1368	0.2792					
18:00	20	0.5158	0.4404	0.1256	0.4604	0.1382	0.4074	0.4258	0.4108	0.4258	0.2826	0.1358	0.2794					
19:00	16	0.4930	0.4204	0.1234	0.4300	0.1358	0.3992	0.4110	0.3954	0.4102	0.2818	0.1376	0.2672					
20:00	20	0.5014	0.4344	0.1250	0.4370	0.1370	0.4004	0.4168	0.3968	0.3970	0.2782	0.1344	0.2722					
21:00	8	0.2226	0.2006	0.0632	0.1946	0.0444	0.1518	0.1594	0.1512	0.1572	0.1246	0.0610	0.1430					
22:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
23:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
0:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Day Total	201	5.5014	4.7682	1.3606	4.8700	1.4822	4.4408	4.6424	4.4414	4.5640	3.1402	1.5180	3.0168					
Maximum	22	0.5230	0.4484	0.1262	0.4604	0.1386	0.4074	0.4262	0.4186	0.4308	0.2874	0.1398	0.2794					
Minimum	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Average	8	0.2292	0.1987	0.0567	0.2029	0.0618	0.1850	0.1934	0.1851	0.1902	0.1308	0.0633	0.1257					

- (6) You will register a measuring point to display in the report.
 Drag and drop the measuring point to add to any column.
 By clicking the ↑ and ↓ button, the added measuring point can be moved.
 To delete the measuring point, select the measuring point and then click the **Delete** button.
 For the settings for other pages, click the **Page** tab to switch the page.



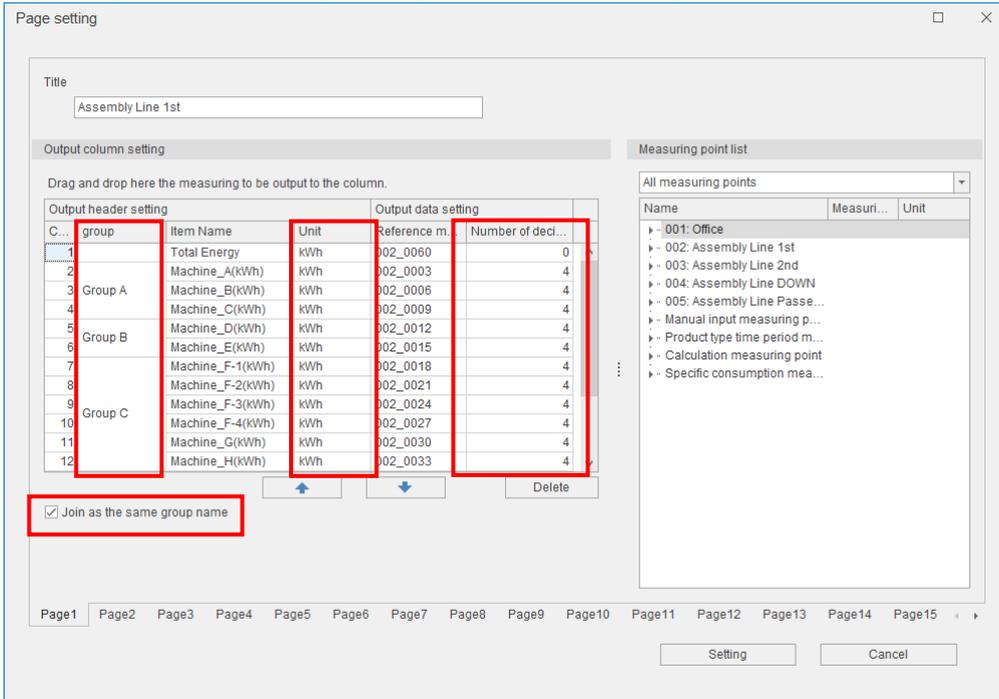
Note

For the demand time period of 30 minutes, there are three types of measuring points to measure demand as the following table. The displayed data varies depending on the report for registration.

Measuring point ID	Measuring point name (Reference)
1253	Demand (First half)
1254	Demand (Latter half)
1255	Demand

- Daily report
 Use demand (First half) or demand (Latter half). When demand is used, it becomes the same value as demand (Latter half).
- Monthly/Annual report
 Use demand. When demand (First half) or demand (Latter half) is used, the maximum value (or minimum value, average value) of each demand is output.

(7) Input the following setting items as necessary to set.



Item	Details
Group *1 *2	Input a group name. A maximum of 32 characters are allowed in the input field. When the same group names are combined, select the checkbox of “Join as the same group name.”
Item name *2	Input a name to display a measuring item in the report. (The default: Measuring point name) A maximum of 32 characters are allowed in the input field
Unit *2	Input a unit to display in the report. (The default: The unit of measuring point) A maximum of 20 characters are allowed in the input field
Number of decimal places *2	Select the number of decimal places of data to display in the report from the pull-down menu. (The default: The number of decimal places of measuring point) The selectable range: 0 to 5 (If the number of decimal places of the measurement point is blank, it will be 0.)

*1: The name of measuring point group is not relevant.

*2: When you use the single quotation mark (') for the initial character, it is hidden.

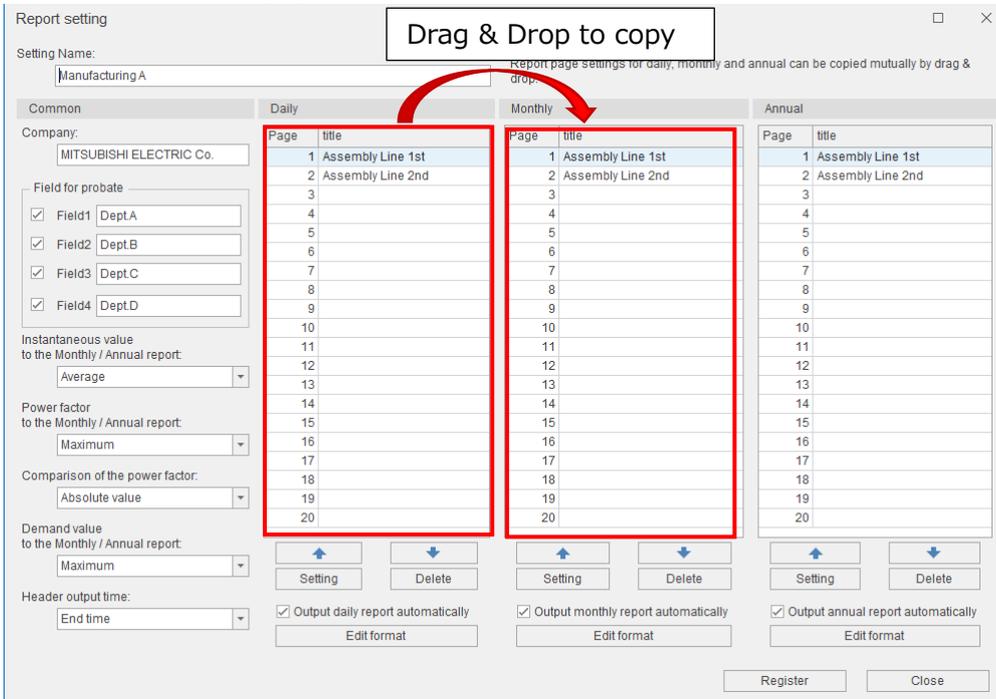
It is counted as the number of input characters.

- (8) After the settings, click the **Setting** button to save the settings.
- (9) For Monthly/Annual report, execute the same operation as (5) to (8) to set up.

If you set up the same settings, drag and drop to copy them.

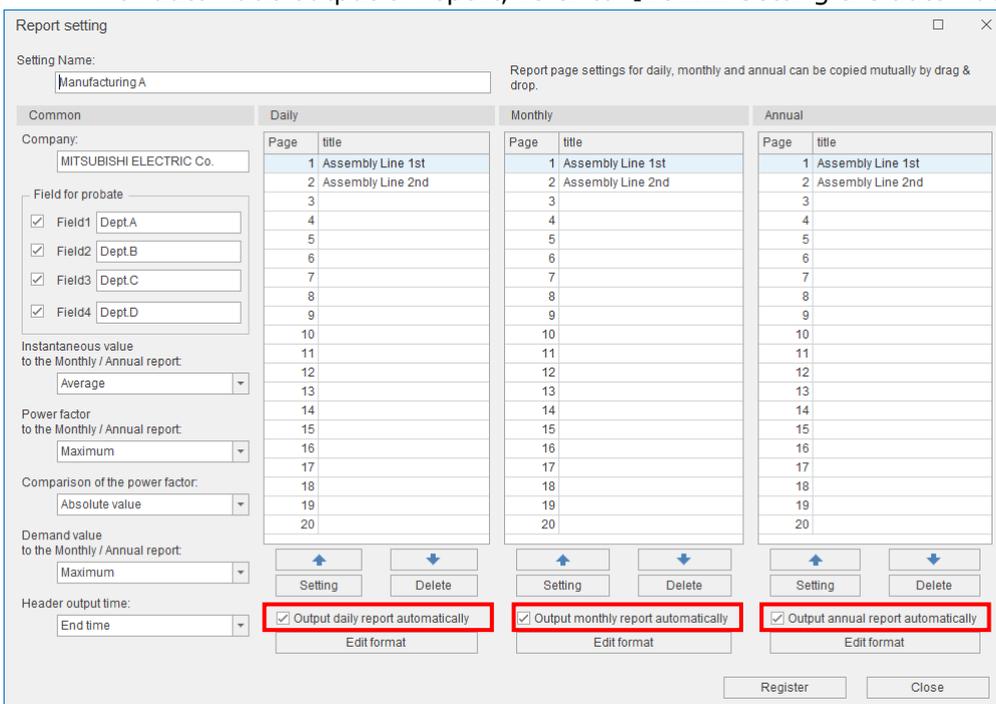
When you want to switch the page of Daily/Monthly/Annual report, click the ↑ and ↓ button to switch the page.

To delete the page, select the page and then click the **Delete** button.



- (10) When executing automatic output of daily/monthly/annual report, select the checkbox of **Output daily report automatically**.

*For automatic output of report, refer to [10.2.2 Setting the automatic output].



(11) After the settings, click the **Register** button to save the settings.

(12) When the saving is completed, the following message appears.

Click the **Yes** button to close the message.

This is the end of the operation.

10.1.2 Customizing the report format

With the **Edit format** button, the report format is customized.

The Daily/Monthly/Annual report is created based on the master file in Excel book format.

By adding a user-specific sheet to the master file, each report can be customized.

When the specific sheet is added, insert the sheet after the master sheet with Excel.

*The master file is created on each report setting.

*There is a master sheet to paste data in the master file.

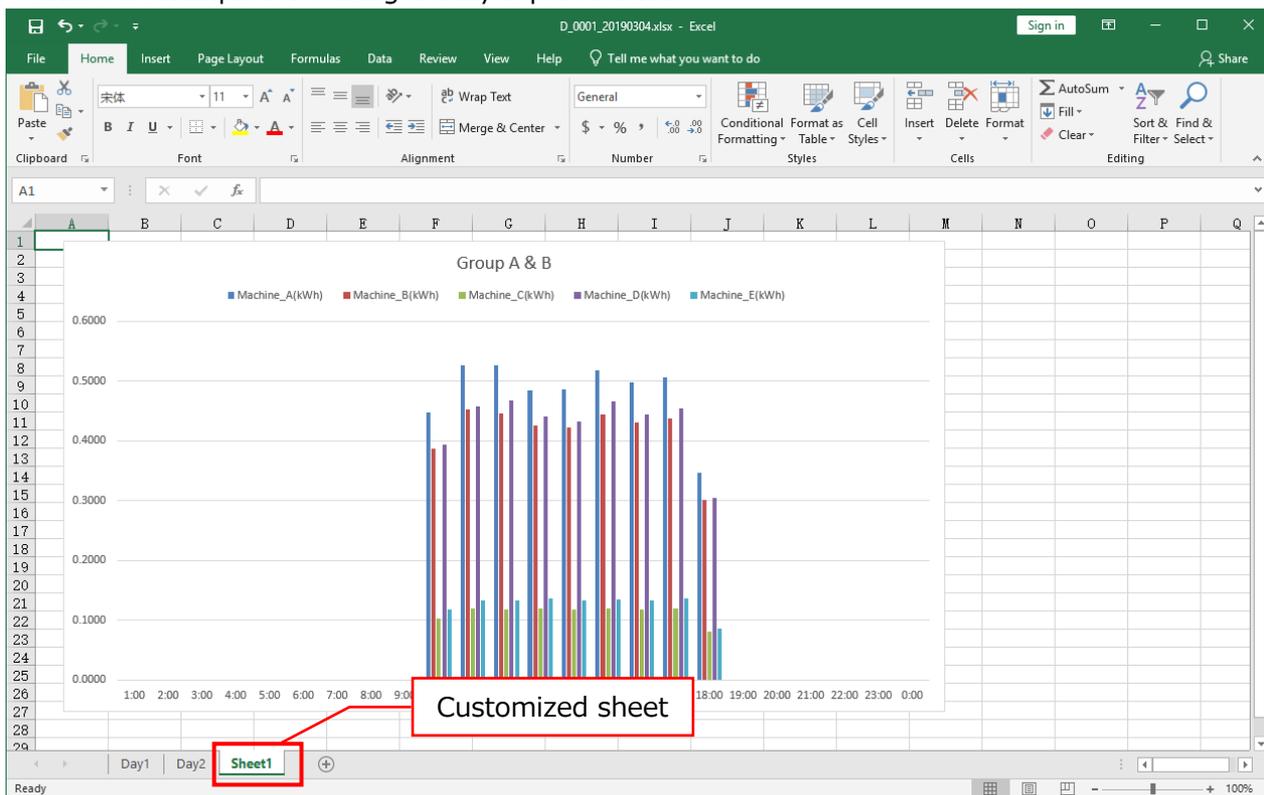
Do not change/delete the master sheet and change the sheet name.

Do not set a master sheet name for customized sheet.

Report	Master file name	Master sheet name
Daily report	D_(The registration number of report settings).xlsx	Day1 to Day20
Monthly report	M_(The registration number of report settings).xlsx	Month1 to Month20
Annual report	Y_(The registration number of report settings).xlsx	Year1 to Year20

* The default destination of master file is "C:\Users\ (User name) \Documents\MES3-EAP1\Template."

■ Window example for editing a daily report format



10.2 Report Output

This section describes how to automatically or manually output each report.
 For the format of output file, refer to [12.1 File Format].

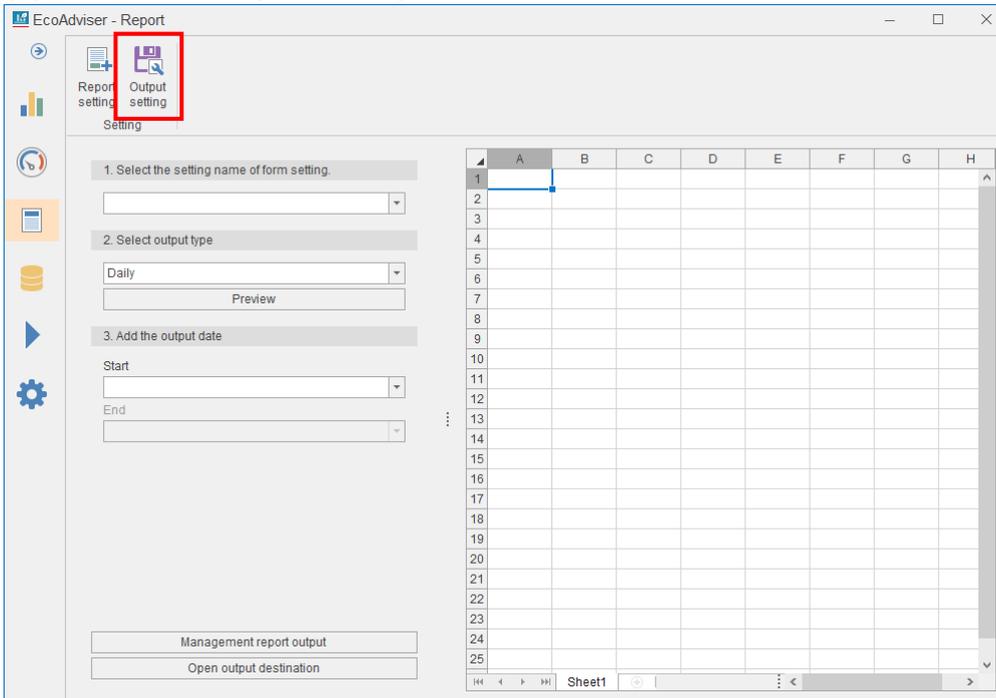
10.2.1 Setting the output destination

You will set the output destination folder of report.

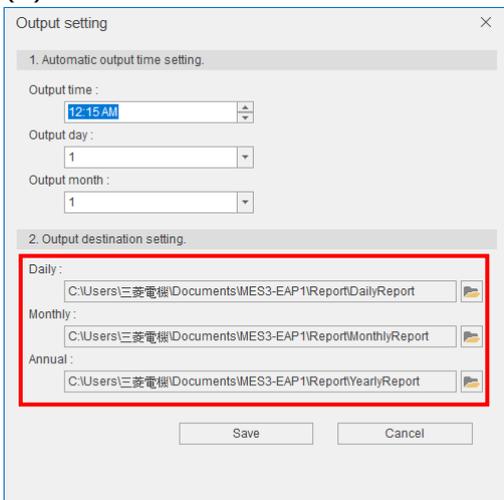
*Each report is output to the same destination for automatic and manual output.

If a report with the same output date has already exist, note that the existing file is overwritten.

(1) Click the **Output setting** button.

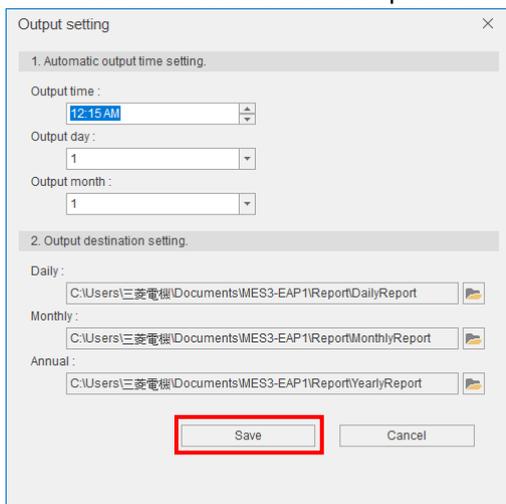


(2) Click the  button and then specify the destination folder for Daily/Monthly/Annual report.



- Click the **Save** button to save the settings.

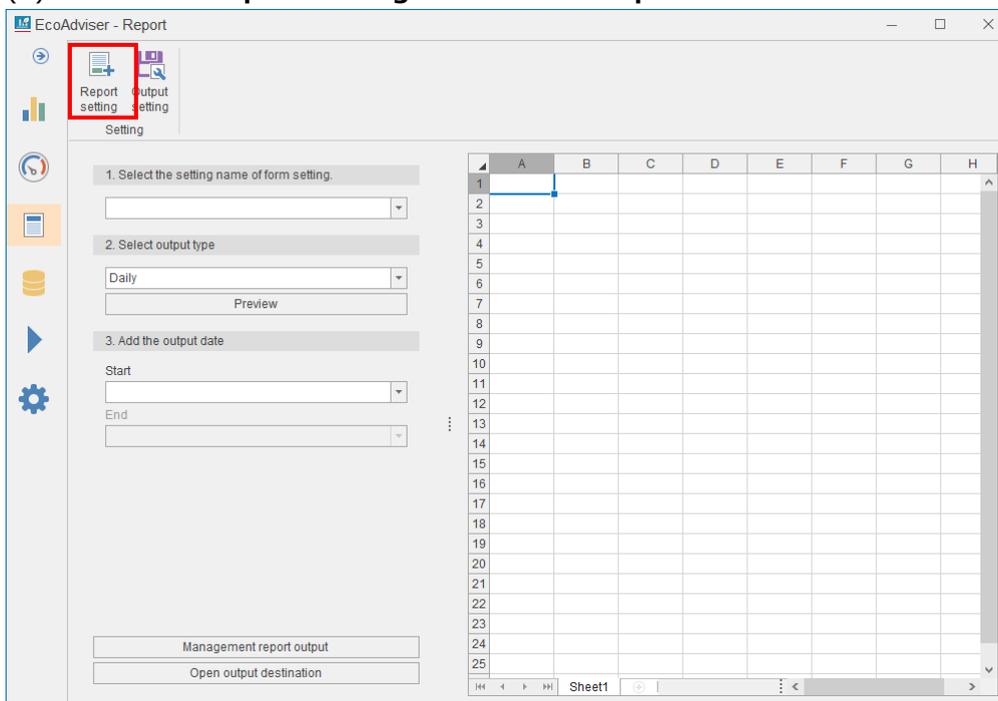
This is the end of the operation.



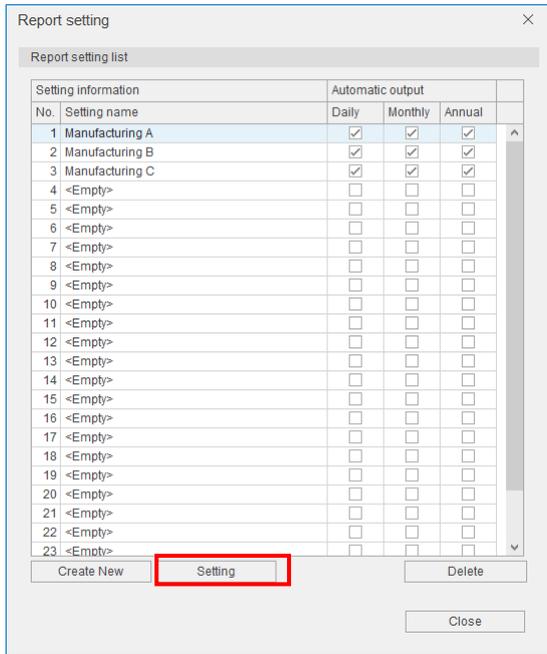
10.2.2 Setting the automatic output of reports

This subsection describes how to set the automatic output for Daily/Monthly/Annual report.

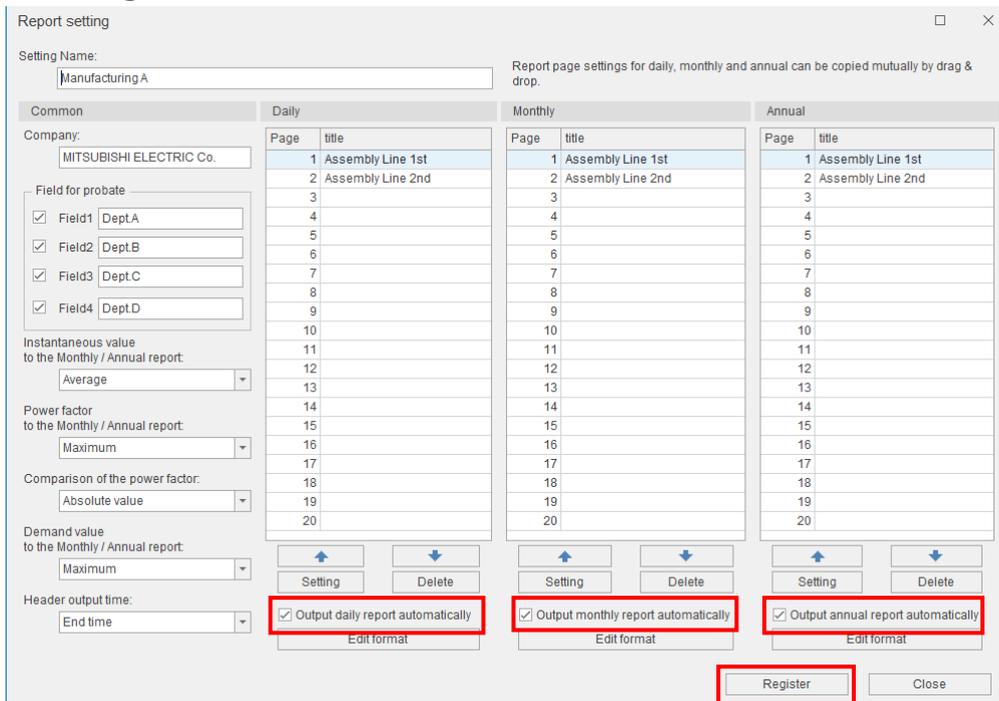
- At the Auto execute settings, set the Automatic report output to ON. (Refer to 【6 Auto Execute Settings】.)
- Click the **Report setting** button in the **Report** menu.



(3) Select the checkbox of a setting you want to automatically output and then click the **Setting** button.



(4) Select the checkbox of “Output report automatically” you want to execute and then click the **Register** button.

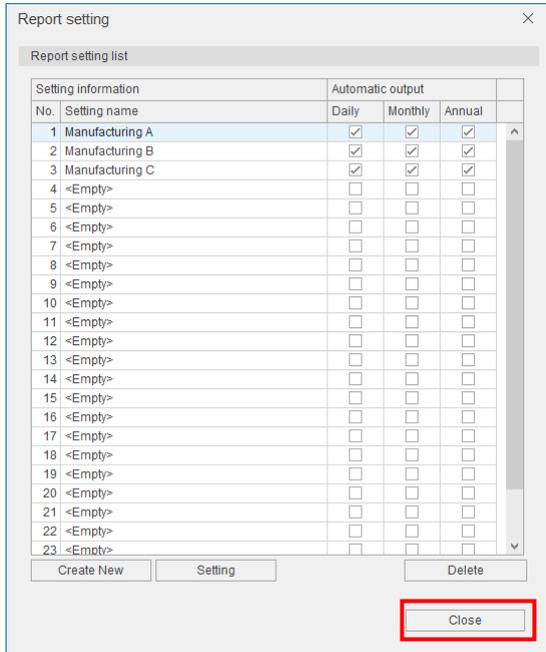


(5) When the settings are saved, the following message appears. Click the **OK** button to close the message.

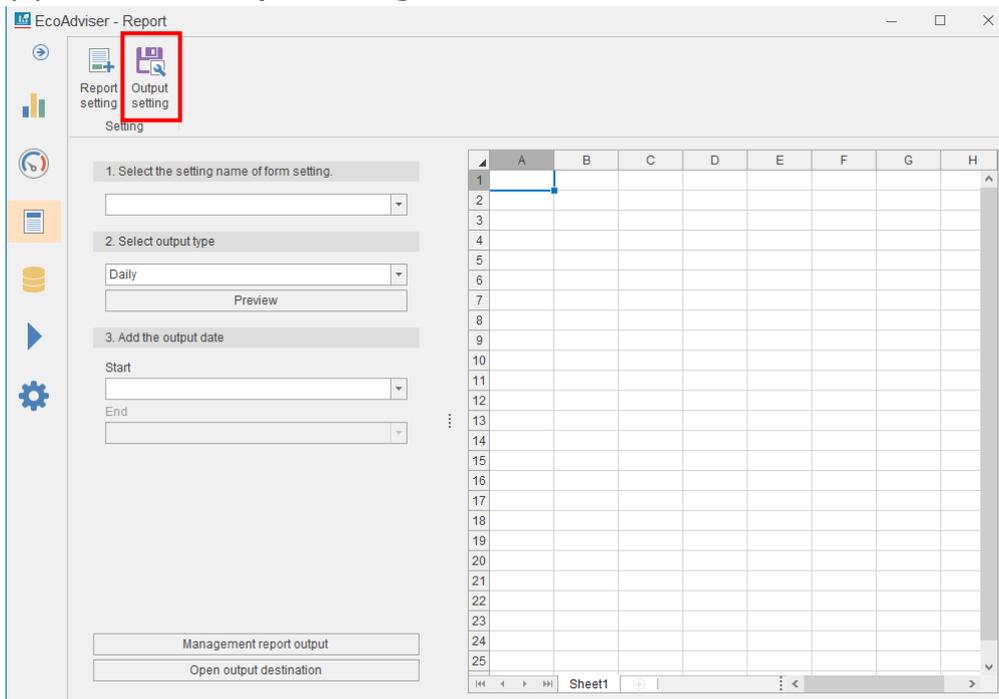


- (6) The previous settings are reflected to the checkbox of Daily/Monthly/Annual report in the report setting.

Click the **Close** button to close the window.



- (7) Click the **Output setting** button.

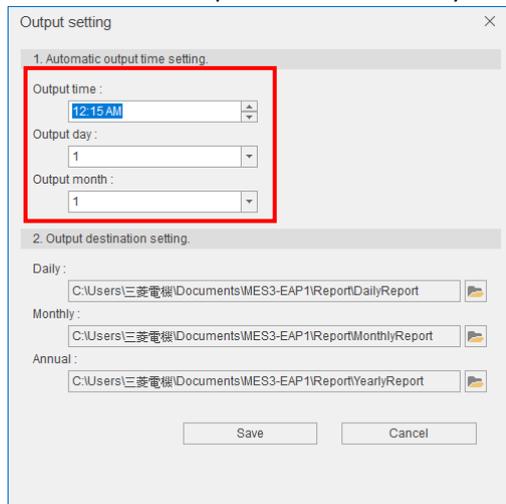


(8) You will set the time to automatically output reports.

Daily report: Automatically output at the set time every day.

Monthly report: Automatically output at the set day and time every month.

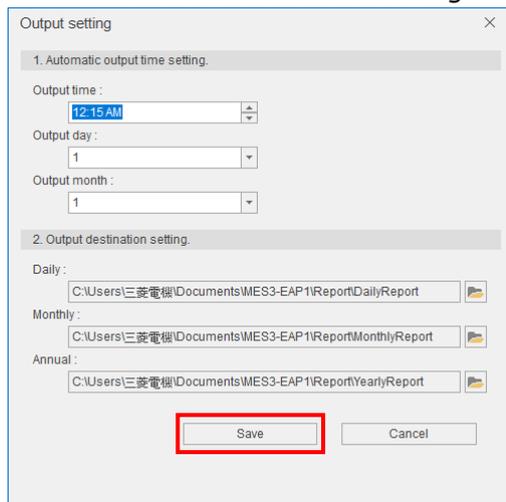
Annual report: Automatically output at the set month, day, and time every year.



The screenshot shows the 'Output setting' dialog box with the '1. Automatic output time setting' section highlighted by a red box. The 'Output time' is set to '12:15 AM', 'Output day' is '1', and 'Output month' is '1'. The '2. Output destination setting' section is visible below, with fields for 'Daily', 'Monthly', and 'Annual' reports, all pointing to the same directory: 'C:\Users\三菱電機\Documents\MES3-EAP1\Report\'. The 'Save' and 'Cancel' buttons are at the bottom.

(9) Click the **Save** button to save the settings.

This is the end of the setting.

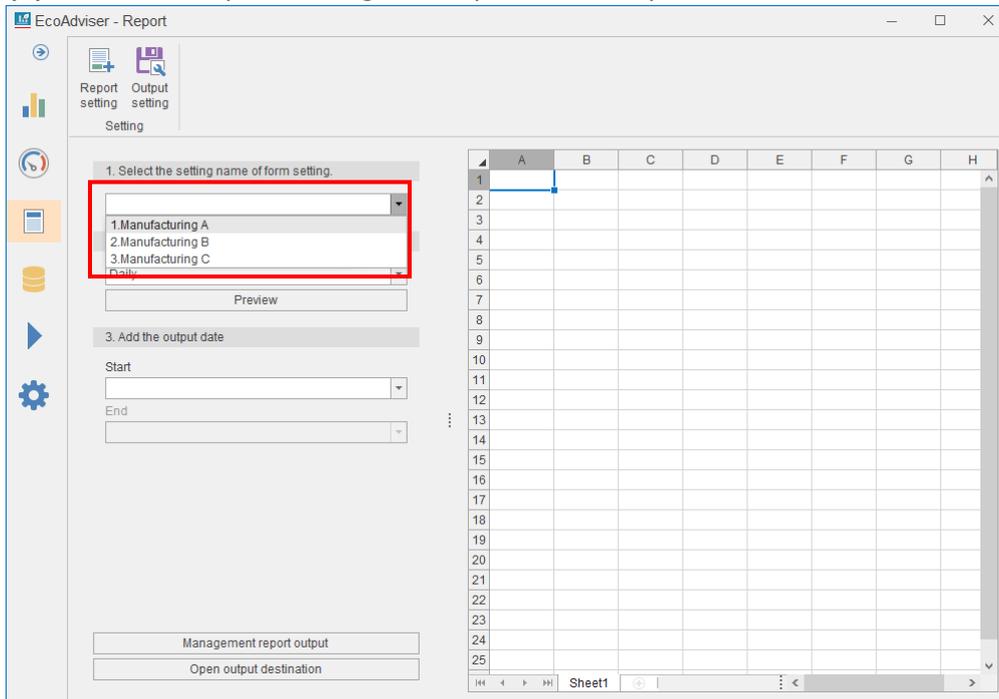


The screenshot shows the 'Output setting' dialog box with the '2. Output destination setting' section highlighted by a red box. The 'Daily', 'Monthly', and 'Annual' report destination fields are all set to 'C:\Users\三菱電機\Documents\MES3-EAP1\Report\'. The 'Save' button is highlighted with a red box, indicating it should be clicked to save the settings.

10.2.3 Setting the output of reports

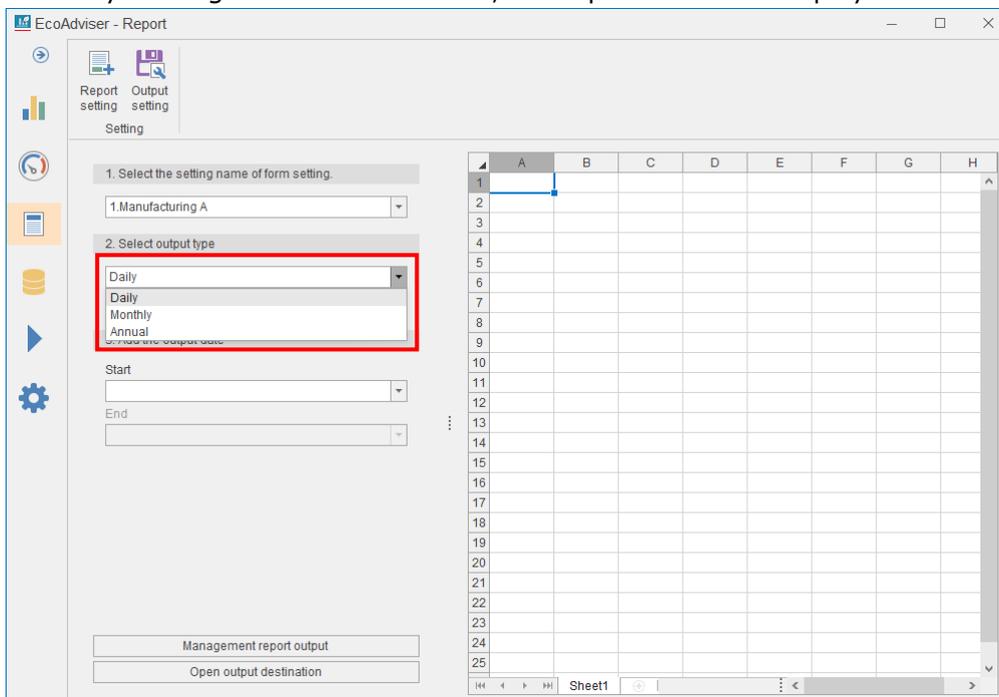
This subsection describes how to manually output the daily/monthly/annual report.

- (1) Select a report setting for output from the pull-down menu.



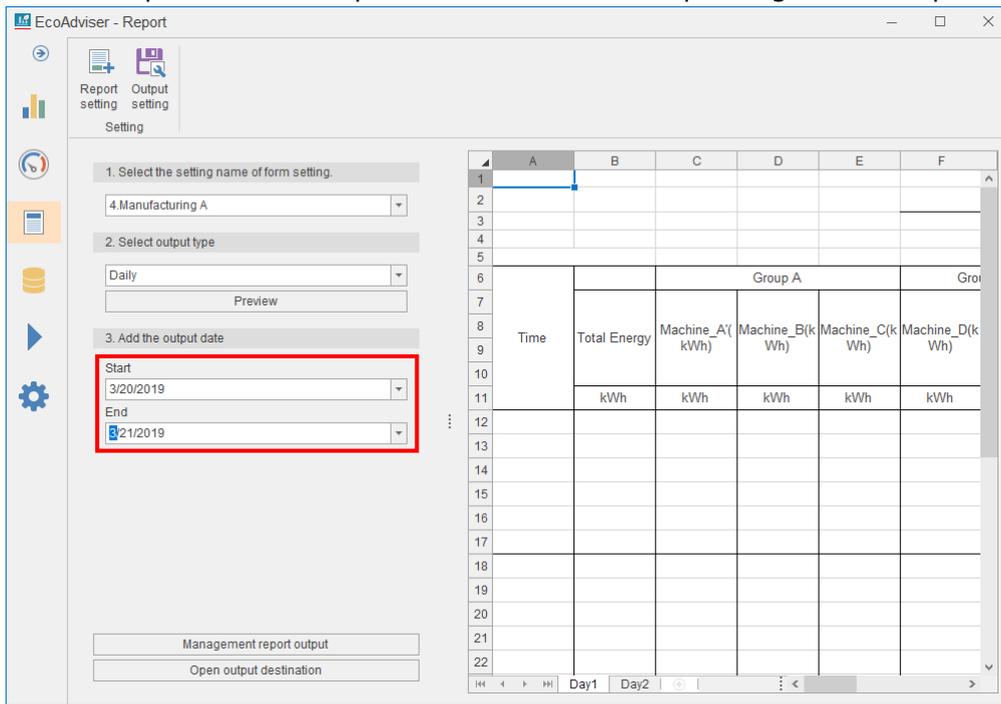
- (2) Select a report for output from the pull-down menu.

By clicking the **Preview** button, the report format is displayed on the right side of the window.



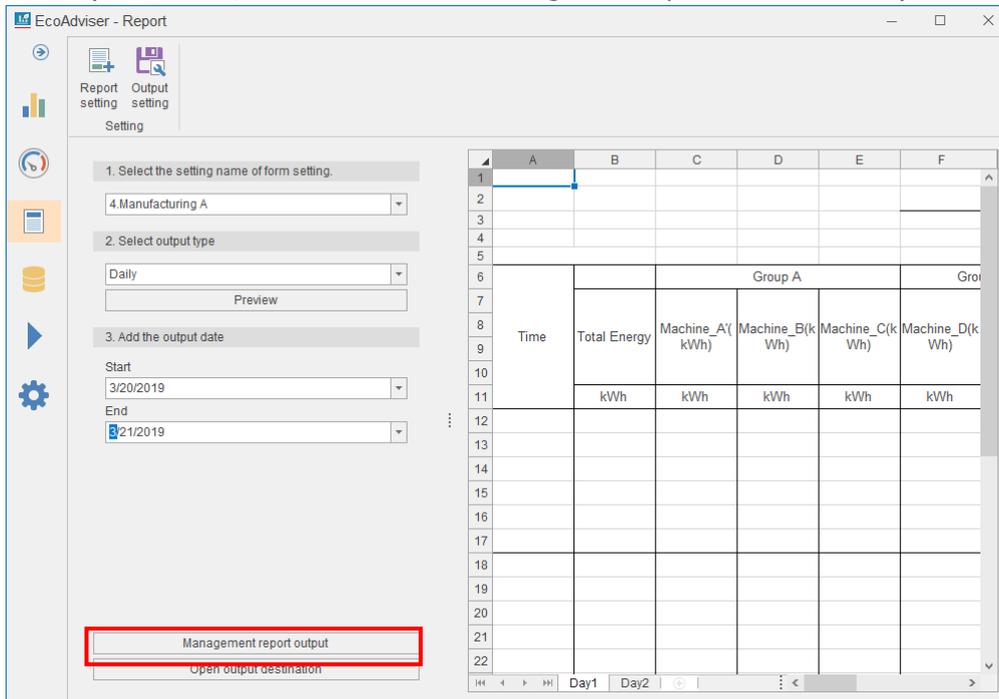
(3) Set the date for output.

The period to be output at one time varies depending on the output report.

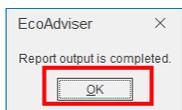


Report	The period to output
Daily report	A maximum of 7 days
Monthly report	A maximum of 3 months
Annual report	A maximum of 3 years

- (4) Click the **Management report output** button to output the report.
Each report is output to the specified folder set at the output settings.
(For details, refer to **【10.2.1 Setting the output destination】**.)

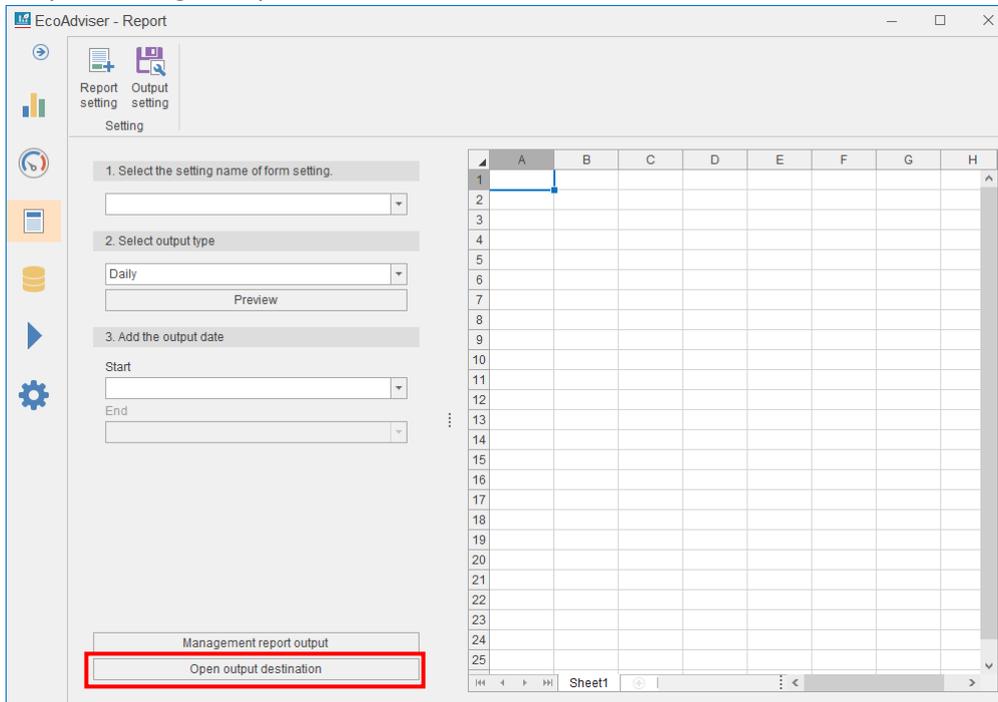


- (5) When the output is completed, the following message appears.
Click the **OK** button to close the message.



10.2.4 Opening the output destination

By clicking the **Open output destination** button, the output destination of report specified at the output settings is opened.



11. Troubleshooting

This chapter describes how to deal with something abnormal or failures during the operation. If something abnormal occurs or a message appears while you are using OS functions or other applications, refer to their instruction manuals, respectively.

■ Registration of collection source

Situation	Measuring point data cannot be read via HTTP from EcoWebServer III.
Check point	<p>Measuring point data is read from the zoom (1 min.) data file or demand (daily) data file of EcoWebServer III.</p> <p>Check the following points in the following order:</p> <ul style="list-style-type: none"> ● Check that the above data file exists in the EcoWebServer III. <p>For details on how to check, refer to [EcoWebServer III User's Manual: Operating Edition].</p> <ul style="list-style-type: none"> ● Check that measuring data of each measuring point has been input to the data file. ● Check that the time of the EcoWebServer III is not significantly different from that of the computer.
Situation	<p>When you register the model name or collect measuring point data via HTTP, the following message appears.</p> 
Check point	<p>The message indicates that it is impossible to connect to the collection source of EcoWebServer III.</p> <p>Check the following points:</p> <ul style="list-style-type: none"> ● The power supply of the collection source is ON? ● The LAN cable is correctly connected? ● The setting of the IP address is correct? ● The network setting of the computer is correct? ● The communication is not blocked by Firewall or antivirus software?

■ Change of collection source/measuring points

Situation	You have changed the measurement point settings for EcoWebServer III, so you have changed the collection source (changed measurement points) in EcoAdviser, but the changes in EcoWebServer III are not reflected in EcoAdviser.
Check point	<p>Measuring point data is read from the zoom (1 min.) data file or demand (daily) data file of EcoWebServer III.</p> <p>Check the following points in the following order:</p>

Troubleshooting

	<ul style="list-style-type: none"> ● Check that the above data file exists in the EcoWebServer III. For details on how to check, refer to [EcoWebServer III User's Manual: Operating Edition]. ● Check that measuring data of each measuring point has been input to the data file. ● Check that the time of the EcoWebServer III is not significantly different from that of the computer.
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■ Deletion of collection source/measuring points

Situation	When you try to register a new measuring point to the deleted measuring point ID, data of the deleted measuring point remains.
Check point	Even if you delete the measuring point, the past measuring data is not deleted. To delete the past data, refer to [5.4 Manual Input/Edition] to input blank to the data.

■ Equipment setting

Situation	Measuring points that measure pulse in Edgecross cannot be registered to the energy measuring point, production number measuring point, or utility measuring point in the equipment setting.
Check point	When you register measuring points of Edgecross, the measuring type is registered as analog value. Check that the measuring type is correctly set. From measuring point setting, you can check the measuring type. For change of the measuring type, refer to [4.1.5 Changing the information of measuring points in a batch] or [4.1.10 Changing the measuring point].

■ Automatic collection

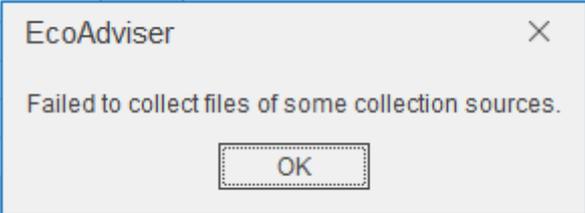
Situation	Automatic collection is not executed at the set time.
Check point	Has this software been running? The automatic collection cannot work if this software has not been running at the setting time. Be sure to turn on your computer, activate this software and keep it running.
	Has your computer gone into "sleep mode"? The automatic collection cannot work while your computer is in "sleep mode". Be sure to come out of "sleep mode", and change settings your computer if necessary.
	Have you rewound the computer's clock after setting the automatic collection to ON? If so, automatic collection will not be executed until the set time. Switch the automatic collection to OFF once and set it to ON again.
	If the collection source is EcoWebServer III with the FOLDER setting or Edgecross, check that the reference folder path is correctly set. When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked.
Situation	There is missing data in the file collected from Edgecross.
Check point	Have you set to the specifications of historical data file creation recommended in [2.2 Edgecross's Data File Collection]? If you operate with a different setting, data files cannot be acquired by automatic collection and there may be missing data in the file.

Troubleshooting

	To take measures against it, check that the historical data file exists for the corresponding time, and manually collect the historical data file of the time when missing data exists.
	Check to see if there are multiple data with the same time in the Edgexcross historical data file. If there are multiple data with the same time, you should delete one of the data and collect it manually.
Situation	The automatic collection did not collect past data.
Check point	The automatic collection can collect only latest data. You should collect manually the specific period data that had not been collected due to the automatic collection failure.

■ Manual collection

Situation	When data is collected from EcoWebServer III by selecting files, EcoAdviser stops working midway.
Check point	The file format for collection may be different from usual one due to the reason such as change of the file by the user or abnormality occurrence in EcoWebServer III, Check the file format. For details on how to check, refer to [EcoWebServer III User's Manual: Operating Edition].

Situation	When manually collecting from EcoWebServer III, the following message appears as impossible to collect. (When clicking the Data collection button for period designation, when clicking the File list display button for file selection)
	
Check point	Communication may be failed due to the network environment. Check the network environment and readjust it if necessary. If readjusting the network is difficult, take steps such as changing the method of data collection from EcoWebServer III to reference folder.

■ Automatic output of data files

Situation	An error occurs when data files are automatically output.
Check point	Check if there is the output destination folder or not, and also check if you have a access permission to the output destination folder. When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked.
	Is the capacity of the output destination enough? Check that there is enough free space at the output destination.

■ Manual output of data files

Situation	An error occurs when data files are manually output.
Check point	Is the capacity of the output destination enough? Check that there is enough free space in the output destination.
Situation	The pulse value is abnormal. (e.g., hourly data is regularly blank, hourly data is less than 50% of the normal value, daily data is 150% of the normal value, etc.)
Check point	Have you changed the data period in system settings? When you change the data period, the past data will not be updated to the new data period and may appear anomalous.
	Have you manually input/edited the data in a period shorter than the period of the relevant data? If you manually input/edited the data in a period shorter than the period of the relevant data, there is a possibility that the data will be abnormal, such as blank data.

■ Manual input/edition

Situation	For Edgecross's measuring point data, it is impossible to input or import the value of 16 digits after the decimal point.
Check point	Due to the specifications of EcoAdviser, it is impossible to input or import any value of 16 digits or more after the decimal point even when the measuring point data has such values. In that case, the value may be rounded.
Situation	An error occurs when measuring data is exported.
Check point	Is the capacity of the output destination enough? Check that there is enough free space in the output destination.

■ Diagnosis result

Situation	Each value of the energy saving viewpoint is not displayed.
Check point	Check the following points: ①Have you set the settings to measure the energy saving viewpoint, such as production number measuring point, utility measuring point, or break time? Have you changed or deleted the settings of measuring points used in the diagnosis setting? ②Have you correctly set the energy consumption threshold value for determining the equipment OFF state or the energy consumption threshold value for determining the utility OFF state? If you set any values greater than energy consumption in the equipment operating state and in the utility operating state to the two thresholds, the diagnosis will not be correctly executed. Check the proper values in the energy consumption/production volume graph to set the thresholds. For details, refer to [7.4.3 Checking values of the energy saving viewpoint].

Troubleshooting

	<p>③Have you saved the diagnosis data from collection sources for diagnosis period? If the data is not saved, diagnosis of the date cannot be performed. For details on how to check the collection status of diagnosis data from collection sources, refer to [7.3.1 Collecting the data used for diagnosis].</p> <p>*If you have updated the software from Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) to Energy Saving Data Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI), the data collected on Energy Saving Data Analysis Software (Model: MES3-EAP1-DA) is impossible to use for diagnosis. To perform the diagnosis, data must be collected from collection sources again.</p> <p>*If automatic collection is executed during the time from manual collection of diagnosis data from collection sources to the diagnosis execution, the storage period of the data will be updated and the manually collected data may be deleted. To execute manual diagnosis, set the automatic collection to OFF.</p> <p>④Is the diagnosis data from collection sources two hours or more continuous serial data ? If the data is less than two hours or is not continues serial data due to missing, diagnosis of the date cannot be executed.</p> <p>⑤The production volume threshold value for determining the exclusion day for diagnosis is correctly set? If you set any values greater than daily production volume, the date is excluded from the diagnosis.</p>
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Situation	No energy-loss factor diagnosis is displayed.
Check point	<p>Energy-loss factor diagnosis is not displayed in the following cases:</p> <p>①The value of the energy saving viewpoint is not displayed. For the checking points, refer to the troubleshooting mentioned above.</p> <p>②The diagnosis period is short. When the diagnosis period is short, energy-loss factor diagnosis may not be executed. As a guide, set one month or more for the diagnosis period.</p> <p>③There is no bias in the energy-loss factor as a result of diagnosis Under these conditions, energy-loss factor diagnosis could not be executed. If the diagnosis conditions, such as diagnosis period and equipment setting, are changed, energy-loss factor diagnosis can be executed.</p>

Situation	In the energy consumption/production volume graph, every production volume is displayed as 1.
Check point	<p>Check whether the working hours are set to the equipment, which is that the production number measuring point is not set. If the working hours are set to the equipment, the production volume under working hours is displayed as 1.</p>

■ Graph display

Situation	When data of measuring points that measure pulse of Edgecross is displayed in the graph, it is displayed as an analog value.
Check point	For registration of Edgecross's measuring points, the measuring type is automatically set to analog value. Check that each measuring type is correctly set. You can check it from Measuring point settings. For details on how to change the measuring type, refer to [4.1.5 Changing the information of measuring points in a batch] or [4.1.10 Changing the measuring point].

Situation	The box plot cannot be displayed.
Check point	Are there any measuring points set or hourly data of the display period? To create the box plot, two or more of hourly data is required for the display period for each measuring point. When you set each display period to multiple measuring points, if even one measuring point does not have two or more of hourly data, the graph cannot be displayed.

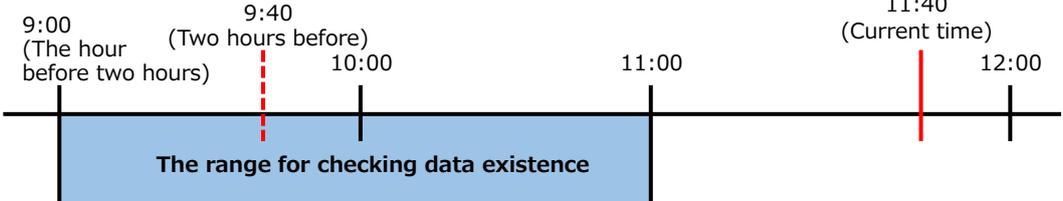
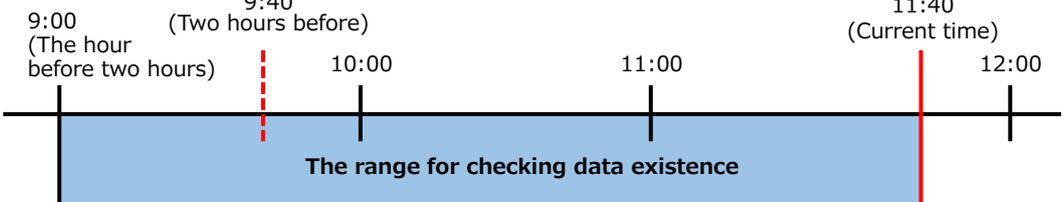
Situation	The value of the specific consumption measuring point is displayed at the upper limit of the vertical axis.
Check point	If the value of specific consumption measuring point is blank, it is displayed at the upper limit of the vertical axis. For example, if the number of production is 0 and the amount of energy is greater than 0, the value of the specific consumption measuring point is blank. In such a case, the value of the specific consumption measuring point is displayed at the upper limit of the vertical axis to indicate that the amount of energy is wasted. For other conditions under which the value of a specific consumption measuring point becomes blank, refer to [4.1.9 Registering the specific consumption measuring point].

Situation	The value of the specific consumption measuring point is displayed as the median value (value is 0) on the vertical axis.
Check point	When there are only 0s and blanks in the graph display period, blanks may also be displayed as 0s on the graph in the center of the vertical axis. This may be resolved (0 is displayed at the lower limit of the vertical axis and blank is displayed at the upper limit of the vertical axis) by displaying the specific consumption measuring point on the same vertical axis as the other measuring points.

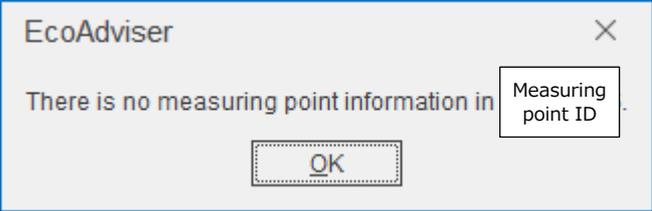
Situation	The graph is not displayed according to the graph setting.
Check point	Depending on the graph setting, you must re-open the graph. Save the graph once and open it again.

Situation	When the past data is displayed with the graph display interval setting of 'Hourly', abnormal values are displayed.. (e.g., values are regularly blank, values are less than 50% of normal, etc.)
Check point	Have you changed the data period in system settings? When you change the data period, the past data will not be updated to the new data period and may appear anomalous.
	Have you manually input/edited the data in a period shorter than the period of the relevant data? If you manually input/edited the data in a period shorter than the period of the relevant data, there is a possibility that the data will be abnormal, such as blank data.

■ Dashboard (Number panel)

Situation	No data is displayed on the number panel.									
Check point	<p>Due to missing data or calculation processing, there may be no data (blank) in the day.</p> <p>The following table provides the check of the corresponding date.</p> <p>To check that the data exists, refer to [5.3.6 Manual output of data files].</p>									
	<table border="1" data-bbox="328 927 1366 1169"> <thead> <tr> <th data-bbox="328 927 794 1034">Data display period Measuring type (Differential period)</th> <th data-bbox="794 927 1031 1034">Past</th> <th data-bbox="1031 927 1366 1034">Now</th> </tr> </thead> <tbody> <tr> <td data-bbox="328 1034 794 1079">Pulse (Time)</td> <td data-bbox="794 1034 1031 1169" rowspan="3">Specified date</td> <td data-bbox="1031 1034 1366 1079">The range of (1)</td> </tr> <tr> <td data-bbox="328 1079 794 1124">Pulse (Day/Month/Year)</td> <td data-bbox="1031 1079 1366 1124">Current day/month/year</td> </tr> <tr> <td data-bbox="328 1124 794 1169">Other measuring type</td> <td data-bbox="1031 1124 1366 1169">The range of (2)</td> </tr> </tbody> </table> <p data-bbox="328 1223 370 1258">(1)</p>  <p data-bbox="437 1496 1385 1603"> * 9:00 is out of the range for checking data existence. * The total of integrated value of each time period (XX:15 to (XX+1):00) is displayed as a current value. Data of the time period near the current time is preferentially displayed. </p> <p data-bbox="328 1626 370 1662">(2)</p>  <p data-bbox="507 1899 1286 1935">* Data of the time period near the current time is preferentially displayed.</p>	Data display period Measuring type (Differential period)	Past	Now	Pulse (Time)	Specified date	The range of (1)	Pulse (Day/Month/Year)	Current day/month/year	Other measuring type
Data display period Measuring type (Differential period)	Past	Now								
Pulse (Time)	Specified date	The range of (1)								
Pulse (Day/Month/Year)		Current day/month/year								
Other measuring type		The range of (2)								

■ Dashboard (Graph panel)

Situation	No graph is displayed in the graph panel on the dashboard.
Check point	<p>The measuring point displayed in the graph may have been deleted. From the graph window, open the graph to check the display. When the following message appears, the measuring point has been already deleted.</p> 

Situation	The value of the specific consumption measuring point is displayed at the upper limit of the vertical axis.
Check point	<p>If the value of specific consumption measuring point is blank, it is displayed at the upper limit of the vertical axis. For example, if the number of production is 0 and the amount of energy is greater than 0, the value of the specific consumption measuring point is blank. In such a case, the value of the specific consumption measuring point is displayed at the upper limit of the vertical axis to indicate that the amount of energy is wasted. For other conditions under which the value of a specific consumption measuring point becomes blank, refer to [4.1.9 Registering the specific consumption measuring point].</p>
Situation	The value of the specific consumption measuring point is displayed as the median value (value is 0) on the vertical axis.
Check point	<p>When there are only 0s and blanks in the graph display period, blanks may also be displayed as 0s on the graph in the center of the vertical axis. This may be resolved (0 is displayed at the lower limit of the vertical axis and blank is displayed at the upper limit of the vertical axis) by displaying the specific consumption measuring point on the same vertical axis as the other measuring points.</p>

■ Dashboard (Diagnosis panel)

Situation	The diagnosis panel is not properly displayed.
Check point	<p>During the diagnosis execution, the diagnosis panel may not be properly displayed. If it is not properly displayed, wait until the following time passes. ·Day aggregation period (time) + 2 hours to Day aggregation period (time) + 3 hours</p>

■ Automatic output of dashboard HTML files

Situation	An error occurs during the automatic output of the dashboard HTML file.
Check point	<p>Check that the output destination folder exists and that you have access to the output destination folder. When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked. Is the capacity of the output destination enough? Check that there is enough free space in the output destination.</p>

Troubleshooting

Situation	The dashboard HTML file has not been updated despite no errors.
Check point	<p>Check your operation log file whether “Automatic dashboard HTML file output end” comes after “Automatic dashboard HTML file output start”.</p> <p>The HTML file output folder might have opened if one of the above two messages or both could not be found in the operation log file.</p> <p>The dashboard HTML file has not been updated because EcoAdviser could not update file/folder while the output folder had been still opened.</p>

■ Manual output of dashboard HTML files

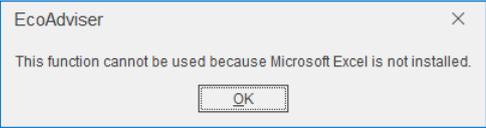
Situation	An error occurs when the dashboard HTML file is output.
Check point	<p>Is the capacity of the output destination enough?</p> <p>Check that there is enough free space in the output destination.</p>

Situation	There is something abnormal in the output dashboard HTML file, such as a wrong value, strange graph, or file that cannot be opened.
Check point	Automatic collection may have been executed while the dashboard HTML file is output. Output the file again.

■ Display of dashboard HTML files

Situation	<p>When the sheet tab switching is executed with the auto-switch, some sheet tabs that have been displayed are not displayed.</p> <p>*Some sheets but not all</p>
Check point	<p>While the dashboard HTML file is displayed, you may have deleted the sheet tabs on EcoAdviser and overwritten the file.</p> <p>To view the latest HTML file, update the web browser.</p>

■ Automatic output/Manual output of reports

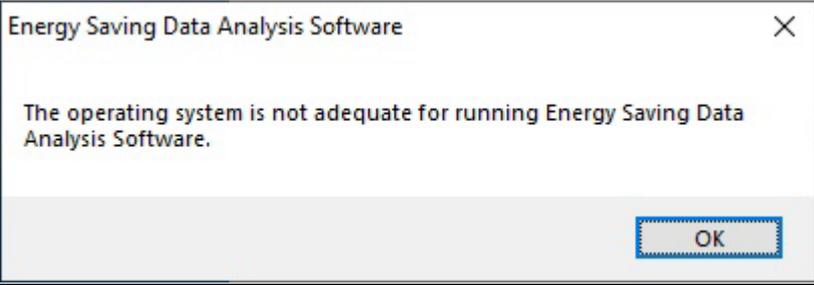
Situation	<p>The error with Excel not installed occurs when the Excel purchased at Microsoft Store is used.</p> 
Check point	<p>It is impossible to use the Excel purchased at Microsoft Store.</p> <p>Use the desktop version of Excel.</p>

Situation	Although the report is output operationally, there is no file in the output destination.
Check point	<p>Check that the output destination is correct.</p> <p>When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked.</p>

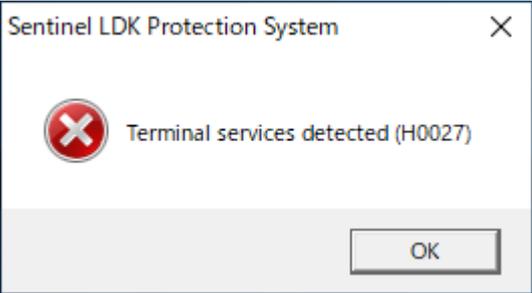
Situation	An error occurs during the report output.
Check point	<p>Check that the output destination folder exists and that you have access to the output destination folder.</p> <p>When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked.</p> <p>Is the capacity of the output destination enough?</p> <p>Check that there is enough free space in the output destination.</p>

Situation	The pulse value is abnormal, such as 150% of normal.
Check point	<p>Have you changed the data period to a longer period in the system settings and collect data manually?</p> <p>If you change the data period to a longer period (e.g., from 15 minutes to 30 minutes) and collect data manually, the daily or monthly data will have abnormal values because the data collected at the data period before the change remains.</p>

■ Others

Situation	<p>When you start the installer, the following message appears, and no installation is executed.</p> 
Check point	The OS of the used computer may be different from the one listed in [2.1 Computer's Operation Environment]. Check the specifications of the computer where EcoAdviser is installed.

Situation	<p>When you start EcoAdviser, the following message appears, and the startup fails.</p> 
Check point	The hardware key is not connected to the computer you use. EcoAdviser can be used by connecting the hardware key. Connect it to the computer.

Situation	<p>When you execute the remote desktop connection and then start EcoAdviser, the following message appears.</p> 
Check point	<p>EcoAdviser does not start.</p> <p>When you use EcoAdviser by remote control, execute the connection of remote control while it is running.</p>

Situation	EcoAdviser does not start.
Check point	Are you remotely operating the computer where EcoAdviser is installed by using the remote desktop connection? EcoAdviser does not start under the remote control. For remote operation, execute the remote desktop connection while EcoAdviser is running. For any cases other than the described above, restart the computer.
Situation	The filter function does not work properly.
Check point	Click the Clear Filter button and then set it again. Each maximum value of 'Top N' and 'Bottom N' is 10.
Situation	The file write error occurs in the operation log.
Check point	Check whether the setting values have been restored from another computer. When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked.
Situation	EcoAdviser freezes.
Check point	Restart the computer where EcoAdviser is installed.
Situation	EcoAdviser crashes suddenly and shows an error message.
Check point	If the collection source is EcoWebServerIII with the FOLDER setting or Edgecross, check that the reference folder path is correct. When the setting values have been restored, the reference of each file and the setting of saving destination must be re-checked.
Situation	You have deleted the master file for report or edited the master sheet.
Check point	Click the Register button in the report setting and re-register the setting of each report. When the registration is completed, the master file before customization will be created.

Situation	When you are operating EcoAdviser, the window size or layout has changed into smaller one suddenly.																				
Check point	<p>The situation occurs when you use a display with different resolution and zoom factor from one at the time of starting EcoAdviser due to using multiple displays. This indicates 'Change the size of text, apps, and other items' of the display setting items in Windows 10.</p> <p>If you use that display, set the following items:</p> <ol style="list-style-type: none"> (1) Right-click the shortcut icon of EcoAdviser on the desktop and then select 'Property.' (2) Click the Compatibility tab. (3) Click the High DPI settings change button. (4) Select the checkbox of 'Overwrite high DPI scale action' to change 'Execution resource of magnifying and reducing' to 'System'. (5) Click the OK button and then click the Apply button to reflect the setting. <p>*When you execute this setting, the window display of the software is enlarged according to the resolution and zoom factor of the display and may be displayed in blurry.</p> <p>The following table shows recommended resolution of the display depending on the zoom factor.</p> <table border="1" data-bbox="341 1003 1366 1227"> <thead> <tr> <th>Zoom factor</th> <th>Resolution</th> <th>Zoom factor</th> <th>Resolution</th> </tr> </thead> <tbody> <tr> <td>100%</td> <td>1024*768 or more</td> <td>200%</td> <td>2880*1620 or more</td> </tr> <tr> <td>125%</td> <td>1900*1200 or more</td> <td>225%</td> <td>3840*2160 or more</td> </tr> <tr> <td>150%</td> <td>1900*1200 or more</td> <td>250%</td> <td>3840*2160 or more</td> </tr> <tr> <td>175%</td> <td>2880*1620 or more</td> <td></td> <td></td> </tr> </tbody> </table>	Zoom factor	Resolution	Zoom factor	Resolution	100%	1024*768 or more	200%	2880*1620 or more	125%	1900*1200 or more	225%	3840*2160 or more	150%	1900*1200 or more	250%	3840*2160 or more	175%	2880*1620 or more		
Zoom factor	Resolution	Zoom factor	Resolution																		
100%	1024*768 or more	200%	2880*1620 or more																		
125%	1900*1200 or more	225%	3840*2160 or more																		
150%	1900*1200 or more	250%	3840*2160 or more																		
175%	2880*1620 or more																				
Situation	<p>During the operation, the following window appears, and the processing is too late to end.</p> 																				
Check point	Click the Stop button to terminate the processing. Restart EcoAdviser and then execute the operation again.																				

*When you feel that EcoAdviser runs very slowly or abnormally, restart it.

If you need further assistance, contact the nearest Mitsubishi Sales Office or dealer.

12. Appendix

12.1 File Format

12.1.1 Daily report

The following illustrates an output example of the daily report.

■ File name

D_xxxx_YYYYMMDD.xlsx

- xxxx: The registration number of the report setting
- YYYY: The year of output in four digits of the dominical year
- MM: The month of output in two digits
- DD: The day of output in two digits

■ File contents

Assembly Line 1st														Dept.A	Dept.B	Dept.C	Dept.D	
3/19/2019, Tue														MITSUBISHI ELECTRIC Co.				
Time	Total Energy	Group A			Group B			Group C						Quality Check 1st(kWh)				
		Machine_A(kWh)	Machine_B(kWh)	Machine_C(kWh)	Machine_D(kWh)	Machine_E(kWh)	Machine_F-1(kWh)	Machine_F-2(kWh)	Machine_F-3(kWh)	Machine_F-4(kWh)	Machine_G(kWh)	Machine_H(kWh)						
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh				
1:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
2:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
3:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
4:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
5:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
6:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
7:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
8:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
9:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
10:00	9	0.2686	0.2366	0.0584	0.2436	0.0692	0.3280	0.3410	0.3176	0.3190	0.1924	0.0624	0.1688					
11:00	19	0.5230	0.4484	0.1262	0.4560	0.1382	0.3986	0.4216	0.4044	0.4212	0.2874	0.1372	0.2778					
12:00	17	0.4948	0.4328	0.1226	0.4466	0.1362	0.4012	0.4214	0.4036	0.4190	0.2870	0.1398	0.2696					
13:00	18	0.4878	0.4270	0.1252	0.4320	0.1386	0.3856	0.4056	0.3860	0.4016	0.2834	0.1382	0.2650					
14:00	15	0.4632	0.4154	0.1220	0.4232	0.1366	0.3800	0.3926	0.3768	0.3772	0.2726	0.1352	0.2520					
15:00	18	0.5044	0.4348	0.1224	0.4310	0.1346	0.3914	0.4042	0.3754	0.3756	0.2832	0.1344	0.2692					
16:00	19	0.5162	0.4408	0.1232	0.4604	0.1372	0.3960	0.4168	0.4048	0.4308	0.2812	0.1352	0.2734					
17:00	22	0.5106	0.4366	0.1234	0.4552	0.1362	0.4012	0.4262	0.4186	0.4294	0.2858	0.1368	0.2792					
18:00	20	0.5158	0.4404	0.1256	0.4604	0.1382	0.4074	0.4258	0.4108	0.4258	0.2826	0.1358	0.2794					
19:00	16	0.4930	0.4204	0.1234	0.4300	0.1358	0.3992	0.4110	0.3954	0.4102	0.2818	0.1376	0.2672					
20:00	20	0.5014	0.4344	0.1250	0.4370	0.1370	0.4004	0.4168	0.3968	0.3970	0.2782	0.1344	0.2722					
21:00	8	0.2226	0.2006	0.0632	0.1946	0.0444	0.1518	0.1594	0.1512	0.1572	0.1246	0.0610	0.1430					
22:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
23:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
0:00	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Day Total	201	5.5014	4.7682	1.3606	4.8700	1.4822	4.4408	4.6424	4.4414	4.5640	3.1402	1.5180	3.0168					
Maximum	22	0.5230	0.4484	0.1262	0.4604	0.1386	0.4074	0.4262	0.4186	0.4308	0.2874	0.1398	0.2794					
Minimum	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000					
Average	8	0.2292	0.1987	0.0567	0.2029	0.0618	0.1850	0.1934	0.1851	0.1902	0.1308	0.0633	0.1257					

12.1.2 Monthly report

The following illustrates an output example of the monthly report.

■ File name

M_XXXX_YYYYMM.xlsx

- XXXX: The registration number of the report setting
- YYYY: The year of output in four digits of the dominical year
- MM: The month of output in two digits

■ File contents

Assembly Line 1st													Dept.A	Dept.B	Dept.C	Dept.D	
MITSUBISHI ELECTRIC Co.																	
Mar. 2019																	
Date	Group A			Group B			Group C						Quality Check_1st(kWh)				
	Total Energy	Machine_A(kWh)	Machine_B(kWh)	Machine_C(kWh)	Machine_D(kWh)	Machine_E(kWh)	Machine_F-1(kWh)	Machine_F-2(kWh)	Machine_F-3(kWh)	Machine_F-4(kWh)	Machine_G(kWh)	Machine_H(kWh)					
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh				
1	48	1.7698	1.6266	0.4592	1.6118	0.4652	0.9726	1.0134	1.4604	2.1298	1.6564	0.8436	1.4456				
2	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
3	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
4	200	5.2386	4.5362	1.2450	4.6880	1.4260	4.2054	4.4160	4.2302	4.3678	2.9762	1.4432	2.9334				
5	188	4.8442	4.2150	1.1636	4.3524	1.3328	3.9086	4.0740	3.9524	4.1154	2.9060	1.4112	2.7460				
6	170	4.2024	3.6216	0.9932	3.7706	1.1360	3.4182	3.6146	3.4748	3.5946	2.4002	1.1686	2.3294				
7	195	5.1058	4.4290	1.2406	4.5788	1.4188	4.1172	4.3252	4.1690	4.2636	2.9368	1.4346	2.8018				
8	148	3.9450	3.4124	0.9472	3.5452	1.0818	3.0680	3.3062	3.1776	3.2676	2.2498	1.0964	2.1428				
9	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
10	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
11	205	5.3416	4.6378	1.2906	4.7990	1.4782	4.1462	4.4250	4.2828	4.4704	3.1318	1.5242	2.9666				
12	210	5.3796	4.6458	1.2798	4.8316	1.4552	4.3328	4.6004	4.4484	4.6236	3.1548	1.5214	3.0120				
13	161	4.2148	3.6134	1.0008	3.7648	1.1416	3.4822	3.6736	3.5402	3.6566	2.5046	1.2120	2.4132				
14	155	4.1110	3.5784	0.9914	3.7028	1.1364	3.3668	3.5746	3.4350	3.5304	2.4736	1.2004	2.3328				
15	186	5.0382	4.3322	1.2292	4.5214	1.3906	4.0020	4.2326	4.0658	4.1916	3.0046	1.4630	2.8254				
16	161	4.1898	3.6364	1.0410	3.7630	1.1556	3.4954	3.6350	3.4912	3.6024	2.5072	1.2194	2.3790				
17	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
18	165	4.1586	3.6220	1.0266	3.7130	1.1390	3.3234	3.4710	3.3128	3.4190	2.3968	1.1664	2.2546				
19	201	5.5014	4.7682	1.3606	4.8700	1.4822	4.4408	4.6424	4.4414	4.5640	3.1402	1.5180	3.0168				
20	165	4.2196	3.6558	1.0394	3.7382	1.1548	3.3200	3.4832	3.3672	3.4828	2.4028	1.1744	2.3028				
21	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
22	157	3.9646	3.4230	0.9840	3.5058	1.0872	3.2080	3.3530	3.2296	3.3310	2.3492	1.2168	2.2354				
23	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
24	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
25	181	4.2762	3.6904	1.0362	3.8000	1.1504	3.3922	3.5470	3.4146	3.5354	2.4260	1.5038	2.8436				
26	182	4.2646	3.7070	1.0520	3.7874	1.1630	3.3784	3.5376	3.4082	3.5312	2.4450	1.3646	2.3484				
27	171	4.1900	3.6672	1.0560	3.7246	1.1684	3.3024	3.4592	3.3076	3.4148	2.4104	1.2080	2.3242				
28	170	4.1950	3.6480	1.0350	3.7344	1.1486	3.3406	3.4608	3.3330	3.4584	2.4012	1.1676	2.2870				
29	133	3.3320	2.9010	0.8220	2.9844	0.9306	2.9170	3.0092	2.9122	3.0034	2.0950	1.0212	1.9662				
30	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
31	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
Month Total	3552	91.4838	79.3664	22.2934	81.7862	25.0424	73.1362	76.8540	74.4544	77.5538	53.9686	26.8788	51.9070				
Maximum	210	5.5014	4.7682	1.3606	4.8700	1.4822	4.4408	4.6424	4.4484	4.6236	3.1548	1.5242	3.0168				
Minimum	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000				
Average	115	2.9511	2.5602	0.7191	2.6383	0.8078	2.3593	2.4792	2.4018	2.5017	1.7409	0.8671	1.6744				

12.1.3 Annual report

The following illustrates an output example of the annual report.

■ File name

Y_xxxx_YYYY.xlsx

- xxxx: The registration number of the report setting
- YYYY: The year of output in four digits of the dominical year

■ File contents

Assembly Line 1st														Dept.A	Dept.B	Dept.C	Dept.D
2018														MITSUBISHI ELECTRIC Co.			
Month	Group A				Group B				Group C				Quality Check_1st(kWh)				
	Total Energy	Machine_A(kWh)	Machine_B(kWh)	Machine_C(kWh)	Machine_D(kWh)	Machine_E(kWh)	Machine_F-1(kWh)	Machine_F-2(kWh)	Machine_F-3(kWh)	Machine_F-4(kWh)	Machine_G(kWh)	Machine_H(kWh)					
	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh	kWh				
1	3511	88.6198	77.2922	21.0306	78.2868	23.8932	74.4190	77.2154	75.2758	76.5354	53.3516	26.3726	51.4024				
2	3387	85.2996	74.3774	20.5442	75.5244	23.8570	71.0958	73.7976	71.8894	75.4842	51.4696	25.0738	49.1802				
3	3621	94.8126	82.7038	22.6742	83.4478	25.6520	78.7110	81.2414	79.6638	81.8374	56.6874	27.8110	53.8198				
4	4014	102.9754	89.4992	24.6412	90.5162	27.6304	83.6364	86.5828	85.9818	88.5814	62.1406	31.8348	61.0708				
5	3529	91.0980	78.5928	21.4746	80.8162	24.0978	74.2378	75.4388	74.7794	76.9678	55.3432	27.5220	53.1872				
6	3177	84.0350	73.0512	20.2084	75.1414	22.6046	68.1710	69.9400	68.5464	71.2516	51.4018	26.3648	50.0978				
7	3299	86.3114	74.9990	20.6740	77.4428	23.7408	69.9776	72.1262	70.2852	72.4018	52.0802	25.5794	50.6230				
8	2816	73.4356	64.0416	17.7136	66.1298	20.3850	59.0854	60.3460	58.5270	61.0184	44.1126	21.8322	42.8906				
9	2906	79.7548	69.0796	19.3932	71.2022	22.1682	63.3548	65.2442	62.7448	65.0320	47.8492	23.9474	45.4900				
10	3520	95.3108	82.7628	23.0848	85.6852	26.5074	76.3798	78.6776	75.7064	79.2702	57.1532	28.3032	54.1952				
11	3883	102.1006	88.2928	24.5380	91.8834	28.2910	81.6462	83.8594	81.3168	84.1576	60.8568	29.9712	58.3468				
12	3953	104.7192	90.9006	25.0578	94.2158	28.7696	83.6770	85.9802	83.5948	86.8238	61.0004	29.9826	58.4778				
Year Total	41616	1088.4728	945.5930	261.0346	970.2920	297.5970	884.3918	910.4496	888.2716	919.3616	653.4466	324.5950	628.7816				
Maximum	4014	104.7192	90.9006	25.0578	94.2158	28.7696	83.6770	86.5828	85.9818	88.5814	62.1406	31.8348	61.0708				
Minimum	2816	73.4356	64.0416	17.7136	66.1298	20.3850	59.0854	60.3460	58.5270	61.0184	44.1126	21.8322	42.8906				
Average	3468	90.7061	78.7994	21.7529	80.8577	24.7998	73.6993	75.8708	74.0228	76.6135	54.4539	27.0496	52.3985				

12.1.4 Measuring data output file

The below table shows the file format of measuring data when automatic or manual output of data file are executed.

■ File name

The following is an example of automatic output of data files.

data_xxxx.csv

- xxxx: The number of the setting value in four digits
 - *For example, in the case of No.1, xxxx is 0001.
 - *You can save this file as any name.

■ File contents

These are example 1 and example 2 by using following settings, respectively:

- Date column name: DateTime
- Date format: YYYY/MM/DD hh:mm

Item	Details
The first line	Datetime, Measuring point name 1[measuring unit], Measuring point name 2[measuring unit], ..., Measuring point name n[measuring unit]
From the second line	YYYY/MM/DD hh:mm, Measuring data 1, Measuring data 2, ..., Measuring data n

Example 1: Automatic Data Output

This example uses the following conditions:

- Date column name: DateTime
- Date format: YYYY/MM/DD hh:mm
- Measuring point: Measuring point 1 to Measuring point 9
- Collection setting
 - Data period(min):15
 - EcoWebServerⅢ file collection time(min):10
 - Day Aggregation Period(hour): 08:00 ~ 08:00
- Present Date and Time: 2019/02/02 06:20

DateTime	Measuring point 1[A]	Measuring point 2[W]	...	Measuring point 9[]
2019/02/01 08:15	0.9	6470	...	1
2019/02/01 08:30	0.9	6500	...	2
2019/02/01 08:45	0.9	6450	...	2
:				
2019/02/02 05:45	0.9	6510	...	2
2019/02/02 06:00	0.9	6520	...	2

Example 2: Manual Output

This example uses the following conditions:

- Date column name: DateTime
- Date format: YYYY/MM/DD hh:mm
- Measuring point: Measuring point 1 to Measuring point 9
- Period: 2019/02/01 0:00AM ~ 2019/02/07 0:00AM
- The data interval: Hour
- Collection setting Data period(min):60

DateTime	Measuring point 1[A]	Measuring point 2[W]	...	Measuring point 9[]
2019/02/01 00:00	0.9	6470	...	1
2019/02/01 01:00	0.9	6500	...	2
2019/02/01 02:00	0.9	6450	...	2
:				
2019/02/06 23:00	0.9	6510	...	2
2019/02/07 00:00	0.9	6520	...	2

12.1.5 Measuring point list file

The following tables show the file format of each measuring point list.

■ Measuring point (collection source: EcoWebServerⅢ)

Item	Details					
The first line	Collection source ID	Measuring point ID	Measuring point name	Measuring type	Measuring point unit	The number of decimal places
From the second line	(Collection source ID)	(Measuring point ID)	(Measuring point name)	1: Pulse 2: Analog value 3: Power factor 4: Operating status 5: Demand 6: Demand (15 minutes) 7: Demand (30 minutes)	(Measuring point unit)	0 to 5, Blank

The following example is displayed data when the collection source is EcoWebServerⅢ with the demand monitoring function.

Example					
Collection source ID	Measuring point ID	Measuring point name	Measuring type	Measuring point unit	The number of decimal places
1	1	1F Consent Current	2	A	0
1	2	1F Consent Voltage	2	V	1
1	3	1F Consent Power	2	kW	1
:					
1	1255	15-minute demand (The time period)	5	kw	(Blank)

■ Measuring point (collection source: Edgecross)

Item	Details								
The first line	Collection source ID	Measuring point ID	Column position	Data type	Measuring point name	Measuring type	Measuring point unit	Multiplying factor	The number of decimal places
From the second line	(Collection source ID)	(Measuring point ID)	*1	*2	(Measuring point name)	1: Pulse 2: Analog value 3: Power factor 4: Operating status	Blank	(Multiplying factor)	0 to 5, Blank

*1: It is the column position in the historical data file. (The range: 3 to 258)

*2: It is the data type described in the historical data definition file.

■ Manual input measuring point

Item	Details				
The first line	Measuring point ID	Measuring point name	Measuring type	Measuring point unit	The number of decimal places
From the second line	(Measuring point ID)	(Measuring point name)	1: Pulse 2: Analog value	(Measuring point unit)	0 to 5, Blank

■ Product type time period measuring point

Item	Details							
The first line	Measuring point ID	Measuring point name	Measuring type	Measuring point unit	The number of decimal places	Measuring value point	Time period measuring point	Time period type
From the second line	(Measuring point ID)	(Measuring point name)	1: Pulse	(Measuring point unit)	0 to 5, Blank	(Measuring point ID)	(Measuring point ID)	(Time period type)

■ Calculation measuring point

Item	Details					
The first line	Measuring point ID	Measuring point name	Measuring type	Measuring value point	The number of decimal places	Calculation formula
From the second line	(Measuring point ID)	(Measuring point name)	1: Pulse 2: Analog value	(Measuring point unit)	0 to 5, Blank	(Calculation formula)

■ Specific consumption measuring point

Item	Details					
The first line	Measuring point ID	Measuring point name	Measuring point unit	The number of decimal places	Energy measuring point	Production number measuring point
From the second line	(Measuring point ID)	(Measuring point name)	(Measuring point unit)	0 to 5, Blank	Measuring point ID	Measuring point ID

12.1.6 Excel file for input of measuring data

The following table shows the format of the Excel file for input of measuring data.

Item	Details	
	The first column	From the second column
The first line	Date	Collection source ID_Measuring point ID: Measuring point name
From the second line	M/D/YYYY h:mm	Measuring data

The following example is displayed data using the following settings:

- Measuring point: Measuring point 1 to 9
- Period: 2/1/2019 0:00 to 2/7/2019 0:00
- Measuring data period: 60 minutes

Example				
DateTime	001_0001: Measuring point 1	001_0002: Measuring point 2	...	001_0009: Measuring point 9
2/1/2019 0:00	0.9	6470	...	1
2/1/2019 1:00	0.9	6500	...	2
2/1/2019 2:00	0.9	6450	...	2
:				
2/6/2019 23:00	0.9	6510	...	2
2/7/2019 0:00	0.9	6520	...	2

12.1.7 Operation log file

The following table shows the file format of output operation logs.

*The following example illustrates displayed data using the following settings:

- File encoding: Shift_JIS
- Delimiter: Comma
- Date format: M/D/YYYY hh:mm:ss
- Quotation symbol: Double quotation

Item	Details
The first line	"DateTime", "Event", "Information 1", "Information 2"
From the second line	"YYYY/MM/DD hh:mm:ss", "(Operating log)", "(Information 1)", "(Information 2)"

Example: Output from February 1, 2019 to February 7, 2019

```
"DateTime" ,"Event", "Information 1", "Information 2"
"2/1/2019 09:34:12", "Software startup", "", ""
"2/1/2019 10:00:00", "Automatic collection start", "", ""
"2/1/2019 10:00:41", " Automatic collection end", "", ""
:
:
"2/7/2019 19:10:49", "File read error", "C:¥Users¥user¥Desktop", ""
"2/7/2019 19:27:34", "Software end", "", ""
```

The following table shows a list of operation log types used for record on EcoAdviser.

Operation log type	Log contents
Software startup	Startup of the software
Software exit	Exit of the software
Automatic collection start	Start of automatic collection
Automatic collection end	End of automatic collection
Automatic dashboard display update start	Start of automatic update for dashboard display
Automatic dashboard display update end	End of automatic update for dashboard display
Automatic dashboard HTML file output start	Start of automatic output of the dashboard HTML file
Automatic dashboard HTML file output end	End of automatic output of the dashboard HTML file
Automatic data file output start	Start of automatic output of the data file
Automatic data file output end	End of automatic output of the data file
Automatic daily report creation start	Start of automatic creation of the daily report
Automatic daily report creation end	End of automatic creation of the daily report
Automatic monthly report creation start	Start of automatic creation of the monthly report
Automatic monthly report creation end	End of automatic creation of the monthly report
Automatic annual report creation start	Start of automatic creation of the annual report
Automatic annual report creation end	End of automatic creation of the annual report
Automatic diagnosis start *1	Start of automatic diagnosis execution
Automatic diagnosis end *1	End of automatic diagnosis execution
Manual collection start	Start of manual collection Information 1 show the ID number of the selected collection source.
Manual collection end	End of manual collection
Input data saving start	Start of saving input data Information 1 shows the ID number of the measuring point to be saved. Information 2 shows the period of data to be saved.
Input data saving end	End of saving input data

*1: This function is for Energy Saving Data Analysis and Diagnosis Software (MES3-EAP1-AI).

Operation log type	Log contents
Manual calculation start	Start of manual calculation Information 1 shows the ID number of the measuring point to be calculated. Information 2 shows the period of data to be calculated.
Manual calculation end	End of manual calculation
Energy-loss extraction start *1	Start of energy-loss diagnosis execution
Energy-loss extraction end *1	End of energy-loss diagnosis execution
User evaluation update *1	Evaluation execution of the energy-loss factor for energy-loss factor diagnosis
User evaluation reset *1	Operation of evaluation reset
Database read error	Error occurrence of database read Information 1 shows the pass of the database file with an error occurring. Information 2 shows the error message of a run-time error.
Database write error	Error occurrence of database write Information 1 shows the pass of the database file with an error occurring. Information 2 shows the error message of a run-time error.
File read error	Error occurrence of file read Information 1 shows the pass of the file with an error occurring. Information 2 shows the error message of a run-time error.
File write error	Error occurrence of file write. Information 1 shows the pass of the file with an error occurring. Information 2 shows the error message of a run-time error.
HTTP communication error	Error occurrence of HTTP communication in the file collection Information 1 shows the IP address with an error occurring. Information 2 shows the error message of a run-time error.
File copy error	Error occurrence of file copy in the file collection Information 1 shows the file pass of the copy source. Information 2 shows the file pass of the copy destination.
Date format error	Abnormality occurrence of the date format of the data file in the file collection Information 1 shows the pass of the file with an error occurring.
Error with Excel not installed *2	Occurrence of the case Excel is not installed for report creation
Error with no user's report template file	Occurrence of the case there is no user's report template file Information 1 shows the pass of the template file.

*1: **This function is for Energy Saving Data Analysis and Diagnosis Software (MES3-EAP1-AI).**

*2: When the Excel purchased from Microsoft store has been installed, the error with Excel not installed will occur. Use the desktop version of Excel.

12.2 IIS Settings

This section describes the IIS settings.

*The procedure described in this section is an example.

Depending on the computer you use, use environment, or the like, necessary settings or procedure may differ.

Please be advised that we do not provide technical support about network, other environments, and IIS.

If you have any inquiries about technical matters such as network or web browser settings, consult your network administrator.

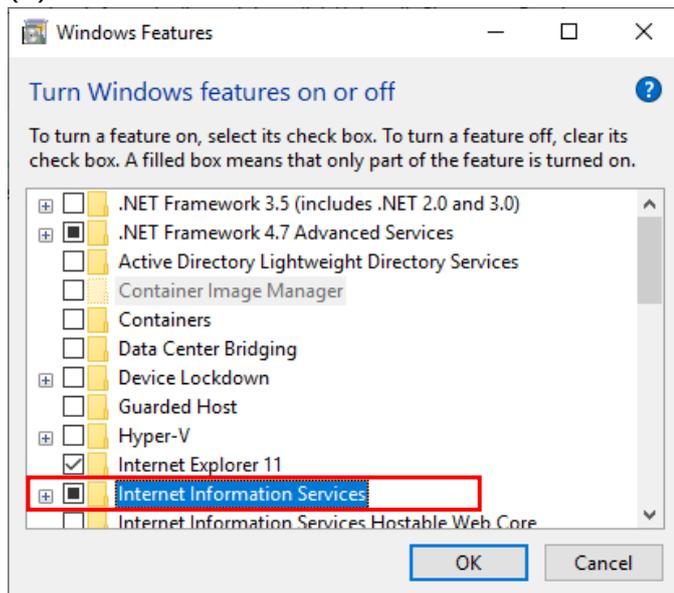
For technical support about IIS, contact Microsoft Corporation.

12.2.1 Activating IIS

Although IIS is installed as standard in Windows 10, the default setting is inactive.

Activate it as the following procedure:

- (1) From the **Start** menu, click **Windows system tool** and then select **Control panel**.
- (2) Click **Program**.
- (3) Click **Turn windows features on or off**.
- (4) Click the checkbox of **Internet information services** to mark.

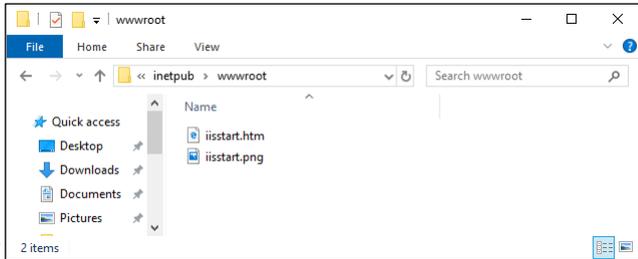


12.2.2 Activating the access right to the folder

You will create a folder to save the dashboard HTML file in the IIS root folder.
 In addition, change the authority so that ordinary users can edit the settings on EcoAdviser.

- (1) Open the root folder of IIS.

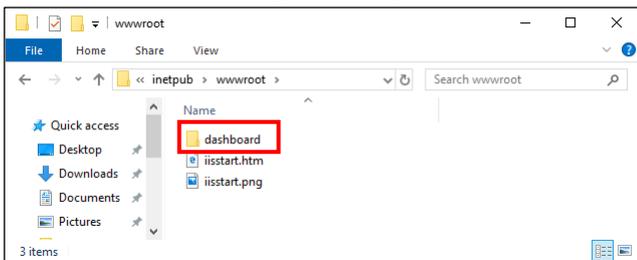
The default root folder path is 'C:\inetpub\wwwroot'.



- (2) Create a folder to save the dashboard HTML files.

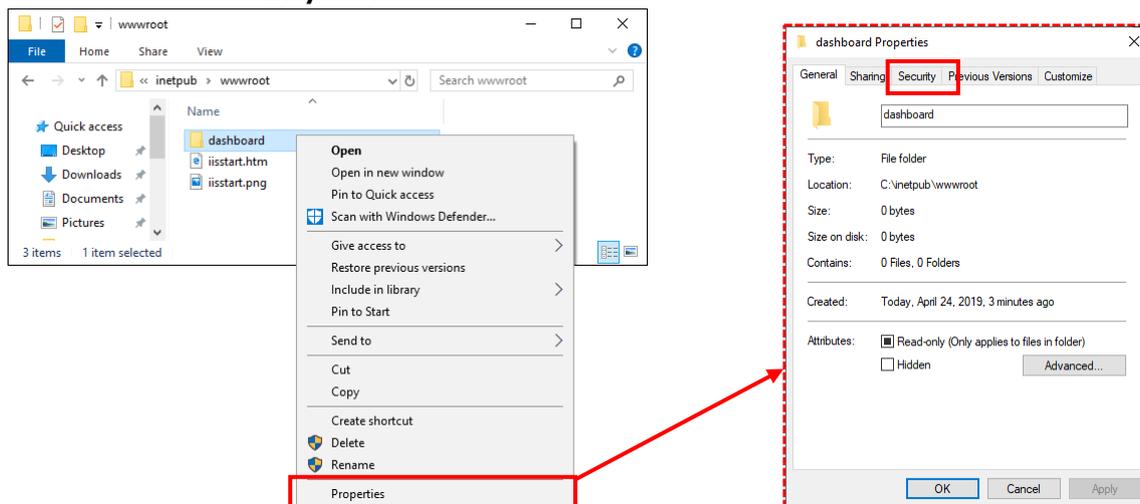
*For the HTML file output destination setting of [9.3.2 Setting the automatic dashboard output], specify the folder created here.

(In the following window, the folder name is 'dashboard'.)



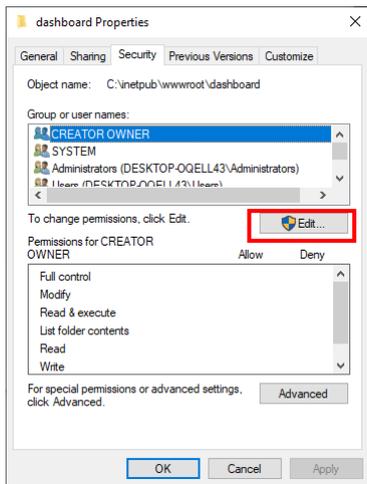
- (3) Open the **Properties** of the folder.

Select the **Security** tab.



(4) The following window appears.

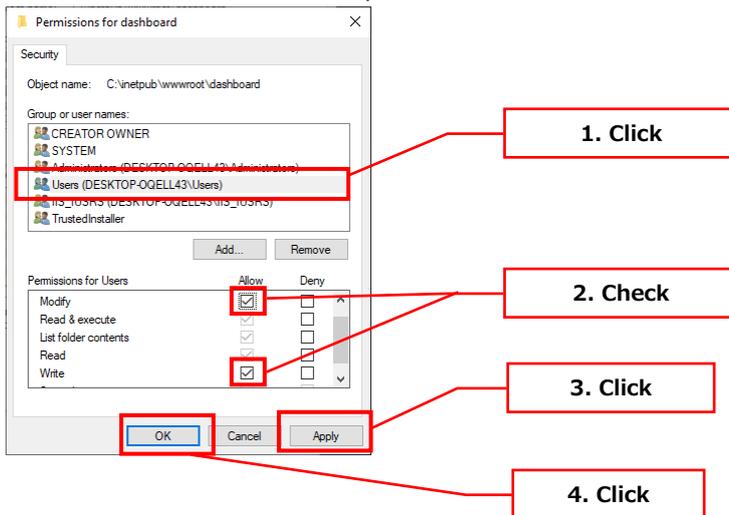
Click the **Edit** button.



(5) Click **Users** (Username using EcoAdviser) and then select each **Allow** checkbox of **Modify** and **Write**.

Click the **Apply** button and then click the **OK** button.

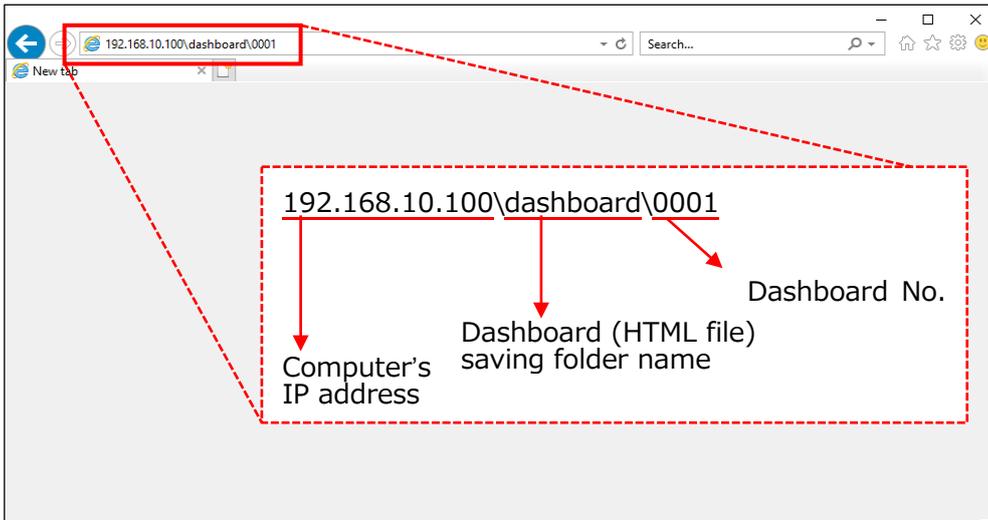
This is the end of the operation.



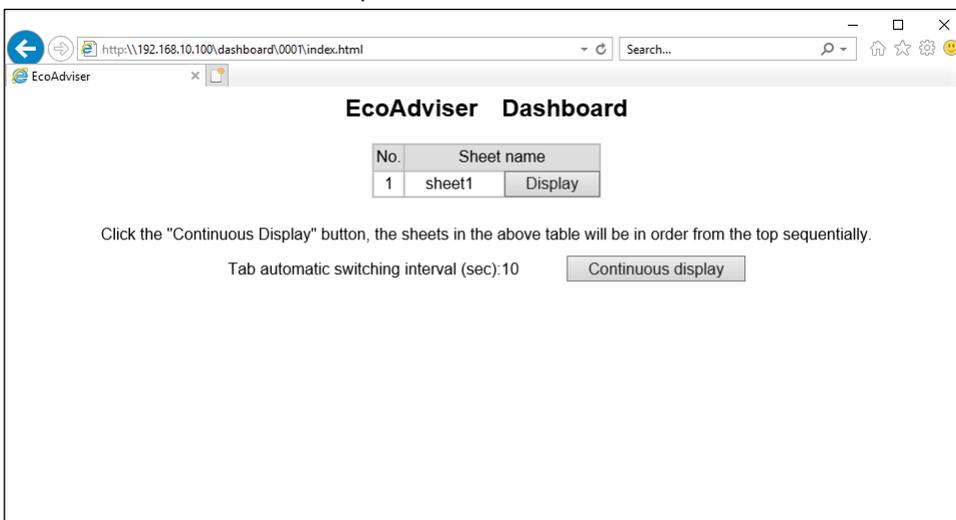
12.2.3 Displaying the dashboard HTML file

You will display the dashboard HTML file saved in the IIS root folder from the computer in the network.

- (1) Start the web browser.
- (2) Input the URL of ['Computer's IP address' \ 'Dashboard (HTML file) saving folder name' \ 'Dashboard No. in 4 digits'] and then press the **Enter** key on the keyboard.
*Dashboard (HTML file) saving folder represents the one created in [12.2.2 Activating the access right to the **folder**].



- (3) The dashboard HTML file is displayed.
This is the end of the operation.



12.3 Operation for Setting Change about Diagnosis Function

This function is for Energy Saving Data Analysis and Diagnosis Software (Model: MES3-EAP1-AI).

To change the settings related to the diagnosis function, operate as the following procedure.

Note that the start of the procedure changes depending on the setting item.

Refer to the following procedure and check the method you need.

(1-1)	<p>You must re-register the equipment.</p> <p>Register a new piece of equipment using the changed setting. For details on the registration, refer to [4.2.2 Registering/Changing the equipment information].</p>	(1-2)	<p>You must re-register the energy-loss factor.</p> <p>Register a new energy-loss factor using the changed setting. For details on the registration, refer to [4.2.5 Setting/Editing the energy-loss factor].</p>
↓		↓	
(2)	<p>Collect data from the collection source. For details, refer to [5.1 Manual Collection].</p>		
↓			
(3)	<p>Perform the energy-loss diagnosis or improvement result check using the changed setting. Manually perform the diagnosis or wait until the automatic diagnosis is performed. To perform manually energy-loss diagnosis, refer to [7.3 Energy-Loss Diagnosis by Manual Operation]. To check the improvement result, refer to [7.5 Improvement Result Check]. For automatic diagnosis, refer to [6 Auto Execute Settings].</p>		
↓			
(4)	<p>This is the end of the operation.</p>		

The start of the procedure for each setting item (1/2)

Setting item		Start of procedure
Equipment setting	Equipment name	(3)
	Energy measuring point	(1-1) *1
	Name of energy measuring point	(3)
	Measuring type of energy measuring point	Do not change.
	Unit of energy measuring point	(3)
	Multiplying factor of energy measuring point	(1-1)
	Number of decimal places of energy measuring point	
	Available/Unavailable of production number measuring point	
	Production number measuring point	(1-1) *1
	Name of production number measuring point	(3)
	Measuring type of production number measuring point	Do not change.
	Unit of production number measuring point	(3)
	Multiplying factor of production number measuring point	(1-1)
	Number of decimal places of production number measuring point	
	Working hours	
	Utility measuring point	(1-1) *1
	Name of utility measuring point	(3)
	Measuring type of utility measuring point	Do not change.
	Unit of utility measuring point	(3)
	Multiplying factor of utility measuring point	(1-1)
	Number of decimal places of utility measuring point	
	Time lag adjustment of production number measuring point	(1-1)
	Takt time	
	Production volume threshold value for determining the exclusion day for diagnosis	
	Energy consumption threshold value for determining the equipment off state, Auto/Manual	
	Energy consumption threshold value for determining the equipment off state, Manual	
	Energy consumption threshold value for determining the utility off state, Auto/Manual	
	Energy consumption threshold value for determining the utility off state, Manual	
	Production mask time after the equipment start-up	
	Production mask time before the equipment shut-down	
	Break time, addition	
	Break time, deletion	
	Break time, time period change	

*1: If you change the measuring point ID, start from the step (3).

The start of the procedure for each setting item (2/2)

Setting item		Start of procedure
Energy-loss factor setting	Energy-loss factor name	(3)
	Measuring point for energy-loss factor	(1-2)
	Name of measuring point for energy-loss factor	(3)
	Measuring type of measuring point for energy-loss factor	(2)
	Unit of measuring point for energy-loss factor	(3)
	Multiplying factor of measuring point for energy-loss factor	(1-2)
	Number of decimal places of measuring point for energy-loss factor	
	Tabulation method	
	Exclusive data, addition	
	Exclusive data, deletion	
	Exclusive data, value change	
Calculation measuring point for diagnosis setting	Measuring point name	(3)
	Measuring point unit	
	Number of decimal places	(1-1)
	Calculation formula	
	Name of measuring point used in the calculation formula	(3)
	Measuring type of measuring point used in the calculation formula	(1-1)
	Unit of measuring point used in the calculation formula	(3)
	Multiplying factor of measuring point used in the calculation formula	(1-1)
	Number of decimal places of measuring point used in the calculation formula	
Electricity rate setting	Currency unit	(3)
	Electricity rate per 1 kwh	
Detailed setting	Each viewpoint setting	
Deterioration point threshold setting	Automatic/Manual	
	Manual, Value	

12.4 How to configure EcoAdviser before operating EcoWebServer III

If you wish to set up EcoAdviser before starting operation of the EcoWebServer III that will be the collection source, you can do so by following the steps below.

(1) Prepare the EcoWebServer III.

The EcoWebServer III to be prepared can be different from the actual EcoWebServer III to be operated, but the same model and version should be used.

(2) Write settings in the prepared EcoWebServer III and wait until the clock in the EcoWebServer III passes the top of the hour. When the clock in the EcoWebServer III passes the top of the hour, a zoom (1 min.) data file is generated.

(3) Download the zoom (1 min.) data file from the EcoWebServer III.

(4) Save the downloaded zoom (1 min.) data file to the computer on which EcoAdviser is installed.

(5) Register the collection source in EcoAdviser.

Register the following information. Refer to [4.1.1 Registering the collection source information] for the operation.

Data collecting: FOLDER

Collection measure data: Enable

Collection Data folder path: The location where you saved the zoom (1 min.) data file in step (4).

After you have completed the registration of the collection source, configure the various settings of EcoAdviser (e.g., Reports, etc.). The following steps are operations to be performed after the EcoWebServer III has been put into operation.

(6) Install the EcoWebServer III on site. Write the settings in the EcoWebServer III and put the EcoWebServer III into operation.

(7) Set up EcoAdviser previously configured in step (5) at the site.

Connect to the same network as the EcoWebServer III described in step (6).

(8) Change the collection source in EcoAdviser.

Change the collection source/measuring point from the pre-set collection source/measuring point to the collection source/measuring point during operation. At this time, the measuring point data of the collection source is also changed.

*You should perform this procedure after the EcoWebServer III has been put into operation and after the clock has passed the top of hour. If you perform this procedure before the clock passes the top of hour, there is a possibility of inconsistent measuring point information.

*Change the data collection settings and other settings according to the actual operation of EcoAdviser.

(9) Check to see if data is being collected from the EcoWebServer III that is in operation.

Check that data is being collected by performing “manual collection” and “output” of data using EcoAdviser. Refer to [5.1 Manual Collection] and [5.3 Output] for operation.

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- (e) sub-license, assign or transfer the rights granted to CUSTOMER hereunder.

ARTICLE 4 - LIMITED WARRANTY

- 4.1 MITSUBISHI will, free of charge, repair or replace any defective recording media upon which the SOFTWARE is recorded if the media is returned by CUSTOMER to the location where CUSTOMER obtained it within ninety (90) days from the date of initial receipt of the SOFTWARE by CUSTOMER. This limited warranty does not cover defects due to any accident, abuse or misapplication, or any cause occurring after the initial receipt of the SOFTWARE by CUSTOMER. The repair or replacement of the SOFTWARE pursuant to this Article 4.1 shall be CUSTOMER's exclusive remedy.
- 4.2 MITSUBISHI does not warrant that the functions of the SOFTWARE will meet CUSTOMER's requirements or that SOFTWARE operation will be error-free or uninterrupted.

ARTICLE 5 - LIMITATION OF LIABILITY

MITSUBISHI SHALL NOT BE LIABLE FOR ANY DAMAGES INCLUDING, BUT NOT LIMITED TO, GENERAL, DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES (INCLUDING BUT NOT LIMITED TO LOSS OF PROFITS, BUSINESS INTERRUPTION AND THE LIKE), WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY, AND EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

ARTICLE 6 - EXPORT CONTROL

CUSTOMER agrees to comply strictly with all applicable laws and regulations including but not limited to export control laws and regulations. CUSTOMER shall not, without MITSUBISHI's prior written consent and any applicable governmental approval, carry out or export the SOFTWARE, directly or indirectly, to any country other than the country where CUSTOMER initially obtained the SOFTWARE.

ARTICLE 7 - TERM AND TERMINATION

- 7.1 Unless terminated under this Agreement, this Agreement shall continue in effect indefinitely.
- 7.2 MITSUBISHI may terminate this Agreement if CUSTOMER fails to comply with any of the terms and conditions of this Agreement.
- 7.3 CUSTOMER may, with one (1) month prior written notice to MITSUBISHI, terminate this Agreement.
- 7.4 On termination of this Agreement for any reason, all CUSTOMER's rights granted by under this Agreement shall be automatically terminated and CUSTOMER shall promptly cease to use all the SOFTWARE and, at CUSTOMER's costs, i) shall promptly return all copies of the SOFTWARE to MITSUBISHI or ii) shall promptly destroy all copies of the SOFTWARE and submit to MITSUBISHI a certificate testifying that all copies of the SOFTWARE have been destroyed.

ARTICLE 8 - MISCELLANEOUS

- 8.1 This Agreement shall be governed in all respects by the laws of Japan.
- 8.2 CUSTOMER agrees and acknowledges that CUSTOMER's breach or threatened breach of this Agreement will cause irreparable injury to MITSUBISHI and that, in addition to any other remedies that may be available, in law, in equity or otherwise, MITSUBISHI shall be entitled to obtain injunctive relief against threatened breach of this Agreement or the continuation of any such breach by CUSTOMER in any competent court.

**Mitsubishi Electric Energy Saving Support Software
EcoAdviser
Energy Saving Data Analysis Software
Energy Saving Data Analysis and Diagnosis Software**

Please refer to our website for service network.

Our website address: <https://www.mitsubishielectric.com/fa/>