



Energy Measuring Unit
Logging Unit Utility

INSTRUCTION MANUAL

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1 Introduction

Logging Unit Utility is utility software to use Energy Measuring Unit with Logging Unit. This manual explains the operation of Logging Unit Utility. Please read this manual carefully to ensure correct use.

This manual is written on the assumption that you understand the basic operations of Microsoft Windows and Microsoft Excel. If there is anything unclear about them, refer to the manual for them.

Please refer to the manual of each product for the handling of the Energy Measuring Unit and Logging Unit.

1.1 Disclaimer

- Please confirm "Software License Agreement" in the end of a book enough when you use this software.
- Our company does not assume the responsibility about the damage that was able to be received by the use mistake of the trouble in the system by the customer or the third party, the legal trouble, and this software, breakdowns caused while using it, and other trouble at all.
- The screen image and the operational procedure that has been described in this manual might be different according to the version of Microsoft Windows, Microsoft Excel.

1.2 Trademarks

- Microsoft, Windows, Windows8.1, Windows10 and Excel are registered trademarks or trademarks and products of Microsoft Corporation in the United States and/or other countries.
- Other company names and product names in this manual are registered trademarks or trademarks of their respective owners.
- In the text, trademark symbols such as "TM" and "®" may not be written.

1.3 Features

Logging Unit Utility has the following features.

1 Report creating

Paste the logging data preserved in the SD memory card to the report master file (Excel file).
A free form report can be created by using the original customer's report master file.

■ Report type that can be created

Report type	Content	Logging data file
Monthly	Output the 1-day cycle data for 1-month.	1-day data file
Weekly	Output the 1-hour cycle data for 7-days.	1-hour data file
Daily	Output the 1-hour cycle data for 1-day.	1-hour data file
Detailed (Min)	Output the one of 30, 15, 10, 5, 1 minute cycle data for the specified span (For 1 to 24 hours).	Detailed data file (logging cycle is 30, 15, 10, 5, 1 minute)
Detailed (Sec)	Output the 1-second cycle data for 1-hour.	Detailed data file (logging cycle is 1-second)

➤ The report type without logging data file cannot be created.

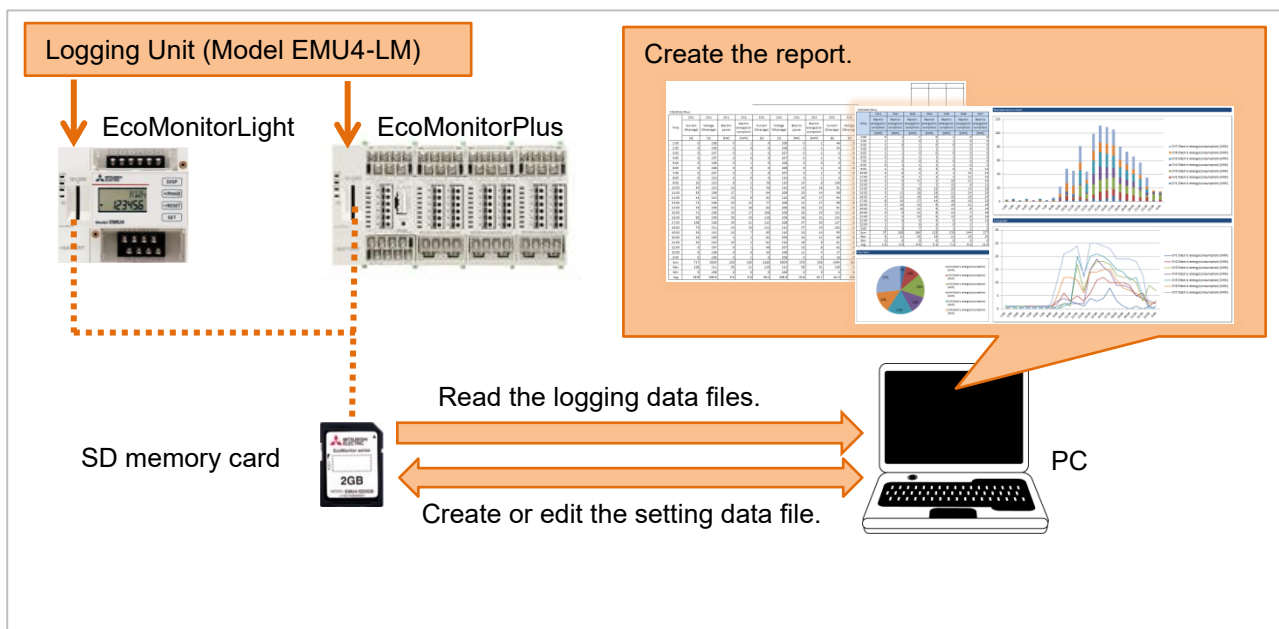
2 Logging setting

The setting data file (set.csv) can be created.
An existing setting data file can be edited.

3 Multi-language corresponding

Display the text in the selected language (English or Japanese).

1.4 System configuration



➤ In the report file, the data of one Logging Unit is pasted to one sheet.
The data of 31 Logging Units can be output in the maximum.

2 Preparation before use

This chapter explains the confirmation before Logging Unit Utility like the system requirement etc. is used.

2.1 System requirement

The system requirement for Logging Unit Utility to operate normally is as follows.

■ Hardware

Item	Contents
CPU	It conforms to the system requirement for OS.
Memory	It conforms to the system requirement for OS.
Hard disc	The free space of about 20MB is necessary for this software. (The capacity to preserve the report file is separately necessary.)
Display	High-resolution display with XGA or more (It can display 65536 colors and 1024 × 768 dots or more.)
Input devices	Mouse and keyboard
External interface	SD Memory Card slot or SD Memory Card Reader/Writer

■ Software

Item	Contents
OS	Microsoft Windows 8.1 Pro Update (32bit/64bit) Microsoft Windows 10 Pro (32bit/64bit)
.NET Framework	Microsoft .NET Framework 4 Client Profile
Excel	Microsoft Excel 2013 SP1 (32bit) Microsoft Excel 2016 (32bit)

2.2 Processes from download to the installation

Logging Unit Utility can be downloaded from the MITSUBISHI FA site.

It is possible to use it by unzip the downloaded data compressed file, and copying it onto an arbitrary place (C:\Mitsubishi folder etc.).

The installation of Logging Unit Utility is unnecessary. When the target version of the .NET Framework is not installed, then installation of the NET Framework is needed.

■ Folder composition

It becomes the following compositions when copying it onto the C:\Mitsubishi folder.

C:\Mitsubishi\	
└─ LoggingUnitUtility\	Application folder
└─ LoggingUnitUtility.exe	Execute file
└─ LoggingUnitUtility.exe.config	Configuration file
└─ en\	Language folder (English)
└─ ja\	Language folder (Japanese)

- Please do not copy it onto the program folder (C:\Program Files folder and C:\Program Files(x86) folder). There is a possibility of not operating normally.

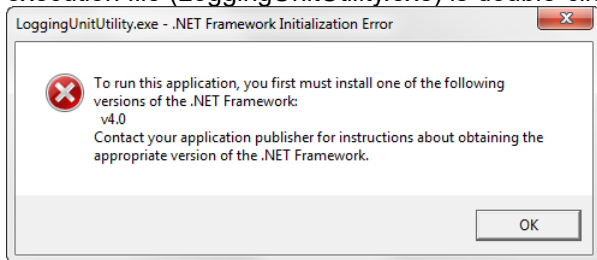
The language folder becomes the following compositions.

en\	Language folder (English)
└ Master\	Report master folder
└└ Monthly\	Monthly report master folder
└└└ SampleMonthlyReport-2.xlsx	Monthly report master file
└└ Weekly\	Weekly report master folder
└└└ SampleWeeklyReport-2.xlsx	Weekly report master file
└└ Daily\	Daily report master folder
└└└ SampleDailyReport-2.xlsx	Daily report master file
└└ Detailed_Min\	Detailed (Min) report master folder
└└└ SampleDetailedMinReport-2.xlsx	Detailed (Min) report master file
└└ Detailed_Sec\	Detailed (Sec) report master folder
└└└ SampleDetailedSecReport-2.xlsx	Detailed (Sec) report master file
└ Models\	Model define folder
└└ LoggingItem.dat	Logging item file
└└ Model.dat	Model file
└└ xxxx.dat	Logging item file by model (xxxx=0001-)

- Each report master file is a sample.
Please put it on each report master folder when you use the original customer's report master file.
- Please do not change the name and do not delete the folder and the file. It does not operate normally.
However, you may change to the file name that manages easily, and if you are unnecessary, delete a file about each report master file.

■When the installation of .NET Framework is necessary

When the target version of the .NET Framework is not installed, the following messages appear when execution file (LoggingUnitUtility.exe) is double-clicked and this software cannot be started.



Please download and install the following from Microsoft Download Center when this message is displayed.

.NET Framework 4 Client Profile

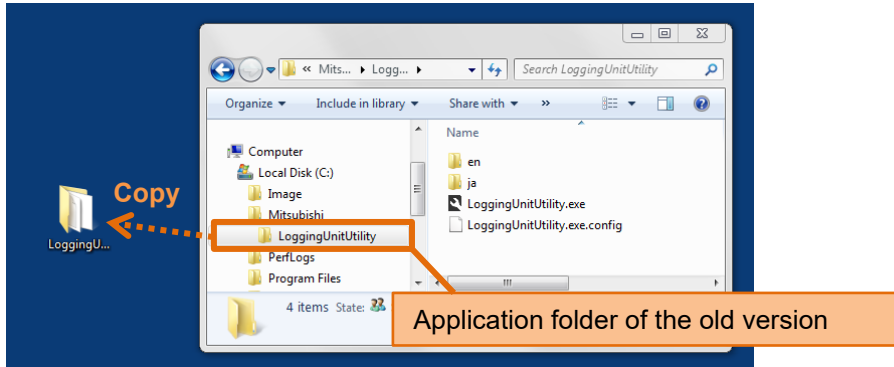
- Microsoft Download Center
<http://www.microsoft.com/download/>
- Please download the one corresponding to OS being used when is for x86(32bit) and for x64(64bit).
- Please refer to the download page for the installation.

2.3 Upgrade from the old version

When using a report master file of the customer original by the old version, please upgrade by the following procedure.

1 Back up the old version files

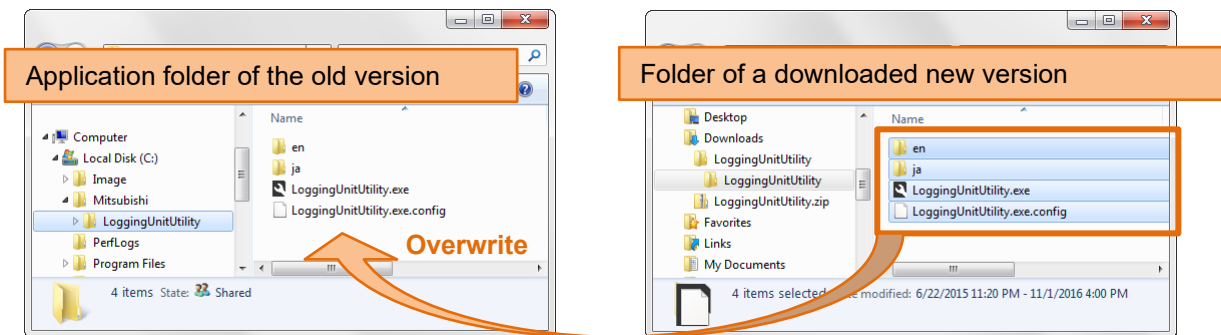
Copy the application folder of the old version to the other folder such as a desktop.



The figure above is the example when copying and using the old version in C:\Mitsubishi folder.

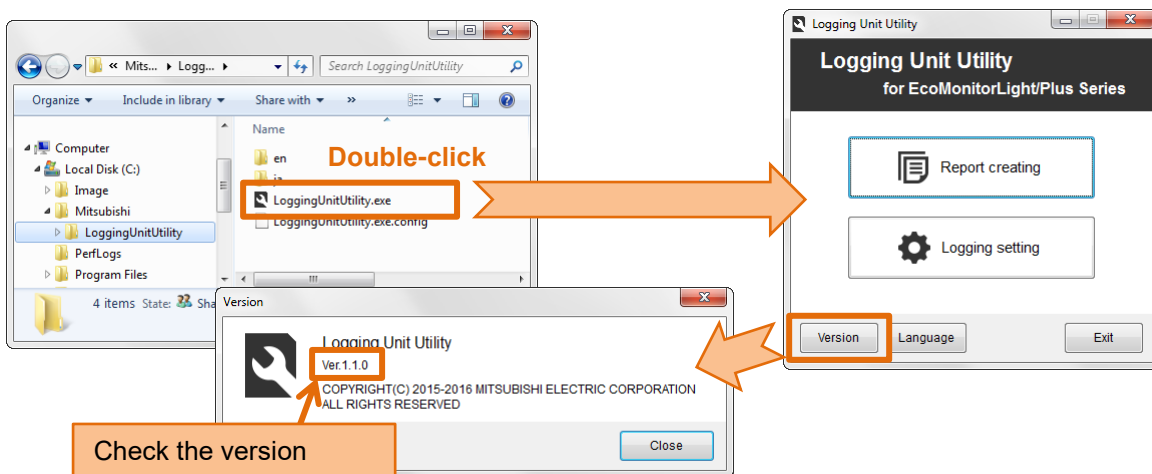
2 Copy the new version files

Copy the new version files to the application folder of the old version.



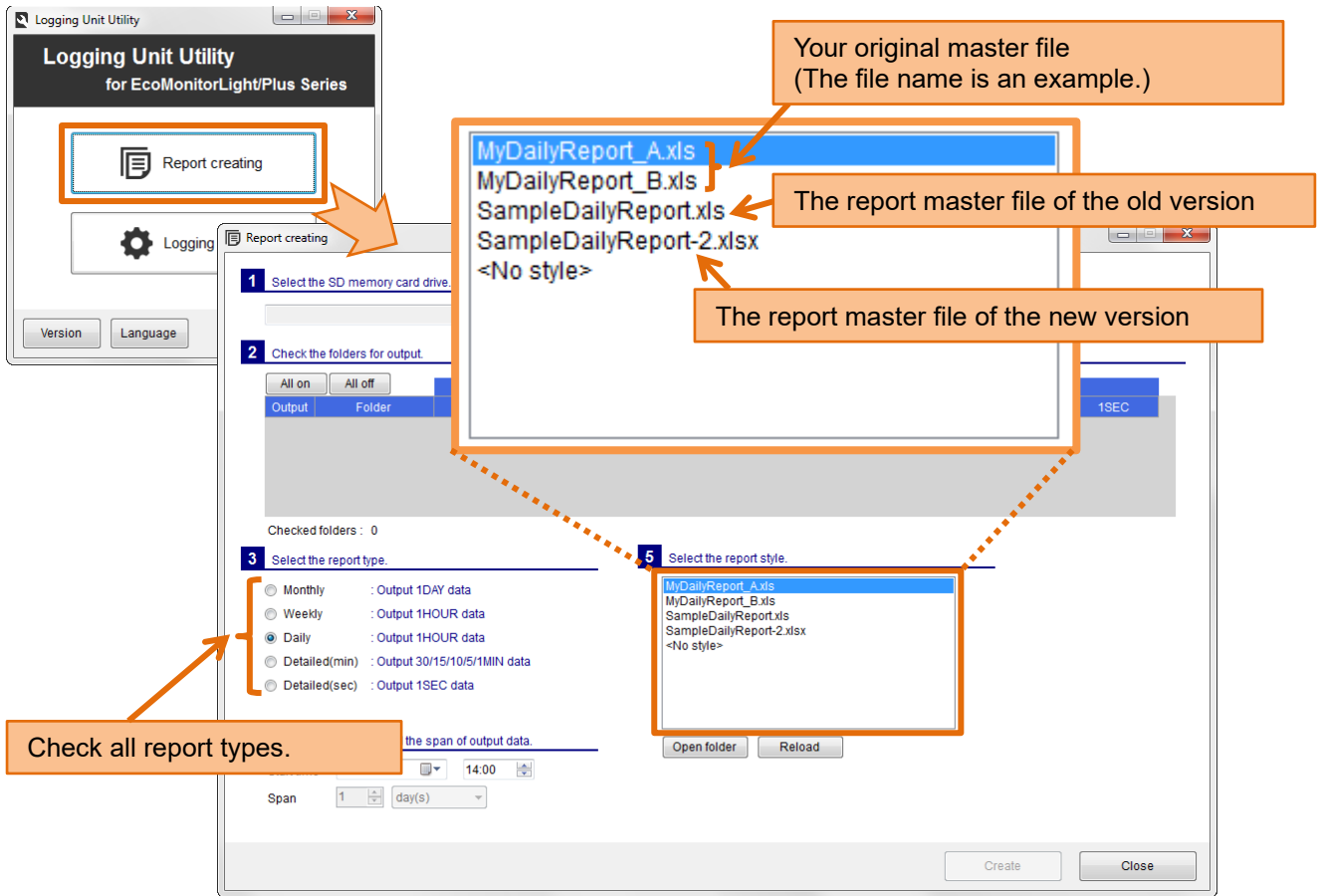
3 Check the version

Double-click the execution file, and check the version.



4 Check the report master files

Please make sure that your original report master file remains.



- If your report master file had the same name as the report master file of the new version, your report master file will be overwritten. In that case, restore from the old version of the backup.
- The report master files of the old version can be used in the new version, please delete if not necessary.

2.4 Uninstallation

Please delete copied application folder (“LoggingUnitUtility” folder) when Logging Unit Utility becomes unnecessary.

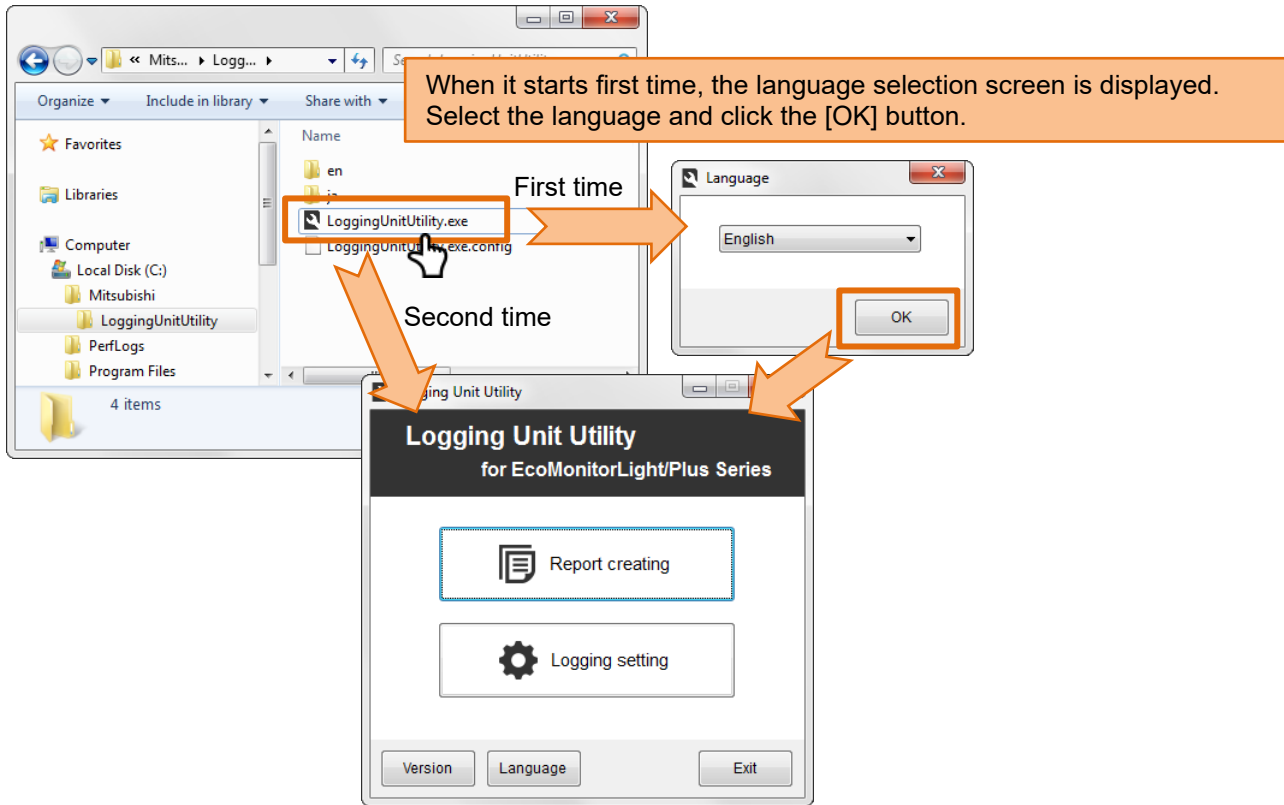
At that time, please move the necessary files such as the customer's original sample report master file to another place.

3 Basic operation

This chapter explains a basic operation of Logging Unit Utility.

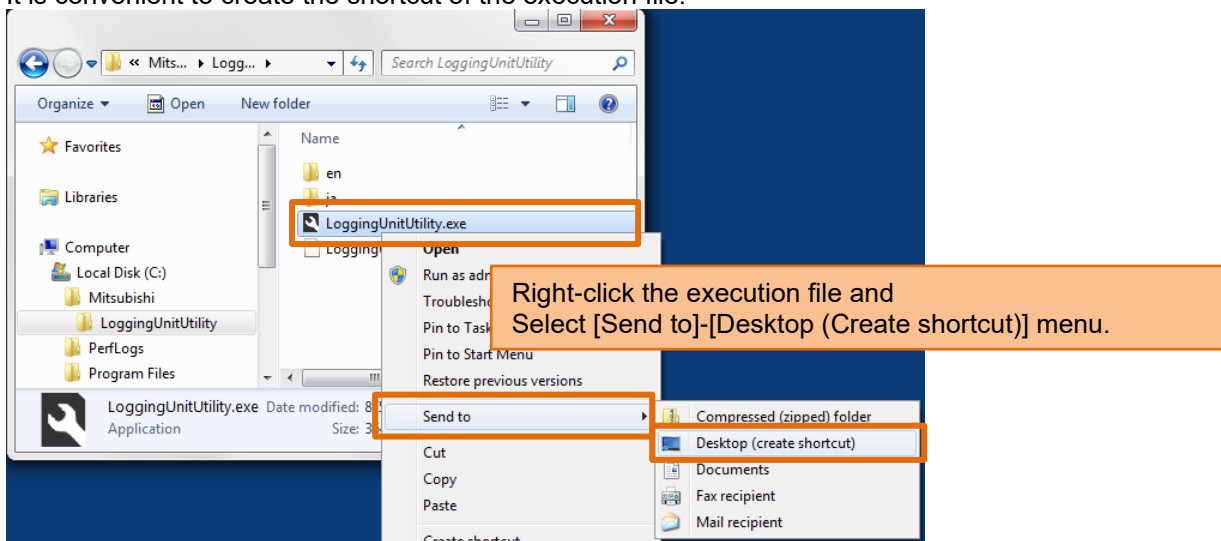
3.1 Start

Double-click the execution file of Logging Unit Utility (LoggingUnitUtility.exe).



Create shortcut

It is convenient to create the shortcut of the execution file.



3.2 Execute each function

The main window of the Logging Unit Utility for EcoMonitorLight/Plus Series contains several key elements:

- Report creating:** A button with a document icon, used to generate reports. Refer to [4 Report creating] for details.
- Logging setting:** A button with a gear icon, used to configure logging parameters. Refer to [5 Logging setting] for details.
- Version:** A button to view the software version and copyright information.
- Language:** A button to change the user interface language.

Clicking the 'Version' button opens a 'Version' dialog box showing the following information:

- Logging Unit Utility
- Ver.1.1.0
- COPYRIGHT(C) 2015-2016 MITSUBISHI ELECTRIC CORPORATION
- ALL RIGHTS RESERVED

Clicking the 'Language' button opens a 'Language' dialog box with a dropdown menu set to 'English' and an 'OK' button.

3.3 Exit

Please exit clicking the [Exit] button or [X] button of window.

The screenshot shows the main window with two specific exit points highlighted:

- The **Close (X) button** in the top-right corner of the window's title bar.
- The **Exit button** located at the bottom-right of the main interface.

4 Report creating

This chapter explains the procedure for creating reports such as daily reports and monthly reports from the data file preserved on the SD memory card.

4.1 Prepare the data file

Prepare the SD memory card where logging data files have been preserved by Logging Unit.

Please refer to the manual ([7.Directions]-[Output logging data and system log data to the SD memory card]) of Logging Unit for output logging data to the SD memory card.

The folder composition in the SD memory card is as follows.

Type of data file	Storage location			File name	Report type
	Logging ID folder	Type of data file folder	Year and month folder		
Logging data file					
1-day data file	LOGxxx	1DAY		Dyyymm.CSV	Monthly
1-hour data file		1HOUR		Hyyymmdd.CSV	Weekly, Daily
Detailed data file					
30-minutes data		30MIN	yymm	30Mdd.CSV	Detailed (Min)
15-minutes data		15MIN	yymm	15Mdd.CSV	Detailed (Min)
10-minutes data		10MIN	yymm	10Mdd.CSV	Detailed (Min)
5-minutes data		5MIN	yymm	05Mdd.CSV	Detailed (Min)
1-minute data		1MIN	yymm	01Mdd.CSV	Detailed (Min)
1-second data		1SEC	yymm	Sddhh.CSV	Detailed (Sec)
System log data file				SYS_LOG.CSV	No use

- For detailed data files, data acquired in specified “Detailed data logging cycle” is only output.
- xxx: Logging ID (001 to 255)
- yy: Last two digits of the year CE (00 to 99)
- mm: Month (01 to 12)
- dd: Day(01 to 31)
- hh: Hour(00 to 23)

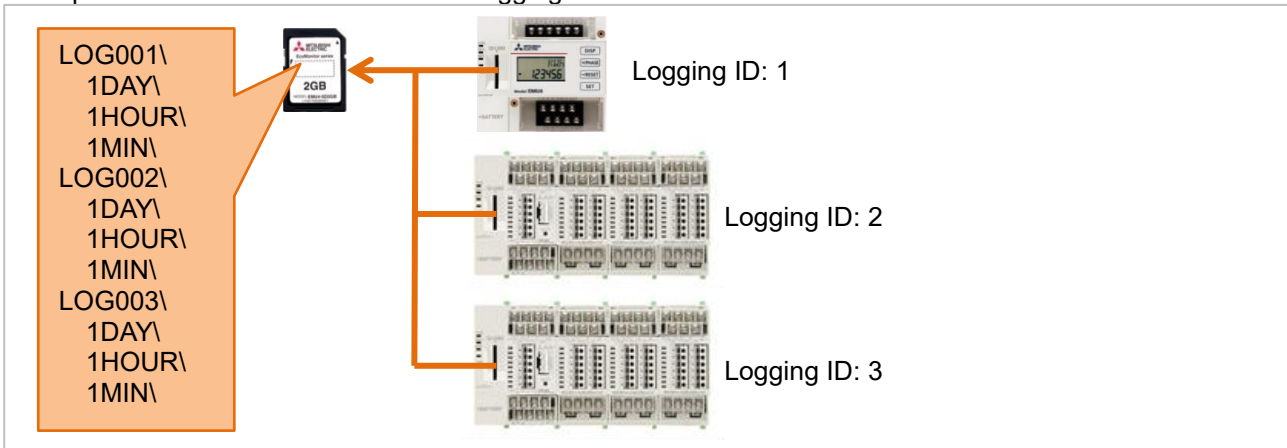
■ Use the logging data copied to computer.

The report can be created from the data file copied to the computer with the folder composition of the SD memory card maintained.

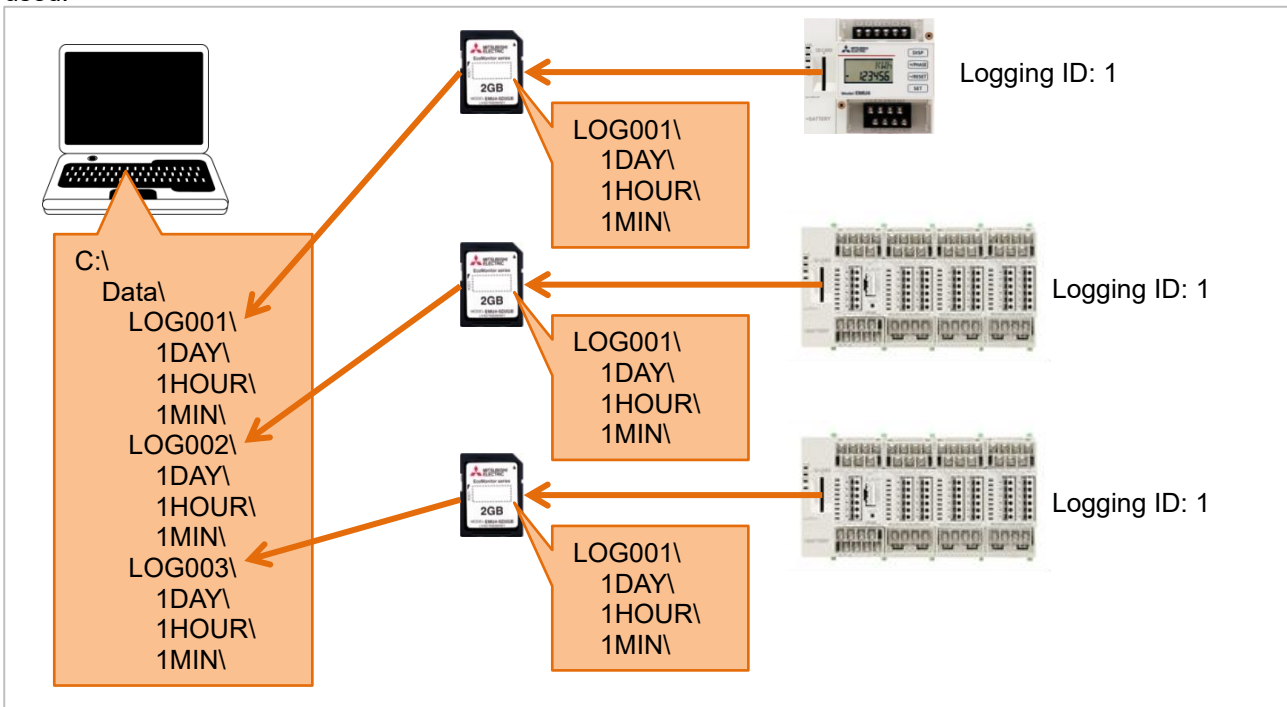
Please note that it is not possible to create it when the folder composition is different.

■ Use the logging data of two or more Logging Units

Please set separate logging ID to each Logging Unit and preserve it on the SD memory card when you create the report from the data of two or more Logging Units.



Please copy the data file of each Logging Unit to the computer so that logging ID folder name should not overlap when it has already operated by same logging ID, and one SD memory card of one Logging Unit is used.



➤ Logging ID folder name (It is LOG001, LOG002, and LOG003 in the above figure) when copying to the computer may change to the name (“Equipment A-1” and “Line 2” etc.) that manages easily. However, please do not use the name that cannot be used for the sheet name of Excel so that this folder name may become a sheet name.

Name that cannot be used for sheet name of Excel:

- Do not exceed 31 characters.
- The following character cannot be used: : \ / ? * []
- Blank

4.2 Create the report

■ Preparation

Insert the SD memory card that preserves logging data files in the computer.
When the data copied to the computer is used, the SD memory card is not necessary.

■ Outline

Operate it on the [Report creating] screen.

1) Set the item of 1 - 5 of screen.
2) Click the [Create] button.

1 Select the SD memory card drive.

F:\

2 Check the folders for output.

All on		All off		Date of the latest data file every logging cycle						
Output	Folder	1DAY	1HOUR	30MIN	15MIN	10MIN	5MIN	1MIN	1SEC	
<input checked="" type="checkbox"/>	LOG001	July, 2015	7/10/2015					7/10/2015		
<input checked="" type="checkbox"/>	LOG002	July, 2015	7/10/2015					7/10/2015		
<input checked="" type="checkbox"/>	LOG003	July, 2015	7/10/2015						7/10/2015	

Checked folders : 3

3 Select the report type.

- Monthly : Output 1DAY data
- Weekly : Output 1HOUR data
- Daily : Output 1HOUR data
- Detailed(min) : Output 30/15/10/5/1MIN data
- Detailed(sec) : Output 1SEC data

4 Select the start time and the span of output data.

Start time: 7/ 9/2015 1:00

Span: 1 day(s)

5 Select the report style.

SampleDaily/Report-2.xlsx
<No style>

Open folder Reload

Create Close

1 Select the SD memory card drive.

1 Select the SD memory card drive.

2 Check the folders for output.

All on All off

Date of the latest data file every logging cycle

When you use the data copied to the computer, you select the local folder of the computer.
Ex) when you are copying by the following folder compositions, you select "C:\Data" folder.

C:\
Data\ <- Select this folder
LOG001\
LOG002\
LOG003\

Select the SD memory card drive and click the [OK] button.

The logging ID folder ("LOG001" folder etc.) that exists under the selected folder is displayed.

1 Select the SD memory card drive.

2 Check the folders for output.

All on All off

Date of the latest data file every logging cycle

Output	Folder	1DAY	1HOUR	30MIN	15MIN	10MIN	5MIN	1MIN	1SEC
<input checked="" type="checkbox"/>	LOG001	July, 2015	7/10/2015					7/10/2015	
<input checked="" type="checkbox"/>	LOG002	July, 2015	7/10/2015					7/10/2015	
<input checked="" type="checkbox"/>	LOG003	July, 2015	7/10/2015						7/10/2015

Checked folders: 3

The date of the latest data file is displayed among data files that exist in each logging ID folder.
Ex) above figure (about "LOG001" folder)
 • The latest file of the 1DAY folder is D1507.csv
 • The latest file of the 1HOUR folder is H150710.csv
 • The latest file of the 1MIN folder is 1507\1M10.csv

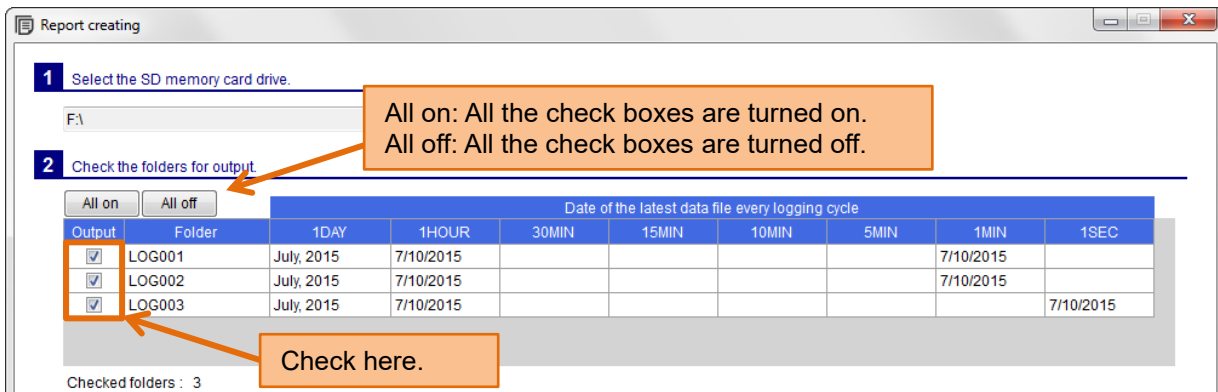
When logging ID folder with the data file does not exist in the selected folder, the message is displayed on the screen. Please select the folder again.

1 Select the SD memory card drive.

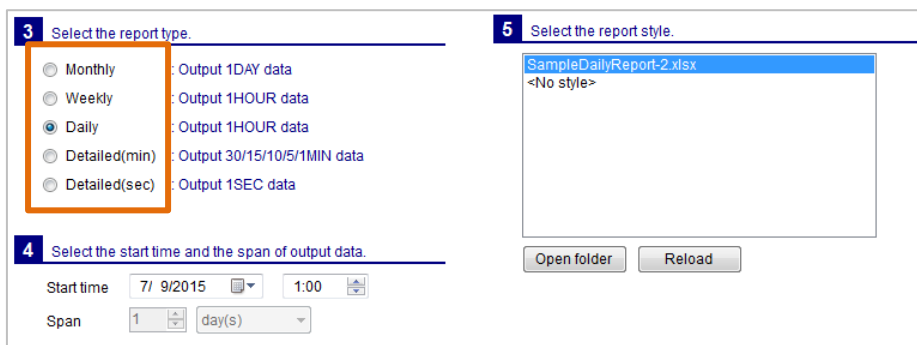
C:\

There are no data files in the selected folder.

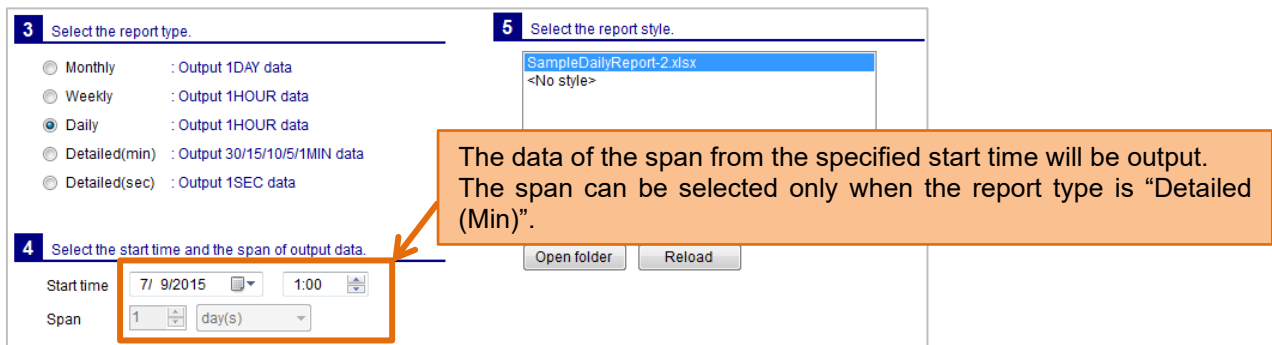
2 Check the folders for the output.



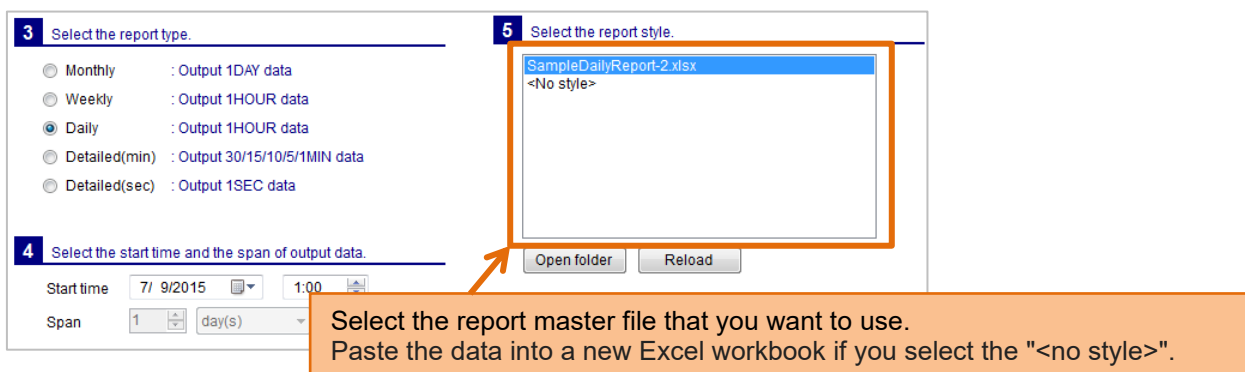
3 Select the report type.



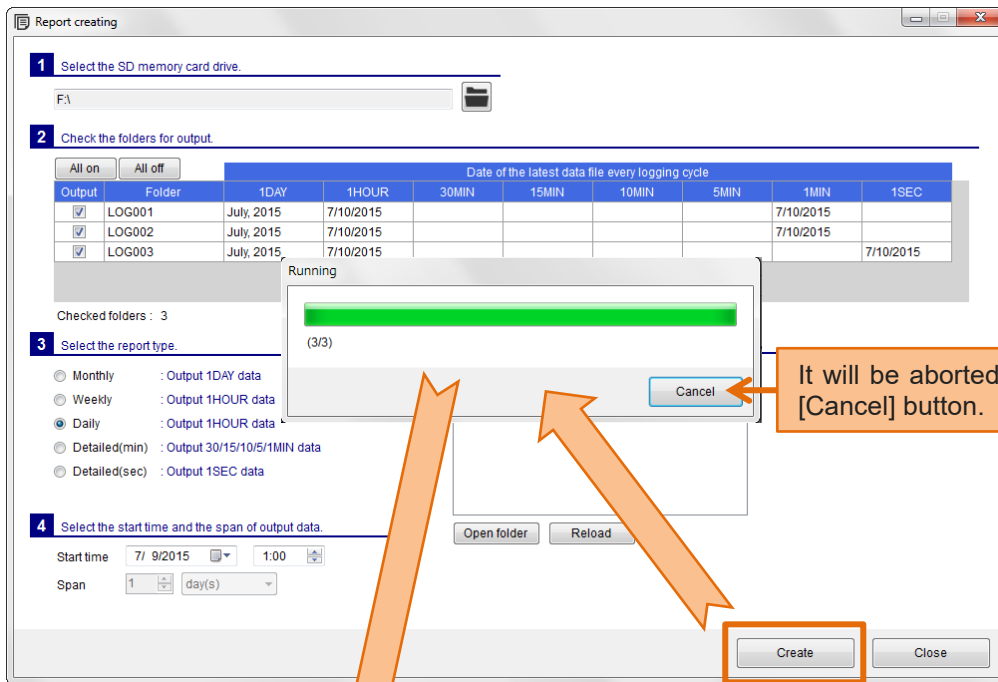
4 Select the start time and the span of output data.



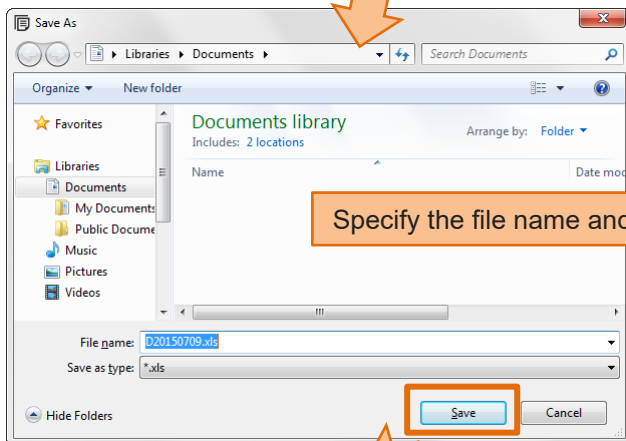
5 Select the report type.



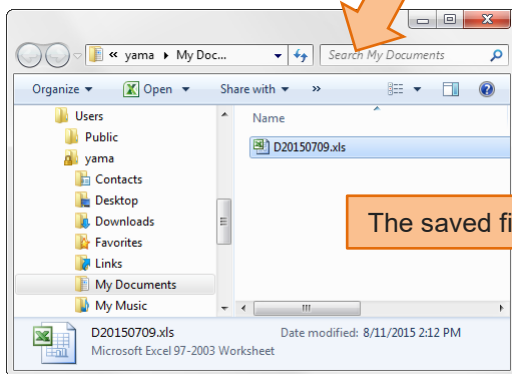
6 Click the [Create] button.



It will be aborted by clicking the [Cancel] button.



Specify the file name and click the [Save] button.



The saved file is displayed in Explorer.

Contents of the report file.

Data of the selected logging ID folder, paste to the sheet with the same name as the folder name.

The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F
1		CH1	CH1	CH1	CH1	CH2
2		Current I(Average)	Voltage V(Average)	Electric power	Electric energy(consumption)	Current I(Avera
3		[A]	[V]	[kW]	[kWh]	[A]
4	7/9/2015 1:00	0	208	0	1	
5	7/9/2015 2:00	0	208	0	0	
6	7/9/2015 3:00	0	207	0	1	
7	7/9/2015 4:00	0	207	0	0	
8	7/9/2015 5:00	0	208	0	0	
9	7/9/2015 6:00	0	208	0	0	
10	7/9/2015 7:00	0	207	0	0	
11	7/9/2015 8:00	0	210	0	0	
12	7/9/2015 9:00	25	210	0	0	
13	7/9/2015 10:00	34	210	0	0	
14	7/9/2015 11:00	53	209	0	0	
15	7/9/2015 12:00	41	210	0	0	
16	7/9/2015 13:00	71	208	0	0	
17	7/9/2015 14:00	70	209	0	0	
18	7/9/2015 15:00	71	208	0	0	
19	7/9/2015 16:00	93	209	0	0	
20	7/9/2015 17:00	106	208	0	0	
21	7/9/2015 18:00	73	211	0	0	
22	7/9/2015 19:00	34	210	0	0	
23	7/9/2015 20:00	15	209	0	0	
24	7/9/2015 21:00	31	210	0	0	
25	7/9/2015 22:00	0	207	0	0	
26	7/9/2015 23:00	0	206	0	0	
27	7/10/2015 0:00	0	206	0	0	

The 'Report creating' dialog box contains the following information:

- 1 Select the SD memory card drive.** Drive: F:\
- 2 Check the folders for output.**
 - Buttons: All on, All off
 - Table:

Output	Folder	1DAY	1HOUR	30MIN	15MIN	10MIN
<input checked="" type="checkbox"/>	LOG001	July, 2015	7/10/2015			
<input checked="" type="checkbox"/>	LOG002	July, 2015	7/10/2015			
<input checked="" type="checkbox"/>	LOG003	July, 2015	7/10/2015			
 - Checked folders : 3
- 3 Select the report type.**
 - Monthly : Output 1DAY data
 - Weekly : Output 1HOUR data
 - Daily : Output 1HOUR data
 - Detailed(min) : Output 30/15/10/5/1MIN data
 - Detailed(sec) : Output 1SEC data
- 5 Select the report style.**
 - SampleDailyReport-2.xlsx
 - <No style>

Arrows in the image point from the 'LOG001', 'LOG002', and 'LOG003' folders in the dialog to the corresponding columns in the Excel spreadsheet.

Logging data is pasted as in the following example.
 Ex) Report type: Daily, Start time: 7/9/2015 1:00

Logging data file (H150709.CSV)

	A	B	C	D	E	
1	[LOGGING]	YM_1		2	3	4
2	DATETIME[YYYY/MM/DD hh:mm:ss]	INDEX	DOUBLE[DEC.0]	DOUBLE[DEC.0]	DOUBLE[DEC.0]	
3	TIME	INDEX	CH1 A[A]	CH1 V[V]	CH1 W[kw]	
4	7/9/2015 1:00	1	0	208	0	
5	7/9/2015 2:00	2	0	208	0	
6	7/9/2015 3:00	3	0	207	0	
7	7/9/2015 4:00	4	0	207	0	
8	7/9/2015 5:00	5	0	208	0	
9	7/9/2015 6:00	6	0	208	0	
10	7/9/2015 7:00	7	0	207	0	
11	7/9/2015 8:00	8	0	210	0	
12	7/9/2015 9:00	9	25	210	8	
13	7/9/2015 10:00	10	34	210	10	
14	7/9/2015 11:00	11	53	209	17	
15	7/9/2015 12:00	12	41	210	13	
16	7/9/2015 13:00	13	71	208	23	
17	7/9/2015 14:00	14	70	209	22	
18	7/9/2015 15:00	15	71	208	23	
19	7/9/2015 16:00	16	93	209	30	
20	7/9/2015 17:00	17	106	208	35	
21	7/9/2015 18:00	18	73	211	24	
22	7/9/2015 19:00	19	34	210	10	
23	7/9/2015 20:00	20	15	209	4	
24	7/9/2015 21:00	21	31	210	10	
25	7/9/2015 22:00	22	0	207	0	
26	7/9/2015 23:00	23	0	206	0	
27	7/10/2015 0:00	24	0	206	0	

Report file

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	0	208	0
5	7/9/2015 2:00	0	208	0
6	7/9/2015 3:00	0	207	0
7	7/9/2015 4:00	0	207	0
8	7/9/2015 5:00	0	208	0
9	7/9/2015 6:00	0	208	0
10	7/9/2015 7:00	0	207	0
11	7/9/2015 8:00	0	210	0
12	7/9/2015 9:00	25	210	8
13	7/9/2015 10:00	34	210	10
14	7/9/2015 11:00	53	209	17
15	7/9/2015 12:00	41	210	13
16	7/9/2015 13:00	71	208	23
17	7/9/2015 14:00	70	209	22
18	7/9/2015 15:00	71	208	23
19	7/9/2015 16:00	93	209	30
20	7/9/2015 17:00	106	208	35
21	7/9/2015 18:00	73	211	24
22	7/9/2015 19:00	34	210	10
23	7/9/2015 20:00	15	209	4
24	7/9/2015 21:00	31	210	10
25	7/9/2015 22:00	0	207	0
26	7/9/2015 23:00	0	206	0
27	7/10/2015 0:00	0	206	0
28				

Line 1: CH1 to 7
 Line 2: Logging item name
 Line 3: Unit

Data of span

Date time

One of the logging item data in each column

- If the width of the cell is narrow, please adjust the cell width.
- Logging item name will be output in the item name that corresponds to the language used.
- Date and time will be output to the actual in seconds, but it appears to have omitted.

Depending on the start time, but with data from multiple logging data file is pasted.
 Ex) Report type: Daily, Start time: 7/9/2015 9:00

Logging data file (H150709.CSV)

	A	B	C	D
1	[LOGGING]	YM_1	2	3
2	DATETIME[YYYY/MM/DD hh:mm:ss]	INDEX	DOUBLE[DEC.0]	DOUBLE[DEC.0]
3	TIME	INDEX	CH1 A[A]	CH1 V[V]
4	7/9/2015 1:00	1	0	208
5	7/9/2015 2:00	2	0	208
6	7/9/2015 3:00	3	0	207
7	7/9/2015 4:00	4	0	207
8	7/9/2015 5:00	5	0	208
9	7/9/2015 6:00	6	0	208
10	7/9/2015 7:00	7	0	207
11	7/9/2015 8:00	8	0	210
12	7/9/2015 9:00	9	25	210
13	7/9/2015 10:00	10	34	210
14	7/9/2015 11:00	11	53	209
15	7/9/2015 12:00	12	41	210
16	7/9/2015 13:00	13	71	208
17	7/9/2015 14:00	14	70	209
18	7/9/2015 15:00	15	71	208
19	7/9/2015 16:00	16	93	209
20	7/9/2015 17:00	17	106	208
21	7/9/2015 18:00	18	73	211
22	7/9/2015 19:00	19	34	210
23	7/9/2015 20:00	20	15	209
24	7/9/2015 21:00	21	31	210
25	7/9/2015 22:00	22	0	207
26	7/9/2015 23:00	23	0	206
27	7/10/2015 0:00	24	0	206

Report file

	A	B	C
1		CH1	CH1
2		Current I(Average)	Voltage V(Average)
3		[A]	[V]
4	7/9/2015 9:00	25	210
5	7/9/2015 10:00	34	210
6	7/9/2015 11:00	53	209
7	7/9/2015 12:00	41	210
8	7/9/2015 13:00	71	208
9	7/9/2015 14:00	70	209
10	7/9/2015 15:00	71	208
11	7/9/2015 16:00	93	209
12	7/9/2015 17:00	106	208
13	7/9/2015 18:00	73	211
14	7/9/2015 19:00	34	210
15	7/9/2015 20:00	15	209
16	7/9/2015 21:00	31	210
17	7/9/2015 22:00	0	207
18	7/9/2015 23:00	0	206
19	7/10/2015 0:00	0	206
20	7/10/2015 1:00	0	208
21	7/10/2015 2:00	0	208
22	7/10/2015 3:00	0	208
23	7/10/2015 4:00	0	207
24	7/10/2015 5:00	0	207
25	7/10/2015 6:00	0	208
26	7/10/2015 7:00	0	208
27	7/10/2015 8:00	0	207
28			

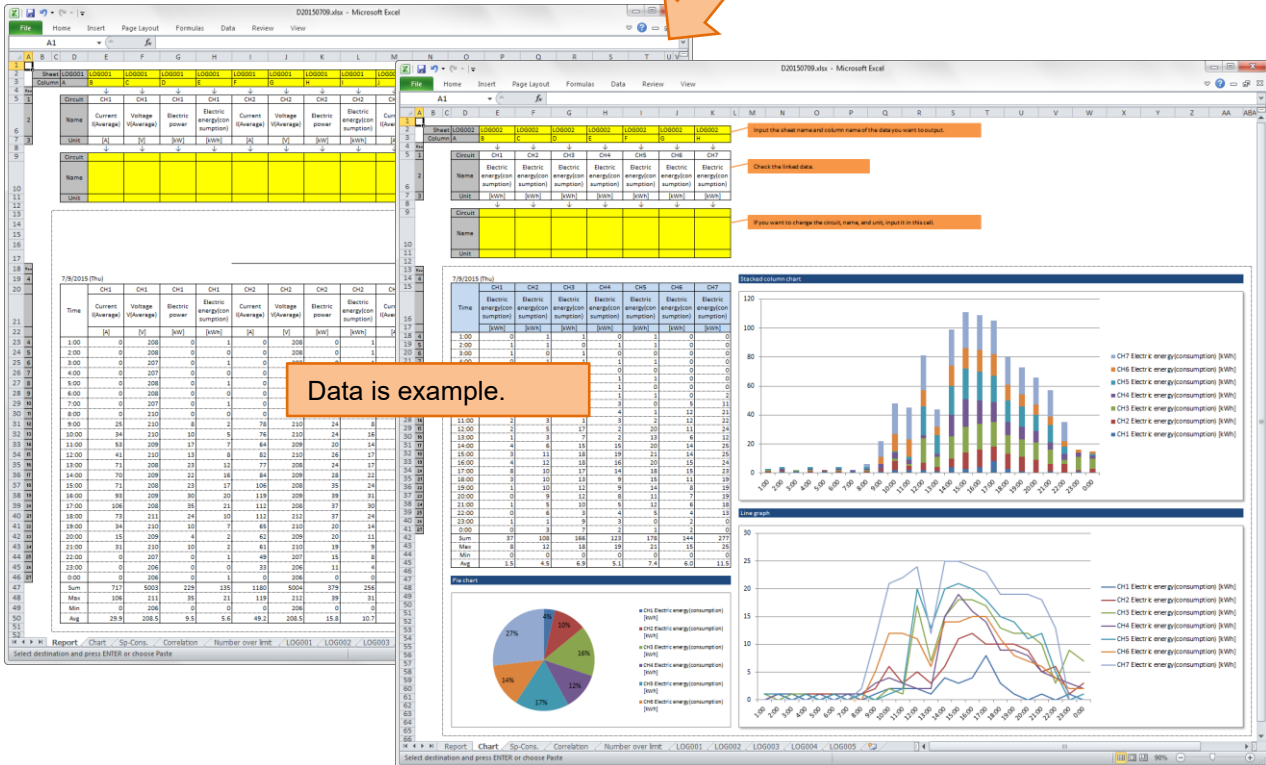
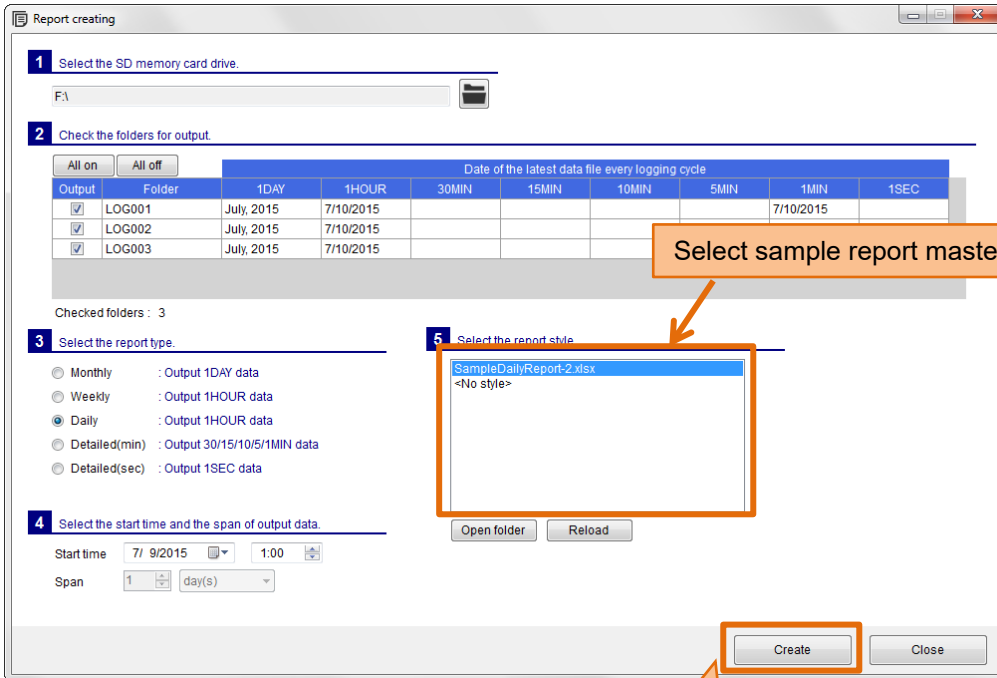
Logging data file (H150710.CSV)

	A	B	C	D
1	[LOGGING]	YM_1	2	3
2	DATETIME[YYYY/MM/DD hh:mm:ss]	INDEX	DOUBLE[DEC.2]	DOUBLE[DEC.1]
3	TIME	INDEX	CH1 A[A]	CH1 V[V]
4	7/10/2015 1:00	1	0	208
5	7/10/2015 2:00	2	0	208
6	7/10/2015 3:00	3	0	208
7	7/10/2015 4:00	4	0	207
8	7/10/2015 5:00	5	0	207
9	7/10/2015 6:00	6	0	208
10	7/10/2015 7:00	7	0	208
11	7/10/2015 8:00	8	0	207
12	7/10/2015 9:00	9	40	208
13	7/10/2015 10:00	10	45	209
14	7/10/2015 11:00	11	49	210
15	7/10/2015 12:00	12	59	209
16	7/10/2015 13:00	13	58	210
17	7/10/2015 14:00	14	77	208
18	7/10/2015 15:00	15	80	207
19	7/10/2015 16:00	16	65	207
20	7/10/2015 17:00	17	69	208
21	7/10/2015 18:00	18	62	210
22	7/10/2015 19:00	19	27	210
23	7/10/2015 20:00	20	20	208
24	7/10/2015 21:00	21	32	208
25	7/10/2015 22:00	22	14	209
26	7/10/2015 23:00	23	22	209
27	7/11/2015 0:00	24	26	209

Logging item name and unit will be output from the first of the logging data file. In first file and the second file, even if the lists of logging items are different, we can combine the data in the same column unconditionally.
 If you change the logging item, please be careful so as not to output before and after the change data in the same report. Normal to seven file (up to 8 files) used in the weekly report, require special attention.

4.3 Use the sample report style

The sample report master file is attached to Logging Unit Utility.



To use the sample

In the sample report file, by referring to the data from the data sheet (such as sheet "LOG001") has created a sample sheet of the report and chart.

Reference data has become to be modified by entering the sheet name and column names in a particular cell.

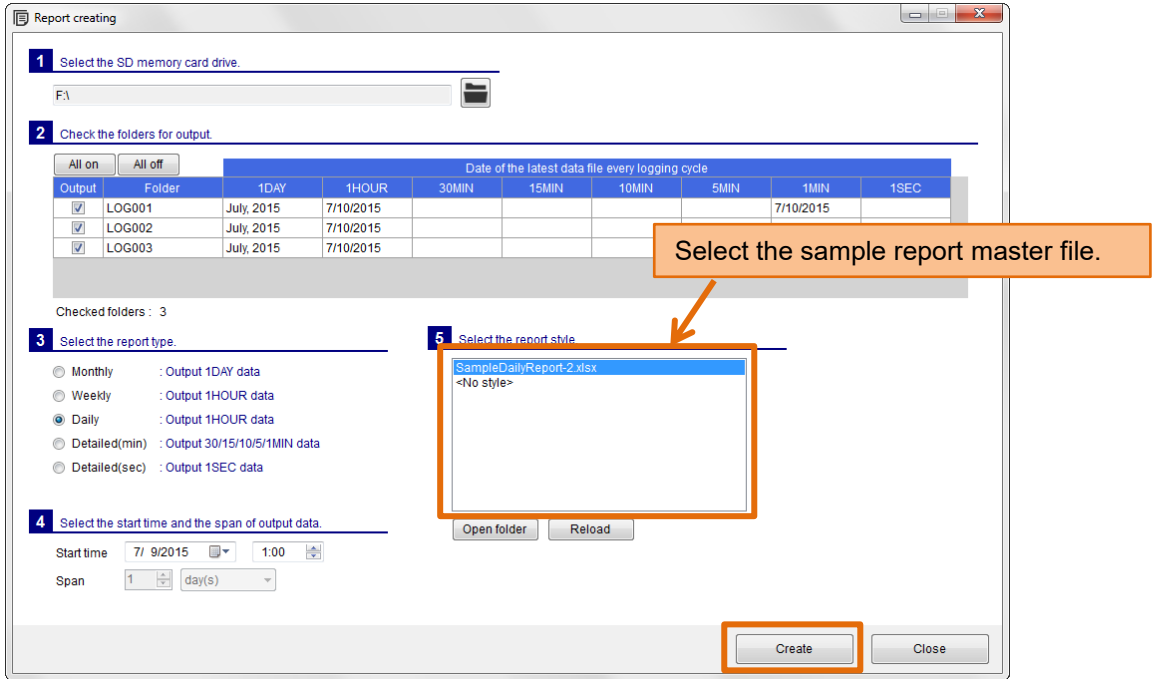
The screenshot displays a spreadsheet interface with several tables and annotations. At the top, a header table lists columns for sheets LOG001 and LOG002. A yellow cell in this table is annotated with "Input the sheet name and the column name to the yellow colored cell." Below this, a data table for "7/9/2015 (Thu)" is shown with columns for Time, Current I(Average), Voltage V(Average), Electric power, and Electric energy(cons). A yellow box highlights this data table, with an annotation "Refer to the column 'B' of sheet 'LOG001'." pointing to the "Current I(Average)" column. At the bottom, a navigation bar shows tabs for "Report", "Chart", "Sp-Cons.", "Correlation", "Number over limit", "LOG001", "LOG002", and "LOG003". The "LOG001" tab is highlighted.

The data of the logging item decided every time comes to be output beforehand by inputting the cell name as the sheet name.

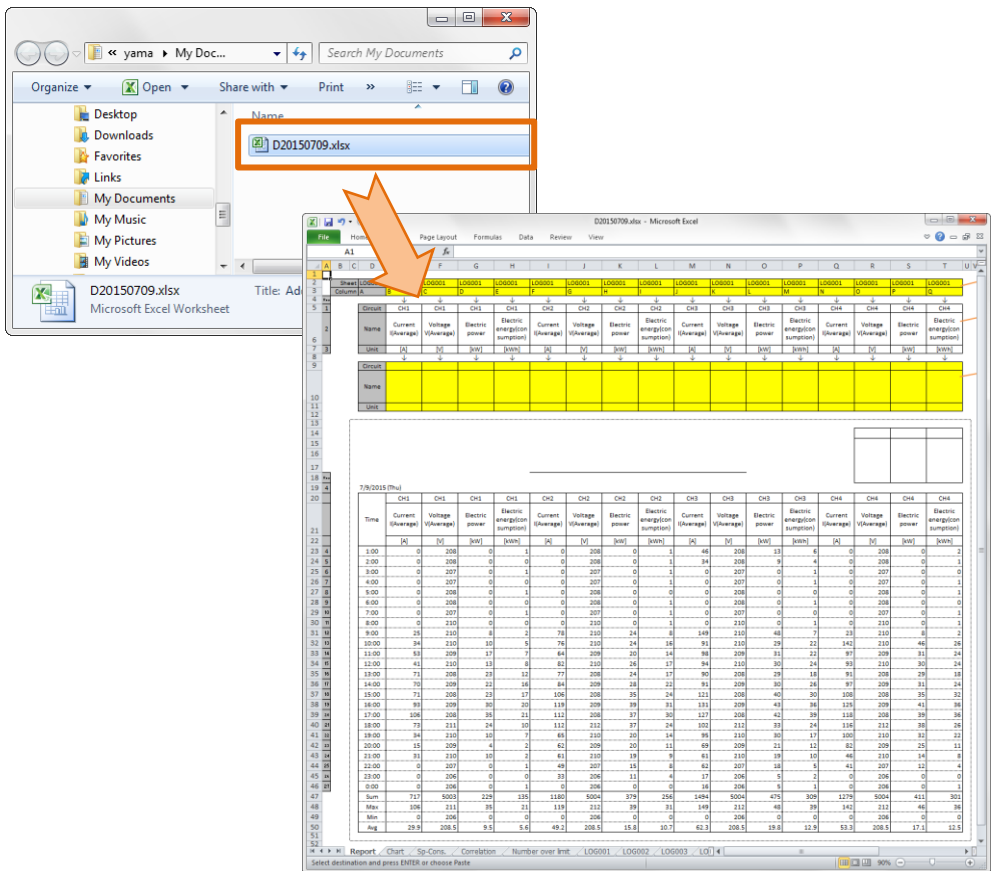
The procedure is described from next page.

The operation in Excel might be different depending on the version and the configuration of Excel.

1 Create the report specifying the sample report master file.

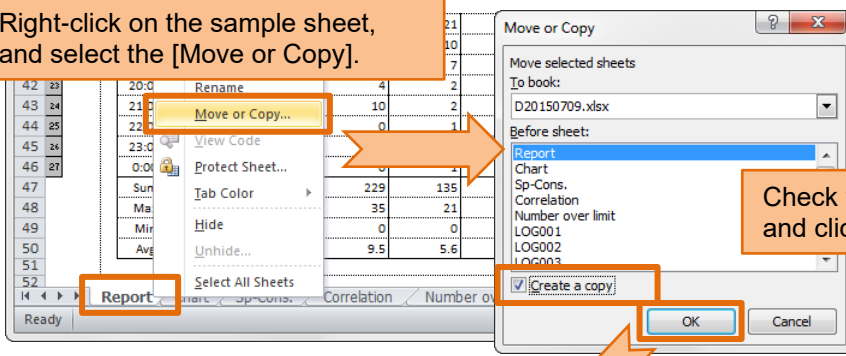


2 Open the created report file.

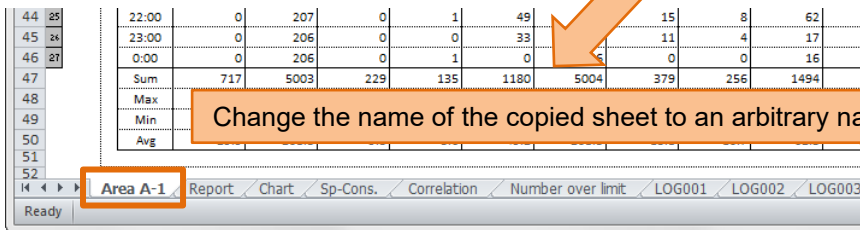


3 Copy the sample sheet.

Right-click on the sample sheet, and select the [Move or Copy].



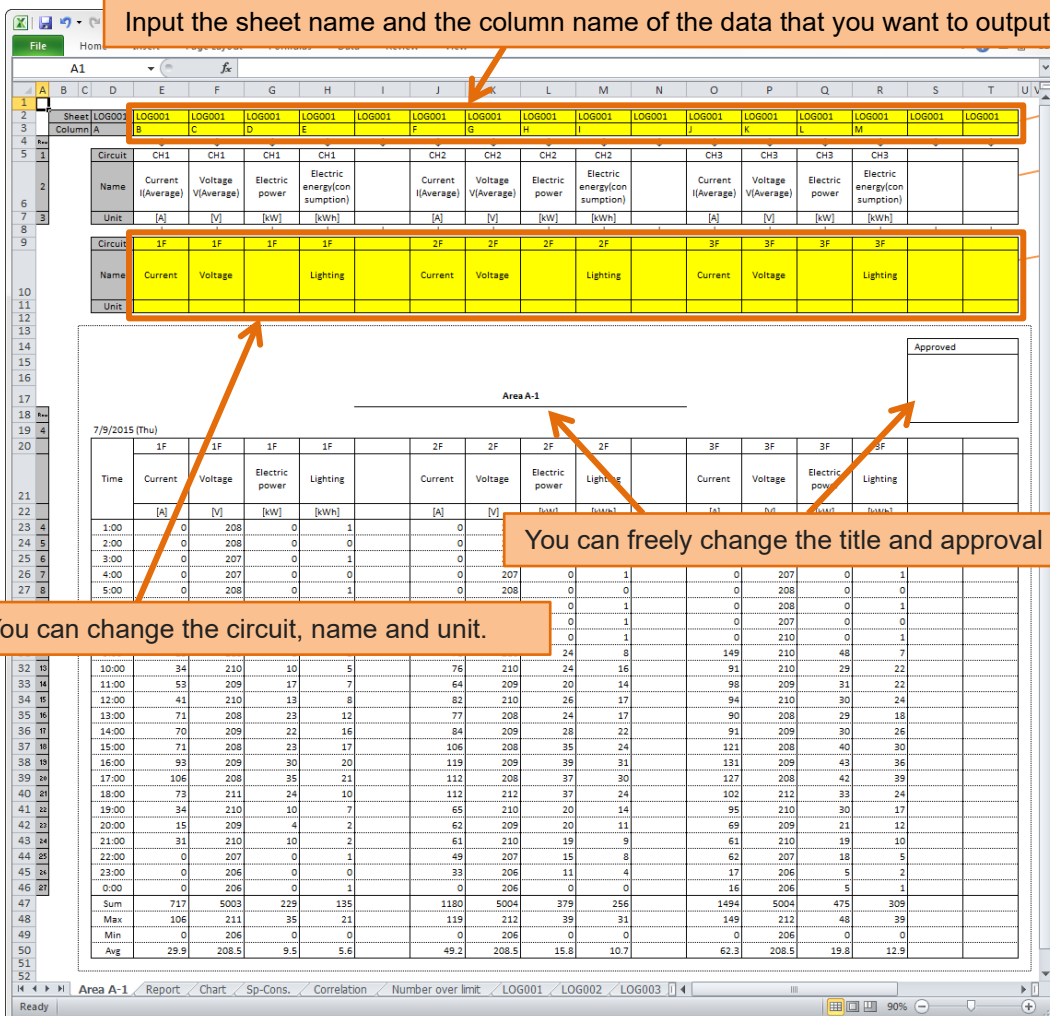
Check the [Create a copy], and click the [OK] button.



Change the name of the copied sheet to an arbitrary name.

4 Edit the copied sheet.

Input the sheet name and the column name of the data that you want to output.



You can freely change the title and approval boxes.

You can change the circuit, name and unit.

Copy this sheet, and edit it similarly.

45	23:00	0	206	0	0	33	206	11	4	17	206
46	0:00	0	206	0	1	0	206	0	0	16	206
47	Sum	717	5003	229	135	1180	5004	379	256	1494	5004
48	Max	211	119	35	21	119	212	39	31	149	212
49		206	0	0	0	0	206	0	0	0	206
50		29.9	18.5	9.5	5.6	49.2	208.5	15.8	10.7	62.3	208.5
51											
52											

5 Save the file.

Select the [Save as] of the [File] tab.

Save it with a file name that is easy to manage file.

6 Copy the saved file to the report master folder.

Click the [Open folder] button, the report master folder is opened. Copy the saved file to this folder.

7 Try using the copied report master file.

Report creating

1 Select the SD memory card drive.
F:\

2 Check the folders for output.

Output	Folder	1DAY	1HOUR	30MIN	15MIN	10MIN	5MIN	1MIN	1SEC
<input checked="" type="checkbox"/>	LOG001	July, 2015	7/10/2015					7/10/2015	
<input checked="" type="checkbox"/>	LOG002	July, 2015	7/10/2015					7/10/2015	
<input checked="" type="checkbox"/>	LOG003	July, 2015	7/10/2015						7/10/2015

Checked folders : 3

3 Select the report type.

- Monthly : Output 1DAY data
- Weekly : Output 1HOUR data
- Daily : Output 1HOUR data
- Detailed(min) : Output 30/15/10/5/1MIN data
- Detailed(sec) : Output 1SEC data

4 Select the start time and the span of output data.

Start time: 7/ 9/2015 1:00
Span: 1 day(s)

5 Select the report style.

MyDailyReport.xlsx
SampleDailyReport-2015
<No style>

Open folder Reload Create Close

Click the [reload] button to display the copied file. Select this file.

D20150709.xlsx - Microsoft Excel

Sheet	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001	LOG001
Column	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Circuit	CH1	CH1	CH1	CH1	CH2	CH2	CH2	CH2	CH3	CH3	CH3	CH3	CH3	CH3	CH3	CH3
Name	Current I(Average)	Voltage V(Average)	Electric power [kW]	Electric energy(con sumption) [kWh]	Current I(Average)	Voltage V(Average)	Electric power [kW]	Electric energy(con sumption) [kWh]	Current I(Average)	Voltage V(Average)	Electric power [kW]	Electric energy(con sumption) [kWh]	Current I(Average)	Voltage V(Average)	Electric power [kW]	Electric energy(con sumption) [kWh]
Unit	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]
Circuit	1F	1F	1F	1F	2F	2F	2F	2F	3F	3F	3F	3F	3F	3F	3F	3F
Name	Current	Voltage		Lighting	Current	Voltage		Lighting	Current	Voltage		Lighting	Current	Voltage		Lighting
Unit																

Area A-1

7/9/2015 (Thu)

Time	1F	1F	1F	1F	2F	2F	2F	2F	3F	3F	3F	3F
	Current	Voltage	Electric power	Lighting	Current	Voltage	Electric power	Lighting	Current	Voltage	Electric power	Lighting
	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]
1:00	0	208	0	1	0	208	0	1	46	208	13	6
2:00	0	208	0	0	0	208	0	1	34	208	9	4
3:00	0	207	0	1	0	207	0	1	0	207	0	1
4:00	0											
5:00	0											
6:00	0											
7:00	0											
8:00	0	210	0	0	0	210	0	1	0	210	0	1
9:00	25	210	8	2	78	210	24	8	149	210	48	7
10:00	34	210	10	5	76	210	24	16	91	210	29	22
11:00	53	209	17	7	64	209	20	14	98	209	31	22
12:00	41	210	13	8	82	210	26	17	94	210	30	24
13:00	71	208	23	12	77	208	24	17	90	208	29	18
14:00	70	209	22	16	84	209	28	22	91	209	30	26
15:00	71	208	23	17	106	208	35	24	121	208	40	30
16:00	93	209	30	20	119	209	39	31	131	209	43	36
17:00	106	208	35	21	112	208	37	30	127	208	42	39
18:00	73	211	24	10	112	212	37	24	102	212	33	24
19:00	34	210	10	7	65	210	20	14	95	210	30	17
20:00	15	209	4	2	61	209	20	11	69	209	21	12
21:00	31	210	10	2	61	210	19	9	61	210	19	10
22:00	0	207	0	1	49	207	15	8	62	207	18	5
23:00	0	206	0	0	33	206	11	4	17	206	5	2
0:00	0	206	0	1	0	206	0	0	16	206	5	1
Sum	717	5003	229	135	1180	5004	379	256	1494	5004	475	309
Max	106	211	35	21	119	212	39	31	149	212	48	39
Min	0	206	0	0	0	206	0	0	0	206	0	0
Avg	29.9	208.5	9.5	5.6	49.2	208.5	15.8	10.7	62.3	208.5	19.8	12.9

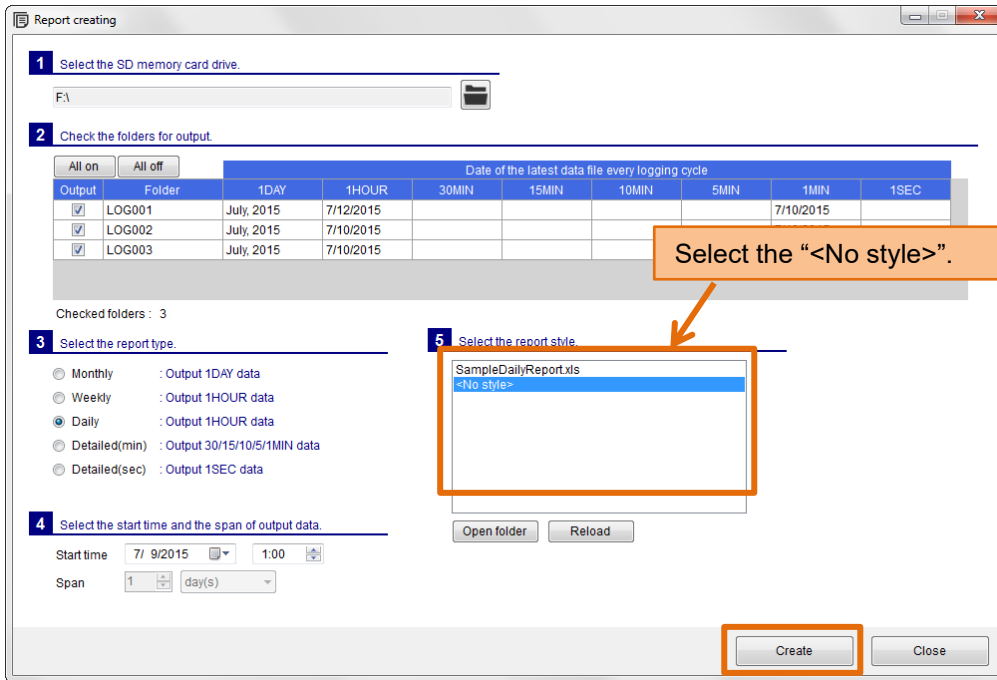
The report file using your own master file is created.

4.4 Create an original report master file

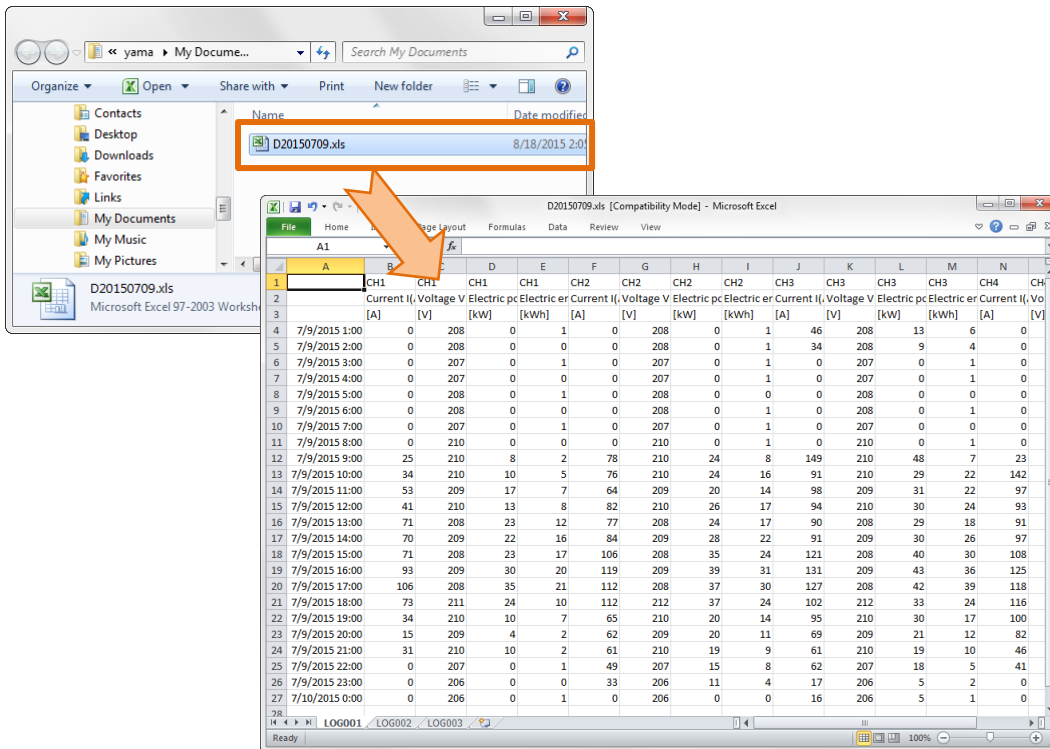
If you want to create a report and chart of your own format, let's create the original report master file. The creating procedure (example) is described as follows.

The operation in Excel might be different depending on the version and the configuration of Excel.

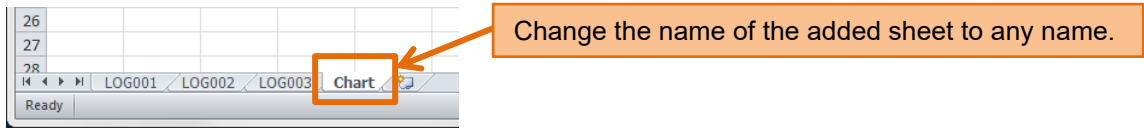
1 Create the report by "No style".



2 Open the created report file.

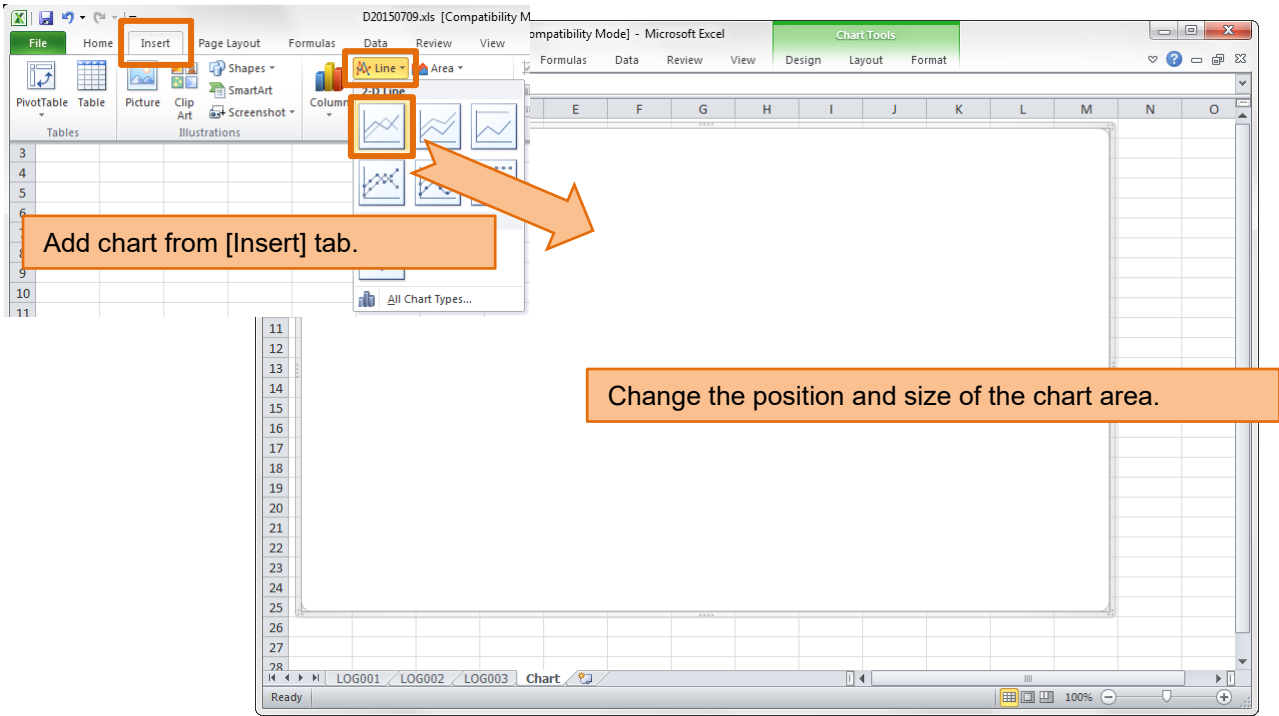


3 Add a sheet.

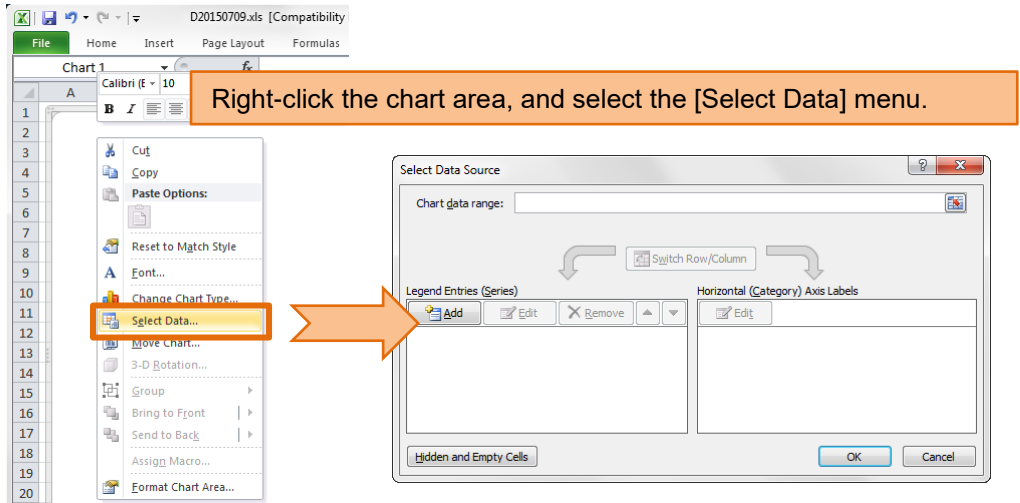


4 Edit the added sheet.

Try to add the line chart.



Start the selection of chart data.



Select a range of chart data.

Click this button.

Select the sheet that chart data exists. Select a range of data with the mouse.

	CH2	CH2	CH2	CH2	CH3	CH3	CH3	CH3	CH4	CH4					
	Electric en	Current I	Voltage V	Electric pc	Electric en	Current I	Voltage V	Electric pc	Electric en	Current I					
	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]	[A]	[V]					
3															
4	7/9/2015 1:00	0	208	0	1	0	208	0	1	46	208	13	6	0	0
5	7/9/2015 2:00	0	208	0	0	0	208	0	1	34	208	9	4	0	0
6	7/9/2015 3:00	0	207	0	1	0	207	0	1	0	207	0	1	0	0
7	7/9/2015 4:00	0	207	0	0	0	207	0	1	0	207	0	1	0	0
8	7/9/2015 5:00	0	208	0	1	0	208	0	0	0	208	0	0	1	0
9	7/9/2015 6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	7/9/2015 7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	7/9/2015 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	7/9/2015 9:00	25	0	0	0	0	0	0	0	0	0	48	7	23	0
13	7/9/2015 10:00	34	210	10	5	76	210	24	16	91	210	29	22	142	0
14	7/9/2015 11:00	53	209	17	7	64	209	20	14	98	209	31	22	97	0
15	7/9/2015 12:00	41	210	13	8	82	210	26	17	94	210	30	24	93	0
16	7/9/2015 13:00	71	208	23	12	77	208	24	17	90	208	29	18	91	0
17	7/9/2015 14:00	70	209	22	16	84	209	28	22	91	209	30	26	97	0
18	7/9/2015 15:00	71	208	23	17	106	208	35	24	121	208	40	30	108	0
19	7/9/2015 16:00	93	209	30	20	119	209	39	31	131	209	43	36	125	0
20	7/9/2015 17:00	106	208	35	21	113	208	37	20	123	208	47	38	118	0
21	7/9/2015 18:00	73	211	0	0	0	0	0	0	0	0	0	0	0	0
22	7/9/2015 19:00	34	210	0	0	0	0	0	0	0	0	0	0	0	0
23	7/9/2015 20:00	15	209	0	0	0	0	0	0	0	0	0	0	0	0
24	7/9/2015 21:00	31	210	0	0	0	0	0	0	0	0	0	0	0	0
25	7/9/2015 22:00	0	207	0	0	49	207	15	8	62	207	18	5	41	0
26	7/9/2015 23:00	0	206	0	0	33	206	11	4	17	206	5	2	0	0
27	7/10/2015 0:00	0	206	0	0	0	206	0	0	16	206	5	1	0	0

Confirm the range of chart data.

Click this button.

Click the [OK] button, the chart is displayed.

	CH1	CH1	CH1	CH1	CH2	CH2	CH2	CH2	CH3	CH3	CH3
	Current I	Voltage V	Electric pc	Electric en	Current I	Voltage V	Electric pc	Electric en	Current I	Voltage V	Electric pc
	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]	[kWh]	[A]	[V]	[kW]
4	7/9/2015 1:00	0	208	0	1	0	208	0	1	46	208
5	7/9/2015 2:00	0	208	0	0	0	208	0	1	34	208
6	7/9/2015 3:00	0	207	0	1	0	207	0	1	0	207
7	7/9/2015 4:00	0	207	0	0	0	207	0	1	0	207
8	7/9/2015 5:00	0	208	0	1	0	208	0	0	0	208
9	7/9/2015 6:00	0	0	0	0	0	0	0	0	0	0
10	7/9/2015 7:00	0	0	0	0	0	0	0	0	0	0
11	7/9/2015 8:00	0	0	0	0	0	0	0	0	0	0
12	7/9/2015 9:00	25	0	0	0	0	0	0	0	0	0
13	7/9/2015 10:00	34	210	10	5	76	210	24	16	91	210

If the horizontal axis of the chart (time axis) is not the intended display, please try to change the formatting of the axis.

Right-click the horizontal axis, and select the [Format Axis]

Change the [Axis Type] to the "Text axis".

Close

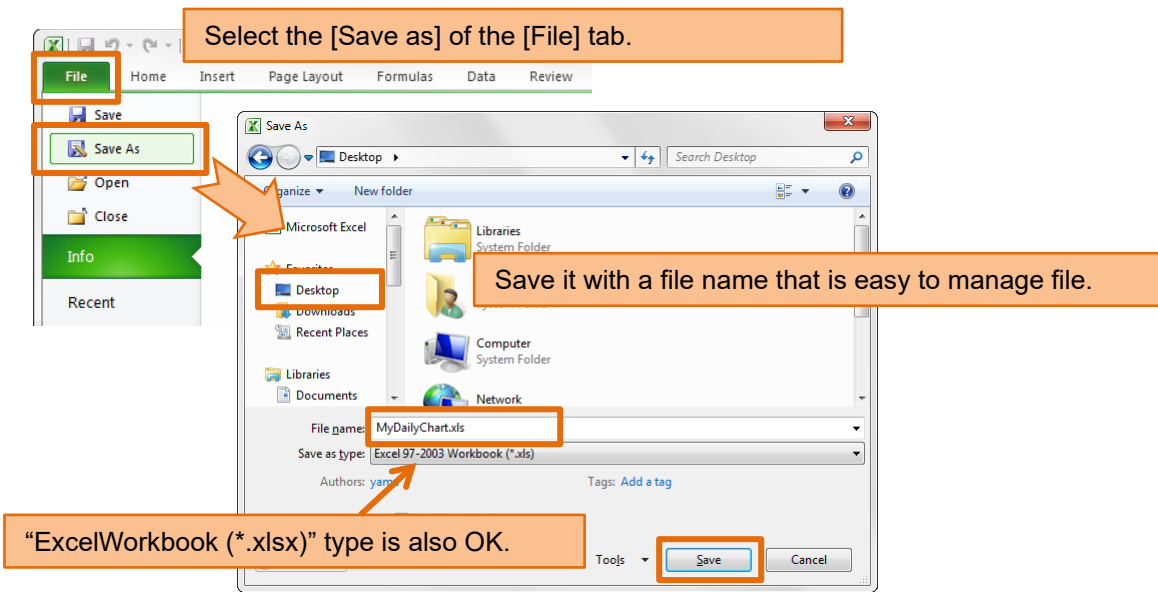
Mode] - Microsoft Excel | ChartTools
Data Review View Design Layout Format

CH1 Current I(Average) [A]
CH2 Current I(Average) [A]
CH3 Current I(Average) [A]
CH4 Current I(Average) [A]

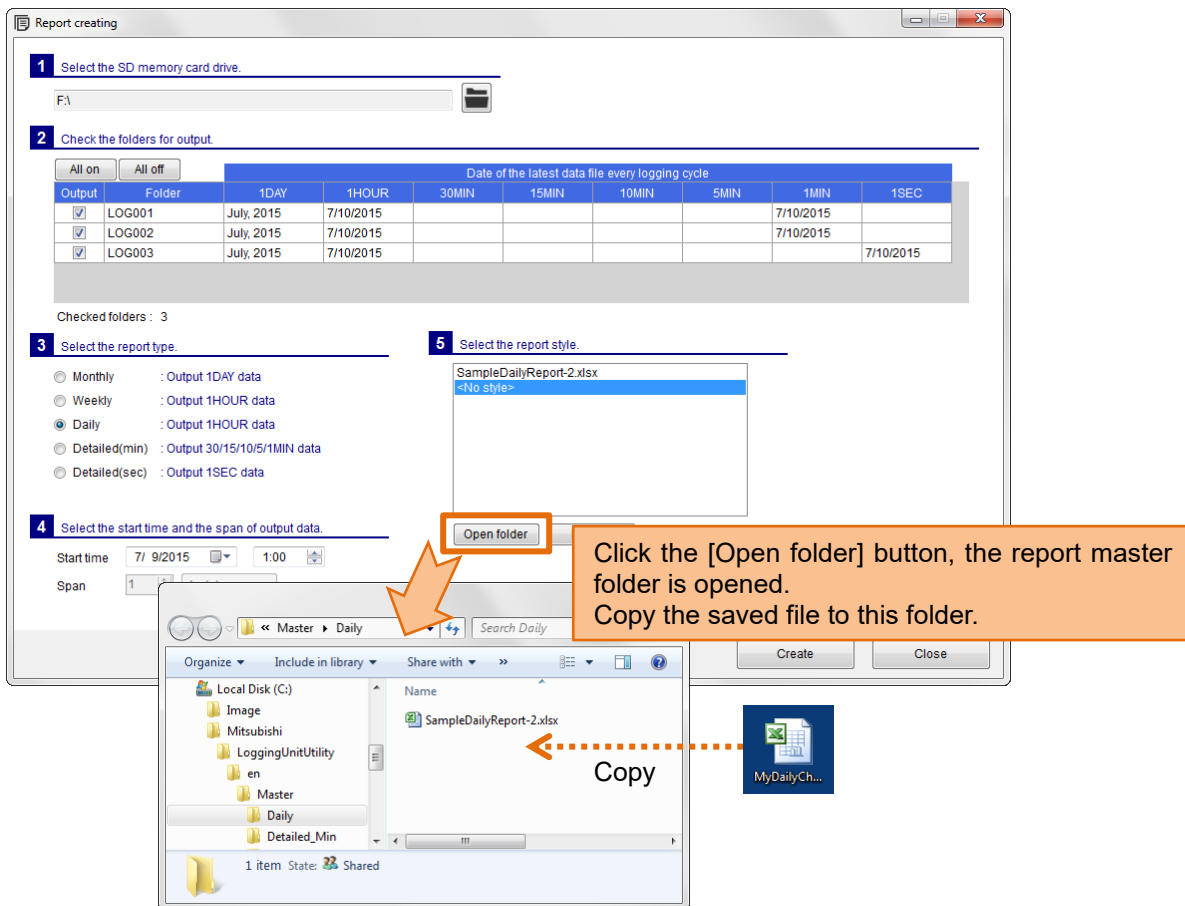
7/9/2015 1:00 7/9/2015 2:00 7/9/2015 3:00 7/9/2015 4:00 7/9/2015 5:00 7/9/2015 6:00 7/9/2015 7:00 7/9/2015 8:00 7/9/2015 9:00 7/9/2015 10:00 7/9/2015 11:00 7/9/2015 12:00 7/9/2015 13:00 7/9/2015 14:00 7/9/2015 15:00 7/9/2015 16:00 7/9/2015 17:00 7/9/2015 18:00 7/9/2015 19:00 7/9/2015 20:00 7/9/2015 21:00 7/9/2015 22:00 7/10/2015 0:00

Ready

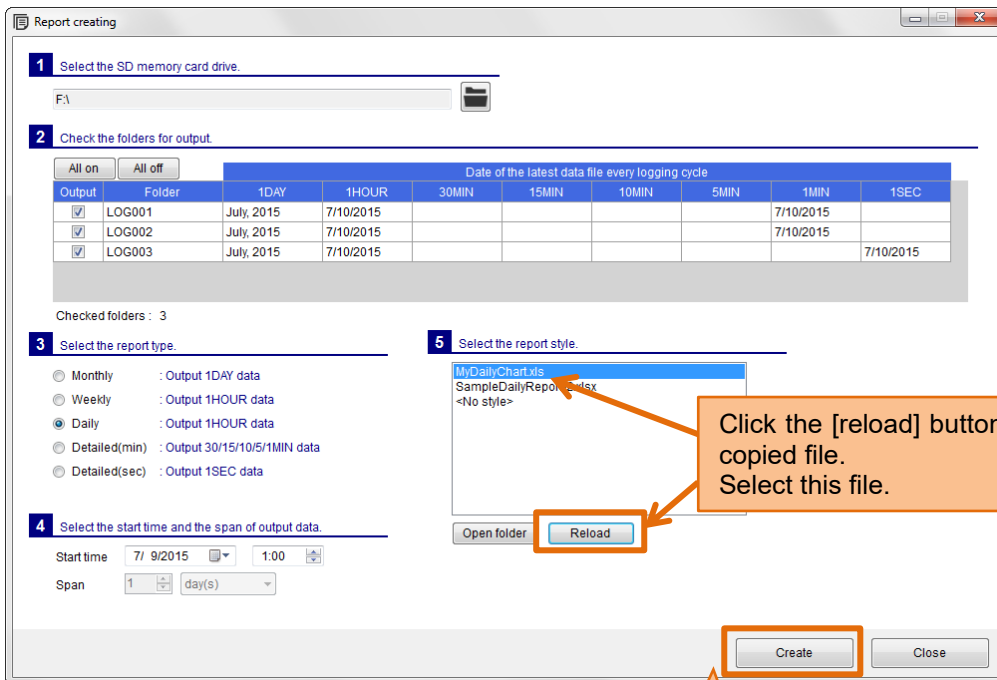
5 Save the file.



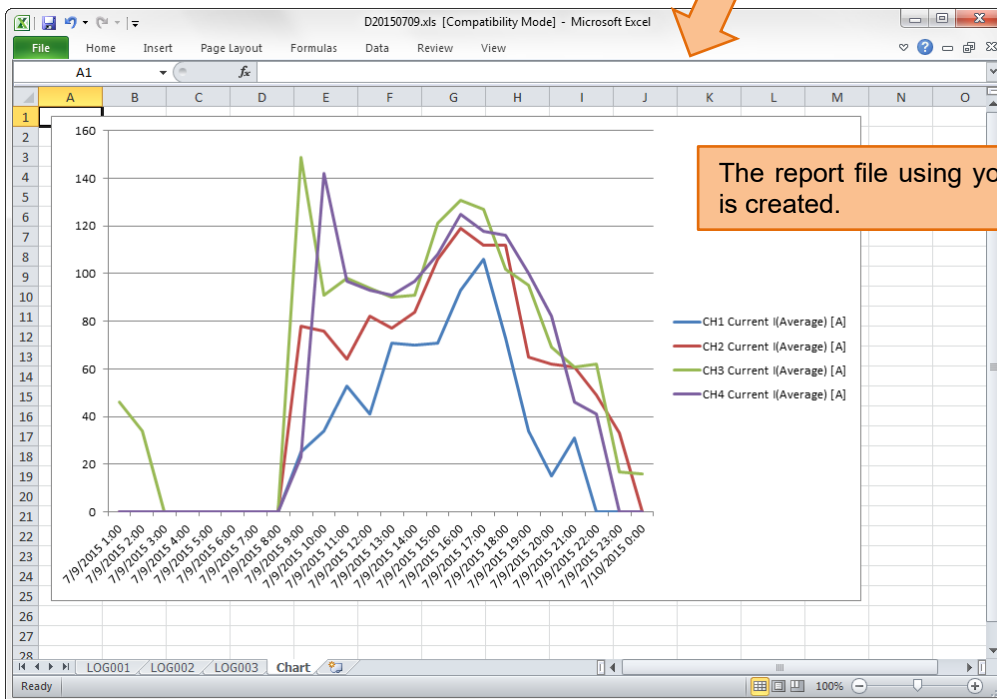
6 Copy the saved file to the report master folder.



7 Try using the copied report master file.



Click the [reload] button to display the copied file. Select this file.



The report file using your own master file is created.

5 Logging setting

This chapter explains the procedure for setting the logging condition (detailed data logging cycle and logging items, etc.) to Logging Unit.

When the logging condition of Logging Unit is changed, logging data is initialized. Please insert the SD memory card in Logging Unit before changing the setting, and preserve the logging data.

5.1 Newly do the logging setting

■ Preparation

Insert the SD memory card to preserve setting data file (set.csv) in the computer. Only when setting data file (set.csv) is preserved in a local folder of the computer, the SD memory card is not necessary.

■ Outline

Operate it on the [Logging setting] screen.

1) Set the item of 1 to 4 of screen.
2) Click the [Save] button.

The screenshot shows the 'Logging setting' window with the following sections:

- 1 Select "New" when newly creating the setting file. Select "Open" when editing the setting file.**
 - Logging ID folder: []
 - Logging ID: 1 (1-255)
- 2 Set the basic settings.**
 - Logging mode: Auto updating
 - Logging start time: 8/11/2015 0:00
 - Detailed data logging cycle: 1 minute
- 3 Select the model and the phase wire of each units.**
 - Main unit: EMU4-BM1-MB, Phase wire: 3P3W
 - Extension unit 1: EMU4-A2, Phase wire: 3P3W
 - Extension unit 2: EMU4-VA2, Phase wire: 1P2W
 - Extension unit 3: []
- 4 Set each logging items.**
 - Detailed data logging items:**
 - CH1: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH2: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH3: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH4: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH5: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH6: []
 - CH7: []
 - 1Hour data logging items:**
 - CH1: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH2: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH3: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH4: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH5: Electric power, Voltage V(Average), Current I(Average), Power factor, Electric energy(consumption), Frequency, Reactive power, Reactive energy(consumption)
 - CH6: []
 - CH7: []

Buttons: Save, Close

1 Set the logging ID.

1 Select "New" when newly creating the setting file. Select "Open" when editing the setting file.

New Open

Logging ID folder

Logging ID (1-255)

Set the same value as logging ID set to Logging Unit.

2 Set the basic settings.

2 Set the basic settings.

Logging mode: Auto updating

Logging start time: 8/11/2015 0:00

Detailed data logging cycle: 1 minute

Select "Auto updating" or "Date nomination".

Specify the date and time when logging begins. (When the logging mode is "Date nomination")

Select the detailed logging cycle from "1 second", "1 minute", "5 minutes", "10 minutes", "15 minutes", and "30 minutes"
When you select "1 second", the detailed data logging items becomes four items or less per circuit.

■ About the logging mode

Logging mode	How the Logging Unit works
Auto updating	Logging operation starts right after the settings are finished. After memorable maximum logging period, the oldest data is erased to overwrite new one with the passing of time.
Date nomination	Logging operation starts from the specified "Logging start time". After maximum logging period, logging operation is stopped automatically.

3 Select the model and the phase wire of each unit.

■ EcoMonitorLight

3 Select the model and the phase wire of each units.

Main unit: Model EMU4-BD1-MB, Phase wire 3P3W

Extension unit 1, 2, 3: (Empty)

Select the model and phase wire of EcoMonitorLight.

■ Models of EcoMonitorLight.

- EMU4-BD1-MB
- EMU4-HD1-MB
- EMU4-FD1-MB

Extension unit 1 to 3 are not used.

■ EcoMonitorPlus

3 Select the model and the phase wire of each units.

Main unit: Model EMU4-BM1-MB, Phase wire 3P3W

Extension unit 1: Model EMU4-A2, Phase wire 3P3W

Extension unit 2: Model EMU4-VA2, Phase wire 1P2W

Extension unit 3: (Empty)

Select the model and the phase wire of Main unit.

■ Models of Main unit.

- EMU4-BM1-MB
- EMU4-HM1-MB
- EMU4-LG1-MB

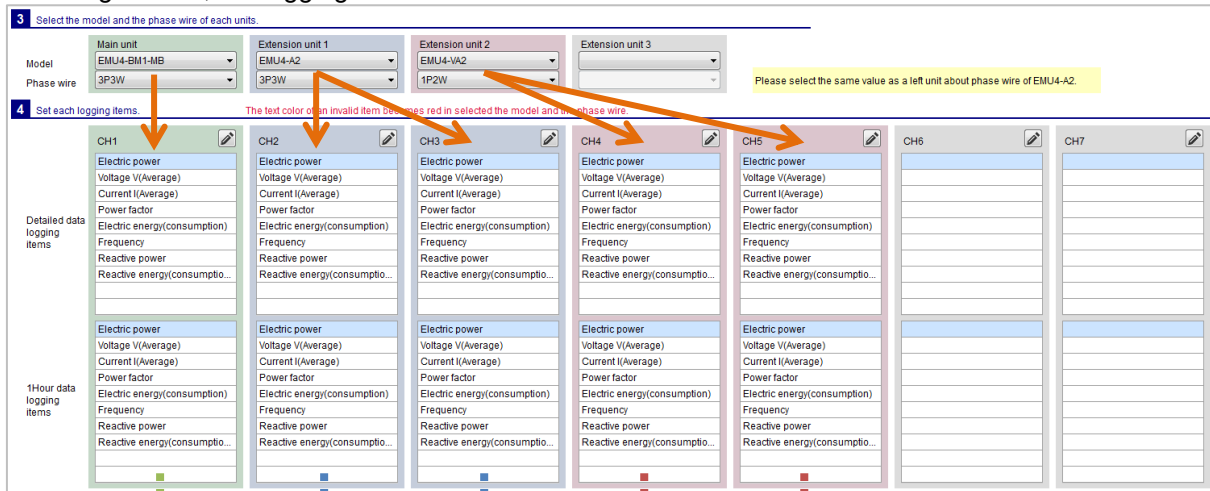
When using the Extension unit, select the model and the phase wire of Extension unit.

■ Models of Extension unit.

- EMU4-A2, EMU4-VA2
- EMU4-AX4, EMU4-PX4

■ About phase wire of EMU4-A2
Select the same value as a left unit.

When the model of each unit is selected, the background color of CH (circuit) corresponding to the unit will be changed. And, the logging items of default are set.



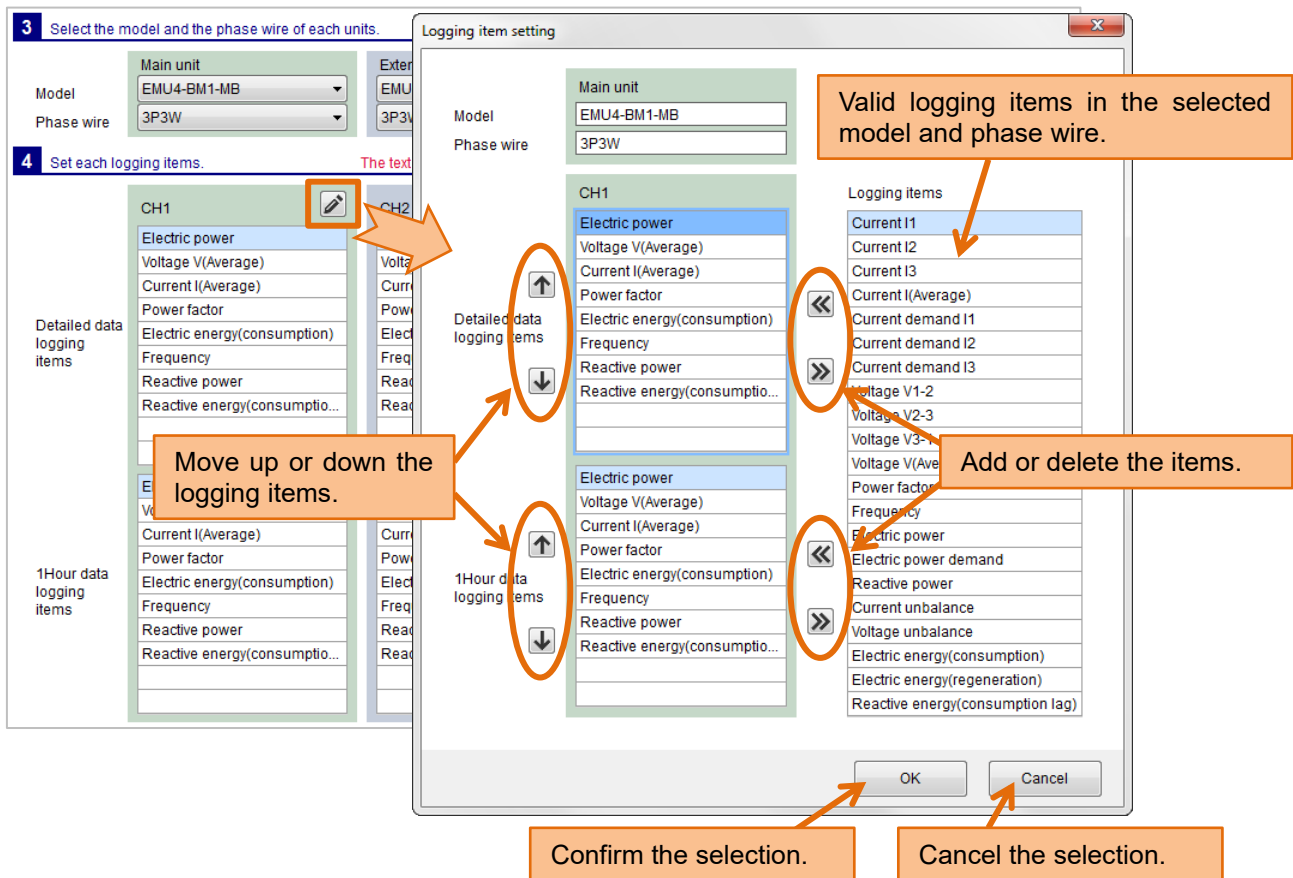
The logging items of Main unit.

The logging items of Extension unit 1. (Two circuits)

The logging items of Extension unit 2. (Two circuits)

4 Set each logging items.

Edit the logging items clicking the edit button (pencil button) of each CH (circuits).

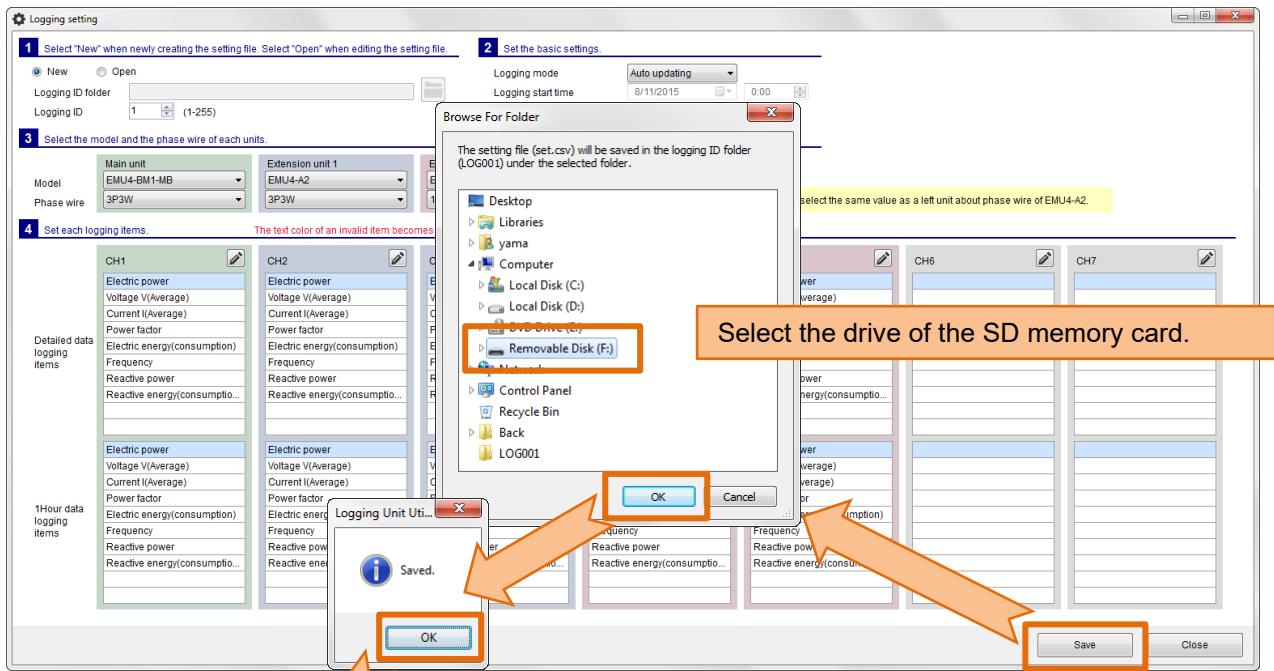


If you click while holding down the Ctrl key, you can select multiple rows.
If you click while holding down the Shift key, you can select a range.

Click this button, and the selected items of right side are copied to left side.

Click this button, and the selected items of left side are deleted.

5 Click the [Save] button.



Select the drive of the SD memory card.

The saved file is displayed in Explorer.

The folder of set logging ID is automatically created, and setting data file (set.csv) is created in that.

6 Insert the SD memory card in the Logging Unit and set the logging condition.

After inserting the SD memory card in Logging Unit, You can check the results of the settings change depending on the state of LOG.LED.

State of LOG.LED.	Results of the settings change
Blinks slowly for 5 seconds (Repetition of 0.5-second on and 0.5-second off).	The settings are changed properly.
Blinks quickly for 30 seconds (Repetition of 0.25-second on and 0.25-second off).	The setting change is failed. Confirm the model and the phase wire of the measuring unit. Confirm whether to set an invalid logging item.
Does not blink	The settings are not changed. Confirm whether it is no same as the current settings. Confirm whether the logging ID is correct.

Useful functions to editing of the logging items

When you right-click on the list of logging items, appears a menu that can copy and paste or delete.

Ex) Copy all detailed logging items of the CH1 to the CH2.

1) Select all items of the CH1.
2) Right-click and select the [Copy] menu.

3) Select the first line of the CH2.
4) Right-click and select the [Paste] menu.

Also you can use shortcut keys.
Ctrl+C key: Copy
Ctrl+V key: Paste

5) The copied logging items are pasted.

Ex) Delete the logging items from the CH1.

1) Select the logging items.
2) Right-click and select the [Delete] menu.

3) Deleted.

Also you can use shortcut keys.
Del key: Delete

Invalid logging item

The text color of an invalid item becomes red in selected the model and the phase wire.
 You must delete an invalid logging item or change to a valid logging item.
 (It is not possible to preserve it when there is a red-text logging item.)

Ex) Change the phase wire after the logging items are set.

The image shows two side-by-side screenshots of the 'Set each logging items' screen in the Logging Unit Utility. Both screenshots show 'Main unit' set to 'EMU4-BM1-MB'.
 - The left screenshot shows 'Phase wire' set to '3P3W'. The list of logging items (Current I1, Current I2, Current I3, Current I(Average), Current demand I1, Current demand I2, Current demand I3, Voltage V1-2, Voltage V2-3, Voltage V3-1) is displayed in black text.
 - An orange arrow labeled 'Change' points from the 'Phase wire' dropdown in the left screenshot to the 'Phase wire' dropdown in the right screenshot.
 - The right screenshot shows 'Phase wire' set to '1P2W'. In this view, several items in the list are highlighted in red text: Current I2, Current demand I2, Voltage V2-3, and Voltage V3-1. Arrows from an orange box on the right point to these red items.
 - The orange box contains the text: 'The text color of an invalid item becomes red.'

About the valid logging items, refer to the manual ([11.Appendix]-[List of logging items]) of Logging Unit.

5.2 Change the logging settings

■ Preparation

Insert the SD memory card that preserves setting data file (set.csv) in the computer.

Only when you edit setting data file (set.csv) preserved in a local folder of the computer, the SD memory card is not necessary.

■ Outline

Operate it on the [Logging setting] screen.

Logging Unit Utility
for EcoMonitorLight/Plus Series

Report creating

Logging setting

1) Set the item of 1 - 4 of screen.
2) Click the [Save] button.

Logging setting

1 Select "New" when newly creating the setting file. Select "Open" when editing the setting file. 2 Set the basic settings.

Logging mode: Auto updating
Logging start time: 8/19/2015 0:00
Detailed data logging cycle: 1 minute

3 Select the model and the phase wire of each units.

Model	Extension unit 1	Extension unit 2	Extension unit 3
EMU4-BM1-MB	EMU4-A2	EMU4-VA2	
Phase wire	Phase wire	Phase wire	Phase wire
3P3W	3P3W	1P2W	

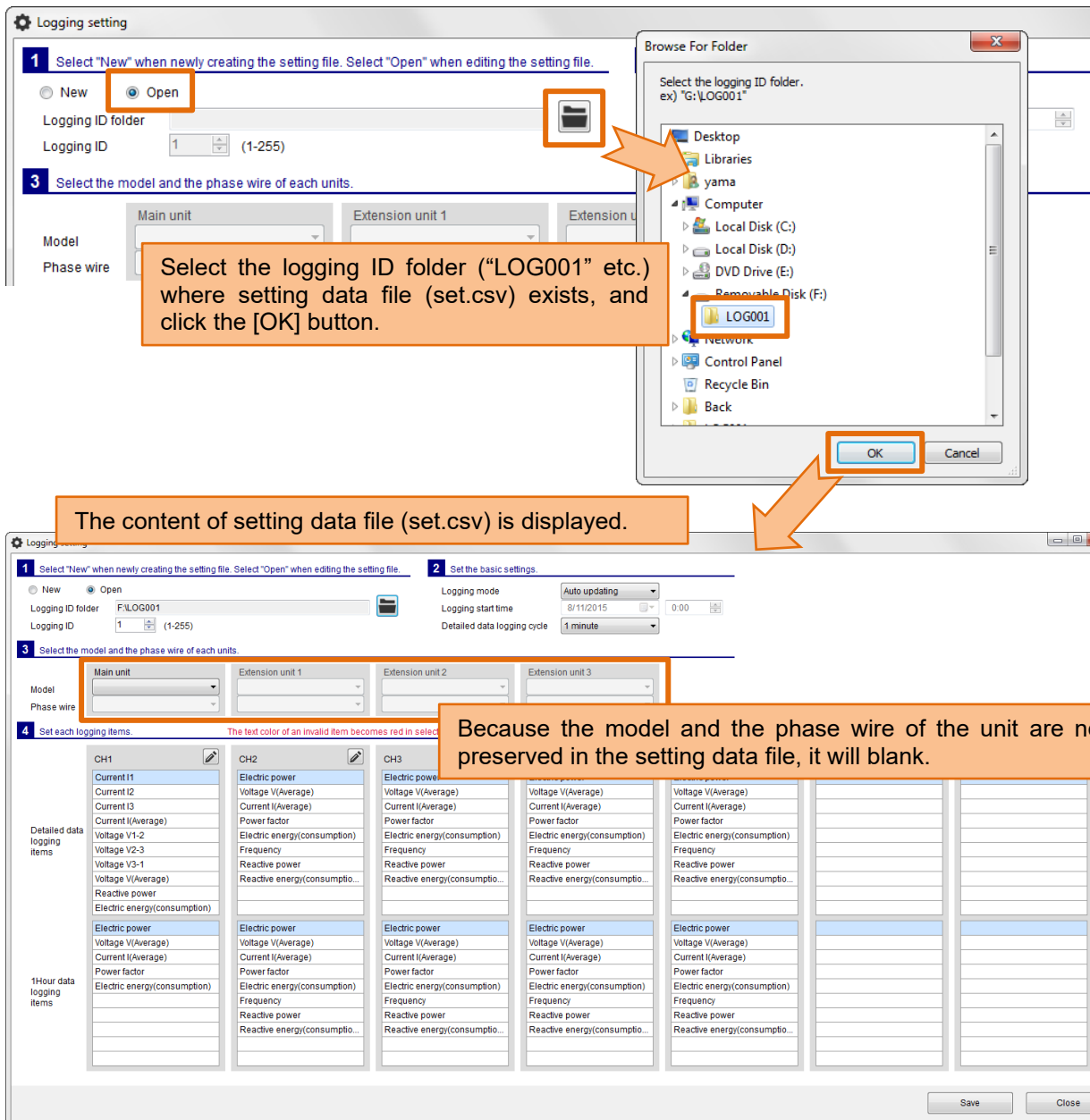
Please select the same value as a left unit about phase wire of EMU4-A2.

4 Set each logging items. The text color of an invalid item becomes red in selected the model and the phase wire.

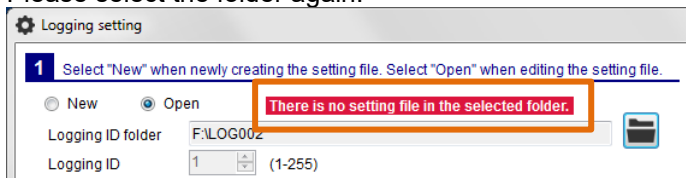
	CH1	CH2	CH3	CH4	CH5	CH6	CH7
Detailed data logging items	Current I1	Electric power	Electric power	Electric power	Electric power		
	Current I2	Voltage V(Average)	Voltage V(Average)	Voltage V(Average)	Voltage V(Average)		
	Current I3	Current I(Average)	Current I(Average)	Current I(Average)	Current I(Average)		
	Current I(Average)	Power factor	Power factor	Power factor	Power factor		
	Voltage V1-2	Electric energy(consumption)	Electric energy(consumption)	Electric energy(consumption)	Electric energy(consumption)		
1Hour data logging items	Voltage V2-3	Frequency	Frequency	Frequency	Frequency		
	Voltage V3-1	Reactive power	Reactive power	Reactive power	Reactive power		
	Voltage V(Average)	Reactive energy(consumption)	Reactive energy(consumption)	Reactive energy(consumption)	Reactive energy(consumption)		
	Electric power						
	Electric energy(consumption)						

Save Close

1 Select "Open", and specify logging ID folder.



When the setting data file does not exist in the selected folder, the message is displayed on the screen. Please select the folder again.



■ About logging ID

The logging ID is automatically set from the selected logging ID folder name.
 Ex) when you select the folder named "LOG128", the logging ID will be 128.
 If you want to overwrite the same logging ID folder, you do not need to change the logging ID.
 If you want to save to a different logging ID folder, please change the logging ID.

2 Set the basic settings.

3 Select the model and the phase wire of each unit.

You need not always set the model and the phase wire.

However, it is convenient to set it. Because only valid logging items are displayed by the model and the phase wire when you edit the logging item.

3 Select the model and the phase wire of each units.

Model: EMU4-BM1-MB
 Extension unit 1: EMU4-A2
 Extension unit 2: EMU4-VA2
 Extension unit 3: [Empty]
 Phase wire: 3P3W
 1P2W

4 Set each logging items.

CH1
 Current I1
 Current I2
 Current I3
 Current I(Average)
 Voltage V1-2
 Voltage V2-3
 Voltage V3-1
 Voltage V(Average)
 Reactive power
 Electric energy(consumption)
 Electric power
 Voltage V(Average)
 Current I(Average)
 Power factor
 Electric energy(consumption)

CH2
 Electric power
 Voltage V(Average)
 Current I(Average)
 Power factor
 Electric energy(consumption)
 Frequency
 Reactive power
 Reactive energy(consumption)

Power factor
 Electric energy(consumption)
 Frequency
 Reactive power
 Reactive energy(consumption)

Power factor
 Electric energy(consumption)
 Frequency
 Reactive power
 Reactive energy(consumption)

Power factor
 Electric energy(consumption)
 Frequency
 Reactive power
 Reactive energy(consumption)

Power factor
 Electric energy(consumption)
 Frequency
 Reactive power
 Reactive energy(consumption)

1Hour data logging items

The text color of an [Empty] Please select the same value s

When the model is selected in the newly creating mode, the logging items of default are automatically set. However, even if the model is selected, the logging items are not changed in the editing mode.

4 Set each logging items.

5 Click the [Save] button.

6 Insert the SD memory card in the Logging Unit and set the logging condition.

Operation method of the above 2 to 6 is basically the same as [5.1 Newly do the logging setting].

6 Appendix

6.1 Specifications

Item	Specifications	
Support model	The Energy Measuring Unit with the Logging Unit (Model EMU4-LM)	
EcoMonitorLight series	EMU4-BD1-MB EMU4-HD1-MB EMU4-FD1-MB	
EcoMonitorPlus series	EMU4-BM1-MB EMU4-HM1-MB EMU4-LG1-MB EMU4-A2 EMU4-VA2 EMU4-AX4 EMU4-PX4	
Language	English, Japanese	
Report creating	Paste the logging data to the report master file (Excel file).	
Maximum number of report master files.	No limit (Select one file at the time of the report creation)	
Maximum number of sheets.	Up to 31. (The sheets for paste the logging data)	
Report type	Monthly	Output the 1-day cycle data for 1-month.
	Weekly	Output the 1-hour cycle data for 7-days.
	Daily	Output the 1-hour cycle data for 1-day.
	Detailed (Min)	Output the one of 30, 15, 10, 5, 1 minute cycle data for the specified span (For 1 to 24 hours).
	Detailed (Sec)	Output the 1-second cycle data for 1-hour.
Logging setting	Newly create or edit the setting data file (set.csv).	

6.2 Output format of report file

The output format of the sheet where the logging data is pasted is described according to each report type.

Report type: Monthly

Ex) Start date: 7/1/2015

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/1/2015 0:00	93	211	30
5	7/2/2015 0:00	87	213	28
6	7/3/2015 0:00	31	211	9
7	7/4/2015 0:00	95	212	31
8	7/5/2015 0:00	42	212	14
9	7/6/2015 0:00	0	213	0
10	7/7/2015 0:00	62	212	19
11	7/8/2015 0:00	94	212	30
12	7/9/2015 0:00	104	211	34
13	7/10/2015 0:00	91	210	29
14	7/11/2015 0:00	83	211	27
15	7/12/2015 0:00	27	212	9
16	7/13/2015 0:00	0	212	0
17	7/14/2015 0:00	87	212	27
18	7/15/2015 0:00	109	210	36
19	7/16/2015 0:00	86	210	28
20	7/17/2015 0:00	102	211	33
21	7/18/2015 0:00	91	213	29
22	7/19/2015 0:00	24	212	8
23	7/20/2015 0:00	0	212	0
24	7/21/2015 0:00	0	211	0
25	7/22/2015 0:00	102	210	34
26	7/23/2015 0:00	111	210	36
27	7/24/2015 0:00	132	210	43
28	7/25/2015 0:00	150	211	50
29	7/26/2015 0:00	0	211	0
30	7/27/2015 0:00	0	212	0
31	7/28/2015 0:00	95	211	30
32	7/29/2015 0:00	117	210	38
33	7/30/2015 0:00	127	212	41
34	7/31/2015 0:00	148	212	49
35				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for one month.
 Up to 31 rows

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

- The line of only date and time is output at the time zone that does not exist in the logging data file due to the power failure etc.
- When all time zones do not exist or the Logging data file does not exist, the report cannot be created.

■ Report type: Weekly

Ex) Start time: 7/6/2015 1:00

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/6/2015 1:00	0	208	0
5	7/6/2015 2:00	0	208	0
6	7/6/2015 3:00	0	208	0
7	7/6/2015 4:00	0	208	0
8	7/6/2015 5:00	0	207	0
9	7/6/2015 6:00	0	208	0
10	7/6/2015 7:00	0	209	0
11	7/6/2015 8:00	0	207	0
12	7/6/2015 9:00	0	211	0
13	7/6/2015 10:00	26	208	8
14	7/6/2015 11:00	15	208	4
15	7/6/2015 12:00	20	208	6
16	7/6/2015 13:00	16	210	4
17	7/6/2015 14:00	23	207	7
18	7/6/2015 15:00	31	207	10
19	7/6/2015 16:00	33	207	10
20	7/6/2015 17:00	53	208	17
21	7/6/2015 18:00	23	210	7
22	7/6/2015 19:00	0	212	0
23	7/6/2015 20:00	0	211	0
24	7/6/2015 21:00	0	211	0
25	7/6/2015 22:00	0	209	0
26	7/6/2015 23:00	0	207	0
27	7/7/2015 0:00	0	207	0
28	7/7/2015 1:00	0	207	0
		⋮		
146	7/11/2015 23:00	0	208	0
147	7/12/2015 0:00	0	208	0
148	7/12/2015 1:00	0	208	0
149	7/12/2015 2:00	0	208	0
150	7/12/2015 3:00	0	208	0
151	7/12/2015 4:00	0	207	0
152	7/12/2015 5:00	0	208	0
153	7/12/2015 6:00	0	209	0
154	7/12/2015 7:00	0	209	0
155	7/12/2015 8:00	0	209	0
156	7/12/2015 9:00	0	211	0
157	7/12/2015 10:00	211	0	0
158	7/12/2015 11:00	211	0	1
159	7/12/2015 12:00	210	0	0
160	7/12/2015 13:00	210	0	1
161	7/12/2015 14:00	211	0	1
162	7/12/2015 15:00	212	0	0
163	7/12/2015 16:00	211	0	1
164	7/12/2015 17:00	211	0	0
165	7/12/2015 18:00	210	0	1
166	7/12/2015 19:00	211	0	0
167	7/12/2015 20:00	211	0	1
168	7/12/2015 21:00	211	0	0
169	7/12/2015 22:00	208	0	1
170	7/12/2015 23:00	207	0	0
171	7/13/2015 0:00	208	0	1
172				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start time for one week.
 168 rows (24 hours * 7 days)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

- The line of only date and time is output at the time zone that does not exist in the logging data file due to the power failure etc.
- When all time zones do not exist or the Logging data file does not exist, the report cannot be created.

■ Report type: Daily

Ex) Start time: 7/9/2015 1:00

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	0	208	0
5	7/9/2015 2:00	0	208	0
6	7/9/2015 3:00	0	207	0
7	7/9/2015 4:00	0	207	0
8	7/9/2015 5:00	0	208	0
9	7/9/2015 6:00	0	208	0
10	7/9/2015 7:00	0	207	0
11	7/9/2015 8:00	0	210	0
12	7/9/2015 9:00	25	210	8
13	7/9/2015 10:00	34	210	10
14	7/9/2015 11:00	53	209	17
15	7/9/2015 12:00	41	210	13
16	7/9/2015 13:00	71	208	23
17	7/9/2015 14:00	70	209	22
18	7/9/2015 15:00	71	208	23
19	7/9/2015 16:00	93	209	30
20	7/9/2015 17:00	106	208	35
21	7/9/2015 18:00	73	211	24
22	7/9/2015 19:00	34	210	10
23	7/9/2015 20:00	15	209	4
24	7/9/2015 21:00	31	210	10
25	7/9/2015 22:00	0	207	0
26	7/9/2015 23:00	0	206	0
27	7/10/2015 0:00	0	206	0
28				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for one day.
 24 rows

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

- The line of only date and time is output at the time zone that does not exist in the logging data file due to the power failure etc.
- When all time zones do not exist or the Logging data file does not exist, the report cannot be created.

Report type: Detailed (Min)

The data at a specified span is output from among the data of 1 minute, 5 minutes, 10 minutes, 15 minutes, and 30 minutes looking for.

Ex) Start time: 7/9/2015 1:00, detailed data logging cycle: 30 minutes

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	0	204	0
5	7/9/2015 1:30	0	208	0
6	7/9/2015 2:00	0	208	0
7	7/9/2015 2:30	0	207	0
8	7/9/2015 3:00	0	207	0
9	7/9/2015 3:30	0	206	0
10	7/9/2015 4:00	0	207	0
11	7/9/2015 4:30	0	207	0
		⋮		
46	7/9/2015 22:00	0	206	0
47	7/9/2015 22:30	0	205	0
48	7/9/2015 23:00	0	205	0
49	7/9/2015 23:30	0	206	0
50	7/10/2015 0:00	0	206	0
51	7/10/2015 0:30	0	208	0
52	7/10/2015 1:00	0	207	0
53				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for the specified span (1 to 24 hours).
 Up to 49 rows (2 * 24 hours + 1)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

Ex) Start time: 7/9/2015 1:00, detailed data logging cycle: 15 minutes

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	65	208	21
5	7/9/2015 1:15	64	208	20
6	7/9/2015 1:30	54	209	17
7	7/9/2015 1:45	60	209	20
8	7/9/2015 2:00	48	208	15
9	7/9/2015 2:15	59	208	18
10	7/9/2015 2:30	61	208	20
11	7/9/2015 2:45	54	207	17
		⋮		
94	7/9/2015 23:30	54	207	17
95	7/9/2015 23:45	93	208	30
96	7/10/2015 0:00	59	207	19
97	7/10/2015 0:15	62	207	20
98	7/10/2015 0:30	61	208	20
99	7/10/2015 0:45	54	207	17
100	7/10/2015 1:00	93	208	30
101				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for the specified span (1 to 24 hours).
 Up to 97 rows (4 * 24 hours + 1)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

Ex) Start time: 7/9/2015 1:00, detailed data logging cycle: 10 minutes

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	64	208	20
5	7/9/2015 1:10	54	209	17
6	7/9/2015 1:20	60	209	20
7	7/9/2015 1:30	48	208	15
8	7/9/2015 1:40	39	207	12
9	7/9/2015 1:50	58	207	17
10	7/9/2015 2:00	55	208	18
11	7/9/2015 2:10	49	208	16
		⋮		
140	7/9/2015 23:40	69	208	22
141	7/9/2015 23:50	48	207	14
142	7/10/2015 0:00	38	208	12
143	7/10/2015 0:10	39	207	12
144	7/10/2015 0:20	58	207	17
145	7/10/2015 0:30	55	208	18
146	7/10/2015 0:40	49	208	16
147	7/10/2015 0:50	58	207	19
148	7/10/2015 1:00	69	208	22
149				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for the specified span (1 to 24 hours). Up to 145 rows (6 * 24 hours + 1)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

Ex) Start time: 7/9/2015 1:00, detailed data logging cycle: 5 minutes

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	39	207	12
5	7/9/2015 1:05	58	207	17
6	7/9/2015 1:10	55	208	18
7	7/9/2015 1:15	49	208	16
8	7/9/2015 1:20	58	207	19
9	7/9/2015 1:25	69	208	22
10	7/9/2015 1:30	48	207	14
11	7/9/2015 1:35	38	208	12
		⋮		
278	7/9/2015 23:50	65	208	21
279	7/9/2015 23:55	64	208	20
280	7/10/2015 0:00	54	209	17
281	7/10/2015 0:05	48	207	14
282	7/10/2015 0:10	38	208	12
283	7/10/2015 0:15	54	208	17
284	7/10/2015 0:20	71	208	23
285	7/10/2015 0:25	65	208	21
286	7/10/2015 0:30	64	208	20
287	7/10/2015 0:35	54	209	17
288	7/10/2015 0:40	60	209	20
289	7/10/2015 0:45	48	208	15
290	7/10/2015 0:50	59	208	18
291	7/10/2015 0:55	71	208	23
292	7/10/2015 1:00	62	207	20
293				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for the specified span (1 to 24 hours). Up to 289 rows (12 * 24 hours + 1)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

Ex) Start time: 7/9/2015 1:00, detailed data logging cycle: 1 minute

	A	B	C	D
1		CH1	CH1	CH1
2		Current I(Average)	Voltage V(Average)	Electric power
3		[A]	[V]	[kW]
4	7/9/2015 1:00	32	208	9
5	7/9/2015 1:01	34	207	10
6	7/9/2015 1:02	30	207	9
7	7/9/2015 1:03	37	208	12
8	7/9/2015 1:04	39	207	12
9	7/9/2015 1:05	62	207	19
10	7/9/2015 1:06	68	207	22
11	7/9/2015 1:07	66	207	21
12	7/9/2015 1:08	67	207	21
13	7/9/2015 1:09	58	207	17
14	7/9/2015 1:10	68	207	21
15	7/9/2015 1:11	59	207	18
		⋮		
1433	7/10/2015 0:49	62	208	20
1434	7/10/2015 0:50	71	208	23
1435	7/10/2015 0:51	60	207	19
1436	7/10/2015 0:52	69	207	22
1437	7/10/2015 0:53	61	207	19
1438	7/10/2015 0:54	58	208	18
1439	7/10/2015 0:55	65	208	21
1440	7/10/2015 0:56	70	208	23
1441	7/10/2015 0:57	50	207	16
1442	7/10/2015 0:58	57	207	18
1443	7/10/2015 0:59	61	208	19
1444	7/10/2015 1:00	64	208	20
1445				

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for the specified span (1 to 24 hours).
 Up to 1441 rows (60 * 24 hours + 1)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 10 columns
 EcoMonitorPlus: Up to 70 columns (10 items * 7 circuits)

- When the report type is “Detailed (Min)”, the line is not output at the time zone that does not exist in the logging data file due to the power failure etc.
- When all time zones do not exist or the Logging data file does not exist, the report cannot be created.

■ Report type: Detailed (Sec)

Ex) Start time: 7/9/2015 14:00

	A	B	C	D	E
1		CH1	CH1	CH1	CH1
2		総合電流	総合線間電圧	電力	電力量(消費)
3		[A]	[V]	[kW]	[kWh]
4	2015/7/9 14:00:00	48	207	14	0
5	2015/7/9 14:00:01	32	208	9	0
6	2015/7/9 14:00:02	34	207	10	0
7	2015/7/9 14:00:03	30	207	9	0
8	2015/7/9 14:00:04	37	208	12	0
9	2015/7/9 14:00:05	39	207	12	1
10	2015/7/9 14:00:06	62	207	19	0
11	2015/7/9 14:00:07	68	207	22	0
12	2015/7/9 14:00:08	66	207	21	1
13	2015/7/9 14:00:09	67	207	21	0
14	2015/7/9 14:00:10	58	207	17	0
15	2015/7/9 14:00:11	68	207	21	1
16	2015/7/9 14:00:12	59	207	18	0
17	2015/7/9 14:00:13	70	208	23	0
18	2015/7/9 14:00:14	65	208	20	1
19	2015/7/9 14:00:15	55	208	18	0
20	2015/7/9 14:00:16	55	208	17	0
21	2015/7/9 14:00:17	42	208	13	0
22	2015/7/9 14:00:18	43	208	13	1
23	2015/7/9 14:00:19	41	208	13	0
24	2015/7/9 14:00:20	49	208	16	0
		⋮			
3585	2015/7/9 14:59:41	54	208	17	0
3586	2015/7/9 14:59:42	53	208	17	1
3587	2015/7/9 14:59:43	50	207	16	0
3588	2015/7/9 14:59:44	57	207	18	0
3589	2015/7/9 14:59:45	62	208	20	0
3590	2015/7/9 14:59:46	71	208	23	1
3591	2015/7/9 14:59:47	60	207	19	0
3592	2015/7/9 14:59:48	69	207	22	0
3593	2015/7/9 14:59:49	61	207	19	1
3594	2015/7/9 14:59:50	58	208	18	0
3595	2015/7/9 14:59:51	65	208	21	0
3596	2015/7/9 14:59:52	70	208	23	1
3597	2015/7/9 14:59:53	50	207	16	0
3598	2015/7/9 14:59:54	57	207	18	0
3599	2015/7/9 14:59:55	61	208	19	1
3600	2015/7/9 14:59:56	64	208	20	0
3601	2015/7/9 14:59:57	69	208	22	0
3602	2015/7/9 14:59:58	78	207	25	1
3603	2015/7/9 14:59:59	82	207	26	0
3604	2015/7/9 15:00:00	66	207	21	0
3605					

Row 1: CH1 to 7
 Row 2: Logging item name
 Row 3: Unit name

There is the data from the specified start date for one hour.
 Up to 3601 rows
 (60 seconds * 60 minutes + 1)

Date and time

There is the one logging item per column.
 EcoMonitorLight: Up to 4 columns
 EcoMonitorPlus: Up to 28 columns (4 items * 7 circuits)

- The second of time is omitted in the Excel display.
 The above figure is an example that changes the formatting of the cell to [m/d/yyyy h:mm:ss].
- The line is not output at the time zone that does not exist in the logging data file due to the power failure etc.
- When all time zones do not exist or the Logging data file does not exist, the report cannot be created.

■ About data type

The data of the logging data file pasted to the sheet.

The data type of “current”, “voltage”, and “electric power” etc. is instantaneous value.

The data type of “electric energy” and “pulse-count value” etc. is differential amount of accumulated values.

However, the data type of “number over limit” is accumulated value.

About the data type, refer to the manual ([11.Appendix]-[List of logging items]) of Logging Unit.

6.3 Error message and remedies

■ Starting or changing language

Message	Causes and Remedies
Failed to read the logging item file. (Detailed message)	There is no necessary file. Please refer to [2.2 Processes from download to the installation], and confirm the folder composition. Please download it from the MITSUBISHI FA site again when a necessary file is not found.
Failed to read the model file. (Detailed message)	
Failed to read the model item file. (Detailed message)	

■ Report creating

Message	Causes and Remedies
Please select the folder for output.	Any folder to be output has not been selected. Please select one or more.
The selected number of folders exceeds the number of maximum sheets.	The selected number of folders exceeds 31. Please do not exceed 31.
Unusable for sheet name. (The folder name)	The folder name cannot be used for the sheet name. Please remove the check on the folder or change the folder name.
No data.	There is no data of a specified condition. Please review a specified condition at the start time and the span, etc.
Failed to create the report. (Detailed message)	When you are opening the target logging data file with Excel etc, please close it.
	Please confirm whether the selected report master file exists. Please confirm whether Excel is installed.
Failed to save the report file. (Detailed message)	When you are opening the same file with Excel etc, please close it.
	Please confirm whether the free space preservation ahead is insufficient.

■ Logging setting

Message	Causes and Remedies
Please set the logging items.	Any logging item is not set. Please set one or more.
There are some invalid logging items.	An invalid logging item (red-letter item) is set by the model and the phase wire. Please delete an invalid logging item or change to a valid logging item.
Failed to create the logging ID Folder. (Detailed message)	<p>Please confirm whether the folder preservation ahead is read-only. Please confirm whether the writing lock of the SD memory card hangs when you specify the SD memory card.</p> <p>Writing in to a SD memory card is sometimes restricted by security setting of your PC and security software. Please write the setting file (set.csv) in a SD memory card by a possible PC after it's preserved in a desktop once in that case.</p>
Failed to save the logging setting file. (Detailed message)	<p>When you are opening the target file (set.csv) with Excel etc, please close it.</p> <p>Please confirm whether the folder preservation ahead is read-only. Please confirm whether the writing lock of the SD memory card hangs when you specify the SD memory card.</p> <p>Writing in to a SD memory card is sometimes restricted by security setting of your PC and security software. Please write the setting file (set.csv) in a SD memory card by a possible PC after it's preserved in a desktop once in that case.</p> <p>Please confirm whether the free space preservation ahead is insufficient.</p>
Failed to read the logging setting file. (Detailed message)	<p>When you are opening the target file (set.csv) with Excel etc, please close it.</p> <p>The setting file (set.csv) edited with Excel etc. might come to format it abnormal. Please create the logging setting newly in that case.</p>

6.4 Q&A

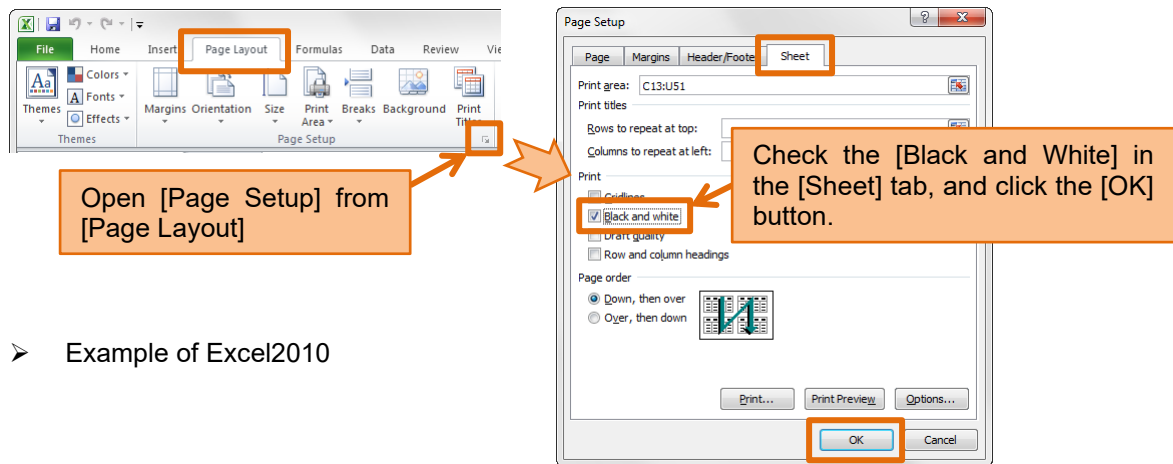
Report creating

Q What are the extensions of Excel file that can be used to the report master file?

A You can use the files with the following extensions for the report master file.
 [.xls] Excel 97-2003 Workbook
 [.xlsx] Excel Workbook
 [.xlsm] Excel Macro-Enabled Workbook

Q When I do monochrome print of a report of samples, it becomes difficult to distinguish between the differences in the colors of the chart. Is there a good way?

A Please set the monochrome print in Excel.

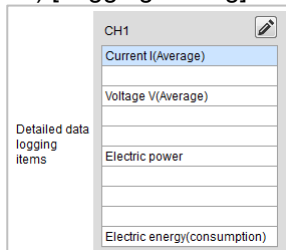


➤ Example of Excel2010

Logging setting

Q What is no problem even if there is a blank line in the middle of the logging items?

Ex) [Logging setting] screen



A You can also set the Logging Unit if there is a blank line in the middle. However, a blank line is not output to the logging data file, the data is output by packing from the left.

Ex) Logging data file

	A	B	C	D	E	F
1	[LOGGING]	YM_1	2	3	4	
2	DATETIME[YYYY/MM/DD hh:mm:ss]	INDEX	DOUBLE[DEC.0]	DOUBLE[DEC.0]	DOUBLE[DEC.0]	DOUBLE[DEC.0]
3	TIME	INDEX	CH1 A[A]	CH1 V[V]	CH1 W[kW]	CH1 Wh[kWh]
4	7/9/2015 0:01	1	0	208	0	0
5	7/9/2015 0:02	2	0	208	0	1
6	7/9/2015 0:03	3	0	208	0	1

Q When setting the same logging item as more than one circuit, is there a convenient way?

A You can copy and paste the logging items. (☛P36 Useful functions to editing of the logging items)

6.5 Release notes

Version	Contents	
1.1.0	Supprt model	The model EMU4-FD1-MB, EMU4-AX4, and EMU4-PX4 are supported.
	System requirement	Compatible with Windows 10 Pro (32bit/64bit) and Excel 2016 (32bit).
	Report master file	<p>The file format is changed to the [.xlsx] form from the [.xls] form. [-2] is added to the end of the file name so that it might be easy to classify.</p> <p>Ex) Daily report master file name</p> <p>[Old] SampleDailyReport.xls</p> <p>[New] SampleDailyReport-2.xlsx</p> <p>The kind of sheet is diversified.</p>
	Logging item name	The logging item "Pulse-count value" and "Pulse-conversion value" are renamed to "Pulse-count value 1" and "Pulse-conversion value 1".
1.0.0	The first release version.	

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Energy Measuring Unit Logging Unit Utility

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