Panasonic®

Electric Power Monitoring Software (KW Watcher)

Operational Guide Book

Contents

0. Introduction

This manual is designed to provide instructions about the software for monitoring electrical power (hereafter referred to as "KW Watcher") by obtaining log files from the Web Data Logger Unit (Hereafter referred to as "DLU") , Data Logger Light (Hereafter referred to as "DLL"), ELC1/ELC2 (Hereafter referred to as "ELC"), FP7, FP0H (only Ethernet type), ELC500, Web-Server and KW2M-X.

*DLU, DLL, FP7, FP0H, EKC500, FP Web-Server, KW2M-X are referred to as 'connected device'.

[Caution]
1. This software is for monitoring current status effectively in order to achieve better energy efficiency. No guarantee can be made for the displayed data because results could differ from the real figure due to system error, measurement of the starting time, misalignment error of the measurement and the like including this software.
2. This software is for internal use only to achieve better energy efficiency.
3. Refer to the each manual for usage of the connected devices.

● Operating system
OS: Microsoft® Windows 8.1
  Microsoft® Windows 10

> ● Windows, Excel are trademarks of Microsoft Corporation of the United States in the United States and other nations.
> ● Compact Flash and CF are trademarks of SanDisk Corporation.

● Recommended specification
HDD	100MB or above
Recommended memory	2GB or above (depending on OS)
Recommended CPU	1GHz or above processor (depending on OS)
Resolution	XGA (1024x768) [Caution] Excel is required to print Master Registration.

 * If no graph is displayed, download Runtime (vbrun60sp6.exe) from Microsoft website.

● Notice before installation / Recommended usage

[System]
 KW Watcher is designed for systems running "Web Data Logger Unit/Data Logger Light" and "Eco-POWER METER".

[No. of master registration].
 Performance (display) speed may vary depending on the system environment or registry structure.
 It is recommended to use this software with a registry number under 1,000.

[Overview of download]
 KW Watcher downloads files with FTP (File Transfer Protocol) commands. As for the network environment FTP commands can be used, check with your network administrator. Refer to "2.8 Option setting" for details.

> **Setting file, Logging file**
>
> There is the case that a setting file or a logging file is erased by operation failure of a case and install and uninstall of the software that a PC of the use was broken.
> For an unexpected situation, I ask for backing up a setting file or a logging file.

[In case of using 32-bit PC and 64-bit PC]
If AccessDatabaseEngine is not installed, the following screen is displayed and KW Watcher is terminated.
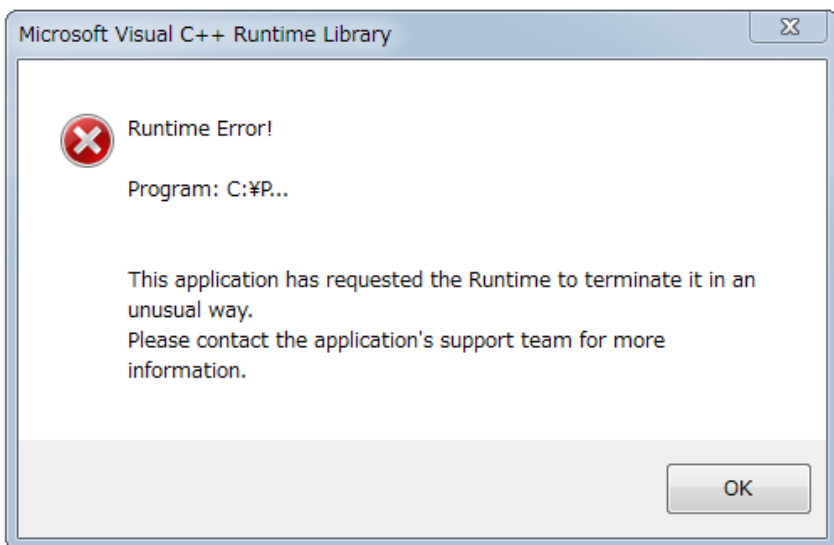
In this case, proceed one in the below items.
1. Install Microsoft Office.
2. When your OS is 32bit, download "AccessDatabaseEngine.exe" from the below website and install it.
   When your OS is 64bit, download "AccessDatabaseEngine_X64.exe" from the below website and install it.
   https://www.microsoft.com/ja-jp/download/details.aspx?id=13255

● Installation procedure and usage
   With this software, operations are categorized into two major parts: "Settings" and "Data display".
   See Data display (2.9) if settings have been already configured.

(0)	Installation	
(2.4)	Title setting	"Settings" Required in the first configuration or in case of modification
(2.5)	● Register DLU	Marked setting by ● are required.
(2.6)	● Register master	Others required in case of Modification in configuration.
(2.7)	File setting	
(2.8)	Option setting	
(2.9)	Display data	"Display data" item
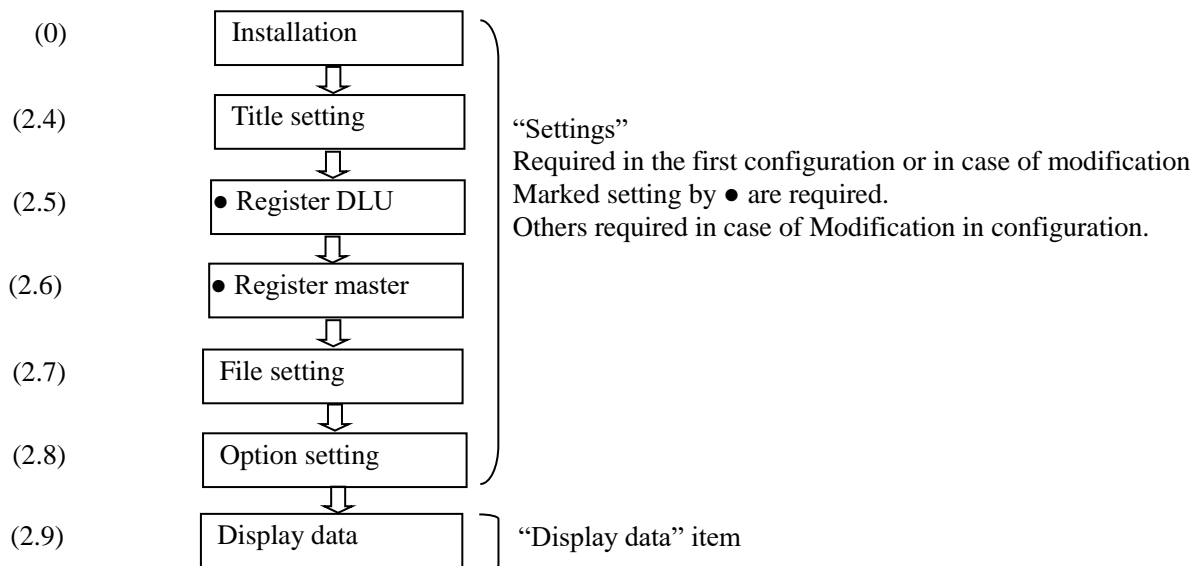
●Installation procedure
Start setup.exe.

<div style="border: 1px solid red; padding: 10px;">

[Caution]

・To upgrade or change the version of KW Watcher, uninstall KW Watcher first and then reinstall it
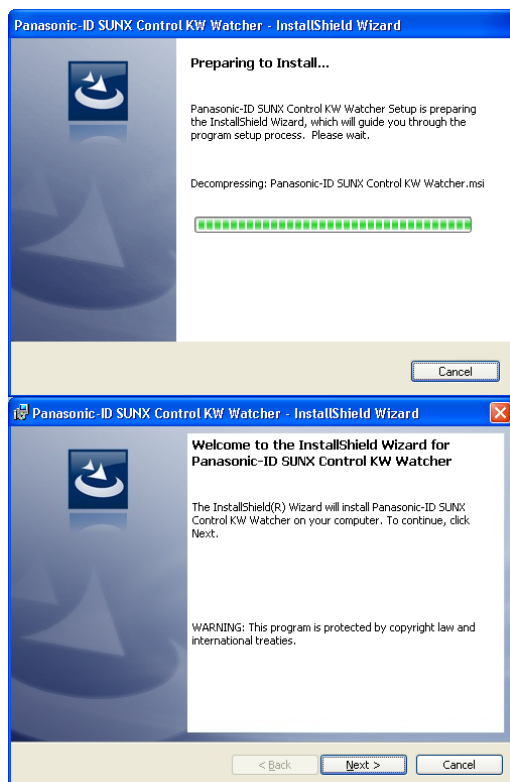Refer to the uninstall procedure for details.
・When you'd like to upgrade Ver.1.**, uninstall Ver.1.** before upgrade.

</div>

Select a language to use for installation.

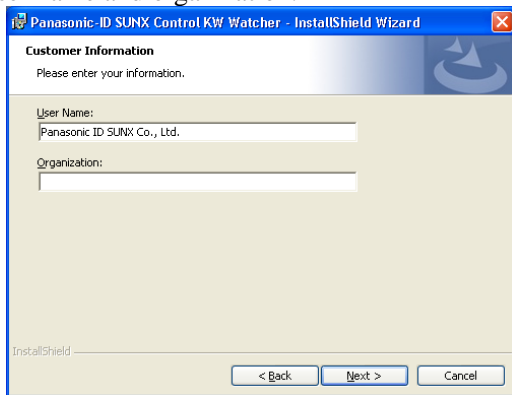After preparing for installation, KW Watcher Setup wizard will come up.

Click [Next].

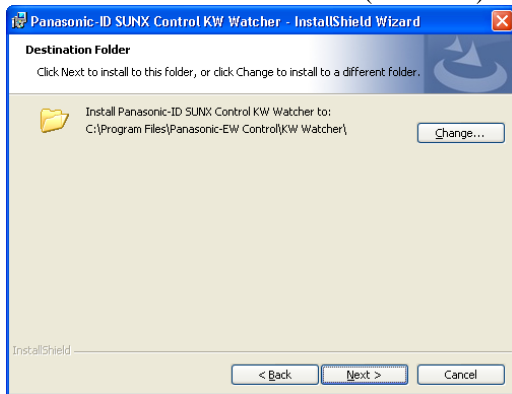Click [Next] to move on to software license agreement.

Select "I accept the terms in the license agreement", and click [Next].
Unless agreed to, no more procedures can be performed.

Input user name and organization.

Check whether the information is correct, and then click [Next].
Select a folder to install the software in (if needed).

The default destination folder is "C:¥Program Files¥Panasonic-EW Control¥KW Watcher".
Click [Next] if the default folder is acceptable.
Click [Browse] to specify the destination folder if you need to change, and then click [Next].

[Caution]
In case of using by users except the Administrator, do not install the below folders.
It can't work setting file correctly.
・「C:¥Program Files」
・「C:¥Program Data」
・「C:¥Windows」
・Folders which are created by Administrator and it has restriction to access by users.
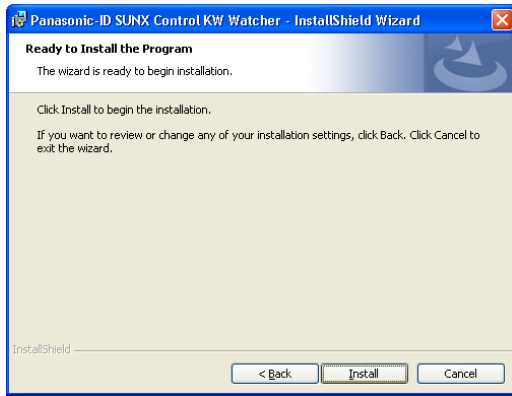
Click [Install] to continue installation.
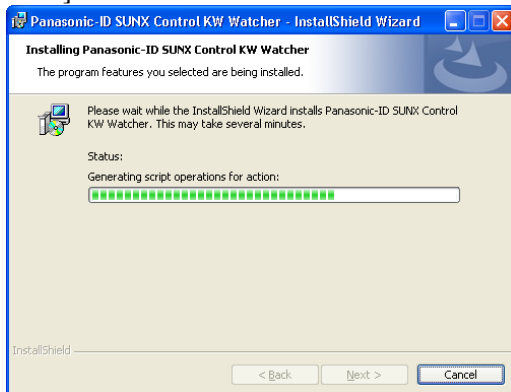
[Caution]
When users except the administrator install, it is required to input password of administrator's account by security function of OS.
Please confirm your administrator before installing.

Click [Finish] after installation is complete.

● To uninstall the software

Finish KW Watcher before uninstall.

1) Use the installer package to uninstall the software

Start KW Watcher installer as before.

After preparing for installation, KW Watcher Setup wizard will come up.
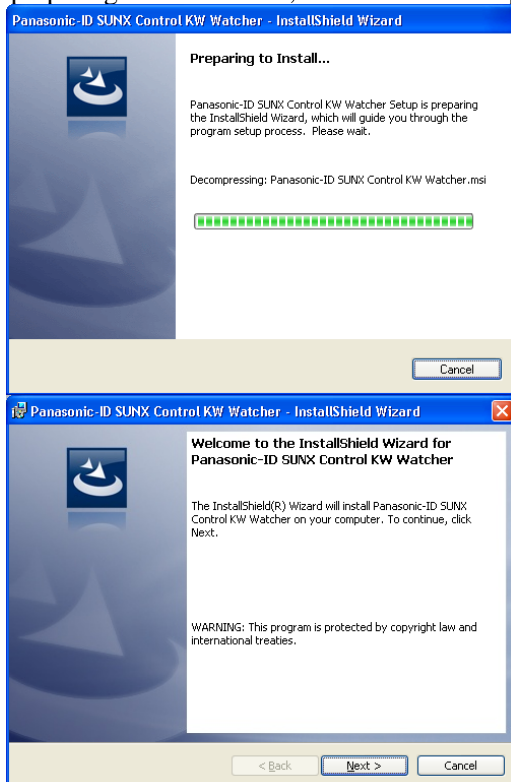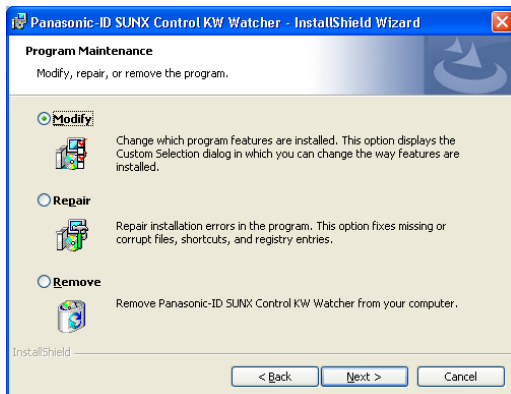
Click [Next].

Select "Remove", and click [Next].
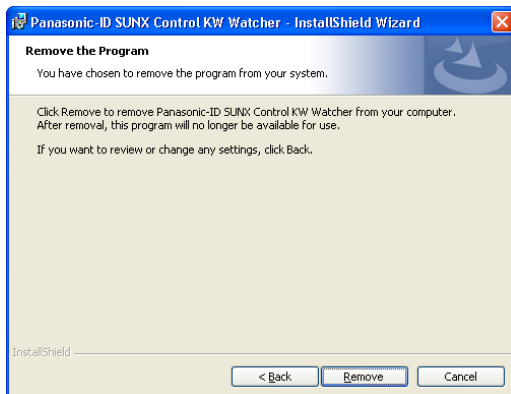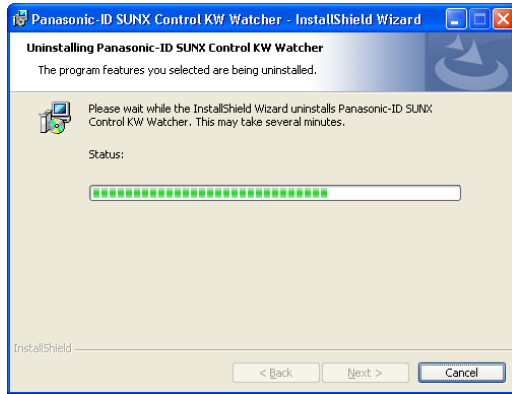
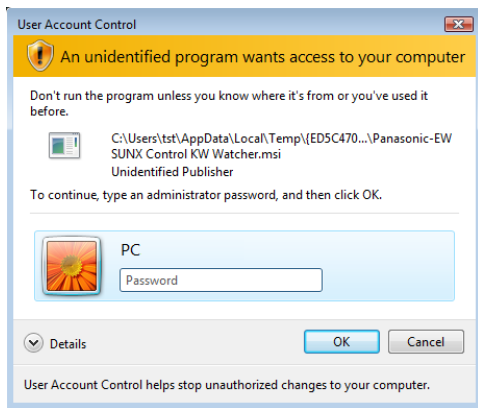As the "Remove the Program" window appears, click [Remove].
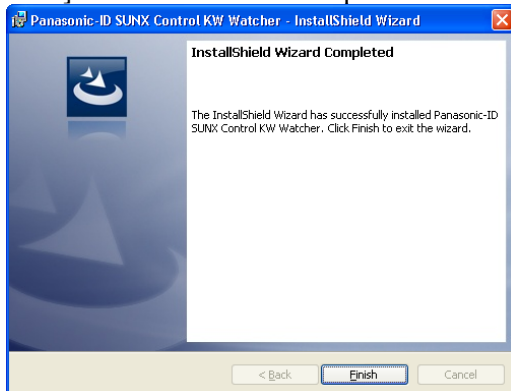The uninstallation process will begin.

[Caution]

When users except the administrator uninstall, it is required to input password of administrator's account by security function of OS.

Please confirm your administrator before installing.
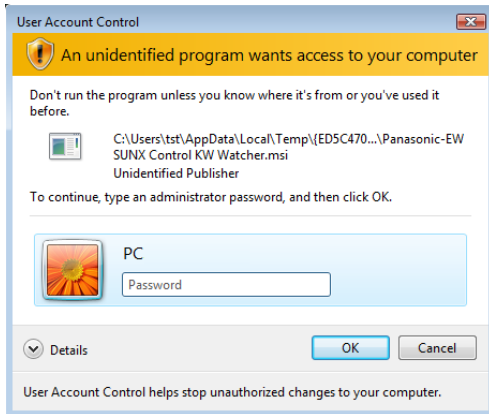
2) To uninstall from the "Add or Remove Programs"

・Windows 8.1

　Select "Start" -> "All apps" -> "Control panel" -> "Programs and Features" or "Uninstall a programs"

・Windows 10

　Select "Start" -> "All apps" -> "Windows system" -> "Control panel" -> "Programs and Features" or "Uninstall a programs"

Select "Panasonic-EW Control KW Watcher" or "Panasonic-EW SUNX Control KW Watcher", or "Panasonic-ID SUNX Control KW Watcher" and click [Remove].
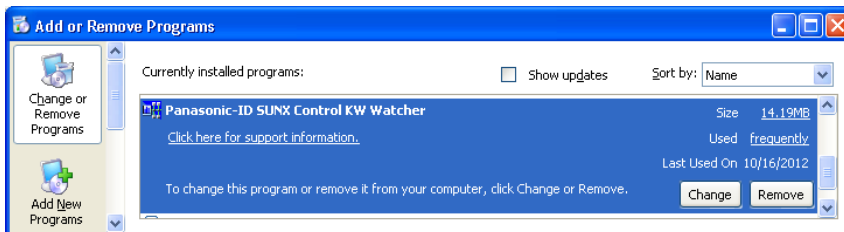
A notification dialogue will pop up. Click [Yes] to start to remove the program.

Clicking [No] will abort the removal process.

The removal process window will pop up after clicking [Yes].
The removal process is complete after this window has disappeared.
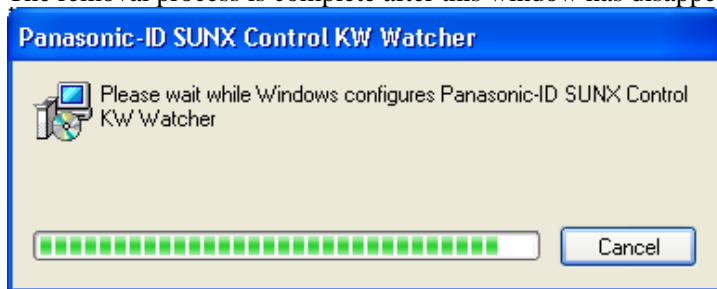
[Caution]
When users except the administrator uninstall, it is required to input password of administrator's account by security function of OS.
Please confirm your administrator before installing.

● How to start KW Watcher
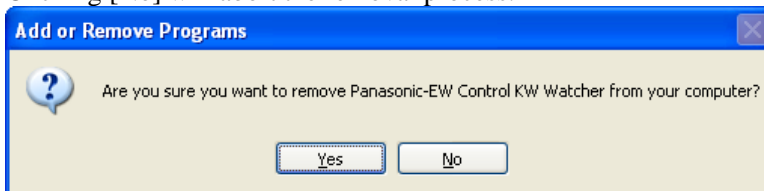1) Start from the "Start menu"
 1. Open "Start menu" by clicking "Start" button.
 2. Move the pointer to "All Programs" to display the program menu.
 3. Move the pointer on to "Panasonic-EW Control ►" – "KW Watcher ►" and click "KW Watcher".
 4. Load the setting file from "File (F)" – "Open (O)" in the menu bar after KW Watcher has started up.
    The setting file selected in the first start up will be automatically loaded after the second run.

2) Start from the setting file by double clicking on "My Computer" or "Explore"
 Open a setting file from "My Computer" or "Explore" (file extension ".kww") with a double click, and then KW Watcher will start up from the double-clicked setting file.

1. Software structure

This software is structured by functions below.
In this software, operations are categorized into two major parts: "Settings" and "Data display".
See Data display once settings have been already configured.

No.	Functions	Function Summary
1)	Menu	Provides file-related, display switching, and version-check operations.
2)	Title window	Indicates the main window of this software
3)	Title Setting	Enables title to be edited
4)	Master Registration	Registers masters to specify each DLU and Eco-POWER METER
5)	DLU Registration	Registers and controls numbers of connected DLUs, IP addresses and accumulated file names
6)	File Setting	Sets destination folder to save files downloaded from DLU
7)	Option	Sets CO2 conversion rate
8)	Data display setting	Sets data display conditions
9)	Show Data	Displays collected data lists based on conditions set in 8)
10)	Bar Graph	Displays data in a bar graph based on conditions set in 8)
11)	Pie Graph	Displays tabulated data in a pie graph
12)	Stack Graph	Displays data in a stack graph based on the graph in 10)
13)	Compare Graph	Displays data in a compare graph based on the graph in 10)
14)	Energy per unit Graph	Displays data in energy per unit graph
15)	Temperature/Humidity/ Trend Graph	Displays temperature/humidity/trend graph.
16)	Graph capturing function	Displays saved screens in thumbnails up to 12 screens by quick-saving graph screens
17)	Favorites function	Registers items specified to display graphs.

Explanation of each function is covered in the following pages.

2. Function details

2.1. Title bar

The title bar of KW Watcher shows the currently loaded setting.
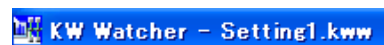
An asterisk (*) will be added to the currently loaded setting if re-written setting data is loaded, master registration is imported or the setting file is modified after making any changes in the other settings. (*) will disappear once the setting has been either overwritten or saved as another setting.

2.2. Menu

It provides options for each related item to operate KW Watcher.
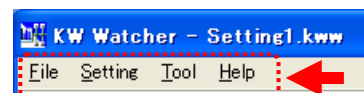
2.2.1. File

It enables the creating and edits setting files of KW Watcher.
The file extension of setting files is ".kww"

2.2.1.1. New

It enables the creation of new setting files.
Title setting, DLU registration, Master registration and File setting will be set as default.

2.2.1.2. Open

It opens the existing setting file.

2.2.1.3. Save

It overwrites currently loaded setting files.

2.2.1.4. Save as

It saves currently loaded setting files under different file names.

2.2.1.5. Load setting data

It loads other setting file data on to the currently loaded setting files.

-Title setting
-DLU Registration
-Master Registration
-File Setting
-Option Setting
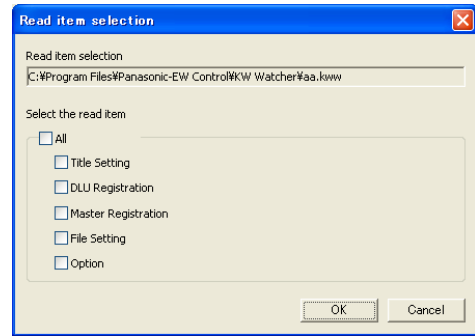
Click [OK] after checking the items to be loaded.

2.2.1.6. Import master registration

It enables the import of master record items in accordance with the attached template (default.csv) included in KW Watcher.

Sample for importable format

⬇ Check data after the import is complete

[Caution]
'*' needs to be input in the first row of the 35th column (located in A35 if opened by Microsoft Excel) of the CSV file. The import process may be cancelled due to a format error if no '*' is included.
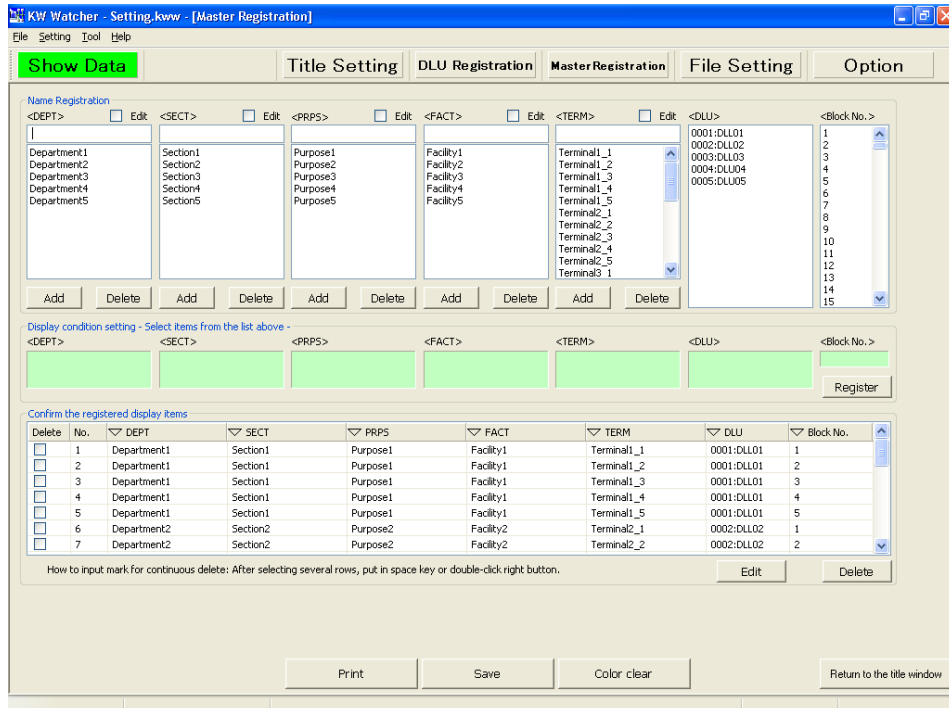
Make sure to check the import files before importing data.
The import process may be cancelled and an error message pops up if any error is found.
Click [OK] to see the import log. Try the import process again after correcting data according to the log.

Import check

⚠ The content of the CSV file is improper.
Import was canceled.Correct the file and import again.
Refer to D:\temp\Import.log

OK

Ex) Sample for import log

Import - Notepad

File Edit Format View Help

File name: D:\Program Files\Panasonic-EW Control\KW watcher\ImportTestEN.csv
018: Set items are duplicated.(Duplicated data line: 017)
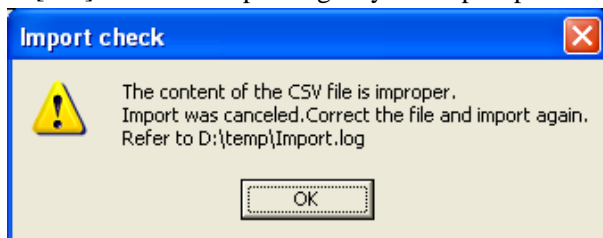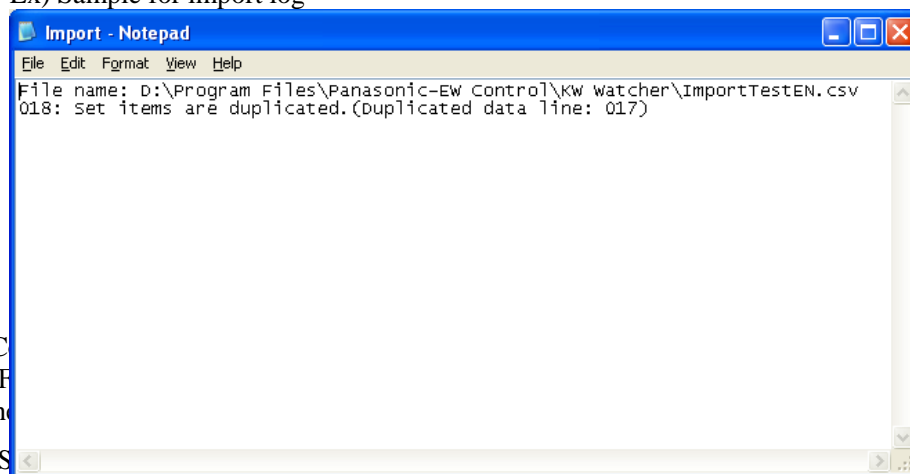
<C
● F
Ch

● S
Data is missing between Item 1 and Item 5, among DLU No., or among Block No.

● Some setting items are overlapping.
There is more than one row in which the data of Item 5 are exactly the same.
Or, there is more than one row in which combinations of DLU No. and Block No. are exactly the same.
    [Caution]
    Names in "TERM" (Item5) cannot be overlapped.

● Set name of items less than 50 characters.

● DLU No. is out of range. Set DLU No. between 1 and 9999.

● Number of DLU registration is more than 256.

● Block No. is out of range. Set Block No. between 1 and 300.

2.2.1.7. Export master registration
It enables the export of master registration of currently loaded setting file into CSV format as default.

2.2.1.8. Exit
Exit KW Watcher.

[Caution]
Please keep the followings for the temporary file of KW Watcher.
1) [.tmw] [.ldb]
When starting KW Watcher, the temporary files with setting file name [.tmw] and [.ldb] are made in the same folder.
These 2 files are deleted automatically when exiting KW Watcher. However, when exiting forcibly by error, they might not be deleted. It is no problem to delete these 2 files when not starting KW Watcher.
2) [DLU.log]
[DLU.log] file is the error file when connecting DLU.
It is no problem to delete this file when not starting KW Watcher.
3) CAPTURE¥(setting file name)folder¥00.bmp to 11.bmp
This folder and files are made when executing the graph capturing function.
The setting file name folder and files are deleted automatically when exiting KW Watcher. However, when exiting forcibly by error, they might not be deleted.
If some files are saved in this folder, the files are deleted automatically when exiting KW Watcher. Do not save files in this folder.
It is no problem to delete these folder and files when not starting KW Watcher.
4) [Import.log]
[Import.log] file is the log file to show master import error.
It is no problem to delete this file when not starting KW Watcher.
5) [Favorite.csv]
[Favorite.csv] file is the data file of favorites.
Do not delete this file as the information added to favorites is saved.

2.2.2. Setting
It shows all the settings and registration items.
Each item in the menu is exactly the same as the menu button.

2.2.3. Tool
Use it to change the language.
Restart KW Watcher after changing the language.
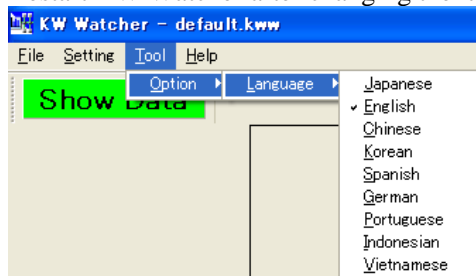
2.2.4. Help

It shows KW Watcher's current version.
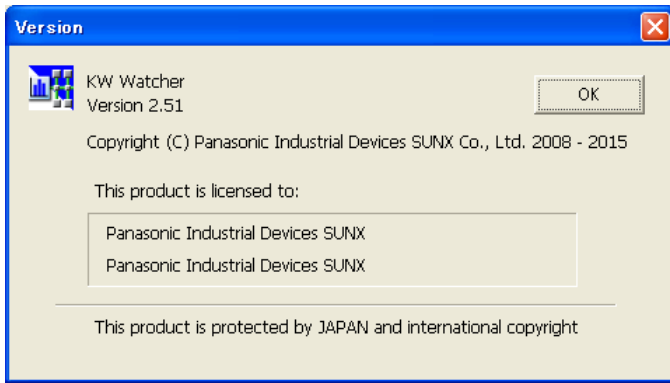
2.3. Title window
Image indicated below is the default main window of this software.

Title (Main) Window
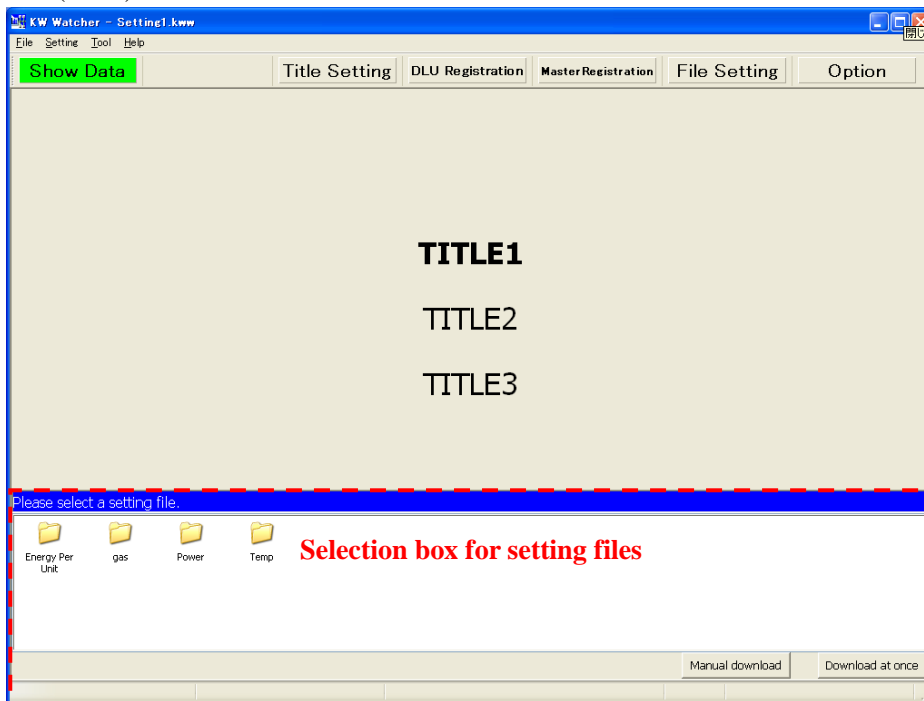
Three different kinds of title can be shown.
No title can be shown as the default.

Selection box for setting files
If checked on "Display selection box for setting files on the title screen" in the option setting,
Folders in "save folder of the setting files displayed on the title screen" specified in the file setting will be displayed in icon view.

Double-click any of folder icons in the selection box for the setting files to open the saved setting files.

[Caution]
Save only ONE setting file in each folder displayed in icon view.
Folder icon will not open if there is more than one setting file or no setting file in a folder when double-clicked.

2.3.1. Button menu
　　The explanation of the button menu on the main window is as follows:

Buttons on the main window

　　Explanation of each button
　1) [Show Data]
　　Click to see the data display setting window.　　(See 2.9 Data display setting)

　2) [Title Setting]
　　Click to see the title editing window.　　(See 2.4 Title setting)

　3) [DLU Registration]
　　Click to see the DLU registration window.　　(See 2.5 Register DLU)
　　　　[Caution]
　　　　This button cannot be selected if "Disapprove to change DLU and master registration" is checked in
　　　　Option setting.

　4) [Master Registration]
　　Click to see the master registration window.　　(See 2.6 Master registration)
　　　　[Caution]
　　　　This button cannot be selected if "Disapprove to change DLU and master registration" is checked in
　　　　Option setting.

　5) [File Setting]
　　Click to see the file setting window.　　(See 2.7 File setting)

　6) [Option]
　　Click to see the option setting window.　　(See 2.8 Option setting)

　7) [Manual download]
　　It downloads manually.

　8) [Download at once]
　　It downloads csv files based on all the setting files stored in the folder specified in "File Setting".

2.4. Title setting
2.4.1. Change titles
    It enables the user to register up to three titles displayed on the title window.
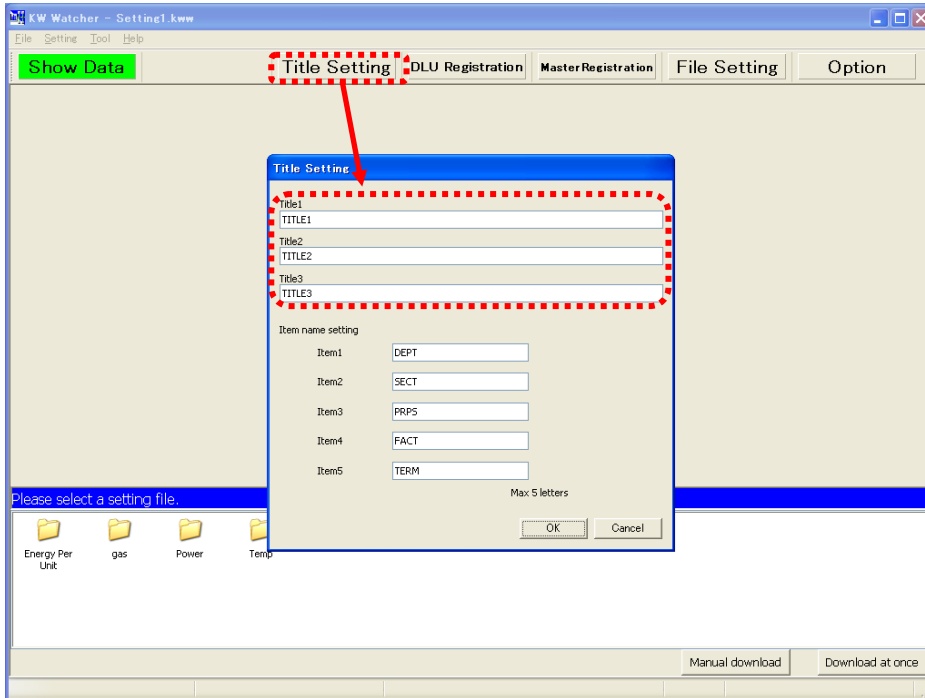
    Click [OK] to confirm changes to the title window.

    Unnecessary titles can be deleted. (Image 2.3.2)
    Titles set in this window are saved as the initial file and loaded in the next start-up.

Image 2.3.2 After title setting

2.4.2. Name for each item setting
        Names of each item can be modified.
        Click [OK] to confirm after changing the names of Items 1 to 5.
        Changes are reflected in the name of items shown on "Show Data", "Master Registration" and the graph.
        Items set here on the window are saved in the setting file and loaded in the next start-up.
        In the default setting, they are "DIV", "SCT", "PRPS", "FACI" and "TERM".

        Setting screen

2.5. DLU registration
It sets to specify the connected device (DLU, DLL, FP7, FP Web-Server, KW2M-X) to be tabulated.
It can be set up to 256 units.
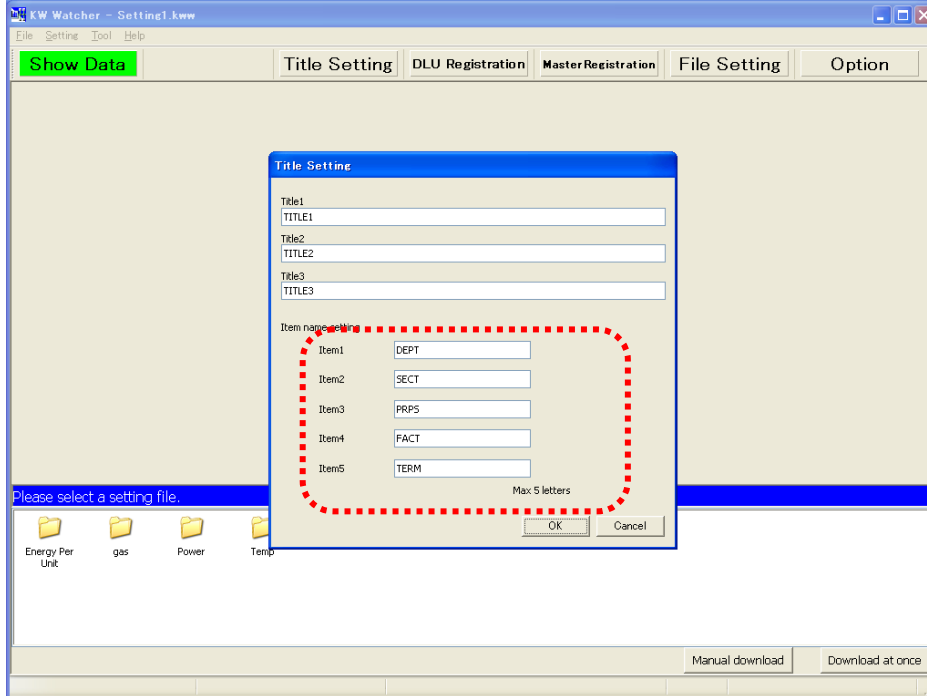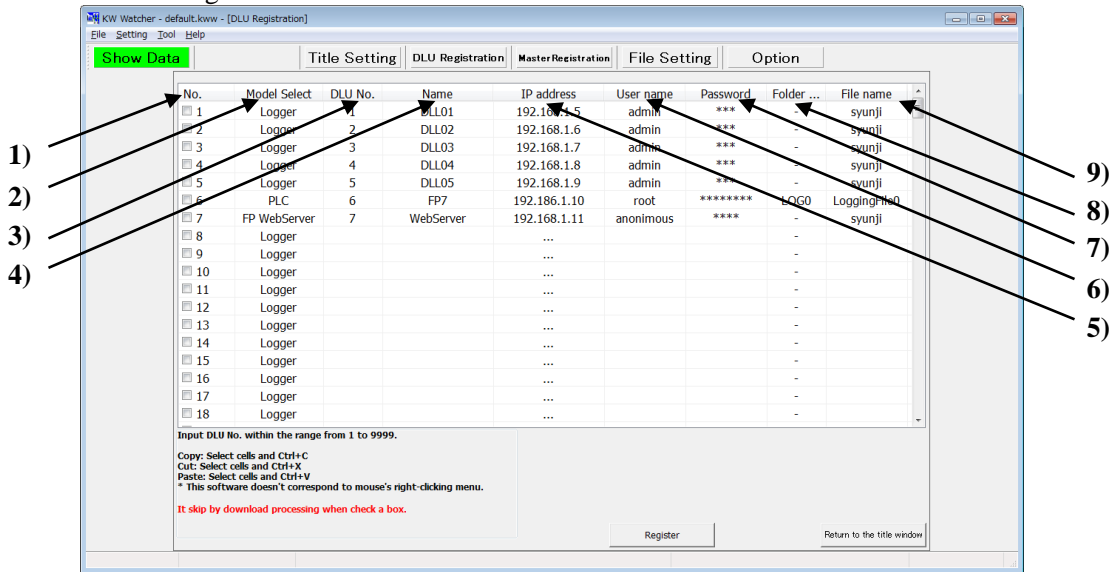
DLU setting screen

2.5.1. Setting items
1) Download check button
Checking this box skips checked IP addresses when downloading.
Be sure to make registrations after checking. Use this button in such cases as "you want to reserve only settings although you have not set equipment." or "you want to view a file without downloading it".

2) Model Select
Select the connected device to download csv.files.

Items	Target
Logger	DLU, DLL, ELC1, ELC2
PLC	PLC FP7, PLC FP0H
FP Web-Server	FP Web-Server
KW2M	KW2M-X
ELC500	ELC500

3) DLU No.
Set within the range of 1 to 9999 with no overlap.
    [Caution]
        No tabulation result can be given if DLU No. isn't set properly.

4) Name
Input name of the connected device.

5) IP address
Input IP address of the connected device.
From Version 1.10, same IP address can be registered in 2 or more.

6) User name
Input user name to connect to the connected device.

7) Password
Input password to connect to the connected device.

8) Folder name
 Select folders to download only when PLC or ELC500is selected at model select.

   [Caution]
   Select LOG 0 to LOG 3 to use FP0H.

9) File name
 Input file name of integrated data stored in the connected device.

   [Caution]
   Refer to the each manual for the usage of each device.
   Only the measured value measured by Eco-POWER METER is supported.

8) Folder name
 Select folders to download only when PLC or ELC500is selected at model select.

See file name in "Storage File Settings" window in DLU or "Logging file setup" in DLL to specify file name.
Refer to the each manual for FP7, FP0H and FP Web-Server.

[DLU]

File name

DLU registration screen

10)

Click [Register] to save as the initial file.

[DLL/ELC1/ELC2]
Logging file setup
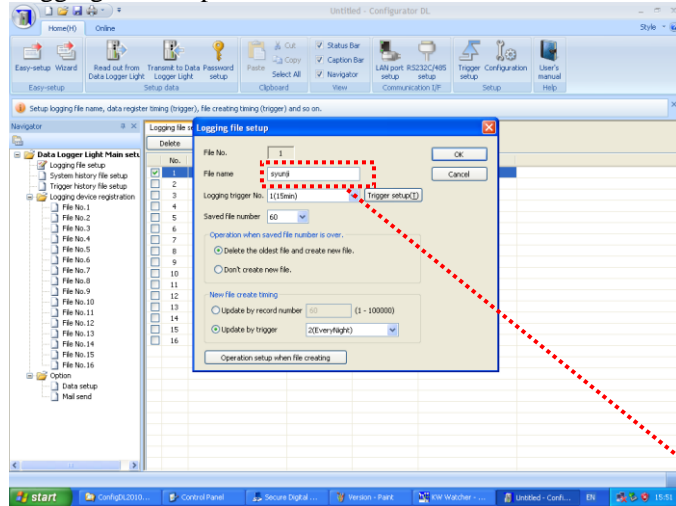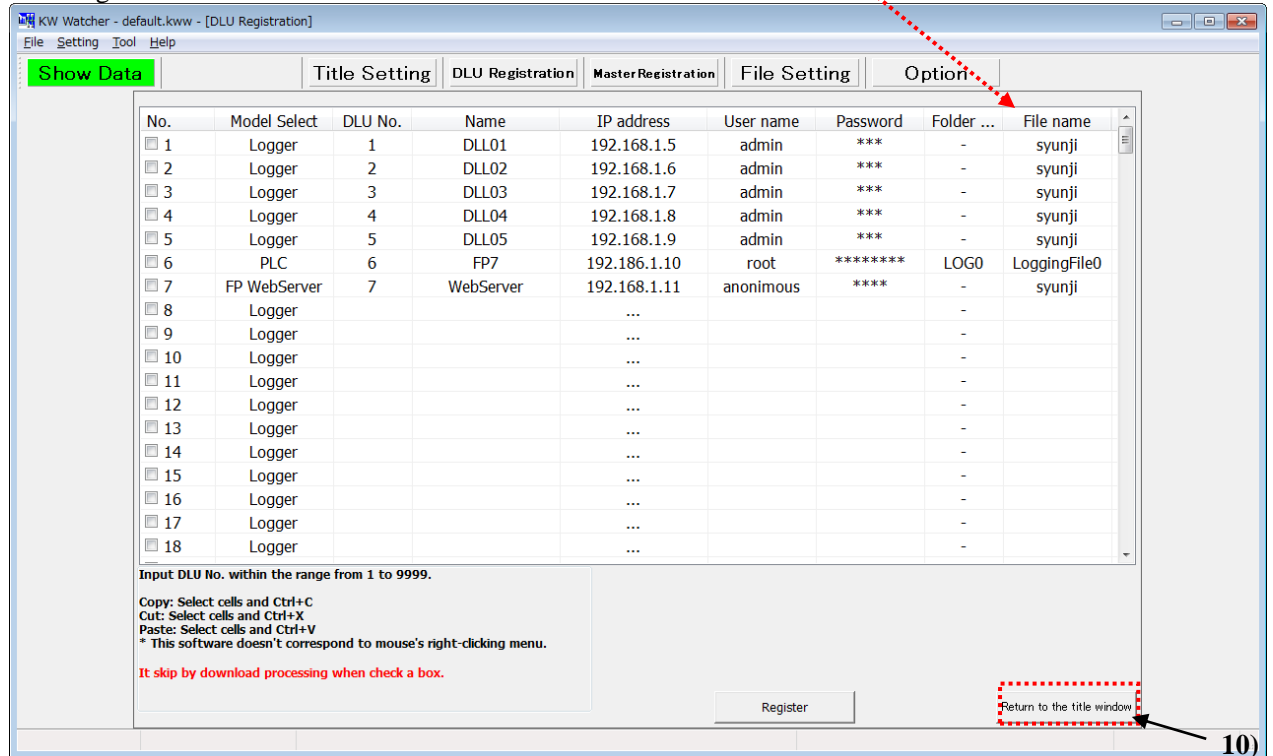
DLU registration screen

10) [Return to the title window]
Click [Return to the title window] or press [F10] key to go back to the title window.
"title window" refers to the first main window when the software starts up.(See 2.3)

[ELC500]
Logging file setup
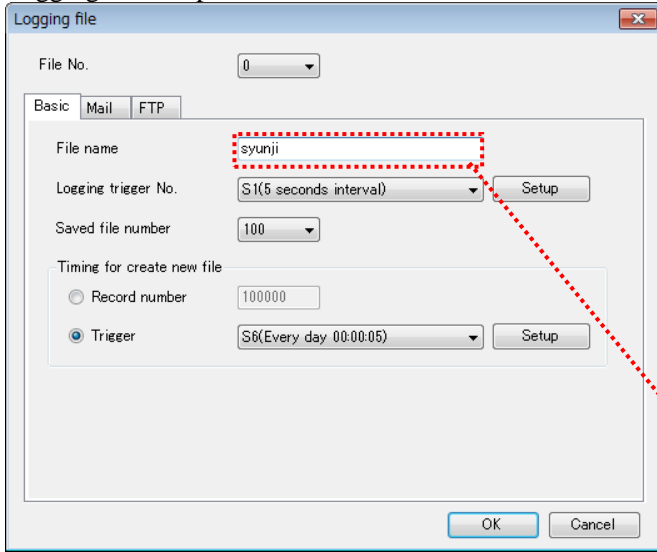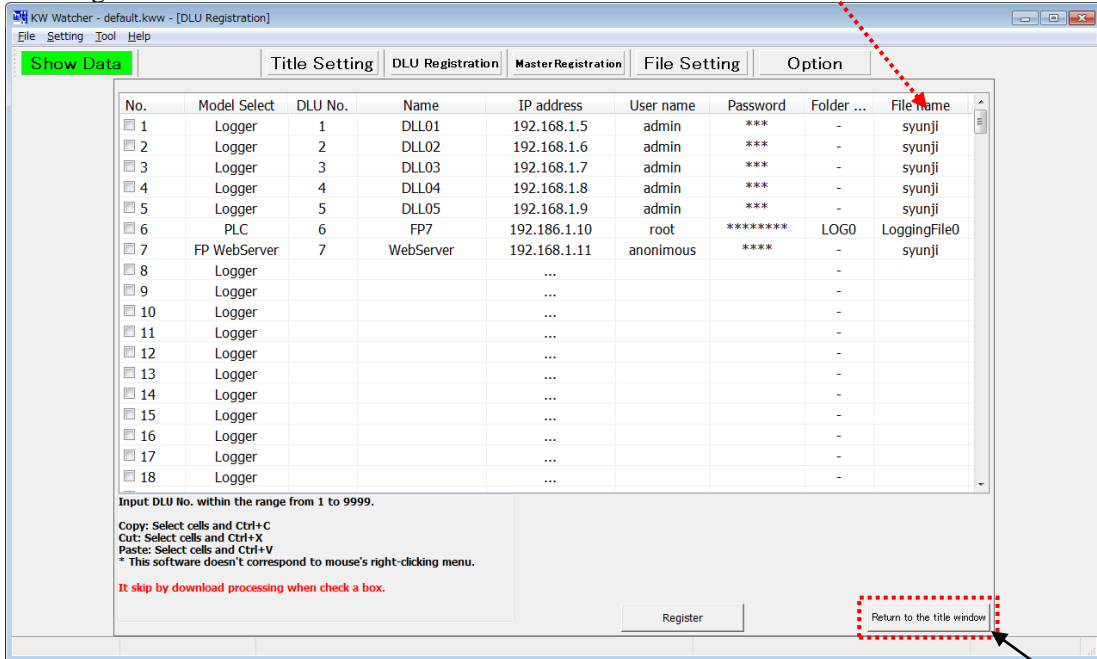
DLU registration screen

10) [Return to the title window]
Click [Return to the title window] or press [F10] key to go back to the title window.
"title window" refers to the first main window when the software starts up.(See 2.3)

2.5.2. Input and edit setting items
    1) How to input
      Press Enter key or double-click the cell you wish to input data in order to
      make it editable (Input mode) with a cursor (|) in the box.
      You can also input directly.
      Press Enter key or click other cells to confirm your input.
      Press ESC key to cancel your input.

| ☐ 12 | 12 |
| ☐ 13 | |

    2) How to edit – Edit existing data
      Press Enter key or double-click the cell you wish to input data into to make
      the existing value highlighted in the box.
      You can also modify the value by input directly into the box.

| ☐ 12 | 12 |
| ☐ 13 | 13 |

    3) How to edit – Delete existing data
      Press DELETE key to delete the data you wish to remove after moving to the cell.
      Press DELETE key to delete a whole row after clicking row No. to select all (See image below).

| ☐ 12 | 12 | DLU0012 | 192.168.1.102 | dlu12 | ** | syunji |
| ☐ 13 | 13 | DLU0013 | 192.168.1.103 | dlu13 | ** | syunji |

    4) How to edit – Copy or move existing data
      Press Ctrl + C to copy data you wish to copy after selecting cell or range.
      Press Ctrl + X to cut data you wish to move after selecting cell or range.
      Press Ctrl + V to paste data after moving to the row in which you wish to do so.
      Copy and Move, and Paste are executed only in the relative columns.
      For example, a copied name can only be pasted in the columns that have been used to store names.

        Copy Sample: Copy from DLU name to file name in No.13 and paste them in No.14

| ☐ 13 | 13 | DLU0013 | 192.168.1.103 | dlu13 | ** | syunji |
| ☐ 14 | | | ... | | | |

↓

| ☐ 13 | 13 | DLU0013 | 192.168.1.103 | dlu13 | ** | syunji |
| ☐ 14 | 13 | DLU0013 | 192.168.1.103 | dlu13 | ** | syunji |

        Move Sample: Cut data in No.13 and paste it in No.14

| ☐ 13 | 13 | DLU0013 | 192.168.1.103 | dlu13 | ** | syunji |
| ☐ 14 | | | ... | | | |

↓

| ☐ 13 | | | ... | | | |
| ☐ 14 | 13 | DLU0013 | 192.168.1.103 | dlu13 | ** | syunji |

2.5.3. Register and abort settings
    Click [Register] to register settings.
    The registration process window pops up after clicking [Register]. (See image below)
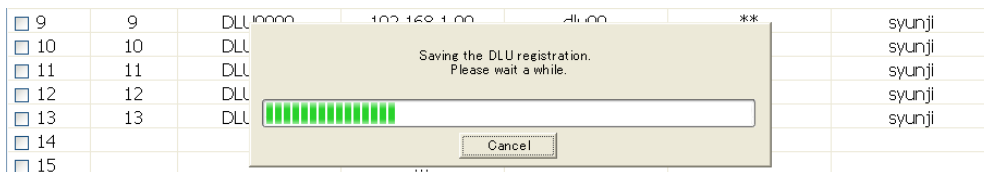
A window pops up to ask whether you wish to register or not if you move to other windows without register.
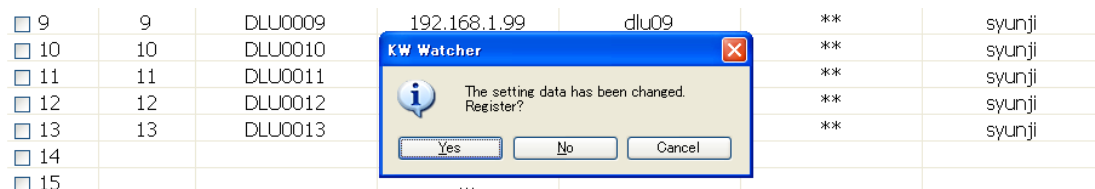
Setting details are registered if you click [Yes] here.
Setting details are aborted if you click [No]. And then the window disappears.
DLU registration continues after the window disappears if you click [Cancel].

    [Caution]
    For using KW Watcher, set the configuration and logging file in DLU, DLL, ELC1 or ELC2 as below.

[DLU]
1) Select compact flash for storage place of logging file in "Main Unit Configuration Settings".
   (CF card is necessary to use KW Watcher.)
2) Logging File setup
   File name   : Name it same as file name in DLU registration screen of KW Watcher.
              (In case of setting by "DLU Setting Tool", the file which name is [syunji] is created.)

No.	File name	Logging Trigger	No. of Records	No. of Generations	Updating Trigger
1	syunji	No. 1(1hr.cycle)	60000	60	No. 2(EveryDay)

Logging Trigger: 1hr.   Updating Trigger: Every Day 00:00:00
No. of Records: 60000 (recommended)   No. of Generations: 60 (recommended)

* As for Logging Trigger and Updating Trigger, select from the items registered in Trigger Settings.
* To display data by 15 or 30 minutes, set the logging trigger to 15 or 30 minutes respectively.

3) Device Registration

Block No.	Name	Target	Unit No.	Device Selection		
1	No.1.	COM1(Register)	01	DT	100	– 1 Point

Logging Type	Data Format	Conversion	Conversion Parameter	Unit	Digit
Instantaneous Value	DEC2W(No code)	Convert	0.01	kWh	Not use

Logging Type: Instantaneous Value   Data Format: DEC2W (No code)
Conversion: Convert   Conversion Parameter: 0.01
Unit: kWh (recommended)   Device Selection: DT100-1point
Block No.: Be sure to register consecutive number
(Device Selection, DT100 is for Eco-POWER METER.)

4) Storage File Settings for Various Action Settings in Configuration
   Operation Without Enough Disk Space: Create a new file
   Other settings should be initial settings.

Setting of File Accumulation	
Operation Without Enough Disk Space	⊙ Not create a new file. ○ Create a new file (Delete the oldest file).
Reserve	0
Movement in the stop mode	☑ Make [_MOD] file
Operation in the Power ON	☑ Make the [_POW] file
Save Timing to CF card from SRAM	Record Num. Auto Trigger No. None
Layout Setting	
The number below a decimal point	2
Header Item	☑ No. ☑ Name ☑ Target ☑ Registration Data ☑ Logging Type ☑ Data Format ☑ Unit
Date and Time	⊙ Date and Time are recorded on another cell. ○ Date and Time are recorded on same cell.
Recording method at 0 o'clock	⊙ Record as "0" ○ Record as "24"
File Name Setting	
Setting Items	☑ Create the Folder. ☑ Attach the "( )". ☑ Attach the "hour,minutes,second" data. ☑ Attach the definite element of a file.

[Caution]
When "Make [_MOD] file" and "Make [_POW] file" are unchecked, the data might be missing.
However, max version number will be exceeded, if it changes mode and turns on frequently.

5) Others
   Be sure to set time.

[DLL/ELC1/ELC2]
1) Set the items in the setting software "Configurator DL" for DLL as below.

Configuration > Logging file setup
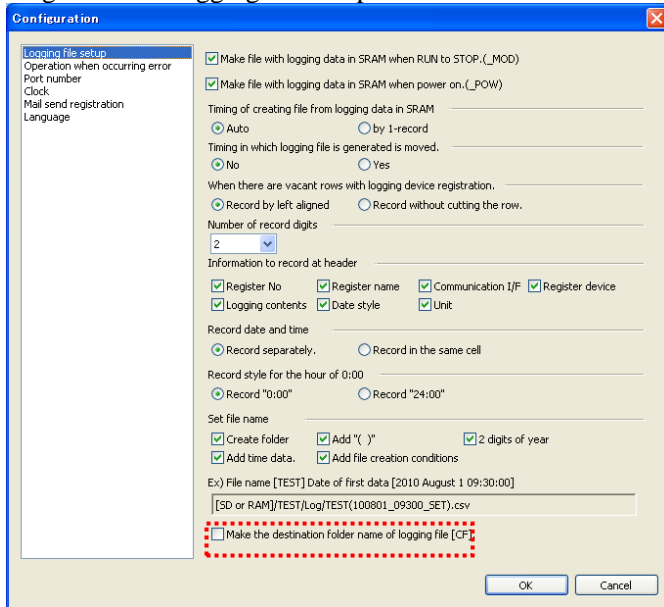
[Caution]
・Always check "Make the destination folder name of logging file [CF].".
・Please warn him in there being a threat that logging data lack when I exclude a check to
"Make file with logging data in SRAM when power on.(_POW)" to "Make file with logging data in
SRAM when RUN to STOP.(_MOD)".
Other settings should be initial settings.

2) Logging file setup
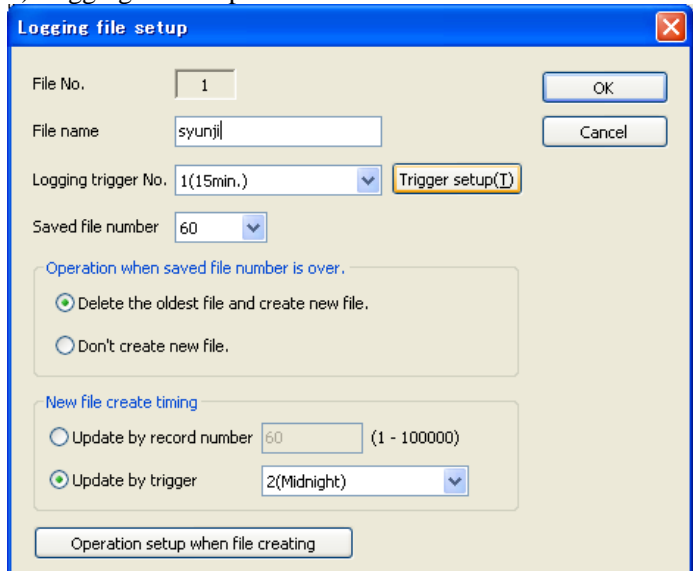
Logging trigger No.: 15 min. cycle   Updating trigger: 0:00 of every day
Saved file number: 100

* As for Logging Trigger and Updating Trigger, select from the items registered in Trigger Settings.
* To display data by 15, 30 or 60 minutes, set the logging trigger to 15, 30 or 60 minutes respectively.

3) Logging device registration

Logging contents: Inst. Value   Data style: DEC2W(No code)
Convert when creating csv: Checked   Conversion parameter: 0.01
Unit: kWh (recommended)   Device: DT100
(Device: DT100 is for Eco-POWER METER.)

4) Others
  Be sure to set time.

* For the details of each setting, refer to "Data Logger Light User's Manual".

[ELC500]
1) Set the items in the setting software "Configurator EL500" for ELC500 as below.

Basic configuration > Option
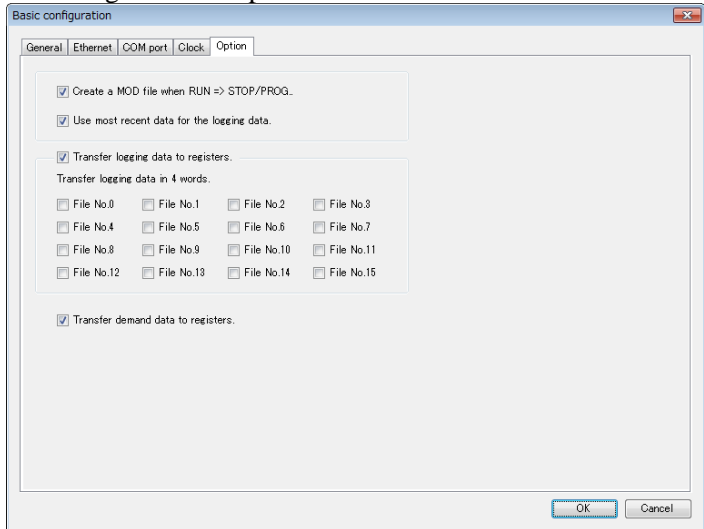
[Caution]
・When you uncheck "Create a MOD file when RUN => STOP/PROG.", it will miss logging data.

Other settings should be initial settings.

2) Logging file setup
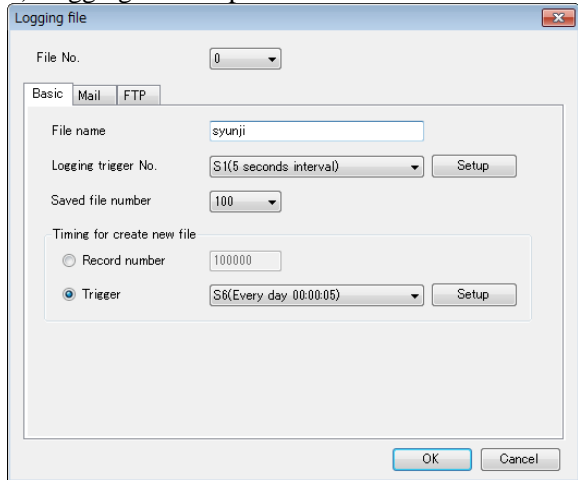
Logging trigger No.: S3 (15 minutes interval)
Updating trigger: S6 (every day 00:00:05)
Saved file number: 100

* As for Logging Trigger and Updating Trigger, select from the existed triggers.
* To display data by 15, 30 or 60 minutes, set the logging trigger to 15, 30 or 60 minutes respectively.

3) Logging device registration

Logging contents: Inst. value   Data style: DEC2W (Unsigned)
Multiplier: 0.01   Unit: kWh (recommended)
Device: DT100 (Device: DT100 is for Eco-POWER METER.)

4) Others
  Be sure to set time.

    [Caution]
     ・When using synchronize function of connected device, set time to synchronize at other than 00, 15,
      30, 45. If it set the same cycle as a logging cycle, it may log several data for the same time.

* For the details of each setting, refer to "ELC500 User's Manual".

About Download error

When executing manual or automatic download, it may not be performed for any reason.
In such case, the master registration button turns red.
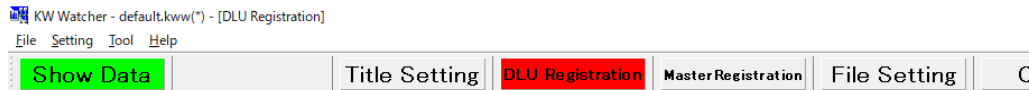
Moving to the DLU registration screen enables you to check on which connected device the error occurs.
(The connected device that the error occurs is highlighted in red.)
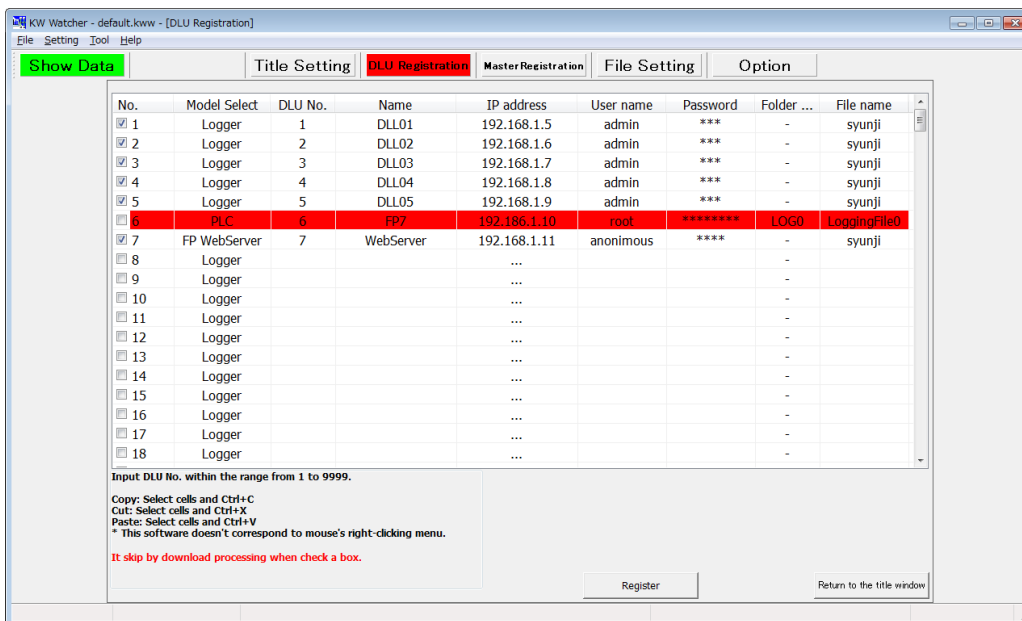
The display returns to the normal state under the following conditions.
 -when measures against the error was taken and download was completed successfully after downloading
  again
 -when DLU registration was changed or updated
 -when the setting file was switched
 -when software was restarted

When the error occurs, a log file will be created in the following location.
 -Windows 8.1   :
  C:¥Users¥*[User]* ¥AppData¥Local¥VirtualStore¥Program Files¥Panasonic-EW Control¥KW
  Watcher¥DLU.log

 -Windows 10   :
  C:¥Users¥[User] ¥AppData¥Local¥VirtualStore¥Program Files¥Panasonic-EW Control¥KW
  Watcher¥DLU.log

2.6. Mater registration

Master registration is needed in configuration to specify each connected device and Eco-POWER METER.
Changes (Add or Delete) are not reflected in the setting file immediately.
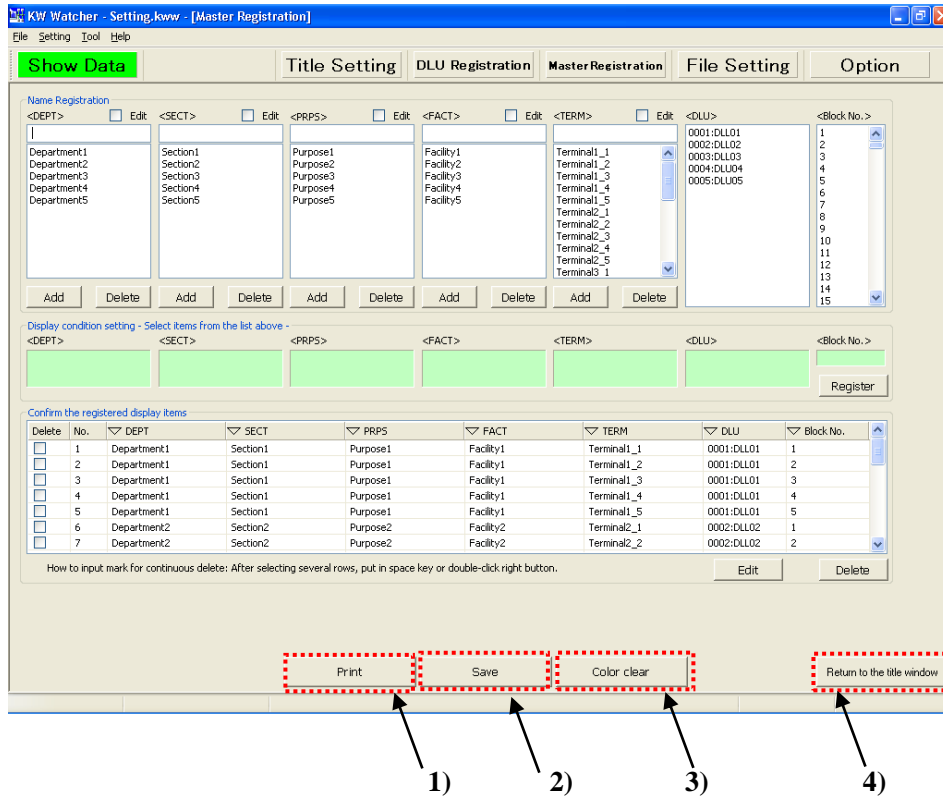
1) Print
  -Click [Print] to use the print function. (See 2.22 Print sample)
  -It prints screens from the currently available printer. (See 2.21 Print function)
  -Note that the print function does not work if the printer is not configured properly.

    [Caution]
    Excel is required to print the master registration.

2) Save
  Registration details for display condition are saved in CSV format.

3) Color clear   (See 2.6.6)
  Clear all color settings for each item.

4) Return to the title window
  Click [Return to the title window] or press the [F10] key to go back to the title window.

2.6.1. Register name

1) Add names

Uncheck the box (1).　　(Image 2.6.1.1)

Input names to be registered in the box (2).
(Image 2.6.1.2)

Image 2.6.1.1
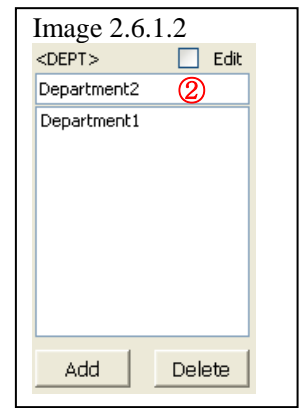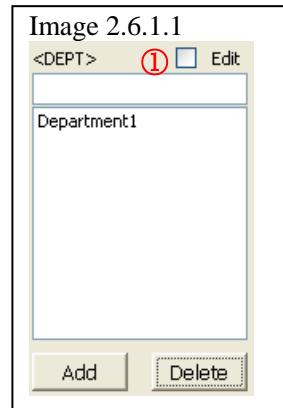
Image 2.6.1.2

Click [Add] to add to the list in the box (4).
(Image 2.6.1.3)
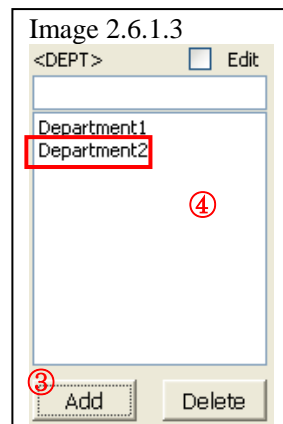
Image 2.6.1.3

Add names in "SECT", "PRPS", "FACI", and "TERM" in the same way as "DEPT".

2) Edit names

Check the box (1) to be Edit mode.   (Image 2.6.1.4)

Background color of the name list turns blue in Edit mode.   (Image 2.6.1.5)

Image 2.6.1.4
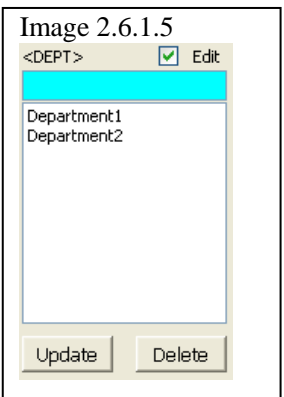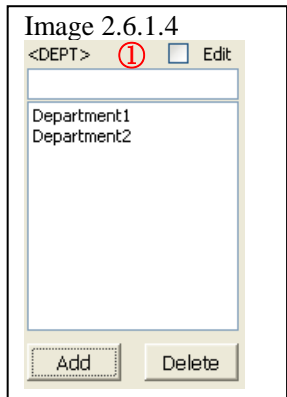
Image 2.6.1.5

Select the list in the box (2).   (Image 2.6.1.6)

Change the name in the box (3).   (Image 2.6.1.7)

Image 2.6.1.6
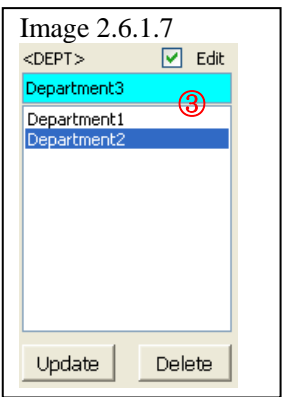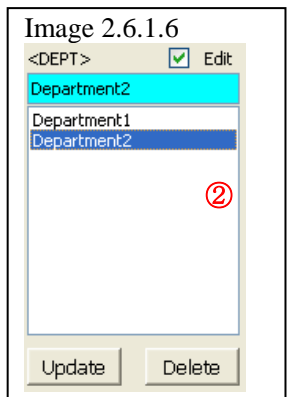
Image 2.6.1.7

Click [Update] to modify the box (2).
Department2 → Department3
(Image 2.6.1.8)
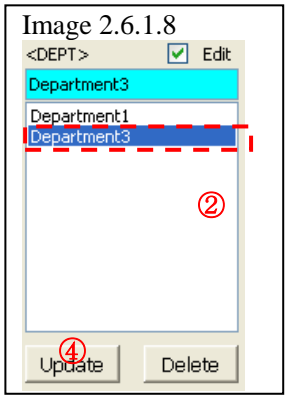
Image 2.6.1.8

Update names in "SECT", "PRPS", "FACI", and "TERM" in the same way as "DEPT".

3) Delete names

Click [Delete] to delete the existing name data by selecting from the list in the box (2).   (Image 2.6.1.9)

Check the box (1) is NOT required when DELETE.   (Image 2.6.1.9)
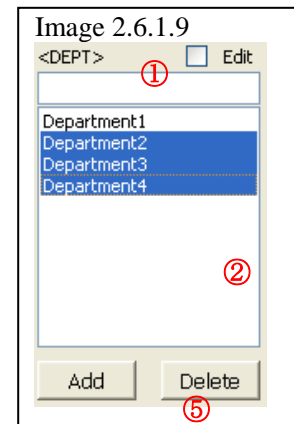
Image 2.6.1.9

Click [Delete] and confirm on the pop up window.
(Image 2.6.1.10)

Image 2.6.1.10
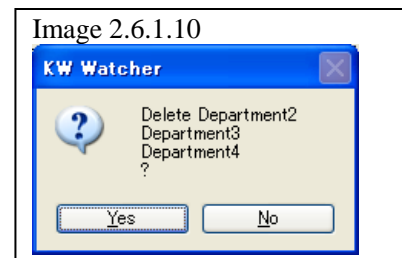
Delete names in "SECT", "PRPS", "FACI", and "TERM" in the same way as "DEPT".

[Caution]
All the related registered data in the display items is also deleted when the name is deleted.

2.6.2. Select DLU and Block number
　　　Select DLU and Block No. from the list.

　　1) Select DLU
　　　Select from the <DLU> list.
　　　Only registered DLU is displayed in the DLU list.

<DLU>

0001:DLU001
0002:DLU002
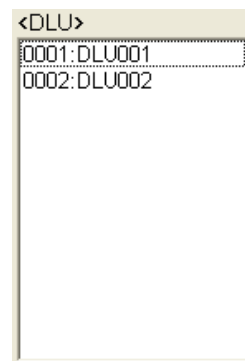
　　2) Select Block No.
　　　Select from the <Block No.> list.

　　　How to select Block No.
　　　<Block No.> can be selected from the range of 1 to 250 in the list.
　　　<Block No.> corresponds to data arrangement of logging file (csv file).

<Block No.

1
2
3
4
5
6
7
8
9
10
11
12
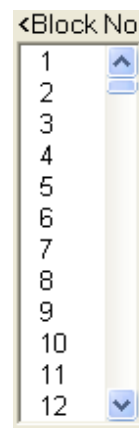
Block No.1　　Block No.2　　Block No.3　　Block No.4・・・

	A	B	C	D	E	F	
1	Date	Time	1	2	3	4	
2			air conditioner1	air conditioner2	air conditione3	air conditioner4	air c
3			COM1 [Unit No.1]	COM1 [Unit No.2]	COM1 [Unit No.3]	COM1 [Unit No.4]	COM
4			DT100	DT100	DT100	DT100	DT1C
5			MOMENT	MOMENT	MOMENT	MOMENT	MOM
6			US32 -> FLT	US32 -> FLT	US32 -> FLT	US32 -> FLT	US32
7			kWh	kWh	kWh	kWh	kWh
8	2011/1/1	0:15:00	2461.34	1802.44	3329.31	987.09	20
9	2011/1/1	0:30:00	2461.34	1802.44	3329.33	987.09	2(
10	2011/1/1	0:45:00	2461.34	1802.44	3329.36	987.09	20
11	2011/1/1	1:00:00	2461.34	1802.44	3329.38	987.09	20
12	2011/1/1	1:15:00	2461.34	1802.44	3329.41	987.09	20
13	2011/1/1	1:30:00	2461.34	1802.44	3329.43	987.09	2(
14	2011/1/1	1:45:00	2461.34	1802.44	3329.45	987.09	20
15	2011/1/1	2:00:00	2461.34	1802.44	3329.48	987.09	20
16	2011/1/1	2:15:00	2461.34	1802.44	3329.5	987.09	20
17	2011/1/1	2:30:00	2461.34	1802.44	3329.53	987.09	2(
18	2011/1/1	2:45:00	2461.34	1802.44	3329.55	987.09	20
19	2011/1/1	3:00:00	2461.34	1802.44	3329.58	987.09	20
20	2011/1/1	3:15:00	2461.34	1802.44	3329.6	987.09	20
21	2011/1/1	3:30:00	2461.34	1802.44	3329.62	987.09	2(
22	2011/1/1	3:45:00	2461.34	1802.44	3329.65	987.09	20
23	2011/1/1	4:00:00	2461.34	1802.44	3329.67	987.09	20
24	2011/1/1	4:15:00	2461.34	1802.44	3329.7	987.09	20
25	2011/1/1	4:30:00	2461.34	1802.44	3329.72	987.09	2(

← Block No.

[Logging file (csv file)]

　　　[Caution]
　　　Block No. is same as the registration number of logging device registration.
　　　However, with the below case, the block No. is moved.
　　　For DLU: Continuous block registration
　　　For DLL,ELC1,ELC2: Register logging device from the top

[Caution]
For DLU, it registers as to Image 2.6.2.2, when it saves with CSV file it push into before position.
In case of Image 2.6.2.2, it registers No.3 without No.2, but block No. for KW Watcher is '2'. If you need to avoid this, it registers to No.2 with dummy.

Image 2.6.2.1

Delete | Maximum Number of Registrations 248 | Maximum Block Number of Registrations 248

■	Block No.	Name	Registration Device	Logging Type	Data Format
☐	1	KW4M-1	COM1(Register) Unit No.01 DT100	Instantaneous Value	DEC2W(No code) [*0.01] kWh
☐	2	KW4M-2	COM1(Register) Unit No.02 DT100	Instantaneous Value	DEC2W(No code) [*0.01] kWh
☐	3				
☐	4				
☐	5				

Image 2.6.2.2

Delete | Maximum Number of Registrations 248 | Maximum Block Number of Registrations 248

■	Block No.	Name	Registration Device	Logging Type	Data Format
☐	1	KW4M-1	COM1(Register) Unit No.01 DT100	Instantaneous Value	DEC2W(No code) [*0.01] kWh
☐	2				
☐	3	KW4M-2	COM1(Register) Unit No.02 DT100	Instantaneous Value	DEC2W(No code) [*0.01] kWh
☐	4				
☐	5				

2.6.3. Display condition setting
Register each condition selected from the name registration list as a display condition.

If you select from DEPT list, name will be displayed in the green box of display condition setting <Condition 1:DEPT>.
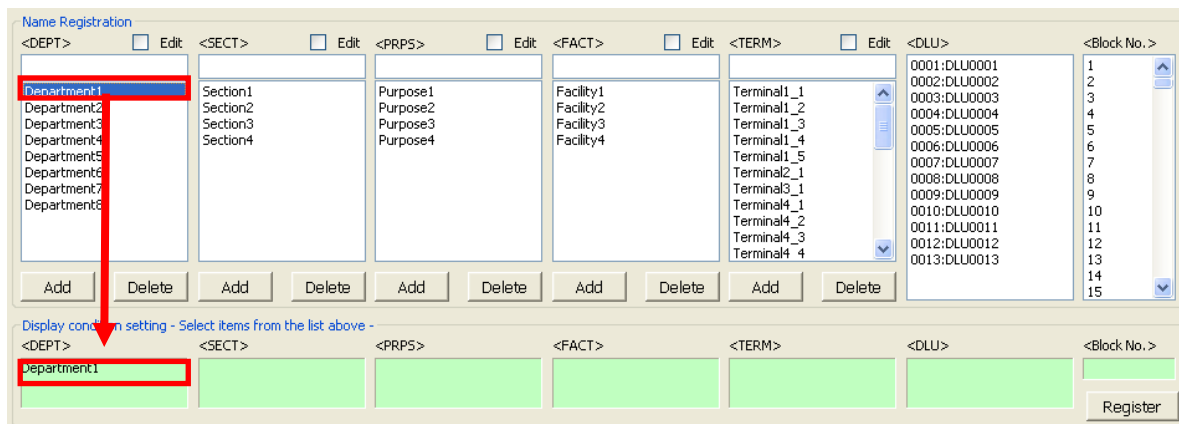
Select the other lists for "SECT", "PRPS", "FACI", "TERM", "DLU", and "Block No." by the same way. Click [Register] after selecting each list to register Condition 1 to 5, DLU, and Block No.
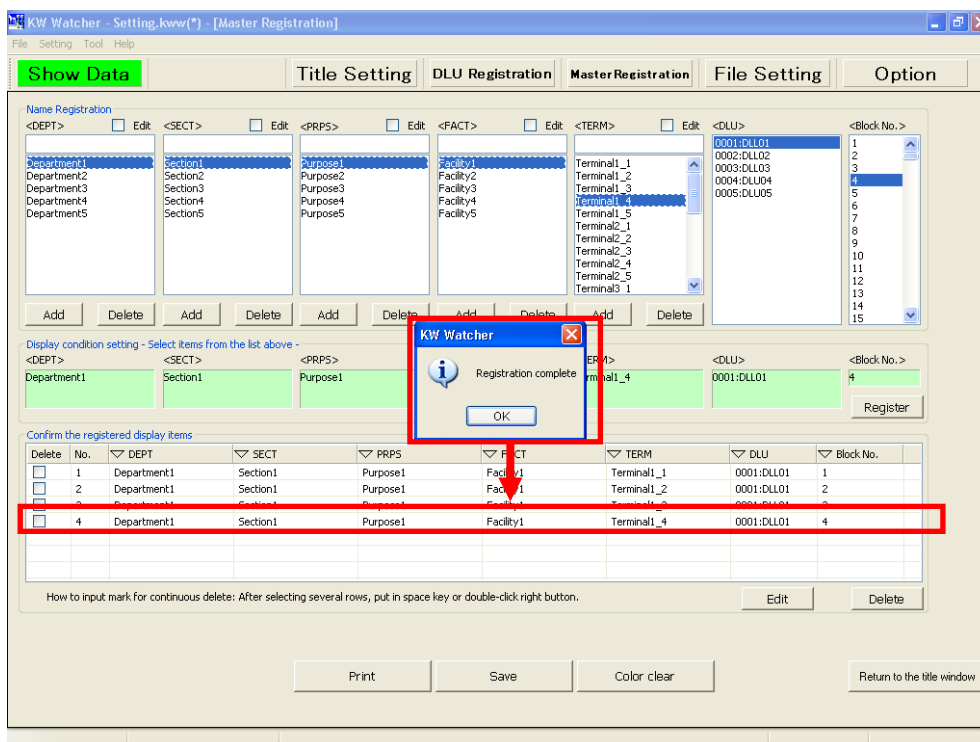
Registration result can be reviewed on display condition registration history.

[Caution]
Names in "TERM" (Item5) cannot be overlapped.

2.6.4. Display condition registration history
A list of registered display condition is displayed.

1) [Delete]
Check delete boxes to select the item you wish to delete.
Double click the desired row or press[SPACE] key after moving up and down with [↑], [↓] keys to check or uncheck the box.
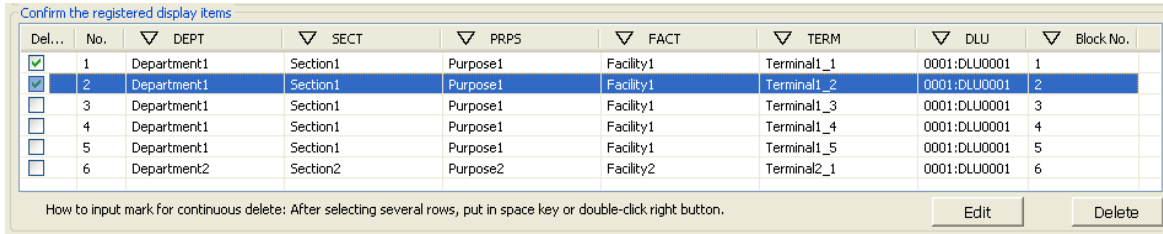
Also, you can check multiple rows at once.
Either drag down from the top row to the bottom row that you wish to delete or press [↓] key while holding down [SHIFT] key.
Either RIGHT double-click or press [SPACE] key to check on all the selected rows.
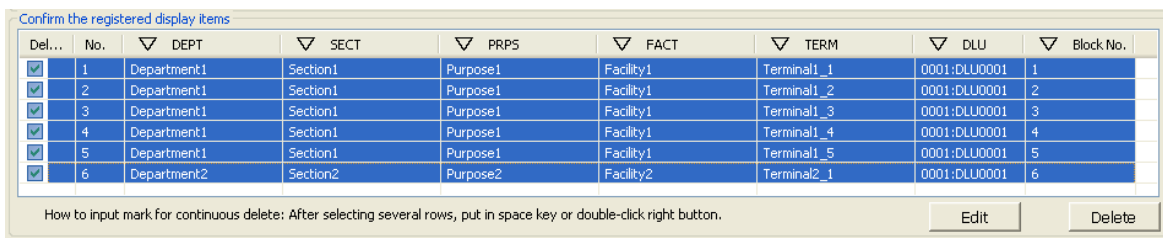
Click [Delete] and confirm on the pop up window.
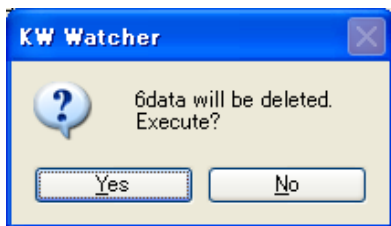
Click [Yes] to confirm that you wish to delete.

If you wish to delete some records in the data, which is displayed in list view, the more data you select, the longer it will take to delete, because it deletes one record after another.
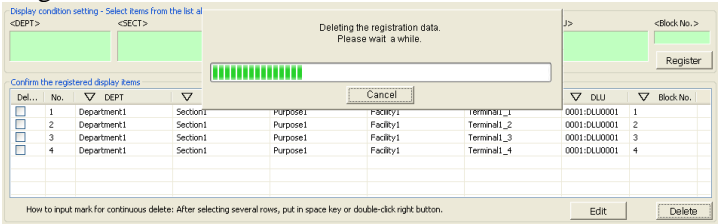
If you wish to delete the whole data, which is displayed in list view, no process window pops up like the above example, because all the data is deleted at once.

All the data displayed in list view means all the registered data if no filter is applied, and all the data that meets the filtering criteria is deleted at once if a filter is applied.

See "2.6.5 Apply filter in display item registration history".

Window pops up when deletion is complete.

2) [Edit]

Click [Edit] and it is indicated with yellow.

Select the display condition registration history and registered data is displayed.

Re-select display condition setting in 2.6.3.

Click [Update] in the display condition setting to edit items on the display condition registration history window.
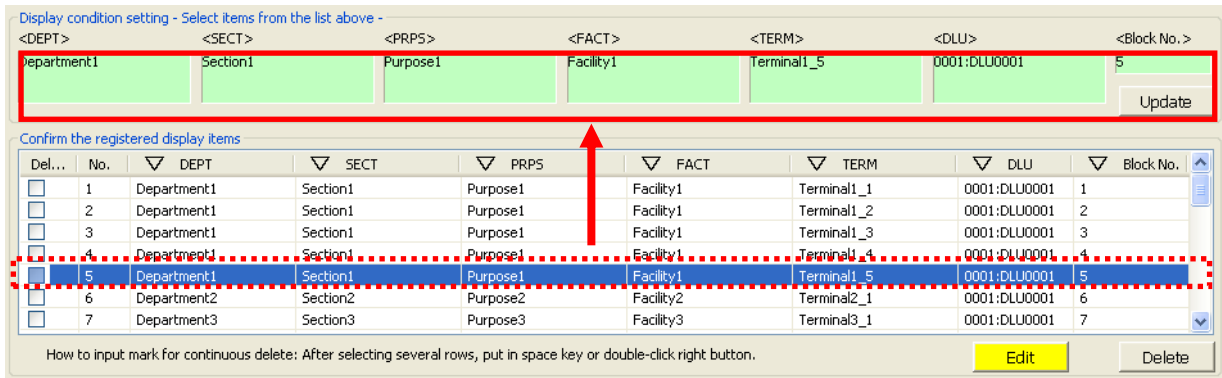
The result after editing.

2.6.5. Apply filter in display item registration history
    1) Each item can be displayed with a filter applied.
    2) Click ▽ button to select each item from the pull down menu.
    3) Apply the filter in this example to <DEPT> "Department1", <PRPS> "Purpose1".
       Filtered items are indicated by ▼.
    4) You will return to▽ if you select "All" in the filtered list.

(1)

Confirm the registered display items

Del...	No.	▽ DEPT	▽ SECT	▽ PRPS	▽ FACT	▽ TERM	▽ DLU	▽ Block No.
☐	1	Department1	Section1	Purpose1	Facility1	Terminal1_1	0001:DLU0001	1
☐	2	Department1	Section1	Purpose1	Facility1	Terminal1_2	0001:DLU0001	2
☐	3	Department1	Section1	Purpose1	Facility1	Terminal1_3	0001:DLU0001	3
☐	4	Department1	Section1	Purpose1	Facility1	Terminal1_4	0001:DLU0001	4
☐	5	Department1	Section1	Purpose1	Facility1	Terminal1_5	0001:DLU0001	5
☐	6	Department2	Section2	Purpose2	Facility2	Terminal2_1	0001:DLU0001	6
☐	7	Department3	Section3	Purpose3	Facility3	Terminal3_1	0001:DLU0001	7

(2)

Confirm the registered display items

Del...	No.	▽ DEPT	▽ SECT	▽ PRPS	▽ FACT	▽ TERM	▽ DLU	▽ Block No.
☐	1	All	Section1	Purpose1	Facility1	Terminal1_1	0001:DLU0001	1
☐	2	Department1	Section1	Purpose1	Facility1	Terminal1_2	0001:DLU0001	2
☐	3	Department2	Section1	Purpose1	Facility1	Terminal1_3	0001:DLU0001	3
☐	4	Department3	Section1	Purpose1	Facility1	Terminal1_4	0001:DLU0001	4
☐	5	Department4	Section1	Purpose1	Facility1	Terminal1_5	0001:DLU0001	5
☐	6	Department5	Section2	Purpose2	Facility2	Terminal2_1	0001:DLU0001	6
☐	7		Section3	Purpose3	Facility3	Terminal3_1	0001:DLU0001	7

(3)

Confirm the registered display items

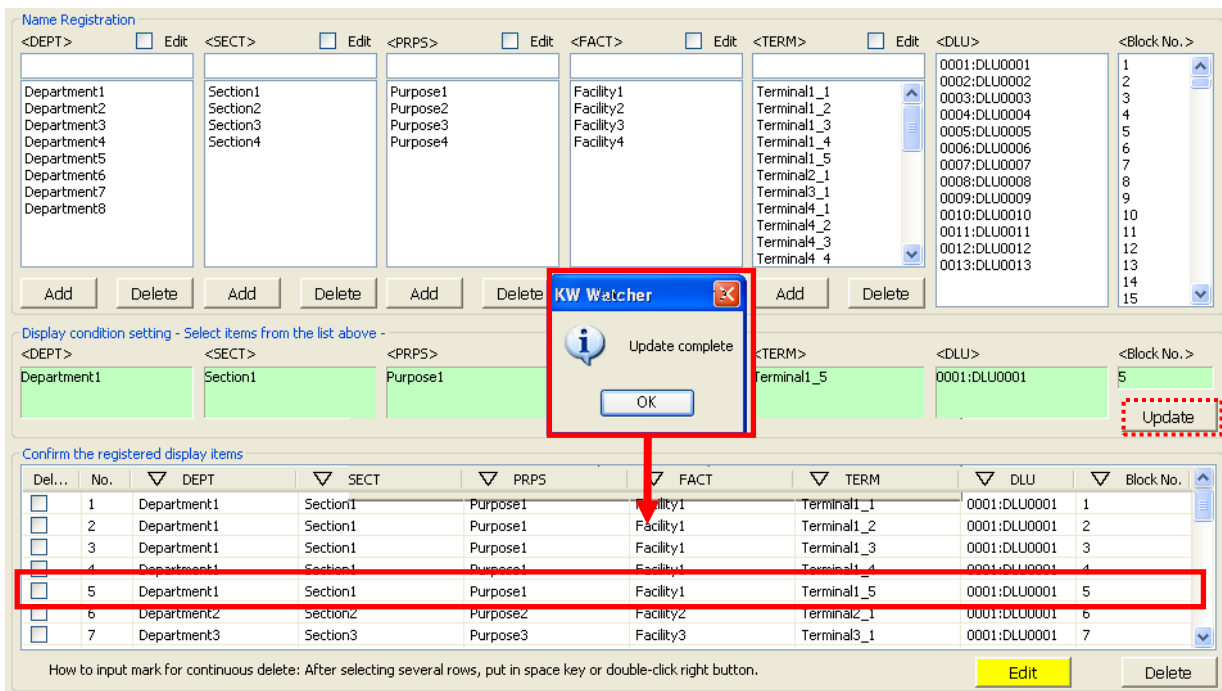| Del...	No.	▼ DEPT	▽ SECT	▽ PRPS	▽ FACT	▽ TERM	▽ DLU	▽ Block No.
☐	1	Department1	Section1	Purpose1	Facility1	Terminal1_1	0001:DLU0001	1
☐	2	Department1	Section1	Purpose1	Facility1	Terminal1_2	0001:DLU0001	2
☐	3	Department1	Section1	Purpose1	Facility1	Terminal1_3	0001:DLU0001	3
☐	4	Department1	Section1	Purpose1	Facility1	Terminal1_4	0001:DLU0001	4
☐	5	Department1	Section1	Purpose1	Facility1	Terminal1_5	0001:DLU0001	5

(4)

Confirm the registered display items

Del...	No.	▽ DEPT	▽ SECT	▽ PRPS	▽ FACT	▽ TERM	▽ DLU	▽ Block No.
☐	1	Department1	Section1	Purpose1	Facility1	Terminal1_1	0001:DLU0001	1
☐	2	Department1	Section1	Purpose1	Facility1	Terminal1_2	0001:DLU0001	2
☐	3	Department1	Section1	Purpose1	Facility1	Terminal1_3	0001:DLU0001	3
☐	4	Department1	Section1	Purpose1	Facility1	Terminal1_4	0001:DLU0001	4
☐	5	Department1	Section1	Purpose1	Facility1	Terminal1_5	0001:DLU0001	5
☐	6	Department2	Section2	Purpose2	Facility2	Terminal2_1	0001:DLU0001	6
☐	7	Department3	Section3	Purpose3	Facility3	Terminal3_1	0001:DLU0001	7

2.6.6. Color setting for each item
It can designate color for each item.
It displays graphs with designated color for each item.
The color is set by random without the designation item when it displays graphs.
Up to 24-color can be registered for each item.

[How to register]
1) Double-click the designated item.
2) Color select window will appear and select colors.
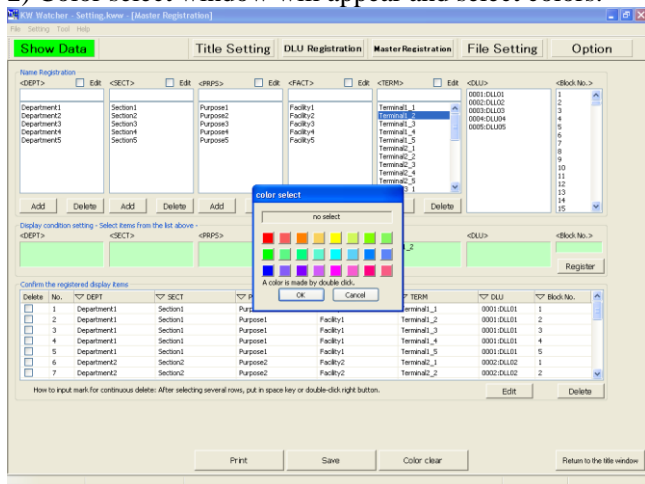
3) After selecting color and click OK, the back of the item will be changed with selected color.
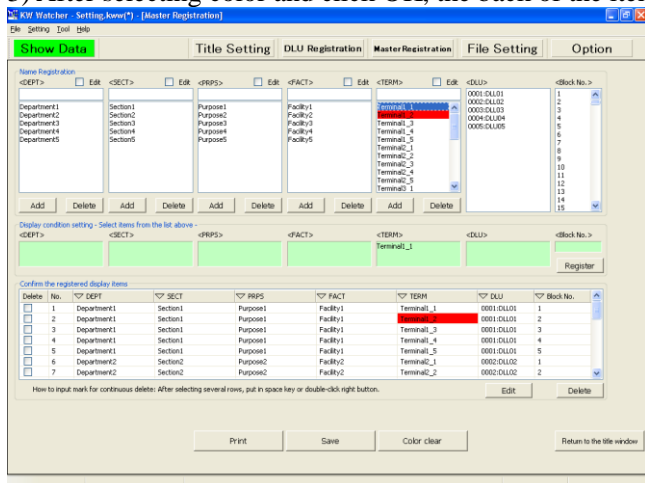
[Caution]
It is impossible to select colors when "Show temperature/humidity/trend graph" is checked on option setting.

2.7. File setting

 Sets the save location for files downloaded from connected device and for setting files selected on the title screen.

 Default of the save location of accumulated data files is the Log folder under the application folder (the folder where this software is installed).

 Default of the save location of setting files displayed on the title screen is set as Application folder.
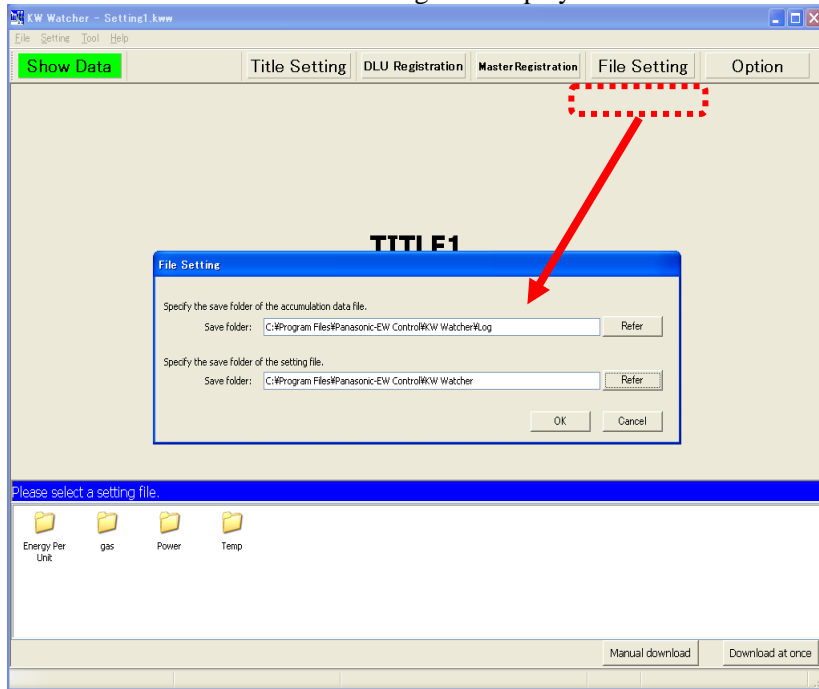
 Input directly or click [Refer] to change the save location.

 The structure of the save location of accumulated data files is decided based on the DLU No. selected in "2.5 Register DLU" specified in this "File setting". (See Image 2.7.1)

 Setting menu of the save location of setting files displayed on the title screen will be displayed only if checked on "Display the selection box of the setting files on the title screen" in "2.8 Option setting" See "Image 2.7.2 Settings examples of setting files folders displayed on the title screen".

Available save location

(1) My Computer

 Available in all directories inside My Computer.

(2) Network folders

 Available in the connectable network folders displayed in My Network.

Image 2.7.1 Save location specified in File setting
ex.) C:¥Program Files¥Panasonic-EW Control¥KW Watcher¥Log

DLU0001

syunji (070901_010000_TRG).csv
syunji (070902_010000_TRG).csv
syunji(070903_010000_TRG).csv
:
syunji (070913_010000_TRG).csv
syunji (070914_010000_TRG).csv
syunji (070915_010000_TRG).csv

DLU0002

syunji (070901_010000_TRG).csv
syunji (070902_010000_TRG).csv
syunji (070903_010000_TRG).csv
:
syunji (070913_010000_TRG).csv
syunji (070914_010000_TRG).csv
syunji (070915_010000_TRG).csv

DLU0003

DLU9000

DLU9001

DLU setting

No.	DLU No.	Name
1	1	DLU0001
2	2	DLU0002
3	3	DLU0003
4	4	DLU0004
5	5	DLU0005
6	6	DLU0006
7	7	DLU0007
8	8	DLU0008
9	9	DLU0009
10	10	DLU0010
11	11	DLU0011
12	12	DLU0012
13	13	DLU0013
14		
15	9000	DLU9000
16	9001	DLU9001
17		

DLU No. folder is created according to DLU setting under the folder specified in File setting.
Downloaded files are saved in this folder.

[Caution]
Note that files accessed on a daily basis (recorded in 24 hours) can only process data for up to two months due to the DLU setting, which sets the maximum number of generations of stored data as being up to 60. Besides this, data covers the selected year from January to December if you select data on a monthly basis in data display setting.
(In case of DLL, the maximum number of generations is 100. For files on a daily basis, data can be processed for up to about three months.)
It is highly recommended to store downloaded CSV files in the PC for at least 1 year.
"0" is shown on the data display if no data exists (if files are missing).

Image 2.7.2 Settings examples of setting files folders displayed on the title screen

Folder specified in the file setting
ex.) C:¥Program Files¥Panasonic-EW Control¥KW Watcher¥set

set

gas

GAS.kww

Energy per unit

pcs.kww

Electrical power

power.kww
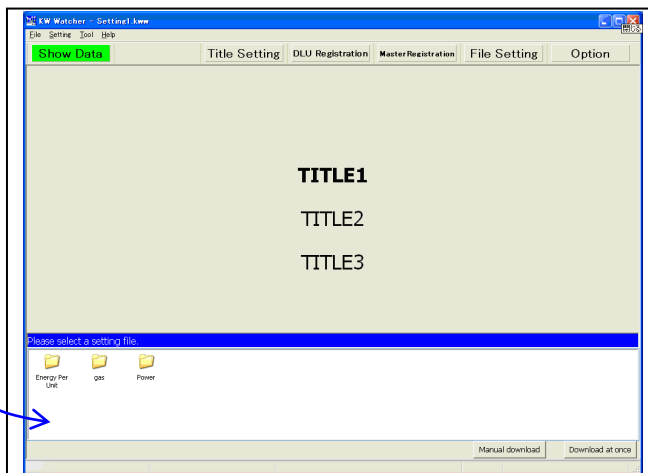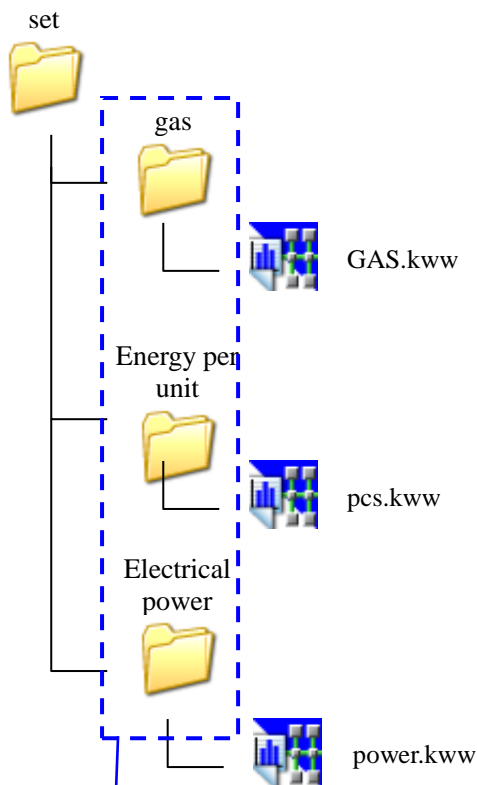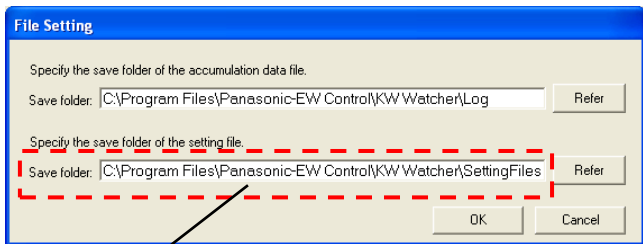
Icons will be displayed

2.8. Option setting
    Setup each setting in order to use KW Watcher.

    Setup the below items in option settings.
    ・download   :Set items related to download
    ・Screen display connection   :Set items related to display
    ・Unit/Charge Setting   :Set items related to unit or charge
    ・Management   :Set items related to alarm threshold and keys
    ・Various functions   :Set items related to the other functions

2.8.1. Download
    Setup each setting related to download.
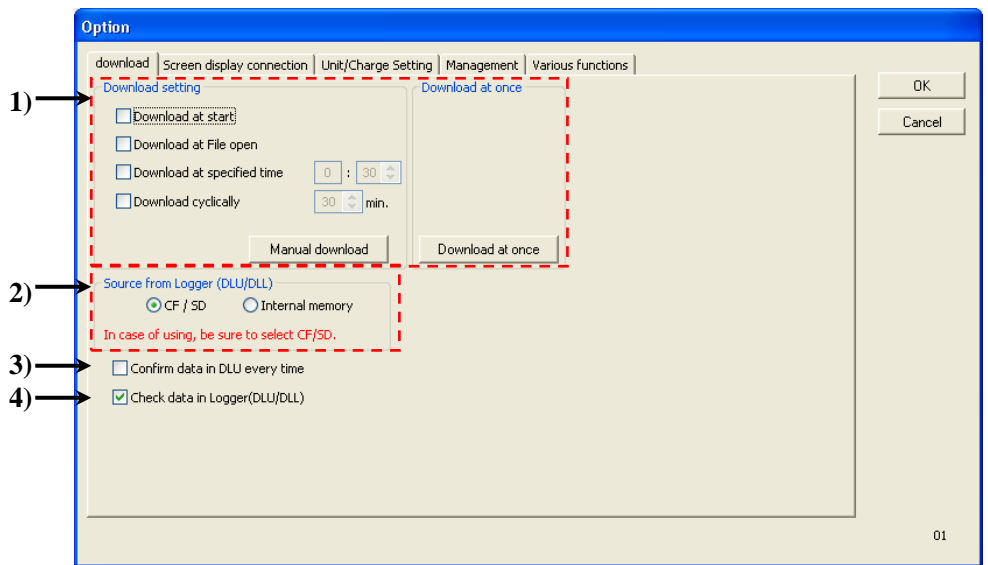
    1) Download setting
      Either automatic download setting or manual download setting can be selected in the Download setting
      options.

     -Download at start
       It downloads the connected device's stored data during start-up.
       If you check it, the window shown below pops up during start-up.
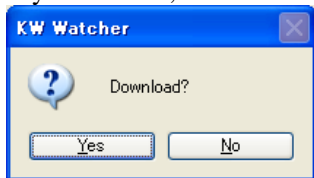
       Click [Yes] to start to download the stored data from the connected device.

-Download at File open
Accumulated data in the connected device will be downloaded when opening the setting file checked to activate this function.
Also, it will be downloaded when the system starts up when checked for this function even if not checked on "Download at start".
A pop-up window will appear before the download begins.

Click [Yes] to begin downloading accumulated data in the connected device.

-Download at specified time
It downloads the connected device's stored data at specified time.
Adjustment is available on a 5-minute basis.
[Caution]
If you'd like to update graph after downloading, check "Auto-update to display graph".

-Download cyclically
It downloads the connected device's stored data regularly in every specified period.
Adjustment is available on a 30-minute basis between 30 minutes and 180 minutes.
[Caution]
If you'd like to update graph after downloading, check "Auto-update to display graph".

-[Manual download]
It downloads manually.
[Caution]
It is highly recommended to download accumulated data from the connected device when a file is newly opened, otherwise the latest data might not be displayed correctly.

-[Download at once]
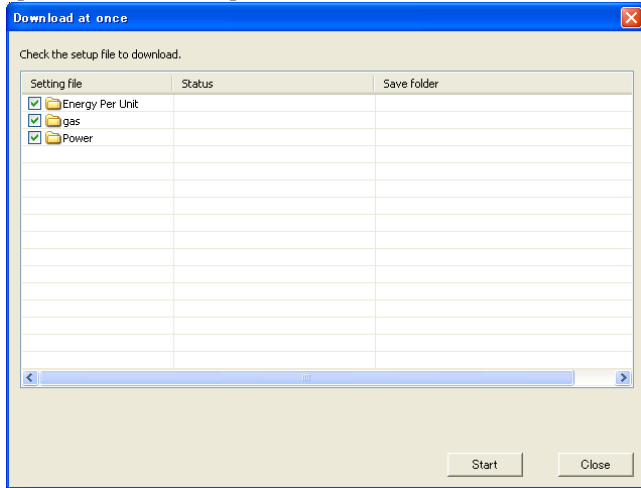
It downloads csv files based on all the setting files stored in the folder specified in "File Setting".
Only checked setting files will be downloaded.
A message "Download completion" will appear in Status if download completes successfully.
If it fails to download even one item, a message "Download failure" will appear.
[Caution]
When downloading during graph display the day (Month, Year), it update the graph display automatically.

2) Source from Logger (DLU/DLL/ELC1/ELC2)

 Sets the source of download in the connected device.

 -CF/SD: Downloads data from a CF/SD card.

 -Internal memory: Downloads data from the internal memory.

　　[Caution]

　　-This item is not saved.

　　 For usual operation, be sure to select "CF/SD". Select "Internal memory" for occasions such as checking the connection. If selecting "Internal memory" for usual operation, all collected data will be erased in case DLU becomes inoperable due to any troubles such as power failure.

　　-When the source is in DLL/ELC1/ELC2, this setting is not required.

3) Confirm data in DLU every time

 It accesses to the connected device every time when it shows the graph.

　　[Caution]

　　-This item is not saved.

4) Check data in Logger (DLU/DLL)

 It doesn't access the connected device during data processing if you uncheck this box.
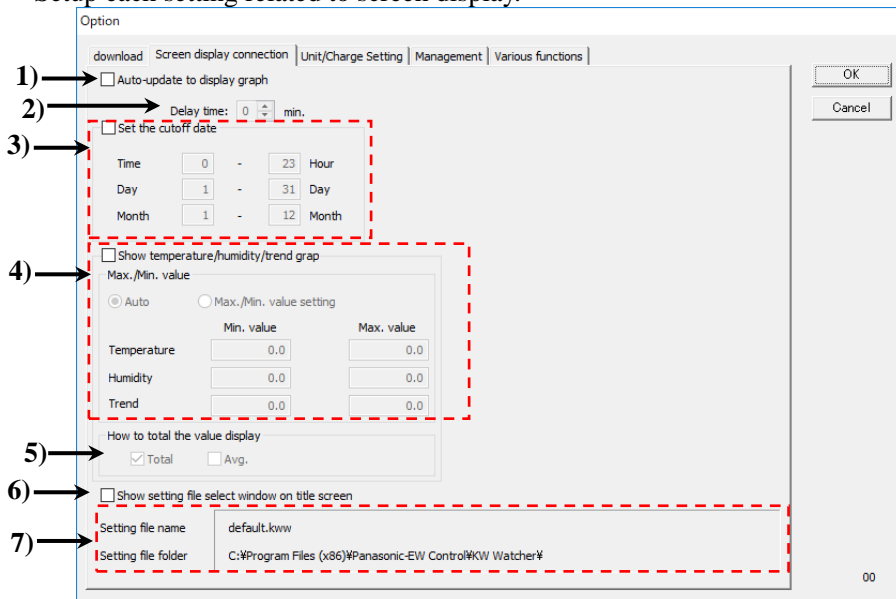
　　[Caution]

　　-This item is not saved. It is automatically activated when KW Watcher starts up.

　　-Generally, leave it checked under normal use conditions.

2.8.2. Screen display
Setup each setting related to screen display.

1) Auto-update to display graph
When checked, downloading data and updating graph display is automatically performed when displaying graph.
Downloading and updating is automatically performed with specified download conditions at intervals set in the display cycle.
[Applicable screens to auto-update]
Auto-update is performed when displaying the screen of current year, month and day of the following graphs; Bar Graph, Pie Graph, Stack Graph, Compare Graph, Energy per unit Graph, Temperature Graph, Humidity Graph, Trend Graph.
[Display cycle]
60 min: On the hour
30 min: On the hour and 30 min. after the hour
15 min: On the hour, 15 min, 30min. and 45 min. after the hour

[Caution]
-Note that the latest data may not be downloaded if the clocks of the connected device and PC are not synchronized, or depending on situations of communication and accumulating data of the connected device.
-There are the following restrictions on the auto-update to the next day, next month and next year on the display cycle of 30 min. or 15 min..
When "Display Cycle" is "30min": Select the "1 day" tab.
When "Display Cycle" is "15min": Select the "1 day" tab.
*Unless the above tab is not selected, auto-update to the next day, next month and next year will not be performed. ((Image below shows a case when selecting 15min.)
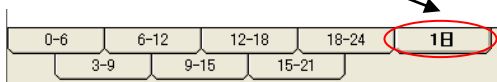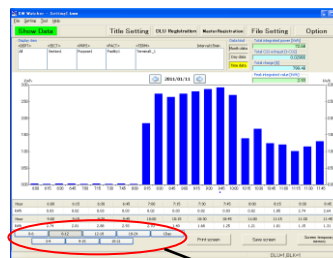
2) Delay time
Setting range: 0 to 5 minutes (by the minute)   Default: 1 minute
This setting is available when "Auto-update to display graph" is checked.
Use it when the latest data cannot be downloaded due to the error of the clocks of PC and the connected device.
Ex) When "Display cycle: 60 min." and "Delay time: 1 min.", the latest data is downloaded at 1 minute after the hour.

[Caution]
Note that the latest data may not be downloaded if the clocks are not correctly set, or depending on situations of communication and accumulating data of the connected device.

3) Set the cutoff date
The cutoff date can be set for the value display and various graph displays.
Check the box of "Set the cutoff date". You can set a desired cutoff date.
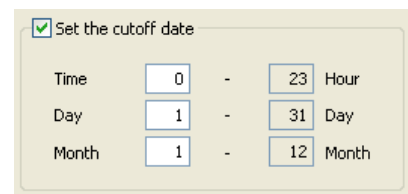For performing the value display and graph displays using the specified cutoff date, check the box of "Change the cutoff date" on the data display window. If unchecked, the graphs are displayed in the following time frame.

-If unchecked:
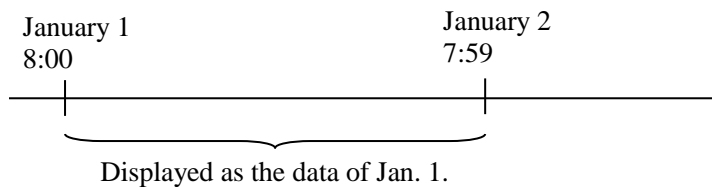 Time: 0 to 23 hour
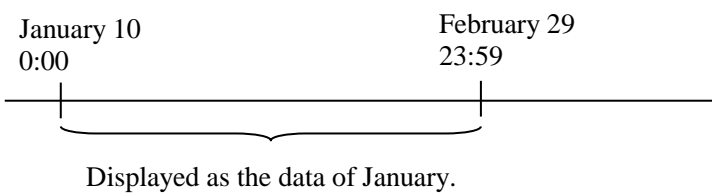 Day: 1 - 31 day
  Month: 1 - 12 month

-When checked, the graphs are displayed as the examples below.

Ex1) When setting "Time" to "8 - 7 hour" and displaying the data of January 1;

January 1   January 2
8:00   7:59

Displayed as the data of Jan. 1.

Ex2) When setting "Time" to "0 - 23 hour" and "Day" to "10 - 9 day", and displaying the data of January;

January 10   February 29
0:00   23:59

Displayed as the data of January.

Ex3) When setting "Time" to "0 - 23 hour", "Day" to "1 - 31 day" and "Month" to "4 - 3 month", and displaying the data of 2011.

April 1 2011   March 31 2012
  0:00   23:59

Displayed as the data of the year 2011.
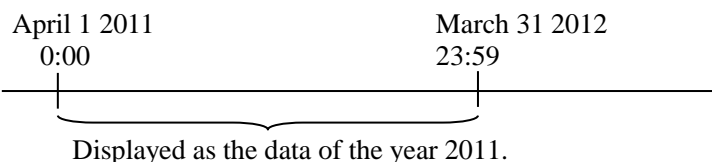
4) Show temperature/humidity/trend graph
   Checking this enables the function to display temperature, humidity
   and trend graph on the data display window.
   Max./Min. value setting will be also available.
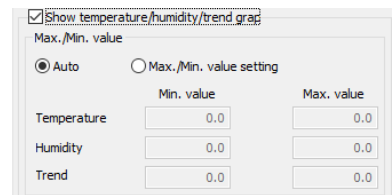
-Selecting "Auto" sets the maximum and minimum values automatically for displaying temperature /
 humidity / trend graph.
-Select "Max./Min. value setting" to input values in "Min. value" and "Max. value".
   Temperature
      Input min. and max. value to use for the temperature graph and temperature/humidity graph.
      The right axis shows the temperature.
   Humidity
      Input min. and max. value to use for the humidity graph and temperature/humidity graph.
      The left axis shows the humidity.
   Trend
      Input min. and max. value to use for the trend graph.

      The setting range is -99999999 to 99999999.

The following functions cannot be used for the data display when showing temperature/humidity/trend graph.
   -Value Display
   -Bar Graph
   -Pie Graph
   -Stack Graph
   -Compare Graph
   -Energy per unit Graph

You can use short-cut key to shift the displays of temperature, humidity and trend graph.

Ctrl+Alt+t
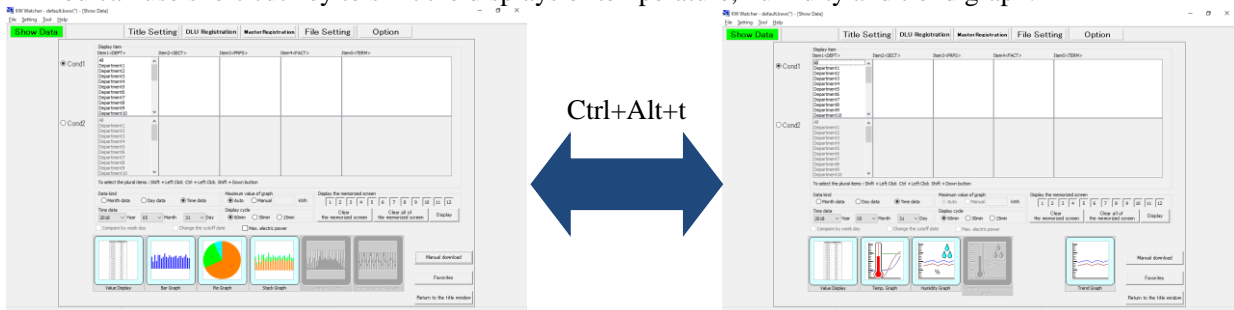
5) How to total the value display
   When "Show temperature/humidity/trend graph" is set to available, this function will be available.
   Select "total" or "average" to show the monthly data or daily data with values.
   However, when power is selected for trend graph, the value of power graph and the power demand
   average time are not averaged.

6) Show the select setting file window on title screen.
   When checked, the selection box will be displayed on the title screen according to "save location for
   setting files to show on the title screen" specified in the file setting.

7) Windows for indication of setting file names and setting file folder
   Currently loaded setting file names and its save location can be checked.

2.8.3. Unit/Charge Setting
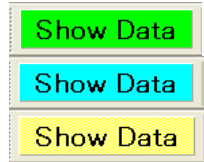Setup each setting related to unit and charge.
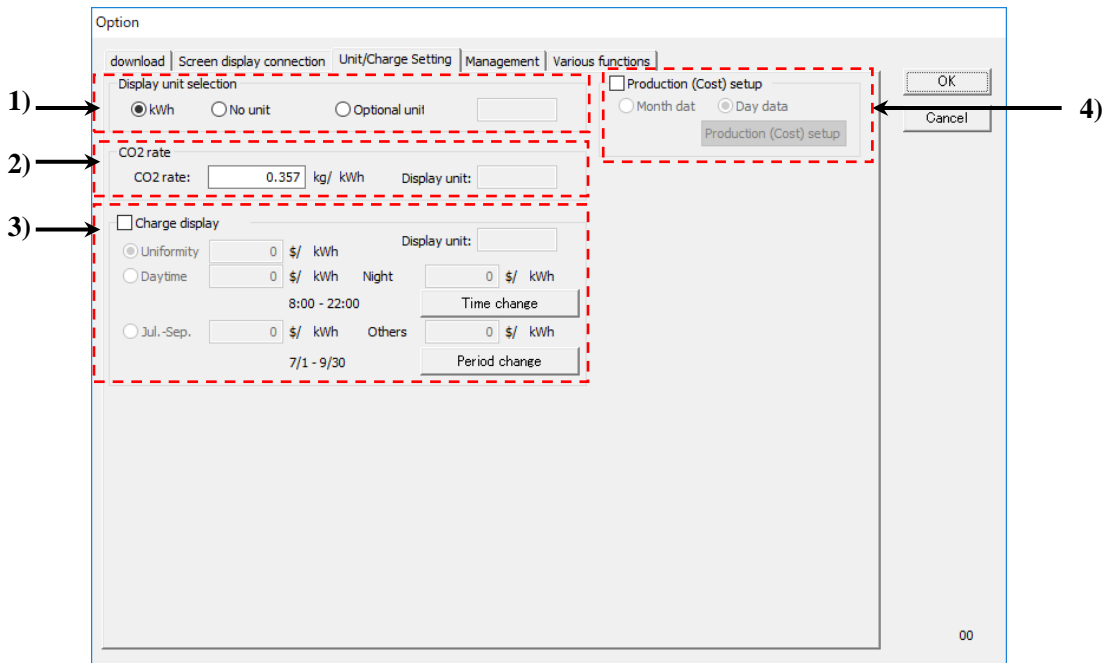
1) Selection of the display units
Select units to display on the data display window on each data from below.
-kWh
-No unit
-Optional unit

Colors of the buttons for "Show Data" of the menu buttons for each unit will be displayed as the image on the right.
-kWh   : Green
-No unit   : Light Blue
-Optional unit   : Light Yellow

Preferred units including "CO2 rate" and "Charge display" can be specified if "Optional unit" is selected.
Units can be defined in up to 6 letters.
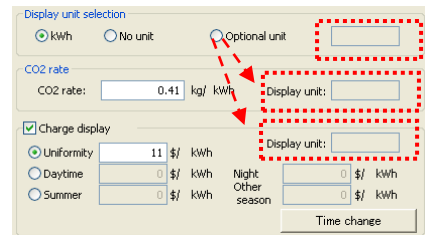
[Caution]
-kWh unit display cannot be shown on each window if the "No unit" is selected.
-It is fixed ," Temperature Graph：℃" " Humidity graph：%" in the case of temperature/humidity graph.
-The indication unit becomes non-indication (effectively) when I chose an arbitrary unit by unit indication choice.

2) CO2 rate

It changes CO2 conversion rate into preferred value.

Formula for leading total CO2 emission value displayed on each graph is as follows;

Total CO2 emission value = Total integrated electric power (or total integrated value) x CO2 conversion rate / 1000. Total CO2 emission value can be indicated in less than 5 digits after decimal point, given no input restriction on CO2 rate, so set the value up to less than 3 digits after decimal point for values over 0.001.

[Caution]
The indication unit becomes non-indication (effectively) when you chose an arbitrary unit by unit indication choice.

3) Charge display

It toggles the converted charge display on/off on the graph display window.

Charge is calculated based on the charge rate set here in the case of displaying charge.

Time can be selected from the following three types.

-Uniformity: Converts at the constant rate for 24 hours.
-Daytime/Night: Converts at different rates for daytime and night.
                       Click "Time change" to set the hours of daytime. The rest of the hours will be nighttime hours. (Default: Daytime: 6 to 22)
                       When daytime is set to "6 - 22", night is "22 – 6".
-Summer/Other season: The period between July 1st and September 30th is summer. The other period is other season. Time cannot be divided.

Ex) July to September: JPY11
        Others: JPY12
   Cycle: 25th to 24th
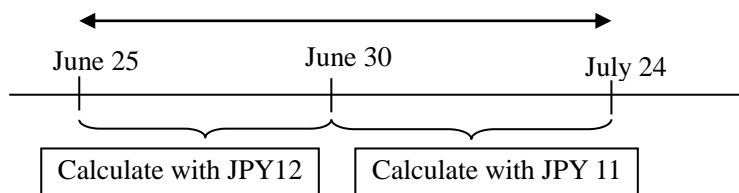
[Caution]
The indication unit becomes non-indication (effectively) when you chose an arbitrary unit by unit indication choice.

4) Production (Cost) Setup
Set a quantities or cost for using to make the energy per unit graph.
Check the boxes and the display will be changed to the below images and unable to setup for selecting condition 2. At the condition 2, it selects 'Production (Cost)', and it uses 'Production (Cost) setup' for making the energy per unit graph.
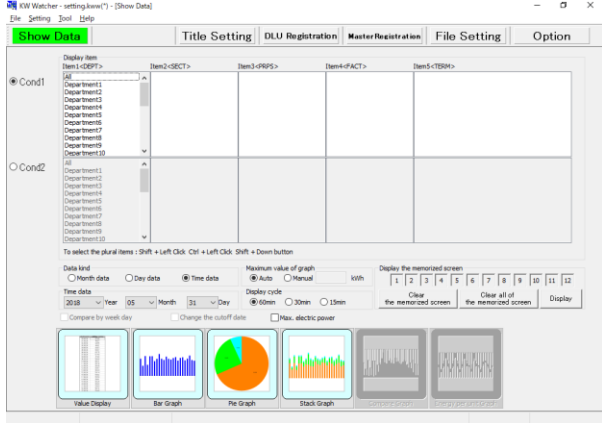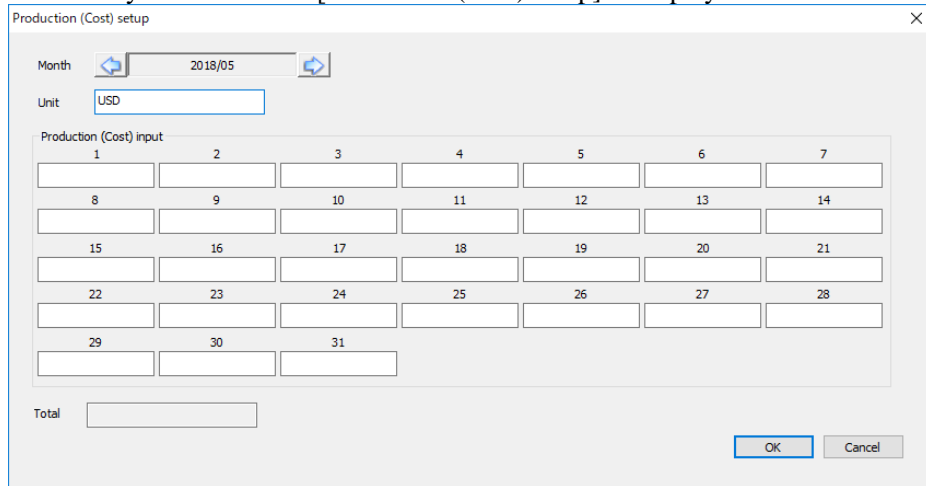
When select cond.1   When select cond.2

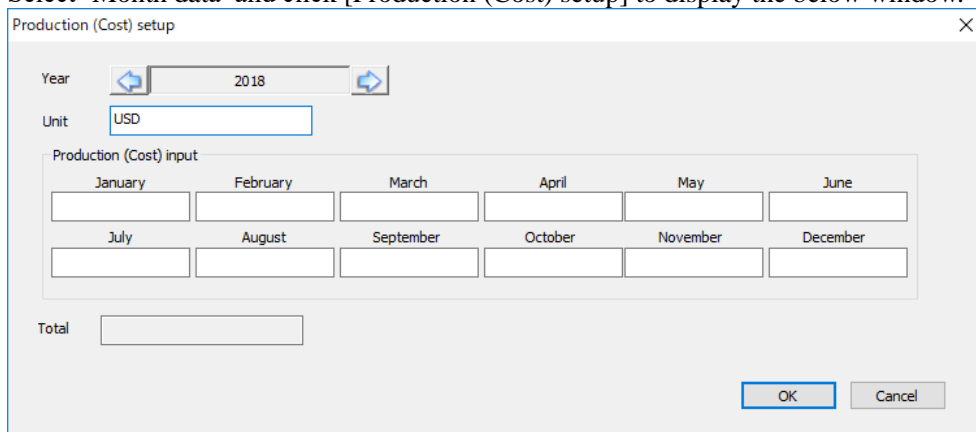Select 'Day data' and click [Production (Cost) setup] to display the below window.

Month	Select date by allow keys to change setup.
Unit	Input unit to display.
Production (Cost) input	Input quantities or cost for each day.
Total	It displays the total input quantities or cost. It can't input directly.

Select 'Month data' and click [Production (Cost) setup] to display the below window.

Month	Select date by allow keys to change setup.
Unit	Input unit to display.
Production (Cost) input	Input quantities or cost for each day.
Total	It displays the total input quantities or cost. It can't input directly.

When it shows the energy per unit graph with 'Day data', it uses values input at 'Production (Cost) setup' for day data.
When it shows the energy per unit graph with 'Month data', it uses values input at 'Production (Cost) setup' for month data.
However, there are missing data for month data, it uses the day data to show the graph.
When there is no value for both month data and day data for production (Cost) input, the production or cost is treated as '0' and the energy per unit will be displayed with '0'.

Ex.) Production or cost values for using the energy per unit graph

	January	February	March	April
Day data	Input value	Input value	No value input	No value input
Month data	No value input	Input value	Input value	No value input

Using value for energy per unit graph when 'Month data' is selected at 'Show data' window.

January	Use Day data
February	Use Month data
March	Use Month data
April	'0' for product (cost) and '0' for energy per unit graph

2.8.4. Management
Setup each setting related to alarm threshold and keys
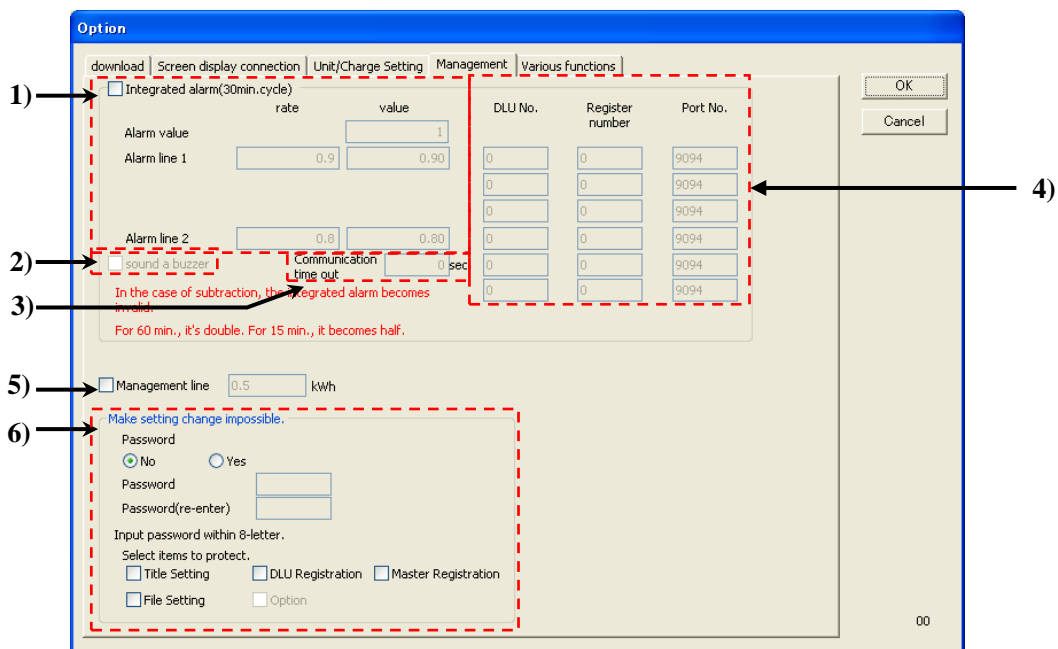
1) Integrated value alarm
When the graph data is exceeded the setting threshold, it can display alarm message.
In order to be available, check the box.
However, when the subtraction process is available, the integrated value alarm is not available.

Item	Contents	Input range
Alarm threshold	Input threshold as basis	0 to 99999999.99
Alarm line 1	Coefficient for alarm line 1	$1 \geqq$ Alarm line 1 value > Alarm line 2 value
Alarm line 2	Coefficient for alarm line 2	Alarm line 1 > Alarm line 2 $\geqq$ 0

According to the input alarm threshold value, it calculates the judge line by multiple coefficients for alarm line 1 or alarm line 2.
Alarm threshold × Alarm line 1 (Alarm line 2) = Alarm line value (round to two decimal places)

Ex)   Alarm threshold   : 600
                 Alarm line 1   : 0.7
                 Alarm line 2   : 0.5
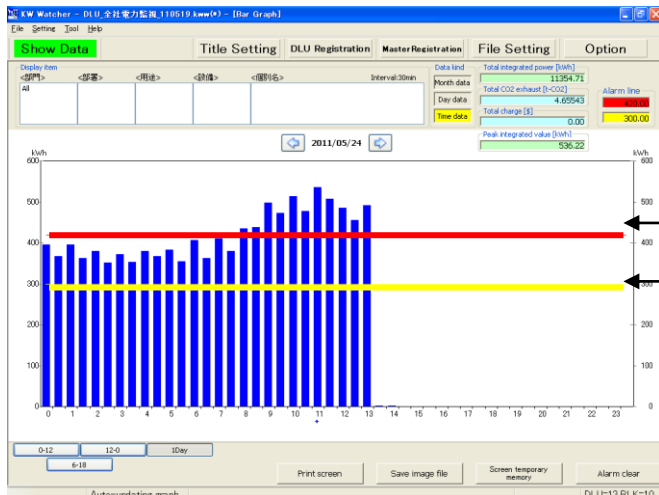

Alarm line 1 is shown at "420".
(red)

Alarm line 2 is shown at "300".
(yellow)

At option setting, it is value of display graph with 30 min. interval.
When the interval is 60 min., it is doubled. When the interval is 15 min., it is half value.

Ex)

Display interval 60 min. : 840	⬅ Double
Display interval 30 min. : 420	
Display interval 15 min. : 210	⬅ Half

When update data is exceeded alarm line 1 or alarm line 2, alarm message is blinking,

| When exceeded alarm line 1 | When exceeded alarm line 2 |
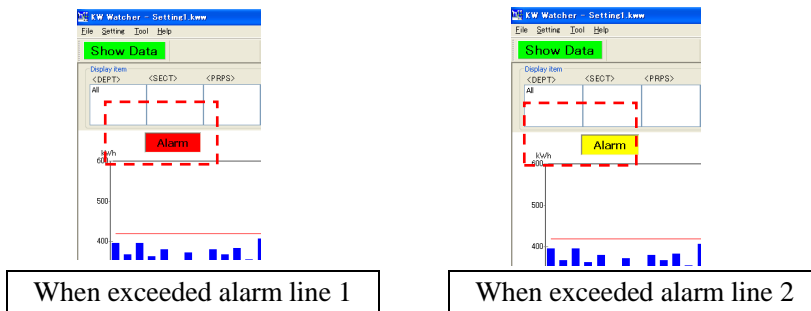
2) sound a buzzer
  It sounds a buzzer when the value exceeds alarm line 1 or alarm line 2.

3) Communication time out
  It set the communication time out period when it writes data to the designated registers.
  When it is time out, it will retry once.
  Range: 0 to 10 sec

4) DLU No., Register number, Port No.
  It writes 0 or 1for the designated DLU/DLL when the value exceeds alarm line 1 or alarm line 2.
  It is possible to give a notice via mail with mail sending function of DLU/DLL by using the value as a trigger.
  3 points for alarm line 1 and 3 points for alarm line 2 can be set.

  When it exceeds line   : It writes 1 for registers of the designated DLU/DLL.
  When it is below the line   : It writes 0 for registers of the designated DLU/DLL.
      [Caution]
      KW Watcher is updated every 15 minutes (minimum). Note that when real time data is necessary.
      It writes with MEWTOCOL command.

 -DLU No.
   Set DLU/DLL No. that is intended to be written.
   When "0" or unregistered number is set, it doesn't write.

 -Register number
   Set register number that is intended to be written.
   Refer to the manual of DLU/DLL for the data register.
      [Caution]
      Set the vacant register for the writing register.
      If using register is set, it doesn't work correctly.

 -Port No.
   Set the connection port number of DLU/DLL.

●Conditions to display the alarm message
When it satisfies the following conditions with check the box of "Integrated alarm" at option setting.
　-Integrated value, that is updated with auto-update, is exceeded the alarm line.
　-When you select time data for data kind and it displays the below graph.
　　Display graph, Stack Graph, Compare Graph (exclude when subtraction)

●Conditions to stop the alarm message
　-When "Alarm clear" is clicked. (It displays only when you check the box of "Integrated alarm".
　-When you change display date with arrow buttons.
　-When you shift to another menu.
　-When you click "OK" with displaying graph regardless the setting at option setting.
　-When you download data.

5) Management line
　Blue line is displayed for graph of the max. electrical power.
　It doesn't write for external device. (It is only your guide.)

6) Make setting change impossible
　This is the function to prevent menu button setting change not to intend.

　　-Password
　　　　Select 'Yes', it is necessary to input password to change settings.
　　　　Only when the password is correct, it can be changed.
　　　　Select 'No', menu buttons are unable and it is impossible to change settings.
　　　　Initial: No
　　　　*Only when you select 'Yes', set password within 8-letter
　　　[Caution]
　　　Be cautions to the setting of password. The password setting is intended to prevent an unprepared setting change, but a setting change is not possible when you forget a password.

　　-Password (reenter)
　　　Input password that is set at the above.

　　-Select items to protect
　　　Select from 'Title Setting', 'DLU Registration', 'Master Registration' 'File Setting' that you protect from change settings.
　　　Initial: No check
　　　However, when 'Disapprove to change DLU and master registration' is checked with ver.230 or before 'DLU Registration' and 'Master Registration' are checked. When you select 'Yes' for password, it checks box of 'Option' automatically.
　　　If you don't use this function, select 'No' for password and not check all boxes for 'Select time to protect'.

[Download overview of KW Watcher]
KW Watcher downloads data with FTP (File Transfer Protocol) commands.
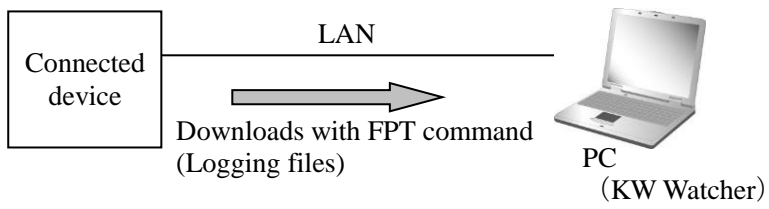
*Download may not be performed because of security software (such as firewall).
 In such case, check with your network administrator if FTP commands can be used.

2.8.5. Various functions
Setup each option.
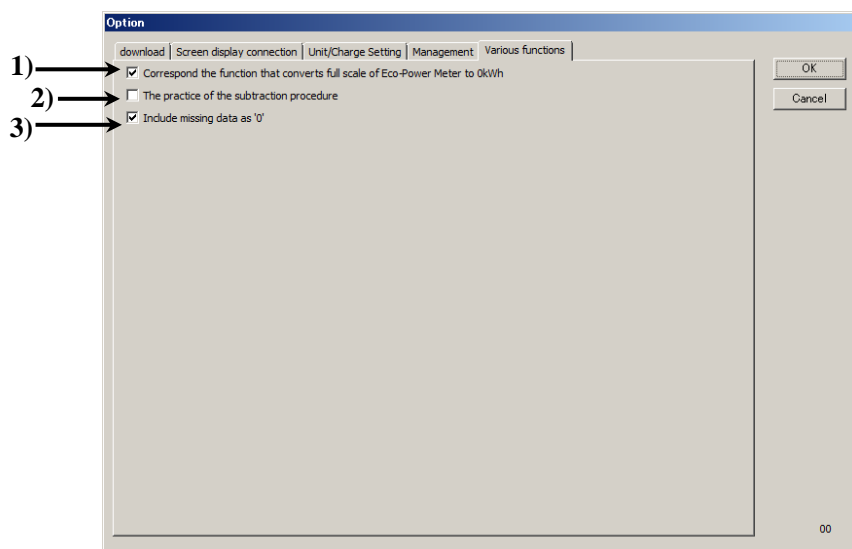
1) Correspond the function that converts full scale of Eco-Power Meter to 0kWh
   When checked, it shows by correcting value when the value is minus after calculation of differential.

   ex.)   12:00:00   999999980
          12:15:00   10
             10- 999999980 = -999999970 + 1000000000 = 30

   [Caution]
   Note that this is available only when the max, digit is 9. When it measures values except with the 9-digit, such as pulse (max. 6 or 8 digits) or values by FP7, it doesn't show correctly. Collect with the difference value. (Refer to 3.1)

2) Practice of the subtraction procedure
   When checked, the subtraction processing function is available. (Refer to 2.9)

3) Include missing data as '0'.
   When checked, missing data is used as '0' such as communication error or no measurement devices.
   Used for the calculation of average and minimum of display with value.

2.9. Show Data setting
    Set condition for show data.
    Data display setting screen   When displaying temperature/humidity/trend graph
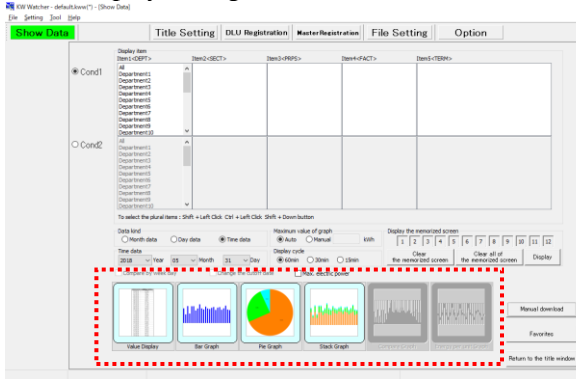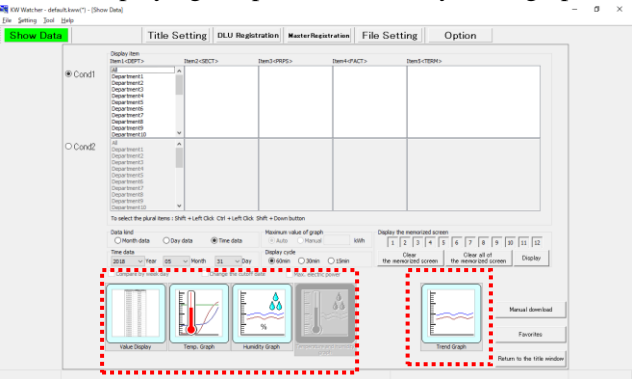
Operation flow
 1) Select Condition 1
 2) Subtraction (Check as necessary.)
 3) Select Condition 2, Subtraction (Check as necessary.)
 4) Select Data kind
 5) Select Maximum value of graph (Set to "Manual" as necessary)
 6) Select Time data
 7) Select Display cycle
 8) Compare by week day (Check as necessary)
 9) Change the cutoff date (Check as necessary)
10) Maximum value of graph (Check as necessary)
11) Select graph display icon

    [Caution]
    -Values after the decimal point are not displayed if the integrated electrical power value of Eco
      POWERMETER, includes a decimal point, exceeds 8 digits (Example:999999.99).
            Values after the decimal point are displayed if the value goes down to less than 8 digits.
    -If the setting file is modified or the master record is imported, click "Show Data" button to refresh
      this window since previous data is still displayed.

1) Display item
 Multiple objects can be selected from display item 1 to 5 in the list box.
 In the case of Image 2.9.2, if "Department 2" and "Department 4" of Item 1<DEPT> in condition 1 are selected, <SECT> under the selected <DEPT> is displayed in Item 2.
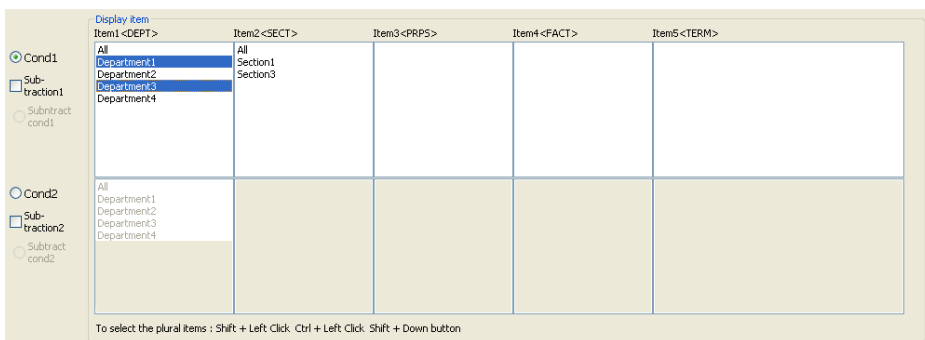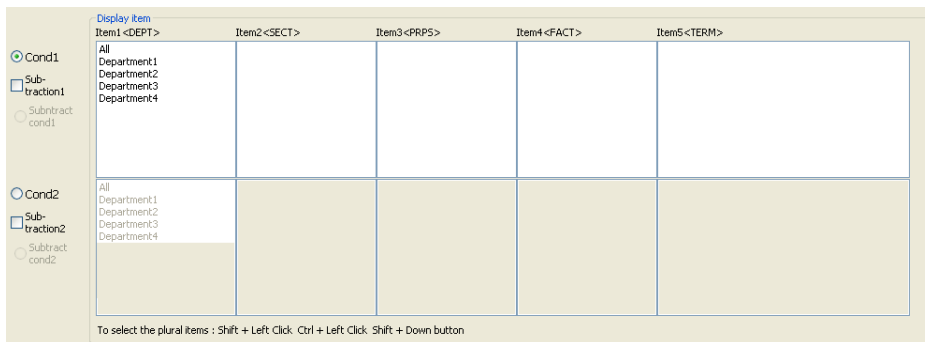
2) Data kind
 Select by checking the item.
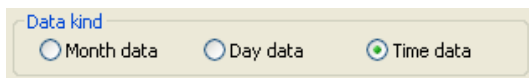
   [Caution]
   When check 'Production (Cost)' for 'Unit/Charge setting', Time data can't be selected.

3) Time data
 According to the kind selected in 2), the specifiable range varies.
 When select Day data, time data consists of Year and Month.
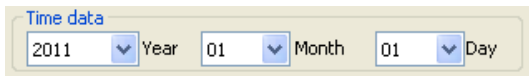
   [Caution]
   Specifiable Year is for past 12 years, including the year when KW Watcher was run.

4) Maximum value of graph
 Select from Auto, Manual
 You can directly input the maximum value in the box if you select manual.
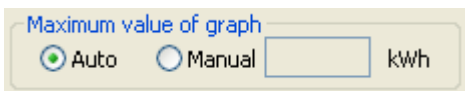
[Caution]
Select condition 2 to display temperature graph and set the maximum value of electric power.
This setting is not available when displaying temperature graph.
Set the maximum and minimum values for temperature graph in "Show temperature/humidity/trend graph" of the option setting window.
It is saved with setting file.

5) Display cycle
 Select from 60 min, 30 min or 15 min.
 Select the display cycle for the bar graph, stack graph, pie graph, energy per unit graph,
 temperature/humidity/trend graph and value display.
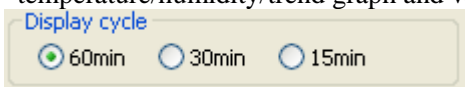
[Caution]
To use display cycles, 60 min, 30min and 15 min, the logging trigger of DLU (DLL) should be correctly set. For the details of the setting, refer to "3.2 Example of DLU logging file setting".
It is saved with setting file.

[Caution]
For Bar Graph and Value Display, the selected display cycle has priority.
If there is a difference between downloaded data and the selected display cycle, graphs may not be displayed in detail.

Ex1)
Downloaded data: Every 60 minutes
Display cycle: 15 min.
As the downloaded data is not in 15-minute cycle, the graph shows no data at 15, 30 and 45 minutes and shows the data on the hour.
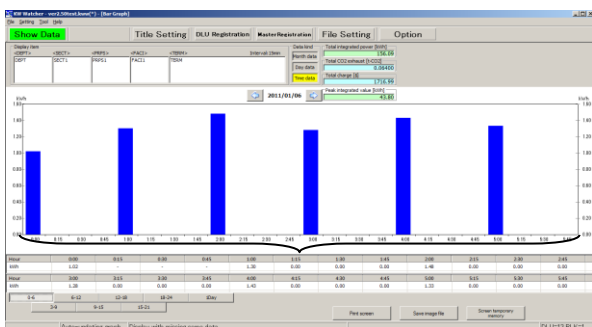
[Power graph]   [Temperature graph]
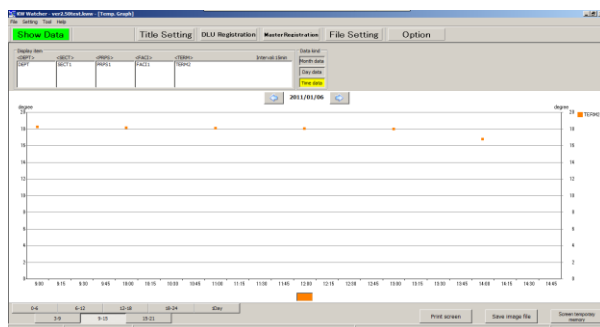
Ex 2)

Downloaded data: Every 15 minutes

Display cycle: 60 min.

As the necessary data for displaying the graph in 60-minute cycle is downloaded, the graph shows the data every 60 minutes.
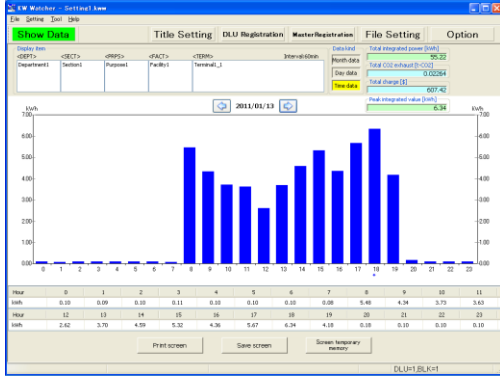
[Power graph]   [Temperature graph]
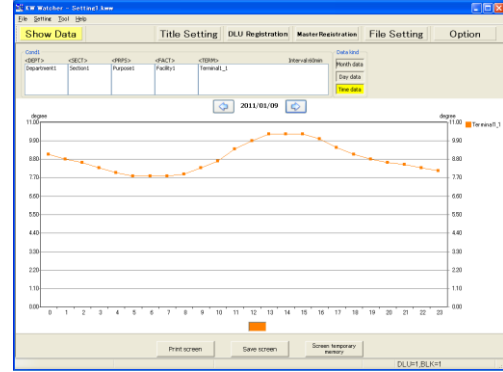
Checking "Auto-update to display graph" downloads and updates graphs automatically in the specified display cycle.

If the data in cycles of 60, 30 and 15 minutes are mixed, graphs cannot be displayed correctly.

It is recommended to use a single type of time axis for logging data.

Ex)

Graph that the data in cycles of 60 and 15 minutes are mixed

As the data in cycles of 60 minutes and 15 minutes are mixed, the graph is not displayed correctly.
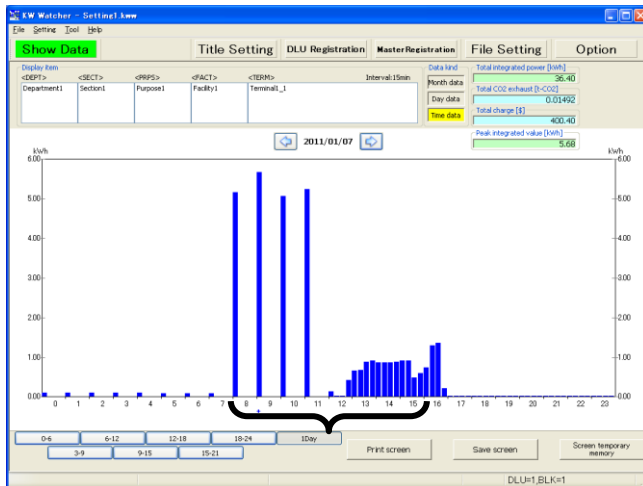
[Caution]

When the time of downloaded data is different from the selected display cycle, see the contents of the display carefully.

Ex)
Downloaded data: Every 15 min.
Display cycle: 60 min.
Current time: 10:15
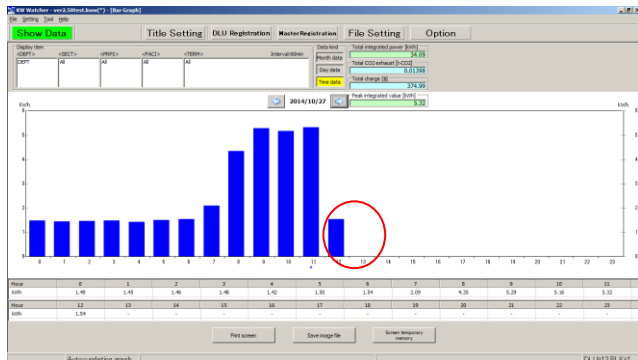
Although the display cycle is 60 minutes, only the data from 10:00 to 10:15 is shown as the data between 10:00 to 10:59 since only 15 minutes has passed. It will be displayed as the data for 60 minutes at 11 o'clock.

KW Watcher displays graphs in 15-minute, 30-minute or 60-minute cycles. Therefore, if the logging time of DLU (DLL) is set to any other cycle, graphs cannot be displayed correctly.
Set the cycles in the combination shown in the table to display graphs correctly.
("OK" indicates the combination shows the correct graph display.)

DLU/DLL Logging cycle KW Watcher Display cycle	60 min	30 min	15 min
60 min	OK	OK	OK
30 min	NG	OK	OK
15 min	NG	NG	OK

6) Compare by week day

☐ Compare by week day

Data kind: Day data.
It is effective for displaying the compare graph.
Checking this box enables to compare data by day of the week not by date.

7) Change the cutoff date

☐ Change the cutoff date

If checked, the cutoff date specified in the option setting will be effective, and the value display and graph display will be performed according to the cutoff date.
This setting is useful for the cases such as "closing date on 10th" or "year-end cutoff".

8)Max. electric power

☐ Max. electric power

If checked, max. electrical power is displayed by plot graph or value display with unit of 30 minutes according to the data type.

Data type:
Time   : Max value of the designated date is displayed with 30 minutes cycle.
Day   : Take max. value in the day, and it displays a plot graph for 1 month.
Month   : Take max value in the month, and it displays a plot graph for 1 year.
  [Caution]
  It displays the below conditions.
  -It is available only when "kWh" is selected at "Option -> Unit/Charge Setting -> Display unit selection".
  -When collection cycle of csv file is ser to 15 min or 30min, it will display with 30 min cycle. When it is 60 min, it will display for the reference.
  -Twice the value of the measurement is displayed.

Ex)

Time	Integrated electrical power
00:00:00	100
00:30:00	120
01:00:00	125

$120 - 100 = 20 \times 2 = 40$

It displays graph with 40.

  -When it is data of day or month, it will average the value.
   It uses the value of 0 for averaging; therefore it may reverse the max. value and average value.
  -It doesn't support the below graphs.
   Pie Graph, Stack Graph, Energy per unit Graph, Temperature Graph, Humidity Graph, Trend Graph, Subtraction
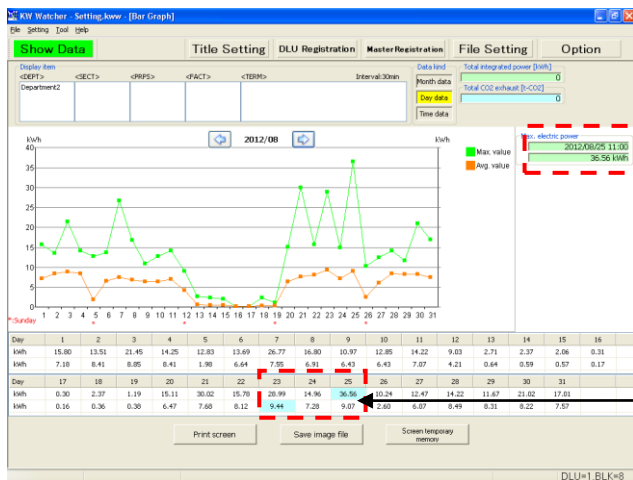
Max. electrical power value and the date, time are displayed.

It shows the max electrical power (upper) and average value (lower) by changing color.

9) Subtraction 1/Subtraction 2
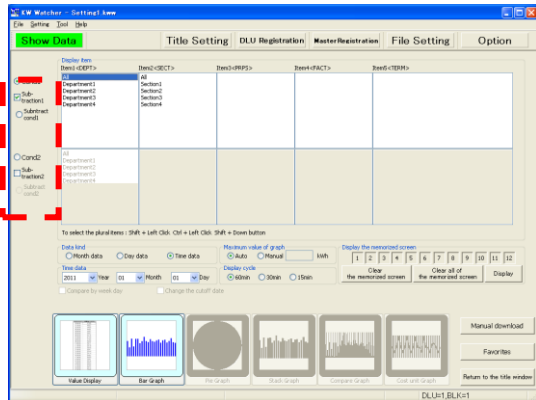
Checking this box performs the subtraction procedure, and performs value and graph displays.
For example, it is useful if you want to check the values calculated by subtracting any items from master electric power.

  Subtraction 1: Performs subtraction procedure for Condition 1.
  Subtraction 2: Performs subtraction procedure for Condition 2.

[How to select]
  1) Check "Condition 1" and select the source items. (Device A)
  2) Check "Subtraction 1" button.
  3) Check "Subtract condition 1" and select the items to be subtracted. (Device B,C,D,E)
  4) Press the icons of "Value Display" and "Bar Graph".

The value calculated by subtracting the items selected in "Condition 1" from the items selected in "Subtract condition 1" is displayed. (Device F)
*Follow the same procedure if you want to set the condition 2.

Calculate F of non-measurement.
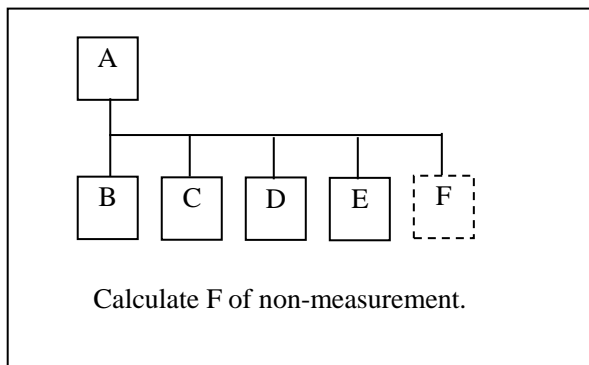
To compare data, select items in Condition 2 and Subtraction condition 2 after selecting items in Condition 1 and Subtraction condition 1 as below.
"Condition 1" - "Subtraction condition 1" = Subtraction result 1
"Condition 2" - "Subtraction condition 2" = Subtraction result 2
The results 1 and 2 can be compared.

*The subtraction procedure is not available for the pie graph, stack graph and energy per unit graph.
 If the result of subtraction is a negative value, the bar graph is not displayed.
 Uncheck this function not to perform the subtraction procedure.
 "Subtraction condition 2" cannot be selected when you check 'Production (Cost)' for option setup.

10) "Value Display" icon (Shortcut key: Ctrl+D)
 It provides preview of the calculated result (See 2.10).
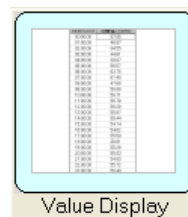
Value Display

11) "Bar Graph" icon (Shortcut key: Ctrl+B)
 It provides the calculated result in a graph (See 2.11).
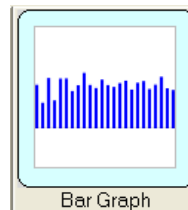
Bar Graph

12) "Pie Graph" icon
 It provides the calculated result in a pie graph (See 2.12).
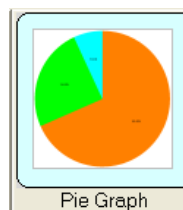
Pie Graph

13) "Stack Graph" icon
 It provides the calculated result in a stack graph (See 2.13).
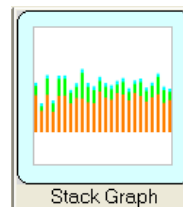
Stack Graph

14) "Compare Graph" icon
 It provides the calculated result in a compare graph (See 2.14).
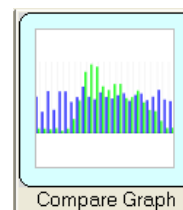
Compare Graph

15) "Energy per unit Graph" icon
 It provides data in energy per unit graph (See 2.15).
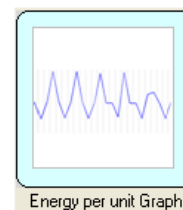
Energy per unit Graph

16) "Temperature Graph", "Humidity Graph" and "Trend Graph" icons
 It provides data in temperature, humidity and trend graphs. (See 2.16).
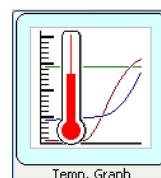
Temp. Graph
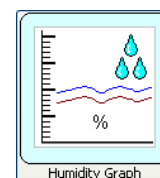
Humidity Graph
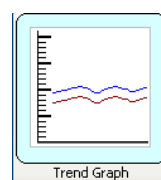
Trend Graph
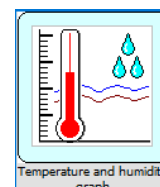
Temperature and humidity graph

In case of that you select [KW2M] for [Model Select] with DLU registration

When you click icon of 10) to 16), it will divide log files of KW2M-X for file of 1-day before displaying the graph. The divided files are saved in the designated folder for logging file.
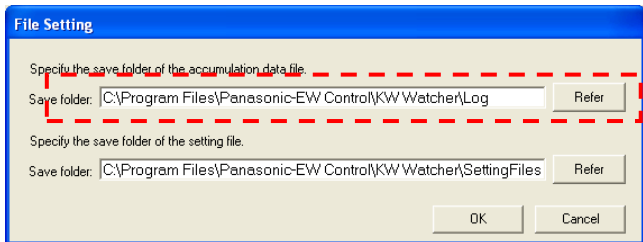
The log files of 1-month that was downloaded from KW2M-X will be deleted after dividing.
However, if it is a current file, it is not deleted.
The divided files are saved ad SPT files.

ex.)When it download November log files
      KW2M-X log file name: moment_u01_1(151101__001500_TRG).csv
      After dividing log files name:
                                    moment_u01_1(151101_001500_SPT).csv
                                    moment_u01_1(151102_001500_SPT).csv
                                          .
                                          .
                                          .
                                    moment_u01_1(151130_001500_SPT).csv

Even if there is no data for a 1-day in the downloaded data, it will make SPT file with no data.
CURRENT files that are downloaded from KW2M-X are not the latest data.
When you update CURRENT files, click [Manual download] at title window or data display window.

    [Caution]
    -As to missing data
      When it displays graphs, the below message may be given.
      This message will be given if some data are missing during the displayed period.
      For example, the below conditions are considered that some data are missing.
    -Communication error caused not to collect the measured value
    -It set unconnected number with collection setup of DLU/DLL
    -No data in the logging file.
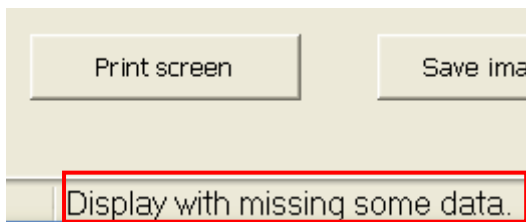
2.10. Value Display
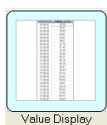
It displays the calculated result in a list view by loading data from the connected device based on the condition set in the previous page. Click [Value Display] or press shortcut key "Ctrl+D" to execute data loading process and move to the value display screen.
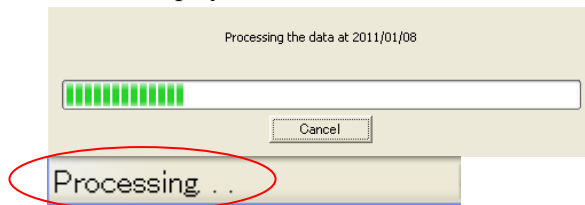
Value display shows the combined value and the individual values based on the condition set in the previous page. Also, it shows the total, average, maximum and minimum values of each item. (Total is not displayed for temperature, humidity and trend graph.)

[How to select]

Ex1) Show the combined data and individual data
(Department 1, Department 2, Department 3, Department 4) in Item 1.

Ex2) Show the combined data of Department 1 and the serial individual data (Section 1, Section 2).

Ex 3) Show the combined data of Facility 1 and the serial individual data
(Term1_1, Term1_2, Term1_3 and so on).

When selecting up to condition 2 in "Show Data" and performing the value display, the total, average, maximum, minimum values of condition 2 and the ratio to the total of condition 1 are displayed beneath the result of the items set in condition 1.
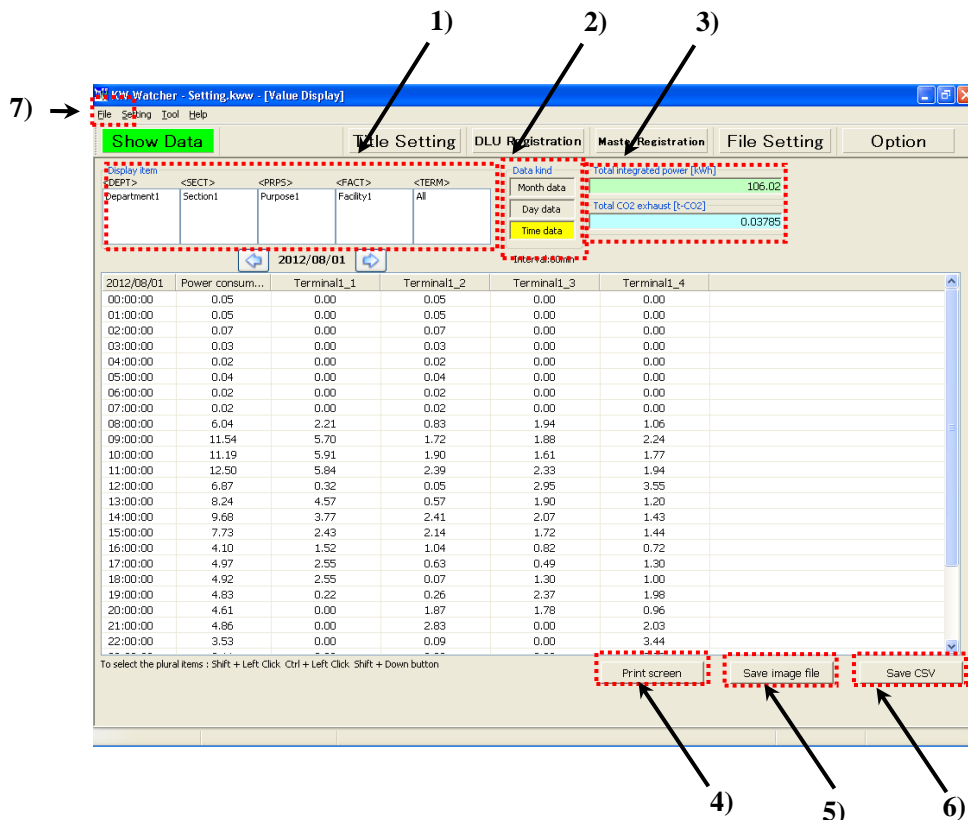

1) Display item
  Condition selected in "Show Data" setting is displayed.

2) Data kind
  Condition selected in the "Show Data" setting is displayed in yellow.

3) Total integrated power [kWh] / Total CO2 exhaust [t-CO2]
  It displays total integrated power and total CO2 exhaust.

4) Print screen
  Click to print screen.

5) Save screen
  Save the displayed graph as a image file.
  You can select 3 types "BMP", "JPG" and "PNG".

6) Save CSV
  Collection result is saved with csv file.
  Dialogue to specify save location is displayed after clicking "Save CSV" button.
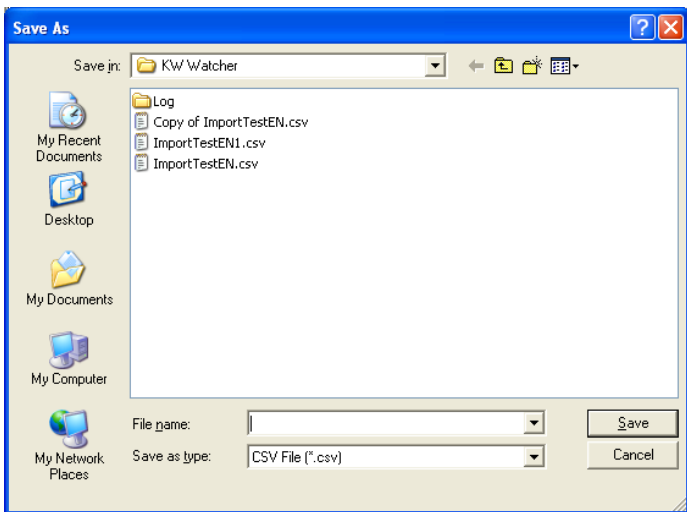
  Specify the save location.
  Data is saved in CSV format.
      [Caution]
      Line feeds are inserted after every 255 items.

7) File
  Collection result is printed.

      [Caution]
      In the value display, "Print preview(V)" and "Print(P)" from File(F) in task bar are selected.
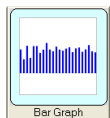   You can check print image by selecting print preview.
      It is available only value display.
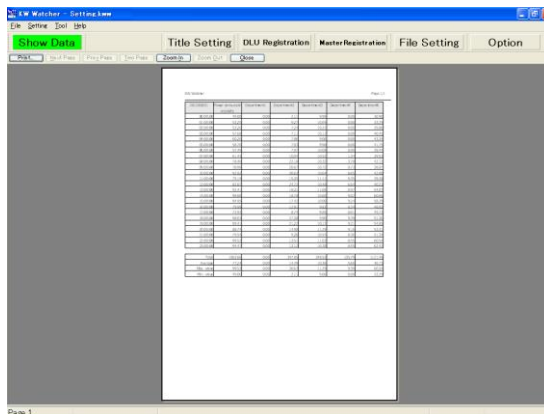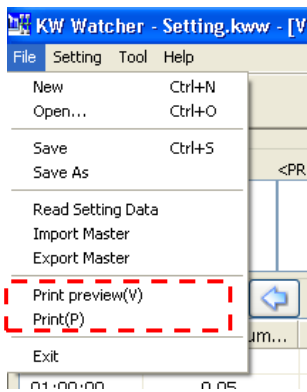
[Print preview window]

2.11. Bar Graph

It displays the calculated result in a graph view by loading data from the connected device based on the condition set in "Show Data" setting in 2.9.
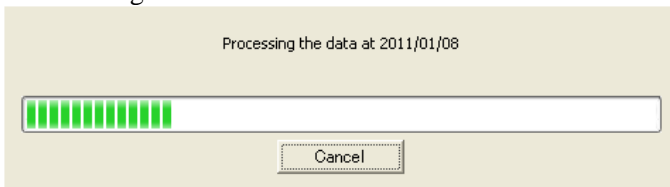
Click "Show Data" button to execute data loading process.
Click "Bar Graph" button or press shortcut key "Ctrl+B" to execute data loading process and move to the bar graph screen.
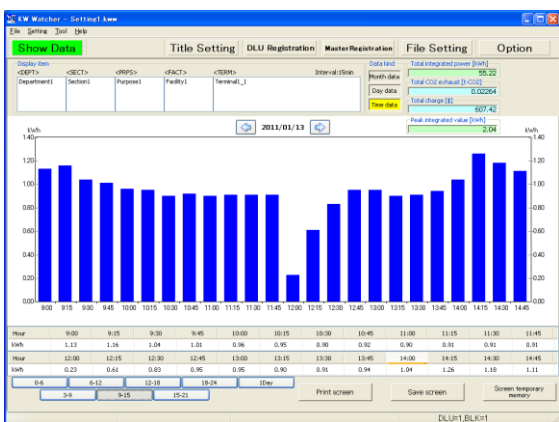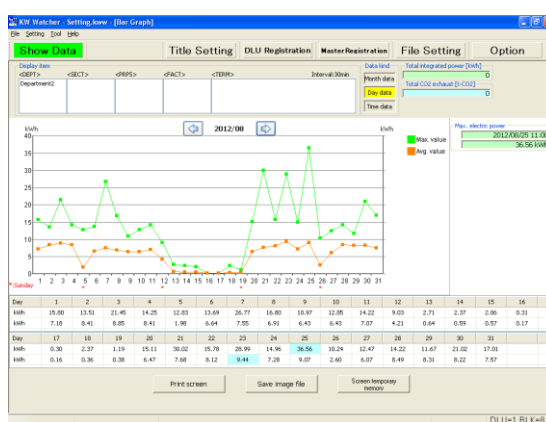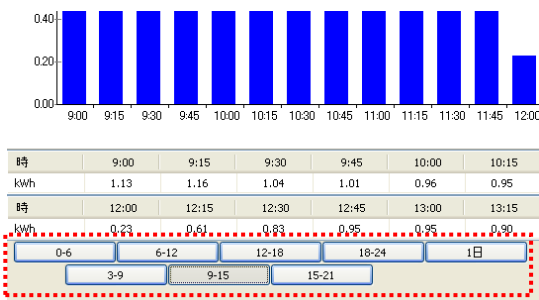

| [Bar Graph] | [max. electric power] |

1) Display item
  Condition selected in "Show Data" setting is shown.

2) Data kind
  Condition selected in "Show Data" setting is shown in yellow.

When selecting "30min" or "15min" for "Display Cycle", the tabs indicating time are shown. "0-6", "3-9" and so on.
Clicking each tab changes the range of horizontal axis and shows graphs.

3) Total integrated power
It shows the total value of tabulated integrated EP during the period specified by the "Show Data" setting window.

4) Total CO2 exhaust
It shows the total CO_2 exhaust value by calculating total integrated power and conversion rate factor in Option setting.

5) Total charge
It calculates electricity charge based on the total integrated power and charge rate in Option setting.
It displays when charge display option is selected "Yes" in Option setting.

6) Peak integrated value
It shows the peak integrated value during the specified period.
A mark "+" is displayed under the graph to indicate the peak integrated value.

7) [Print screen] button
Click to print a hardcopy of the screen.

8) [Save] button
Click this button to pop up dialogue to specify save location.
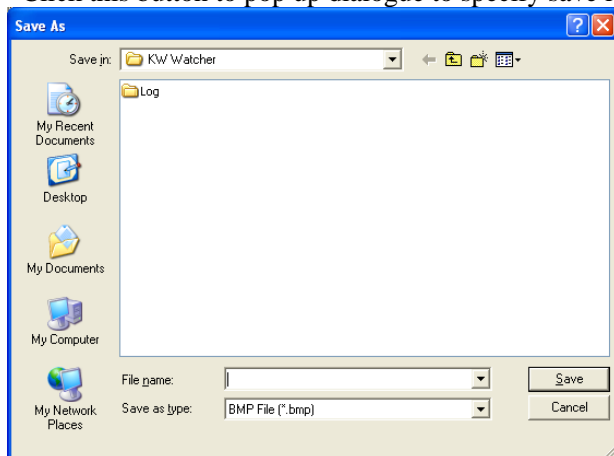
Specify the save location.
You can select file type from "BMP", "JPG" and "PNG".

9) [Screen temporary memory] button
Click to save hardcopy of the screen up to 12 screenshots.
See 2.19 Graph capturing function.
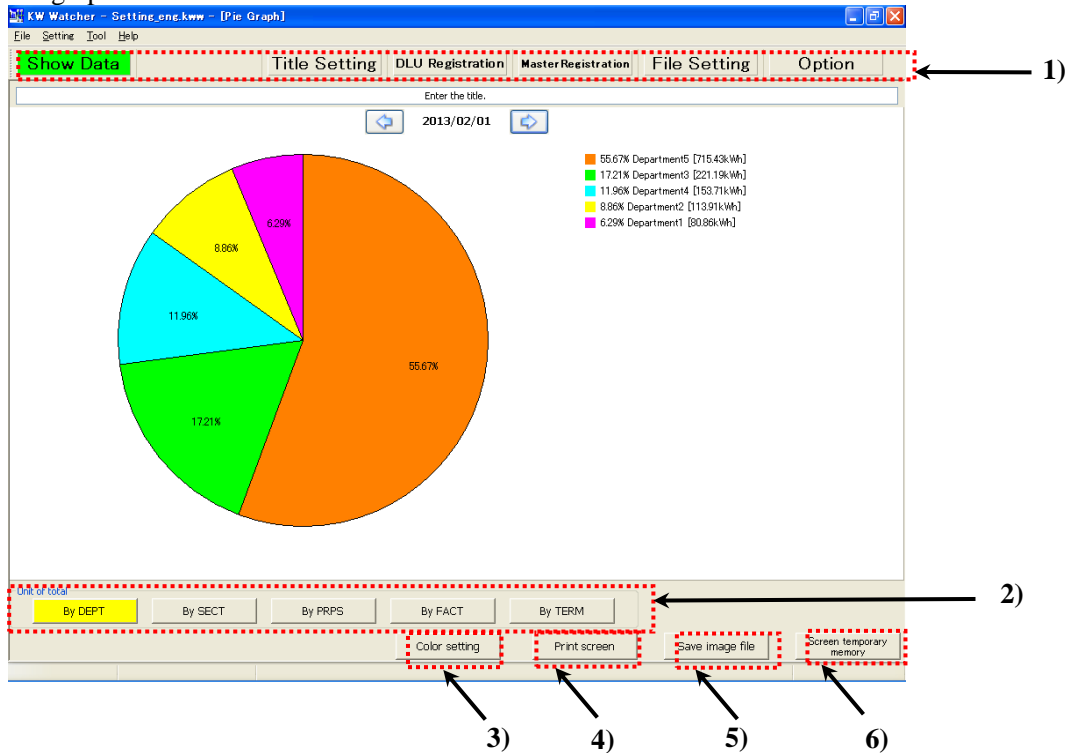
10) [Change Date] button
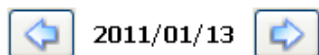
Press the arrow buttons located next to the date to change the date to the previous or next day (month, year).
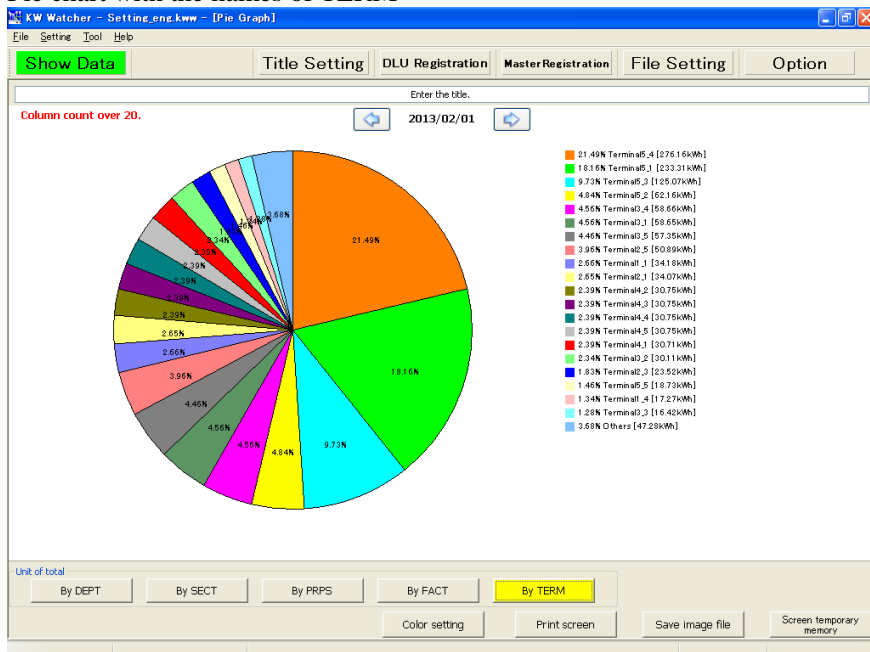
2.12. Display in pie graph
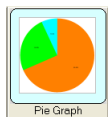
Pie Graph

Calculated result in multiple display conditions based on the conditions specified in "Show data" setting is displayed in a pie graph.

Pie graph with the names of DEPT

Click "By TERM" button or press shortcut key "Ctrl+5" to display pie chart with the name of TERM.

Pie chart with the names of TERM

[Caution]
Result shows only top 20 items and others if their series numbers exceed 20.
Display position varies depending on the number of characters of each registered name.

1) Title input
  Title can be directly modified. You can input up to 50 letters but it doesn't be saved.

2) Select unit of total
  These select buttons are indicated with the name of item setting set in title setting.

3) Color setting
 Designate colors for the displayed items.
  After designating the color, it will be displayed with same colors even if the date is changed.

4) Print screen
  Click [Print screen] to print a hardcopy of the screen.

5) Save screen
  Click [Save] and dialogue pops up to specify the save location.
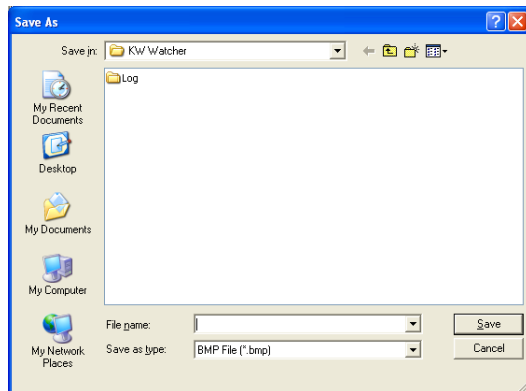

  Specify save location.
  You can select file type from "BMP", "JPG" and "PNG".

6) [Screen temporary memory] button
  Click it to save the hardcopy of the screen up to 12 screenshots. See 2.19 Graph capturing function

2.13. Display in a Stack Graph
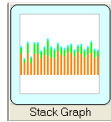
It displays "Bar Graph" (2.11) in a stack graph.
It displays in five categories "By DEPT", "By SECT", "By PRPS", "By FACI" and "By TERM", which are switchable with unit of total button.
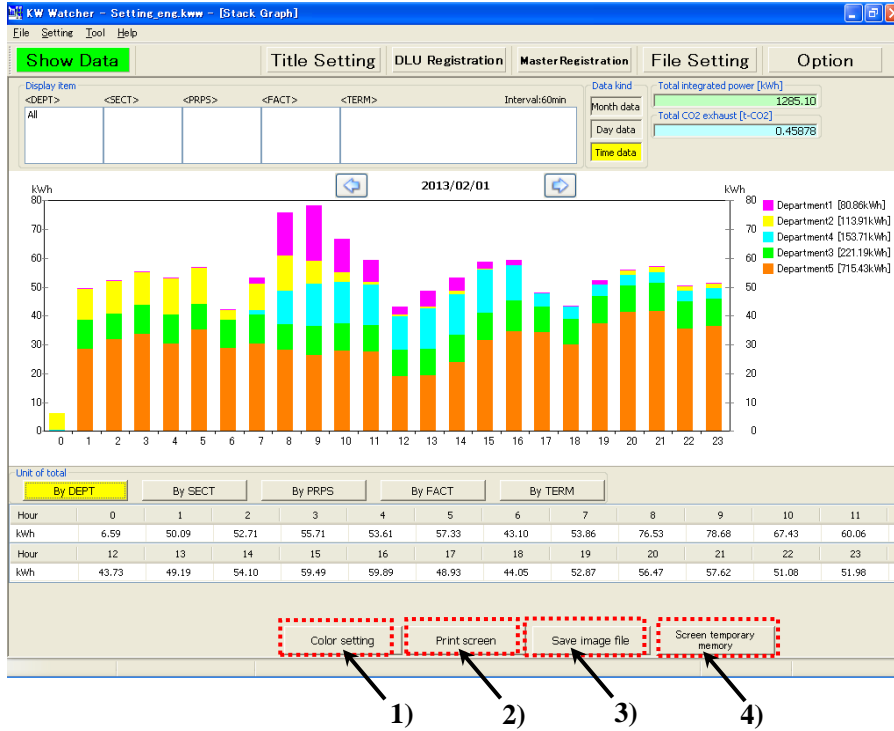
Click the list at the bottom of the window, and it displays details in each item at the time at the right.

[Caution]
Total charge is displayed only if you select "Yes" for Charge display in option setting.
It displays the top 20 items and others if the number of items exceeds 20.
Display position varies depending on the number of letters for each name.

1) Color setting
　Designate colors for the displayed items.
　After designating the color, it will be displayed with same colors even if the date is changed.

2) Print screen
　Click [Print screen] to print a hardcopy of the screen.

3) Save screen
　Click [Save] and dialogue pops up to specify the save location.
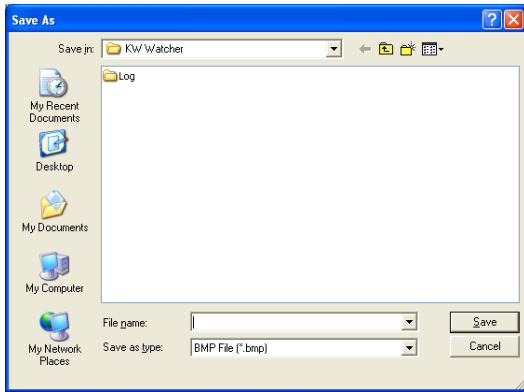
Specify save location.
You can select file type from "BMP", "JPG" and "PNG".

4) [Screen temporary memory] button
　Click it to save the hardcopy of the screen up to 12 screenshots.
　See 2.19 Graph capturing function

2.14. Display in Compare Graph
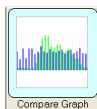
It displays a comparison by setting "Condition 1" and "Condition 2".

Firstly, select the items for condition 1 from the list.
"Compare graph" icon cannot be selected at this time.

Select condition 1

Secondly, select condition 2 with check to select for condition 1. When the condition 2 is selected it processes the selected data for condition 1. And "Compare graph" icon is activated and the data kind and the maximum value of graph cannot be selected. When condition 2 is clicked, select status of each item shows the same status as condition 1.

Select condition 2
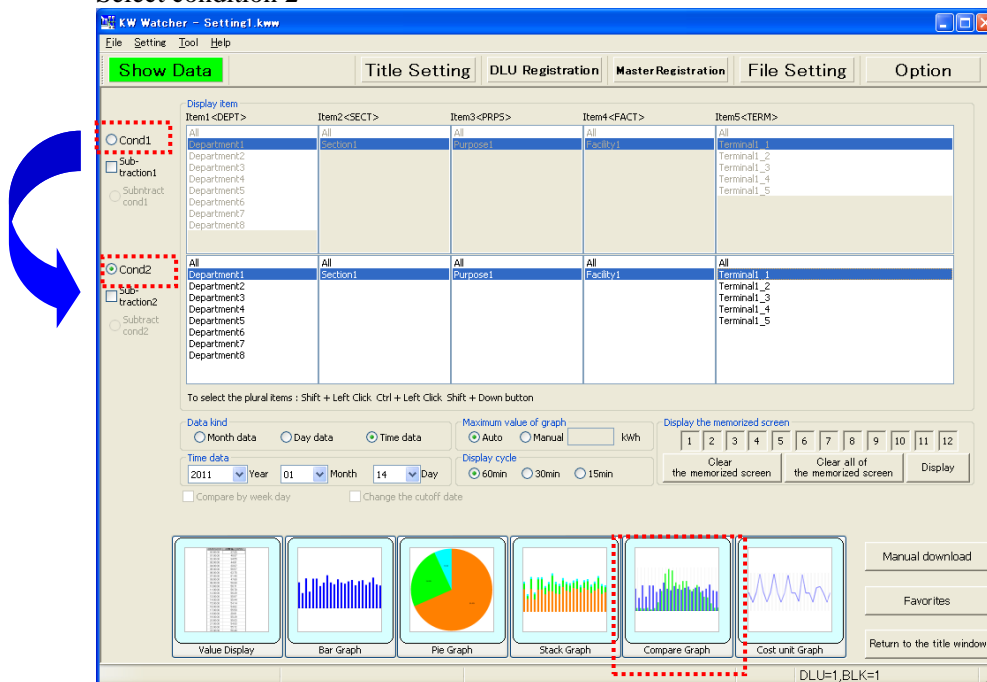
Compare graph is displayed by clicking "Compare Graph" icon after selecting condition 2 from the list. List view at the top of the window can be switched with "Condition 1" and "Condition 2" by using "Select condition".

Display selected condition in the condition 2
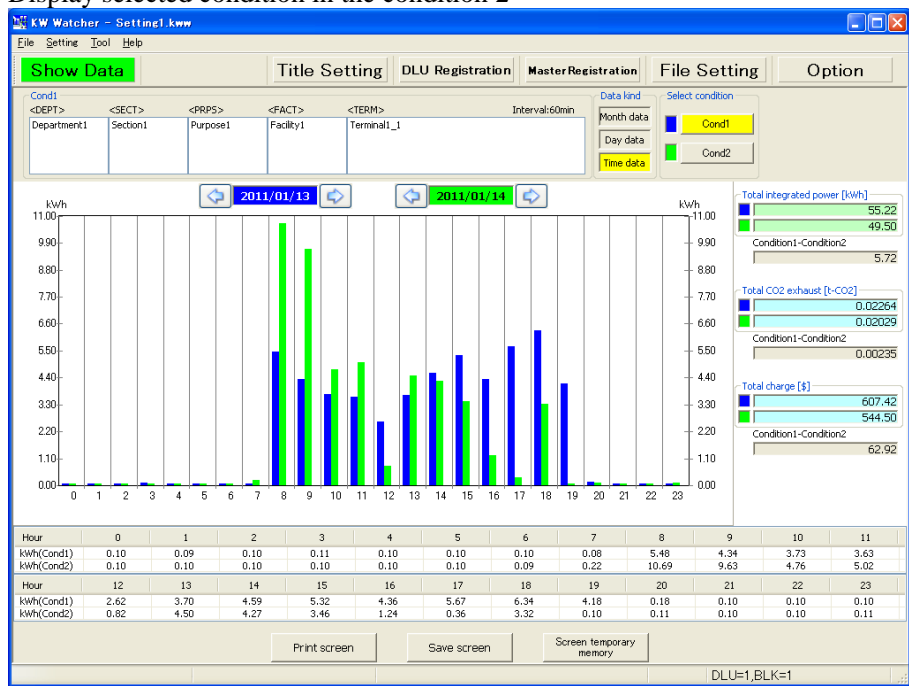
[Caution]
Total charge is displayed only if you select "Yes" for Charge display in option setting.

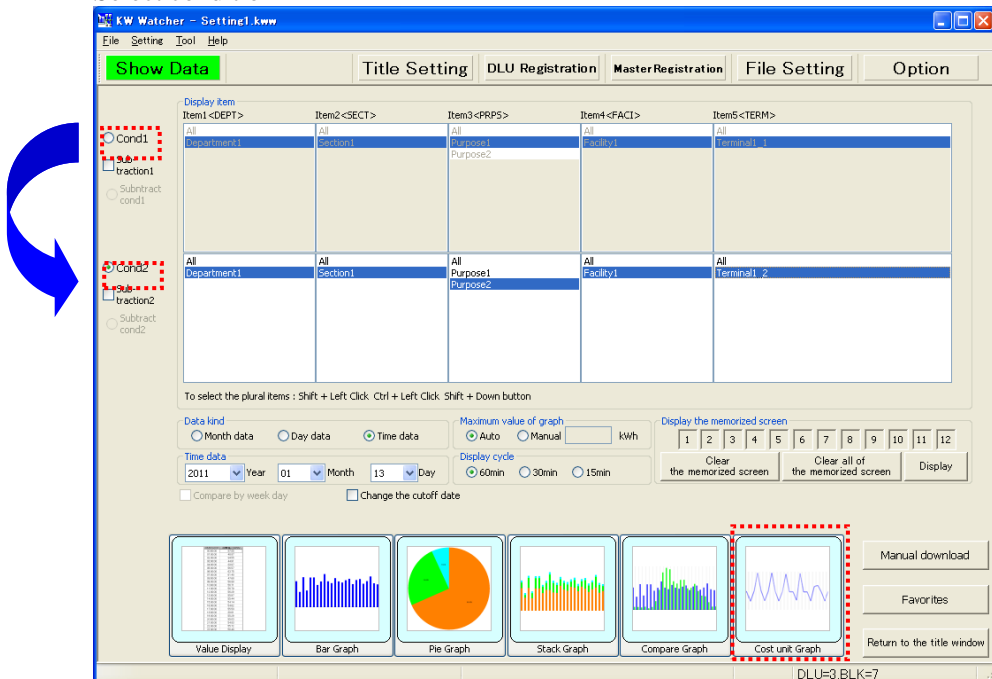2.15. Display in Energy per unit Graph
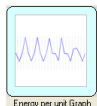
Select calculation condition of electric power from the list of "condition 1".
At this point, Energy per unit Graph can't be selected.

Select condition 1

Secondly, select condition 2 after condition 1 is checked. Select production volume.
When condition 2 is selected, the basic unit graph button will be activated after processing data selected in condition 1, and then selection of the data type will become unavailable.
Selection status of each item when condition 2 is clicked will be the same as that of condition1.

Select condition 2

Click Energy per unit Graph icon after selecting its calculating condition of production volume from the list of "Condition 2" in order to display Energy per unit Graph.

The list view on the top can be switched by choosing "Condition 1" and "Condition 2" from the selection condition.

Display the selection condition of Condition 2
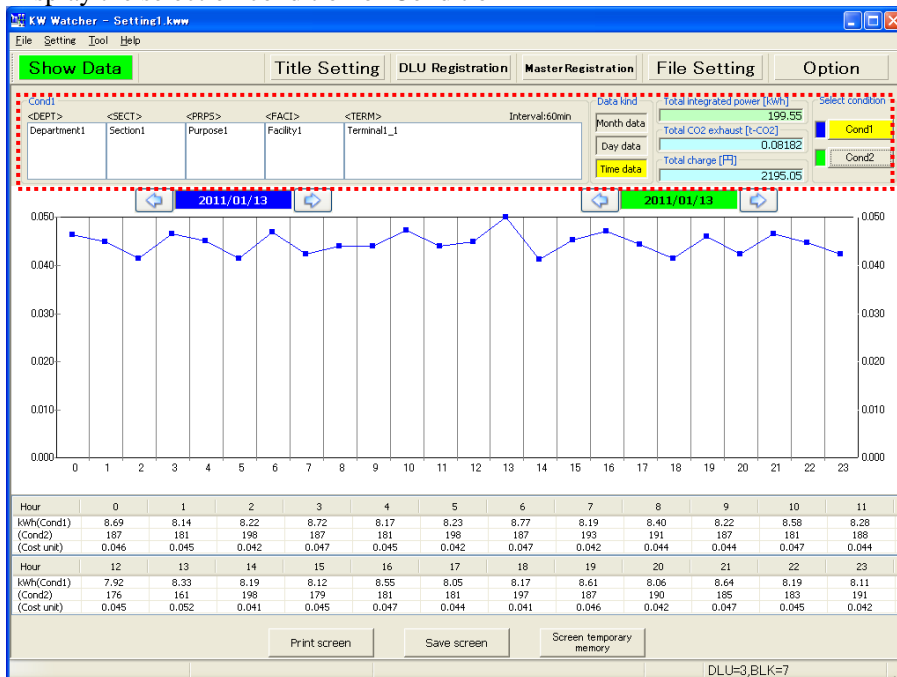
[Caution]
-If the production volume is 0, the energy per unit will be displayed as 0.
-If condition 2 is the number with a decimal point, the number rounded to the whole number will be displayed. However, the numbers after the decimal point will be included for calculating the energy per unit and displayed.
　　Ex) When condition 1 is 20kwh and condition 2 is 10.5, each display will be as follows;
　　　　　Condition 1: 20　　Condition 2: 11　　Calculated energy per unit: 1.904 (1.904 = 20/10.5)
-Up to the third decimal number is displayed for energy per unit.

2.16. Display in Temperature/Humidity/Trend Graph
-Temperature Graph: It displays temperature graph.
-Humidity Graph: It displays humidity graph.
-Trend Graph: It displays selected conditions in line graph.
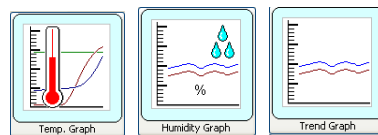
[Caution]
The function and setting procedure of these three graphs are the same except for the display of units.

The following procedure is described using temperature graph as an example.

Select the item to display Temperature Graph from the list of "Condition 1".

Selection of condition 1
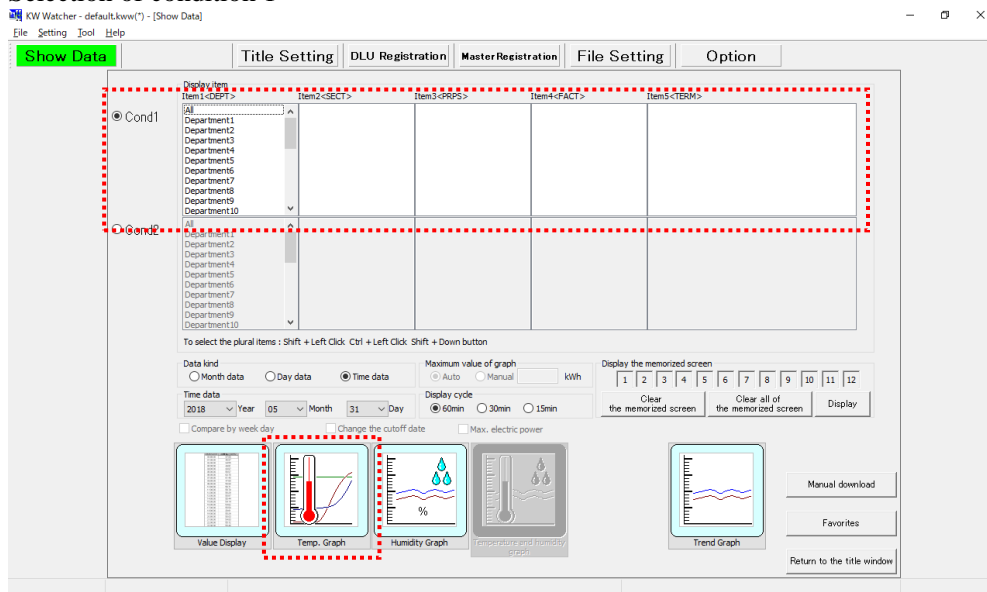
A maximum of 20 items (in Item 5) can be selected.
If more than 20 items are selected, a message will appear when clicking "Temperature Graph" icon and the temperature graph display will be cancelled.

Status of when more than 20 items are selected
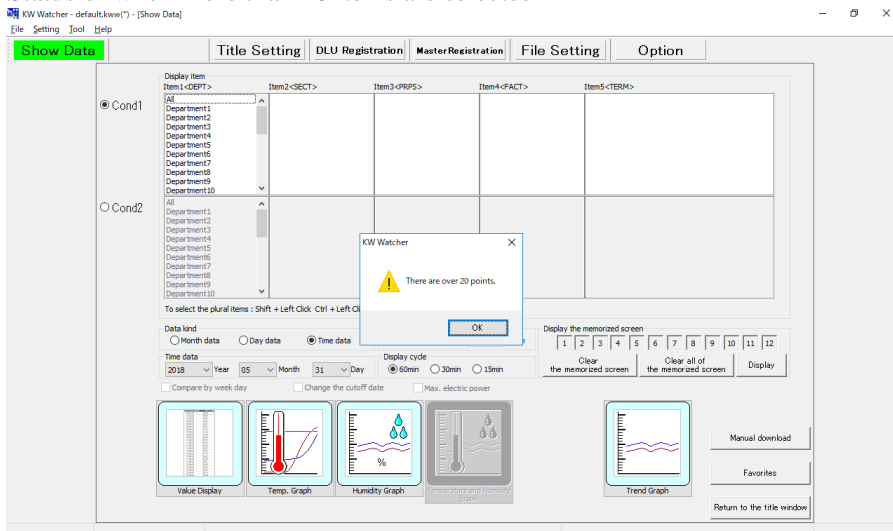
It displays the temperature graph calculated under different display conditions based on the condition set in "Show Data".

Temperature Graph
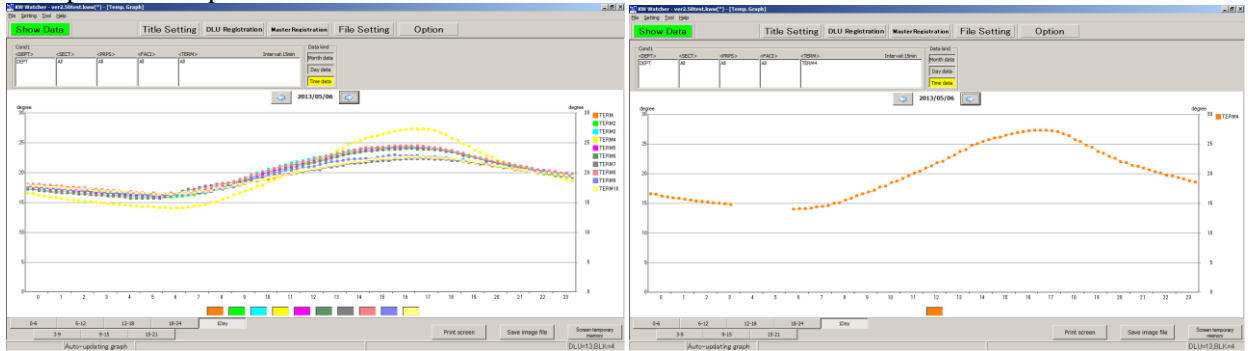
[No missing data]   [With data missing]

[Caution]
When the data from DLL are missing ('-' in csv file), it doesn't show graph for missing data time.

1) Display condition
  The condition selected in the data display setting is displayed.

2) Data kind
  The condition selected in the data display setting is displayed in yellow.

3) Series data display

Clicking a series color at the bottom of the graph displays its breakdown in the explanatory area on the right side of the graph.
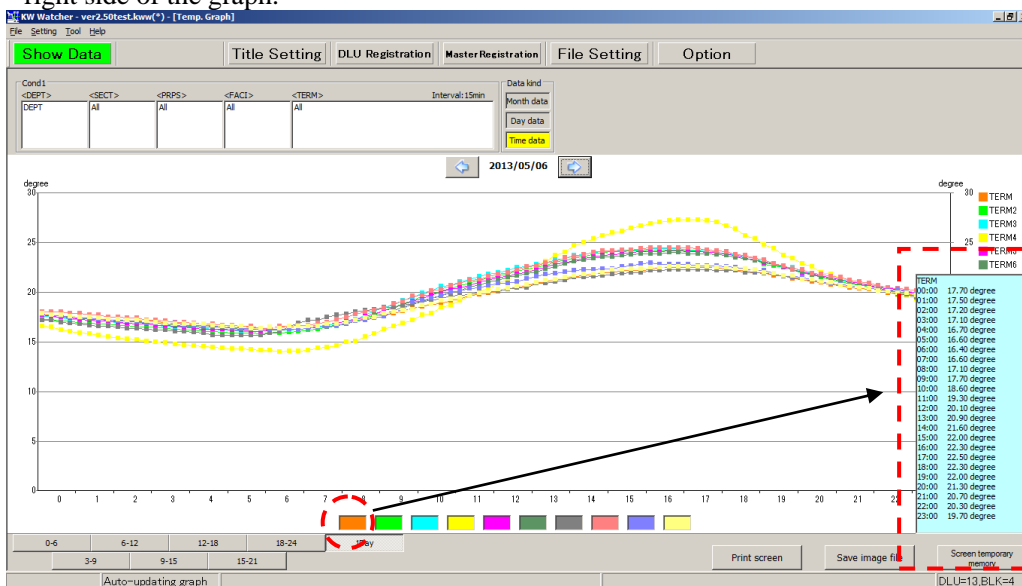
[Caution]

-Series data display is available only for time data. Series colors are not displayed at the bottom of the graphs for month and day data. When there is no series data during the period, it displays by '-'.

-When setting 15 min or 30 min for display cycle, all of data cannot be displayed all at once. Change to the display at the time you want to check.

2.17. Temperature (Humidity/Trend) and Power Graphs

Temperature (humidity/trend) and power graph display can be superimposed.
(The following example shows the case of temperature graph, however, the procedure is the same for humidity and trend graphs.)

1) Select the calculating condition of temperature from the list of "Condition 1".
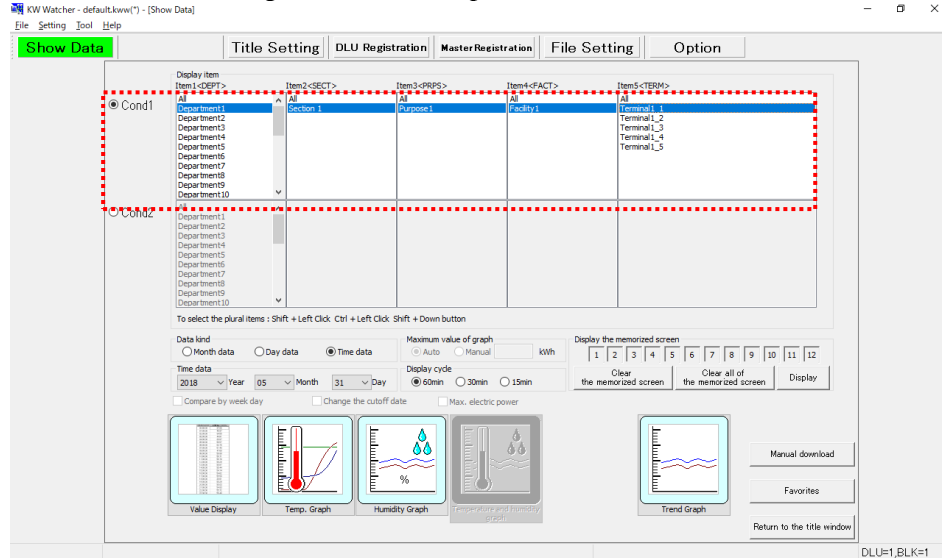
2) After checking "Condition 1", select "Condition 2".
Select the calculating condition of electric power from the list of "Condition 2".
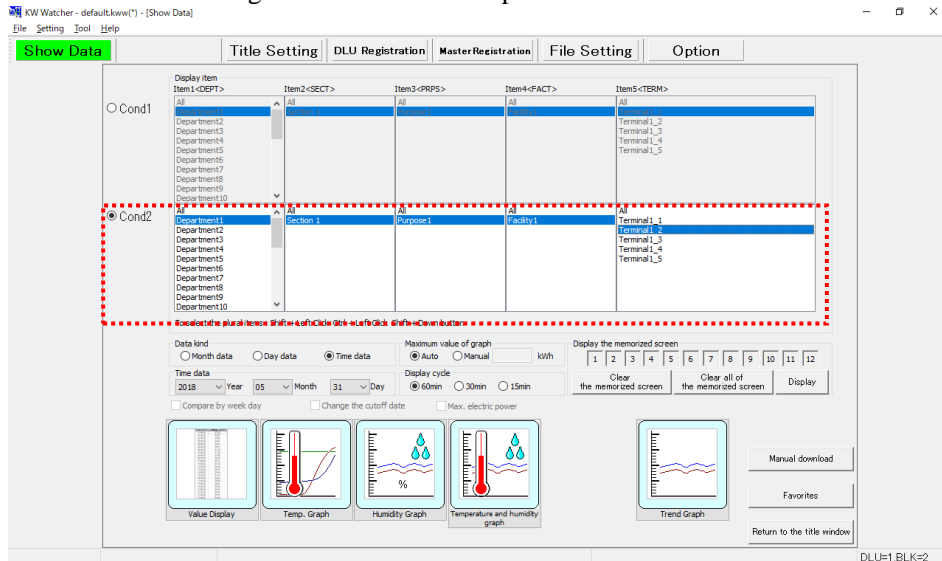
[Caution]
For "Condition 2", be sure to select electric power data.

3) Clicking [Temperature Graph] after selecting "Condition 2" displays temperature and electric power data together.
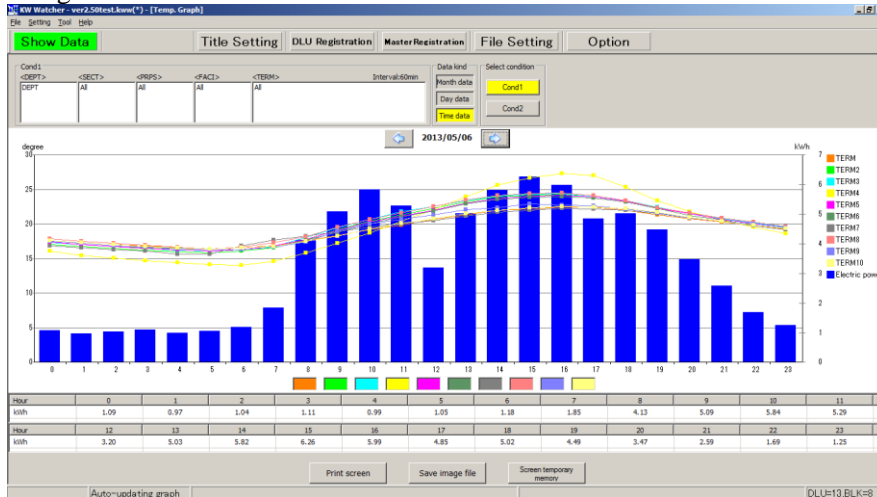
[Caution]

-When performing auto-update of graphs, note that the graphs may not be updated simultaneously if DLU (DLL) collects temperature (humidity/trend) data and electric power data at different times.

Setting "Delay time" in the option setting (see "12) Delay time" in "2.8 Option setting") enables to correct the time error (up to 5 minutes).

-This setting is not necessary if you do not display temperature and power graphs together.

-The unit in the list and that shown in the right upper part of the graph is always kwh. As they cannot be changed or hidden, be sure to select power data in "Condition 2".

[For using updated KW Watcher]

If you update KW Watcher for use, you should insert the master registration information of electric power data into the master registration of temperature (humidity/trend) data. (The following explanation is the case of temperature data.)

1) Export the master registration of temperature data (see 2.1.1.7).

2) Export the master registration of electric power data (see 2.1.1.7).

3) Insert the master registration of power data after the exported master registration of temperature data.
*The contents of Item 5 cannot be overlapped (see page 10).

Insert the master registration of power data after conditions of temperature.

4) Import the edited master registration file of temperature data.

5) If the inserted power data is not registered in DLU, make the DLU registration (see 2.5).

6) After making those settings, select condition 1 and condition 2. Click [Temperature Graph] to show the superimposed display of the two graphs.

2.18. Temperature and humidity Graphs

Temperature graph and humidity graph display can be superimposed.

1) Select the calculating condition of temperature from the list of "Condition 1".

2) After checking "Condition 1", select "Condition 2".
Select the calculating condition of humidity from the list of "Condition 2".

[Caution]
For "Condition 2", be sure to select humidity data.
Only 1 point is selected for each "Condition 1" and "Condition 2" (item5).
If you select one or more points, the error message will appear and it stop display graph.

When one or more items are selected
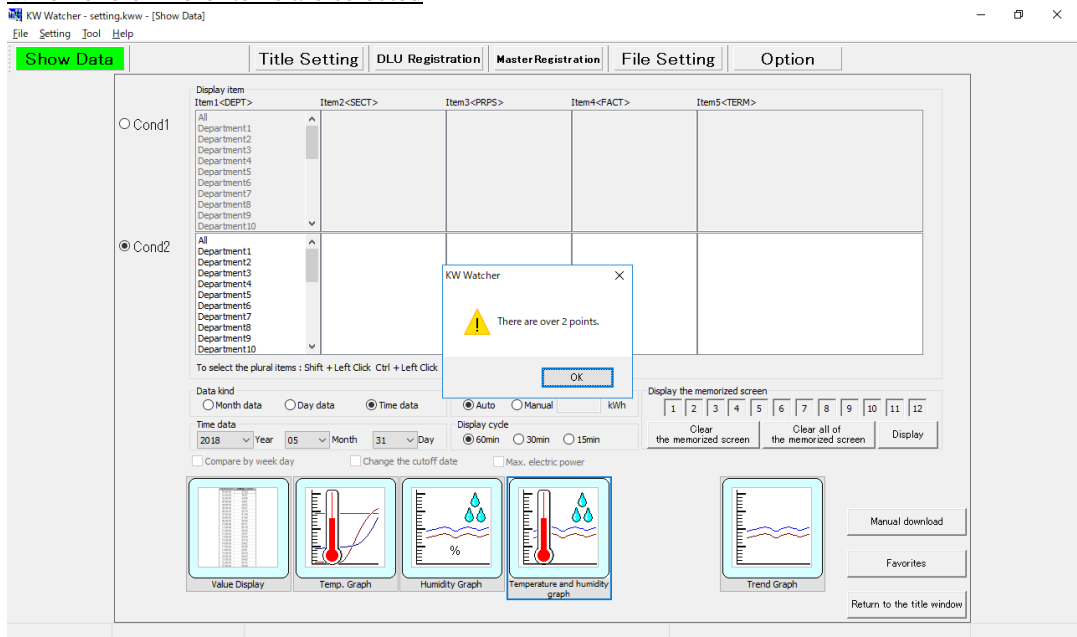
3) Clicking [Temperature and humidity graph] after selecting "Condition 2" displays temperature and humidity data together.
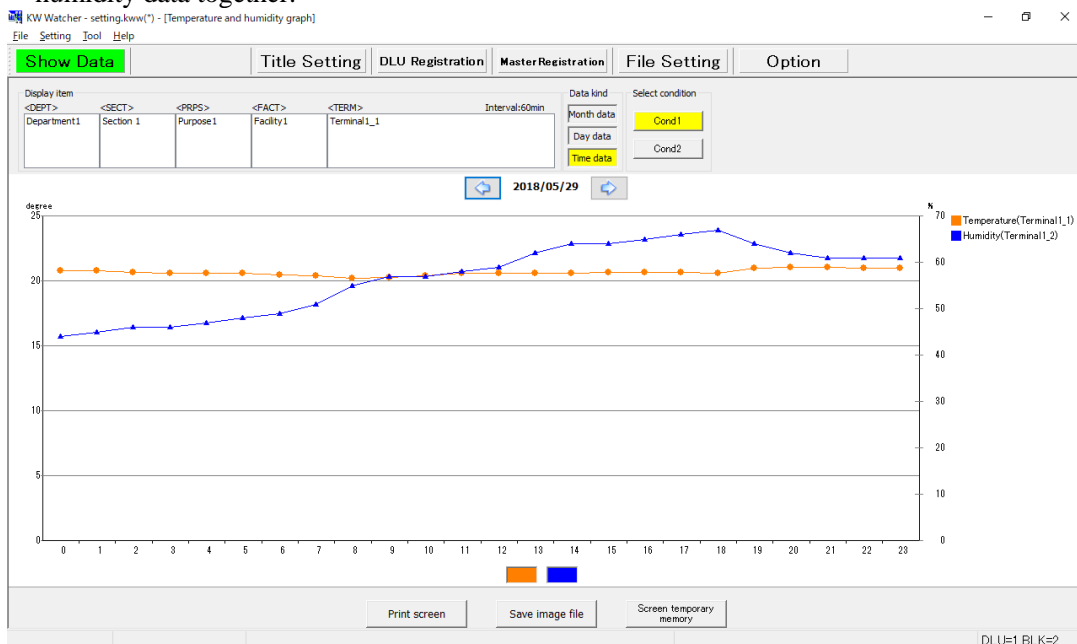
[Caution]
-When performing auto-update of graphs, note that the graphs may not be updated simultaneously if DLU (Logger /FP WebServer /PLC /KW2M/ELC500) collects temperature data and humidity data at different times. Setting "Delay time" in the option setting (see 2.8 Option 12 Delay time) enables to correct the time error (up to 5 minutes).
-This setting is not necessary if you do not display temperature and humidity graphs together.
-The unit in the list and the axis of the graph are always ℃ or %. As they cannot be changed or hidden, be sure to select humidity data in "Condition 2".

2.19. Graph capturing function

It can save graphs up to 12 by clicking [Screen temporary memory] when each graph is displayed.

Save screenshots
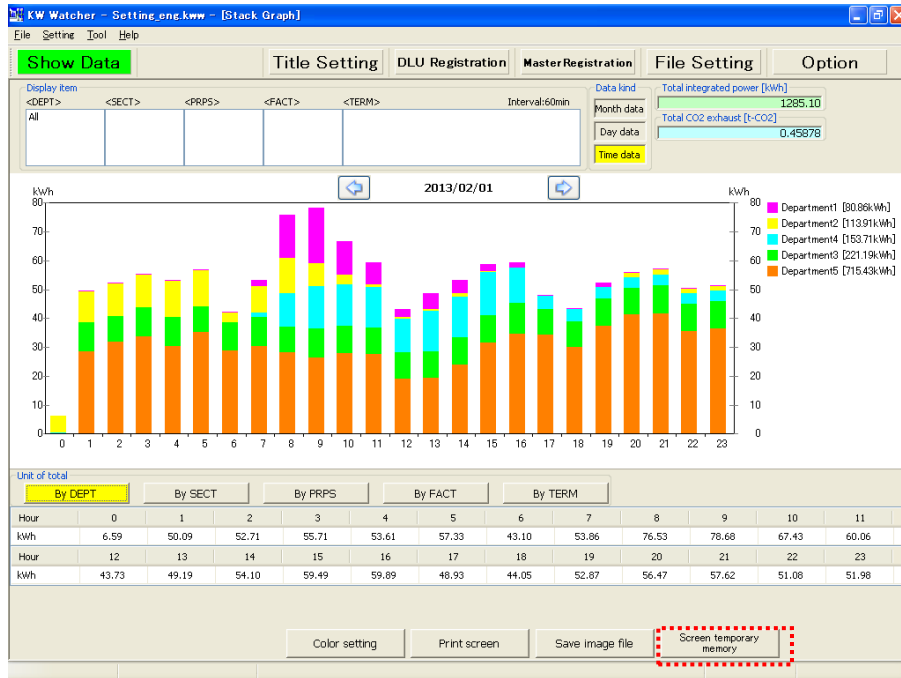
Once the button is clicked, number in the box of Display the memorized screen indicated with yellow.

After capturing graph screen once
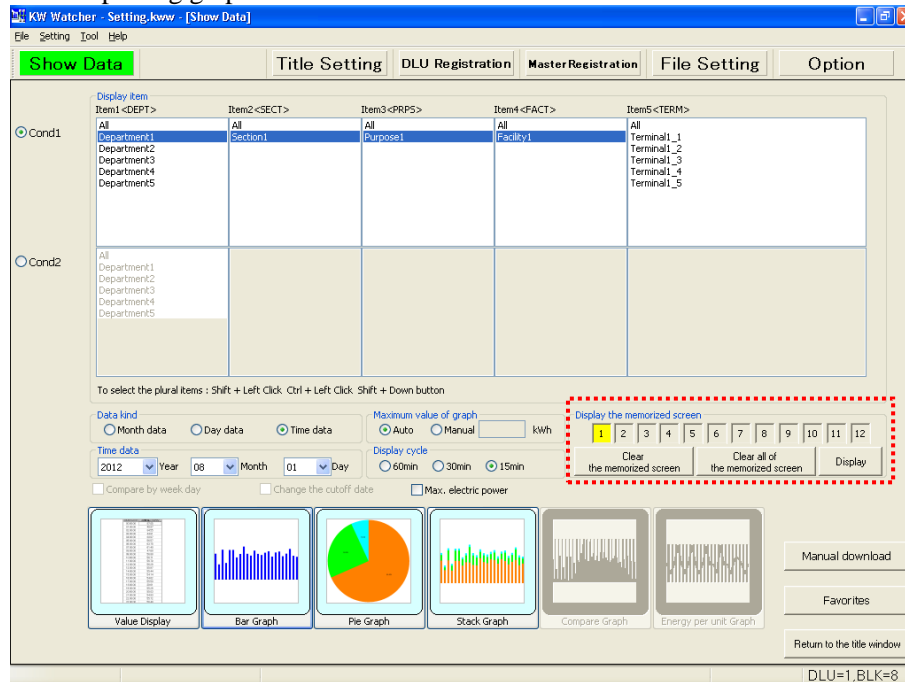
This is the explanation to display four captured graphs side by side.

Firstly, after capturing graphs 4 times, click the yellow number button to highlight in red.

After capturing graph screens 4 times
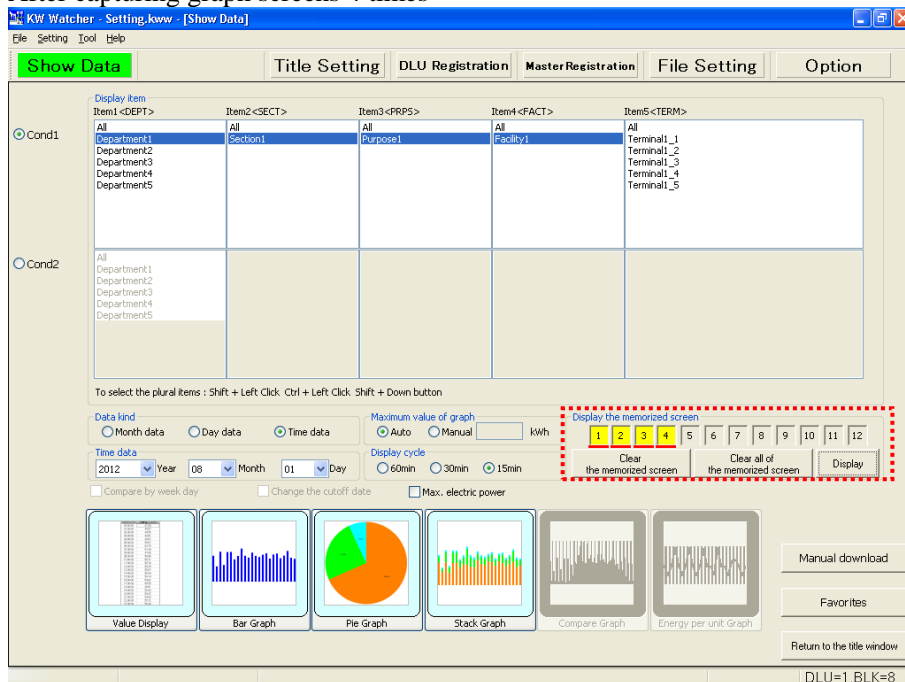
Click [Display] to display the captured graphs.
It can display the captured graphs up to 12 by clicking yellow number to highlight in red.

Display sample of 4 captured graphs
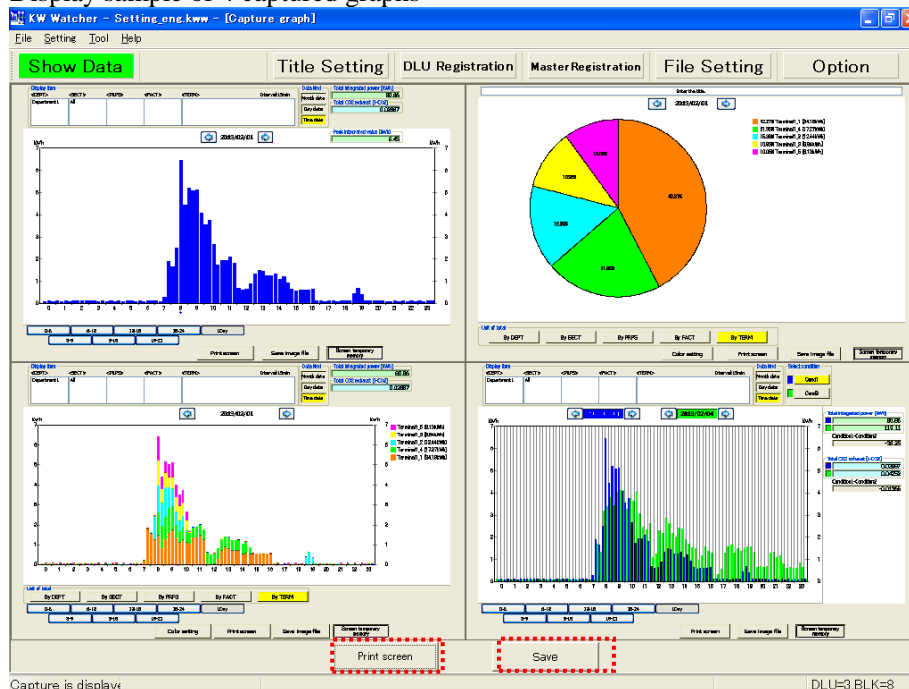
Click [Print screen] to print the current screen.
Click [Save] to save the current screen as image.
    [Caution]
       The display of the memorized screen may be different from the actual display depending on the PC
       you use. For example, a line is disappeared or letters are illegible.

Select the number to make it red 5 and click "Clear the memorized screen".
The yellow button turns off and the captured graphs are cleared.

Prepare to delete captured graphs
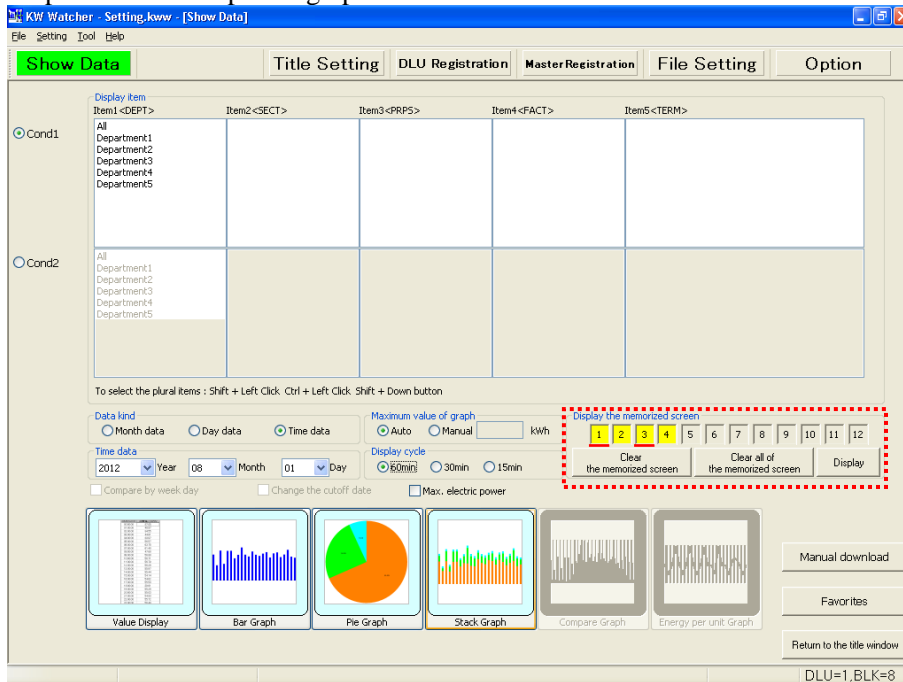
[Caution]
Note that click "Clear all of the memorized screen" makes all the captured graphs delete.
In this status, if graphs are captured from "Screen temporary memory", the number in the box is filled with a yellow in the following order: (1) → (3) ・・・ .

Delete captured graphs
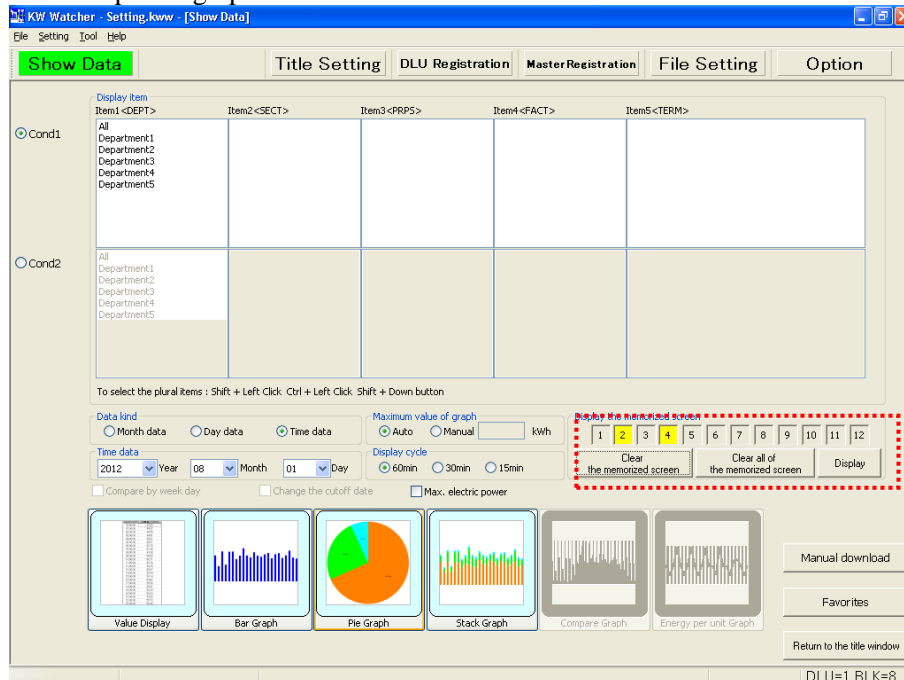
2.20. Favorites function

The settings of "Display item", "Data kind", "Maximum value of graph", "Time data", "Display cycle" and "Compare by week day" can be registered. The registered settings can be retrieved from the next operation.
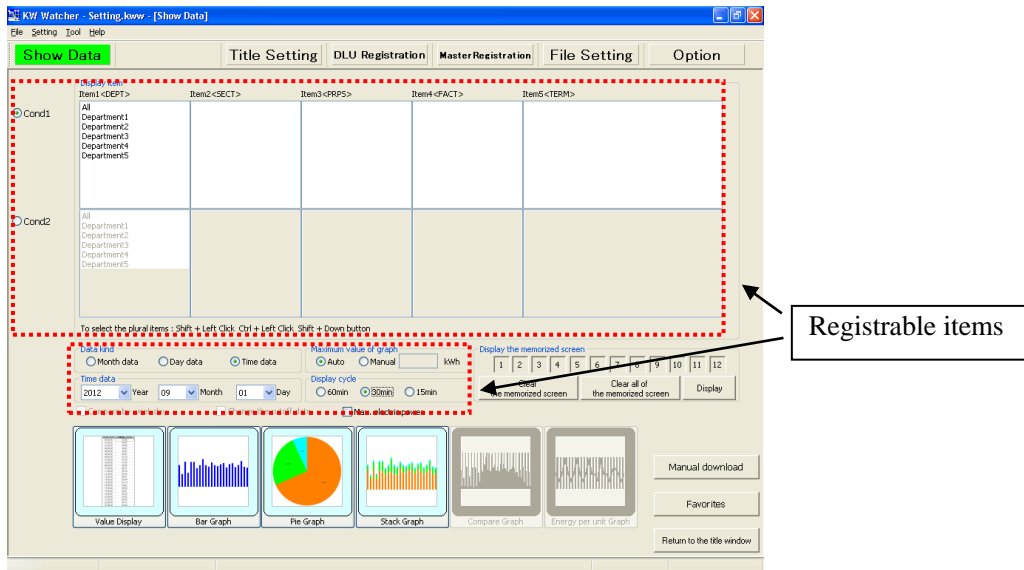
Registrable items

Click [Favorites] to register, select or delete items.
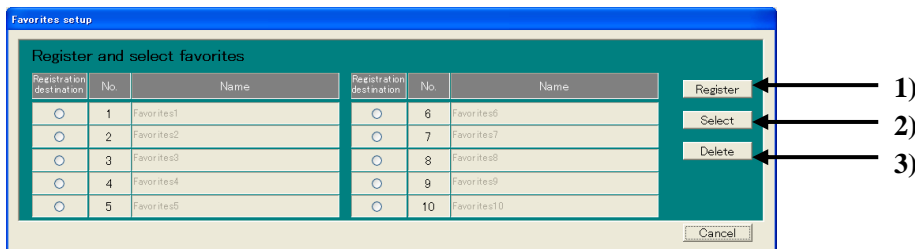
1) Register

Registers specified selected conditions.
Registrable items: Display item, Data kind, Maximum value of graph, Time data, Display cycle, Compare by week day
Maximum number of registrations: 10
Maximum characters per title: 20 characters (one-byte) (It cannot be registered when no setting is made.)
Two "favorites" screens are available, which are for "Power graph" and "Temperature/Humidity/Trend graph".

[Caution]
Favorites cannot be registered for each setting file. Therefore, note that if favorite data registered in a setting file is selected in another setting file (e.g. registering data in power graph and reading in energy per unit graph), an error may occur as the conditions of the master registrations differ.
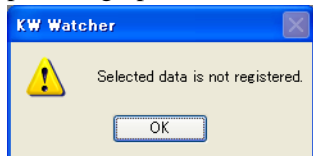
2) Select

Calls up registered conditions.

3) Delete

Deletes registered conditions.

[How to register]
(1) Input the conditions you want to register.
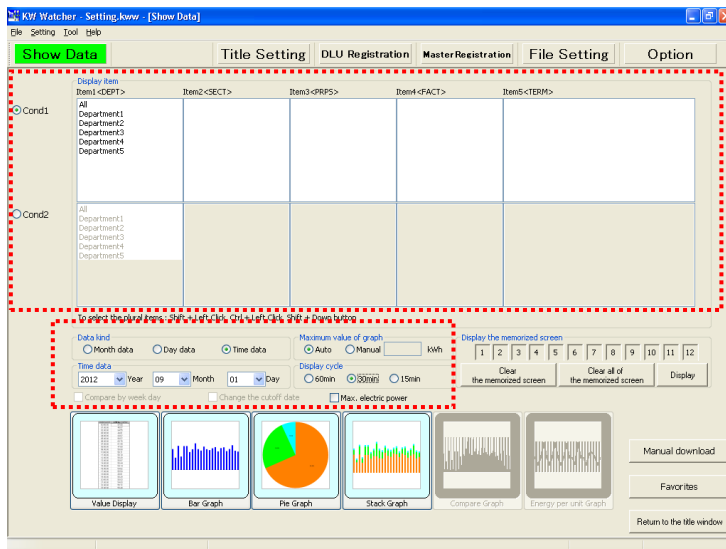
[Caution]
When "Condition 2" needs to be input for graphs such as compare graph and energy per unit graph, click [Favorites] after inputting "Condition 2". Note that if "Condition 1" is checked again after that, the conditions of "Condition 2" will not be registered.

(2) Press [Favorites] to open "Favorites setup" window.

(3) Check the number you want to register.
  The checked number and name will be highlighted.
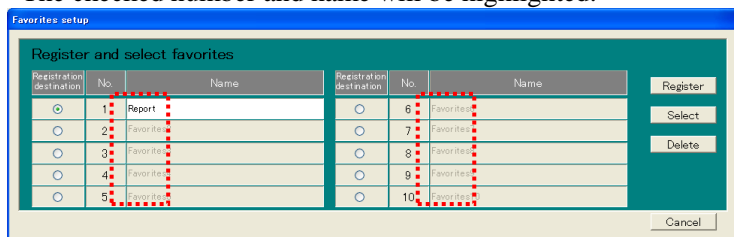
(4) Input the name and click [Register]. A confirmation message will appear.
    Click [OK] to complete the registration.
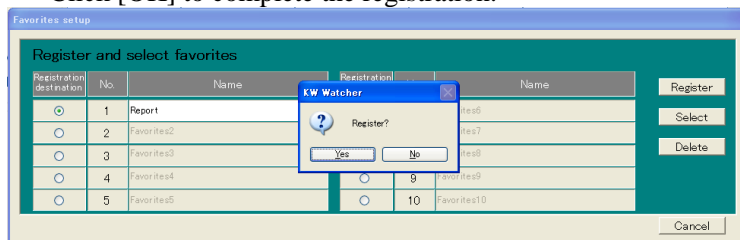
[Caution]
-Favorites cannot be registered unless the name is input.
-The same name can be used for more than one favorite data.

[How to select/delete]
Check the number you want to select or delete. Click [Select] or [Delete] to select or delete the favorites.

2.21. Print function
Click [Print screen] to print screens in each display window.
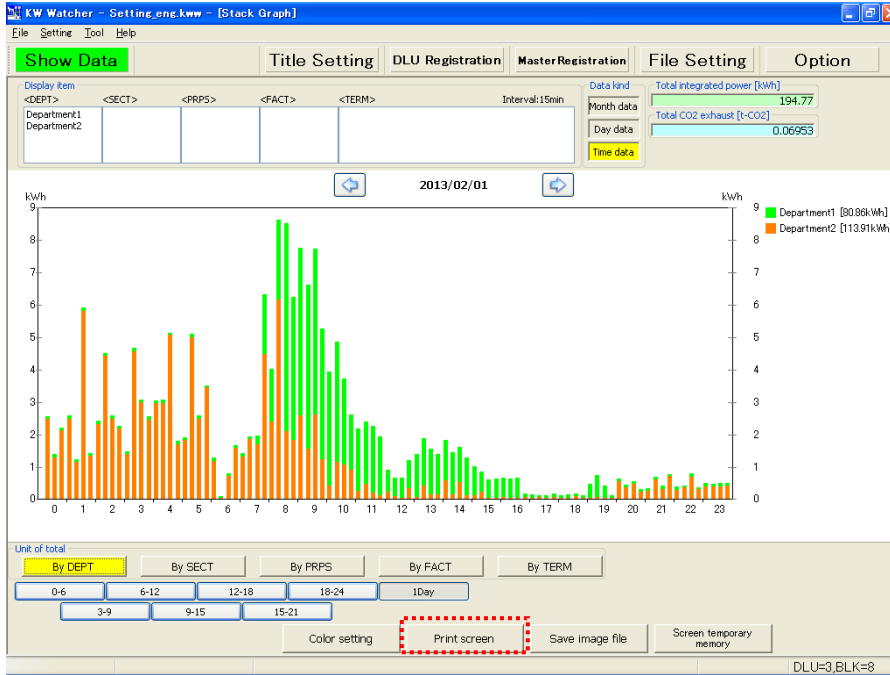
Click [Print screen] and "Printer setting and print" window pops up.
Click [Print] to print by the currently selected printer.

Printer setting window pops up when "Property" button is clicked.
The window below pops up, and it can set the print setting for printers.

[Caution]
Note that type of setting window varies depending on a printer.
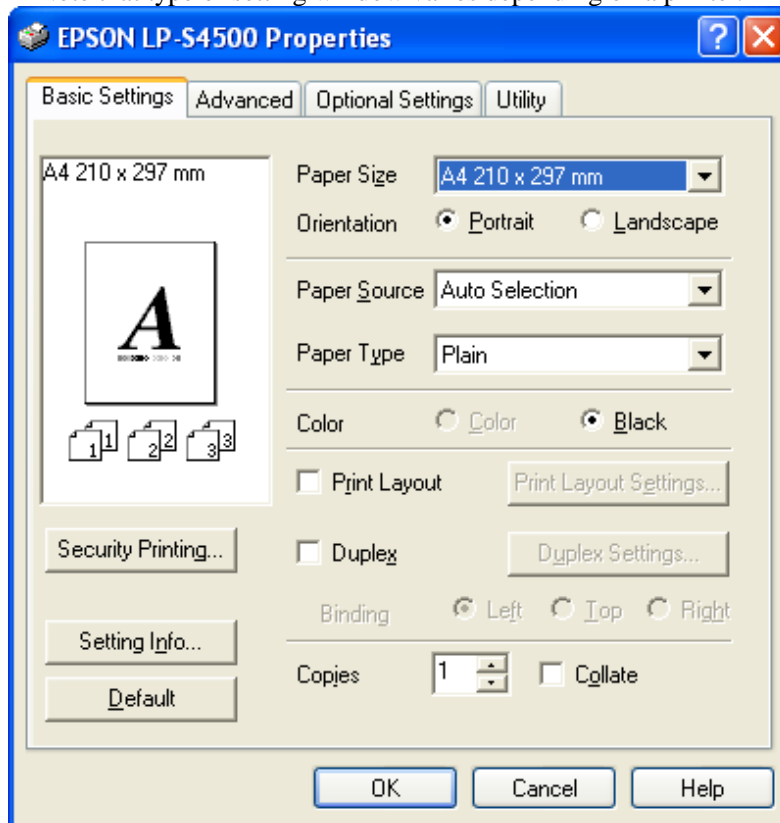
[Caution] Property of printer setting and print set by KW Watcher
Only 7 setting items can be edited in property as follows:
-Type of paper
-Paper feeding option
-Printing quality
-Color / Black and white
-Double face printing
-Page orientation (Horizontal/Vertical)
-Number of copies
Setting in the property above becomes active while KW Watcher is running.
However, setting might need to be changing each time depending on a printer type.
To activate other property settings, the print setting of the default printer needs to be configured beforehand in the "Printer and Fax" option in the Start menu.

2.22. Print sample

Below is the sample.

Print sample of master registration

Display condition setting

No.	Del	DEPT	SECT	PRPS	FACI	TERM	DLU	Block No.
1		Department1	Section11	Purpose1	Facility1	Terminal1_1	5:DLU005	250
2		Department1	Section11	Purpose1	Facility1	Terminal1_2	5:DLU005	42
3		Department1	Section11	Purpose1	Facility1	Terminal1_3	5:DLU005	43
4		Department1	Section11	Purpose1	Facility1	Terminal1_4	5:DLU005	44
5		Department1	Section11	Purpose1	Facility1	Terminal1_5	5:DLU005	45
6		Department1	Section11	Purpose1	Facility1	Terminal1_6	5:DLU005	46
7		Department1	Section11	Purpose2	Facility2	Terminal1_7	5:DLU005	17
8		Department1	Section11	Purpose2	Facility2	Terminal1_8	5:DLU005	12
9		Department1	Section11	Purpose2	Facility2	Terminal1_9	5:DLU005	13
10		Department1	Section11	Purpose2	Facility2	Terminal1_10	5:DLU005	14
11		Department1	Section12	Purpose1	Facility1	Terminal1_11	5:DLU005	15
12		Department1	Section12	Purpose1	Facility1	Terminal1_12	5:DLU005	18

3. Useful tips about collecting data

If the data for a given time in a CSV file is missing (0 or minus), it works as below.
Ex) 15 minutes

	A	B	C
1	Date	Time	1
2			Sample
3			COM1 [Unit No.1]
4			DT100
5			MOMENT
6			US32-> FLT
7			kWh
8	2012/9/1	0:15:00	12803.61
9	2012/9/1	0:30:00	12803.61
10	2012/9/1	0:45:00	12803.61
11	2012/9/1	1:00:00	-
12	2012/9/1	1:15:00	12815.71
13	2012/9/1	1:30:00	12821.81
14	2012/9/1	1:45:00	12827.32
15	2012/9/1	2:00:00	12833.64

1) For the data of 0:45:00, it needs data of 1:00:00. But the data of 1:00:00 is missing, therefore it will be designated to the difference of 1:15:00 and 0:45:00, "12.1kWh". (It will search the time that has data.)
2) For the data of 1:00:00, it is "-" because there are no data of 1:00:00.
3) For the data of 1:15:00, it is "6.1kWh" that is the difference of 1:30:00 and 1:15:00.

Result
Time	kWh
0:45:00	12.1
1:00:00	-
1:15:00	6.1

[Caution]
-The process shown above explains about the case which the logging data is instantaneous value.
  If the logging data is a difference value, the value will be calculated based on the data.
-When it searches the next data because the data is missing and the next data is after the cut off date, it stops the search and the data will be "-".
-In case of setting the cycle to 30 minutes or 15 minutes, the way of thinking is the same.
-For the graph for max electric power, it doesn't search the data when the data is missing.
  It displays with "-".

3.1. Type of logging data files, which can be displayed on KW Watcher.
File format supported on KW Watcher V1.11 or later is listed below.
Set accumulated data files created in DLU (DLL) according to the types of display options.

Type of accumulated data in CSV format

View options (example)	Logging data type in CSV format	
	Instantaneous value	Difference value
Eco-POWER METER's integrated electrical power	Available (*1)	Available
Flow volume	not available	Available
Production volume	not available	Available
Temperature	Available	not available
Humidity	Available	not available
Pulse data	not available	Available

*Activate "Eco-POWER METER full scale → 0 kWh function" in the option setting
if Eco-POWER METER exceeds the full scale.

3.1.1. Recognition of file type with CSV format
Because KW Watcher automatically recognizes file types (instantaneous file or difference file) depending on the contents of logging files created in the connected device, set the information added to headers in Layout setting according to the below.
It will be instantaneous value file if the logging content is MOMENT, and it will be regarded as difference value file if others.
Refer to the each manual for FP7, FP0H and FP Web-Server.

Information added to headers
[DLL (Configuration → Logging File Setup)]

[DLL (Configuration → Logging file setup]

3.2. Example of DLU logging file setup

<u>Ex 1) In case of displaying integrated electric power of Eco-POWER METER</u>
1) Select "Compact flash" for "Storage Place" of "Logging File" in "Main Unit Configuration Settings".
   (CF card is necessary to use KW Watcher.)

UNIT	
Name	
Expansion Unit	
Expansion Unit1	Not use
Expansion Unit2	Not use
Expansion Unit3	Not use
Logging File	
Storage Place	Compact Flash
COM1 Settings	
Connection Unit Selection	FP Series PLC(MEWTOCOL)
Connection Type	1:N
Unit No.	00
Baud Rate	19200bps
Data Length	8 Bit
Parity	Odd
Stop Bit	1 Bit
Timeout	3sec.
MEWTOCOL Header	%
Command Wait	0

2) Trigger Settings
  For creating the trigger activated in 1-hour cycle

No.	Trigger Name	Trigger Type	Trigger History File
1	1hr.cycle	Fixed Cycle	☐ Record.

[In case of 30-minute cycle]

Cycle
30sec.

Cycle
1hr.
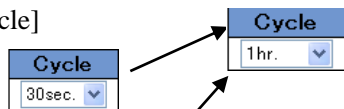
[In case of 15-minute cycle]

Cycle
15min.

For creating the trigger activated at 0:00 am every day

No.	Trigger Name	Trigger Type	Trigger History File
2	EveryDay	The Appointed Time	☐ Record.

Type	year	month	day	Day of the Week
Every Day	2011	1	1	☐ Sun. ☐ Mon. ☐ Tue. ☐ Wed. ☐ Thu. ☐ Fri. ☐ Sat.
	hour	minutes	second	
	0	0	5	

3) Logging File Setup
  File name: Input the same file name as the one shown in the DLU registration screen of KW Watcher.

  Logging Trigger: 1hr.   Updating Trigger: Every Day 00:00:00
  No. of Records: 60000 (recommended)   No. of Generations: 60 (recommended)

[In case of 60-minute cycle]

No.	File name	Logging Trigger	No. of Records	No. of Generations	Updating Trigger
1	syunji	No. 1 (1hr.cycle)	60000	60	No. 2 (EveryDay)

[In case of 30-minute cycle]

Logging Trigger
No. 3 (30min.cycle)

In case of 15-minute cycle]

Logging Trigger
No. 4 (15min.cycle)

   [Caution]
   No. of records is necessary as below.
   For 60 min: 24 records
   For 30 min: 48 records
   For 15 min: 96 records

4) Device Registration to a Logging File
  Logging Type: Instantaneous value   Data Format: DEC2W (No code)
  Conversion: Convert   Conversion Parameter: 0.01
  Unit: kWh (recommended)   Device Selection: DT100 - 1 Point
  Block No.: Be sure to register consecutive number
  (Device Selection, DT100 is for Eco-POWER METER.)

[In case of 30-minute cycle]

File name	Logging Trigger
No.1(syunji)	No.3(30min.cycle)

[In case of 15-minute cycle]

File name	Logging Trigger
No.1(syunji)	No.4(15min.cycle)

File name	Logging Trigger
No.1(syunji)	No.1(1hr.cycle)

Block No.	Name	Target	Unit No.	Device Selection		
1	No.1.	COM1(Register)	01	DT 100	– 1	Point

Logging Type	Data Format	Conversion	Conversion Parameter	Unit	Digit
Instantaneous Value	DEC2W(No code)	Convert	0.01	kWh	Not use

5) Storage File Settings for Various Action Settings in Configuration
  Operation Without Enough Disk Space: Create a new file
  Movement in the stop mode: Uncheck "Make [_MOD] file" (recommended)
  Other settings should be initial settings.

Setting of File Accumulation	
Operation Without Enough Disk Space	⊙ Not create a new file. ○ Create a new file (Delete the oldest file).
Reserve	0 ▾
Movement in the stop mode	☑ Make [_MOD] file
Operation in the Power ON	☑ Make the [_POW] file
Save Timing to CF card from SRAM	Record Num. Auto ▾ Trigger No. None ▾
Layout Setting	
The number below a decimal point	2 ▾
Header Item	☑ No. ☑ Name ☑ Target ☑ Registration Data ☑ Logging Type ☑ Data Format ☑ Unit
Date and Time	⊙ Date and Time are recorded on another cell. ○ Date and Time are recorded on same cell.
Recording method at 0 o'clock	⊙ Record as "0" ○ Record as "24"
File Name Setting	
Setting Items	☑ Create the Folder. ☑ Attach the "( )". ☑ Attach the "hour,minutes,second" data. ☑ Attach the definite element of a file.

[Caution]
When "Make[_MOD] file" and "Make the [_POW] file" are unchecked, data may be absence.
However please note that when it is switched mode many times or turn on and off frequently, the setting generation might be exceeded.

6) Others
  Be sure to set time.

Ex 2) In case of logging the value in DLU by counting the production value with KW8M
      Eco-POWER METER
Set other items in the same way as Ex 1 except for Device Registration to a Logging File.
Block No., Name, Target, Unit No. and Unit are selectable

Block No.	Name	Target	Unit No.	Device Selection		
1	No.1	COM1(Register) ∨	01 ∨	DT ∨ 154	– 1	Point

Logging Type	Data Format	Conversion	Conversion Parameter	Unit	Digit
Difference Value ∨	DEC2W(No code) ∨	Not convert ∨	0.1	pc	8 ∨

Ex 3) In case of logging the value in DLU by inputting flow sensor (0.11/pls) into PLC
      (Applicable only if programmed to count back to 0 after 999999999 with data register DT200)
Set other items in the same way as Example 1 except for Device Registration to a Logging File.
Block No., Name, Target, Unit No. and Unit are selectable

Block No.	Name	Target	Unit No.	Device Selection		
1	No.1	COM1(Register) ∨	01 ∨	DT ∨ 200	– 1	Point

Logging Type	Data Format	Conversion	Conversion Parameter	Unit	Digit
Difference Value ∨	DEC2W(No code) ∨	Convert ∨	0.1	l	9 ∨

Ex 4) In case of logging the temperature data in DLU by measuring and writing the data by 0.1 °C
      (e.g. if 25 °C, the data is 250) in data register DT200 with PLC
Set other items in the same way as Ex 1 except for Device Registration to a Logging File.

Block No.	Name	Target	Unit No.	Device Selection		
1	No.1	COM1(Register) ∨	01 ∨	DT ∨ 200	– 1	Point

Logging Type	Data Format	Conversion	Conversion Parameter	Unit	Digit
Instantaneous Value ∨	DEC1W ∨	Convert ∨	0.1	°C	Not use ∨

Ex 5) In case of registering data register DT0 (Slave unit 1) by measuring temperature data with WR10
Block No., Name, Target, Unit No. and Unit are selectable

Block No.	Name	Target	Unit No.	Device Selection		
1	No.1	COM1(Register) ∨	01 ∨	DT ∨ 0	– 1	Point

Logging Type	Data Format	Conversion	Conversion Parameter	Unit	Digit
Instantaneous Value ∨	DEC1W ∨	Convert ∨	0.1	°C	Not use ∨

[Caution]
    -Make sure to set files configured as difference value in DLU except for integrated electric power and
     temperature data.
    -KW Watcher 1.11 or later version supports temperature graph. To display temperature data, select
     "Instantaneous value" for "Logging Type" in DLU.

3.3. Example of DLL logging file setup
Use the setup tool "Configurator DL" to make the settings for DLL.

Following setting methods are available in "Configuration DL".
(1) Easy-setup: You only need to set a logging cycle and select connected units.
   (Integrated electrical power only)
(2) Wizard: You can make settings interactively.
(3) Manual-setups: You make all the settings required for data collection manually.

This section describes the basic settings. Refer to "Data Logger Light User's Manual" for more information.

Ex 1) The setting example to collect data of integrated electric power under the following condition.
   File update: 15-minute cycle, at 0:00:05 am
   Unit No. 1

1) Trigger setup
 Create two triggers for logging data and creating a new file.
 Create the trigger activated in 15-minute cycle for logging data.
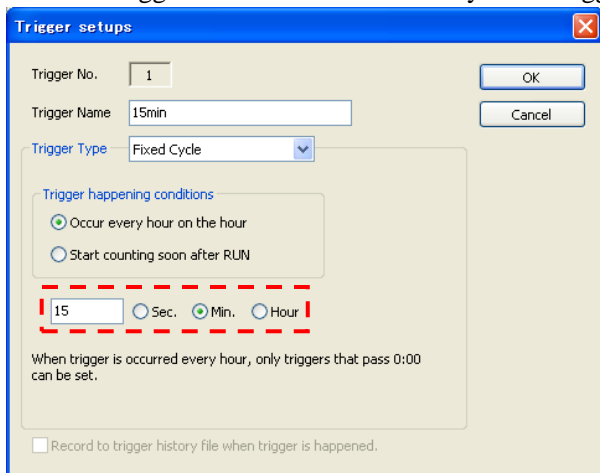
Create the trigger activated at 0:00 am every day for creating files.
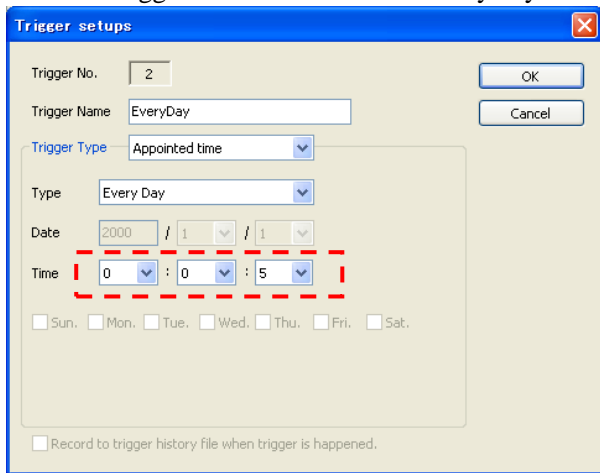
2) Logging file setup
　File name: Input the same file name as the one shown in the DLU registration screen of KW Watcher.
　Logging trigger No.: 15 min. cycle　　New file create timing: AM 0:00 of every day

Logging file setup

File No.	1		OK
File name	syunji		Cancel
Logging trigger No.	1(15min)	Trigger setup(T)	
Saved file number	60		

Operation when saved file number is over.
　⦿ Delete the oldest file and create new file.
　○ Don't create new file.

New file create timing
　○ Update by record number　60　(1 - 100000)
　⦿ Update by trigger　2(EveryDay)

[Operation setup when file creating]
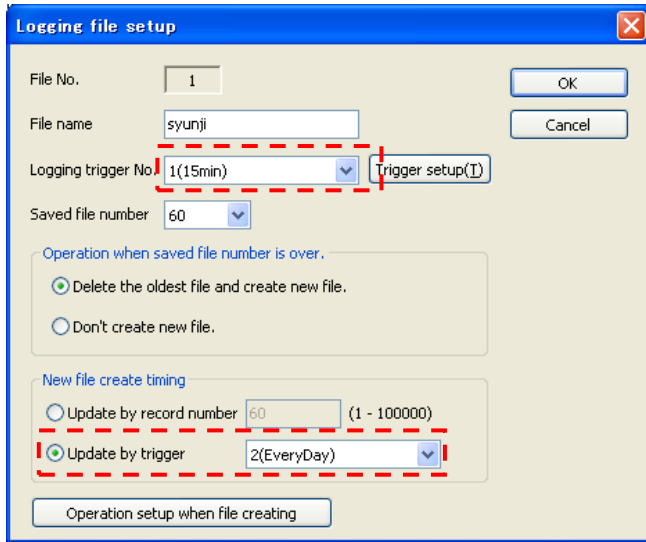
3) Logging device registration
　Communication I/F: COM2(RS485)　　Data Type: Register
　Device: DT100　　　　　　　　　　Data style: DEC2W(No code)
　Logging contents: Inst. value　　　　Convert when creating csv: Checked　　Conversion value: 0.01
　Unit: kWh

Logging device registration

Register No.	1 ▲▼	[Register]
Register name	No.1	[Insert]
		[Exit]

Communication I/F
　COM:　COM1(RS232C)　[Unit No.]

Data Type　Register

Collect/Log data
　Device　　　　　DT　100
　Data style　　　 DEC2W(No code)
　Logging contents　Inst. value　Digit　0
　☑ Convert when creating csv　x　0.01
　Unit　　　　　kWh
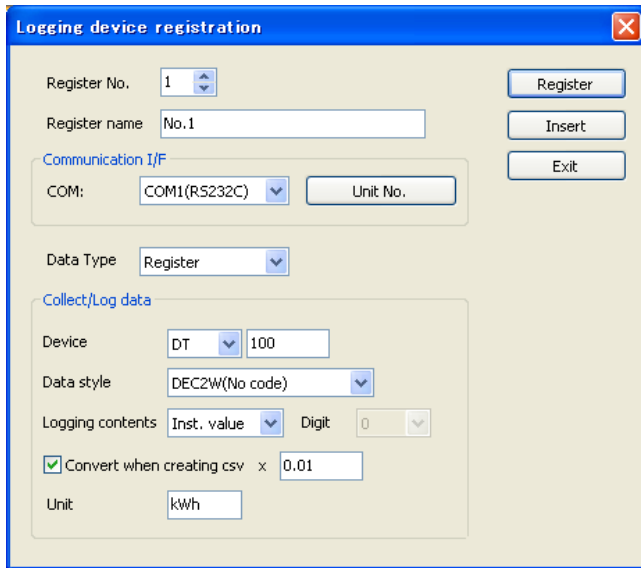
4) Configuration → Logging file setup
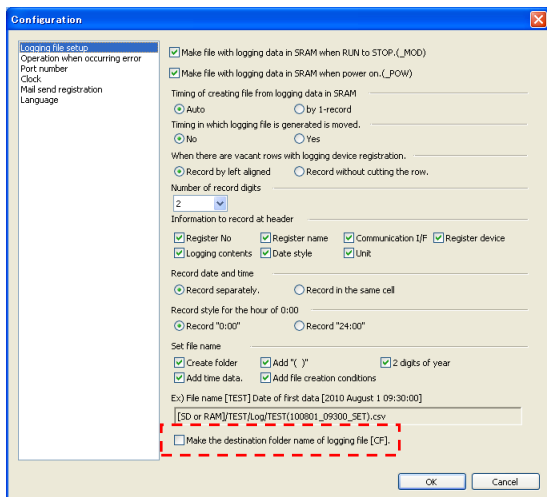
[Caution]
-Be sure to check "Make the destination folder name of logging file [CF]."
-When "Make file with logging data in SRAM when RUN to STOP(_MOD）" and "Make file with logging data in SRAM when power on.(_POW)" are unchecked, data may be absence.

Other settings should be initial settings.

5) Transfer the setting data to DLL after finishing all the settings.

6) Others
  Be sure to set time.

Ex 2) In case of logging the value in DLL by counting the production value with KW8M Eco-POWER METER

Set other items in the same way as Ex 1 except for Logging device registration.
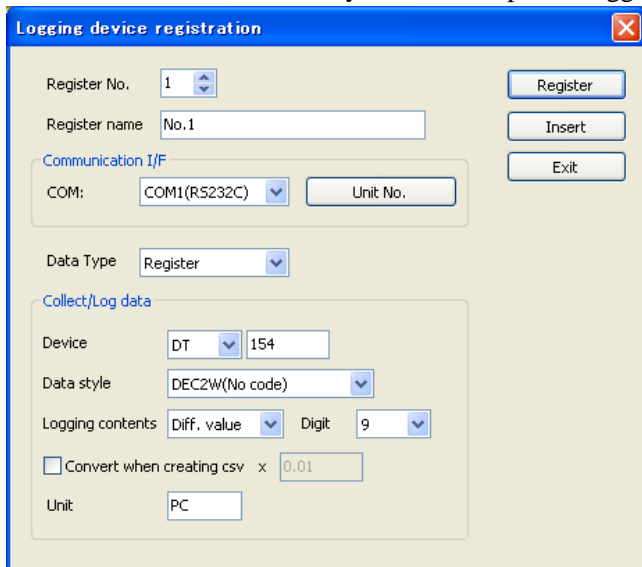
Register name, Unit No. and Unit are selectable.

Ex 3) In case of logging the value in DLL by inputting flow sensor (0.11/pls) into PLC
    (Applicable only if programmed to count back to 0 after 999999999 with data register DT200)
Set other items in the same way as Ex 1 except for Logging device registration.
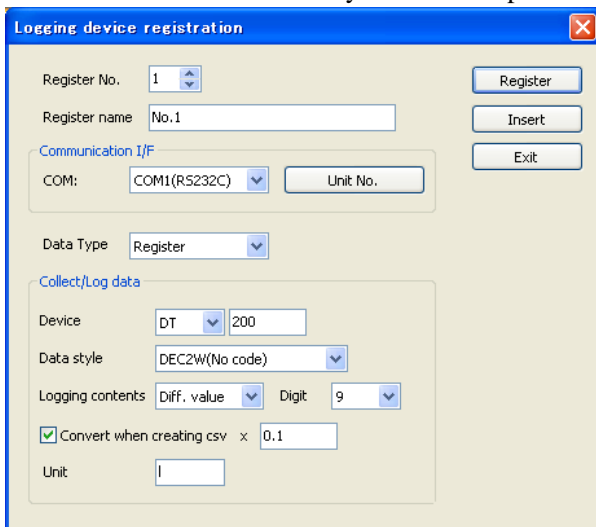
Register name, Unit No. and Unit are selectable.

Ex 4) In case of logging the temperature data in DLL by measuring and writing the data by 0.1 °C
    (e.g. if 25 °C, the data is 250) in data register DT200 with PLC
Set other items in the same way as Ex 1 except for Logging device registration.
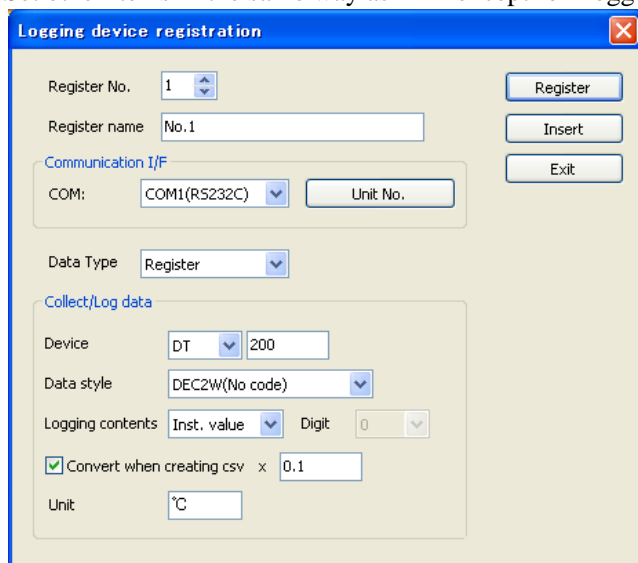
Ex 5) In case of logging temperature data in DLL with WR10
Set other items in the same way as Ex 1 except for Logging device registration.

Logging device registration

Register No. 1
Register name No.1

Communication I/F
COM: COM1(RS232C)   Unit No.

Data Type Register

Collect/Log data

Device DT 0
Data style DEC2W(No code)
Logging contents Inst. value   Digit 0
☑ Convert when creating csv x 0.1
Unit ℃

Register Insert Exit
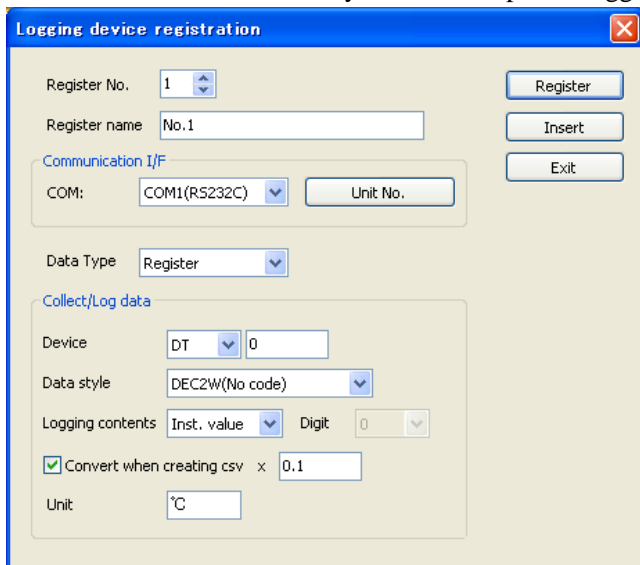
Register name, Unit No. and Unit are selectable.
Refer to the memory area of WR10 for setting the device value.

[Caution]
-Make sure to set files configured as difference value in DLL except for integrated electric power and
 temperature data.
-KW Watcher 1.11 or later version supports temperature graph. To display temperature data, select
 "Instantaneous value" for "Logging contents" in Logging device registration of DLL.

3.4. Example of ELC500 logging file setup
    Use the setup tool "Configurator EL500" to make the settings for ELC500.
    This section describes the basic settings. Refer to "ELC500 User's Manual" for more information.

    Ex 1) The setting example to collect data of integrated electric power under the following condition.
        File update: 15-minute cycle, at 0:00:05 am
        Device: KW2G

    1) Connected device setup

        Open connected device setup window.
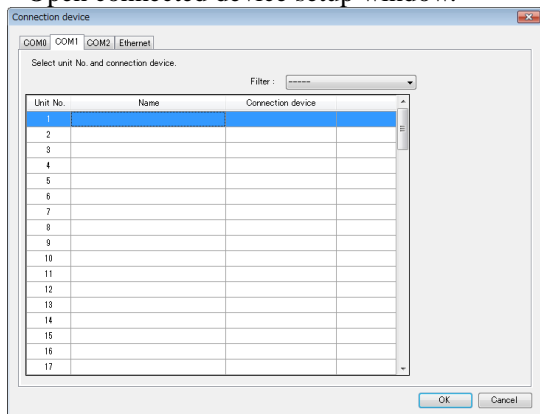
        Select "KW2G" for connection device.

2) Logging file setup
   File name: Input the same file name as the one shown in the DLU registration screen of KW Watcher.
   Logging trigger No.: S3 (15 minutes interval)   Timing for new file: S6 (Every day 00:00:05)
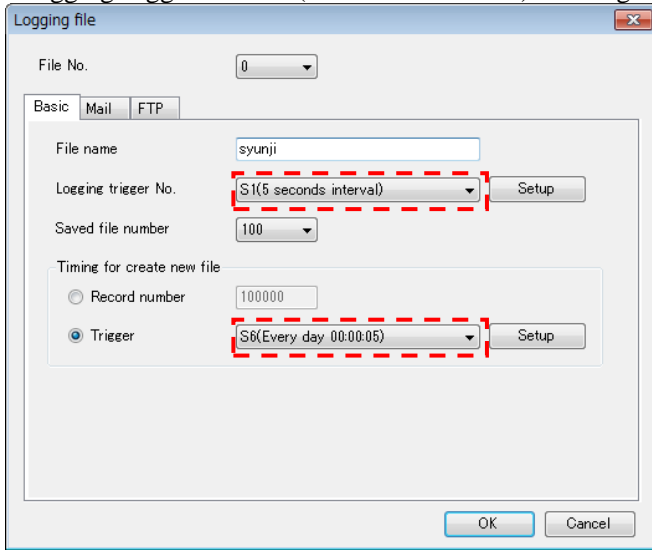
3) Logging device registration
   Communication I/F: Same as 1) Connected device setup
   Data Type: Register
   Device: DT100   Data style: DEC2W(Unsigned)
   Logging contents: Inst. value   Multiplier: 0.01
   Unit : kWh
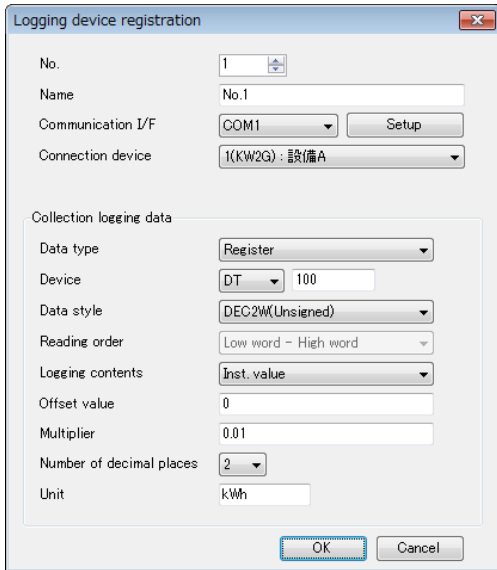
4) Basic configuration → Option
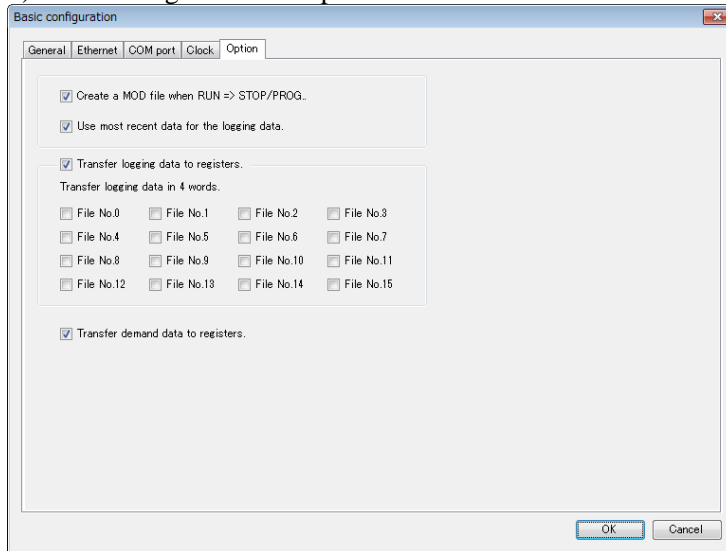
[Caution]
・When you uncheck "Create a MOD file when RUN => STOP/PROG.", it will miss logging data.

Other settings should be initial settings.

5) Transfer the setting data to ELC500 after finishing all the settings.

6) Others
  Be sure to set time.

3.5. In case of using FP7, FP0H, FP Web-Server
KW Watcher is designed for check the current status of the measured value by Eco-POWER METER.
Therefore, it may not display the measured data when you use this different usage.

In case of using FP7, FP0H or FP Web-Server, csv file is downloaded from the below folder.

[FP7]
/LOG0/??????(******).csv
/LOG1/??????(******).csv
      .
      .
/LOG15/??????(******).csv

[FP0H]
/LOG0/??????(******).csv
/LOG1/??????(******).csv
/LOG2/??????(******).csv
/LOG3/??????(******).csv

[FP Web-Server]
/B:/Log/??????(******).csv

※??????/****** : file name

[Caution]
For using FP7, FP0H or FP Web-Server, caution for the below.
-Max. measurement value is 999999999 (9-digit) .
  However, when you measure except the integral electrical power, measure with differential value.
  (Refer to 3.1)
-Downloaded folder is fixed. (Refer to the above.)

4. For Users of Windows 8.1 and 10

Please read the following if you are a Windows 8.1, Windows 10 user.

<div style="border: 3px solid red; color: red; text-align: center; font-weight: bold; font-size: large;">

Please read all when using by Windows 8.1, 10.

</div>

4.1. As to User Account Control

Windows 8.1/Windows 10 have the function of User Account Control (UAC).

It is the function to prevent from starting program that is not intended to operate or permit of users.

Even if you start software and no program is started, check the authorization in property of executed file (KW Watcher.exe).

When you change these settings, it will be in condition to be exposed to danger in the security, please change with your responsibility.

When users except the administrator install or uninstall, it is required to input password of administrator's account. Please confirm your administrator before installing.
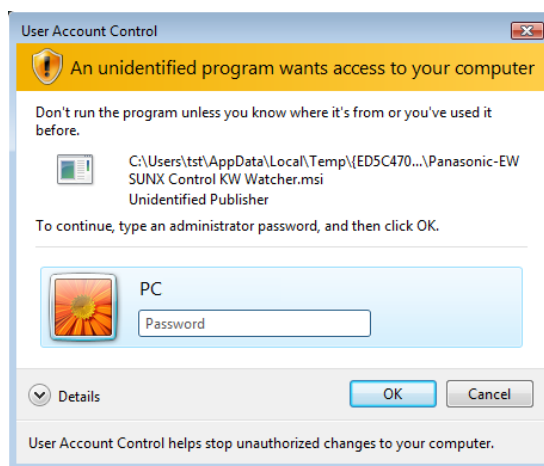
Revision History

Issue Date	Manual no.	Content of revision
October, 2008	ARCT1F445E-1	First edition

December 2008	ARCT1F455E-2	Add the explanation of new functions.
		    Energy per unit graph display
		    Change of optional unit
		    Recognition DLU file format
		    Display of setting files on the title screen
		Modify documents and images due to the change of the company's name

February 2011	ARCT1F455E-3	You can change the display in English, Japanese and Chinese.
		-Add the below functions
		    Substruction processing
		    Cutoff date setting
		    Download at once
		-Improve the below functions
		    Display value
		    Input charge rate
		    Skip download of DLU registration

July 2011	ARCT1F455E-4	-Add cautions when using Windows Vista/Windows7 -Add explanation for block no.
December 2011	ARCT1F455E-5	By specifications change, I deleted the explanation of IP address input for downloading skips with a "DLU registration" screen.
October 2012	ARCT1F455E-6	-64-bit PC is available and add the explanation -Add the setting block number [Add the explanation] -Max electrical power -Value display -Color setting -Alarm function -Option setting
March 2013	ARCT1F455E-7	-Replace pictures regarding color settings.
September 2013	ARCT1F455E-8	Support FP7 and FP Web-Server
January 2014	ARCT1F455E-9	Support Windows 8 Spanish is accepted.
June 2014	ARCT1F455E-10	[Add the explanation] -Function to protect setting change by password -Function of maximum value of temperature graph
November 2014	ARCT1F455E-11	[Add the explanation] -Function for short-cut key to use for shift the displays of temperature, humidity and trend graph. -German and Portuguese are accepted. -Change graph images by changing the way to show graph.
February 2015	ARCT1F455E-12	Indonesian and Vietnamese are accepted. [Add the explanation] -Caution for install.

Issue Date	Manual no.	Content of revision
January 2015	ARCT1F455E-13	-Add [KW2M] for model selection of DLU registration window [Add the explanation] -KW2M-X log data download
June 2017	ARCT1F455E-14	[Add functions] -Support Windows 8.1 and Windows 10 -Add option setup 2.8.5
September 2018	ARCT1F455E-15	[Add functions] -Temperature/humidity graph display -Support FP0H and ELC500 -FP7 LOG folder selection for DLU registration -Max and min value registration for Humidity/Trend graph
February 2020	ARCT1F455E-16	[Fixed the explanation] -Notes on Installation -Notes on data display time.
June 2021	ARCT1F455E-17	[Delete the explanation] - Excludes Windows XP, Vista, 7 and 8 from support.

Specifications are subject to change without notice.   ARCT1F455E-17