TOSHIBA

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Substation Automation System

(GSC1000-C)

Operation Manual

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TOSHIBA ENERGY SYSTEMS & SOLUTIONS CORPORATION

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Precautions

Precautions to be taken when using this manual

This manual describes the operation of the HMI software Substation Automation System GSC1000-C, the operation of the HMI (OWS/EWS) screen and the precautions to be observed when using the tool. To ensure the proper use of the HMI software please read this manual before attempting to use.

- The contents of this manual are subject to change without prior notice.
- This manual describes the operation procedure of the HMI software. It does not warrant fitness for any particular purpose.
- The illustration and screens shown in this manual may be emphasized, simplified, or partially omitted for convenience to aid explanation. The illustrations and the screen in the text may differ slightly from what is actually displayed.
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- This software shall be operated only on one computer. Other set(s) of this software shall be purchased for use on other computer(s).
- Making copies of this software, except for purpose of back-up, is strictly prohibited.
- Keep the CD-ROM, on which the software is stored, carefully.
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- The media supplied, such as this manual and CD-ROM, should be used only for the software. Selling the program in the original or modified form to third parties is strictly prohibited.

NOTE	For the operation procedure of the LCD screen of GBU200 (BCU/BCPU), refer to its instruction manual.

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1.1 Purpose

This Operation Manual describes the operation of the Substation Automation System GSC1000-C and the operation of the HMI (OWS/EWS) screen.

- Chapter 1 Outline
- Chapter 2 Basic Operation of the HMI Screen
- Chapter 3 System Operation
- Chapter 4 Operation of HMI Screen
- Chapter 5 Relay Setting from HMI Screen
- Chapter 6 Detailed Explanation of HMI Screen
- Chapter 7 Multi-language representation
- Chapter 8 Control Right
- Chapter 9 File Transfer

1.2 Related Document

Refer to Appendix A, List of Related Documents.
Also refer to the manuals attached to protection relays and peripheral components for their operation.

1.3 Descriptive Rules of This Document

1) NOTE and POINT

 NOTE	Includes the contents to be paid attention while operating. Be sure to read the note.	 POINT	Describes the supplementary items and information for reference.

2) Description of click and input

- HMI screen

 or  means “click” or “key input”.

“Click” means to click the left button of a mouse. (Left click)
The notation “Right click” is used only when clicking the right mouse button.

3) Buttons (only in the explanation for HMI screen)

The characters surrounded by box ☐ mean the button in the screen.
Ex.:  button is expressed as OK.

4) Screen image

The illustrations and the screen in the text may differ slightly from what is actually displayed.

1.4 Abbreviations

Table 1.4.1 below lists the abbreviations and acronyms used in this document.

Table 1.4.1 List of abbreviations and acronyms

Abbreviation	Description
ACK	Acknowledgement
ANN	Annunciator
BCU	Bay Control Unit
BCPU	Bay Control and Protection Unit
BIO	Binary Input Output
CB	Circuit Breaker
CPU	Central Processing Unit
DS	Disconnector Switch
DVD	Digital Versatile Disk
ES	Earthing Switch
ESW	Ethernet Switch
EWS	Engineering Workstation
FEP	Front End Processor
GIS	Gas Insulated Switchgear
GPS	Global Positioning System
GUI	Graphical User Interface
GW	Gateway
HDD	Hard Disk Drive
HMI	Human Machine Interface
IED	Intelligent Electronic Device
IFU	Interface Unit
LAN	Local Area Network
LCD	Liquid Crystal Display
LCP	Local Control Panel for GIS
LDC	Load Dispatch Centre
LED	Light Emitting Diode
NA	Not Applicable
OS	Operating System
OWS	Operator Workstation
PC	Personal Computer
PLC	Programmable Logic Controller

Abbreviation	Description
PRT	Printer
RCC	Remote Control Center
RSM	Relay Setting and Monitoring
SAS	Substation Automation System
SC	Station Computer
SCMS	Substation Control and Monitoring System
UPS	Uninterruptible Power Supply

1.5 Security for Operation

To perform control and monitoring of the system from the HMI (OWS/EWS screen), security authentication with the login ID and a password is required. If the security authentication fails, the operator cannot log into the system. The following 4 levels of security are implemented as a standard.

- ✓ View level (Security level 0)
- ✓ Control level (Security level 1)
- ✓ Engineering level (Security level 2)
- ✓ System manager level (Security level 3)

Each user must belong to one of the 4 levels above.

A login ID is a string that includes numbers and must be unique within the system. A user name can be set as a part of the login ID. The login ID, user name and the security level are indicated on the event list as a login record. Up to 999 users can be registered in the system.

The users can change their own password at anytime on the “System Setting” dialog. (Refer to Section 3.5) The user management including the registration, deletion and new password issuance and security level can be done by the person who has the security level of the system manager.

When a user logs into the system and does not perform any operation on the HMI screen for more than a pre-set auto logout time, the user is automatically forced to log out. Default setting of auto logout time is 1 hour.

Table 1.5.1 shows example of the summary of security levels and the operations allowed for each security level. Each security levels can be changed using “Security Setting Tool”. For the detail list, refer to the “Operation Manual Security Setting Tool”.

Table 1.5.1 Available operations for each security levels (Example)

Security Level				Operation items
0	1	2	3	
X	X	X	X	Start up the system
X	X	X	X	Shutdown the system
X	X	X	X	Switch and monitor the window
X	X	X	X	Stop the audible alarm
X	X	X	X	Print screen
X	X	X	X	Display the on-line help (The “Legend” dialog)
NA	X	X	X	Select the "ACK" on the Alarm window
NA	X	X	X	Select the "FILTER" on the Event/Alarm window
NA	X	X	X	"SAVE", "LOAD", and "PRINT" the event record
NA	X	X	X	Control the switchgear and transformer tap
NA	X	X	X	Set the blocking function
NA	NA	NA	X	Set the manual override function
NA	X	X	X	Set the Safety Tag
NA	X	X	X	Start/Stop the log printer
NA	NA	X	X	Set the upper and lower limit
NA	NA	X	X	Modify the group of the Trend graph (EWS)
NA	NA	X	X	Modify the Energy Report item and data (EWS)
NA	NA	X	X	Set the auto print setting (EWS)
NA	NA	X	X	Set the plant item information
NA	NA	X	X	Switch the Online/Test mode of OWS/EWS/IED
NA	NA	X	X	Database maintenance (EWS)
NA	NA	X	X	Edit the contents displayed in the “Bay Information” dialog
NA	NA	NA	X	Permit the remote access on the EWS
NA	NA	NA	X	User registration (EWS)
NA	NA	NA	X	Operate the interlock/synchronizing bypass
NA	NA	X	X	Operate the PLC
NA	X	X	X	Display the PLC window
NA	X	X	X	Set the control right(43RCC)
NA	X	X	X	Set the control right(43R)

X : available NA: Not available

- Security levels are set by the Security Setting Tool.

2 Basic Operation of HMI Screen

This Chapter describes the basic operation of HMI screen.
Refer to Chapter 6 for the detailed explanation of each window and dialog of the HMI screen.

2.1 Operating Environment

Prepare the following listed below as the operation environment of the HMI.

Item	Operation environment
OS	Windows 7, XP, 10
Display	Recommended resolution: More than 1280(horizontal) pixcel (multi desktop)
Maximum number of monitors that can be connected.	Max. 3

2.2 Basic Operation

This manual aims that the operation is under Windows OS environment.
The operation is in compliance with the operating method of Windows® OS.
The operation to select a symbol or click a button on the HMI screen assumes the operation by mouse. The operation using keyboard is limited to inputting texts and values.

2.3 Mouse Operation and Object Selection by Mouse

Right and left buttons of a mouse shall be distinguished.
Click: Used basically to select objects. (“Click” means left click.)
Right-click: Used to display the context menu.

2.4 Scrolling

In some windows, screen scrolling is available.
Similar to the basic operation, it is assumed that the operation is under Windows® OS environment for scrolling function.

2.5 Information dialogs

Following are the Information dialogs displayed on the HMI screen.

1) Information dialog: Displays various information to the user.
2) Warning dialog: Displays various warnings to user operation.
3) Error dialog: Displays various process errors of HMI and Station Computer.
4) Question dialog: Confirms the operation made by the user.

The operation for the Information dialogs is done by clicking OK or Cancel.

3 System Operation

This Chapter describes the operation of start/stop, HMI log-in/log-out, setting of log-out time and password change.
Refer to Appendix B for frequently asked questions on the system.

3.1 System Start-up

NOTE	Please confirm that USB key is inserted to OWS/EWS. Do not turn on the Station Computer at Step 2.

Following are the start-up procedure of the system. (Refer to Figure 3.1.1.)

Step 1. Turn on the bay level equipment.
Step 2. Turn on the server panels. (See **NOTE**)
Step 3. Turn on the common panels.
Step 4. Turn on the hard copy printer and log printer.
Step 5. Turn on the Station Computers.
Step 6. Turn on the OWS and EWS finally. (See **NOTE**)

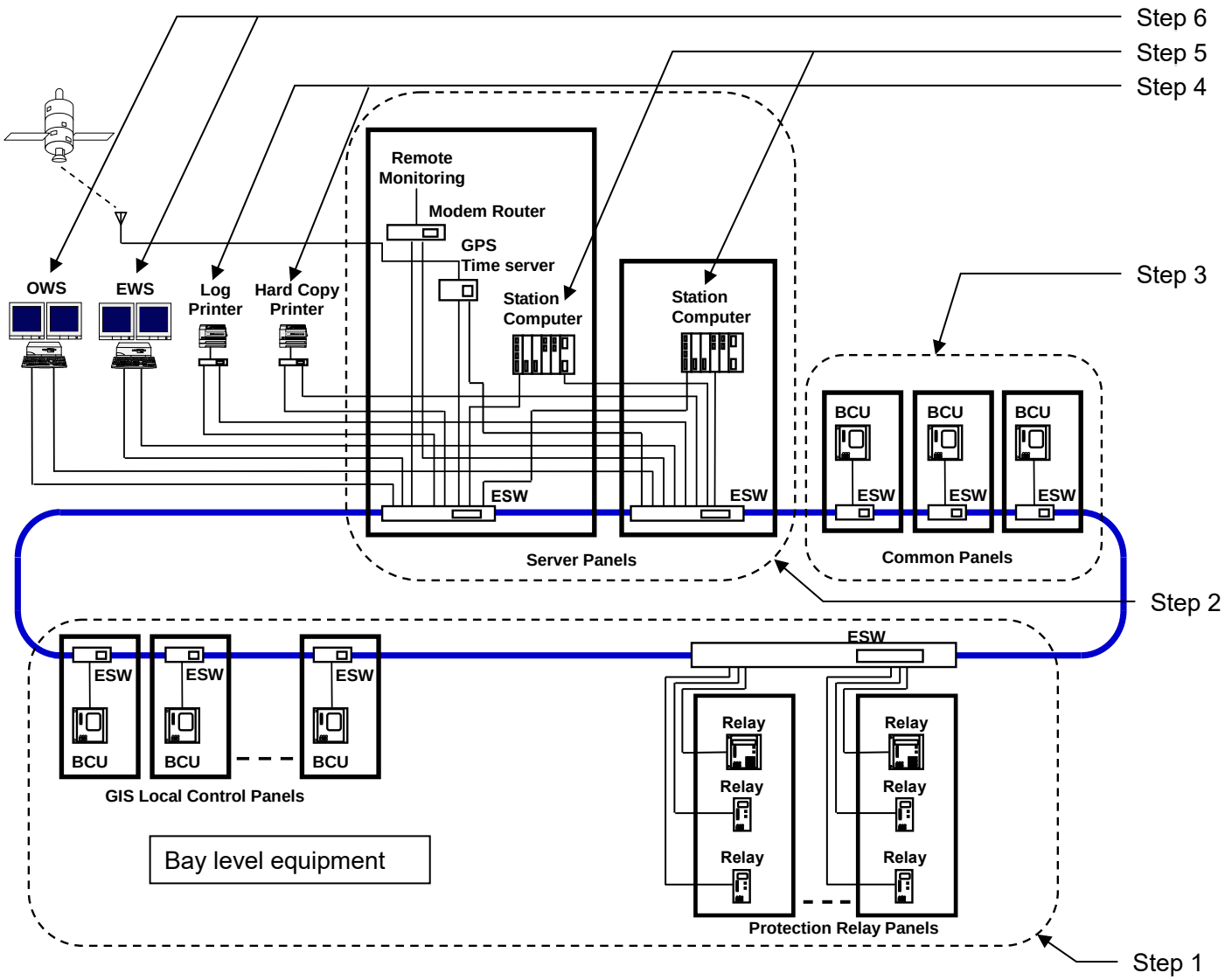


Figure 3.1.1 An example of System configuration

Step 1: Start-up the bay level BCU/BCPU

Turn on the power switch in all LCP. Each BCU/BCPU is energized.

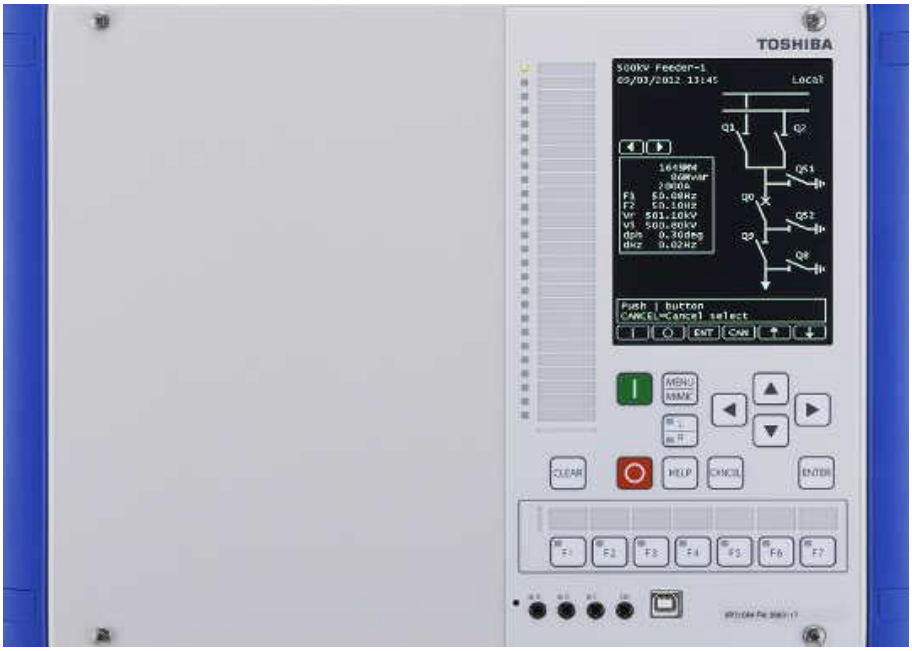


Figure 3.1.2 BCU/BCPU

The display status of the LED indicators on the front panel of BCU/BCPU (programmable LEDs) is as follows:

- IN SERVICE: On
- ALARM: Off in Online mode
- ON-LINE MODE:
- MAINTENANCE MODE: One of them is on.
- TEST MODE:

NOTE	Several programmable LEDs light when BCU/BCPU is powered on. They are extinguished when the whole system has completed the start-up and commenced normal condition.

Step 2: Start-up the server panels

Check that the key switch installed in the server panel to turn on the power of the Station Computer is OFF. The power of the Station Computer must be set to OFF in this step.
Turn on the power switches of the server panels, GPS time server, modem router for remote monitoring and Ethernet Switches for the station level equipment.

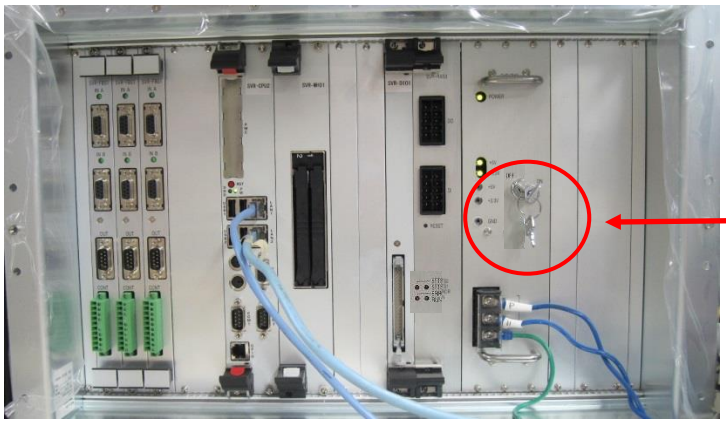


Figure 3.1.3 Server (Power OFF)





Figure 3.1.4 GPS Time server (Power ON)

Date and time are displayed when GPS is normally on.



Figure 3.1.5　Modem router (Power ON)



Figure 3.1.6　Ethernet Switch (Power ON)

Step 3: Start-up the common panel BCU/BCPU

Turn on the power switch of the common panels. Common BCUs are turned on.

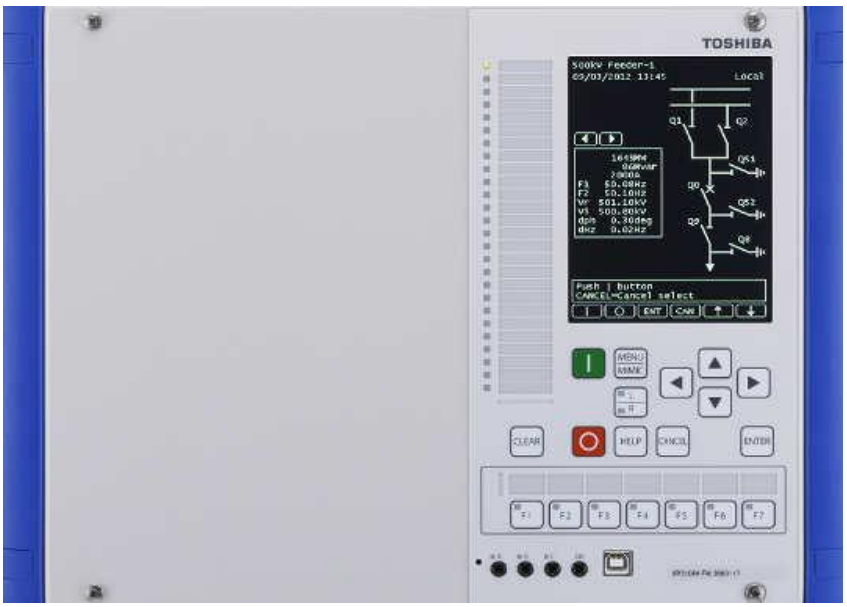


Figure 3.1.7 BCU

The display status of the LED indicators on the front panel of BCU/BCPU (programmable LEDs) is as follows:

- IN SERVICE: On
- ALARM: Off in Online mode
- ON-LINE MODE:
- MAINTENANCE MODE: One of them is on.
- TEST MODE:

NOTE	Several programmable LEDs light when BCU/BCPU is powered on. They are extinguished when the whole system has completed the start-up and commenced normal condition.

Step 4: Start-up the printers

At first, turn on the power switch on the printer desk.
Next, turn on the power switch of all printers.



Figure 3.1.8 Printer desk (Power SW)



Figure 3.1.9 Hard Copy printer



Figure 3.1.10 Log printer

Step 5: Start-up the servers

At first, turn on the power switch (key switch) of server-1 in server panel-1.
Next, turn on the power switch (key switch) of server-2 in server panel-2.

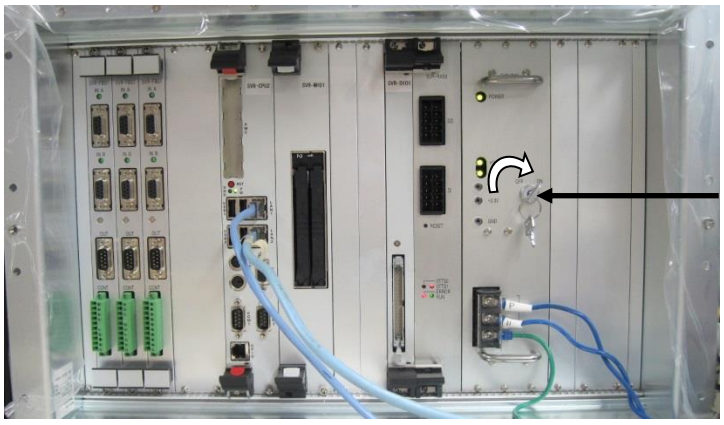


Figure 3.1.11 Server panel -1

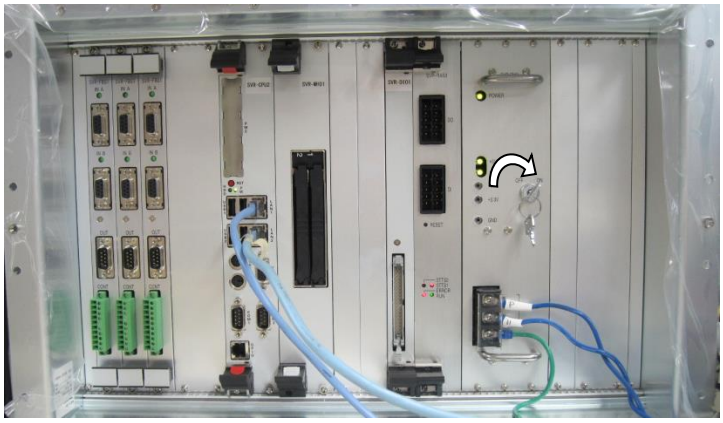


Figure 3.1.12 Server panel -2

Step 6: Start-up the OWS/EWS

At first, turn on the power switch on the OWS/EWS desk.
Second, press the power button on the monitor.

- ✓ Power ON: Green LED is on.

Third, open the front door of the OWS/EWS and press Power SW.

- ✓ Power ON: Power LED is on.



Figure 3.1.13 OWS/EWS desk (Power SW)



Figure 3.1.14 OWS/EWS (rear side)

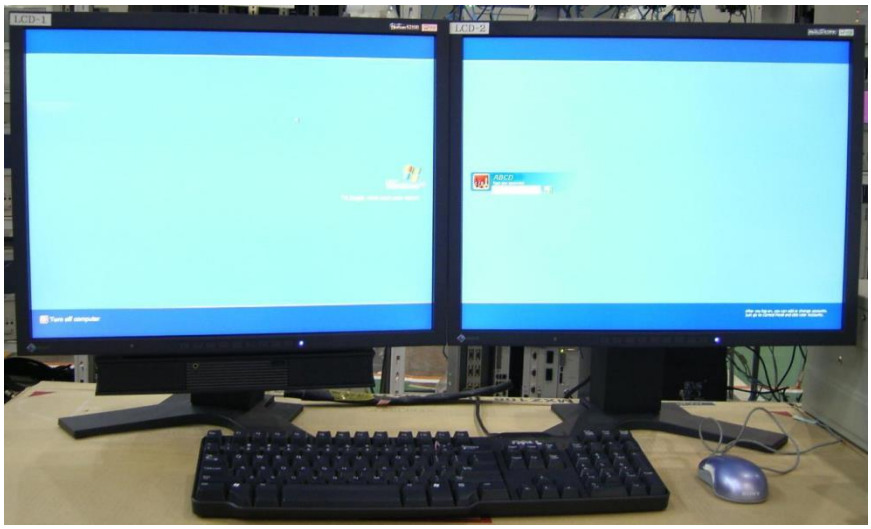


Figure 3.1.15 Monitor



Figure 3.1.16 PC (front side)

When the OWS/EWS is turned on normally, the desk top screen is displayed after start-up.

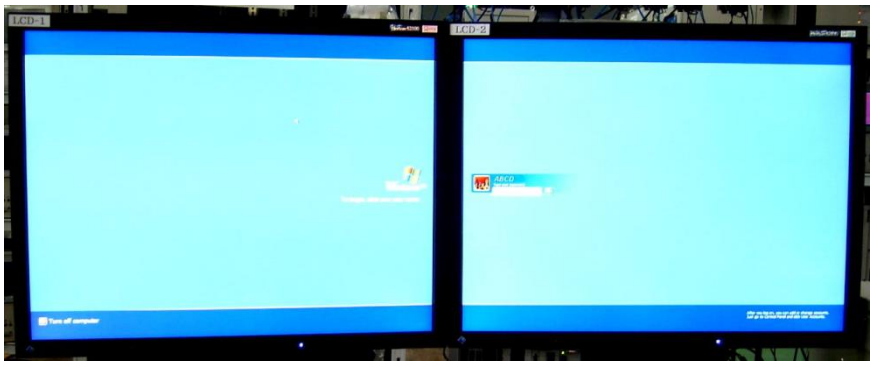


Fig. 3.1.1 Desk top screen (OWS)



Fig. 3.1.2 Desk top screen (EWS)

3.2 HMI Startup

Normally HMI software is started up automatically at the same time when the OWS/EWS is started up.
When the HMI software is terminated, or when automatic start-up of the HMI software is not set, the HMI software is started up by clicking the HMI icon.
After start up of the HMI software, the system displays login dialog and becomes input waiting status.



Figure 3.2.1 HMI icon

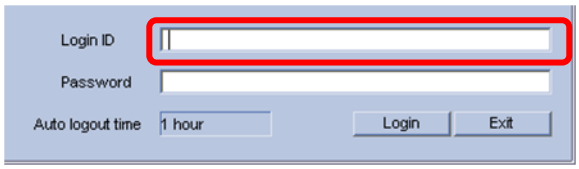


Figure 3.2.2 Login dialog

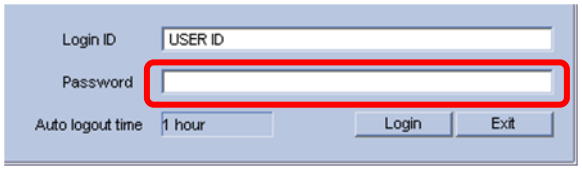
3.3 Logging In

The procedure to log in from the login dialog is indicated below.
Before logging in, user registration by the person who has the security level of system manager is necessary. Please refer to the “Operation Manual Security Setting Tool”.

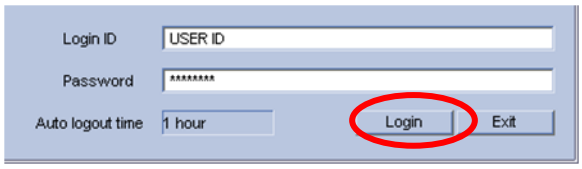
HMI login procedure



1) Input the login ID into the “Login ID input” column.



2) Input the password of the user into the “Password input” column.



3) Click Login.

When Login ID and Password are authenticated

The login dialog is closed and the “Information” dialog (without OK or Cancel) is displayed. After HMI software initialization is completed, the dialog is closed automatically and the main menu is displayed.

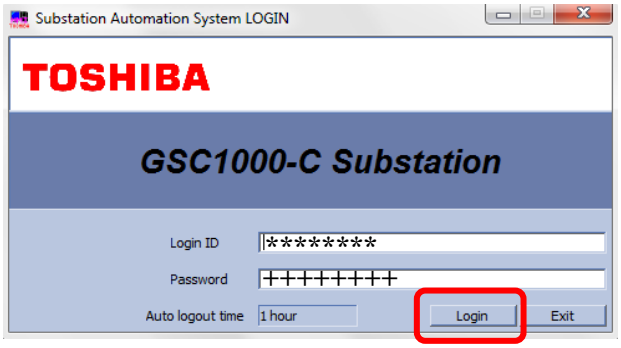
When Login ID or Password is incorrect (including incomplete input)

The “Warning” dialog is displayed.

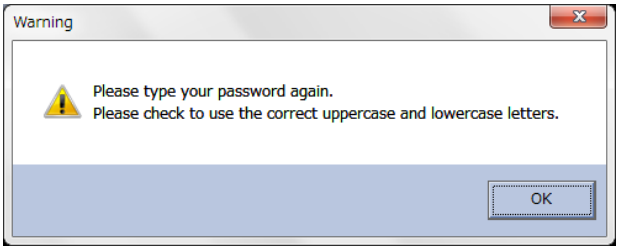
When the dialog is closed, password input is cleared.

User Account lock function

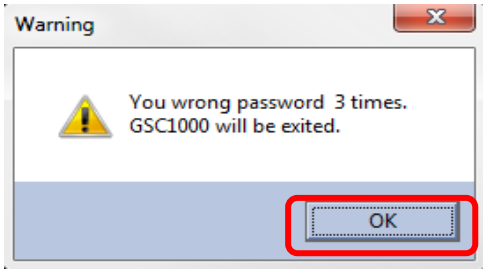
When logging in, if the number of login failures by entering wrong password exceeds a predetermined number, the account (user ID) will be locked for a certain period of time. The number of login failures and account lock time are can be set by the ini file. The operation method is as follows.



1) Log into HMI by entering wrong password.

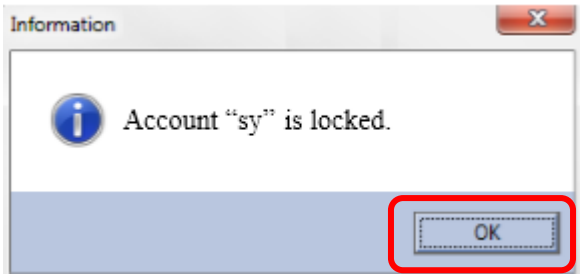


2) Log-in error massage is displayed.



3) If the number of login failures exceeds a predetermined number, warning dialog is displayed. Click OK button to confirm. Login dialog will be automatically closed.

NOTE	Even if the login dialog is closed after a single login failure and it is opened again, the number of failed login attempt will be keep stored.



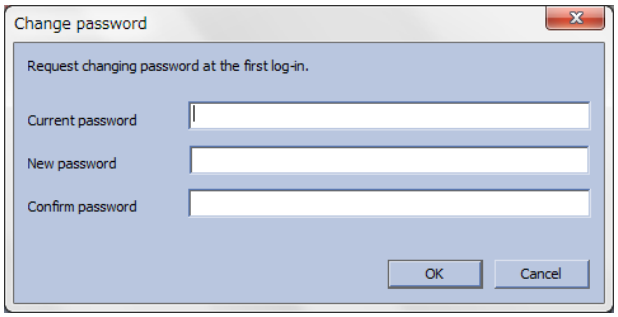
4) The information dialog of locked account is displayed. The picture on the left shows example of account "sy" is locked. Click OK button to finish.

NOTE	User can not log in to HMI when the account is locked during the set lock time. Confirm user password and log in after locked duration.

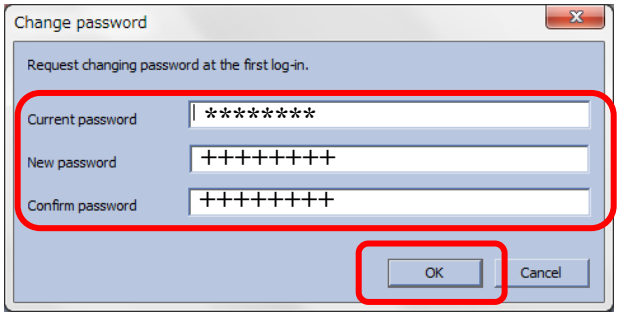
NOTE	Default setting of auto logout time is 1 hour. When a user logs into the system and does not perform any operation on the HMI screen for more than a pre-set auto logout time, the user is automatically forced to log out from the HMI screen.

Forced password change

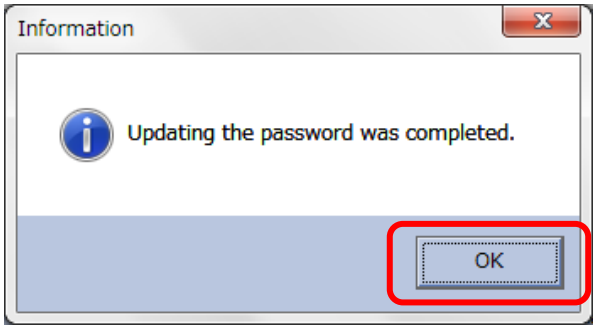
By using ini file setting, after registering a new user ID and password using Security Setting Tool, user is required to perform password change when logging in to the HMI for the first time. Forced password change dialog will be displayed when user attempt to logging into HMI after user account lock period expires. Operation to password change is indicated below.



1) Perform first HMI log-in with user ID and password registered with Security Setting Tool.

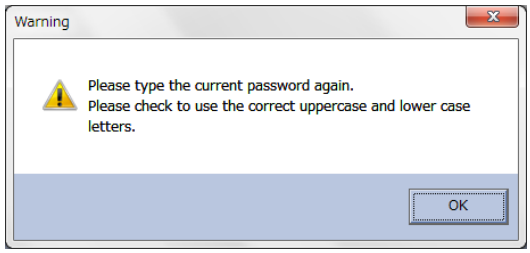


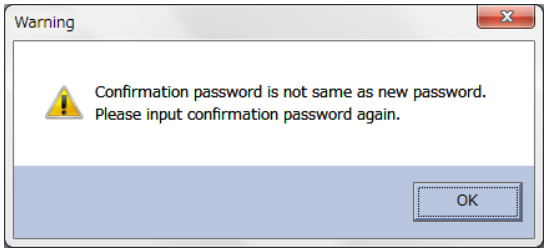
2) Input the current password, the new password and the new password again for confirmation. Click OK button



3) The completion dialog is displayed. Click OK button to finish.

NOTE	If a password that is different from the password registered in the Security Setting Tool is entered into the Current password field, or if different passwords are entered into the New password and Confirm password fields, following warning dialog will be displayed. Please confirm and re-enter your password..



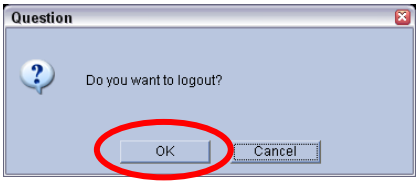


3.4 Logging out and HMI Software Shutdown

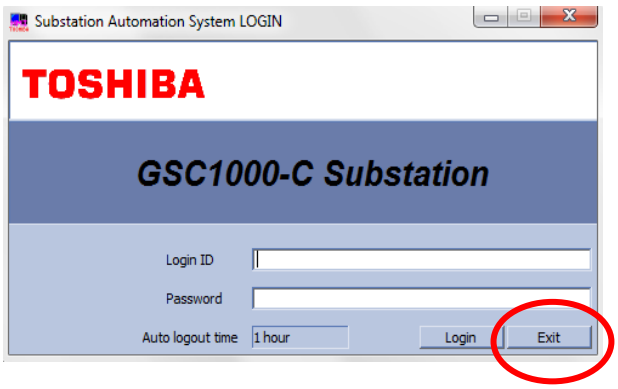
Operation to logout from HMI screen is indicated below.



1) Click the “Logout” button on the main menu bar.



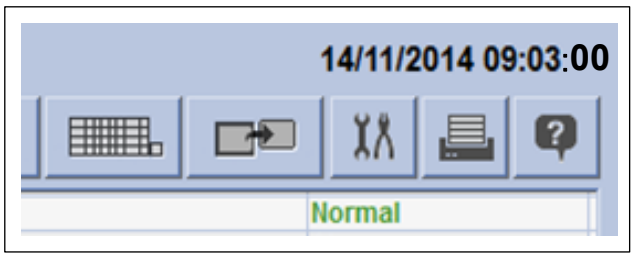
2) A confirmation dialog is displayed.
Click OK.



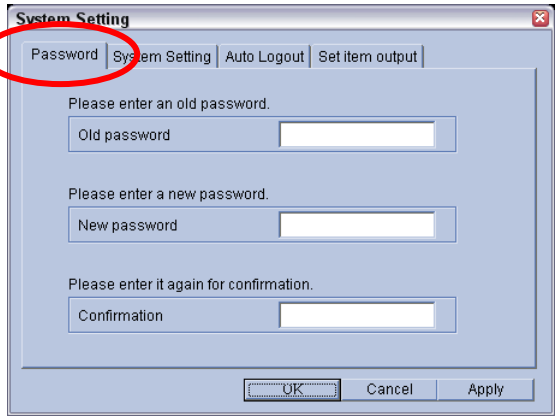
3) All windows related including the main menu bar are closed.
The “Substation Automation System LOGIN” dialog is displayed.
Click Exit. The dialog to confirm the termination is displayed. When OK is clicked, the HMI software is terminated.

3.5 Changing Password

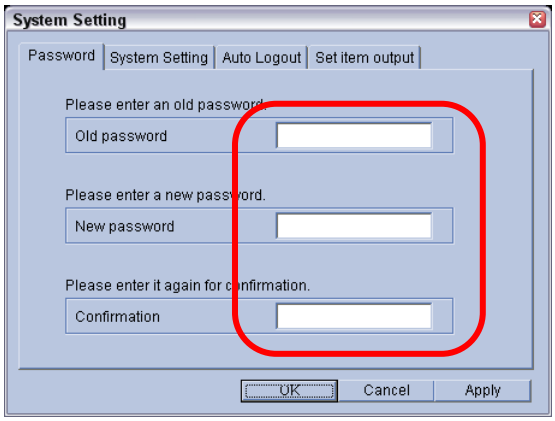
How to change the password to login to the HMI screen is indicated below.



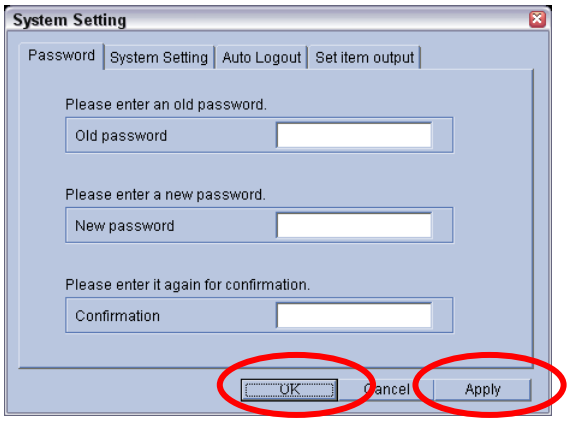
1) Click the “System Setting” button on the main menu bar to display the “System Setting” dialog.



2) Click the “Password” tab on the “System Setting” dialog.



3) Input the old password, the new password and the new password again for confirmation.



4) Click OK or Apply.
When the following two conditions are satisfied, the password is changed.

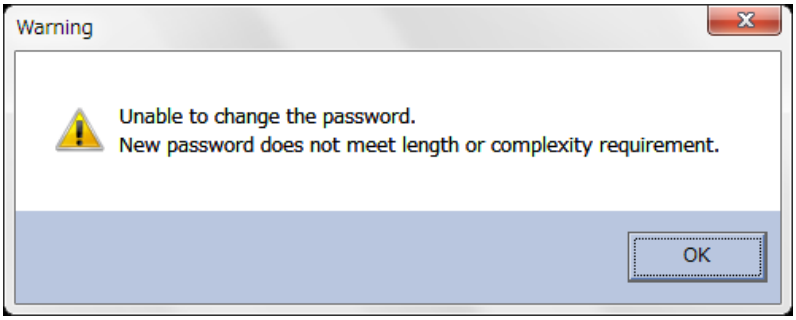
- The password entered in the “Old password” field should match to the password of the user currently logging in.
- The password enterd in the “Confirmation” field should match to the new password.

Password complexity

When changing password as shown below, the function to judge minimum password length and password complexity is available in the ini file settings.

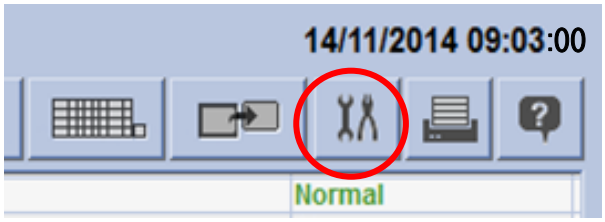
- (a) changing the password from the system menu
- (b) changing the password forcibly at first login
- (c) changing password due to password expires
- (d) changing password due to account lock

The password complexity policy required user to create password which contains uppercase alphabetical letters, lowercase alphabetical letters and numerical letters. If either the minimum password length or the complexity is not met, the following warning dialog will be displayed. Please confirm password and enter it again.

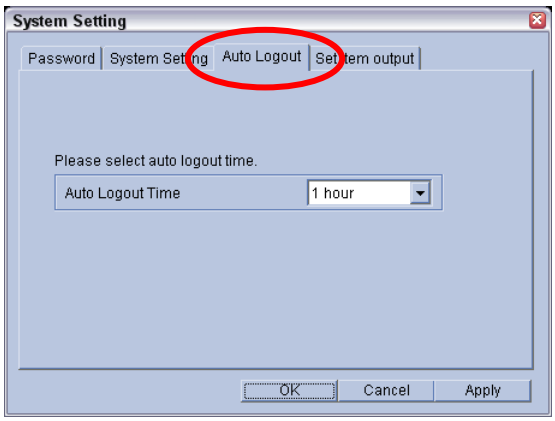


3.6 Setting the Automatic Logout Time

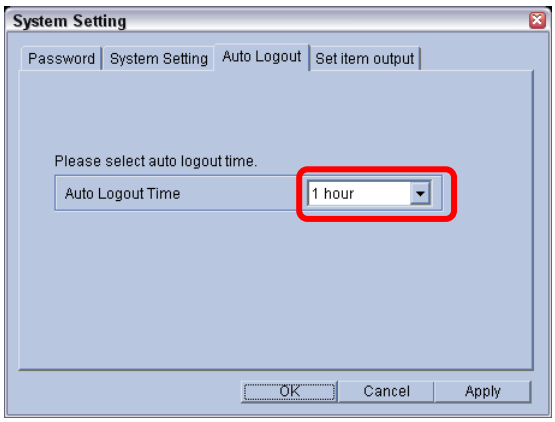
How to set the automatic logout time from the HMI screen is indicated below.



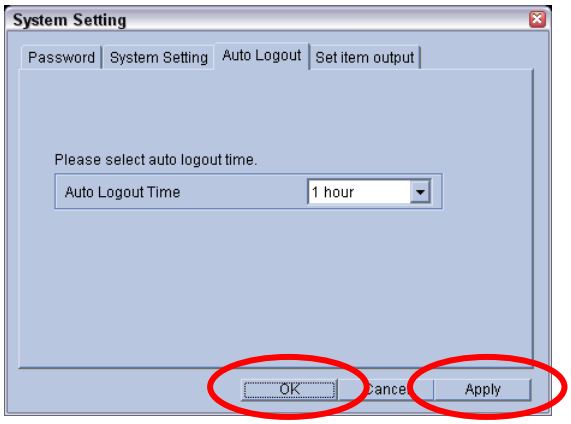
1) Click the “System Setting” button in the main menu bar to display the “System Setting” dialog.



2) Click the “Auto Logout” tab of the “System Setting” dialog.



3) Select the auto logout time from the combo box.

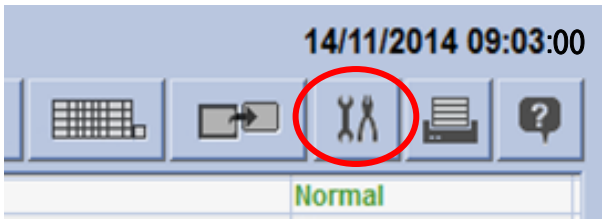


4) Click OK or Apply.
The set auto logout time is applied.

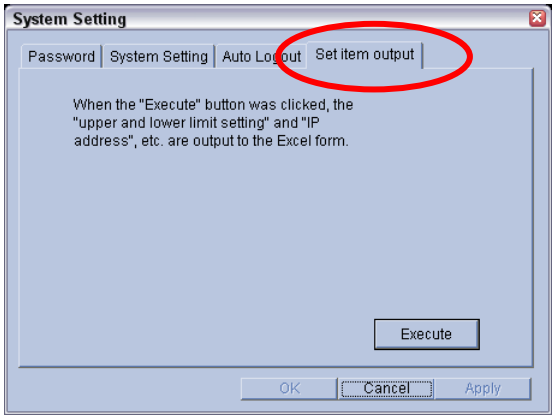
NOTE	The auto logout time set in this step is valid only while the user is logging in the HMI software. After logging out from the HMI software the auto logout time returns to the default logout time.

3.7 Outputting System Setting Value of HMI to a File in Printing Format

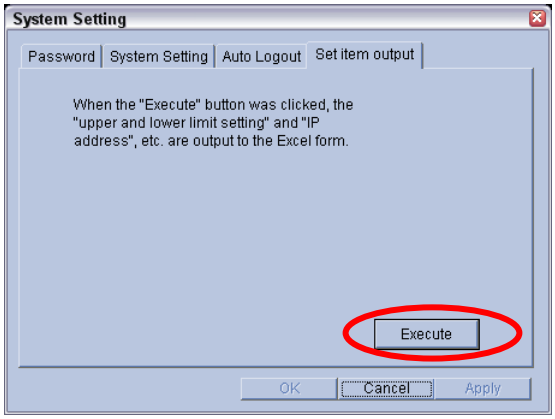
How to output the system setting value of the HMI software to a file in printing format is indicated below.



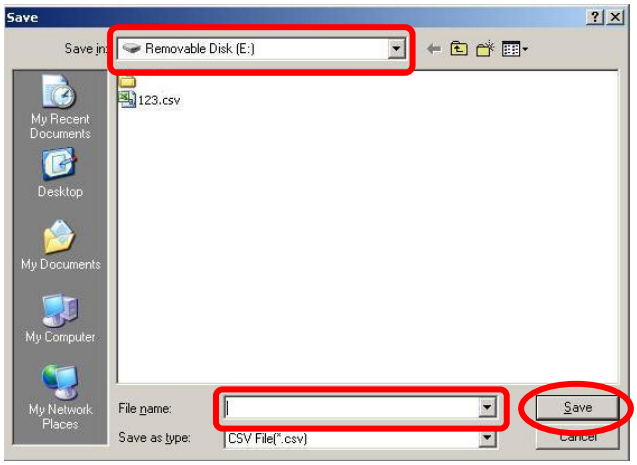
1) Click the “System Setting” button in the main menu bar to display the “System Setting” dialog.



2) Click the “Set item output” tab of the “System Setting” dialog.



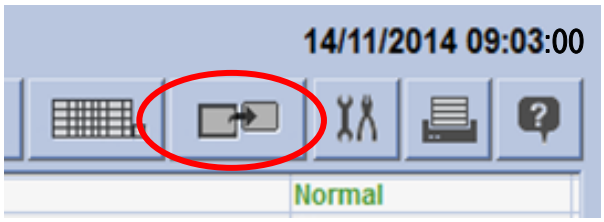
3) Click Execute.



4) The “Save” dialog is displayed.
Specify the folder and the file name, and click Save.

3.8 Printing the Display Screen (Hard Copy)

How to print the hard copy of the window currently displayed on the HMI screen is indicated below.



1) Click the “Print Screen” button (printer icon) on the main menu bar.
   The hard copy of the window currently displayed is printed by a printer.

NOTE	Printer setting depends on the system setting of Windows® OS.
NOTE	When unable to print for any reason (i.e. error notice of the printer), the “Error” dialog displays the cause. Printing is not resumed even if the printer status is recovered from an error.

3.9 System Shutdown

System shutdown is carried out by the following procedure. (Refer to Figure 3.9.1.)

Step 1. The OWS and EWS are turned off.
Step 2. The Hard Copy printer and Log printer are turned off.
Step 3. The Station Computers are turned off.
Step 4. The common panels are turned off.
Step 5. The server panels are turned off.
Step 6. The bay level equipment is turned off.

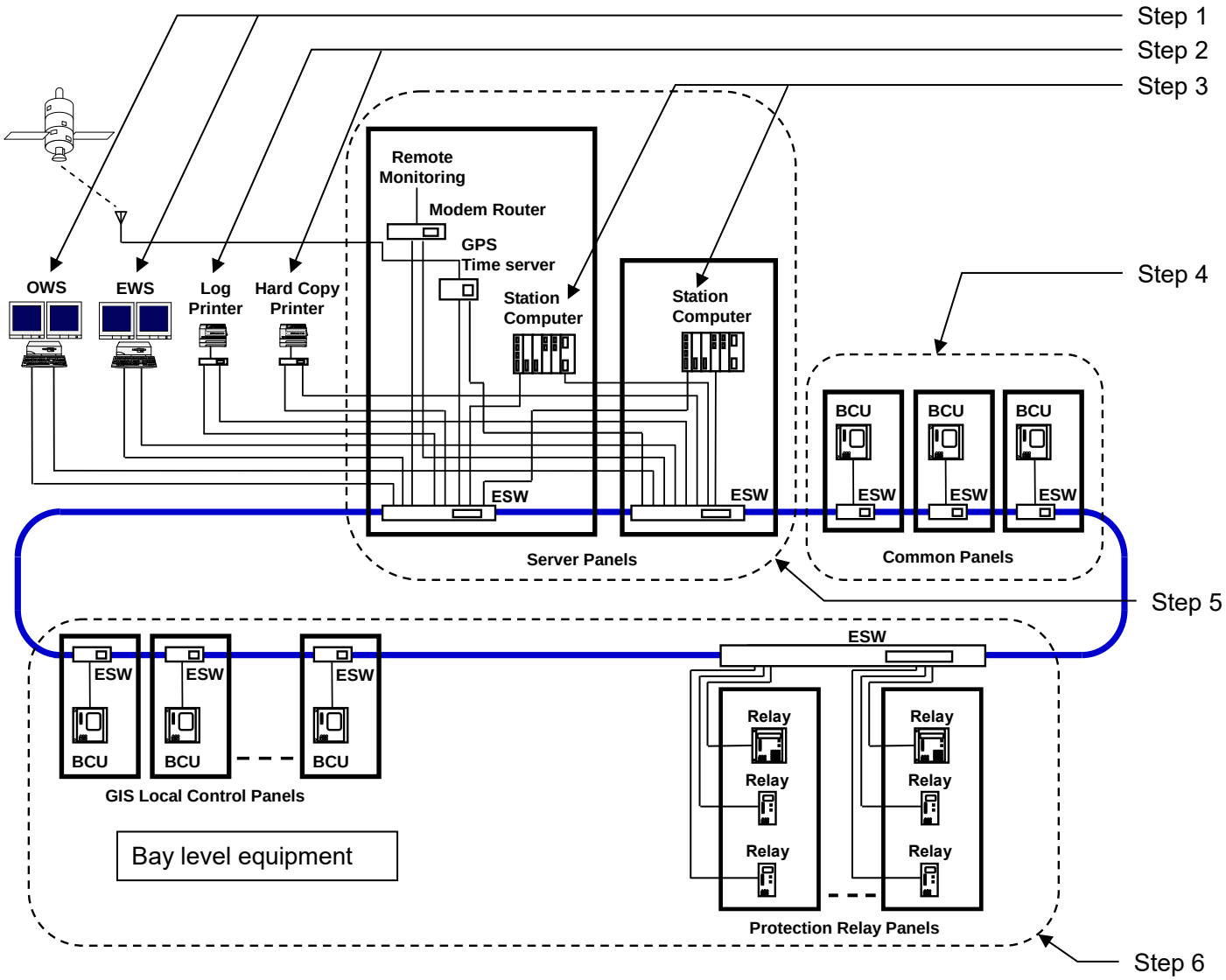


Figure 3.9.1 An example of System configuration

NOTE	Be sure to follow the procedure above to shut down the OWS/EWS. If the OWS/EWS is shut down forcibly by switches at the auxiliary box without following the correct procedure, then corruption of the internal data such as event information stored in the OWS/EWS may occur.
NOTE	Please keep the USB key inserted to OWS/EWS.

4 Operation of HMI Screen

<General>

4.1 Displaying Single Line Diagram Windows

How to display the single line diagram windows from the main menu bar is indicated below.



1) Click Single Line in the main menu bar.



2) Buttons for single line diagrams are displayed.

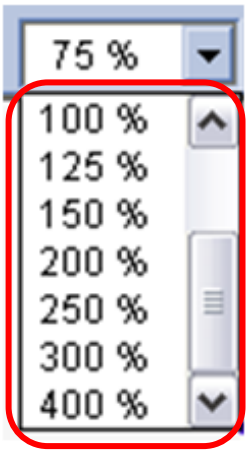
   Click the button for the window you want to display. Corresponding window will be displayed.

4.2 Changing the Display Scale of Windows

The display scale of single line diagram windows, the “GIS” window and the “System” window can be changed. How to change the display scale is indicated below.



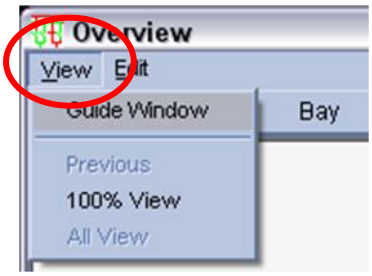
1) Click the spin button (downward arrow) of the “Scale” combo box in the window.



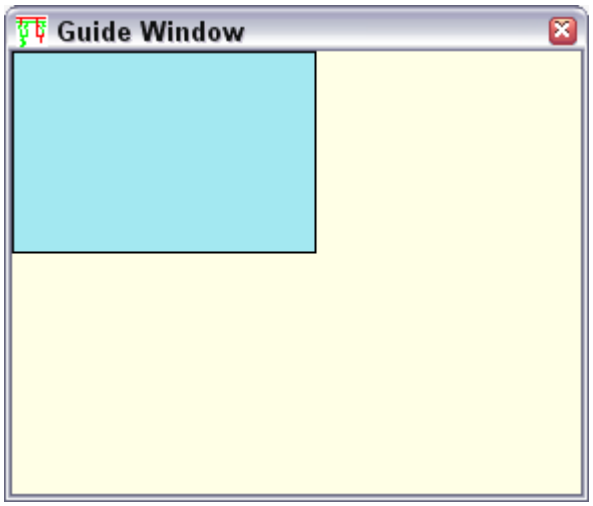
2) Select the scale factor from the pulled down items.
   The window is displayed with the selected scale factor.

4.3 Changing the Display Area of Windows Displaying the Legend

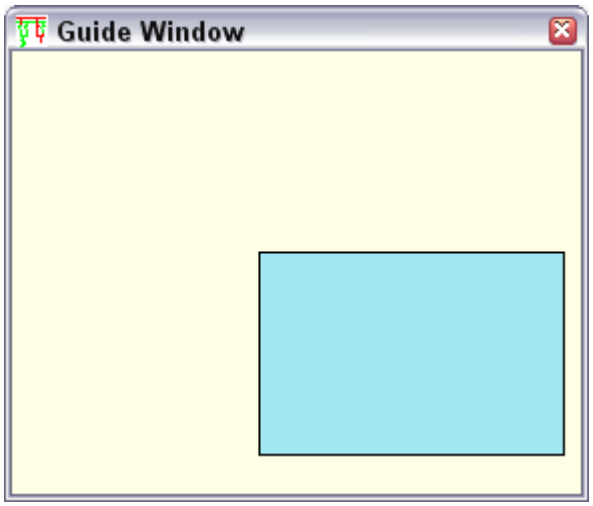
How to change the display area of single line diagram windows, the “GIS” window and the “System” window is indicated below.



1) Select [View] – [Guide Window] from the menu bar of the window.



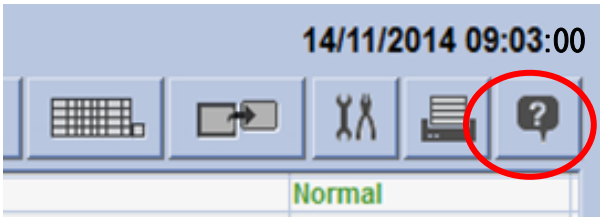
2) The “Guide Window” dialog is displayed. Currently displayed position is indicated with a black frame.



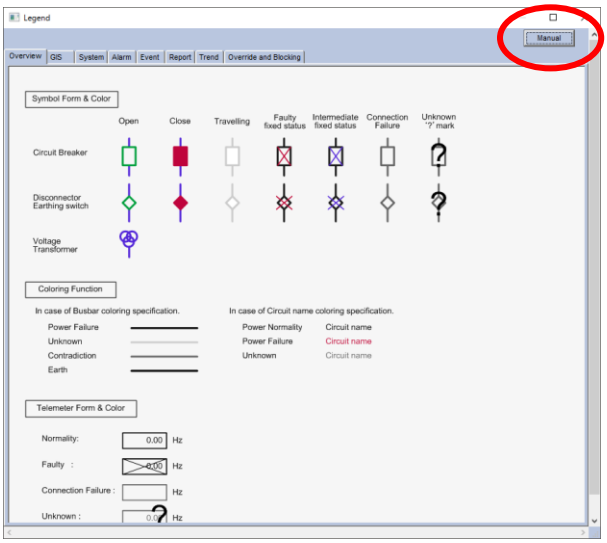
3) Drag and drop the black frame to the position you want and drop the frame.
The window corresponding to the selected position is displayed.

4.4 Accessing SAS Instruction Manual

Display / no-display of "Manual" button in the Legend screen is possible by parameter setting in the LNG.ini file. In the case of display setting, it is possible to display SAS instruction manual by the following operation. In addition, it is necessary to install the instruction manual in the prescribed folder in advance.



1) Click the “Help” button located at the main menu bar.

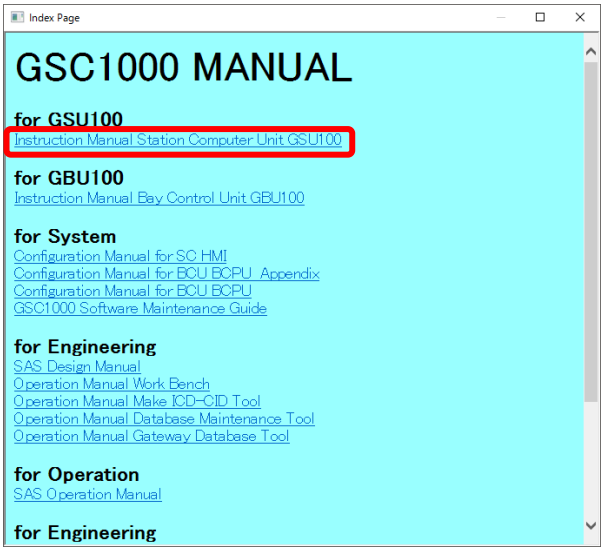


2) A new window called “Legend” will be displayed at the screen. If the parameter of the LNG.ini file is set to "Manual button display", the Manual button will be displayed at the upper right of the Legend screen.
Click Manual button.

NOTE	1. While the “Legend” window is being displayed on the HMI screen, “Legend” window is set to be still at the forefront of the screen, even after you select another display function (Overview, GIS, etc.).



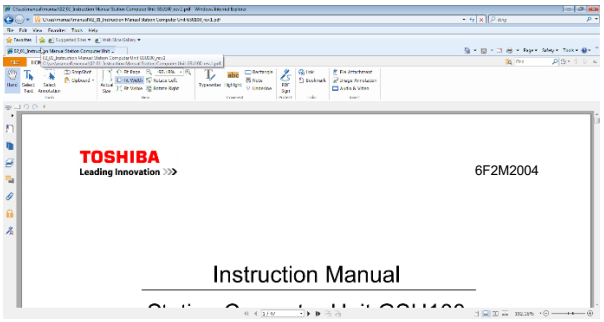
If the parameter of the LNG.ini file is set to "No Manual button display", the Manual button is not displayed on the Legend screen. It is not possible to refer the SAS instruction manual.



3) New window containing the list of GSC1000 Manual called “Index Page” is displayed. Click at the title (hyperlink) of the manual you want to refer to display the instruction manual file.

NOTE

After the “Index Page” window is displayed on the screen, when you select other display function (Overview, GIS, etc.), the “Index Page” window will be hidden and selected display function window will be displayed at the frontmost.



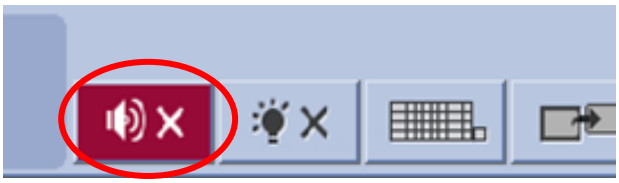
4) After click the hyperlink, the instruction manual file is displayed.

NOTE

New window opened for displaying the Manual file will still be displayed even after after you close the “Index Page” window.

4.5 Stopping an Alarm Sounding in OWS/EWS

How to stop an alarm sounding in OWS/EWS from the main menu bar is indicated below.

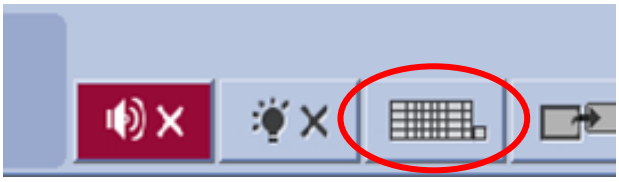


1) When an alarm is activated and sounds in OWS or EWS, the alarm sound is stopped by clicking the “Stop Alarm” button in the main menu bar.

- If the “Stop Alarm” button is clicked when no alarm is sounding, nothing is processed.

4.6 Stopping an Alarm of Station Common

How to stop an alarm of Station Common from the main menu bar is indicated below.

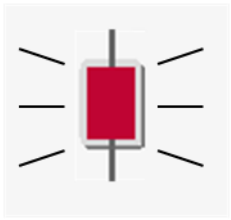


1) When an alarm is activated and sounds in Station Common, the alarm sound is stopped by clicking the “Station Common Alarm Reset” button in the main menu bar.

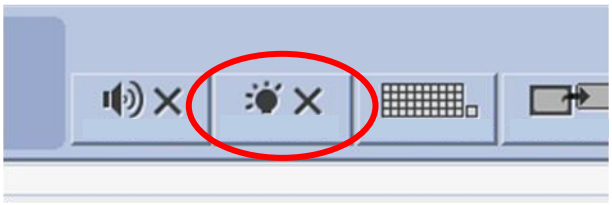
- If the “Station Common Alarm Reset” button is clicked when no alarm is sounding, nothing is processed.
- The common alarm on the system monitoring screen and on the station common alarm panel is stopped by the alarm reset operation from the system monitoring screen. Also, by the alarm reset operation from the station common panel, the common alarm on the station common panel and on the system monitoring screen goes off.

4.7 Stopping the Unauthorized Status Change Blinking

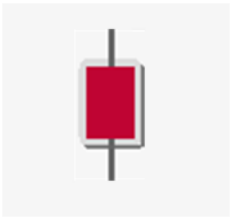
How to stop the device symbol that is blinking to notify the unauthorized status change is indicated below.



1) When any site status change occurs, the device symbol on the single line diagram blinks.



2) Click the “Stop Blink” button in the main menu bar.



3) All device symbols on the single line diagram stop blinking.
(The device symbol currently selected does not stop blinking.)

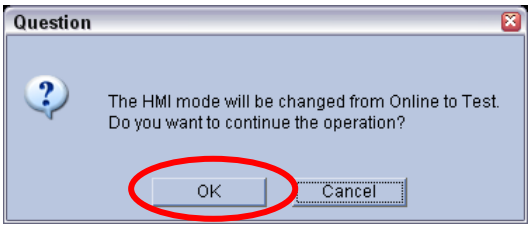
- When no blinking symbol exists, nothing is changed even if the “Stop Blink” button is clicked.

4.8 Changing HMI Mode

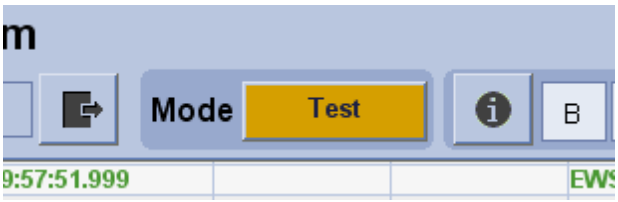
How to change HMI mode form the main menu bar is indicated below.



1) Click Online in the main menu bar.



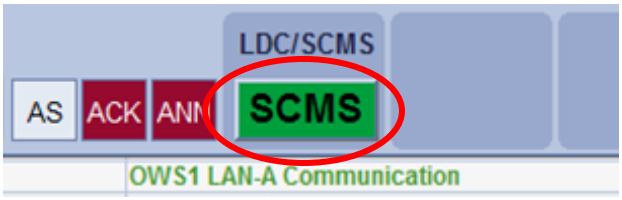
2) The dialog for confirmation is displayed.
Click OK.



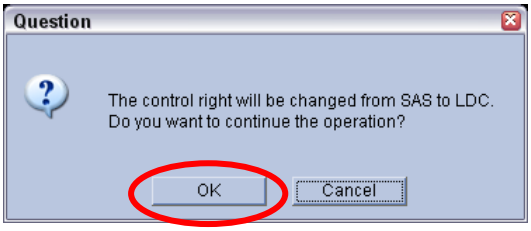
3) The confirmation dialog is closed and the mode button in the main menu bar is changed.

4.9 Switching Over LDC/SCMS Operation

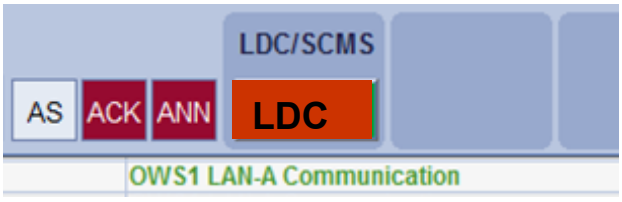
How to switch over LDC/SCMS operation form the main menu bar is indicated below.



1) Click SCMS in the main menu bar.



2) The confirmation dialog is displayed.
Click OK.

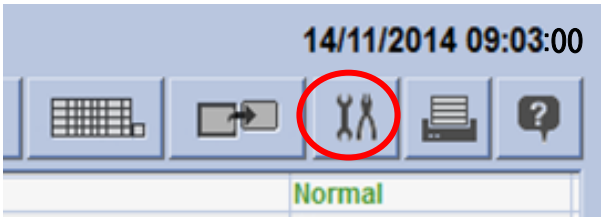


3) Switching over is carried out and the display of SCMS changes to LDC.

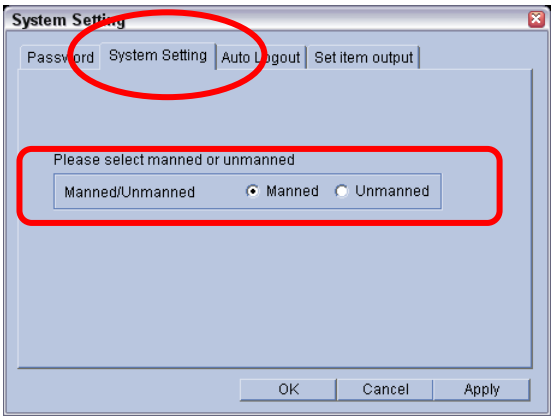
4.10 Switching Over Manned Operation/Unmanned Operation

How to switch over manned operation/unmanned operation is indicated below.

> **NOTE** In the systems for which switchover of manned operation/unmanned operation is interlocked with the switchover of LDC/SCMS condition, the manned/unmanned setting tab is not displayed.



1) Click the “System Setting” button in the main menu bar to display the “System Setting” dialog.

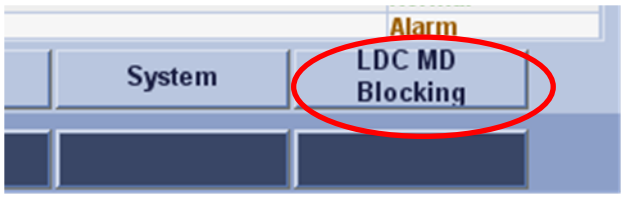


2) Click the “System Setting“tab in the “System Setting” dialog.

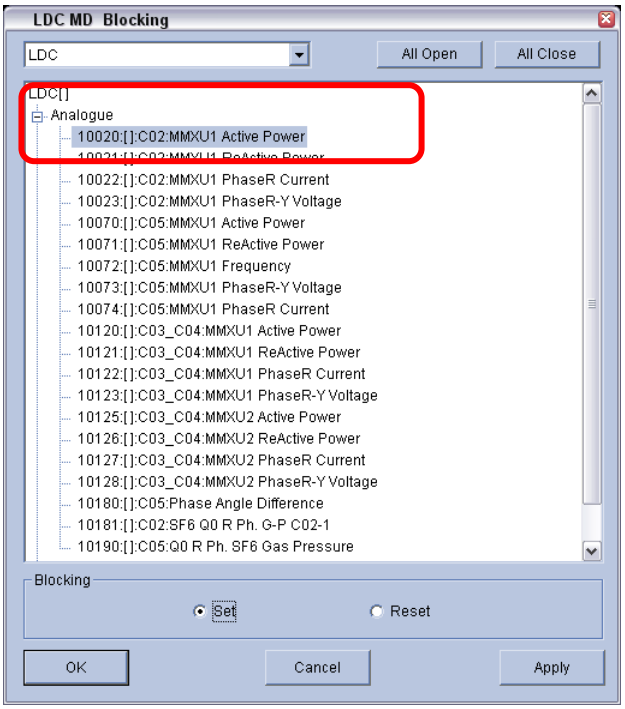
3) Click the radio button to change the setting.

4.11 Setting or Resetting LDC Blocking

How to set or reset the blocking of data transfer to LDC is indicated below.

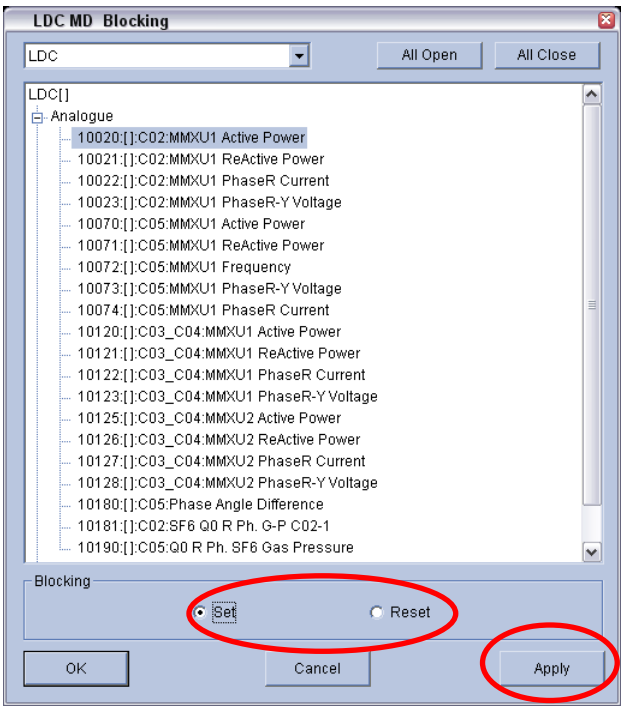


1) Click LDC MD Blocking in the main menu bar.

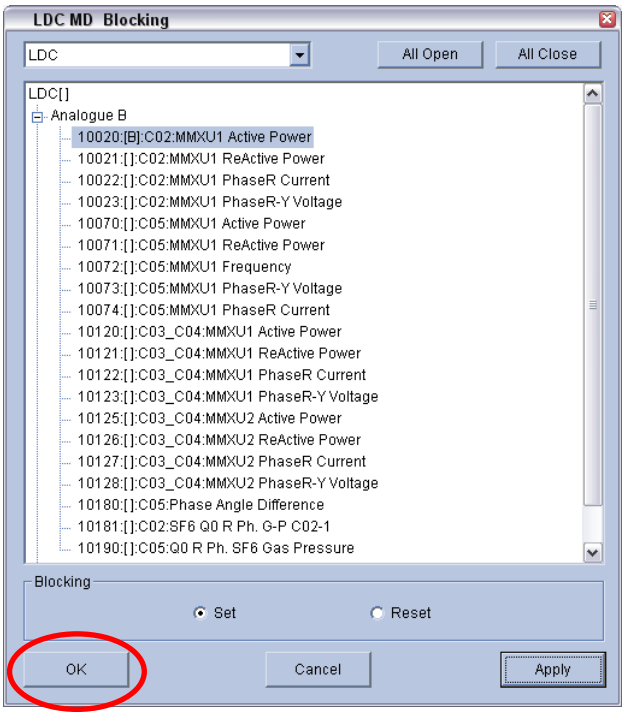


2) The “LDC MD Blocking” dialog is displayed.

Select the item for which you want to set or reset blocking of data transfer to LDC.

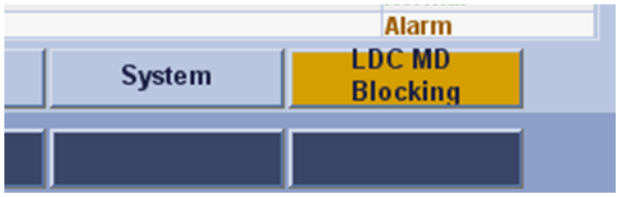


3) Click the radio button at “Set” or “Reset” and click Apply.



4) When LDC MD blocking is set, a “B” mark to indicate that the blocking is set is shown in [ ] of the selected item.

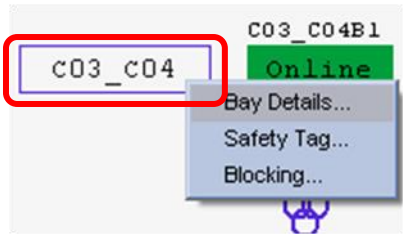
Click OK to close the dialog.



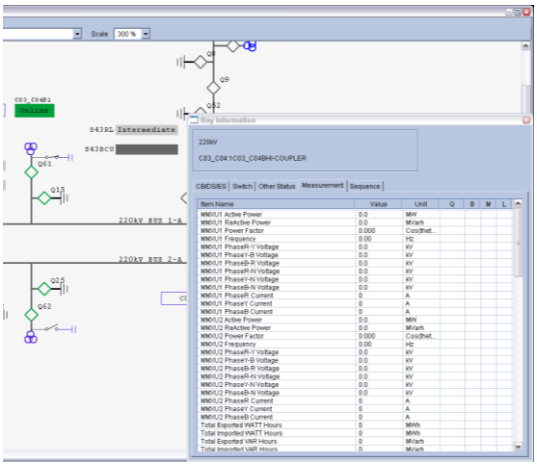
5) When LDC MD blocking is set, the color of LDC MD Blocking in the main menu bar changes to yellow.

4.12 Displaying the Bay Information Dialog

How to display the “Bay Information” dialog from the single line diagram is indicated below.



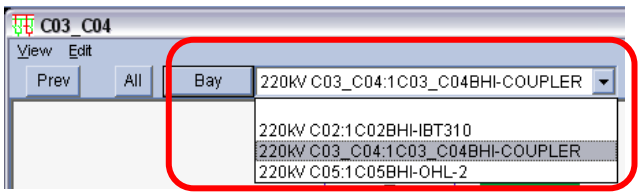
1) Click the bay name on the single line diagram. Or, display the context menu by right-clicking and select “Bay Details”.



2) The “Bay Information” dialog is displayed on the single line diagram window.

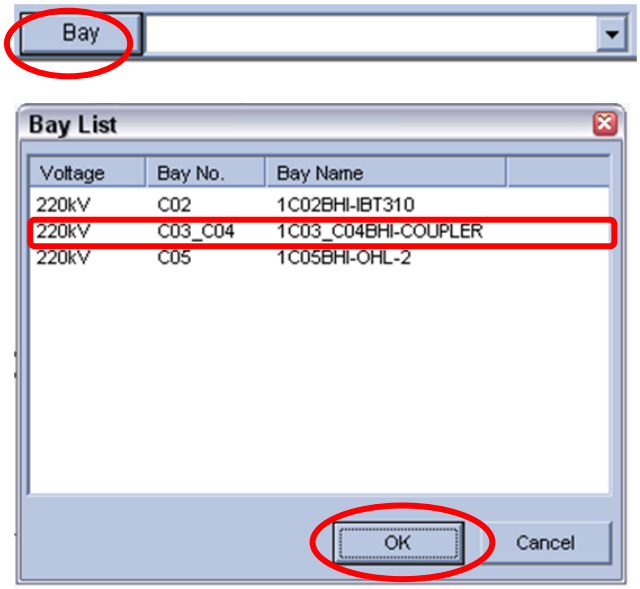
4.13 Displaying a Bay from the Overview Window

How to display the bay single line diagram and the “Bay Information” dialog from the “Overview” window is indicated below.

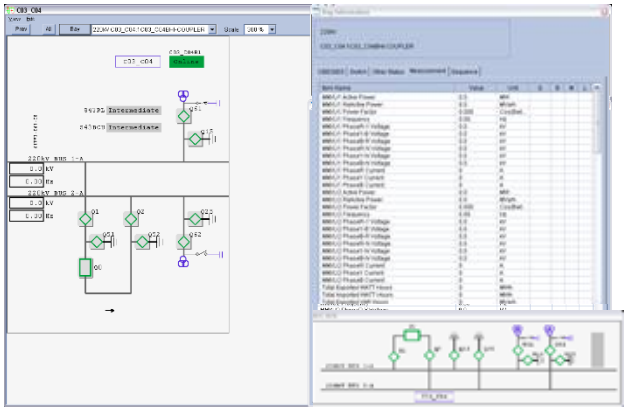


1) Perform any of the following:

(a) Click the bay select combo box at the upper part of the “Overview” window.



(b) Click Bay in the “Overview” window to display the “Bay List” dialog.
Select the bay name and click OK.



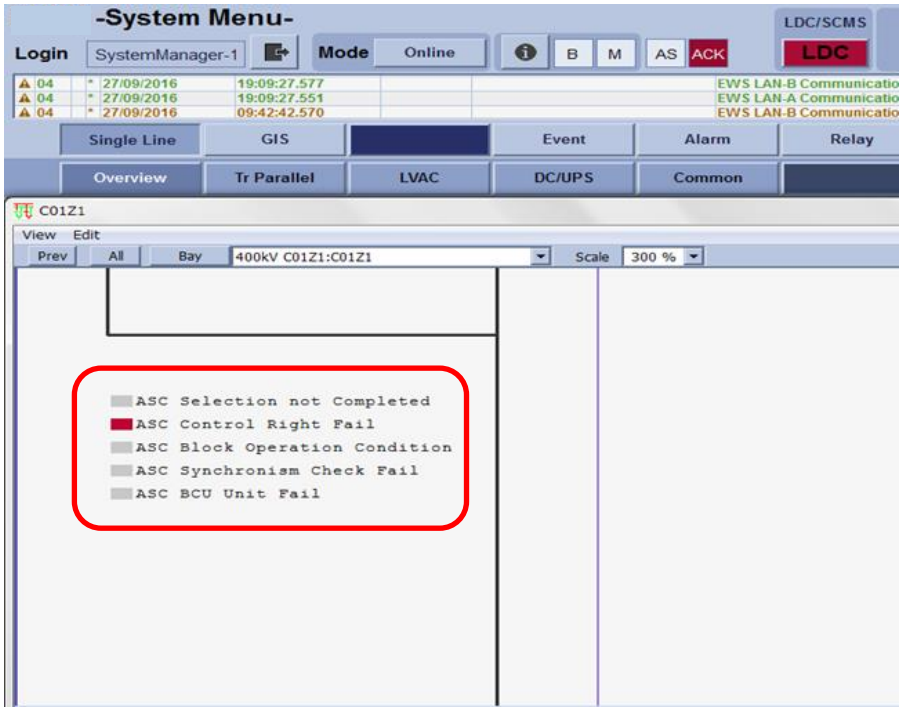
2) Bay single line diagram, the “Bay Information” dialog and “Bus Coupler/Bus Section” diagram are displayed.
Refer to section 6.11.4 for the meaning of each symbols.

Note 1) You can move display position of “Bay Information” dialog and “Bus Coupler/Bus Section” diagram freely within the screen.

Note 2) Showing/hiding Bay information dialog can be setup by external file(ini. File).

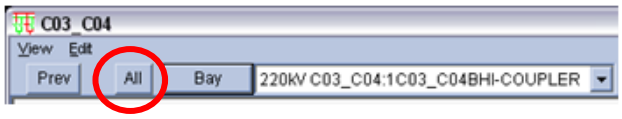
For Toshiba G2 series IED, LED symbol display is possible on BAY single line diagram. Four types of display color can be set by the external file (ini. file).

-Gray (Light off)
-Red
-green
-Yellow

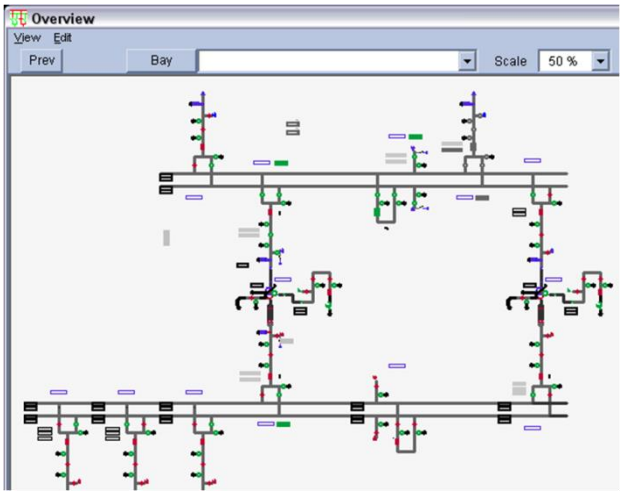


4.14 Returning to the Overview Window from a Bay Single Line Diagram

How to display the “Overview” window from the bay single line diagram is indicated below.



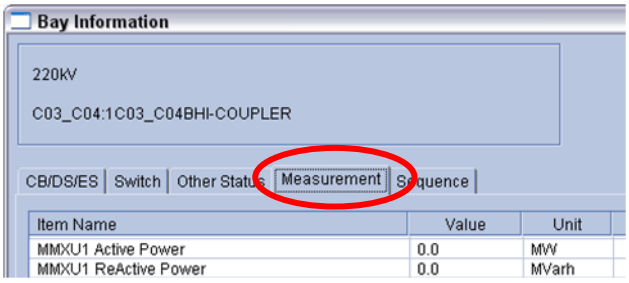
1) While the bay single line diagram is displayed in the window, click ALL
Or, click Prev until the window retruns to the “Overview” window.



2) The display returns to the “Overview” window.

4.15 Displaying the List of Measurement Values of a Bay

How to display the list of the measurement values of a bay is indicated below.



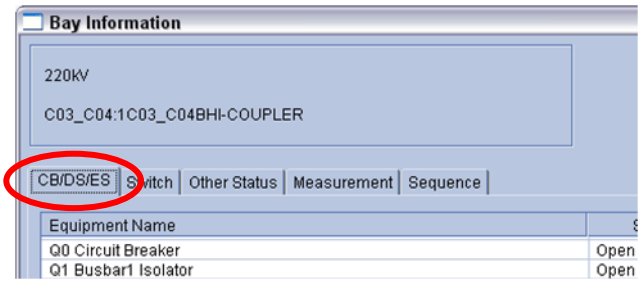
1) Click a bay name on a single line diagram to display the “Bay Information” dialog.

2) Click the “Measurement” tab of the “Bay Information” dialog.

3) The list of measurement values of the bay is displayed.

4.16 Displaying the List of CB/DS/ES of a Bay

How to display the list of CB/DS/ES of a bay is indicated below.



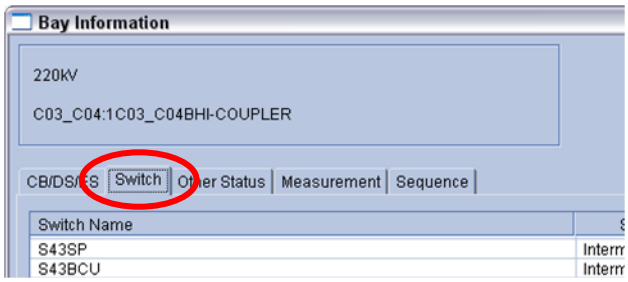
1) Click a bay name on a single line diagram to display the “Bay Information” dialog.

2) Click the “CB/DS/ES” tab of the “Bay Information” dialog.

3) The list of CB/DS/ES of the bay is displayed.

4.17 Displaying the List of Control Right Selection Switches of a Bay

How to display the list of control right selection switches of the “Bay Information” dialog is indicated below.



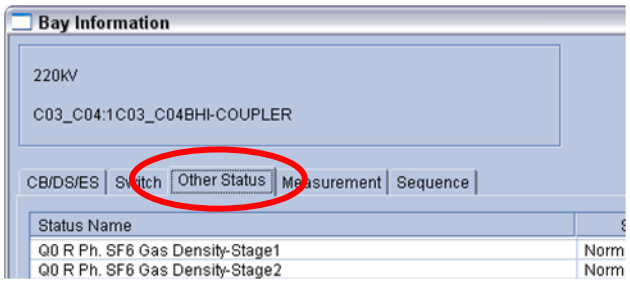
1) Click a bay name on a single line diagram to display the “Bay Information” dialog.

2) Click the “Switch” tab of the “Bay Information” dialog.

3) The list of control right selection switches of the bay is displayed.

4.18 Displaying the List of Other Status of a Bay

How to display the list of other status of a bay is indicated below.



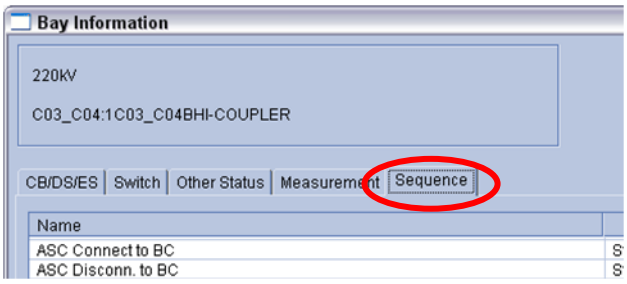
1) Click a bay name on a single line diagram to display the “Bay Information” dialog.

2) Click the “Other Status” tab of the “Bay Information” dialog.

3) The list of other statuses in the bay is displayed.

4.19 Displaying the List of Sequence Control of a Bay

How to display the list of sequence control of a bay is indicated below.



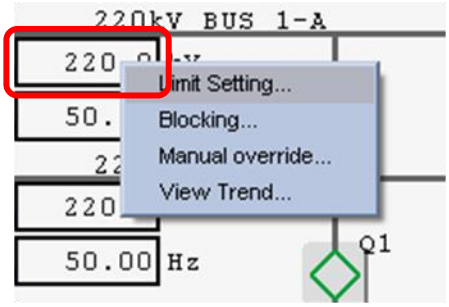
1) Click a bay name on a single line diagram to display the “Bay Information” dialog.

2) Click the “Sequence” tab of the “Bay Information” dialog.

3) The list of sequence control is displayed.

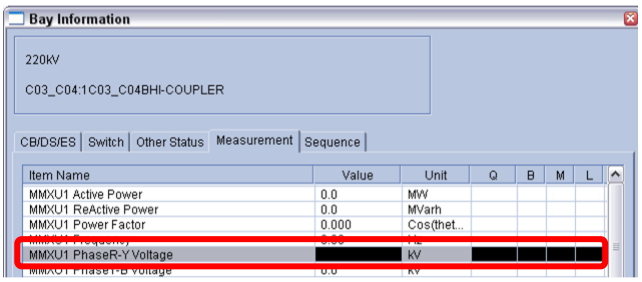
4.20 Changing the Upper/Lower Limit Setting of the Measurement Value

How to change the setting of upper/lower limit setting is indicated below.

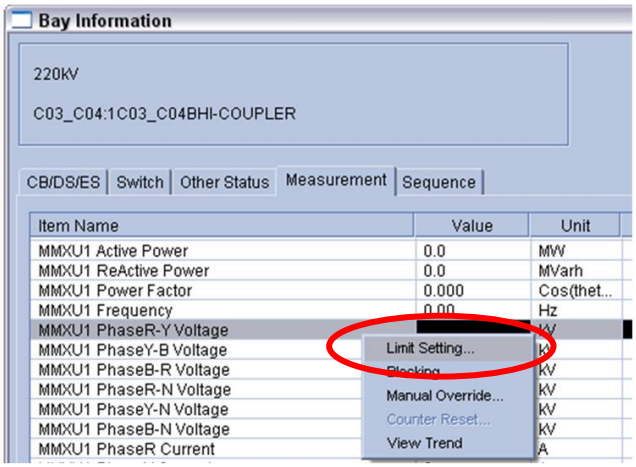


1) Carry out either one of the following.

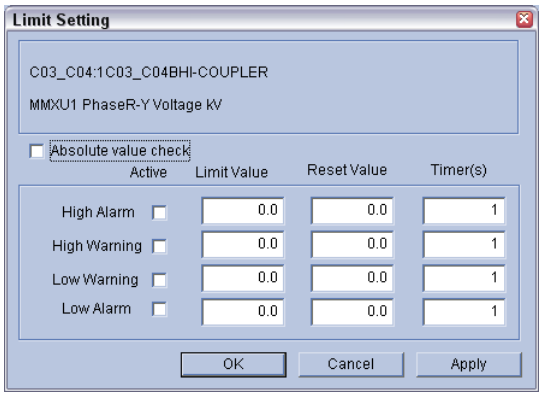
(a) Right-click the measurement value on the bay single line diagram to display the context menu.
Click “Limit Setting”.



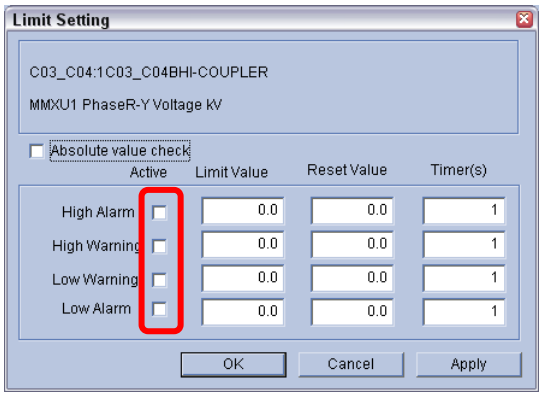
(b) Click the corresponding row of the list of the measurement values in the “Bay Information” dialog to select the measurement value.



Right-click it to display the context menu.
Click the “Limit Setting” of the context menu.

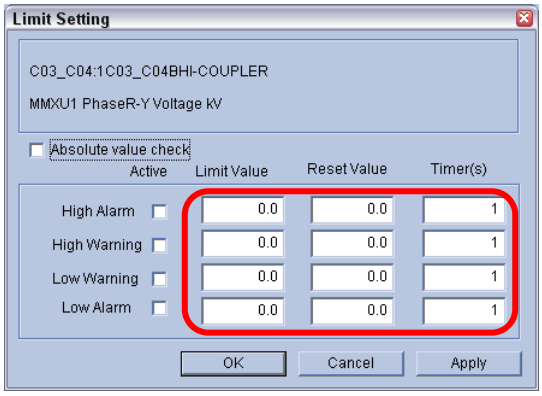


2) The “Limit Setting” dialog is displayed.



3) **Making upper/lower limit monitoring active or inactive**

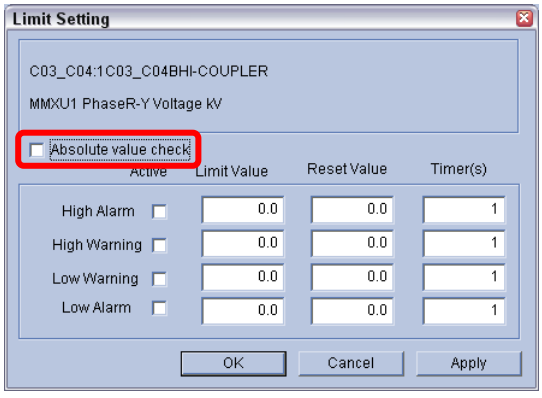
Put a tick in the “Active” check box to make the upper/lower limit monitoring active.
Upper/lower limit monitoring can be set active /inactive for each limit.



4) **Setting the upper/lower limit of monitoring value**

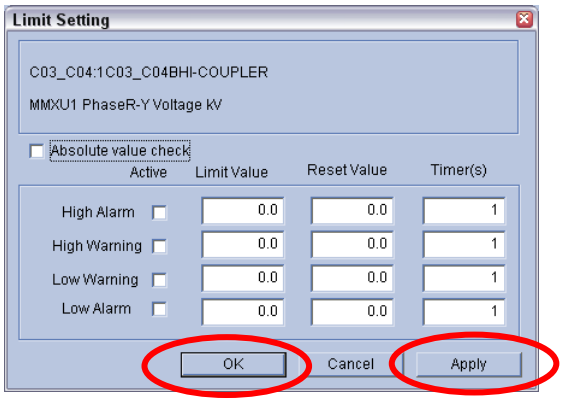
Input the upper/lower limit values, the reset value and the delay time for detection.

Be careful about the following relation:
Low Alarm limit ≤ Low Warning limit ≤ High Warning limit ≤ High Alarm limit
(Refer to 6.5.8.)



5) **Setting of absolute value monitoring**

To monitor upper/lower limit using the absolute value of the measurement value, put a tick in the check box of the “Absolute value check”.
If this check box is not checked, upper/lower monitoring is carried out using the measured values with minus sign.



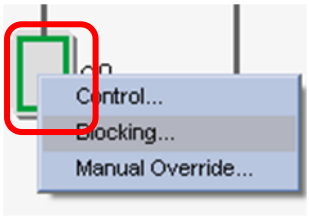
6) After setting is completed, click OK or Apply.

4.21 Setting/Resetting the Blocking of a Device

How to set or reset the blocking of a device is indicated below.

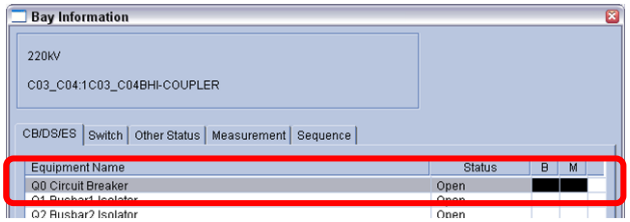
1) Carry out either one of the following.

(a) Right-click the symbol on the bay single line diagram to display the context menu. Click “Blocking” from the context menu.

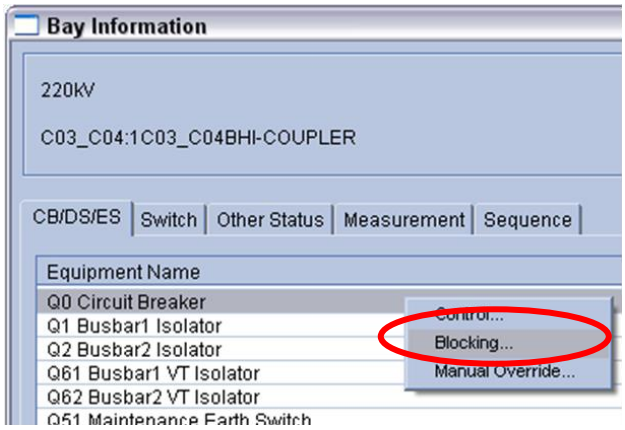


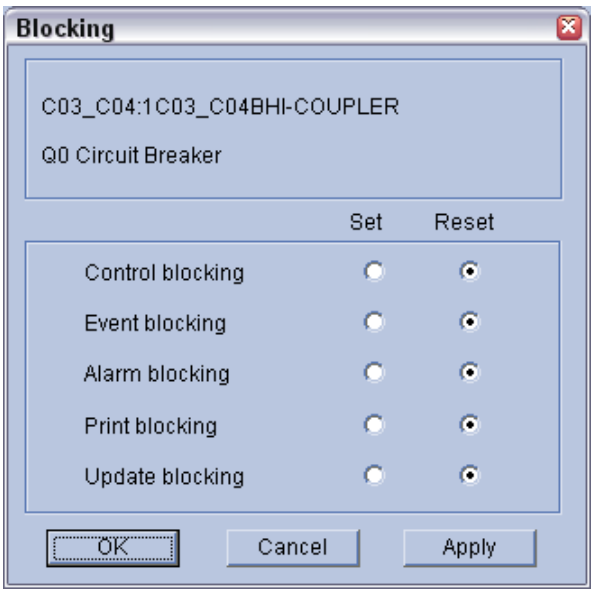
(b) Click the corresponding row in the “CB/DS/ES” tab of the “Bay Information” dialog to select the item.

.

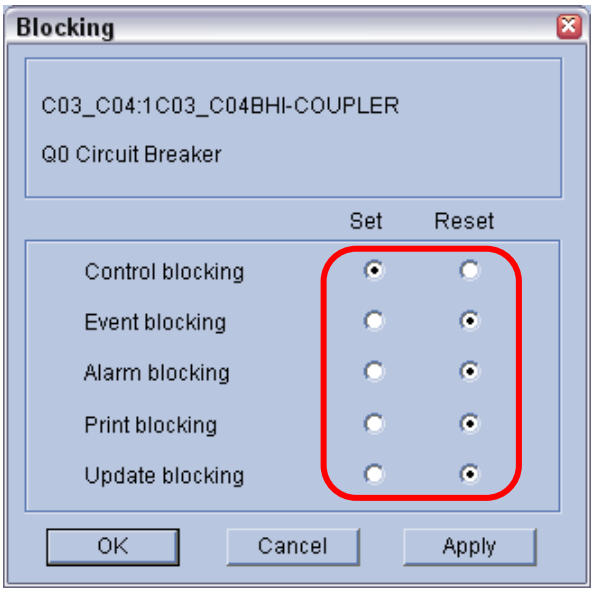


Right-click it to display the context menu Click “Blocking” in the context menu.

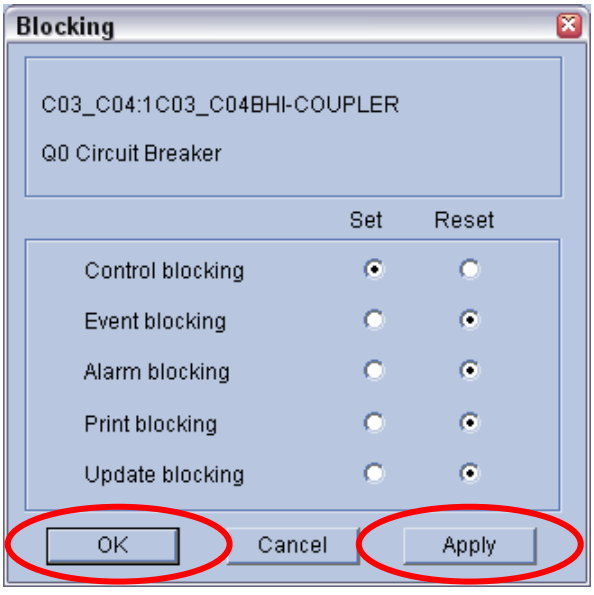




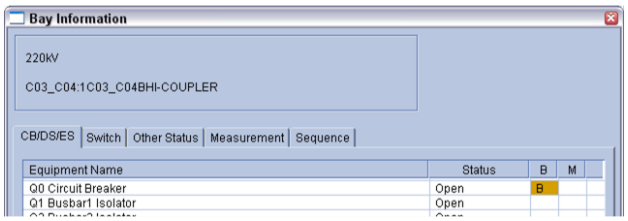
2) The “Blocking” dialog is displayed.



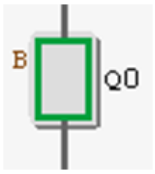
3) Click the radio buttons to set/reset each blocking.



4) Click OK or Apply.



5) When blocking is set, a “B” mark is displayed in the “Bay Information” dialog and besides the device symbol.

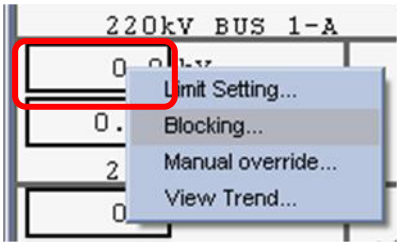


The color of the “B” in the collective information display on the main menu bar changes.



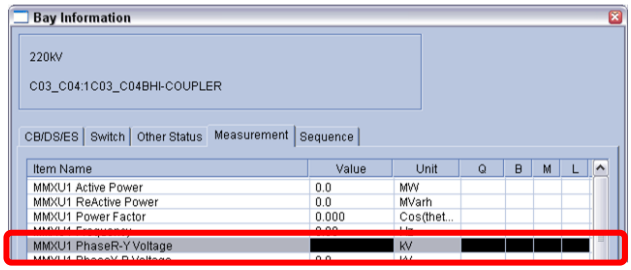
4.22 Setting/Resetting the Blocking of a Measurement Value

How to set or reset the blocking of the measurement value is indicated below.

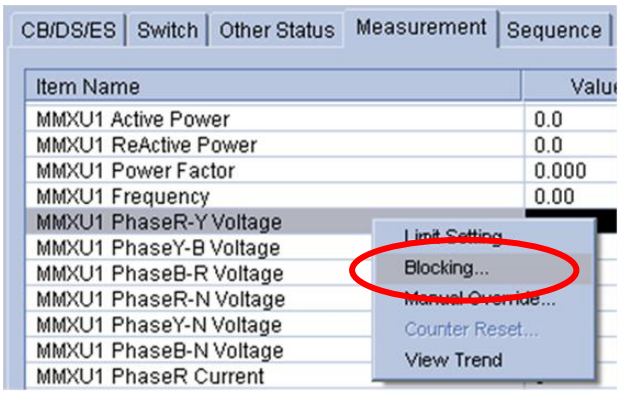


1) Carry out either one of the following.

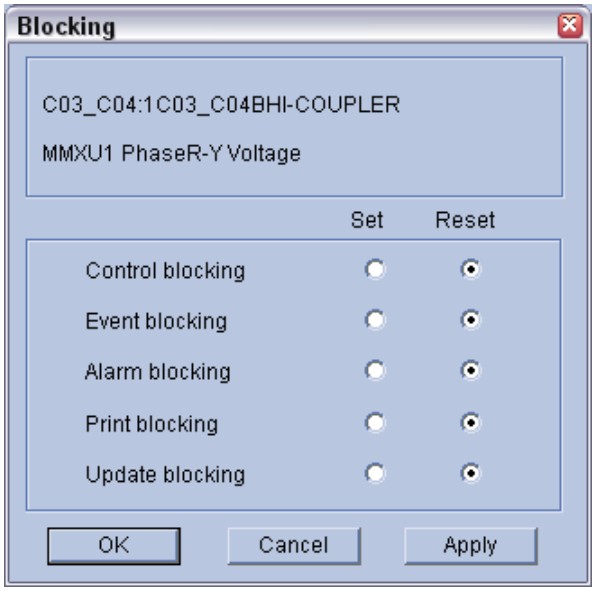
(a) Right-click the measurement value on the bay single line diagram to display the context menu. Click “Blocking” in the context menu.



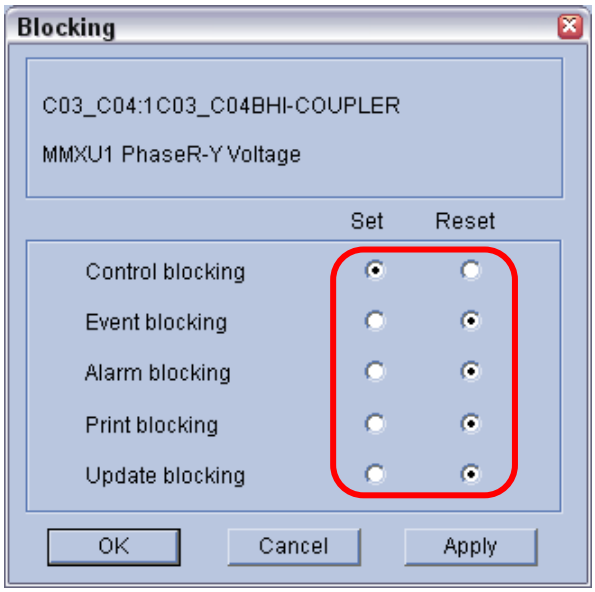
(b) Click the corresponding row in the “Measurement” tab of the “Bay Information” dialog to select the measurement value.



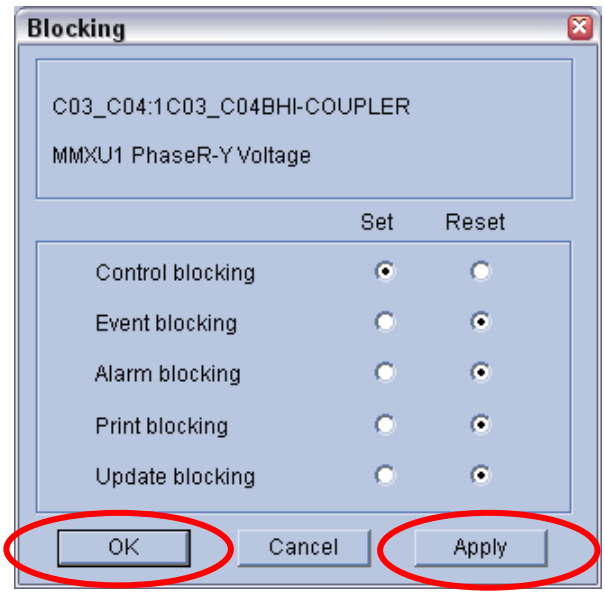
Right-click it to display the context menu. Click “Blocking” in the context menu.



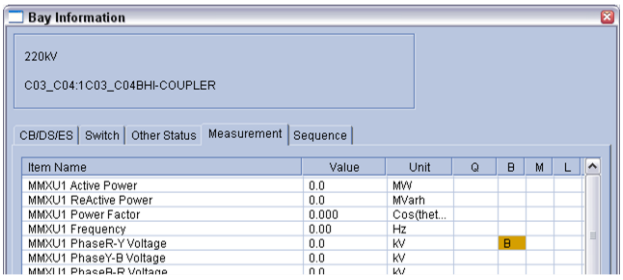
2) The “Blocking” dialog is displayed.

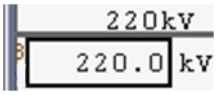


3) Click the radio buttons to set/reset each blocking.



4) Click OK or Apply.







5) When blocking is set, a “B” mark is displayed in the “Bay Information” dialog and besides the measurement symbol.

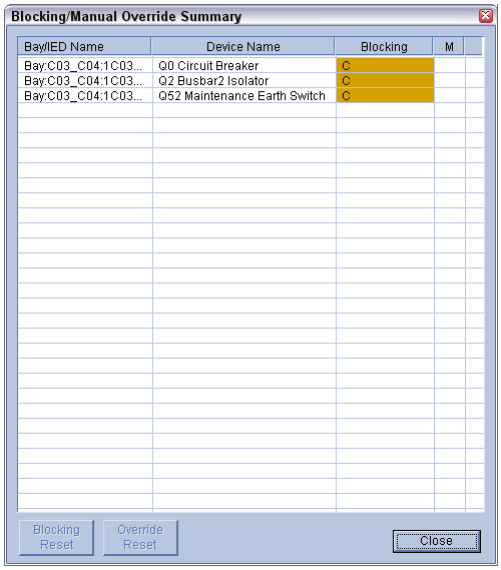
The color of the “B” in the collective information display on the main menu bar changes.

4.23 Displaying the Blocking/Manual Override Summary

How to display “the Blocking/Manual Override Summary” dialog is indicated below.



1) Click Information in the main menu bar.



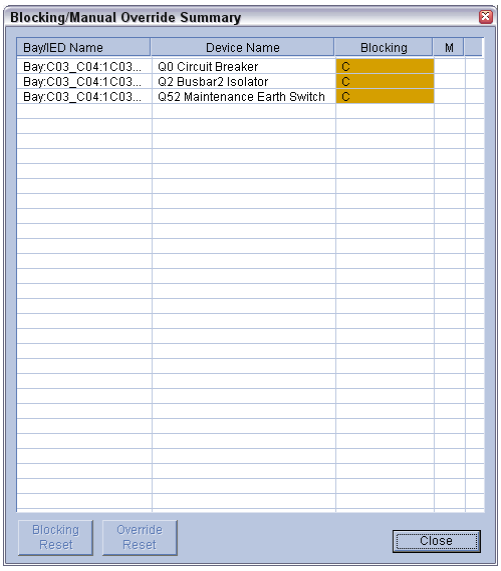
2) The “Blocking/Manual Override Summary” dialog is displayed and whether blocking /manual override is set or not is indicated.
The meaning of the letter in as below.
[Blocking]:
C: Control Blocking is set
E: Event Blocking is set
A: Alarm Blocking is set
P: Print Blocking is set
U: Update Blocking is set
[M]:
M: Manual Override is set

4.24 Resetting the Blocking from the Blocking/Manual Override Summary

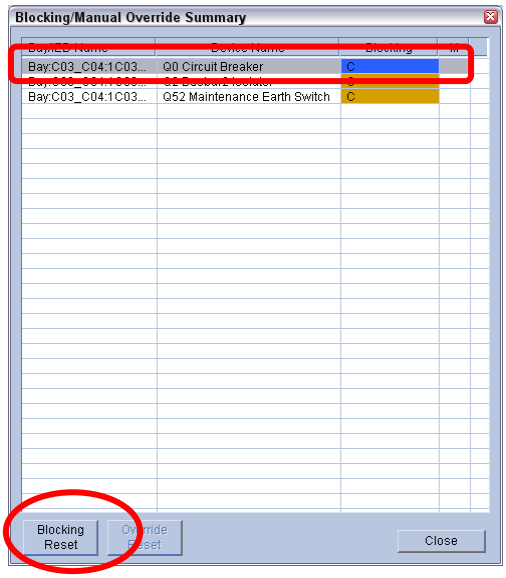
How to reset the blocking from the “Blocking/Manual Override Summary” dialog is indicated below.



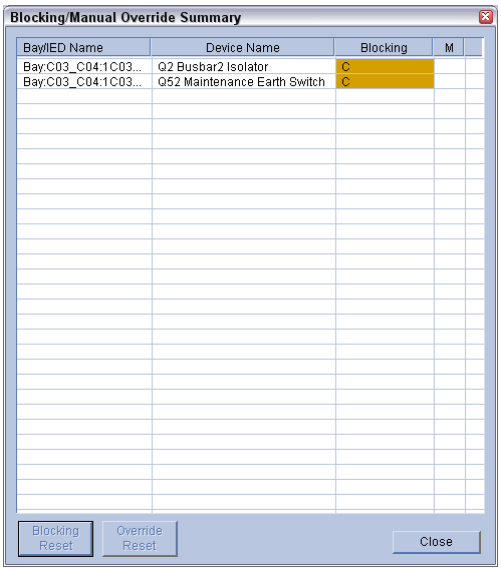
1) Click the “Information” button in the main menu bar.



2) The “Blocking/Manual Override Summary” dialog is displayed.



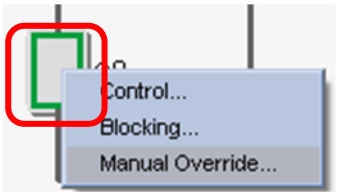
3) Select the row to reset the blocking and click Blocking Reset.



4) The blocking of the selected row is reset collectively.

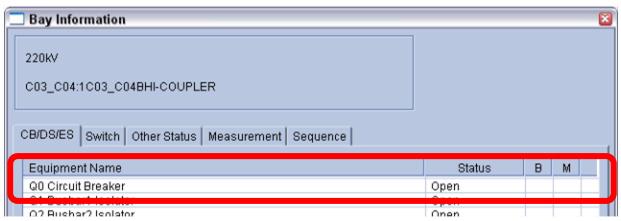
4.25 Setting the Manual Override of a Device

How to set/change the manual override of a device is indicated below.

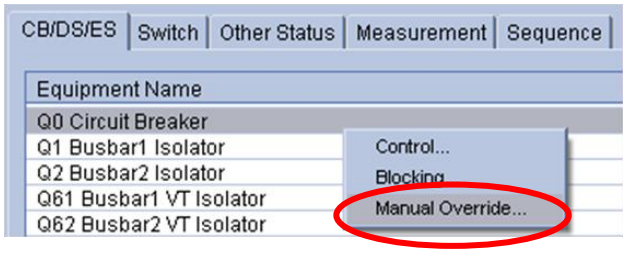


1) Carry out either one of the following.

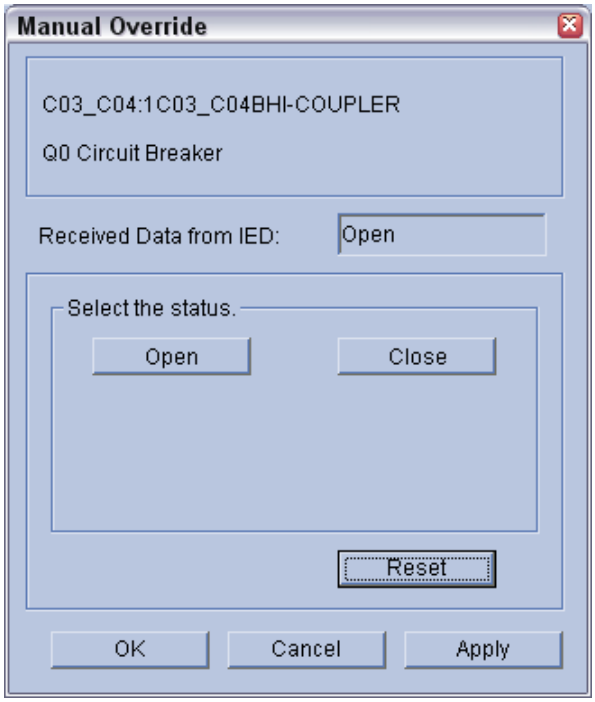
(a) Right-click the corresponding symbol on the bay single line diagram to display the context menu.
Click “Manual Override” of the context menu.



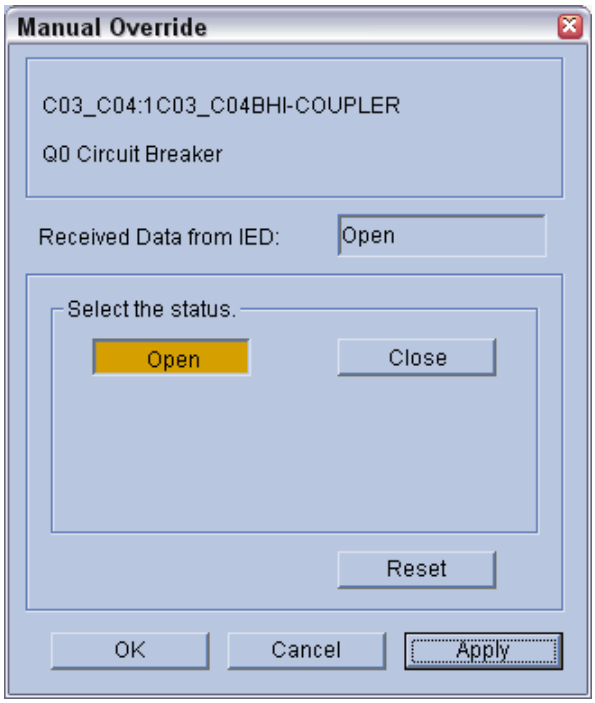
(b) Click the corresponding row in the “CB/DS/ES” tab of the “Bay Information” dialog to select the device.



Right-click it to display the context menu. Click “Manual Override” from the context menu.

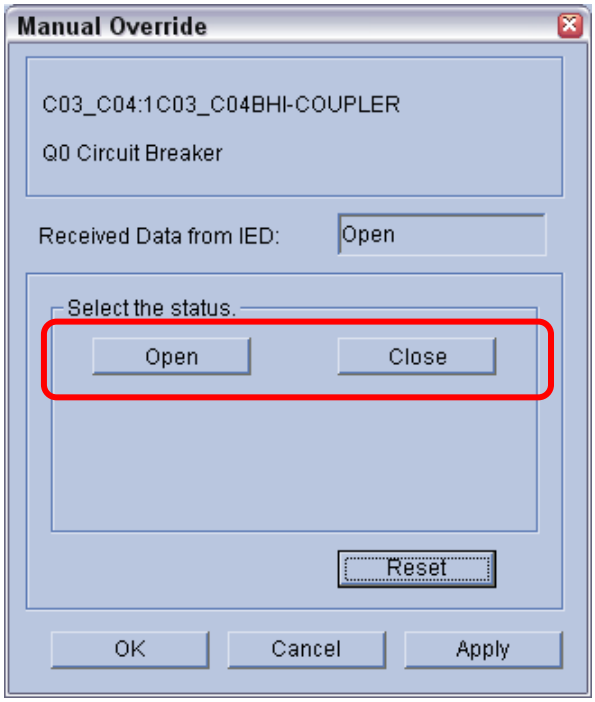


2) The “Manual Override” dialog is displayed.

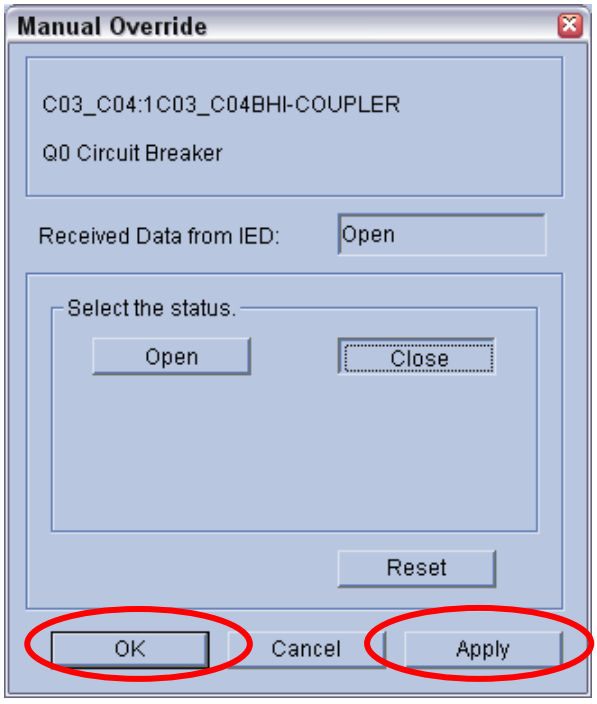


(When manual override has already been set)

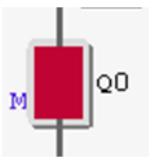
If the manual override has been set already, the corresponding button in the “Select the status.” column is displayed depressed and in yellow color.



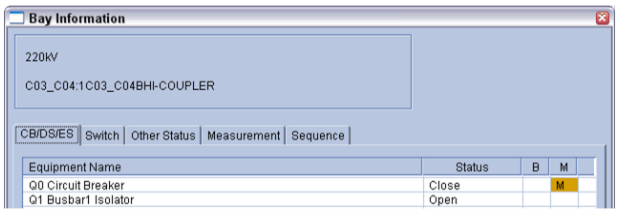
3) Click the button of the state you want to set.



4) Click OK or Apply.



5) The present status displayed on the bay single line diagram and in the ”CB/DS/ES” tab of the “Bay Information” dialog is updated to the status that has been overridden manually.



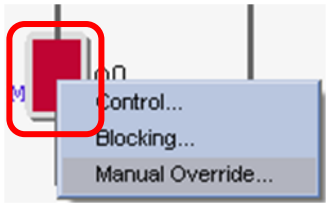
6) When manual override is set, the “M” mark is displayed in the “Bay Information” dialog and the color of the “M” in the collective information display on the main menu bar changes.



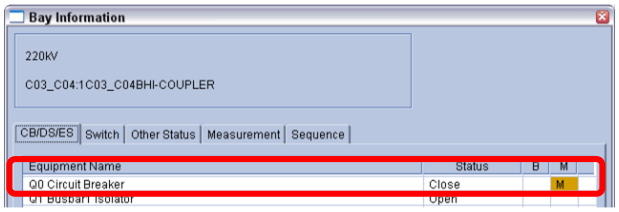
4.26 Resetting the Manual Override of a Device

How to reset the manual override of a device is indicated below.

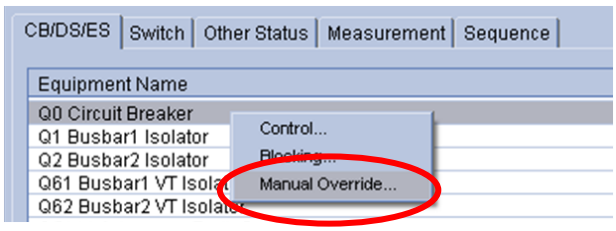
1) Carry out either one of the following.



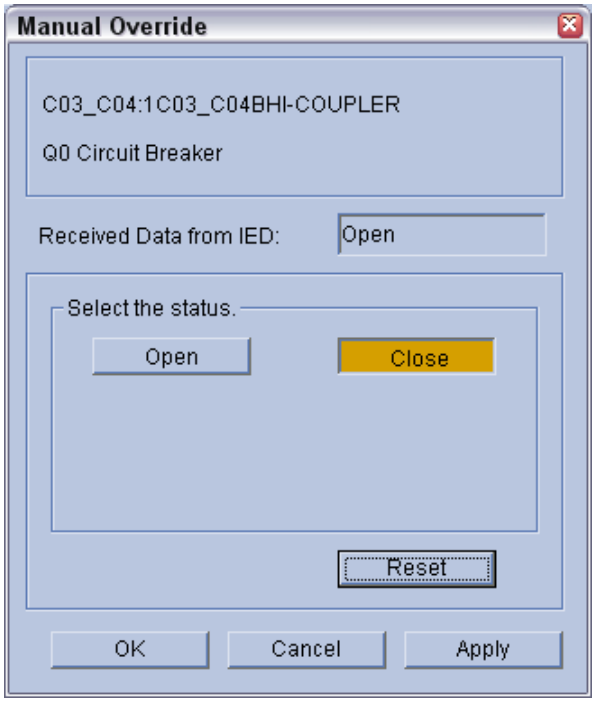
(a) Right-click the corresponding symbol on the bay single line diagram to display the context menu. Click “Manual Override” from the context menu.



(b) Click the corresponding row in the list of CB/DS/ES of “Bay Information” dialog to select the device.

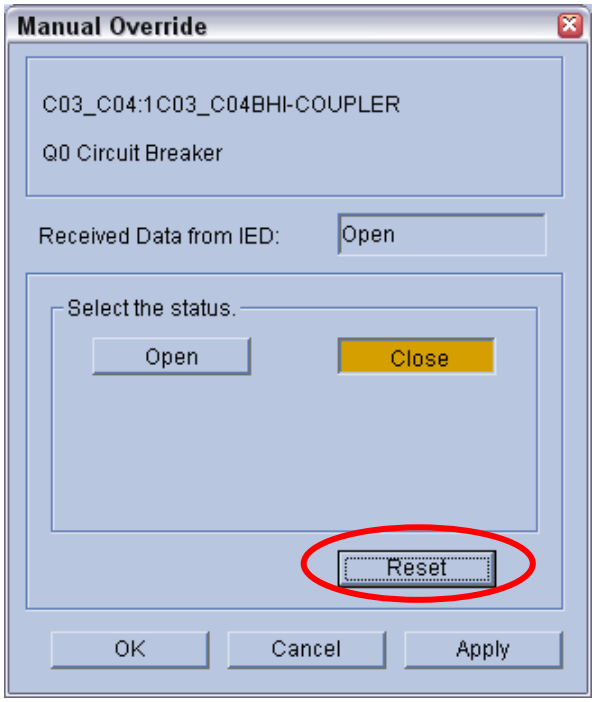


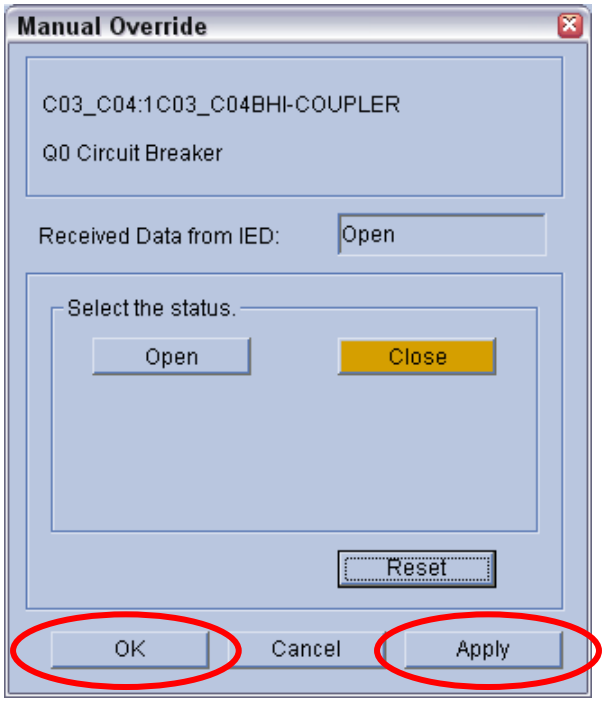
Right-click it to display the context menu. Click “Manual Override” from the context menu.



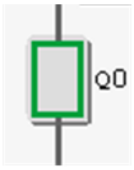
2) The “Manual Override” dialog is displayed. The button already set for manual override is displayed depressed and in yellow color.

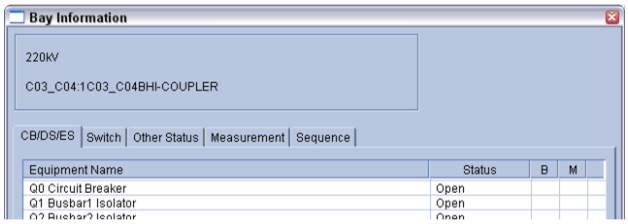
3) Click Reset.





5) Click OK or Apply.



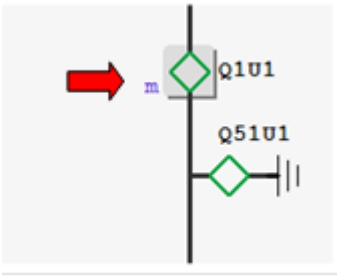




6) Manual Override indication on the bay single line diagram, in the list of CB/DS/ES of the “Bay Information” dialog, and in the collective information display on the main menu bar disappear and the present status is updated through online.

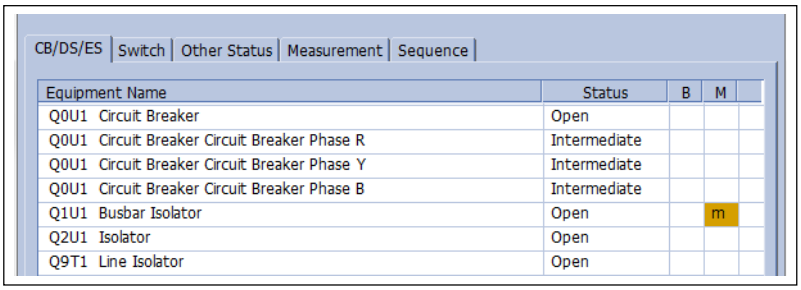
4.27 Displaying the forced setting of IED

The display at the time of forced setting of IED is indicated below.



1) Displaying IED symbol.

If SC has received a force setting signal from each IED, the "m" mark that shows forced setting will be displayed to the close of the IED symbol on the Overview/GIS Screen. Refer to the figure. When the force setting of IED is released "m" mark display will disappear.



2) Displaying Bay Information dialog.

The “m” mark is displayed in the Bay Information dialog. When the force setting of IED is released, "m" mark display will disappear.

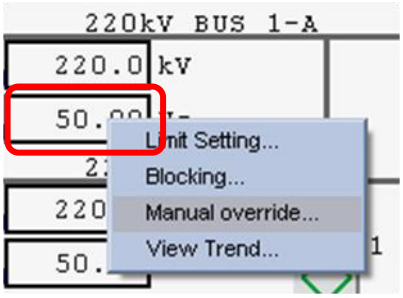
NOTE	1. When forced setting is performed from both of HMI and IED, "M" mark that shows the setting from the HMI is displayed. Subsequently, when you remove the forced setting from the HMI, the "m" mark is displayed. 2. The forced setting of CB / DS / ES is explained here, but it is the same in the case of "Switch" and "Other Status".

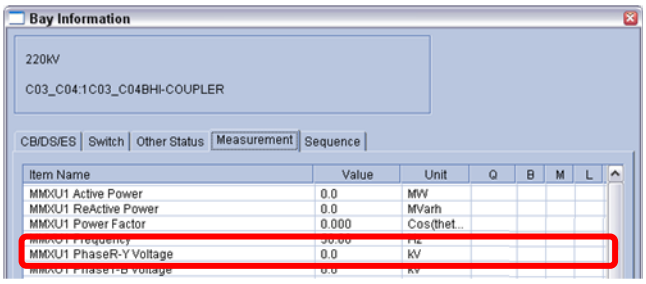
4.28 Setting the Manual Override of a Measurement Value

How to change a measurement value manually is indicated below.

1) Carry out either one of the following.

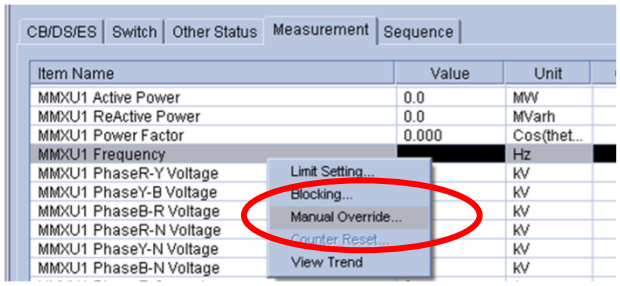
(a)Right-click the corresponding measurement value on the bay single line diagram to display the context menu. Click “Manual Override” from the context menu.



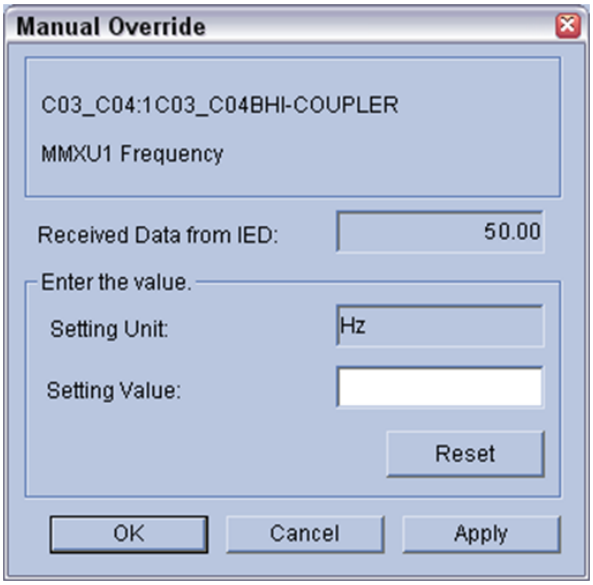


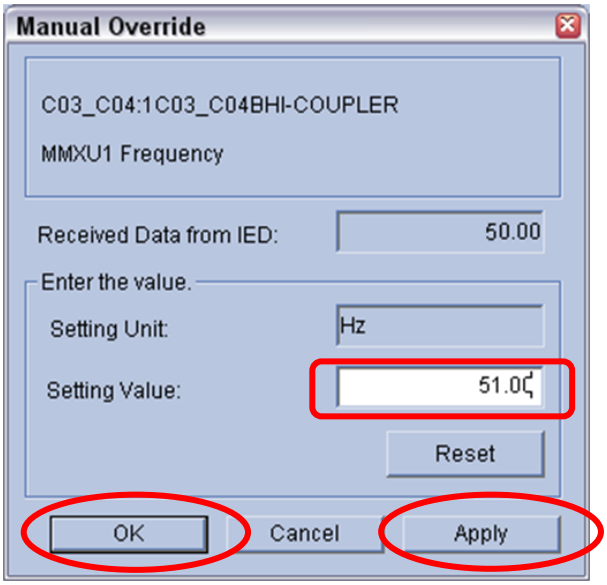
(b) Click the corresponding row of the list of the measurement value in the “Bay Information” dialog to select the measurement value.

Right-click it to display the context menu. Click “Manual Override” from the context menu.

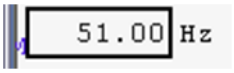


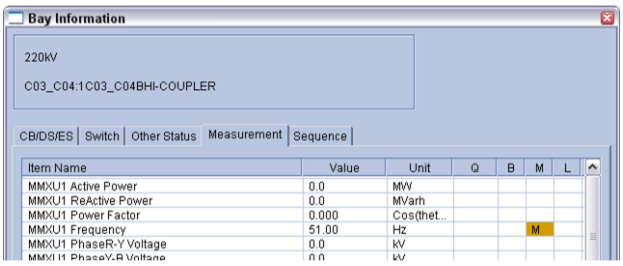
2) The “Manual Override” dialog is displayed.
When the item is already set for manual override, the set value is displayed in Setting Value column.
When nothing is set, the column remains blank.





3) Input the overriding value and click OK or Apply.







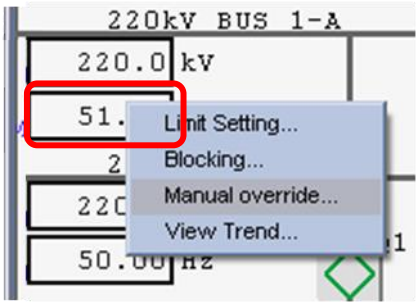
4) The measurement value on the bay single line diagram and in the list of measurement values of the “Bay Information” dialog are updated to the overridden value.
Manual override indication (M mark) appears on the Bay single line diagram and in the list of measurement value of the “Bay Information” dialog.
The color of the “M” in the collective information display on the main menu bar changes.

4.29 Resetting the Override Setting of a Measurement Value

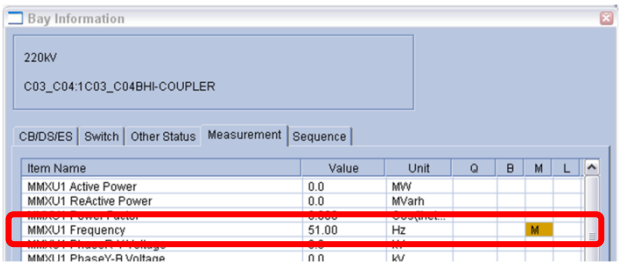
How to reset the overriding setting of a measurement value is indicated below.

1) Carry out either one of the following.

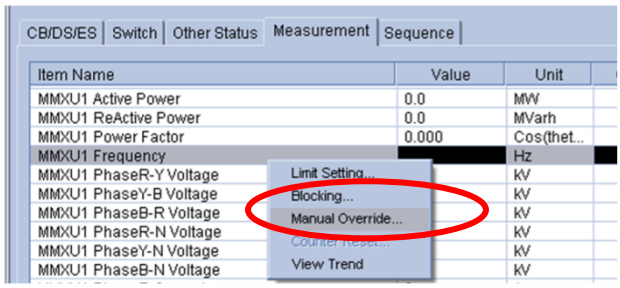
(a) Right-click the measurement value on the bay single line diagram to display the context menu. Click “Manual Override” from the context menu.



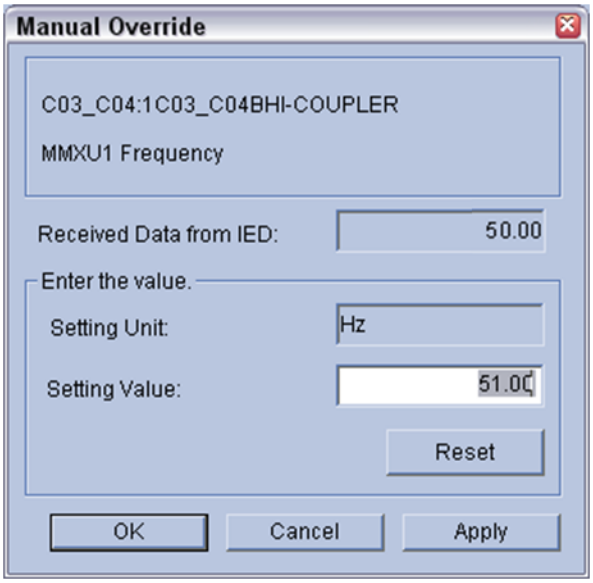
(b) Click the corresponding row of the list of the measurement values in the “Bay Information” dialog to select the measurement value.

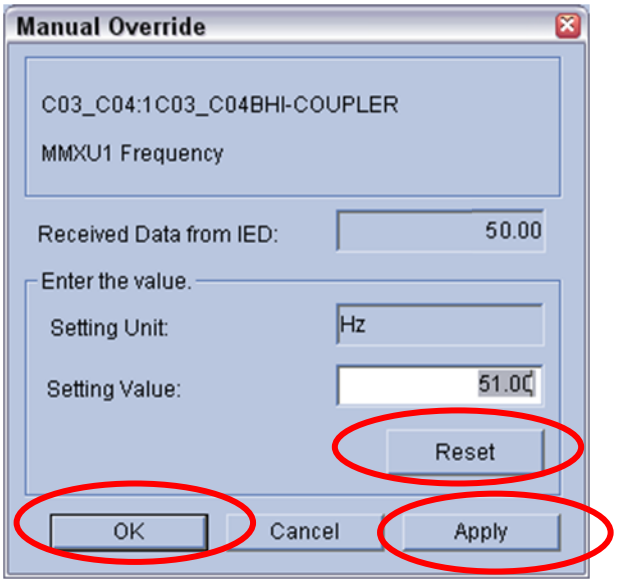


Right-click it to display the context menu. Click “Manual Override” from the context menu.



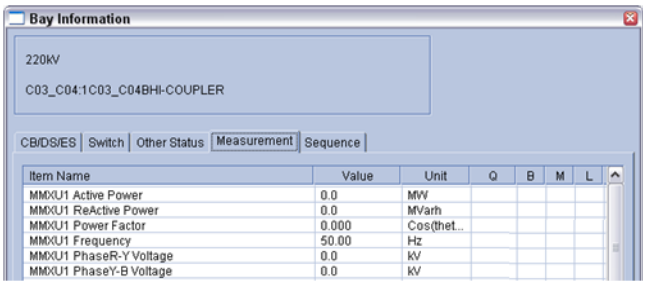
2) The “Manual Override” dialog is displayed. The setting value for manual override is displayed in the Setting Value column.





3) Click Reset and then click OK or Apply.



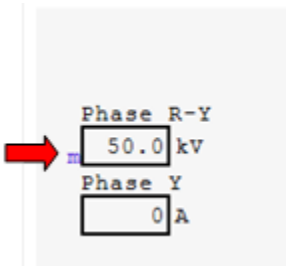




4) Manual override indication (“M” mark) on the bay single line diagram and in the list of measurement values of the “Bay information” dialog disappears and the online value is displayed.
The color of the “M” in the collective information display on the main menu bar returns to the ordinary color.

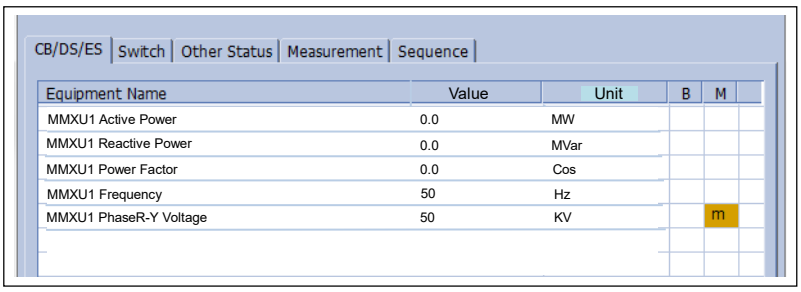
4.30 Displaying the forced setting of Measurement Value

The display at the time of forced setting of Measurement Value is indicated below.



1) Displaying Measurement Value on the Overview /GIS screen.

If SC has received from Measurement Value with forced setting signal, the "m" mark that shows force setting will be displayed to the close of the Measurement Value on the Overview Screen/GIS Screen. Refer to the figure. When the forced setting of Measurement Value is released, "m" mark display will disappear.



2) Displaying Bay Information dialog.

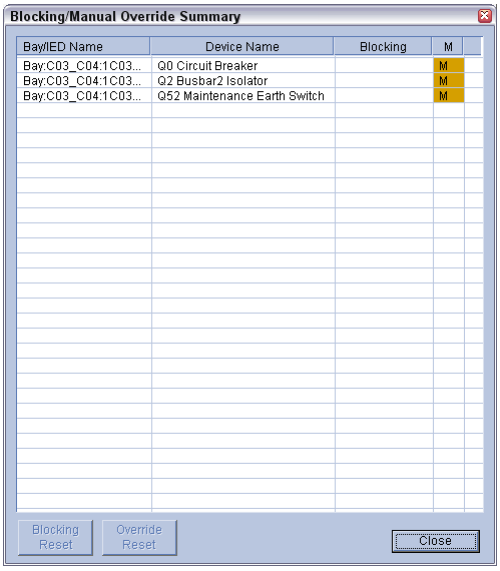
The “m” mark is displayed in the Bay Information dialog. When the force setting of IED is released "m" mark display will disappear.

4.31 Resetting the Manual Override from the Manual Override Summary

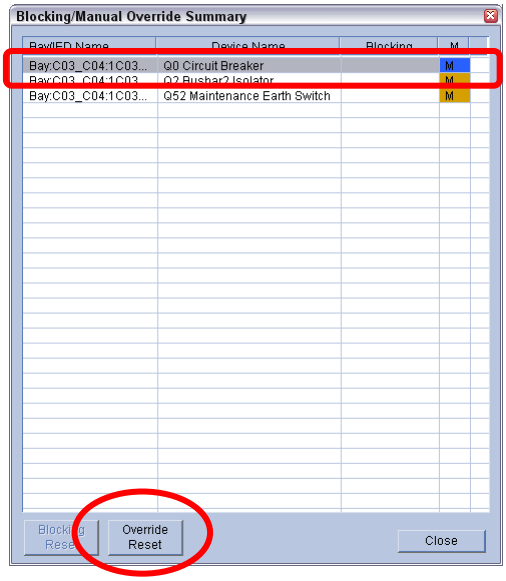
How to reset the manual override setting from the “Manual Override Summary” dialog is indicated below.



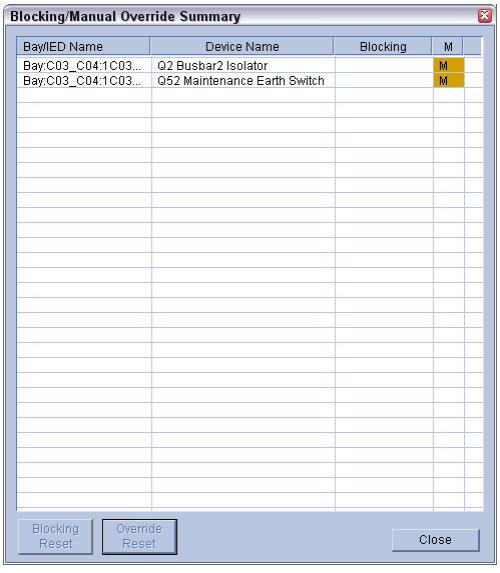
1) Click the “Information” button in the main menu bar.



2) The “Blocking/Manual Override Summary” dialog is displayed.



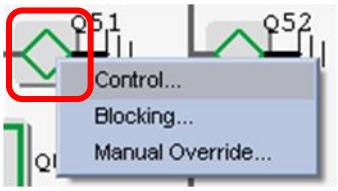
3) Select the row to reset manual override and click Override Reset.



4) The manual overriding of the selected row is reset.

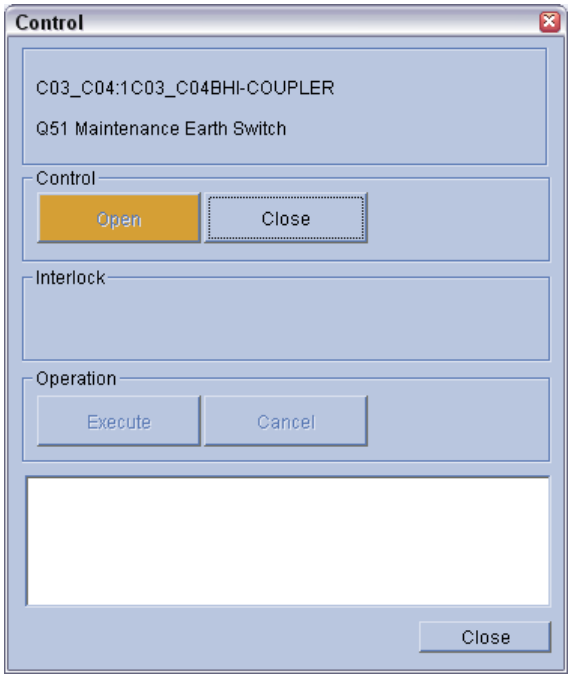
4.32 Closing a Device

How to close a device is indicated below.

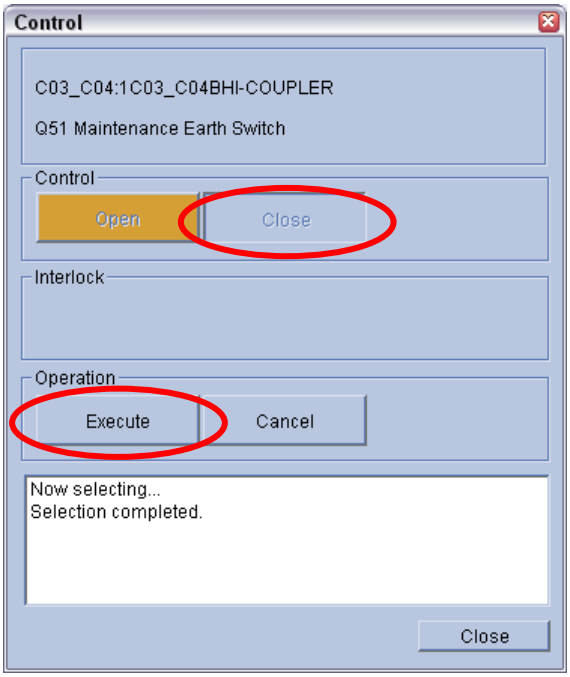


1) Click the device symbol on the bay single line diagram.

   Or, select “Control” from the context menu displayed by right-clicking the device symbol.

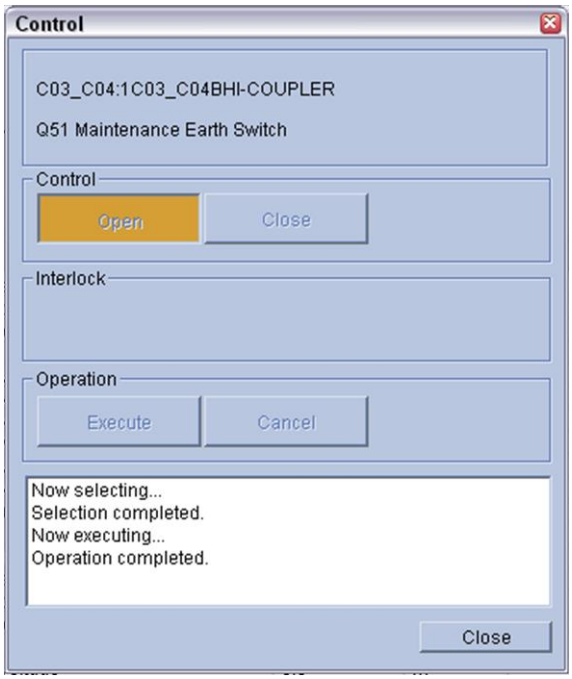


2) The “Control” dialog opens.

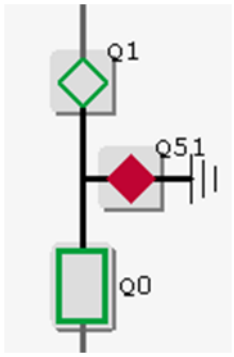


3) Click Close in the “Control” area.
   The clicked button changes to ON status. (shown as a depressed button)

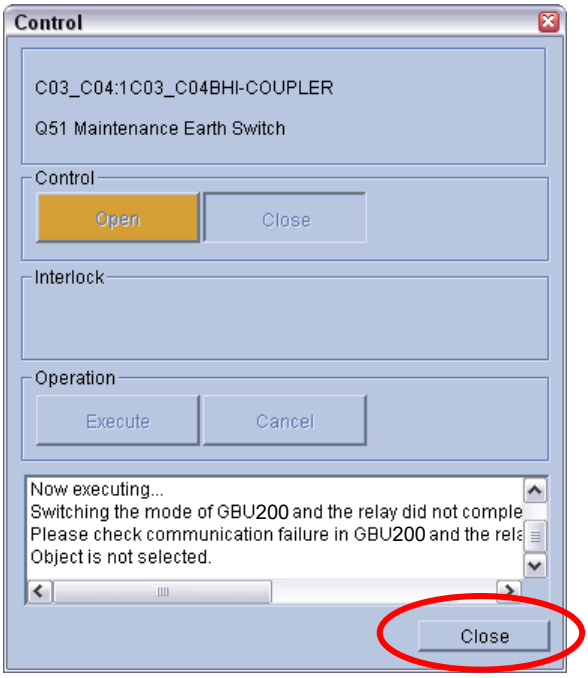
   Selection command is sent to the BCU/BCPU.
   When device selection is completed, Execute becomes active.
   Click Execute.



4) Control command is sent to the BCU/BCPU.



5) When the control execution is completed successfully, the device symbol on the bay single line diagram changes to CLOSED status and the “Control” dialog is closed.



6) If the control fails, an error message is displayed in the “Control” dialog.

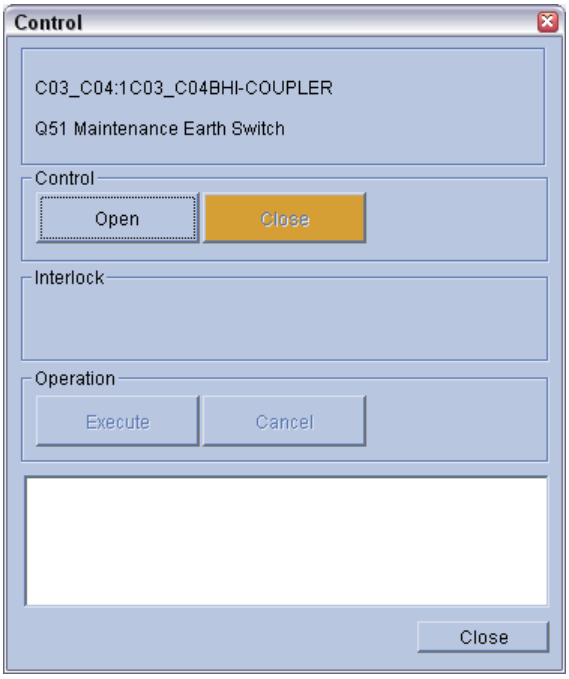
7) Check the error message and click Close to close the dialog.

4.33 Opening a Device

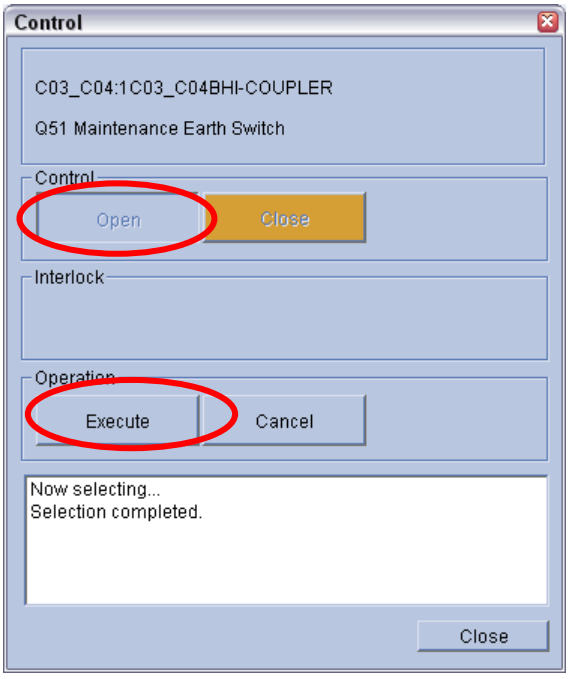
How to open a device is indicated below.



1) Click the device on the bay single line diagram or select “Control” from the context menu displayed by right-clicking the device.



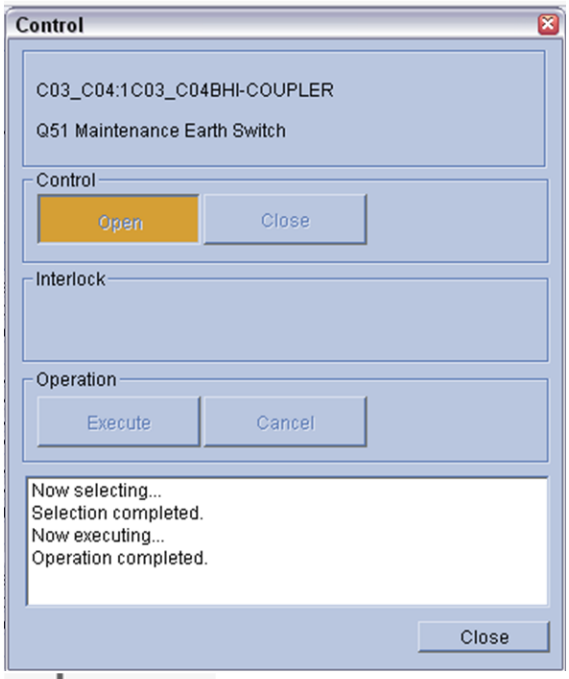
2) The “Control” dialog opens.



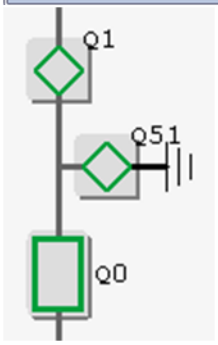
3) Click Open in the “Control area.
The clicked button changes to ON status. (displayed as a depressed button)

Selection command is sent to the BCU/BCPU. When device selection is completed, Execute becomes active.

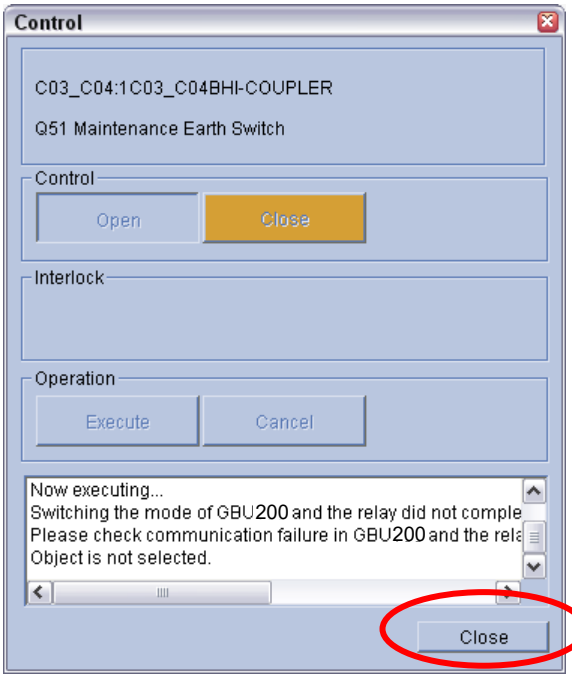
4) Click Execute.



5) Control command is sent to the BCU/BCPU.



6) When the control is completed successfully, the device symbol on the bay single line diagram changes to OPEN status and the “Control” dialog is closed.

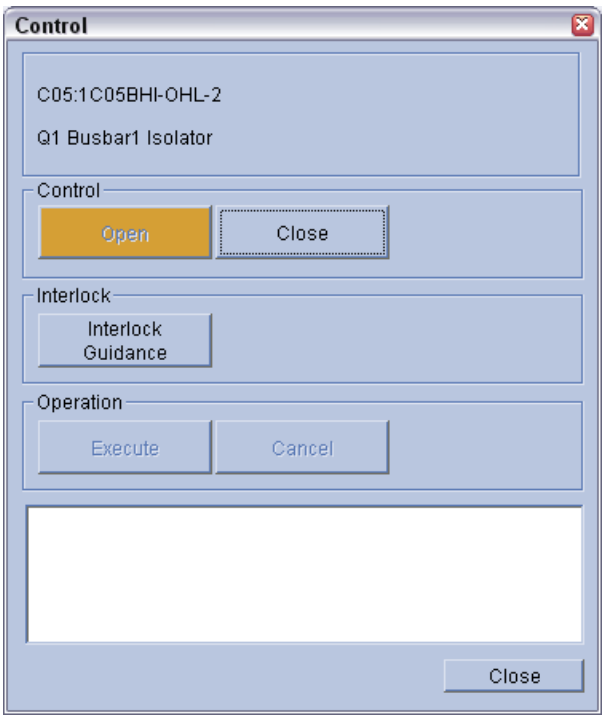


7) If the control fails, an error message is displayed in the “Control” dialog.

8) Check the error message and click Close to close the dialog.

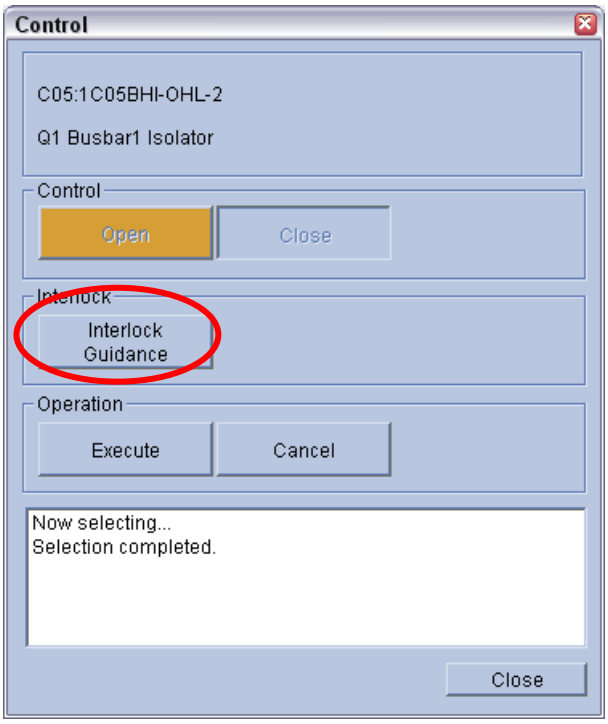
4.34 Displaying Interlock Guidance

How to display the “Interlock Guidance” dialog is indicated below.

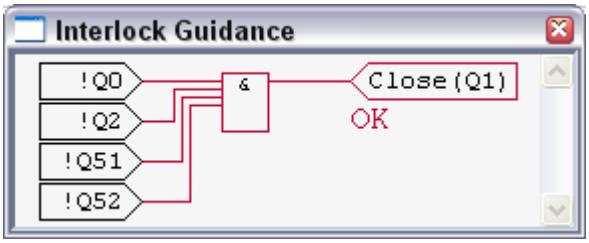


1) Select the control object on the bay single line diagram or click the row of a control object in the “Bay information” dialog.

The “Control” dialog opens.



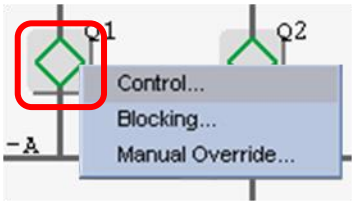
2) Click Interlock Guidance.



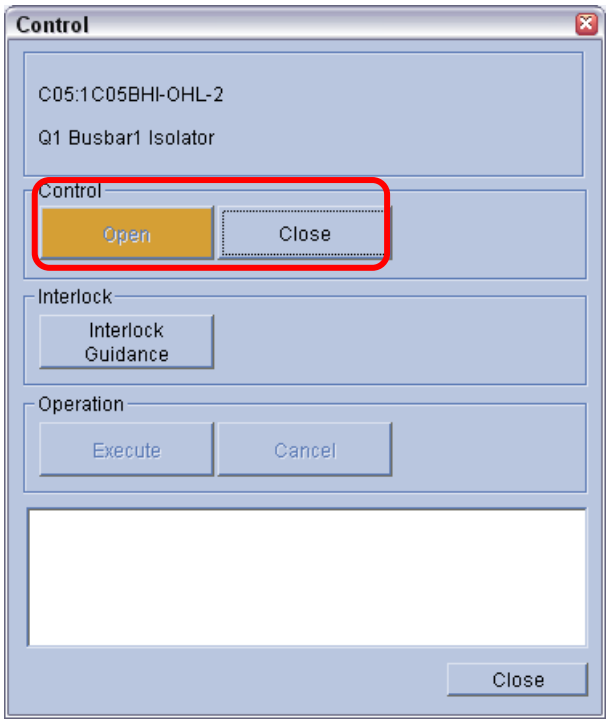
3) The “Interlock Guidance” dialog is opened.

4.35 Controlling a Device by Bypassing Interlocking

How to control a device by bypassing interlocking is indicated below.

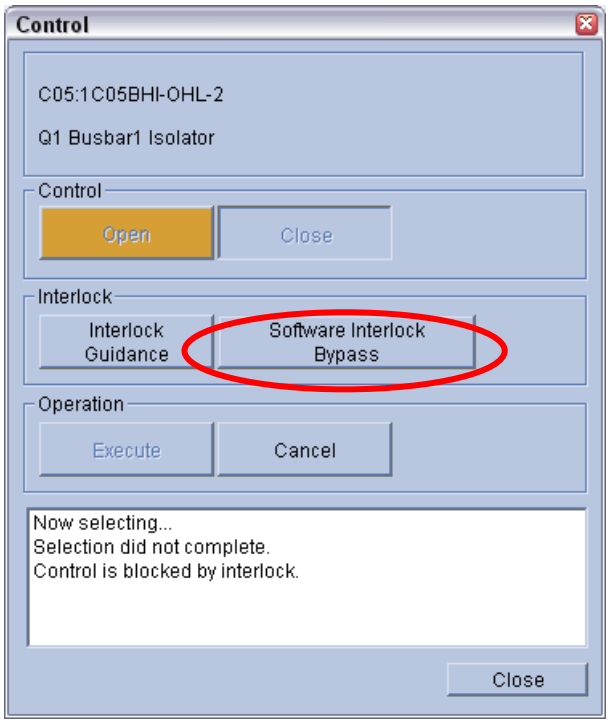


1) Click the device symbol on the bay single line diagram or select “Control” from the context menu displayed by right-clicking the symbol.



2) The “Control” dialog opens.

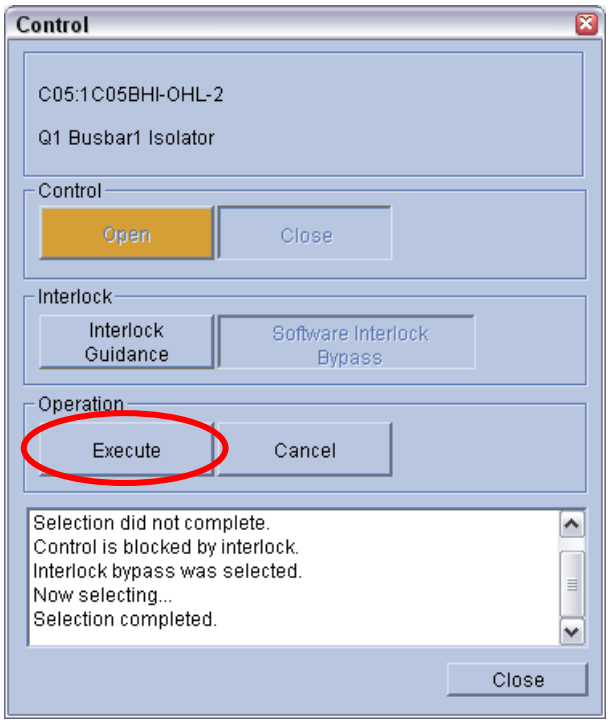
3) Click Open or Close in the “Control” area. Selection command is sent to BCU/BCPU.



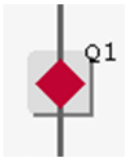
4) If the Interlock condition is not satisfied, the message is displayed.
Software Interlock Bypass is displayed.

NOTE	Software Interlock Bypass is displayed only to the user with an authority for bypassing Interlock.

5) Click Software Interlock Bypass.



6) Execute becomes active.
Click Execute.
Control command is sent to the BCU/BCPU.

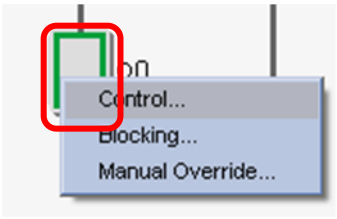


8) When the control is completed successfully, the device symbol on the bay single line diagram changes to SET status and the “Control” dialog is closed.

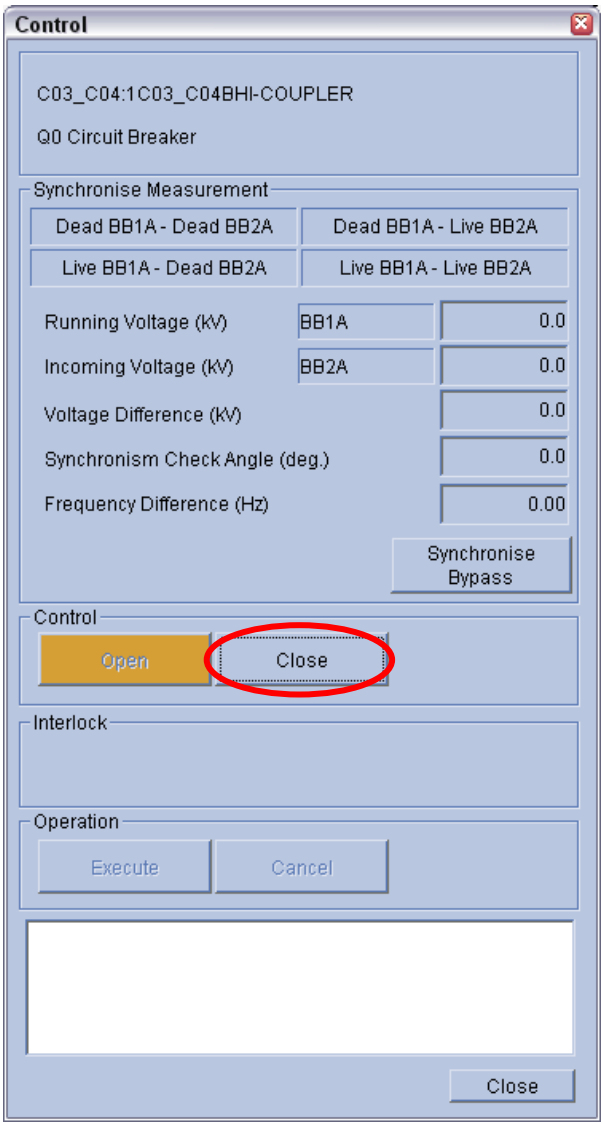
9) If the control fails, an error message is displayed in the “Control” dialog. Check the error message and click Close to close the dialog.

4.36 Closing a CB

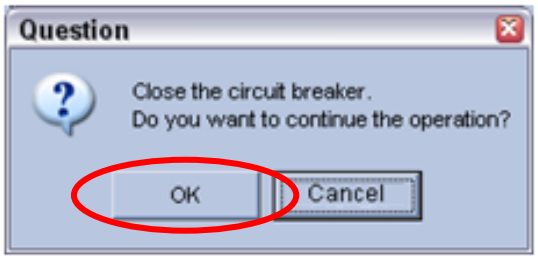
How to close a CB is indicated below.



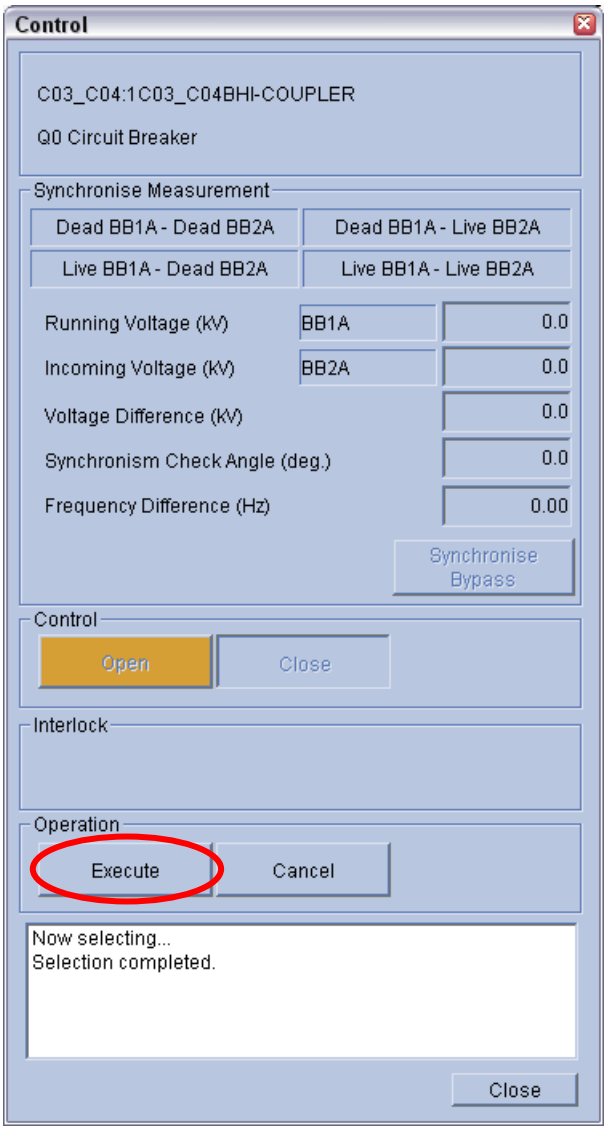
1) Click the symbol of a CB on the bay single line diagram or select “Control” from the context menu displayed by right-clicking the symbol of CB.



2) The “Control” dialog is displayed.
Click Close in the “Control” area.



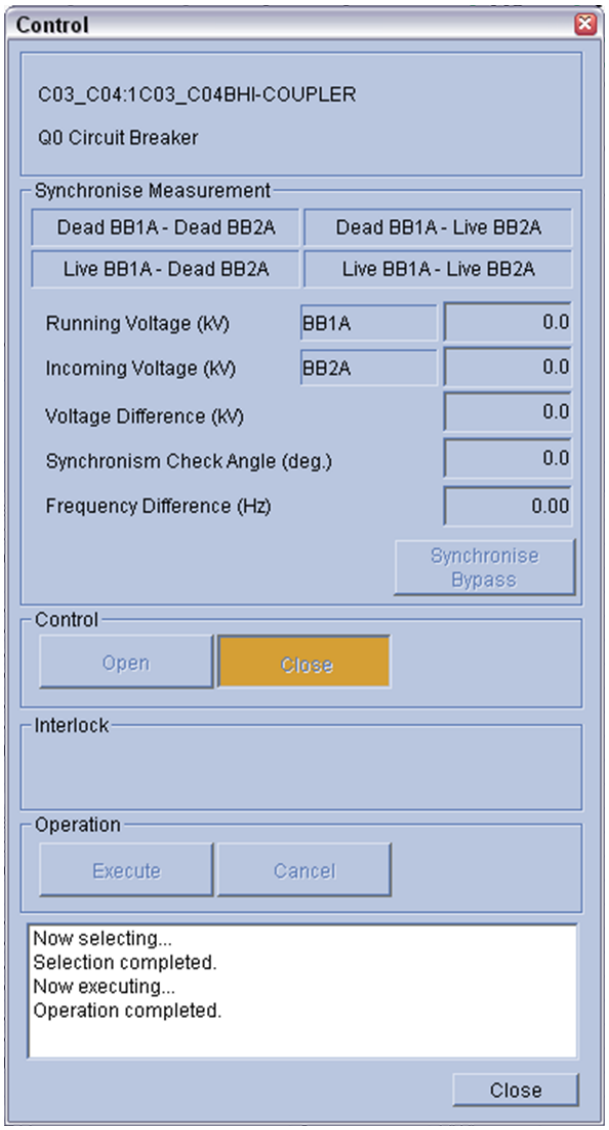
3) The conformation message is displayed. Click OK.

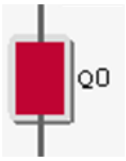


4) The clicked button changes to ON status. (displayed as a depressed button)

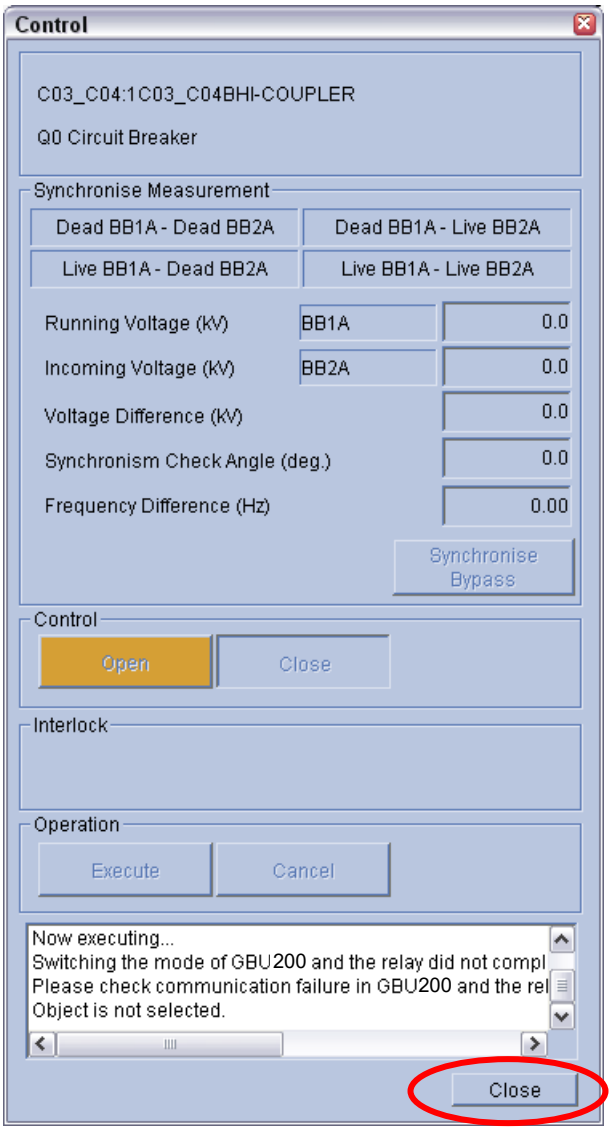
   Selection command is sent to the BCU/BCPU. When selection is completed, Execute becomes active.

5) Click Execute.
   Control command is sent to the BCU/BCPU.





6) When the closing is completed successfully, the CB symbol on the bay single line diagram changes to CLOSED status and the “Control” dialog is closed.

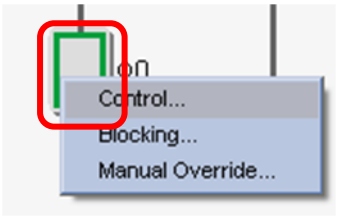


6) If the synchronized closing fails, an error message is displayed in the “Control” dialog.

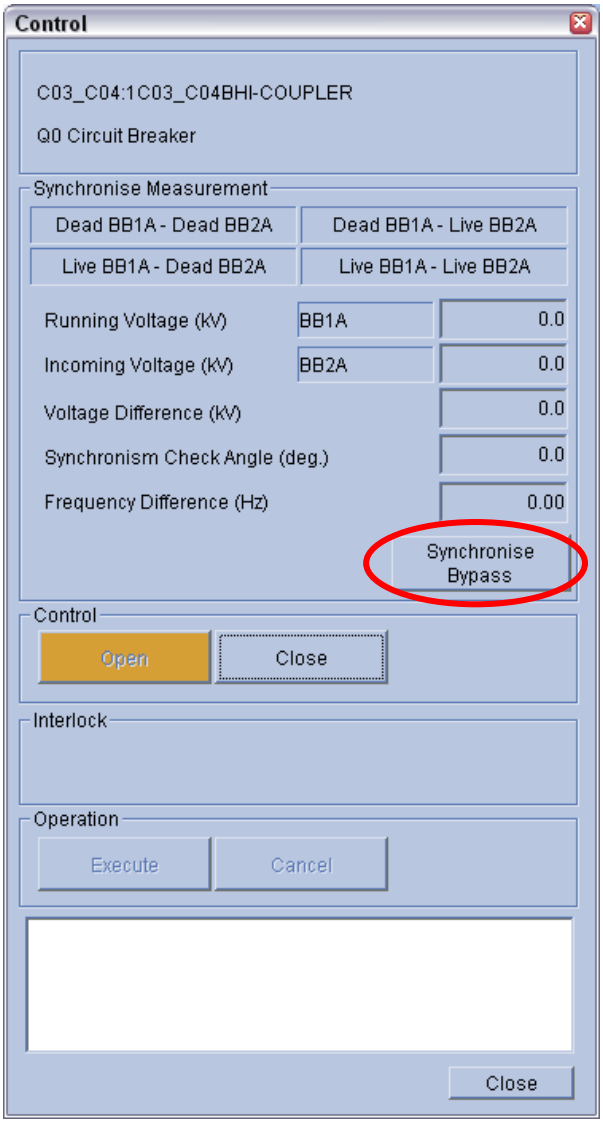
7) Check the error message and click Close to close the dialog.

4.37 Closing a CB by Bypassing the Synchronization

How to close a CB by bypassing synchronization is indicated below.

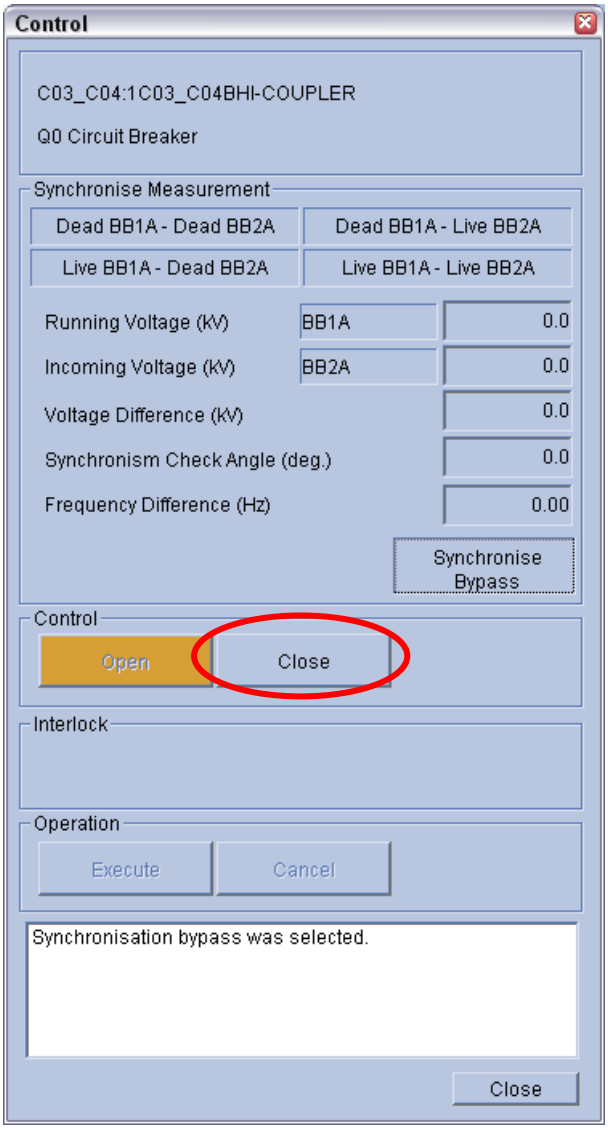


1) Click the symbol of a synchronous CB on the bay single line diagram or select “Control” from the context menu displayed by right-clicking the symbol of a synchronous CB.

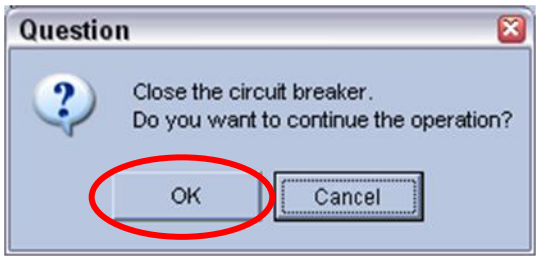


2) The “Control” dialog is displayed.

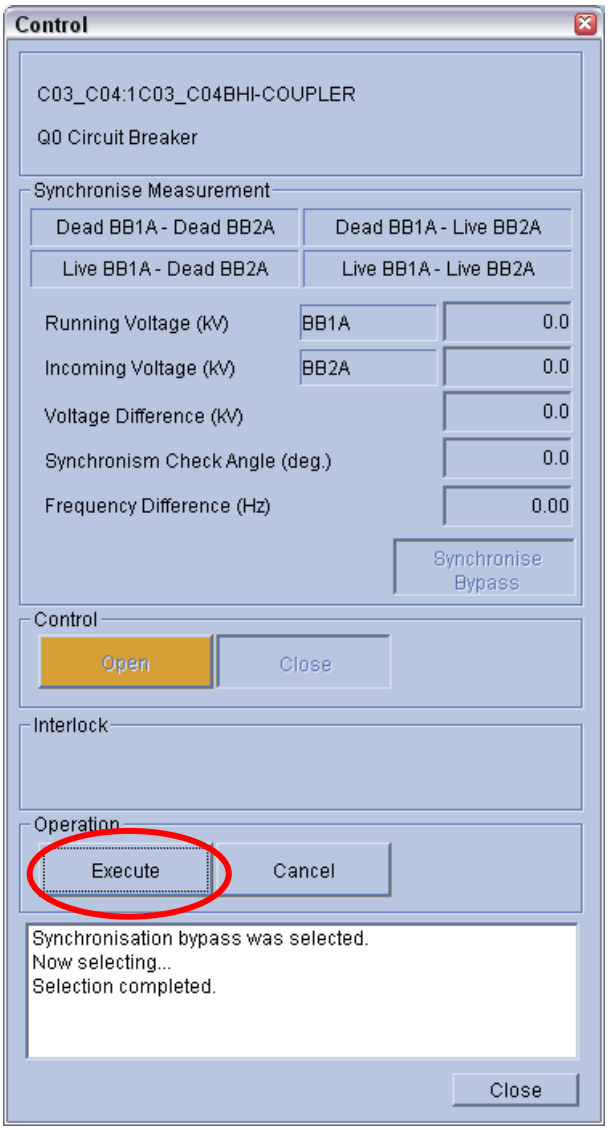
3) Click Synchronise Bypass.



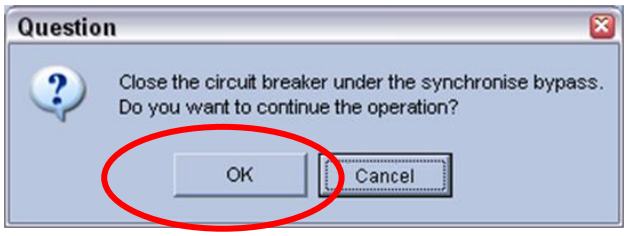
4) Click Close.



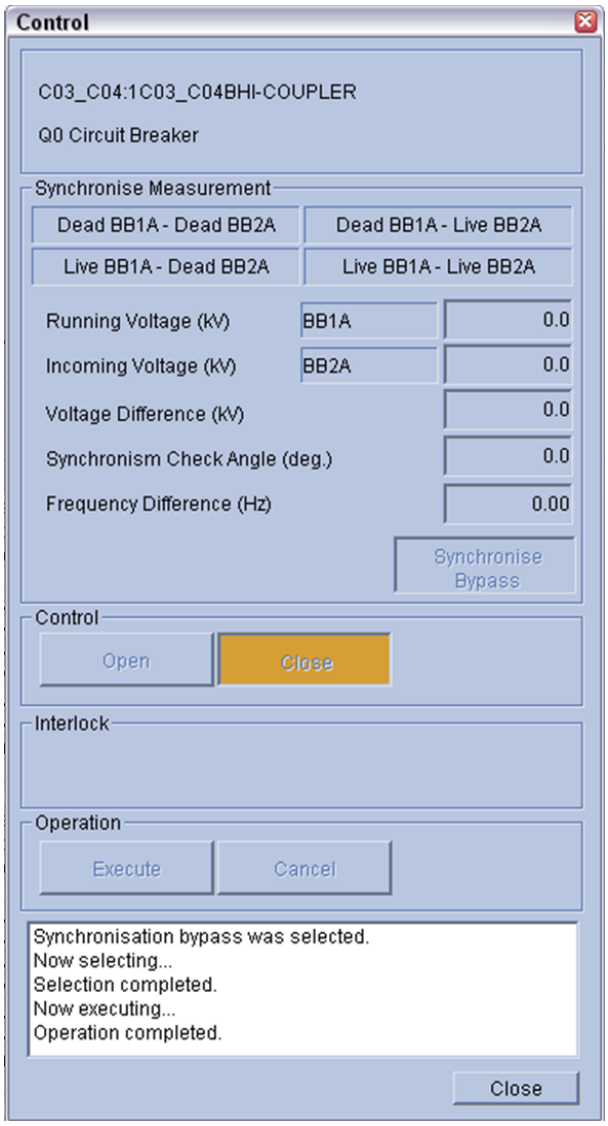
5) A confirmation message is displayed. Click OK.

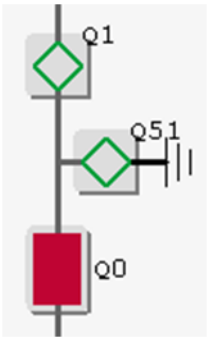


6) Selection command is sent to the BCU/BCPU. When device selection is completed, Execute becomes active.
Click Execute.

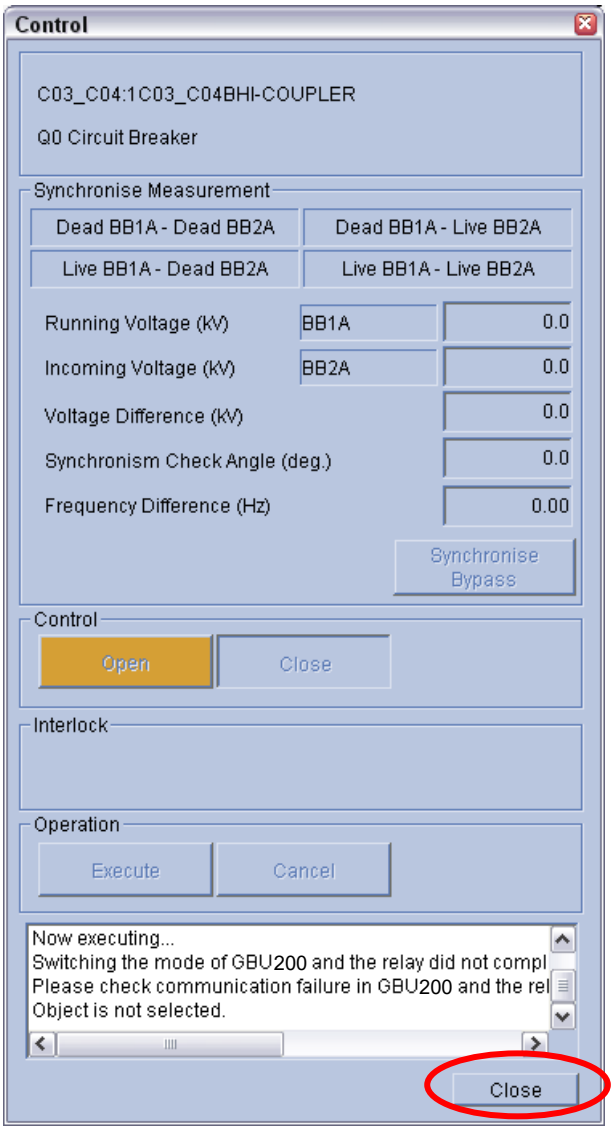


7) A confirmation message is displayed. Click OK.
Closing command is sent to the BCU/BCPU.





8) When the closing operation is completed successfully, the CB symbol on the bay single line diagram changes to CLOSED status and the “Control” dialog is closed.

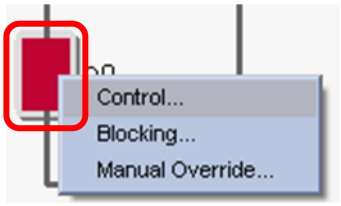


9) If the closing fails, an error message is displayed in the “Control” dialog.

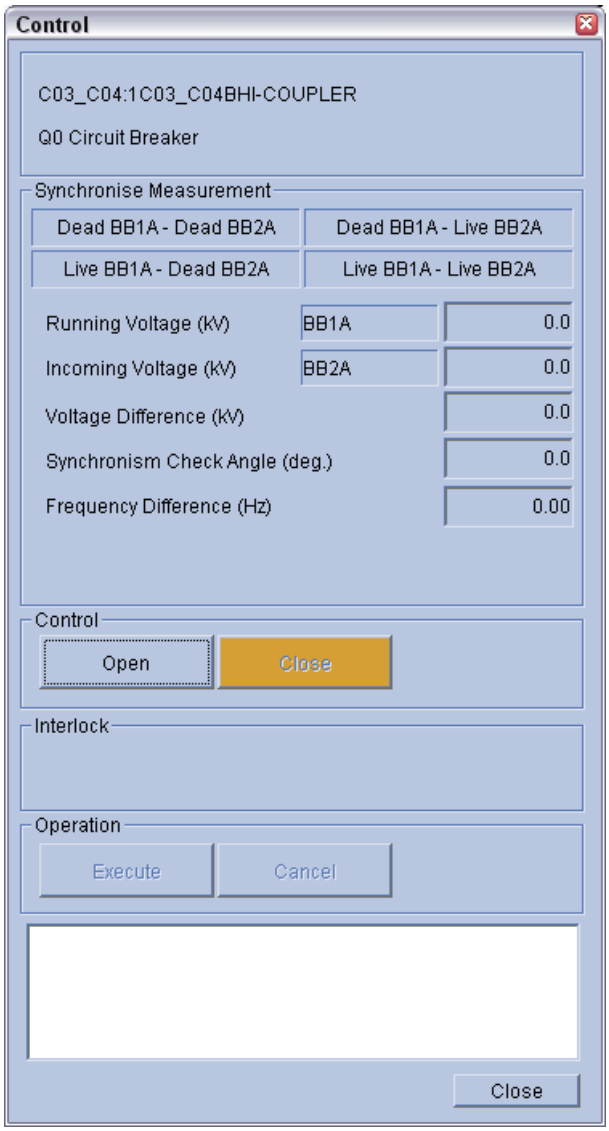
10) Check the error message and click Close to close the dialog.

4.38 Opening a CB

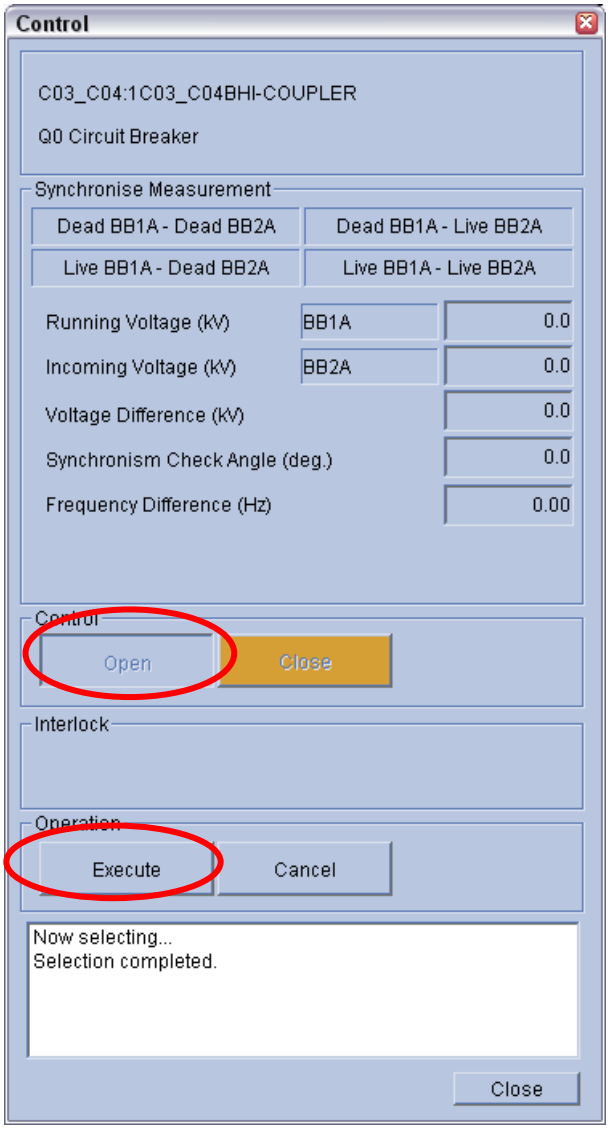
How to open a synchronous CB is indicated below.



1) Click the symbol of a CB on the bay single line diagram or select “Control” from the context menu displayed by right -clicking the symbol of a CB.



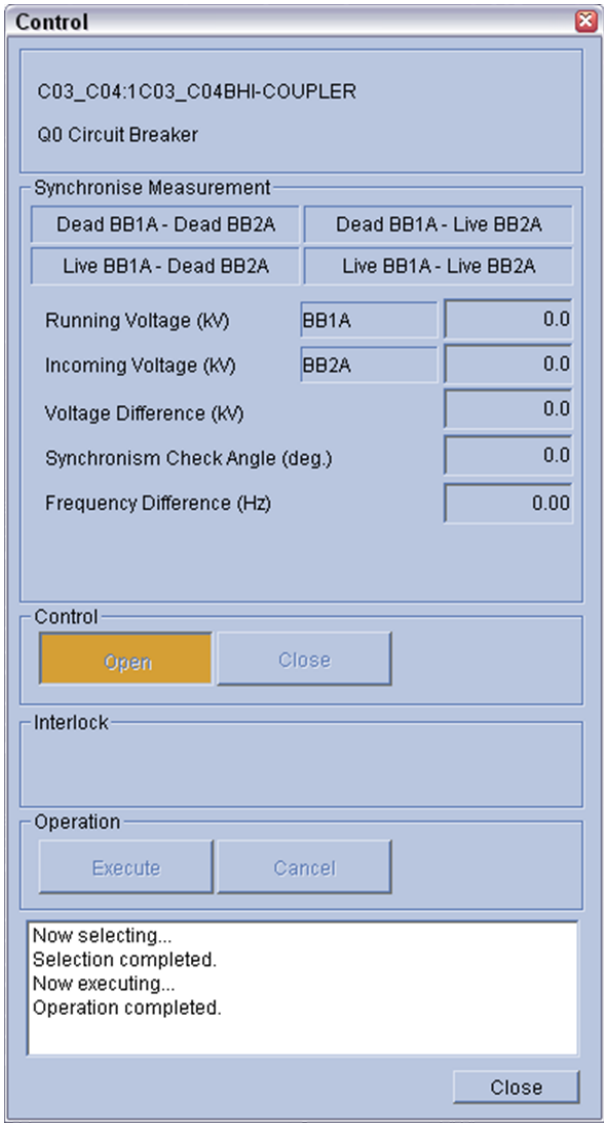
2) The “Control” dialog is displayed.

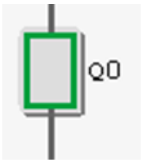


3) Click Open.
The clicked button changes to ON status. (displayed as a depressed button)

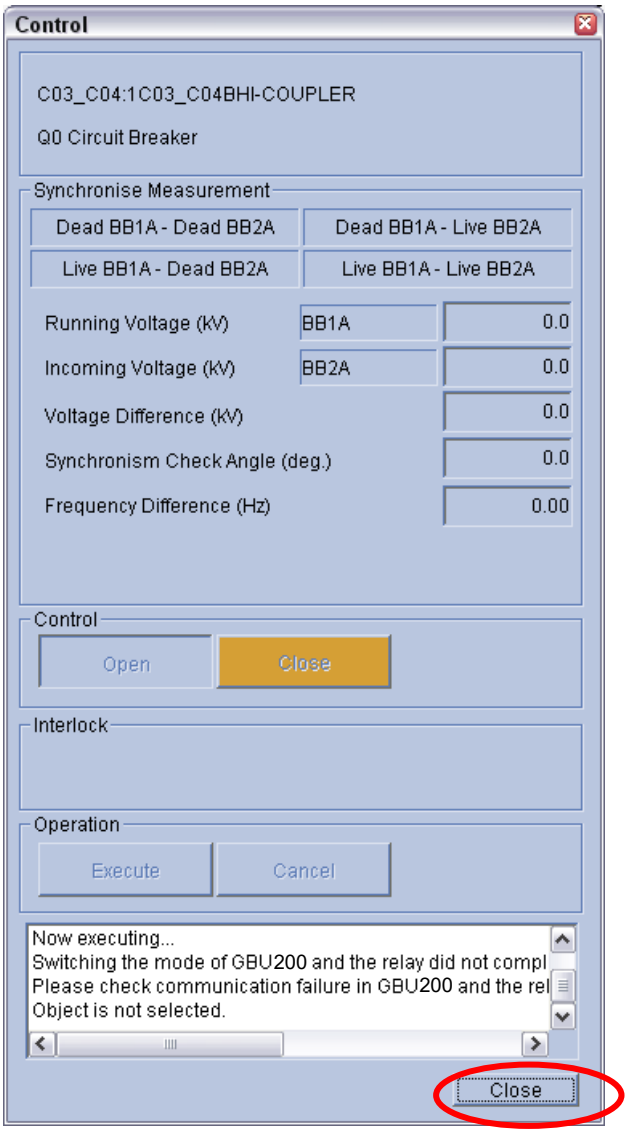
Selection command is sent to the BCU/BCPU. When selection is completed, Execute becomes active.

4) Click Execute.
Opening command is sent to the BCU/BCPU.





5) When opening is completed successfully, the CB symbol on the bay single line diagram changes to OPEN status and the “Control” dialog is closed.

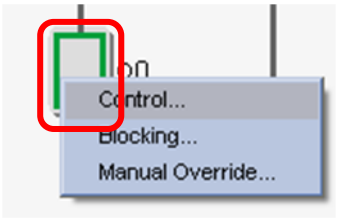


6) If the open operation fails, an error message is displayed in the “Control” dialog.

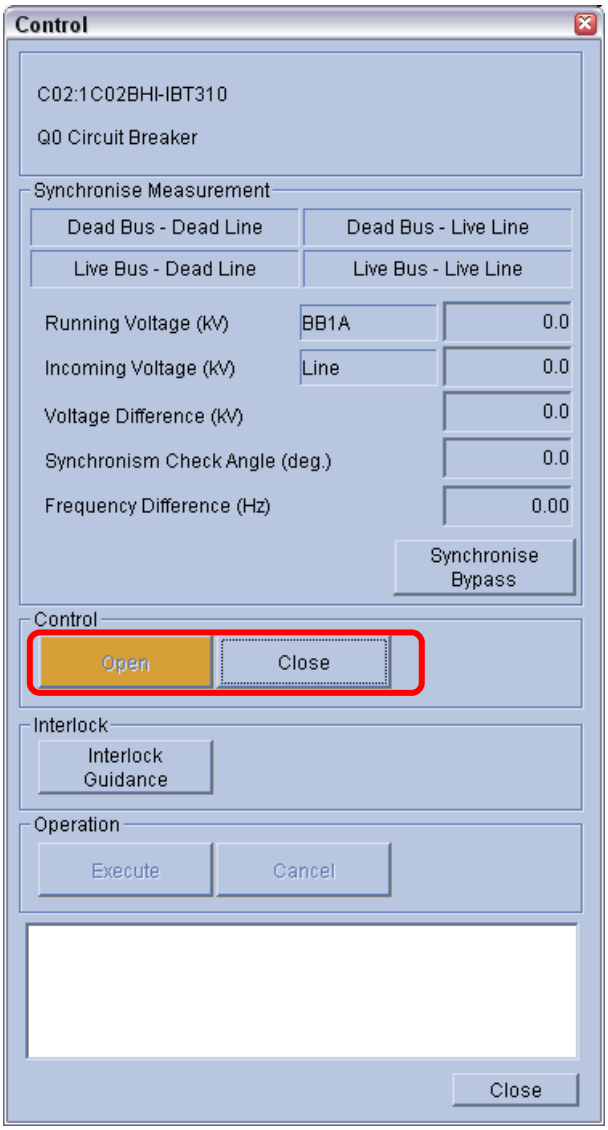
7) Check the error message and click Close to close the dialog.

4.39 Controlling a CB by Bypassing Interlocking

How to control a synchronous CB by bypassing Interlocking is indicated below.

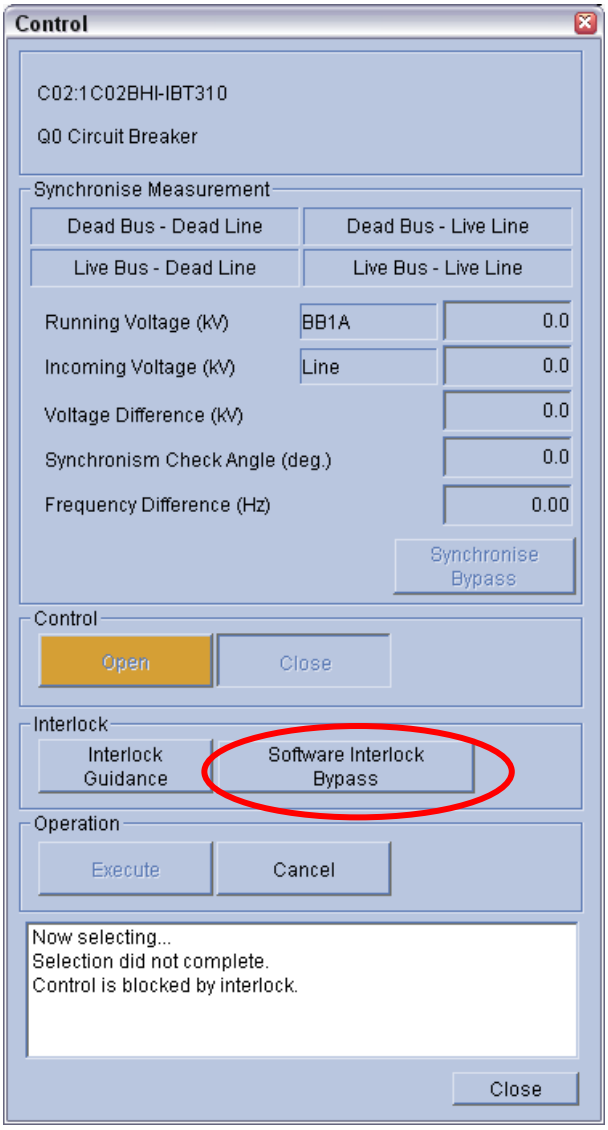


1) Click the symbol of a CB on the bay single line diagram or select “Control” from the context menu displayed by right-clicking the symbol of a CB.



2) The “Control” dialog is displayed.

3) . Click Open or Close in the “Control” area .



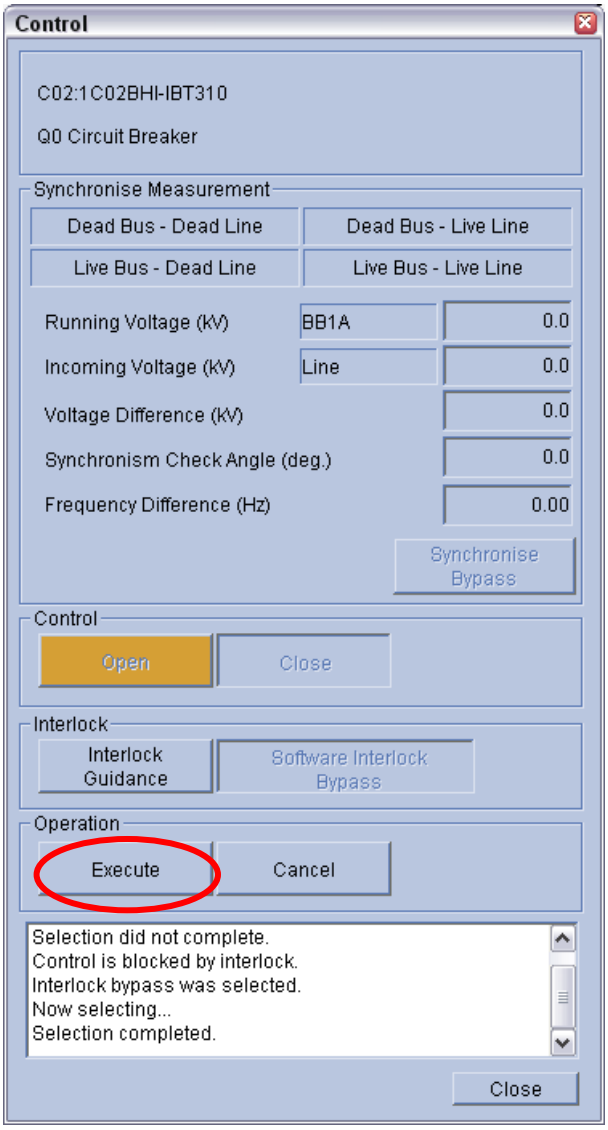
4) If the Interlocking condition is not satisfied, the message and Software Interlock Bypass are displayed.

NOTE	Software Interlock Bypass is displayed only to the user with an authority for bypassing Interlock.

5) Click Software Interlock Bypass.

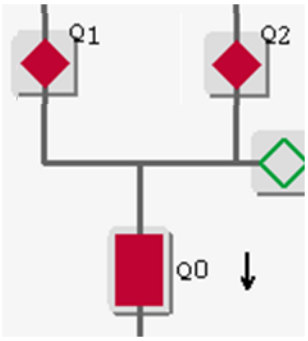
6) The confirmation message is displayed.
Click OK.

7) Selection command is sent to the BCU/BCPU.



8) When device selection is completed, Execute becomes active.
Click Execute.

9) The confirmation message is displayed.
Click OK.
Control command is sent to the BCU/BCPU.

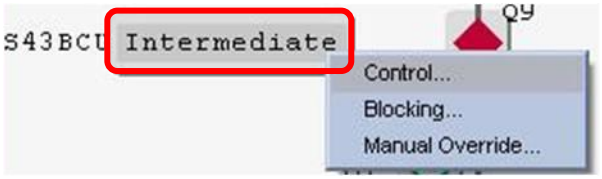


10) When the control is completed successfully, the status of device symbol on the bay single line diagram is updated and the “Control” dialog is closed.

11) If the control fails, an error message is displayed in the “Control” dialog.
Check the error message and click Close to close the dialog.

4.40 Controlling Local/Remote Control Right Selection Switch

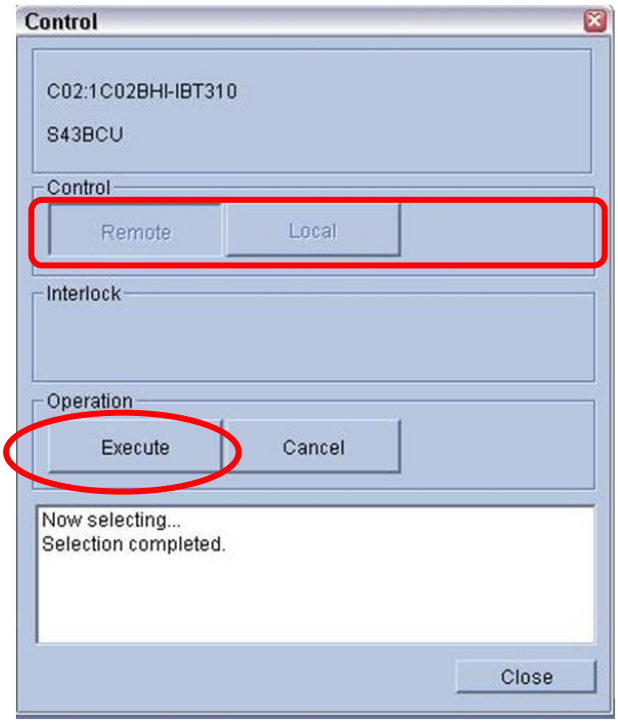
How to control Local/Remote control right selection switch is indicated below.



1) Click the symbol of a switch on the bay single line diagram or select “Control” from the context menu displayed by right-clicking the switch symbol.



2) The “Control” dialog is displayed.



3) Select the button from “Control” section.
(The name of the buttons varies depending on the switch.)

Selection command is sent to the BCU/BCPU. When device selection is completed, Execute becomes active.

4) Click Execute.

Control command is sent to the BCU/BCPU.



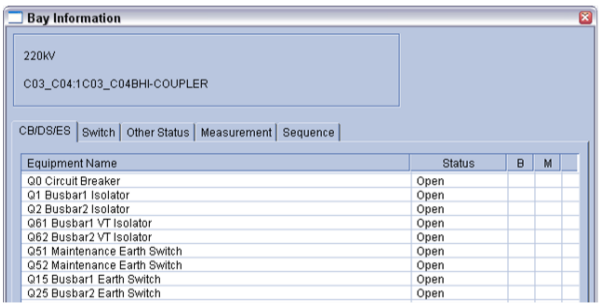


5) When the control is completed successfully, the switch symbol on the bay single line diagram becomes SET status and the “Control” dialog is closed.

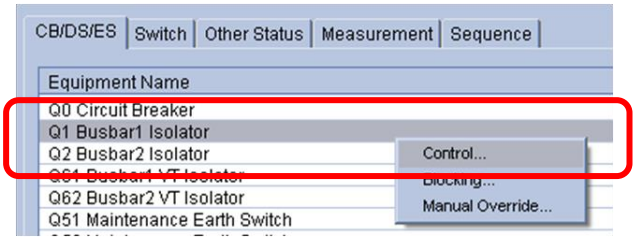
6) If the control fails, an error message is displayed in the “Control” dialog.
Check the error message and click Close to close the dialog.

4.41 Controlling from the Bay Information Dialog

How to control from the “Bay Information” dialog is indicated below.

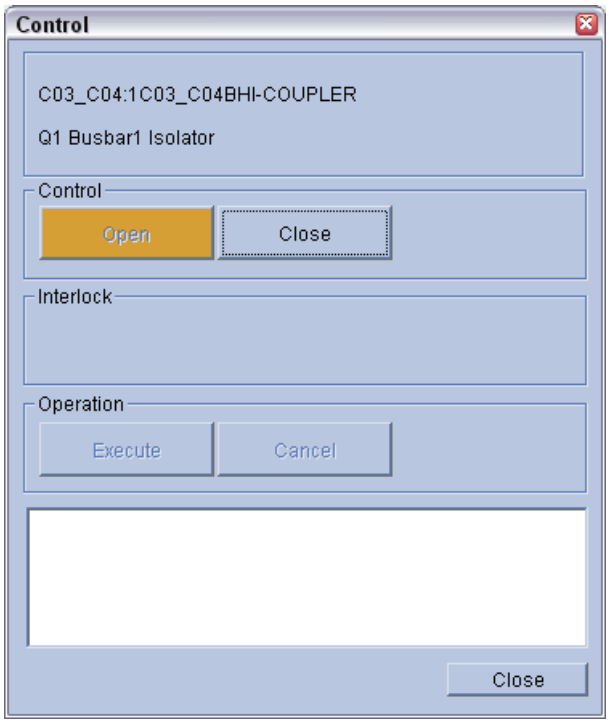


1) Display the “Bay Information” dialog by clicking the bay name on the single line diagram.
The list showing the status of control objects is displayed.



2) Click the row of a control object.

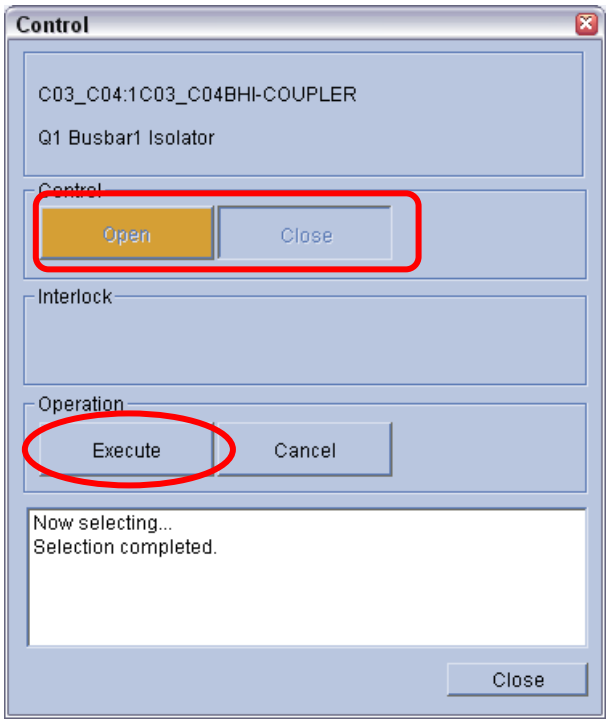
3) Right-click the object. Select “Control” from the displayed the context menu.



4) The “Control” dialog is displayed.

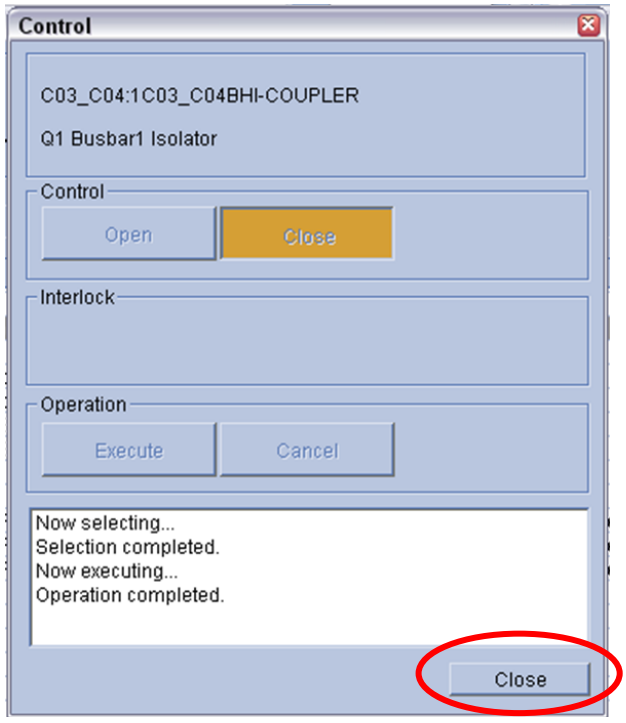
5) Click Open or Close in the “Control” area.

Selection command is sent to the BCU/BCPU. When device selection is completed, Execute becomes active.

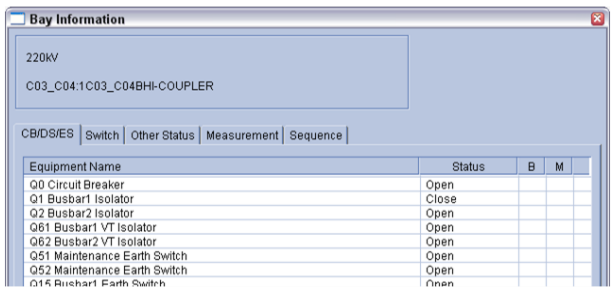


6) Click Execute.

Control command is sent to the BCU/BCPU.



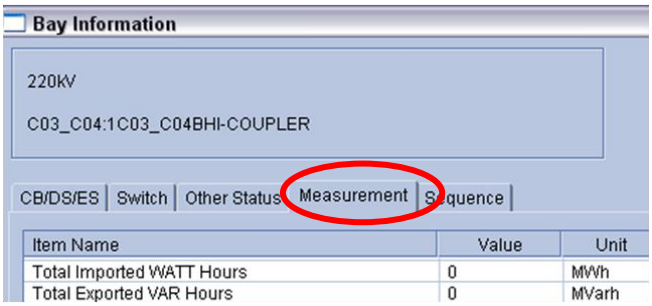
7) When the control is completed successfully, the “Control” dialog is closed and the “Bay Information” dialog is updated.



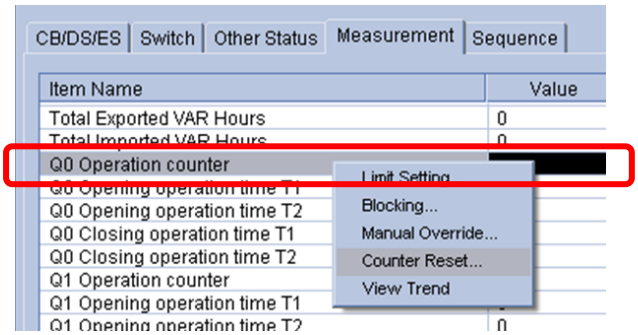
8) If the control fails, an error message is displayed in the “Control” dialog.
Check the error message and click Close to close “Control” dialog.

4.42 Resetting (Changing) a Counter value

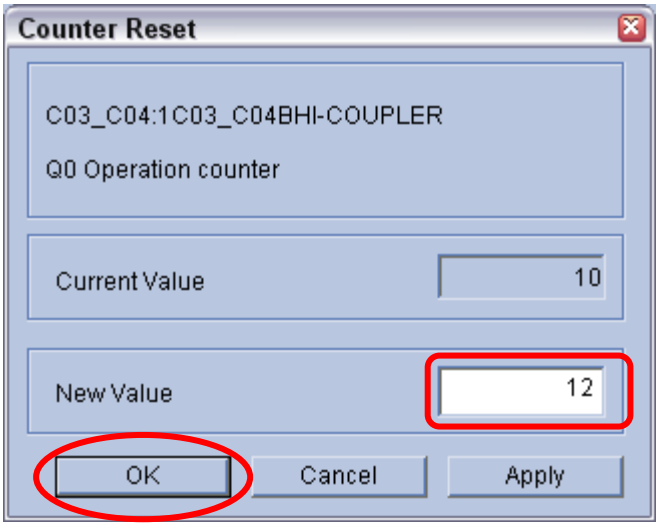
How to reset (change) a counter value from the “Bay Information” dialog is indicated below.



1) Click the bay name on the single line diagram. The “Bay Information” dialog is displayed.
Click the “Measurement” tab.
A list of counters is displayed.

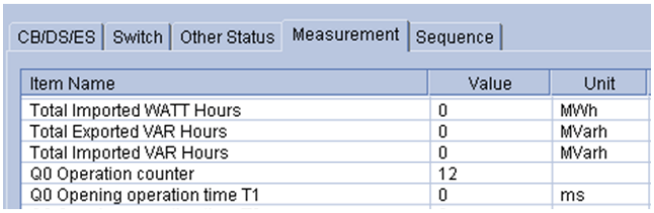


2) Click the row of the counter you want to reset (change) the value.
Right-click the row and select “Counter Reset” in the displayed menu.



4) The “Counter Reset” dialog is displayed.

5) Input new counter value.
Click OK.



6) When the control is completed successfully, the “Counter Reset” dialog is closed and the counter value in the “Measurement” tab is updated.

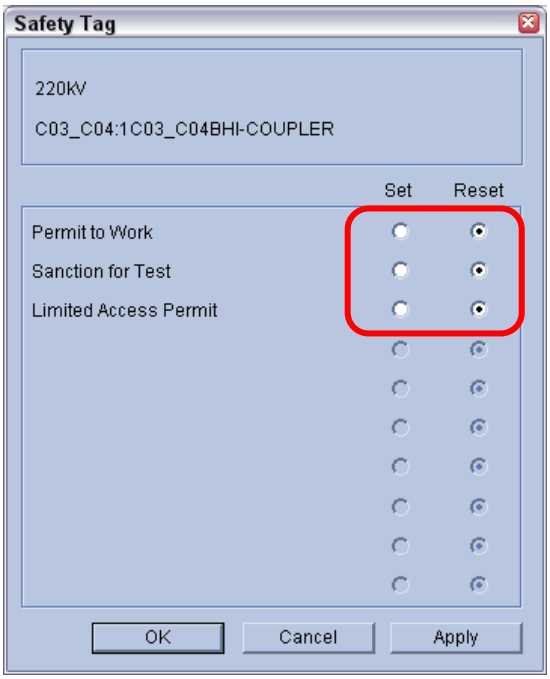
4.43 Setting the Safety Tag

How to set the safety tag is indicated below.

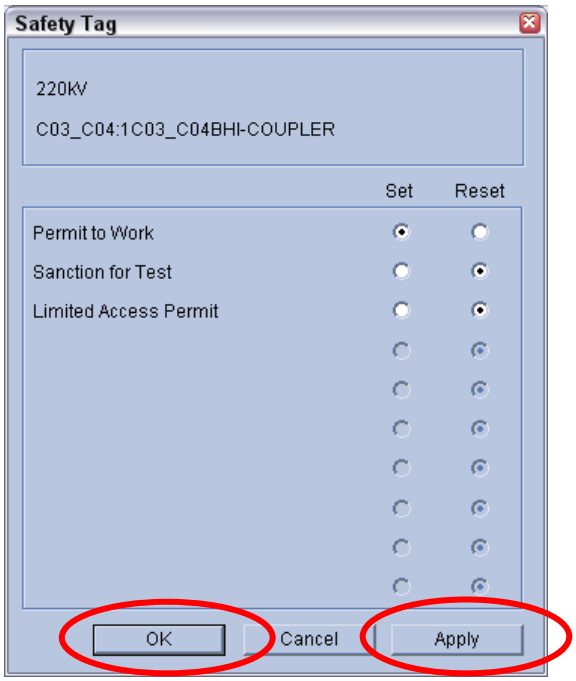


1) Right-click the bay name on the bay single line diagram to display the context menu.

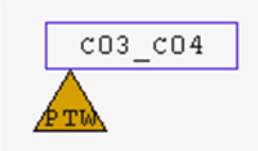
2) Select “Safety Tag” from the context menu.



3) The “Safety Tag” dialog is displayed.
Click a radio button to change the setting.



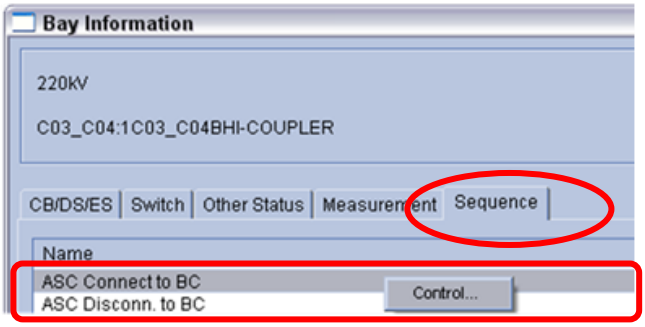
4) Click OK or Apply.



5) A symbol of Safety Tag is displayed close to the bay name.
Symbol: PTW = Permit to Work
Symbol: SET= Sanction for Test
Symbol: LAP = Limited Access

4.44 Start or Stop Sequence Control

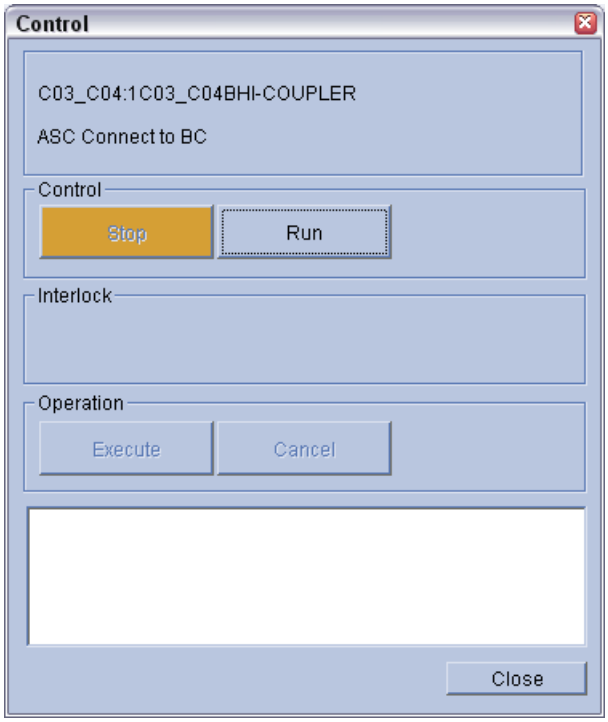
How to start or stop sequence control is indicated below.



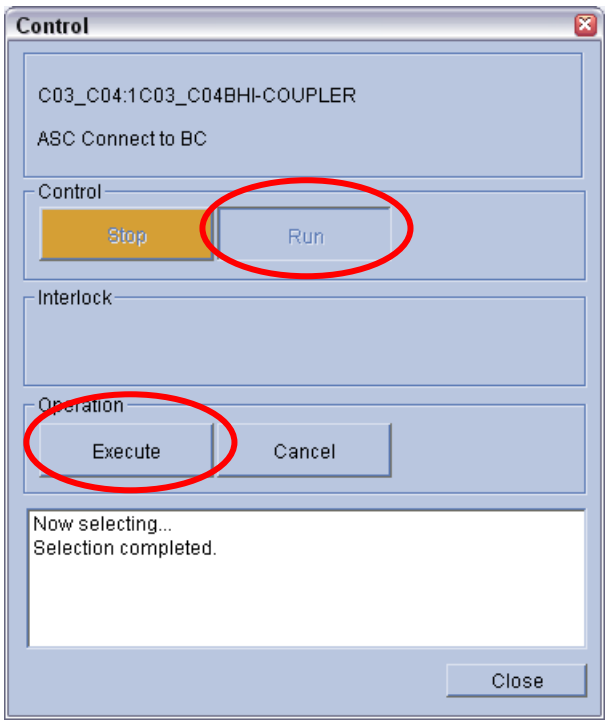
1) Click the bay name on the bay single line diagram.
The “Bay Information” dialog is displayed.

2) Click the “Sequence” tab.
A list of sequence control operations is displayed.

3) Right-click the name of the sequence control operation.
Select “Control” from the displayed context menu.



4) The “Control” dialog is displayed.



5) Click Run or Stop in the "Control" area.
The selected button changes to ON status. (displayed as a depressed button)

Selection command is sent to the BCU/BCPU.

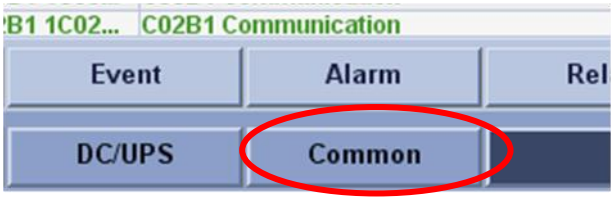
6) When device selection is completed, the Execute becomes active.
Click Execute.



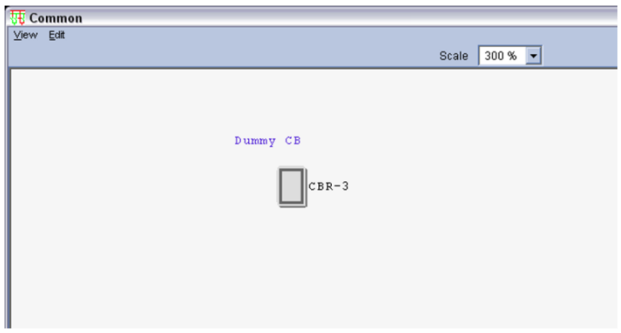
7) Sequence control is started or stopped.
When the sequence control is completed, the "Control" dialog is closed.

4.45 Displaying Common Window to Control Dummy Circuit Breaker

How to display the “Common” window from the main menu bar to control a dummy circuit breaker is indicated below.



1) Click Common in the main menu bar.

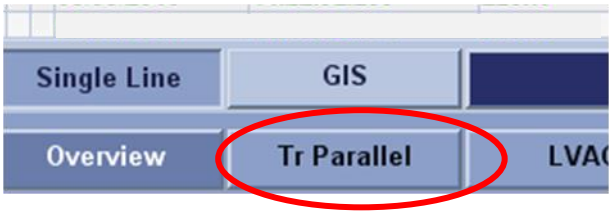


2) The “Common” window is displayed.

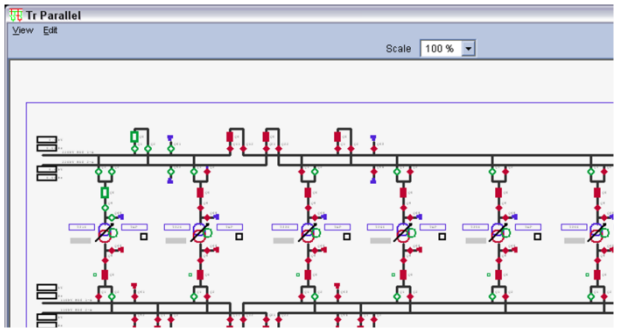
The controlling operation is same with the operation for a device.

4.46 Displaying Transformer Parallel Window

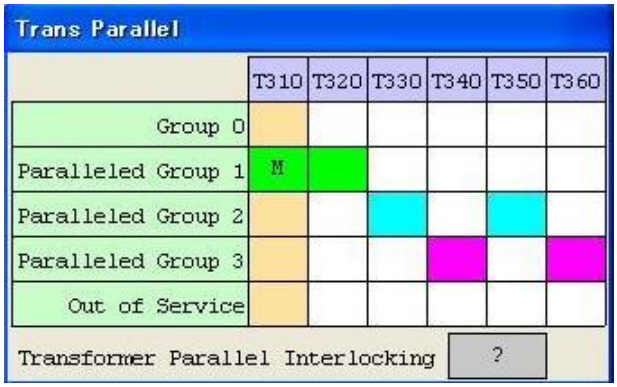
How to display “Tr Parallel“(transformer parallel) window from the main menu bar is indicated below.



1) Click Tr Parallel in the main menu bar.



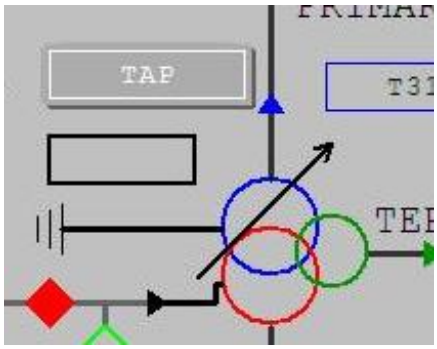
2) The “Tr Parallel” window is displayed.



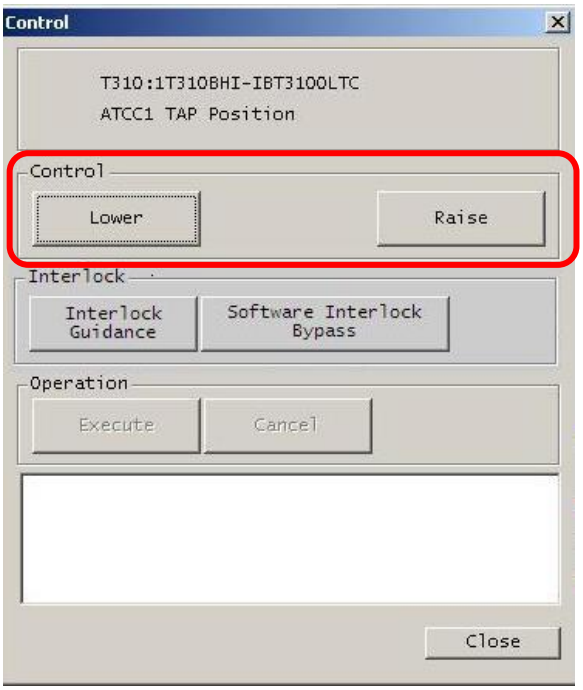
3) The small “Trans Parallel” window showing the paralleled group and transformer Interlocking status is also displayed.
(Refer to section 6. 5.7 for the details.)

4.47 Raising /Lowering a Tap

How to raise/lower a tap is indicated below.



1) Click the "TAP" label on the “Trans Parallel” window or select “Control” from the context menu displayed by right-clicking the “TAP” label.



2) The “Control” dialog is displayed.
(If the Interlock condition is set, Interlock Guidance is displayed.)

3) Click Lower or Raise.
The clicked button changes to ON status (displayed as a depressed button.

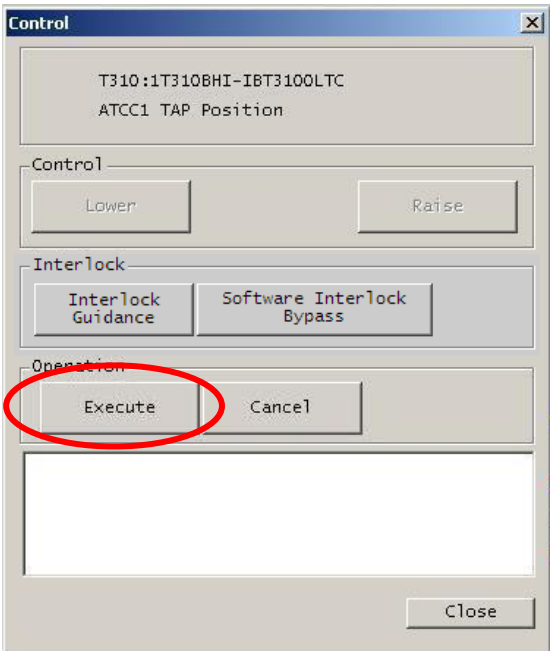
4) If the Interlocking condition is not satisfied, the message and Software Interlock Bypass are displayed.

NOTE	Software Interlock Bypass is displayed only to the user with an authority for bypassing Interlock.

5) Click Software Interlock Bypass.

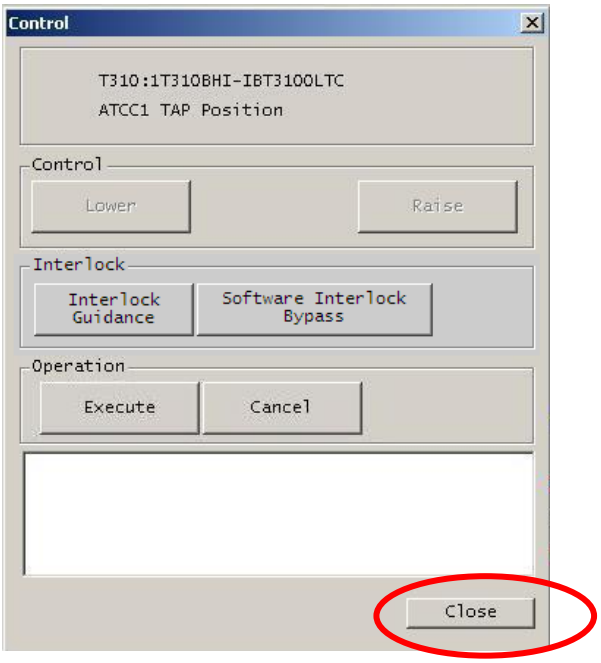
The confirmation message is displayed.
Click OK.

Selection command is sent to the BCU/BCPU.



6) When device selection is completed, Execute becomes active.
Click Execute.
Control command is sent to the BCU/BCPU.

7) To carry out another tap operation, click Execute repeatedly.



8) If the control fails, an error message is displayed in the “Control” dialog.

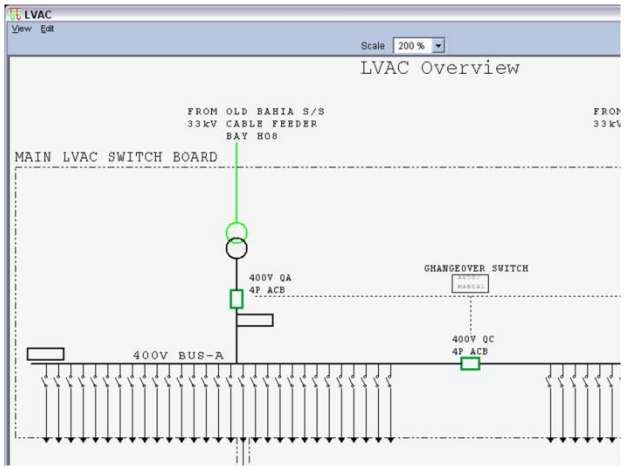
9) After the operation is completed, click Close to close the “Control” dialog.

4.48 Displaying LVAC Window

How to display the “LVAC” window from the main menu bar is indicated below.



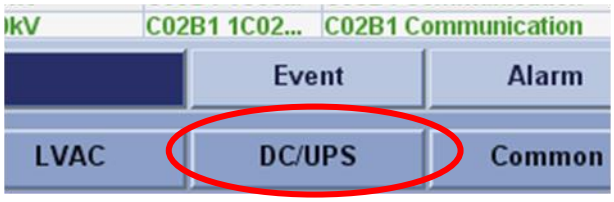
1) Click LVAC in the main menu bar.



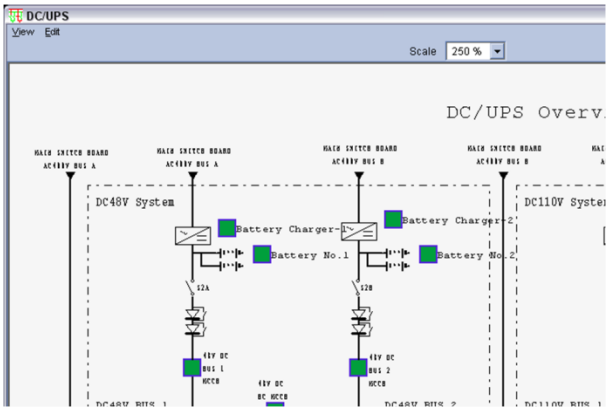
2) The “LVAC” window is displayed.

4.49 Displaying DC/UPS Window

How to display the “DC/UPS” window from the main menu bar is indicated below.



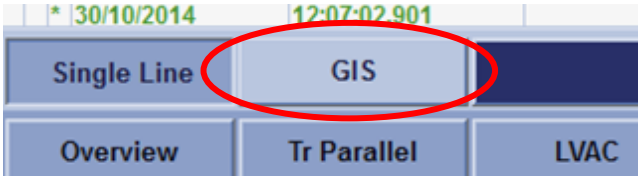
1) Click DC/UPS in the main menu bar.



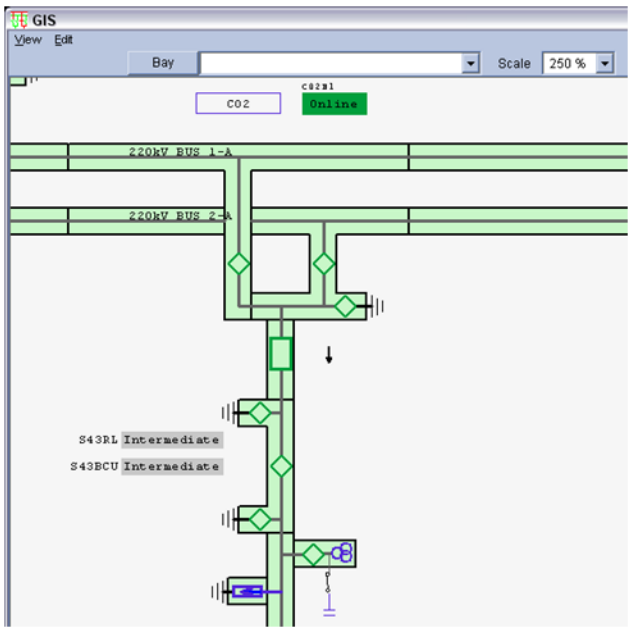
2) The “DC/UPS” window is displayed.

4.50 Displaying GIS Window

How to display the “GIS” window from the main menu bar is indicated below.



1) Click GIS in the duty buttons in the main menu bar.



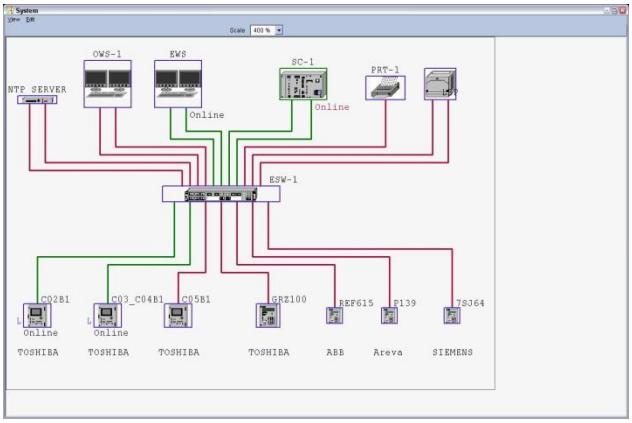
2) he “GIS” window is displayed.

4.51 Displaying the System Window

How to display the “System” window for systems monitoring from the main menu bar is indicated below.



1) Click System in the main menu bar.



2) The “System” window is displayed.

Refer to section 6.11.4 and Appendix C for the principal causes and their remedies of system failure displayed on the window.

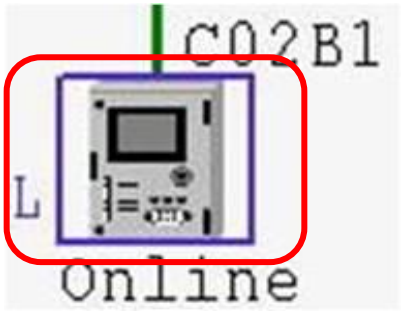
Note that the LAN between ESW and EWS is not the object of system monitoring.

4.52 Displaying the Detailed Status of an IED

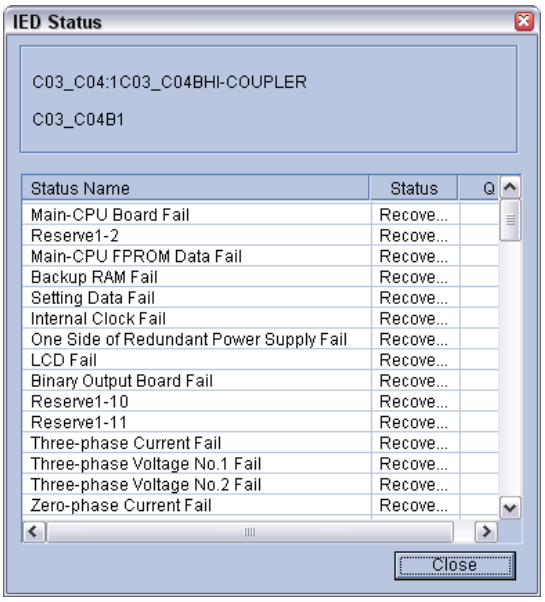
How to display the detailed status of an IED is indicated below.



1) Click System in the main menu bar to display the “System” window.



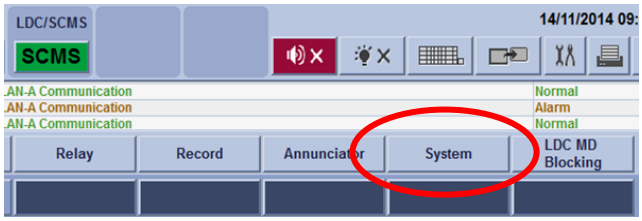
2) Click the IED symbol.



3) The “IED Status” dialog is displayed.

4.53 Changing IED Mode (Online/Test)

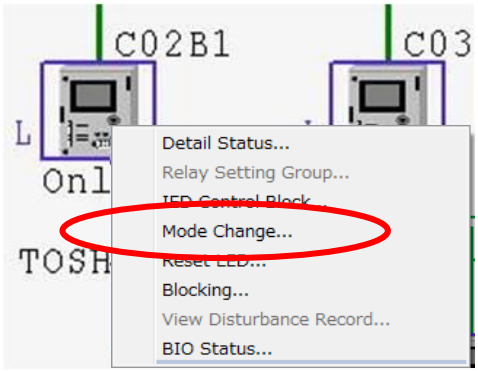
How to change the IED mode (Online/Test) is indicated below.



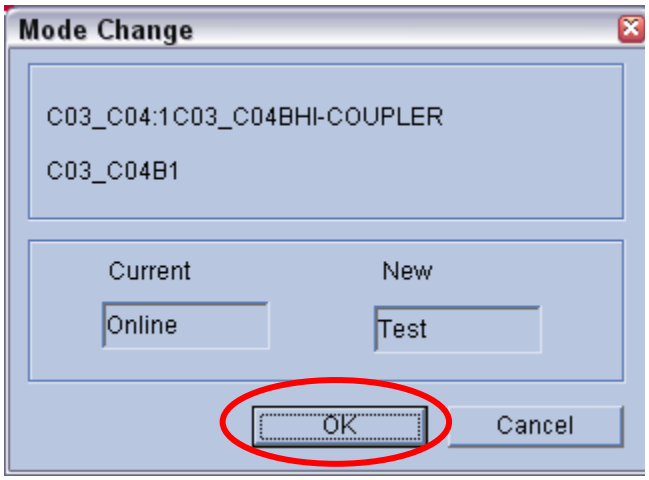
1) Click System in the main menu bar to display the “System” window.



2) Identify the IED whose mode is to be changed.

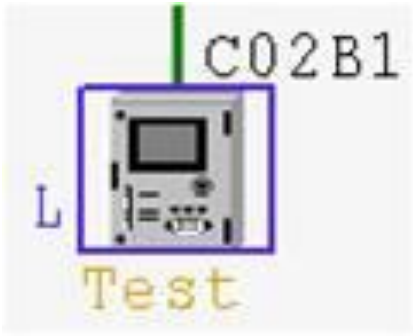


3) Right-click the IED symbol and select “Mode Change” from the displayed context menu.



The “Mode Change” dialog is displayed.

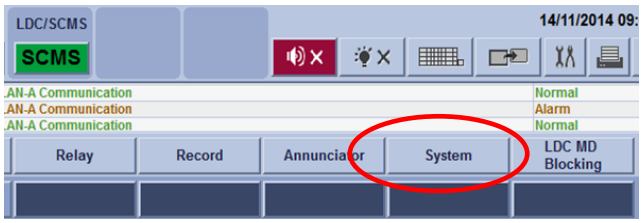
4) Click OK.



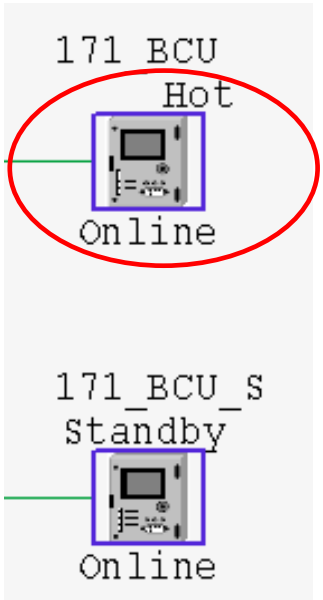
5) “Mode Change” dialog is closed and the IED mode display of the “System” window is changed.

4.54 Changing IED Mode (Online/Test) of Dual BCU

How to change the IED mode (Online/Test) of dual BCU is indicated below. This procedure can be done in the system that applying dual BCU function only.



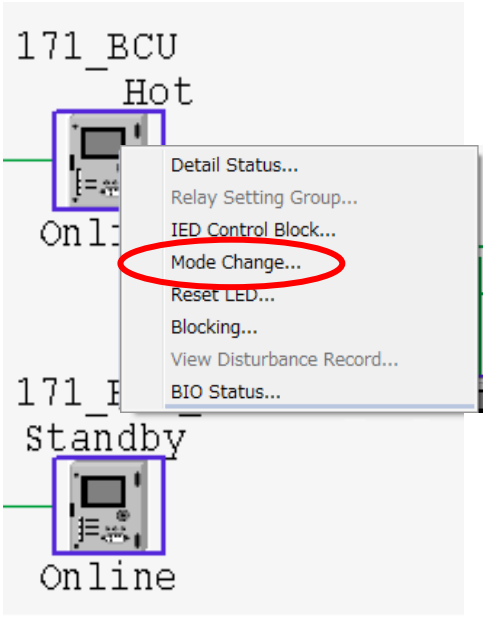
1) Click System in the main menu bar to display the “System” window.



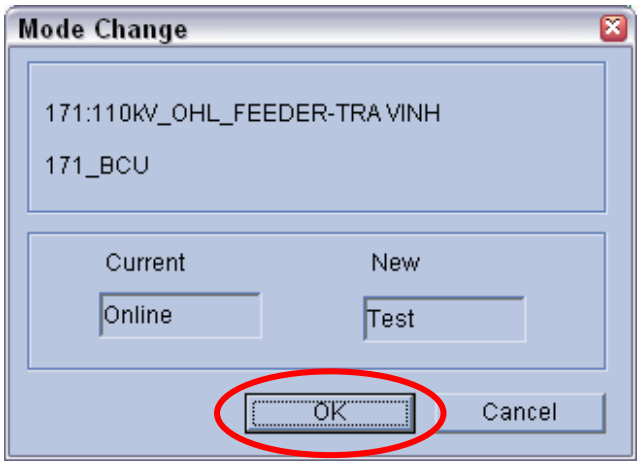
2) For SAS that applying dual BCU function with Hot/Standby status, IED mode changing must be done from Hot BCU.

Identify the Hot BCU whose mode is to be changed.

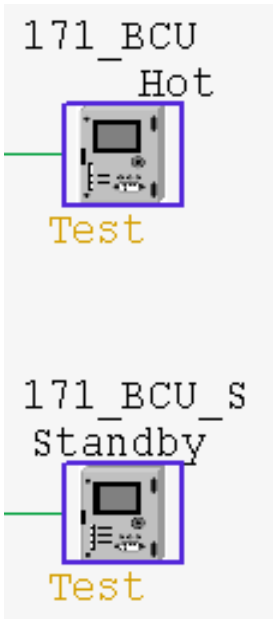
IED mode of dual BCU cannot be changed from Standby BCU. The IED mode of standby BCU will automatically change following the IED mode of Hot BCU.



3) Right-click on Hot BCU symbol and select “Mode Change” from the displayed context menu.



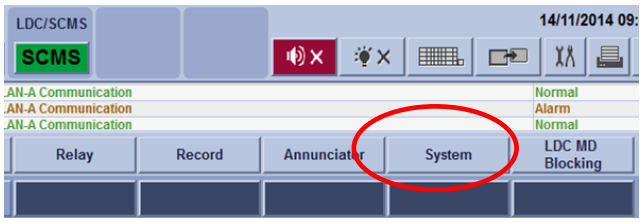
4) The “Mode Change” dialog is displayed. Click OK to change the IED mode.



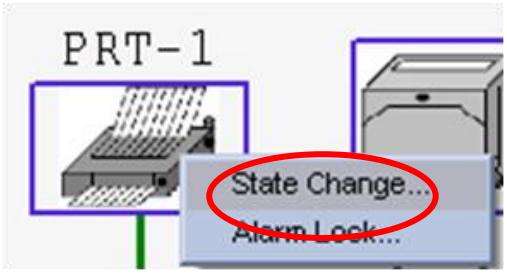
5) The “Mode Change” dialog to be closed and the IED mode of Hot and Standby BCU that displayed on “System” window are changed.

4.55 Changing Printer State

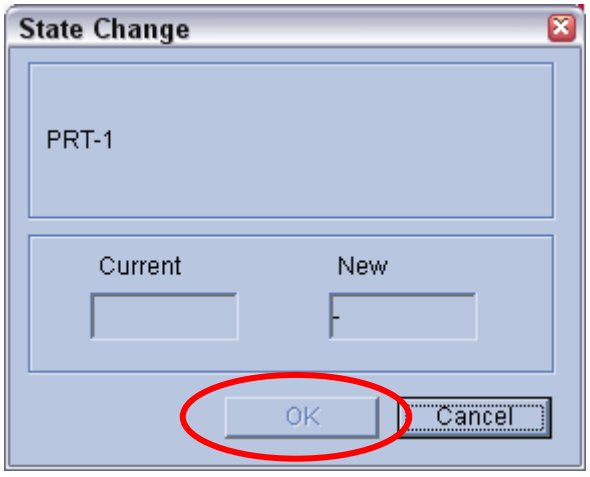
How to change the state of the printer is indicated below.



1) Click System in the main menu bar to display the “System” window.



2) Right-click the printer symbol and select “State Change” from the context menu.

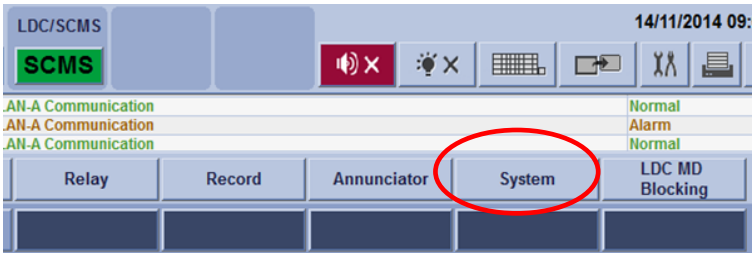


3) The “State Change” dialog is displayed. Click OK.

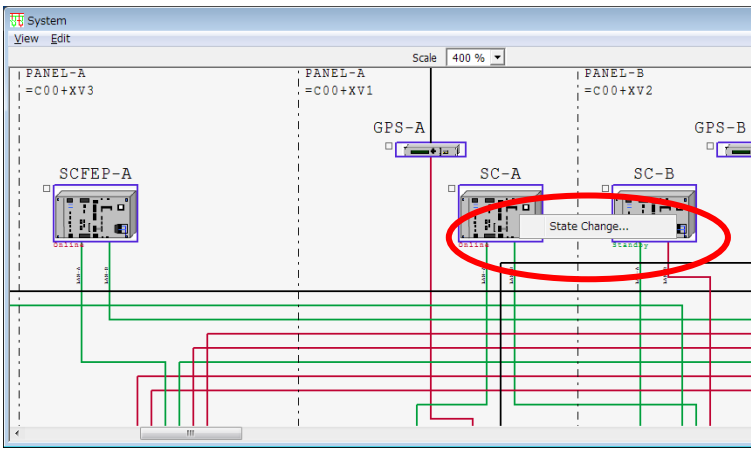
4) The “State Change” dialog is closed and the printer state display of the “System” window is changed.

4.56 Changing SC/FEP Mode (Online/Standby)

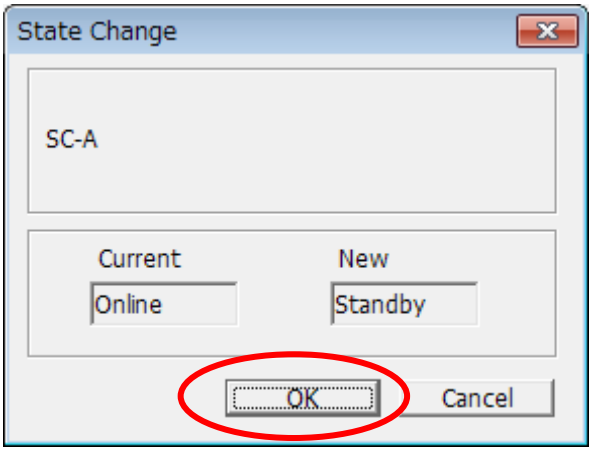
In general, dual SC / FEP configuration is applied to GSC1000-C system. One of the SC / FEP is operated in Online mode, and the other is operated in Standby mode. If some of the failure has occurred in Online SC / FEP, Standby SC / FEP is switched to Online with automatically, but manually switching is also possible from the System window. In addition, enable setting of manual changing function is our standard, disable setting is also possible by the customer's specification. How to change the state of the SC/FEP by manually is indicated below. (Perform the mode change of SC/FEP by manually, when the SC-A and SC-B is running at Online and Standby respectively.)



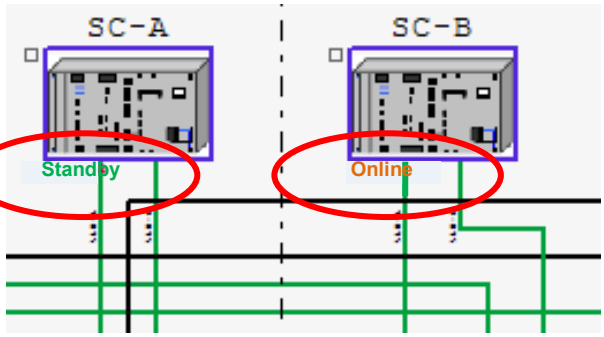
1) Click System in the main menu bar to display the “System” window.



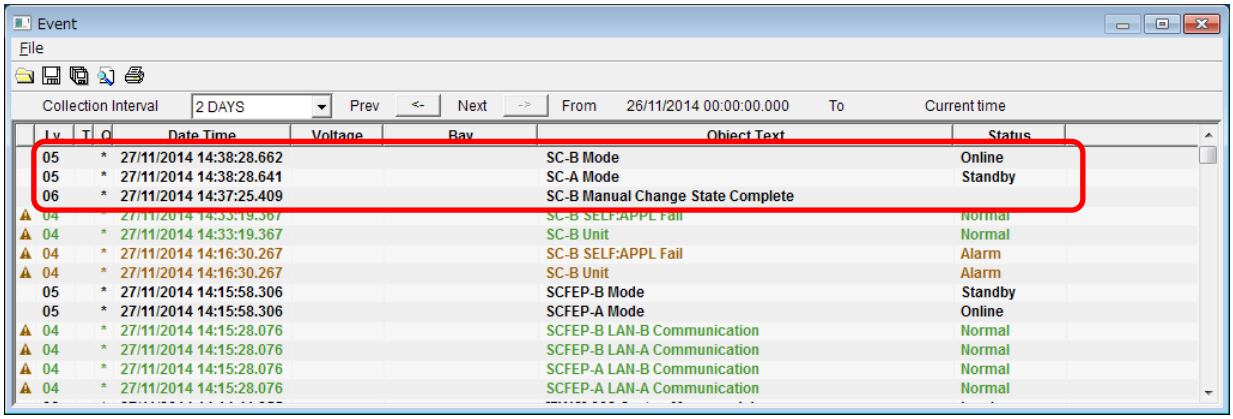
2) System window is displayed. Right-click the SC-A symbol and select “State Change” of the context menu.



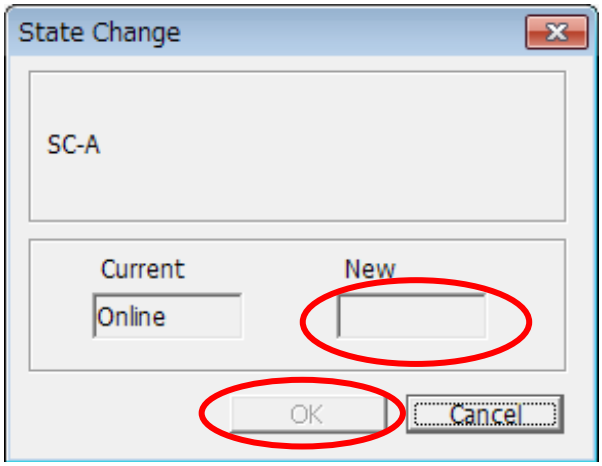
3) The “State Change” dialog of SC-A is displayed. Click OK.



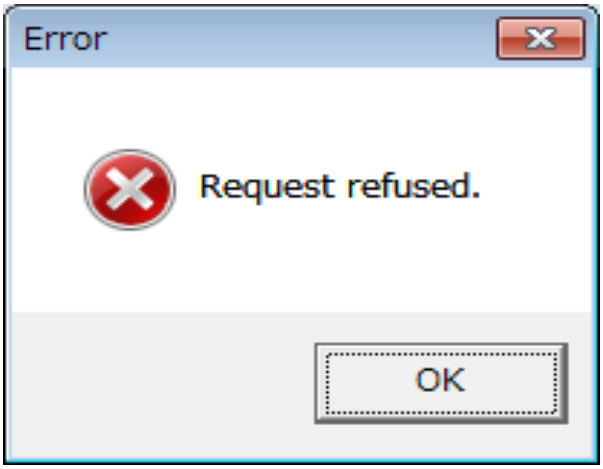
4) The “State Change” dialog is closed. State display of the SC-A on system window is changed from Online to Standby. SC-B is changed from Standby to Online also. After changing is completed, the result of state change is displayed on the Event list. Refer to the Event list as shown on below.



5) In the case of manually switching of FEP, do the same operation with the SC.



NOTE	When the SC-B has failed, New column of the dialog of the “State Change” will be hidden and OK button become disable.



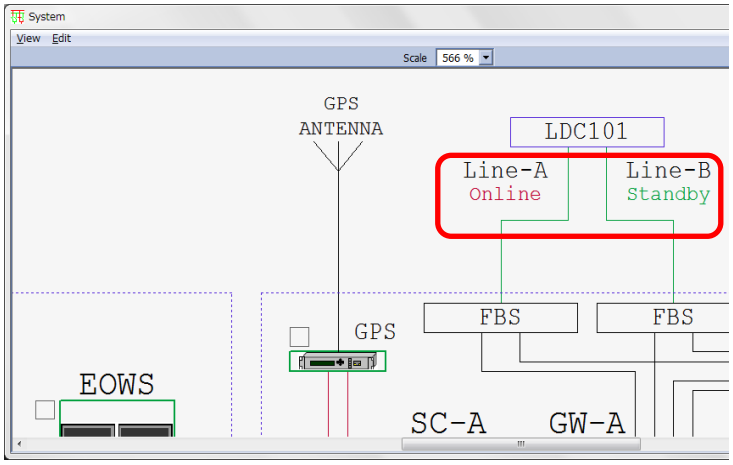
NOTE	If the re-change has been executed within five minutes after the first change of state, an error message is displayed.

4.57 Displaying redundancy line control between SCMS and LDC

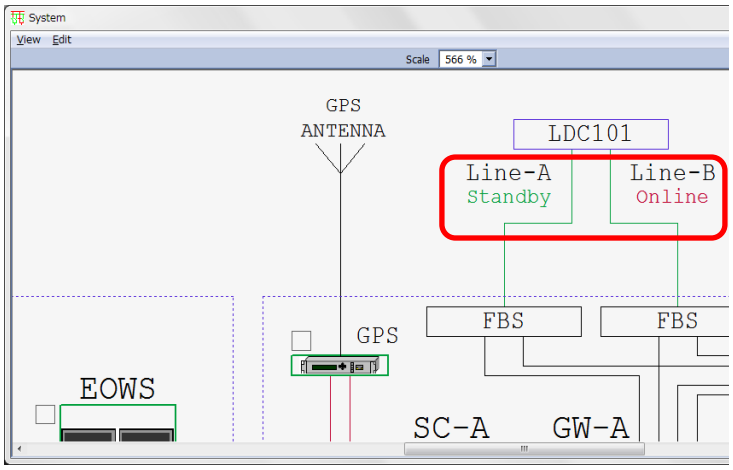
There are two methods for redundancy line control between SCMS and LDC as follows.

- The line of Online / Standby is selected on the LDC side (Comply with Norwegian IEC 870-5- 101 User Conventions Rev.2).
- The line of Online / Standby is selected on the SCMS side.

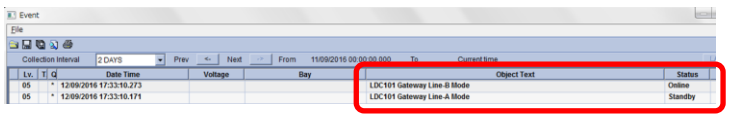
Either one of the control methods can be selected with an external file (ini. File). HMI display of the line is the same in both cases as shown on below.



1) This figure shows that communication between SCMS and LDC is established, and line of A is Online operation and line of B is Standby operation.



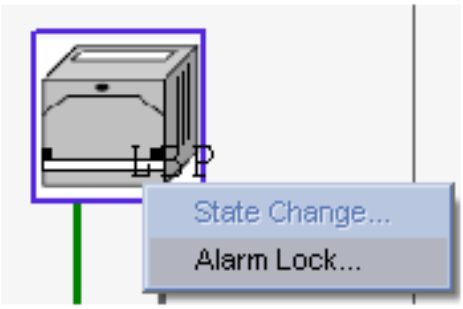
2) This figure shows that switching is performed by SCMS or LDC.



3) At the same time, an event message where switching occurred is displayed in the event screen of the HMI (The case of switching with LDC is shown here).

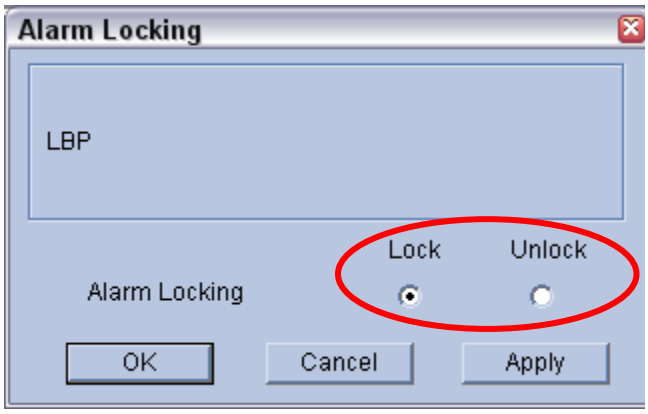
4.58 Setting or Resetting of Alarm Lock of the Printer

How to set or reset the Alarm Lock of the printer is indicated below.

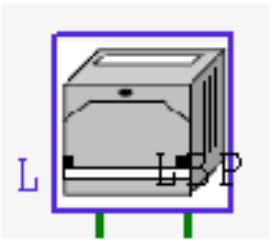


1) Click System in the main menu bar to display the “System” window.
Identify the printer.

2) Right-click the printer symbol and select “Alarm Lock” from the context menu.



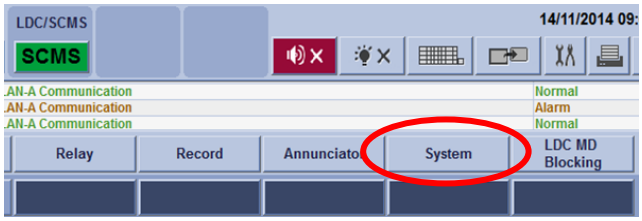
3) The “Alarm locking” dialog is displayed.
Click the radio button to change the setting (Lock or Unlock) and click OK or Apply.



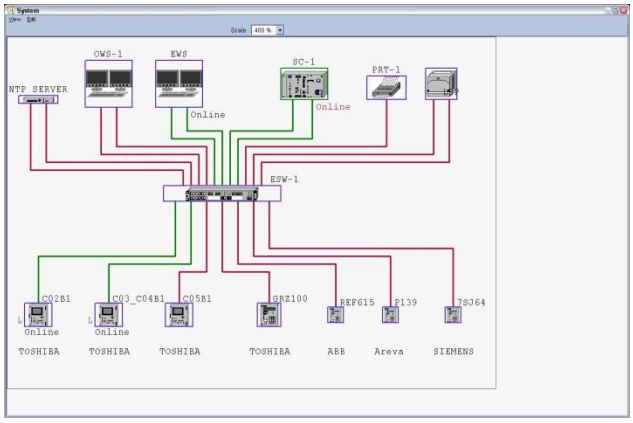
4) The mark to indicate Alarm Lock is displayed or removed.

4.59 Reset the LED for IED Failure Information

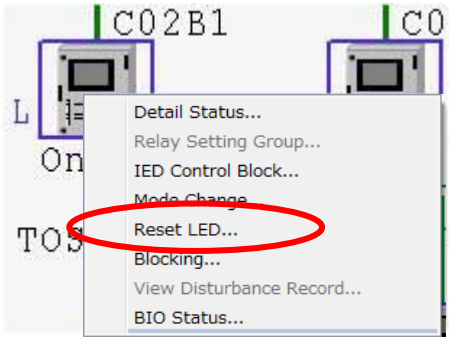
How to reset the LED for IED failure information from main menu bar is indicated below.



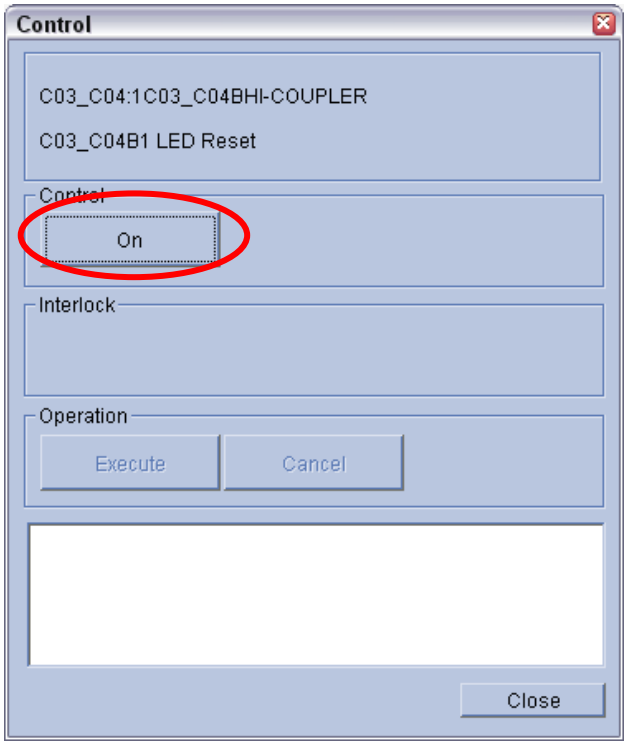
1) Click System in the main menu bar.



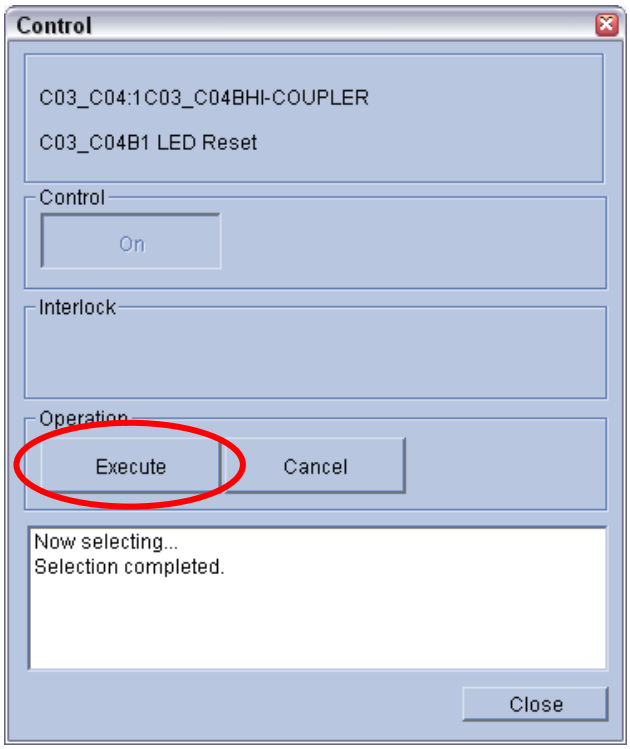
2) The “System” window is displayed.



3) Identify the IED and right-click the IED symbol and select “Reset LED” from the displayed context menu.



4) The “Control” dialog is displayed.
Click ON.



5) Execute becomes active. Click Execute.

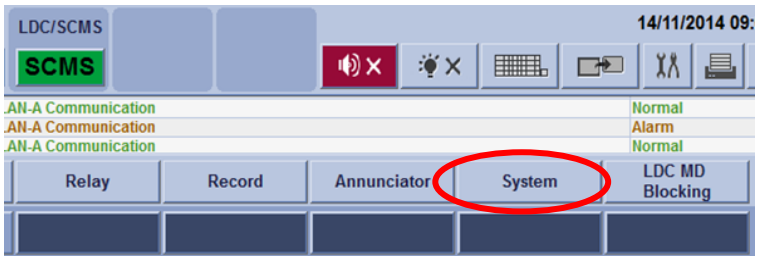
6) LED for failure information is turned off.

4.60 Displaying the BIBO and LED Status of IED

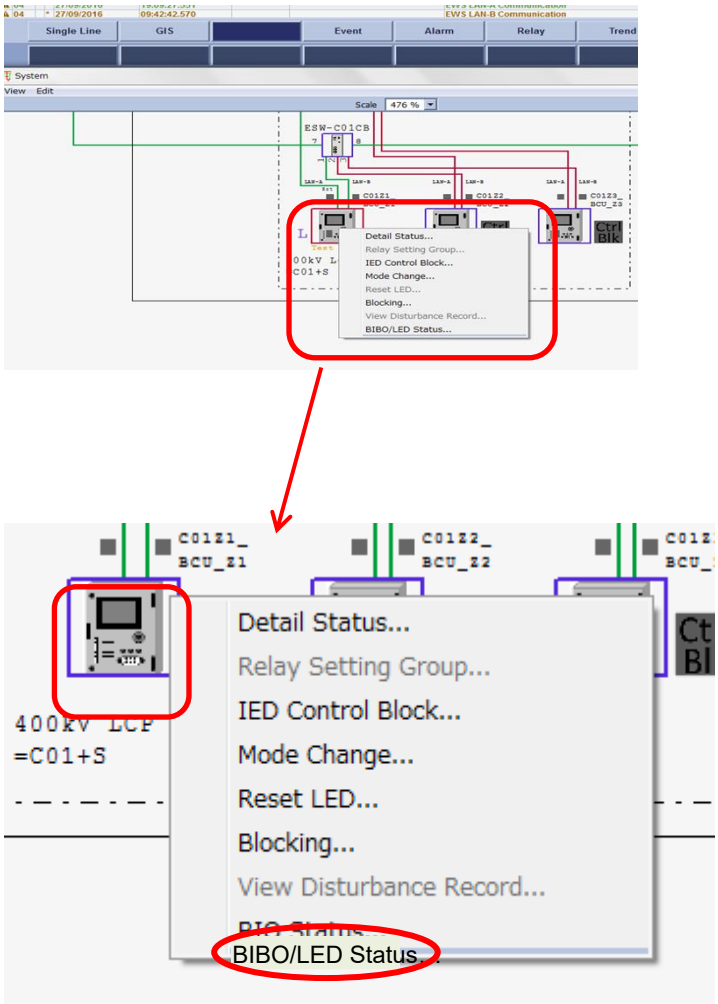
How to display the BIBO and LED Status of IED is indicated below.

NOTE	This function is applied to BCU/BCPU200 and G2 series protection relay made by Toshiba. The status of DC-AI and DC-AO is out of indication scope. When using the IED other than the above, the selection of BIBO/LED status from context menu can not be performed.

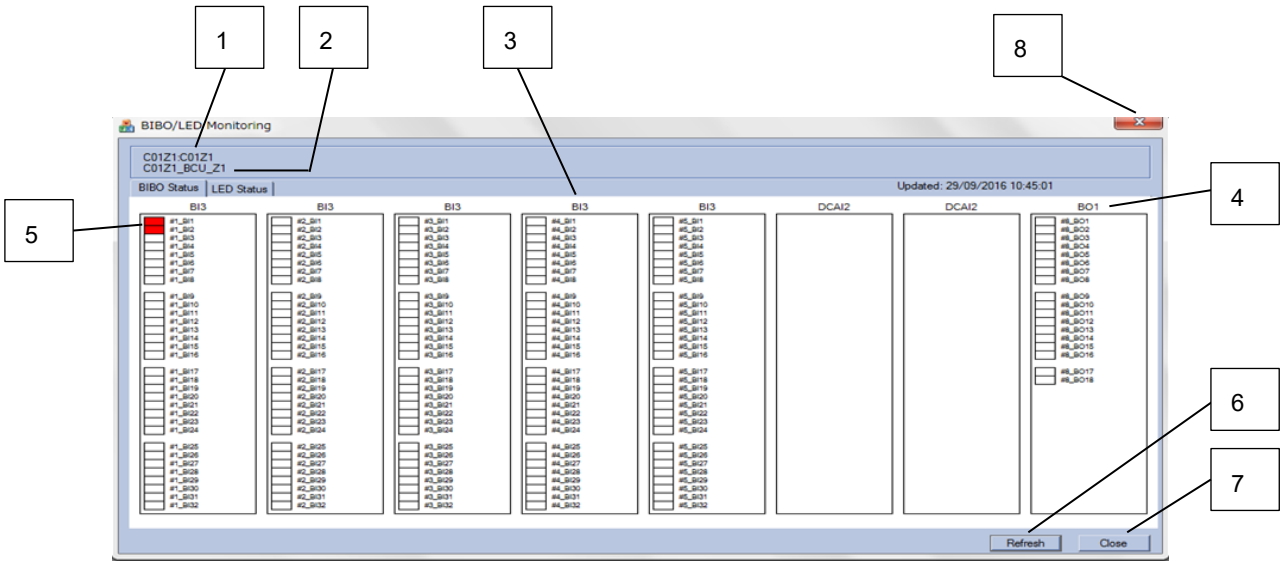
1) Click System in the main menu bar.



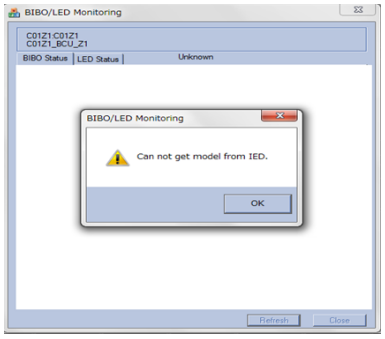
2) The System window is displayed. Right-click the IED symbol that to be displayed the BIBO/LED status. And then select BIBO/LED Status from the displayed context menu.



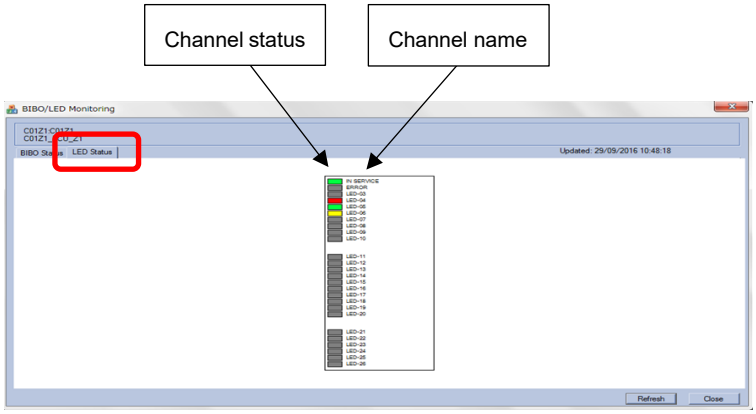
3) BIBO/LED Monitoring window is displayed.

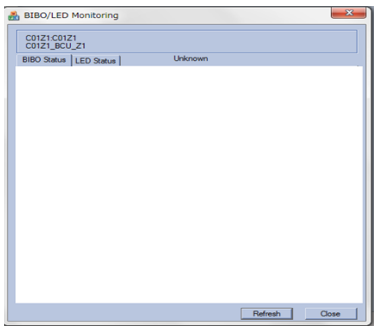


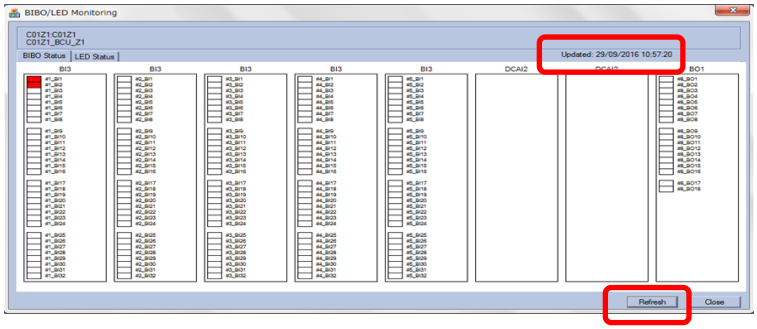
No	Name	Contents
1	Bay Name: Bay No	Display the Bay name and Bay number of the selected IED.
2	IED Name	Display the IED name that is selected.
3	Updated time	Display the time when all the BIBO/LED status has been updated.
4	Type of BIBO module	Display the type of BIBO modules that have been configure the IED.
5	Displaying the BIBO Status of IED	Display the BIBO status by the color. Four display color of BIBO status can be set by the external file (ini.file). -Gray (Light off) -Red -Green -Yellow
6	Refresh button	By pressing refresh button, status of each BIBO/LED module is updated. Button becomes disable during updating.
7	Close button	Screen return to the system monitoring window. Button becomes disable during updating the BIBO/LED status.
8	[X] button	Screen return to the system monitoring window.

NOTE	1. BIBO status window is displayed first. 2. If BIBO data can not be get from the IED, an error message is displayed, and empty screen is displayed for BIBO status window. After removing the cause, click the Refresh button. 

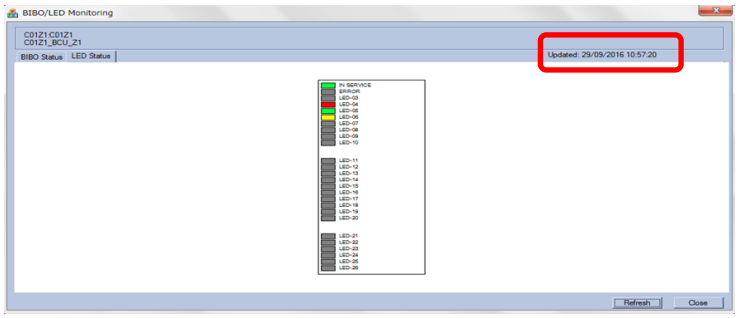
4) By clicking the LED Status tab, the channel status and name that is displayed on the IED front panel is displayed.

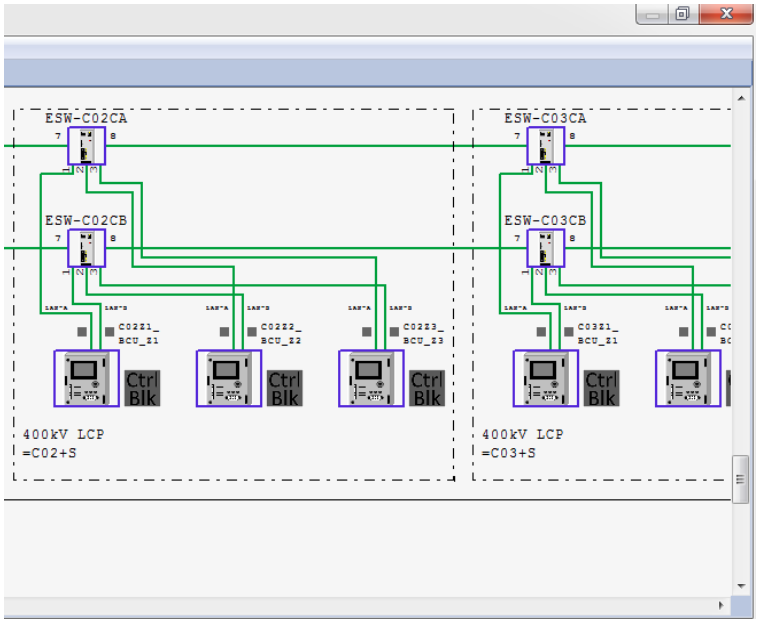


NOTE	1. Four display colors of channel status can be set by the external file (ini. file). 2. If LED status data can not be get from the IED, an error message is displayed, and empty screen is displayed for LED status window. After removing the cause, click the Refresh button. 



5) By pressing refresh button, status of each BIBO /LEDmodule is updated. Time when the update is complete will display in the update column.





6) Screen return to the system monitoring window by pressing the close or [X] button.

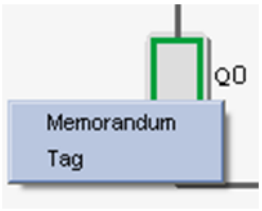
NOTE

Close button becomes disable during updating the BIBO/LED status, but [X] button can be selected at any time.

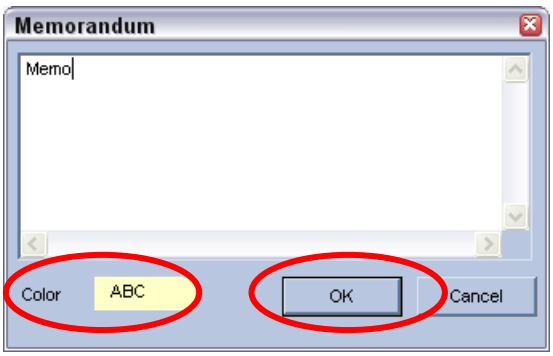
<Memorandum and Tag>

4.61 Adding a Memorandum

How to add a memorandum on the bay single line diagram window, on the “GIS” windows, or on the “System” window is indicated below.

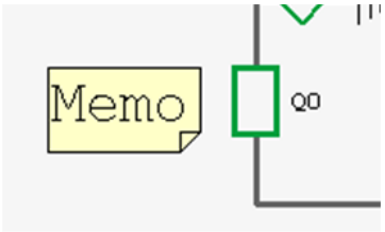


1) Right-click a mouse on the window and select “Memorandum” from the displayed context menu.



2) The “Memorandum” dialog is displayed.
Input the text. (Maximum is 1024 characters.)
To specify the color, double-click the color and select the color from the color pallet.

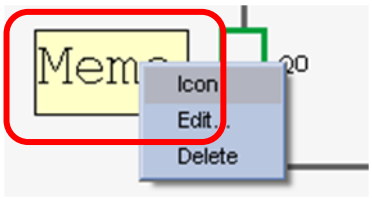
3) Click OK.



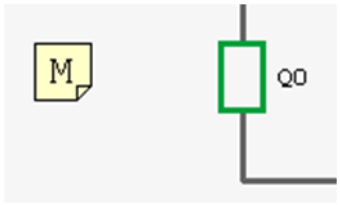
4) The “Memorandum” dialog is closed and a memorandum is placed on the window.
A maximum of 128 memorandums can be posted.
A memorandum or the ionized memorandum can be moved by the drag & drop operation.

4.62 Representing Memorandum as an Icon

How to represent a memorandum with an icon is indicated below.



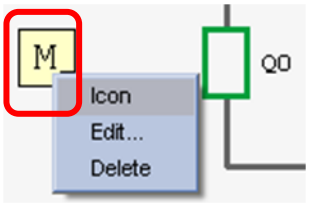
1) Right-click the memorandum to display the context menu and select “Icon”.



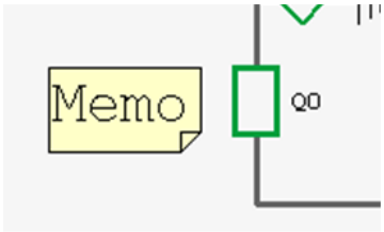
2) The memorandum is represented as an icon. A memorandum or the ionized memorandum can be moved by the drag & drop operation.

4.63 Developing Minimized Memorandum

How to develop a memorandum minimized to an icon is indicated below.



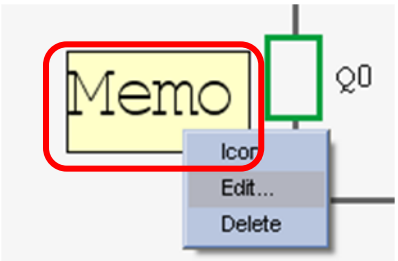
1) Right click the icon (minimized memorandum) to display the context menu and select “Icon”.



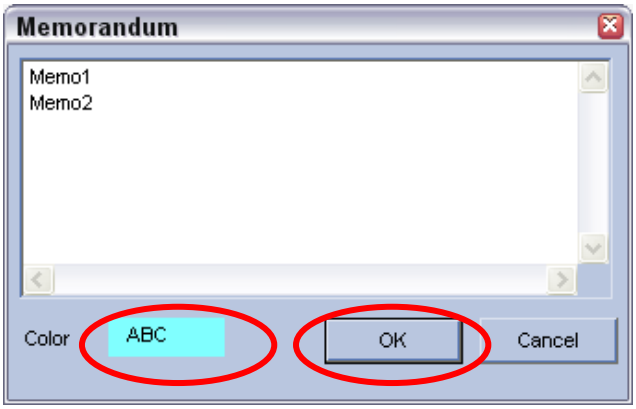
2) The memorandum is displayed in the original size.

4.64 Editing a Memorandum

How to edit the memorandum is indicated below.

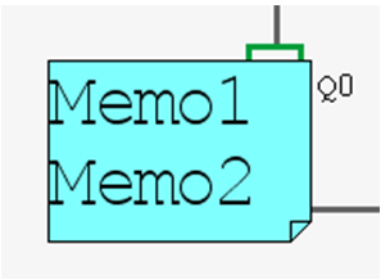


1) Right-click the placed memorandum to display the context menu and select “Edit”.



2) The “Memorandum” dialog opens.
Change the text.
To specify the color of the memorandum, double-click the color and select the color from the color pallet.

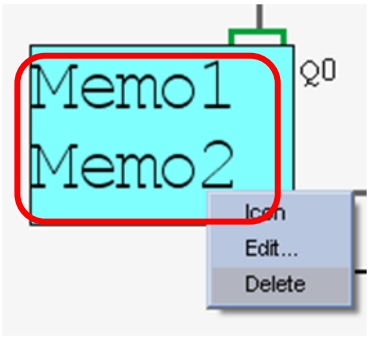
Click OK.



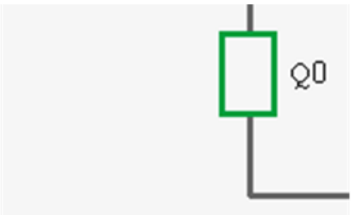
3) The “Memorandum” dialog is closed and the changed memorandum is displayed.

4.65 Deleting a Memorandum

How to delete a memorandum from the window is indicated below.



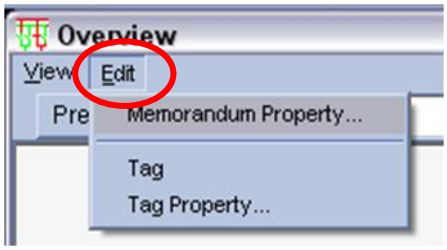
1) Right-click the memorandum to display the context menu and select “Delete”.



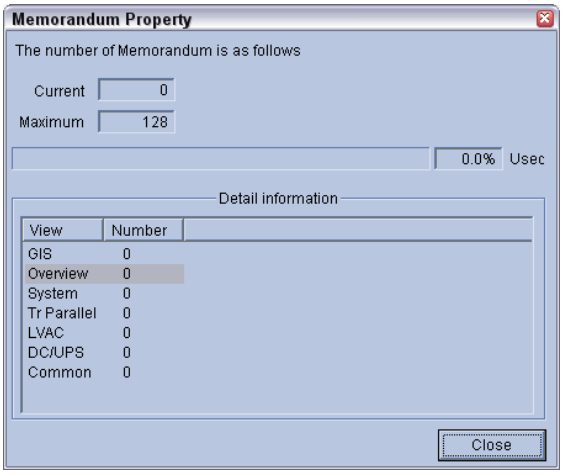
2) The memorandum is deleted.

4.66 Displaying the Number of Placed Memorandum

How to display the number of placed memorandum is indicated below.



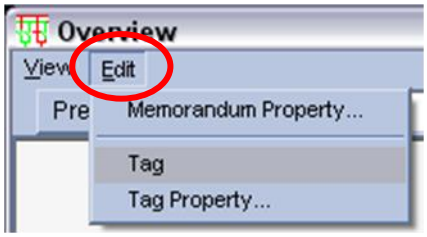
1) From the menu bar,
select [Edit] — [Memorandum Property].
.



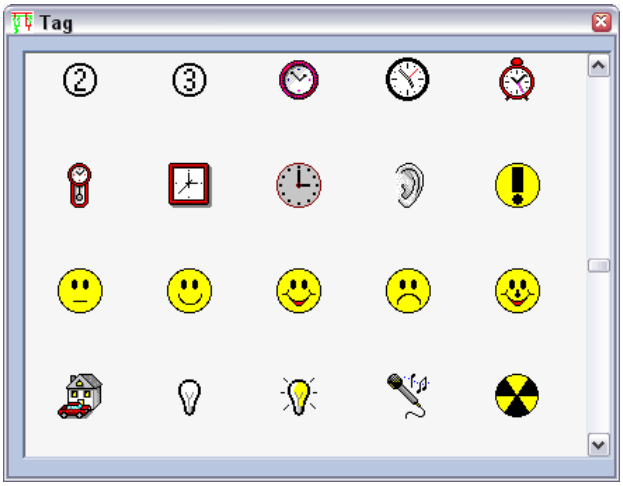
2) “Memorandum Property” dialog is displayed.

4.67 Placing a Tag

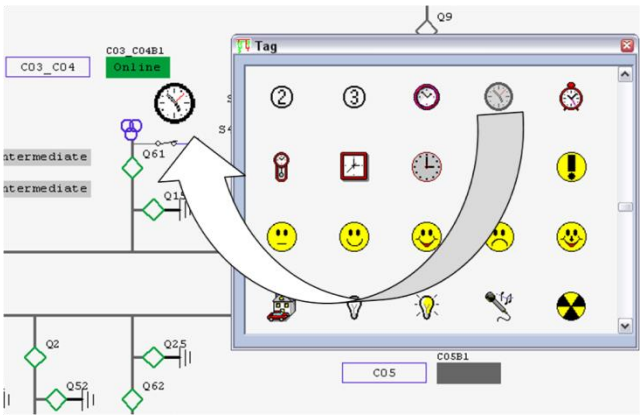
How to pace a tag on the window is indicated below.



1) From the menu bar, select [Edit] — [Tag].
Or, right-click a mouse on the window and select “Tag” from the displayed context menu.



2) The “Tag” dialog is displayed.

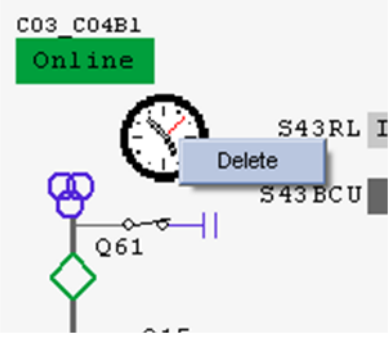


3) Select a tag from the “Tag” dialog and drag & drop it to the desired position.

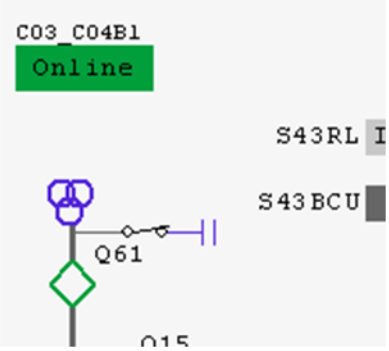
4) When the Tag is placed, the “Tag” dialog is closed.

4.68 Deleting a Tag

How to delete a tag from the window is indicated below.



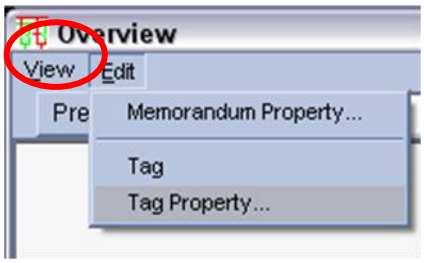
1) Right-click a tag and select “Delete” from the displayed context menu.



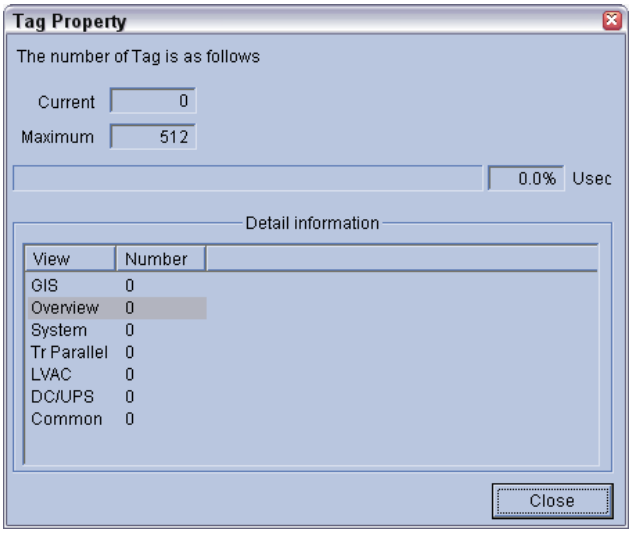
2) The selected tag is deleted.

4.69 Displaying the Number of Placed Tags

How to display the number of placed tags is indicated below.



1) From the menu bar, select [Edit] — [Tag Property].

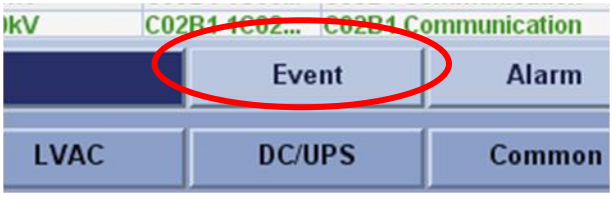


2) The “Tag Property” dialog opens.

<Event Window>

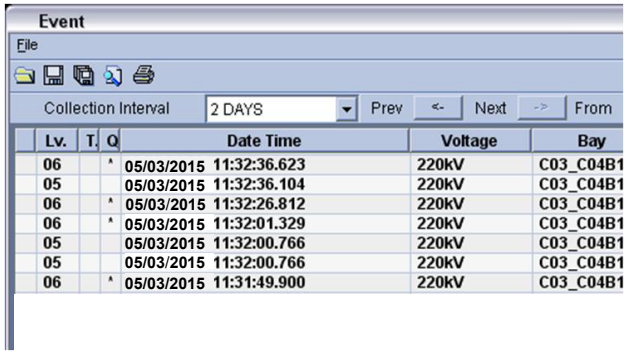
4.70 Displaying the Event Window

How to display the “Event” window from the main menu bar is indicated below.



1) Click Event in the main menu bar.

2) The “Event” window is displayed.

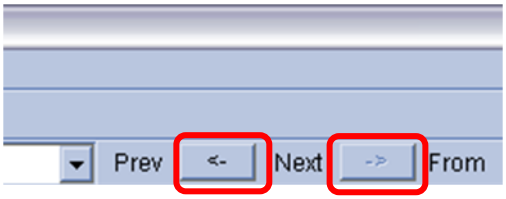


The width of each column can be changed by dragging the boundary between columns.

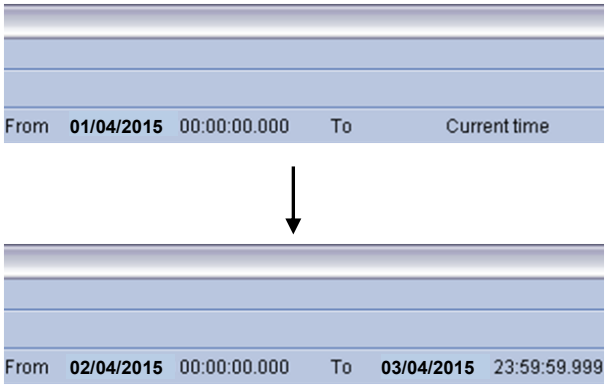
The symbol means the event is Heavy failure.
The symbol means the event is Light failure.
For the details, refer to 6.7.

4.71 Shifting the Event Display

How to shift the event display is indicated below.



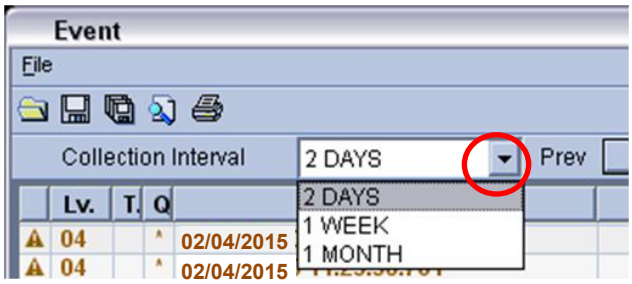
1) Click Prev or Next in the “Event” window.



2) Date in From/To column moves toward the specified direction and the event list in this period is displayed.

4.72 Changing the Event Display Period

How to change the width of event display period is indicated below.

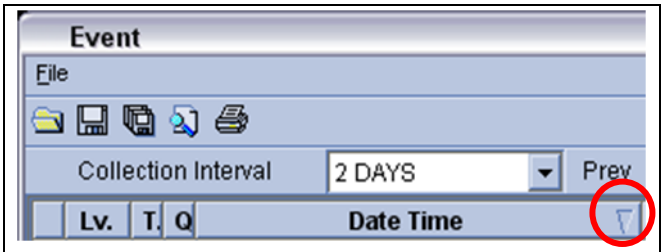


1) Click ▼ in the “Collection Interval” combo box of the “Event” window and select the width of display period. (“2 DAYS”, “1 WEEK” or “1 MONTH”)

2) The event list of the specified period is displayed.
The period of event display is indicated in From/To column.

4.73 Sorting the Event List Currently Displayed

How to sort the event list currently displayed is indicated below.

<table>
<tr>
<td rowspan="2">



Click to return to the online event</td>
<td>1)</td>
<td>Click ▼ or ▲ of title display cell of each row in the “Event” window.</td>
</tr>
<tr>
<td>2)</td>
<td>The corresponding row is sorted.
NOTE Real time updating is not carried out after sorting.
To return to the online event list, click LATEST.</td>
</tr>
</table>

4.74 Updating the Event List in Real Time

How to update the event list in real time is indicated below.

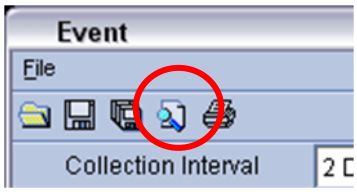


1) Click LATEST in the “Event” window.

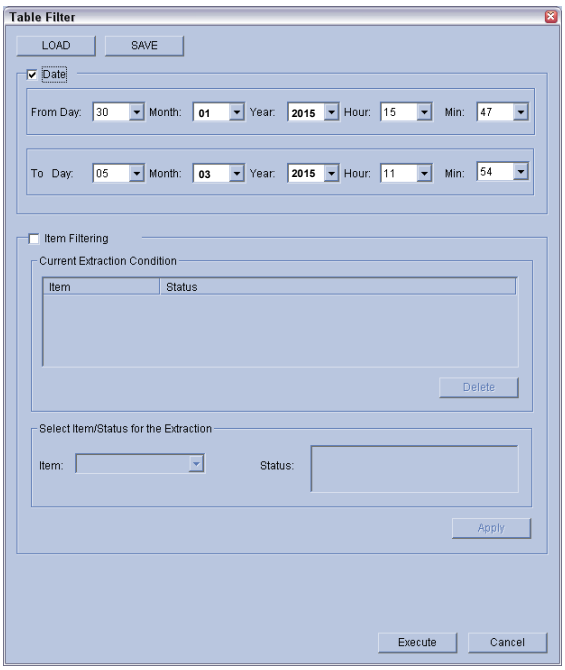
2) The latest event data is displayed and fixed cycle updating is started.

4.75 Filtering the Event List

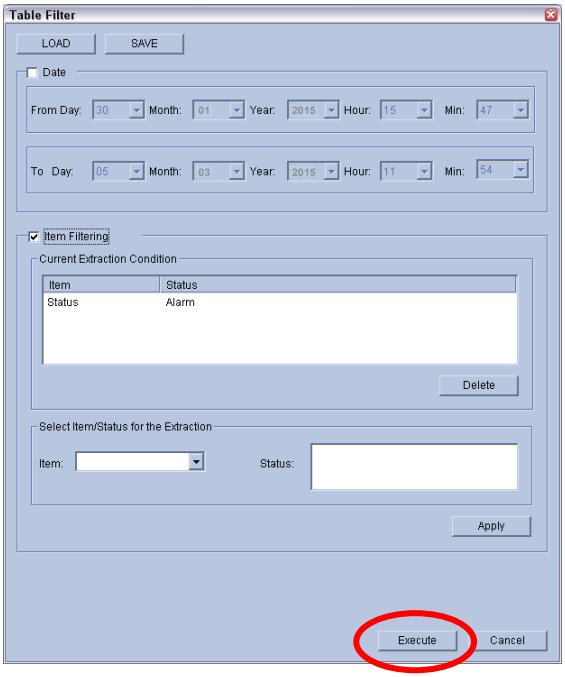
How to set the filtering of the event list is indicated below.



1) Click the “Filter” icon in the tool bar of the “Event” window.
Or, select [File]-[Filter].

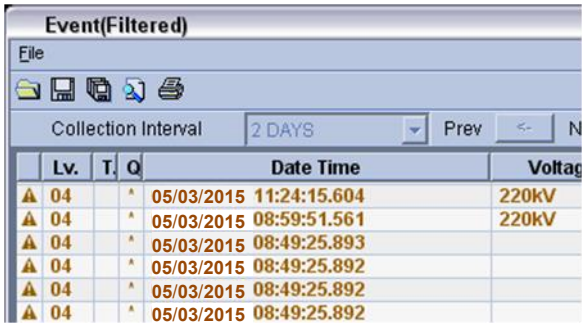


2) The “Table Filter” dialog is displayed.
If the data have been filtered already, the current filtering condition is displayed.



3) Set the filtering condition.
Refer to section 4.71 Editing/Saving an Event Filter for setting and editing the filtering condition.

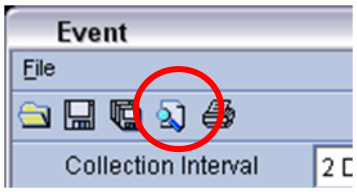
4) When the filter setting is completed, click Execute.



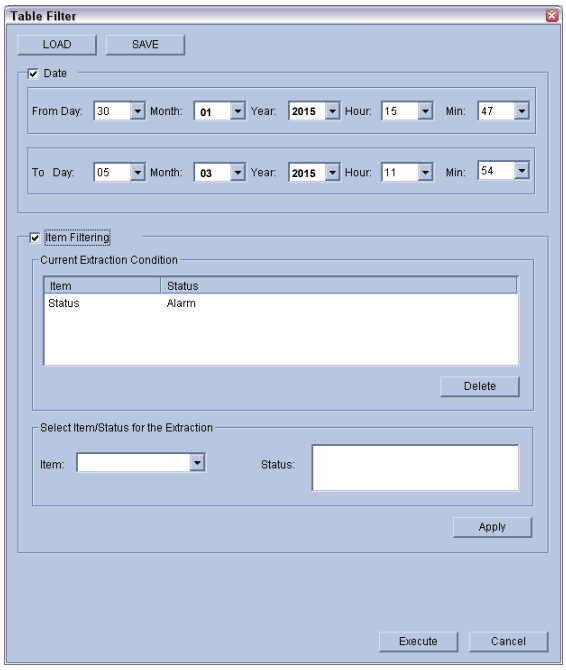
5) The “Table Filter” dialog is closed and the list of events satisfying the set filtering condition is displayed.
Title of the “Event” window changes to “Event (Filtered)”.

4.76 Canceling the Event Filter

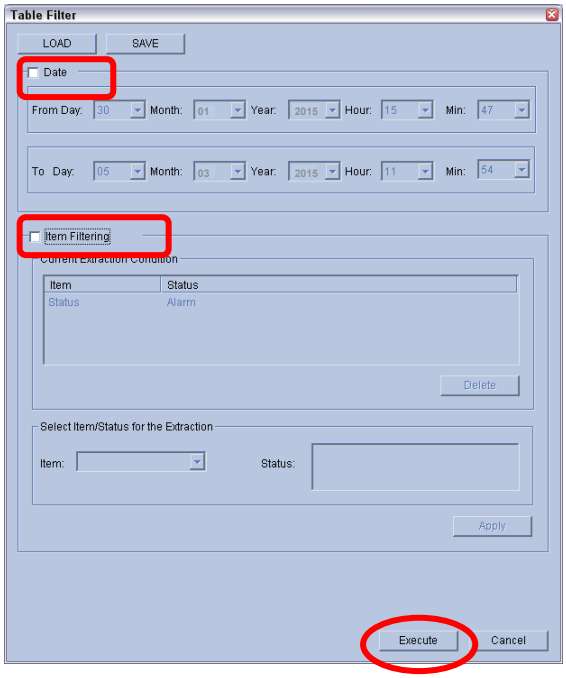
How to cancel the event filter is indicated below.



1) Click the “Filter” icon in the tool bar of the “Event (Filtered)” window.
Or, select [File]-[Filter].

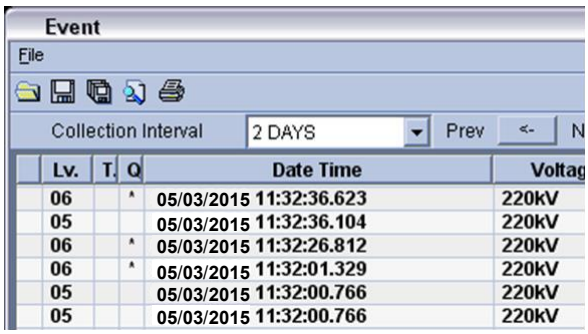


2) The “Table Filter” dialog is displayed.



3) Remove the tick in the “Date” check box and in the “Item Filtering” check box.

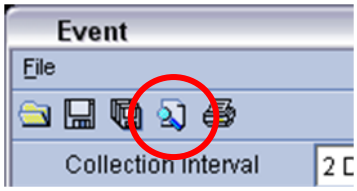
4) Click Execute.



5) The “Table Filter” dialog is closed and the list of events not filtered is displayed.
Title of “Event (Filtered)” window changes to “Event”.

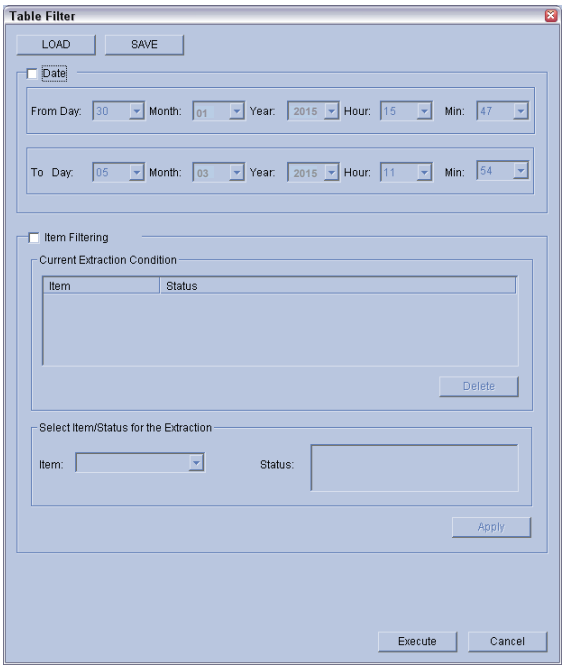
4.77 Editing/Saving an Event Filter

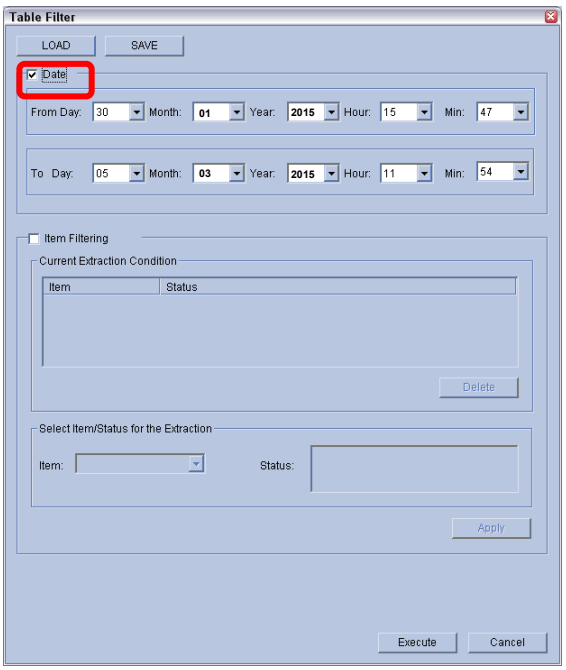
How to edit/save the event filter is indicated below.



1) Click the “Filter” icon in the tool bar of the “Event” window.
Or, select [File]-[Filter].

2) The “Table Filter” dialog is displayed.

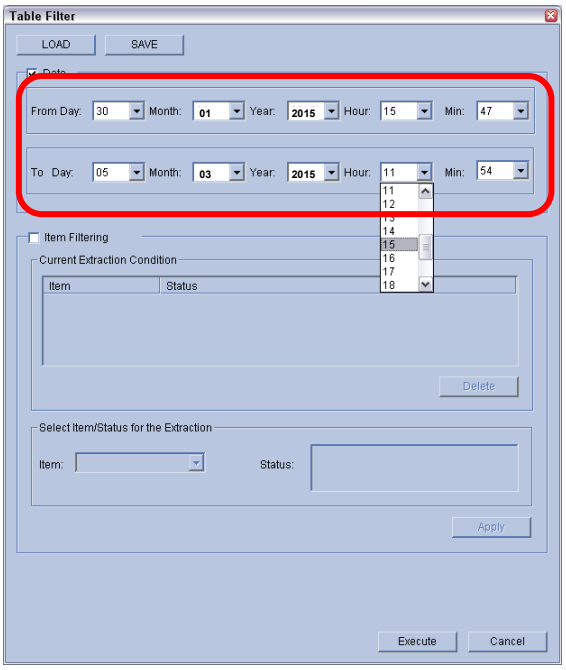




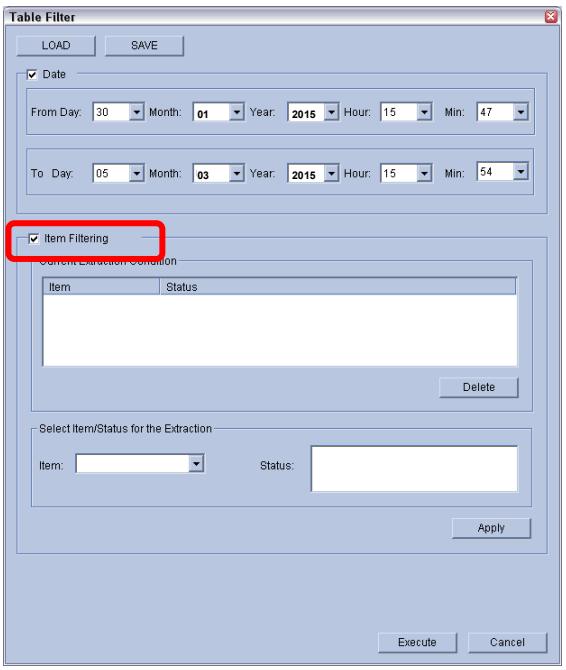
3) **Setting of date**

a) To use date as a filtering condition, put a tick in the “Date” check box.

When the “Date” check box is checked, the combo boxes in “From Day” row and “To Day” row become active.

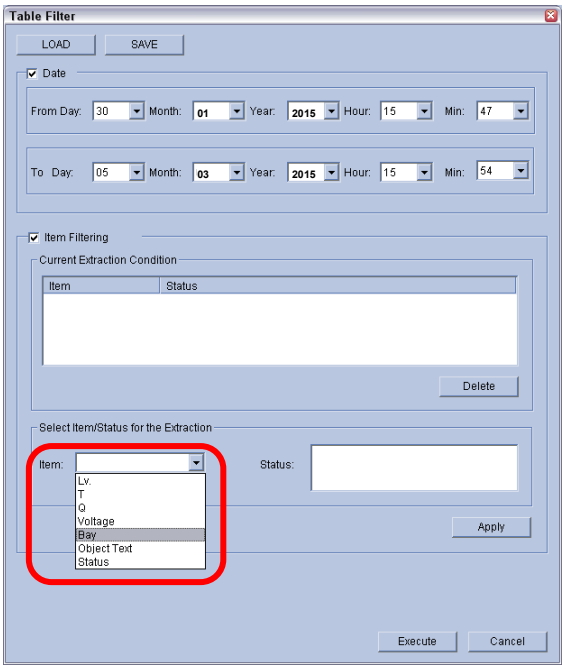


b) Select the period of extraction.

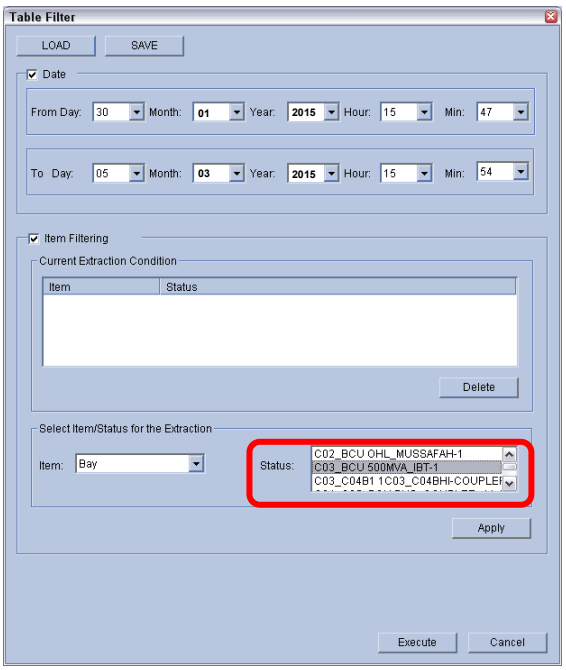


4) **Setting of item filtering condition**

a) To set item filtering condition, put a tick in the "Item Filtering" check box.

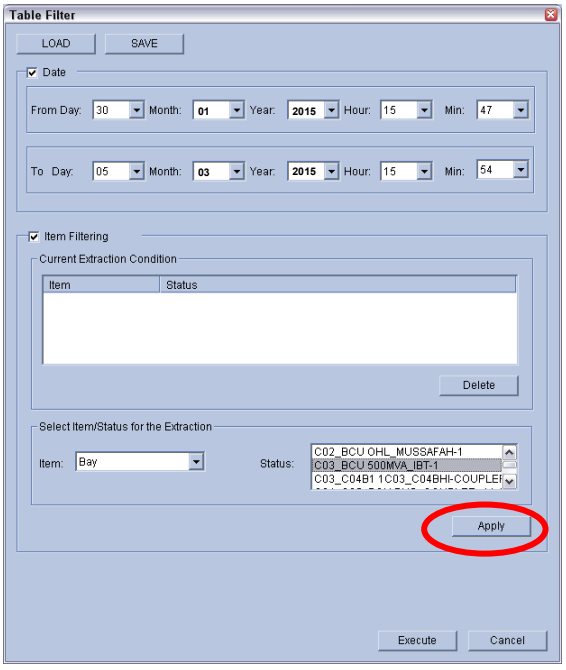


b) Column titles of the event list are listed in the "Item" combo box. Select the item from the combo box.

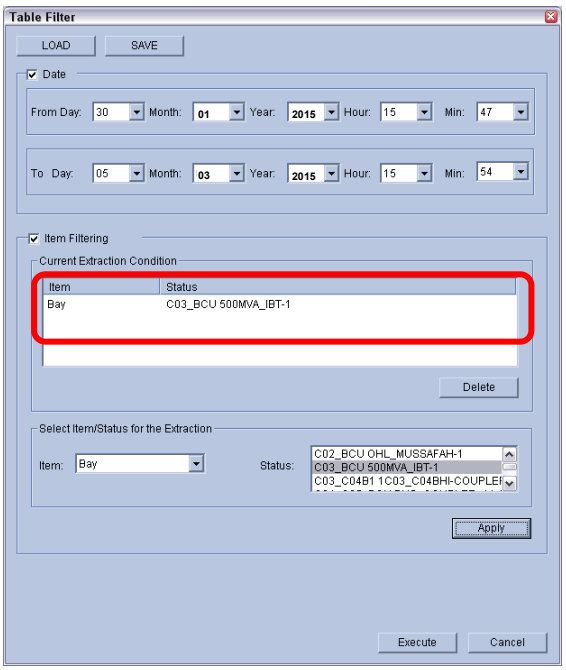


c) The conditions corresponding to the item selected at step b) are displayed in the “Status” combo box. Select the extraction condition. (The selected row is displayed in reversed colour.)

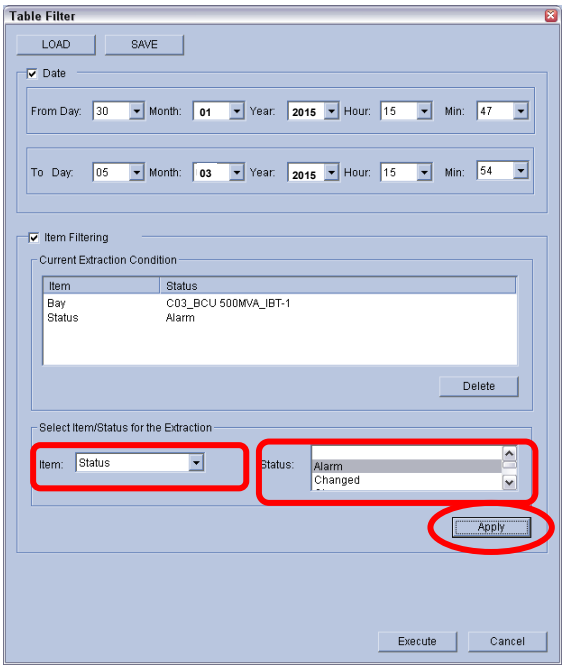
Two or more rows can be selected by selecting rows pressing the [Shift] key.
If you click a row that has already been selected, the selection of the row is cancelled.



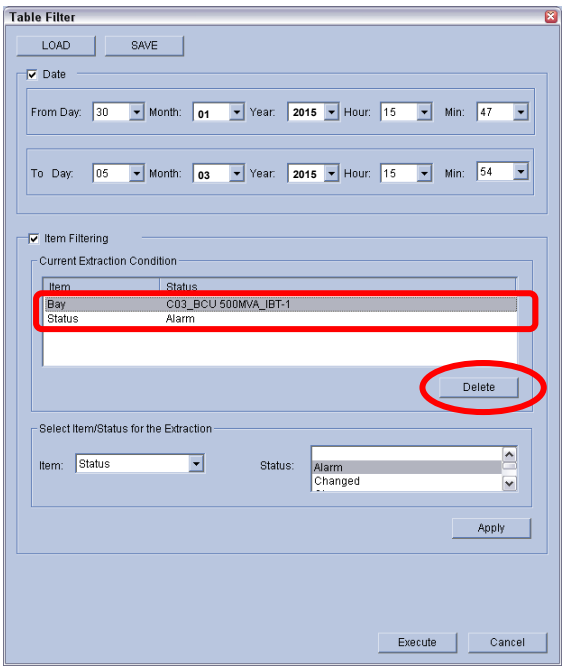
d) When the selection at “Status” is completed, click Apply.



e) The selected extraction condition is displayed in the “Current Extraction Condition” column.

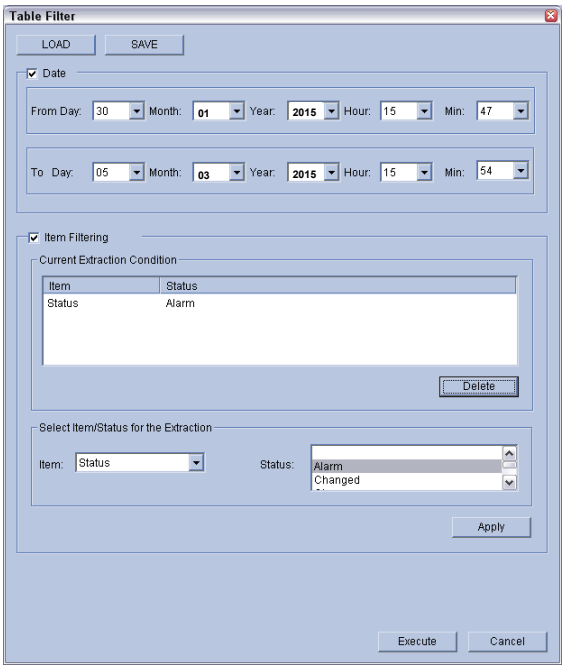


f) To register two or more items, repeat b) through e).

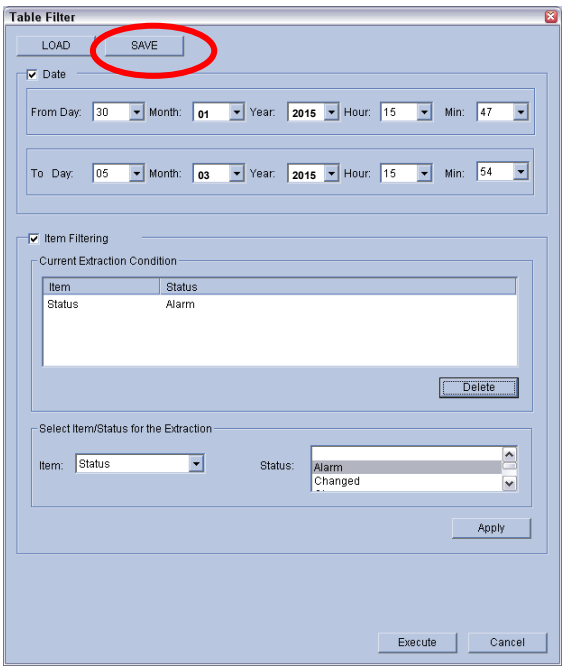


5) **Deletion of item filtering condition**

a) To delete the extraction condition, select the condition in the “Current Extraction Condition” column and click Delete.

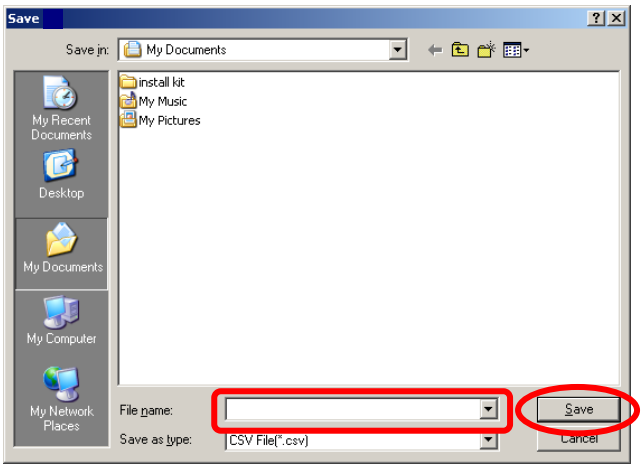


b) The selected condition is erased from the “Current Extraction Condition” column.



6) **Saving of the filtering condition**

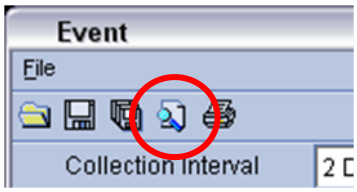
a) To save the current extraction condition, click SAVE.



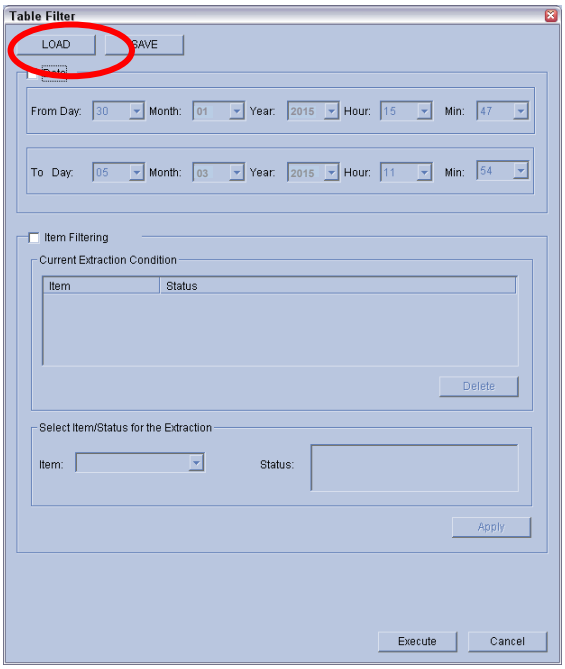
b) The “Save” dialog is displayed.
Input the file name and click Save.
Filtering condition is saved.

4.78 Calling an Saved Event Filter

How to call the saved event filter and filter the event list is indicated below.

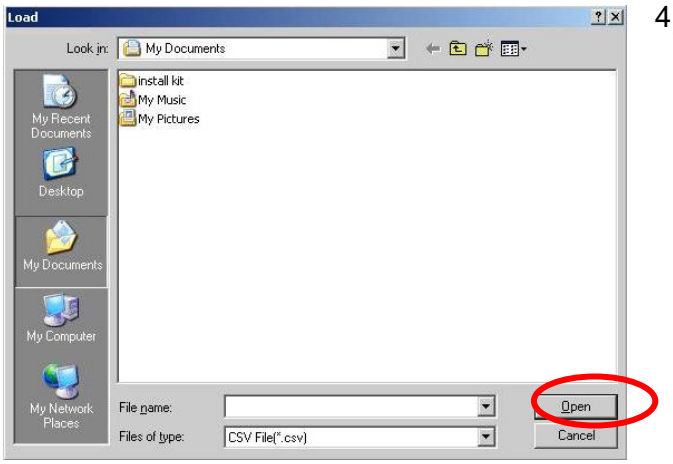


1) Click the “Filter” icon in the tool bar of the “Event” window.

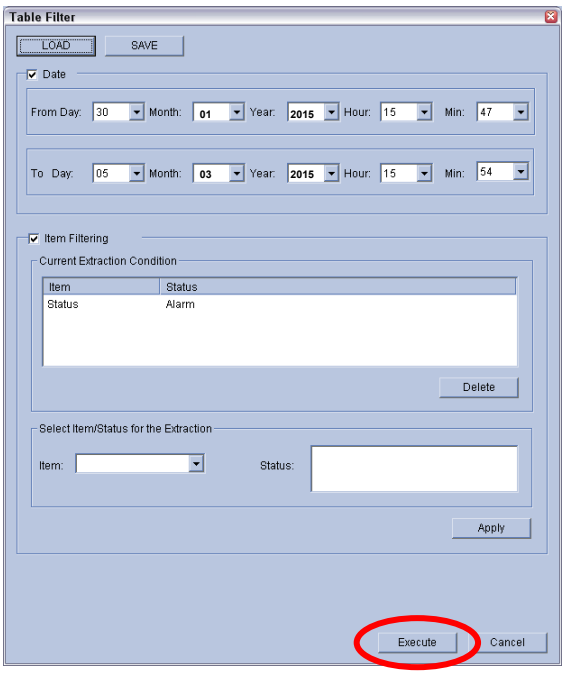


2) The “Table Filter” dialog is displayed.

3) Click LOAD.

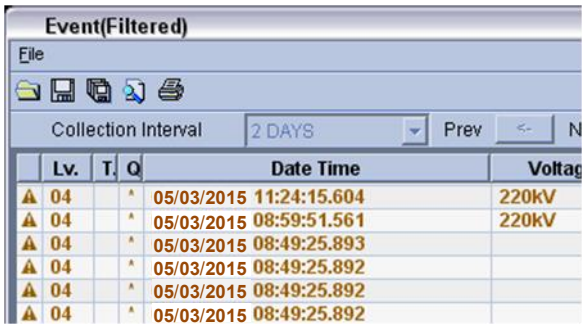


4) The “Load” dialog is displayed.
Select the file where the filtering condition you want to call is saved.
Click Open.



5) The filtering condition you called is displayed. Edit the filtering condition if necessary.

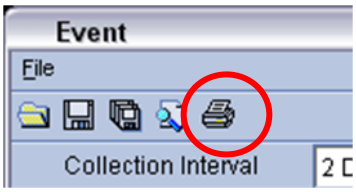
6) Click Execute.



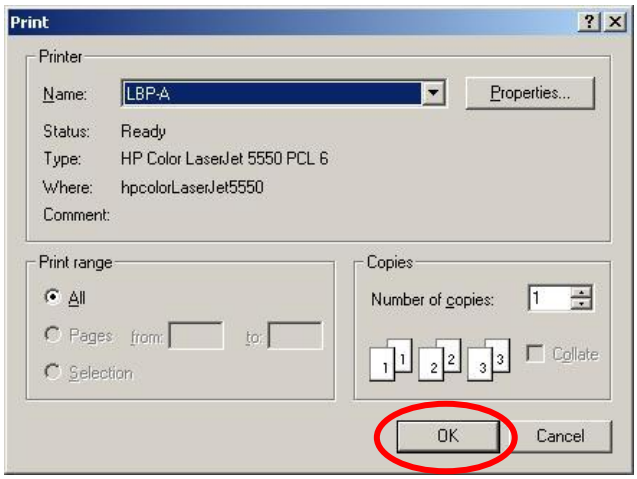
7) The “Table Filter” dialog is closed and the list of events satisfying the filtering condition is displayed.
Title of the “Event” window changes to “Event (Filtered)”.

4.79 Printing the Event Data Currently Displayed

How to print the event data currently displayed is indicated below.



1) Click the “Print” icon in the tool bar of the “Event” window.



2) The “Print” dialog is displayed. Click OK.

The event data displayed in the “Event” window is printed out.

4.80 Stopping Automatic Printing of Event Log

How to stop automatic printing of the event log from the menu bar is indicated below.



1) Check that the “Change Log Print Status” button in the main menu bar indicates printing enabled status. (As shown in the left figure.)
2) Click the “Change Log Print Status” button.



3) Printing log is stopped and the “Change Log Print Status” button in the main menu bar changes to indicate printing stopped status. (As shown in the left figure.)

4.81 Starting Automatic Printing of Event Log

How to start automatic printing of the event log from the main menu bar is indicated below.



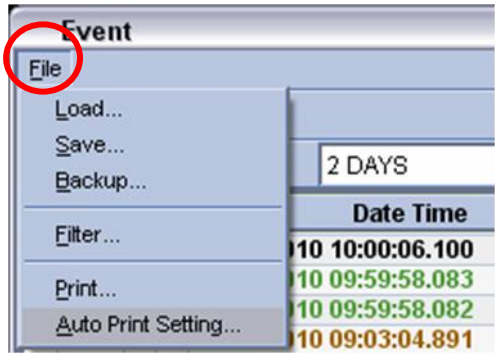
1) Check that the “Change Log Print Status” button in the main menu bar indicates print stop status. (As shown in the left figure.)
2) Click the “Change Log Print Status” button.



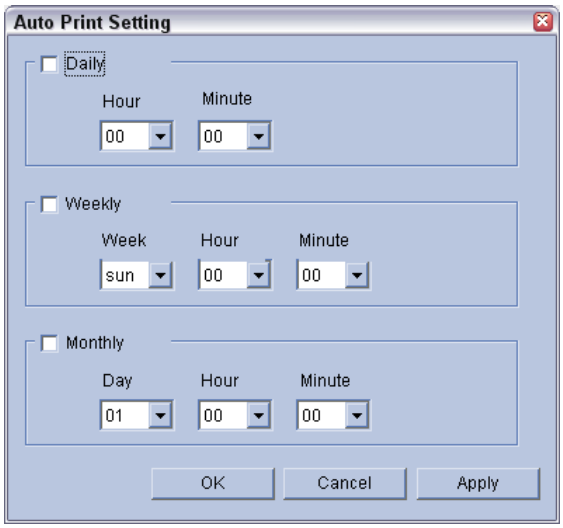
3) Printing log is started and the “Change Log Print Status” button in main menu bar changes to indicate print enabled status. (As shown in the left figure.)

4.82 Setting/Resetting Automatic Printing of Event Log

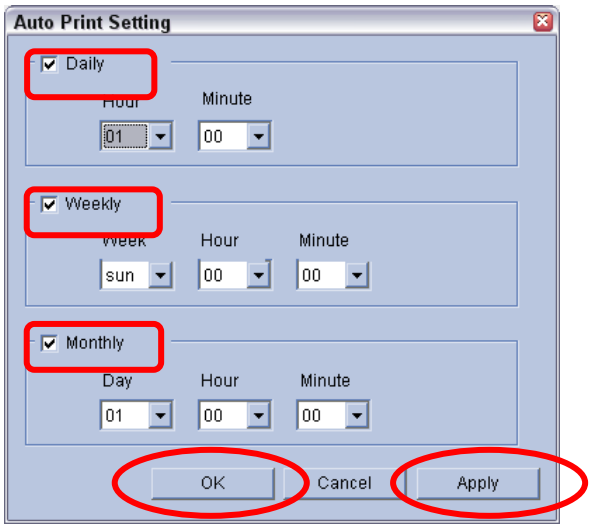
How to set or reset the automatic printing of the event log from the “Event” window is indicated below.



1) From the menu bar of the “Event” window, select [File] — [Auto Print Setting].



2) The “Auto Print Setting” dialog is displayed.



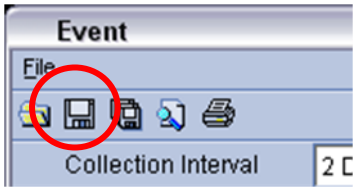
3) Put a tick in the check boxes of “Daily”, “Weekly” and “Monthly”, and set the time.
Click OK or Apply.
Regular printing of events in daily, weekly or monthly is set respectively.

To cancel regular printing, remove the tick in the check boxes and click OK or Apply.

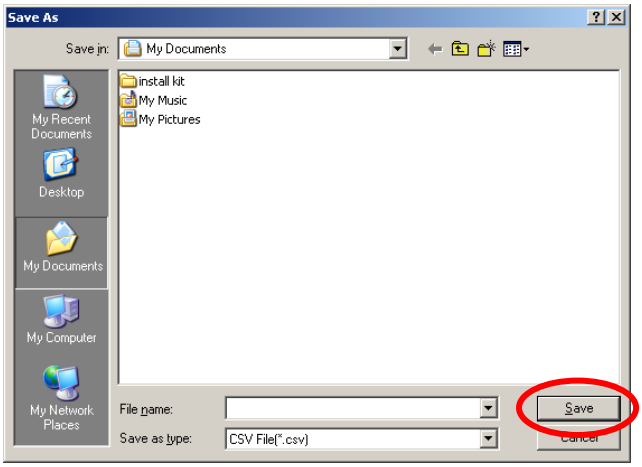
NOTE	The event periods available for regular printing are as below: “Daily”: 24 hours of the previous day “Weekly”: 7 days of the previous week “Monthly”: 1 month of the previous month

4.83 Saving the Event Data Currently Displayed in CSV Format

How to save the event data currently displayed in CSV format is indicated below.



1) Click the “Save” icon in the tool bar of the “Event” window.

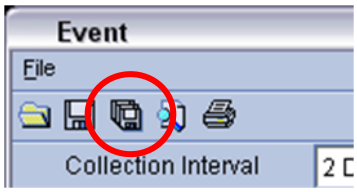


2) The “Save As” dialog is displayed.
Specify the saving media or a folder and a file name, and then click Save.

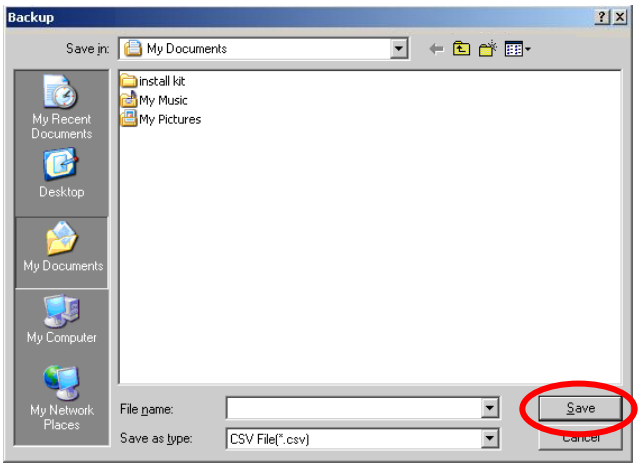
The event data currently displayed is saved in the specified media or the folder in CSV format.

4.84 Backing up Event Data not yet Saved

How to make a backup of the event data not yet saved is indicated below.



1) Click the “Backup” icon in the tool bar of the “Event” window.

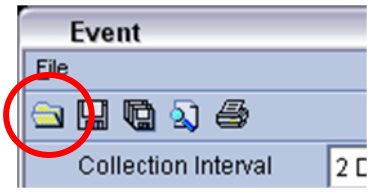


2) The “Backup” dialog is displayed.
Specify the saving media, specify the file name, and click Save.

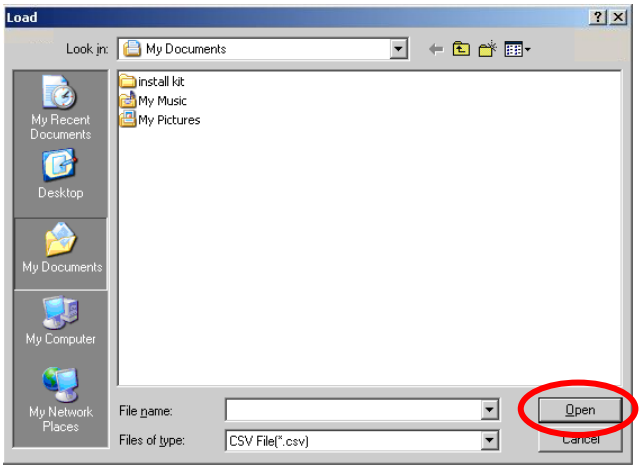
All event data not yet saved are backed up in the specified media.

4.85 Loading the Event Data Backed Up

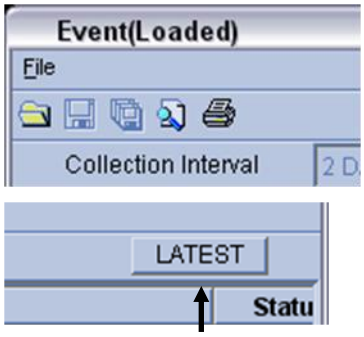
How to load the backup of the event data is indicated below.



1) Click the “Load” icon in the tool bar of the “Event” window.



2) The “Load” dialog is displayed.
Select the file and click Open.



(Click to return to the online event list)

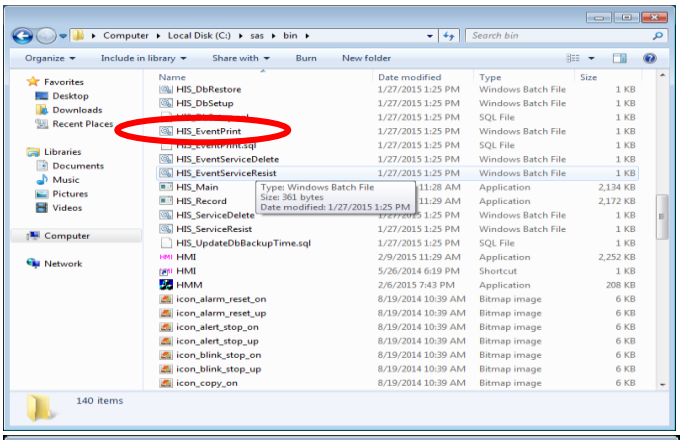
3) The event data loaded from the backup is displayed and title of the “Event” window becomes “Event (Loaded)”.

To return to the online event list, click LATEST on the tool bar of the “Event” (Loaded)”window.

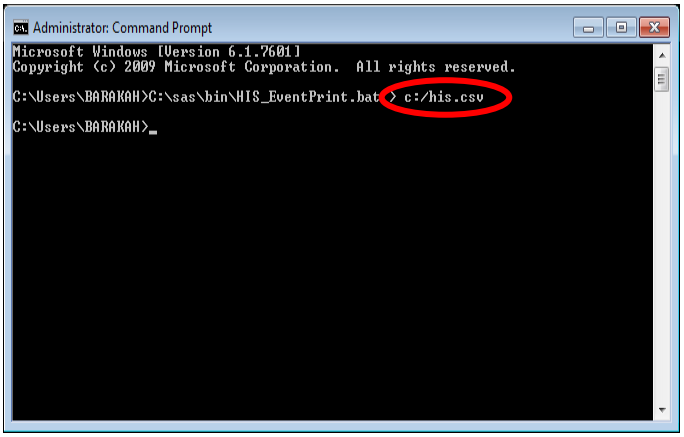
<Event Archive>

4.86 Saving the Event Archive Data in CSV Format

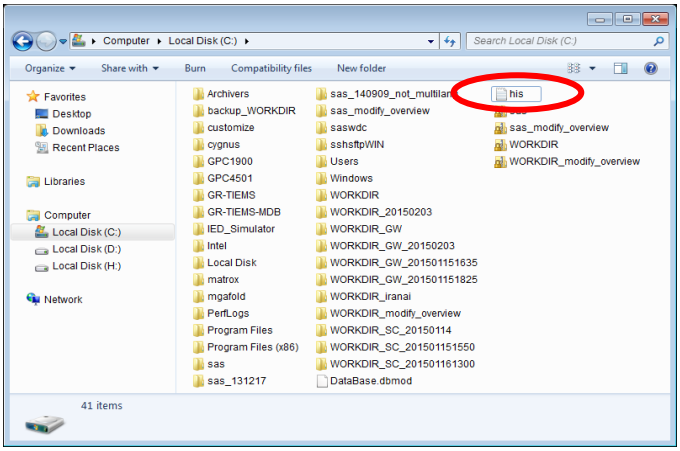
GSC1000-C has Event Archive Function. Event Archive Function is a function to store the event data that is stored in Station Computer to the external for long-term with automatically. Additional PC and software for data archive is necessary in order to perform this function. For the example of system configuration and how to install the software, refer to HIS Event Archive Function Installation/Operation Manual (Doc.No.6F2M2046). How to save the Event Archive Data in CSV format is indicated below.



1) After log-in using his user, open sas-bin file. Select HIS_EventPrint and then double click it.



2) Enter the location of event archive and format (ex; C:/his.csv) on the Command Prompt. All of the event data that is stored in the PC is converted to csv format and recorded.



3) Event Archive Data was recorded in CSV format.

The Event Archive window displays after selecting the “his” file. This window displays the level, quality, datetime and message of event.

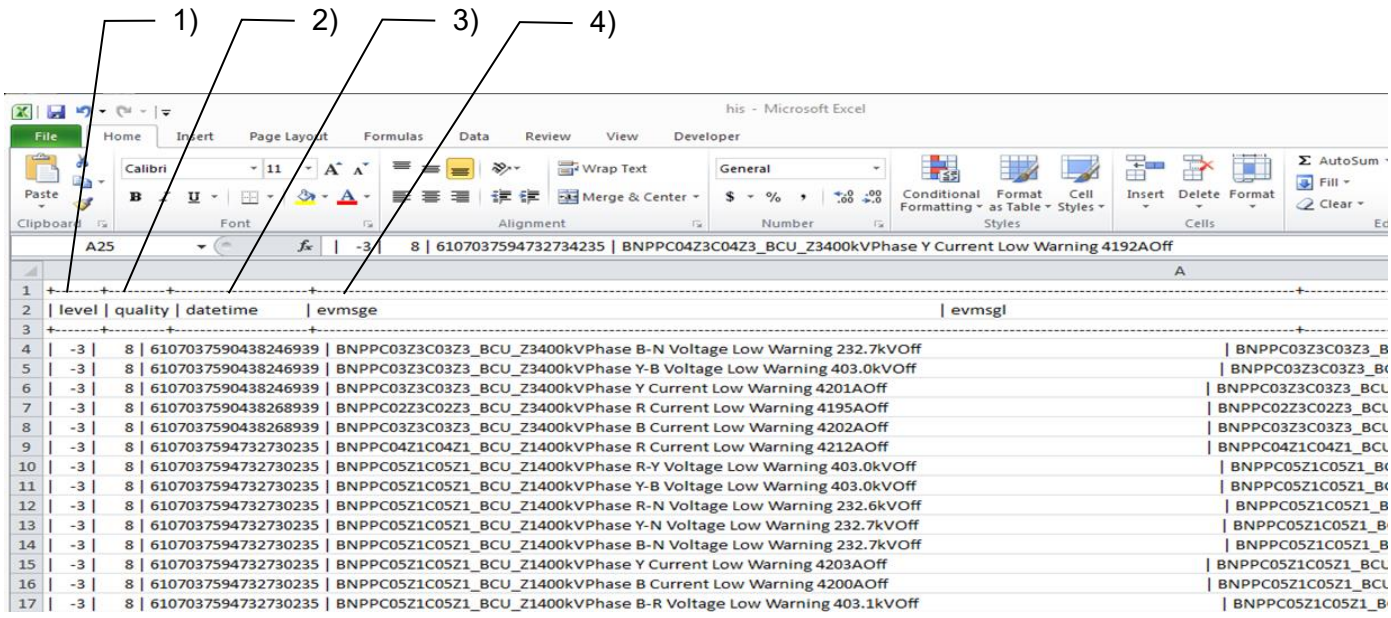


Figure 4.81.1 Event Archive window

1) level: Displays event level.
   - 01: Major failures such as protection relay operation
   - 02: Major failures in SAS
   - 03: Minor failures such as switchgear or transformer
   - 04: Minor failures in SAS
   - 05: General event
   - 06: Operation recorded event

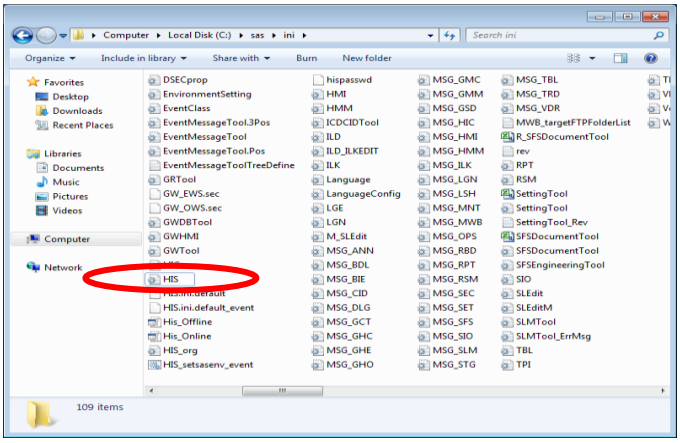
2) quality: Displays event quality.

3) datetime: Displays date and time.

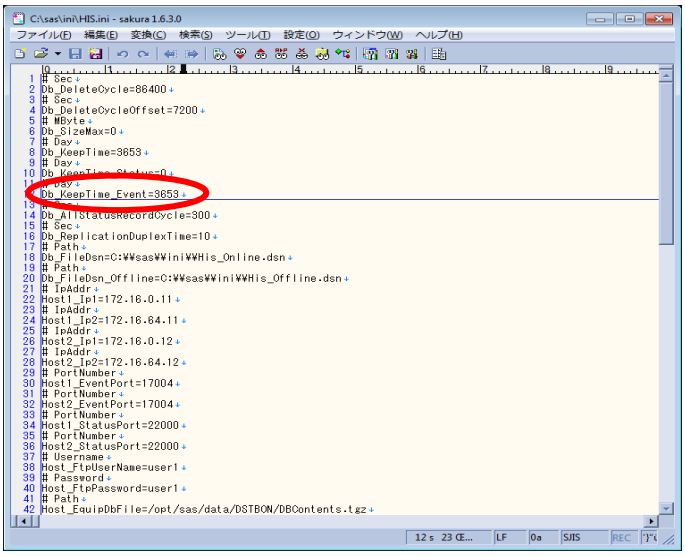
4) evmsge: Displays the event message.

4.87 Changing the Archive Storage Period

How to change the archive storage period is indicated below.

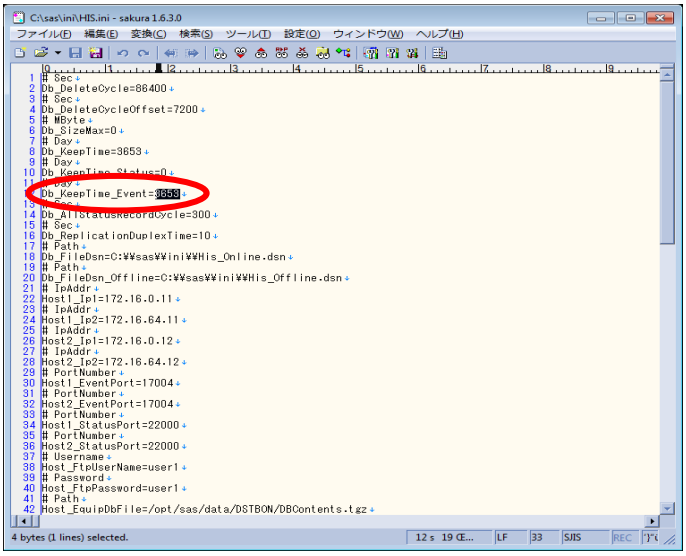


1) After log-in using his user, open sas-ini file. Select HIS and open the HIS file by using appropriate software.



2) Window of setting the storage period for archive is displayed. Line of “Db_ KeepTime_Event” indicates the storage period.

NOTE	Default value of storage period is 3,653 days (10years).



3) If you want to change the storage period, select the day of storage period and enter the new storage period. Close the file and restart the PC in order to activate the change of storage period.

NOTE	1. Storage period can be changed at any value. 2. In relation to between the event frequency and PC memory capacity, the PC's memory may become full within the storage set period.

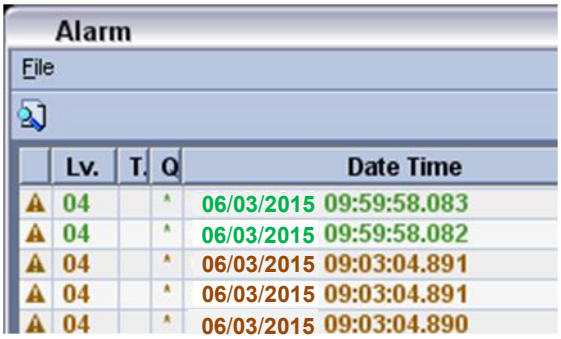
<Alarm Window>

4.88 Displaying the Alarm Window

How to display the “Alarm” window from the main menu bar is indicated below.



1) Click Alarm in the main menu bar.

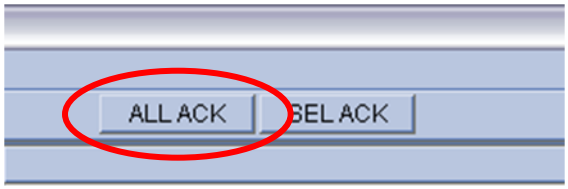


2) The “Alarm” window is displayed.

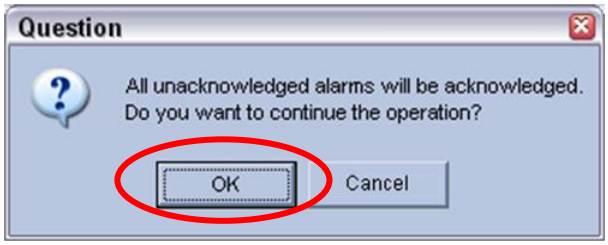
The symbol means the event is Heavy failure.
The symbol means the event is Light failure.
For the details, refer to 6.7.

4.89 Acknowledging All Alarms

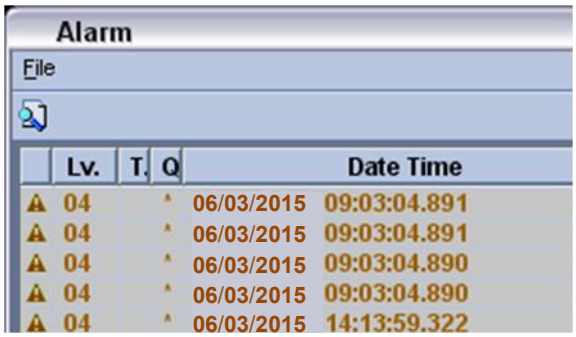
How to acknowledge all alarms (All ACK) is indicated below.



1) Click ALL ACK in the tool bar of the “Alarm” window.



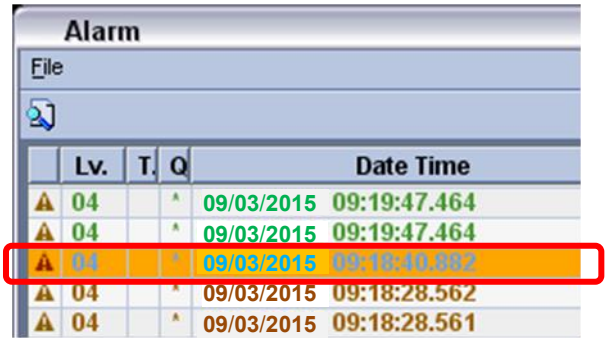
2) The confirmation message is displayed. Click OK.



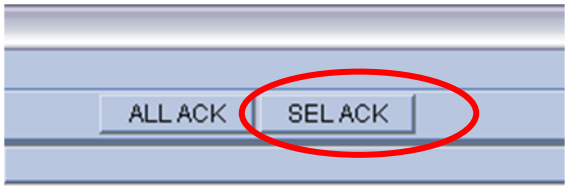
3) All alarms not yet acknowledged are acknowledged.

4.90 Acknowledging Alarm Individually

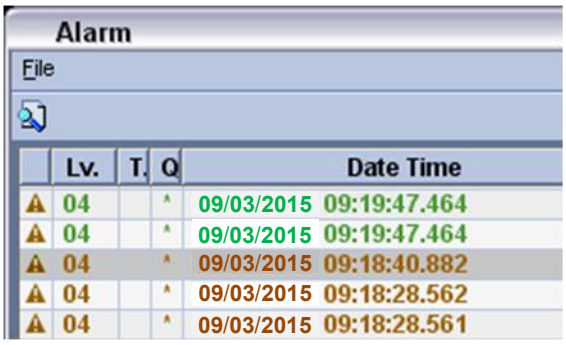
How to acknowledge an alarm individually is indicated below.



1) Click the row of the alarm not yet acknowledged on the “Alarm” window.
The clicked row changes its color.
To select two or more alarms, select them by [Ctrl] key + Click or by [Shift] key + Click.



2) Click SEL ACK in the tool bar.



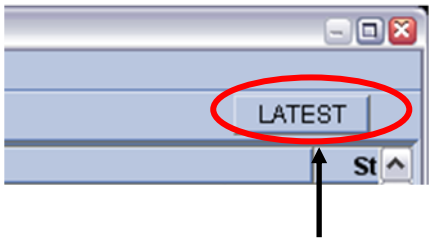
3) The Selected alarm is acknowledged.
If the alarm status is recovered and acknowledged, it will disappear from the list.

4.91 Sorting the Alarm List Currently Displayed

How to sort the alarm list currently displayed is indicated below.



1) Click ▼ or ▲ of title cell in the “Alarm” window.



2) The corresponding row is sorted and the display is updated.

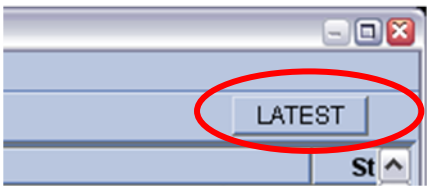
NOTE	Real time updating is not carried out after sorting.

To return to the alarm list not sorted, click LATEST.

(Click to return to the alarm not sorted)

4.92 Updating the Alarm List in Real Time

How to update the alarm list in real time is indicated below.

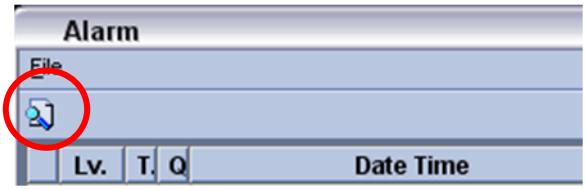


1) Click LATEST in the “Alarm” window.

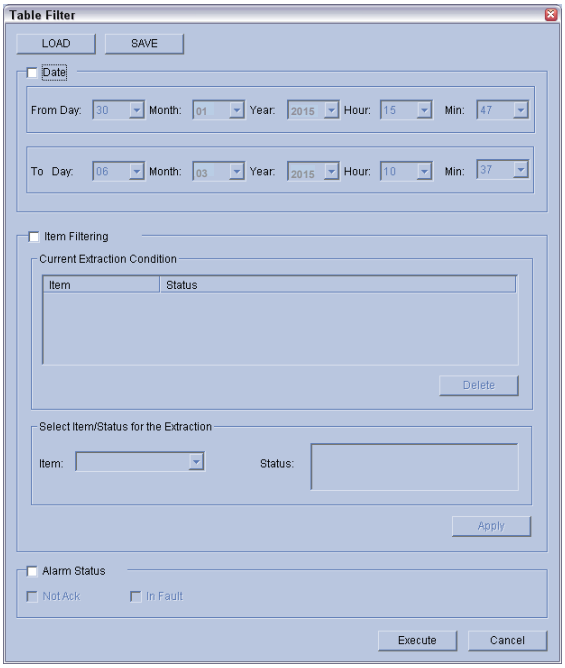
2) The latest alarm data is displayed and fixed cycle updating is started.

4.93 Filtering the Alarm List

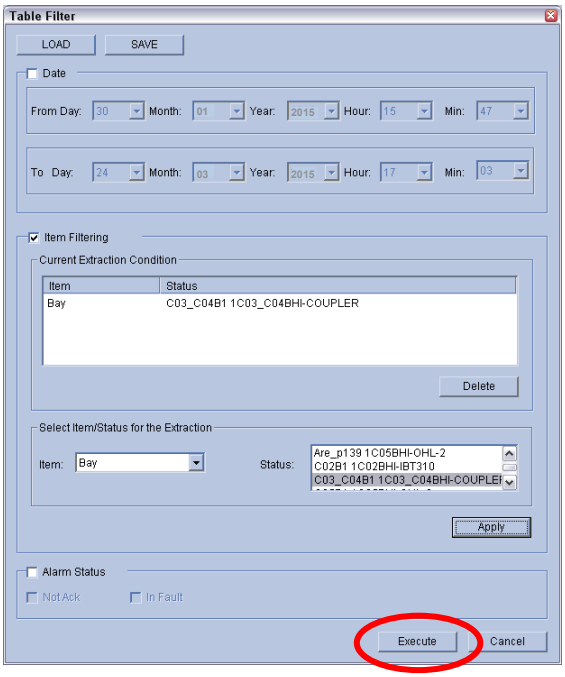
How to set the filtering of the alarm list is indicated below.



1) Click the “Filter” icon in the tool bar of the “Alarm” window.

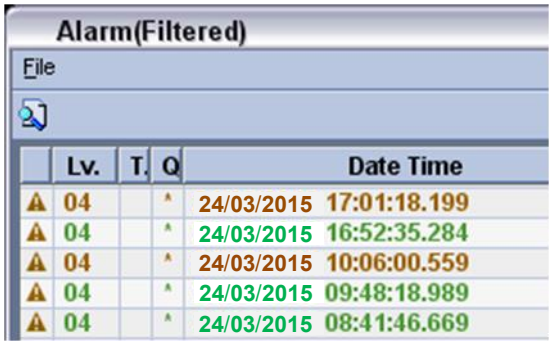


2) The “Table Filter” dialog is displayed.
If the data have been filtered already, the current filtering condition is displayed.



3) Set the filtering condition.
Refer to 4.73 Editing/Saving an Event Filter for setting and editing the filtering condition.

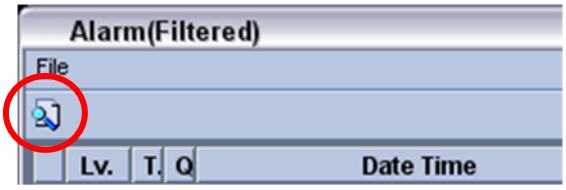
4) When the filter setting is completed, click Execute.



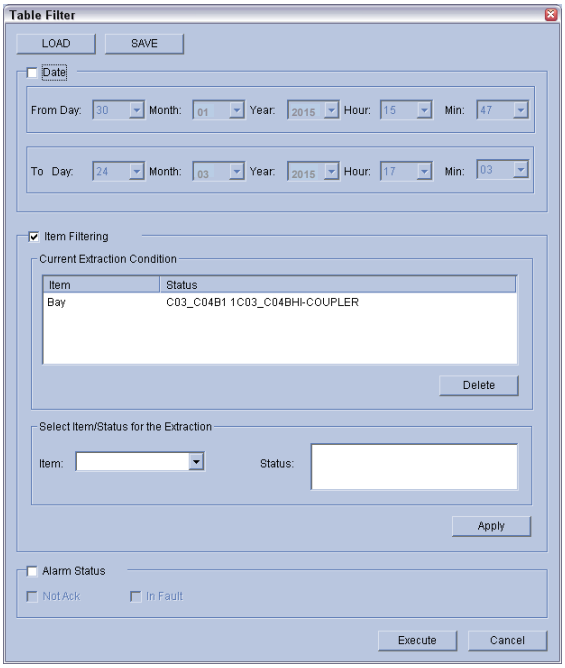
5) The “Table Filter” dialog is closed and the list of alarms satisfying the set filtering condition is displayed.
The title of the “Alarm” window changes to “Alarm (Filtered)”.

4.94 Canceling the Alarm Filter

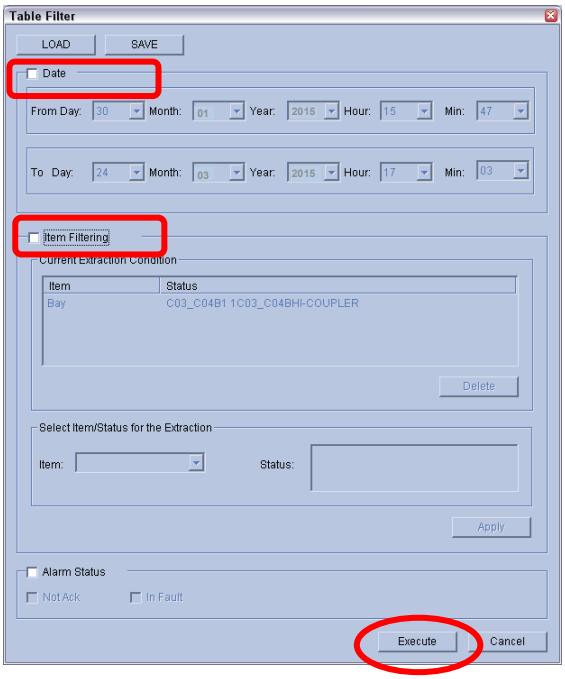
How to cancel the alarm filter is indicated below.



1) Click the “Filter” icon in the tool bar of the “Alarm (Filtered)” window.

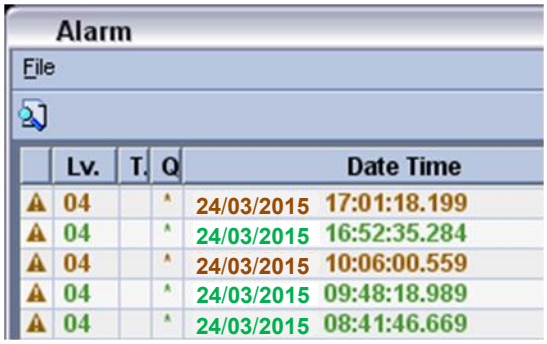


2) The “Table Filter” dialog is displayed.



3) Remove the tick in the “Date” check box and the “Item Filtering” check box.

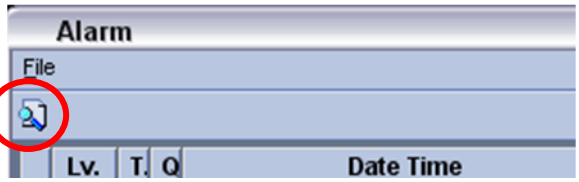
4) Click Execute.



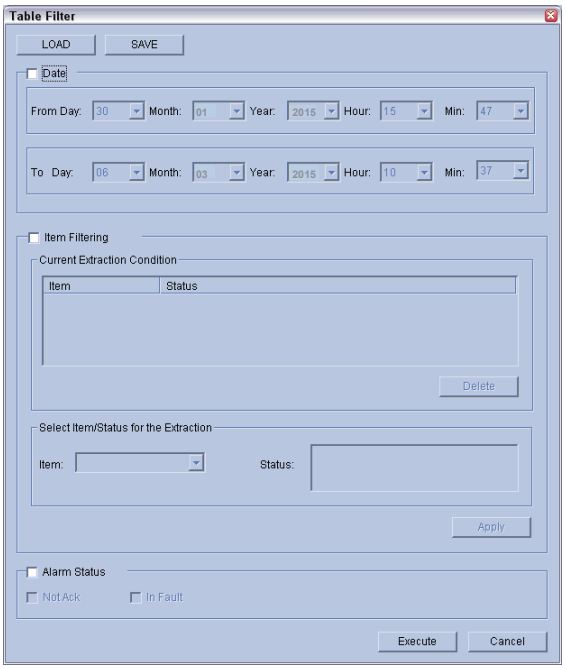
5) The “Table Filter” dialog is closed and the list of alarms not filtered is displayed.
The title of “Alarm (Filtered)” changes to “Alarm”.

4.95 Editing/Saving an Alarm Filter

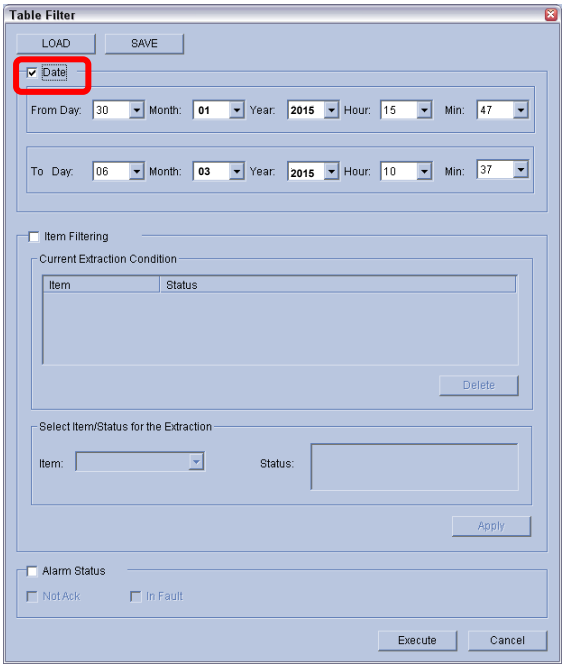
How to edit/save an alarm filter is indicated below.



1) Click the “Filter” icon in the tool bar of the “Alarm” window or Alarm (Filtered).



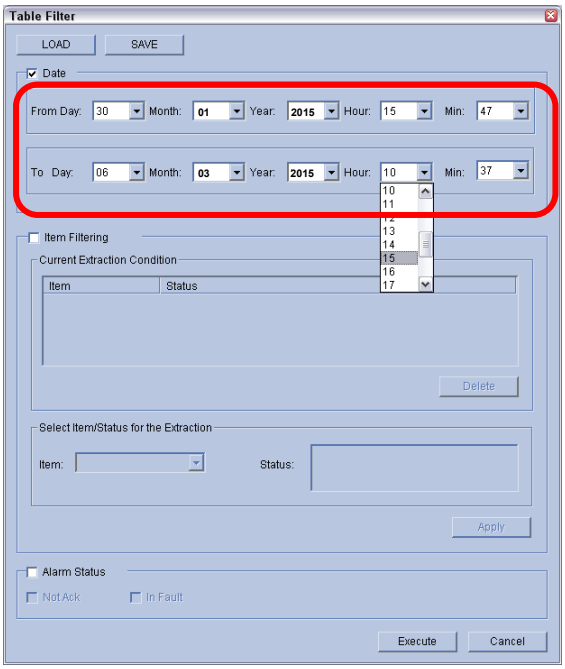
2) The “Table Filter” dialog is displayed.
If the data has been filtered already, the current filtering condition is displayed.



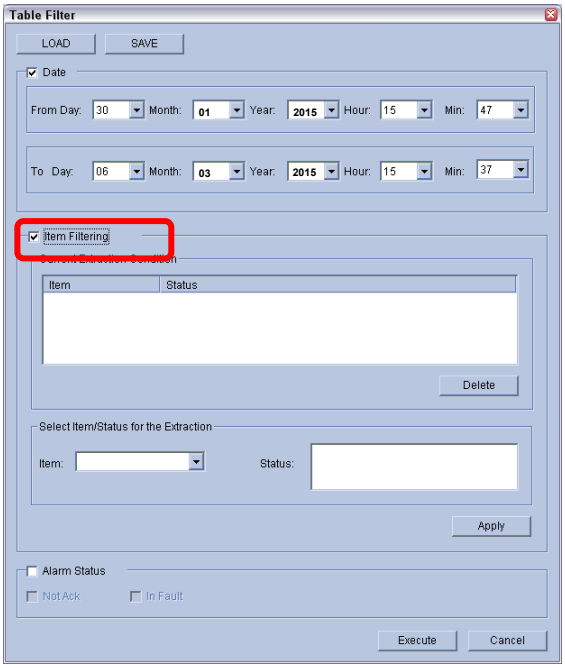
3) **Setting of date**

a) When using the date as a filtering condition, put a tick in the “Date” check box.

When the “Date” check box is checked, the combo boxes in “From Day” row and “To Day” row become active.

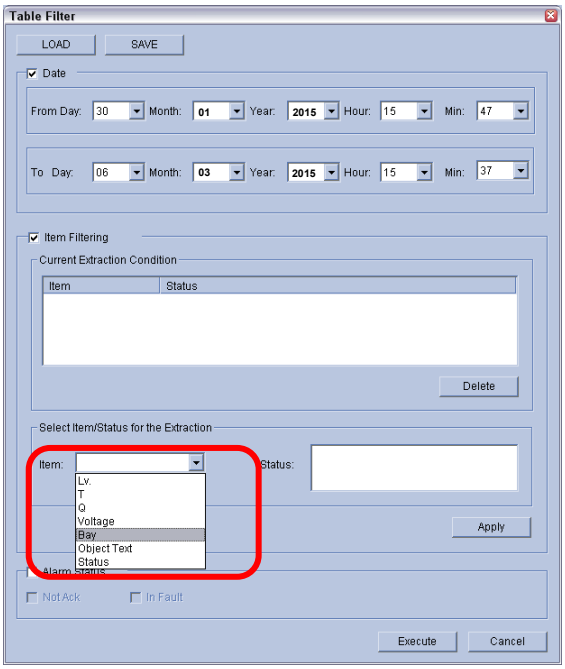


b) Select the period of extraction.

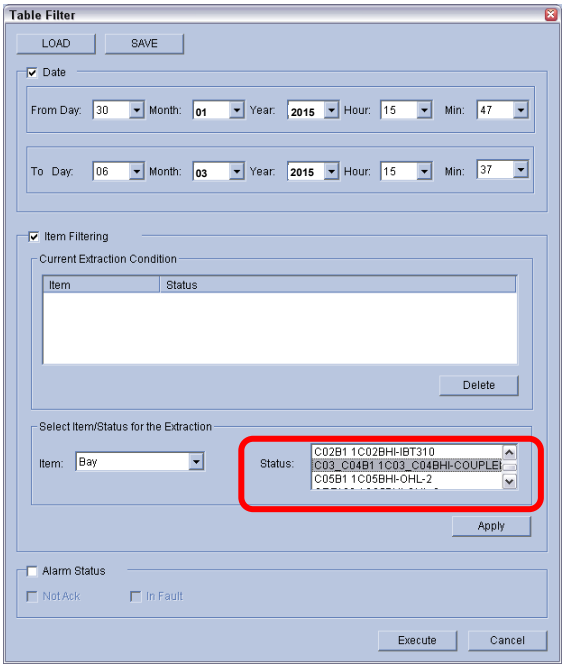


4) **Setting of item filtering condition**

a) To set the item filtering condition, put a tick in the “Item Filtering” check box.



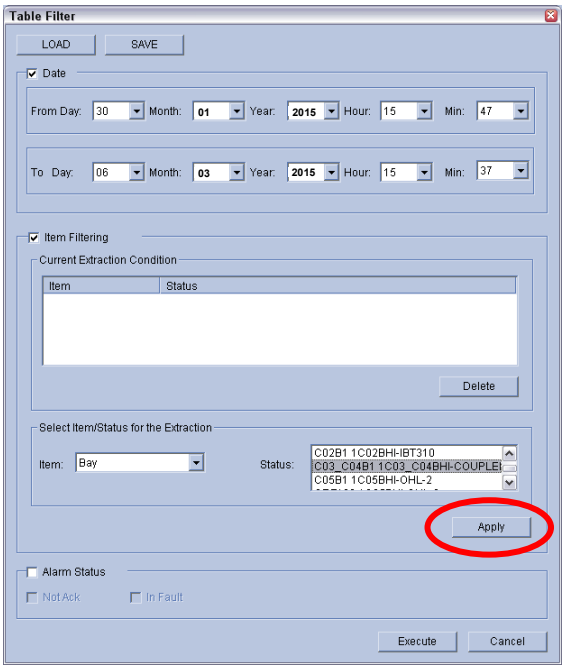
b) Select an item from the “Item” combo box. The contents corresponding to the selected item are displayed in “Status”. If the selected item has already been registered to the extraction condition, the position of the “Status” selected at the registration is displayed in reversed colour.



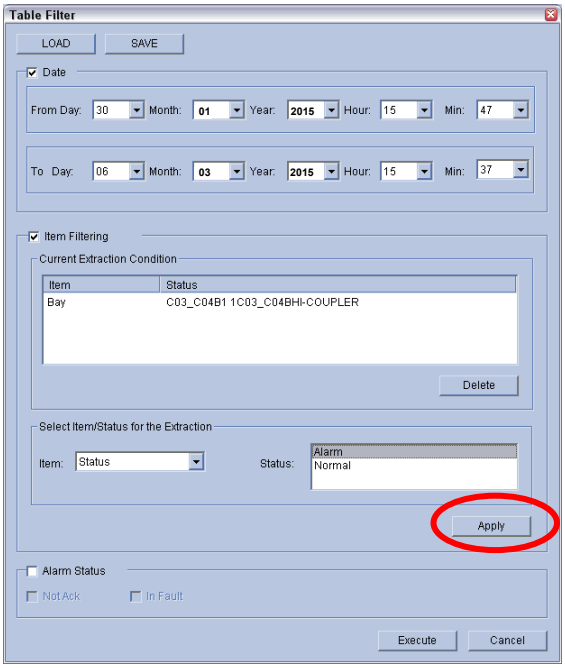
c) Click the row of the “Status” to select the extraction condition. (The selected row is displayed in reversed colour)

To select two or more rows, select them by [Shift] + Click or by [Control] + Click.

If you click the row that has already been selected, the selection of the row is cancelled.

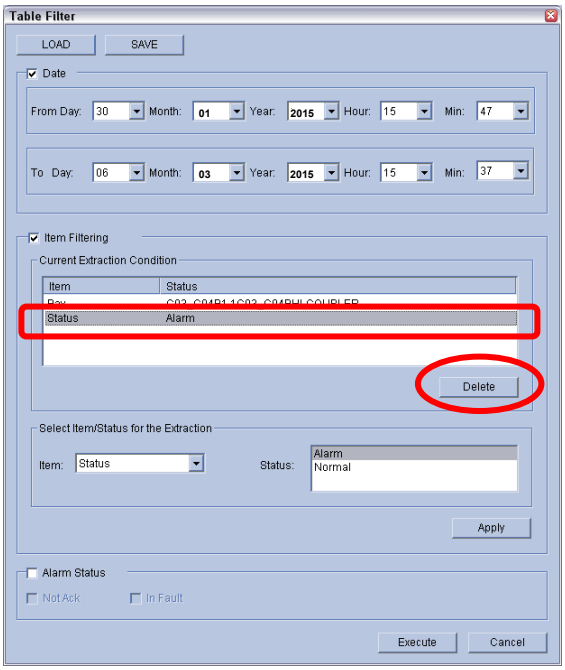


d) When the selection at the “Status” is completed, click Apply.



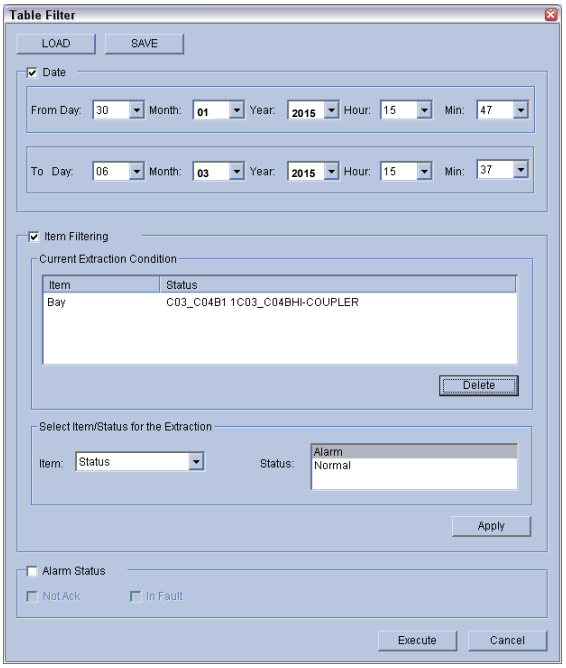
e) When the selection at the “Status” is completed, click Apply.
The selected extraction condition is displayed in the “Current Extraction Condition” column.

When registering two or more items, repeat b) through e).

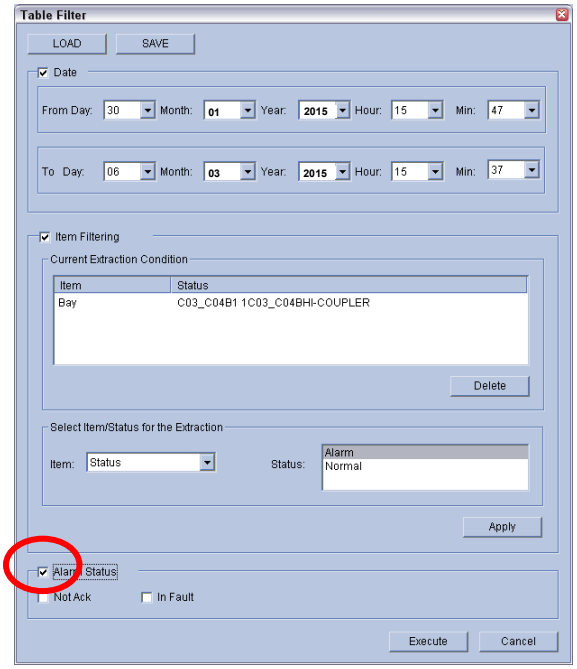


5) **Deletion of item filtering condition**

a) To delete the extraction condition, select the condition in the “Current Extraction Condition” column and click Delete.



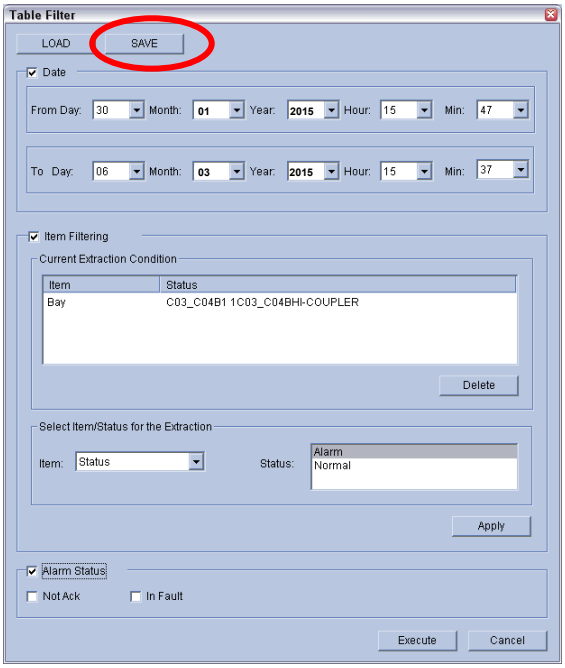
b) The selected condition is erased from the Current Extraction Condition column.



6) **Setting of Alarm status**

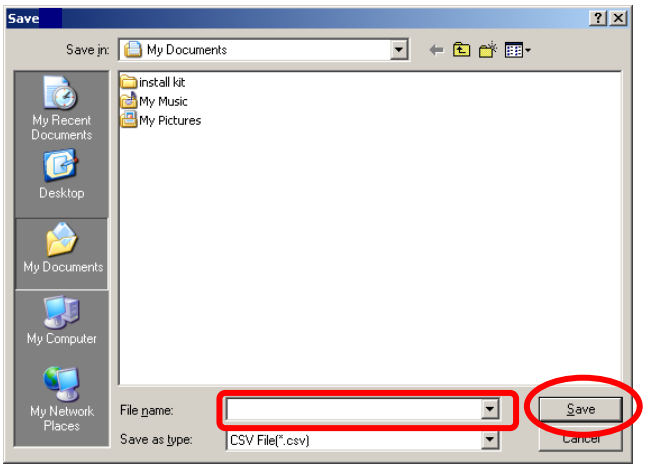
a) To set the Alarm status as the filtering condition, put a tick in the “Alarm Status” check box.
Put a tick in “Not Ack” or in “In Fault”.

Not Ack: To extract Alarms not acknowledged. In Fault: To extract Alarms that continues.



7) **Saving of the filtering condition**

a) To save the current extraction condition, click SAVE.



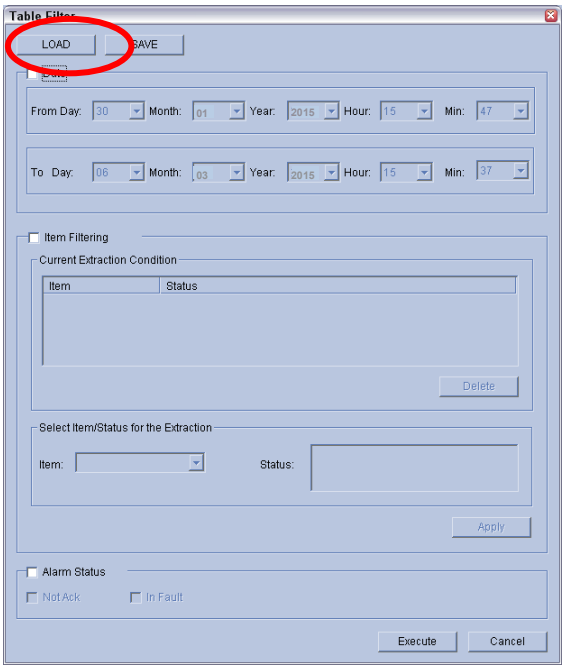
b) The “Save” dialog is displayed.
Input the file name and click Save.
The filtering condition is saved.

4.96 Calling a Saved Alarm Filter

How to call and set a saved alarm filter is indicated below.

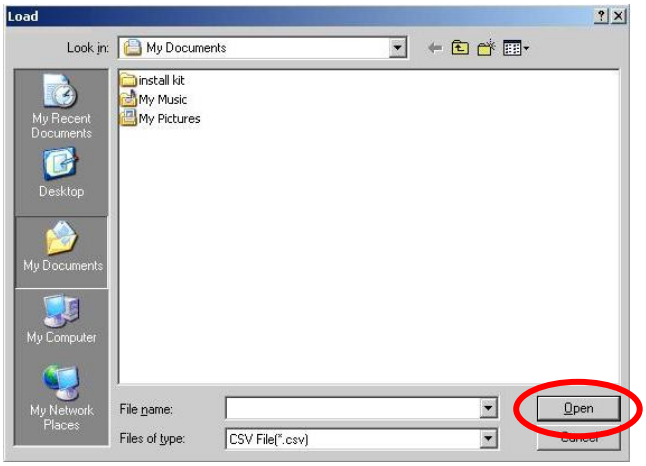


1) Click the “Filter” icon in the tool bar of the “Alarm” window.

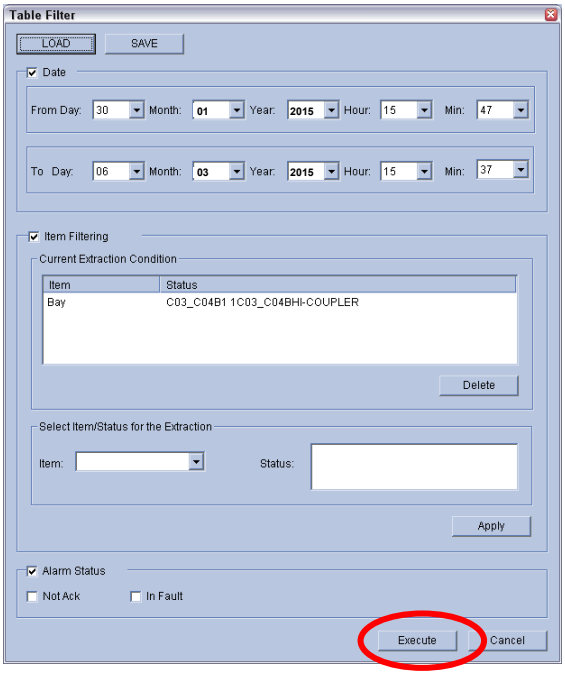


2) The “Table Filter” dialog is displayed.

3) Click LOAD.

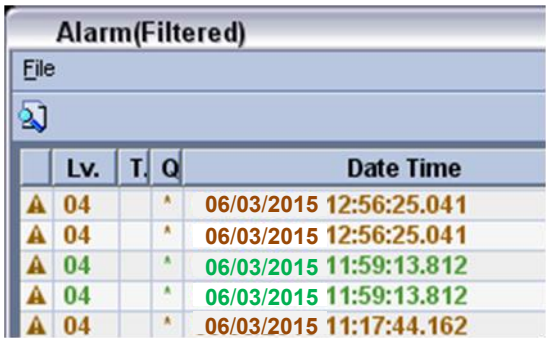


4) The “Load” dialog is displayed.
Select the file and click Open.



5) The filtering condition you called is displayed. Edit the filtering condition if necessary.

6) Click Execute.

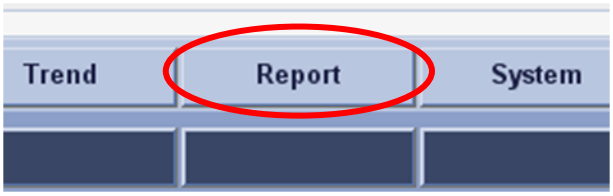


7) The “Table Filter” dialog is closed and the list of alarms satisfying the set filtering condition is displayed.
The title of the “Alarm” window changes to “Alarm (Filtered)”.

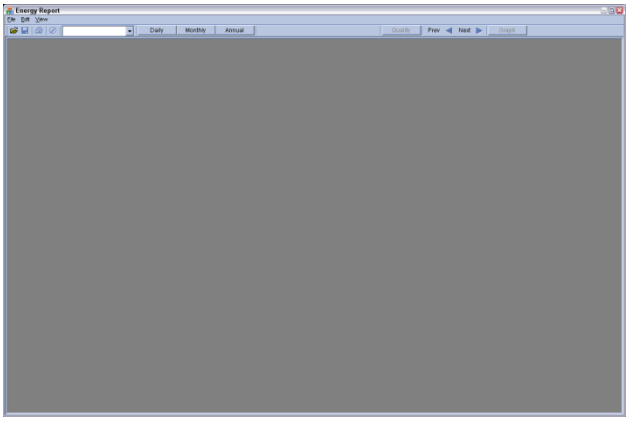
<Energy Report Window>

4.97 Displaying the Energy Report Window

How to display the “Energy Report” window from the main menu bar is indicated below.



1) Click Report in the main menu bar.

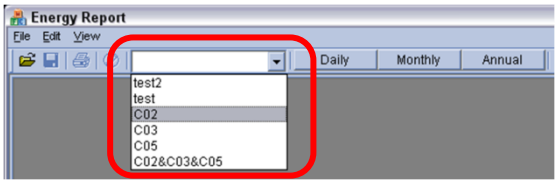


2) The “Energy Report” window is displayed.

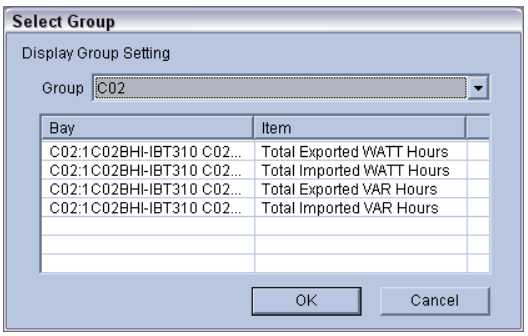
Register the Energy Report Group by the procedure of 4.101.

4.98 Displaying the Daily/Monthly/Annual Energy Report

How to display the Daily, Monthly and Annual Energy Report is indicated below.



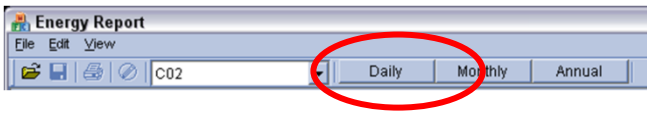
1) Click the group selection combo box of the “Energy Report” window and select the group from the pull down menu.



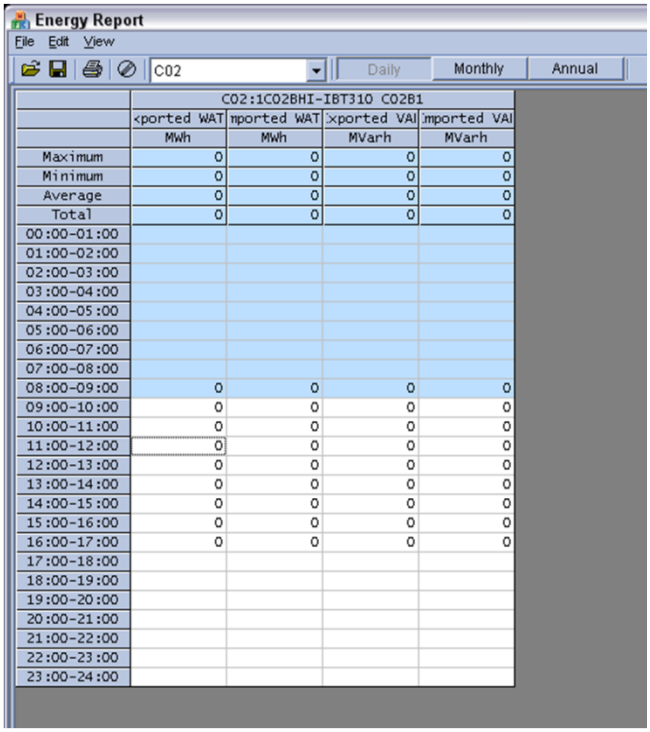
(Select Group dialog)

Or click [View] - [Select Group] to display the “Select Group” dialog and select the group.

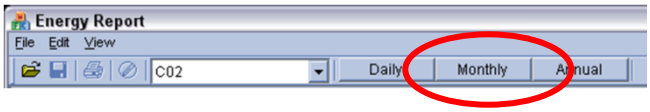
<Daily Energy Report>



1) After selecting the group, click Daily in the tool bar of the “Energy Report” window.

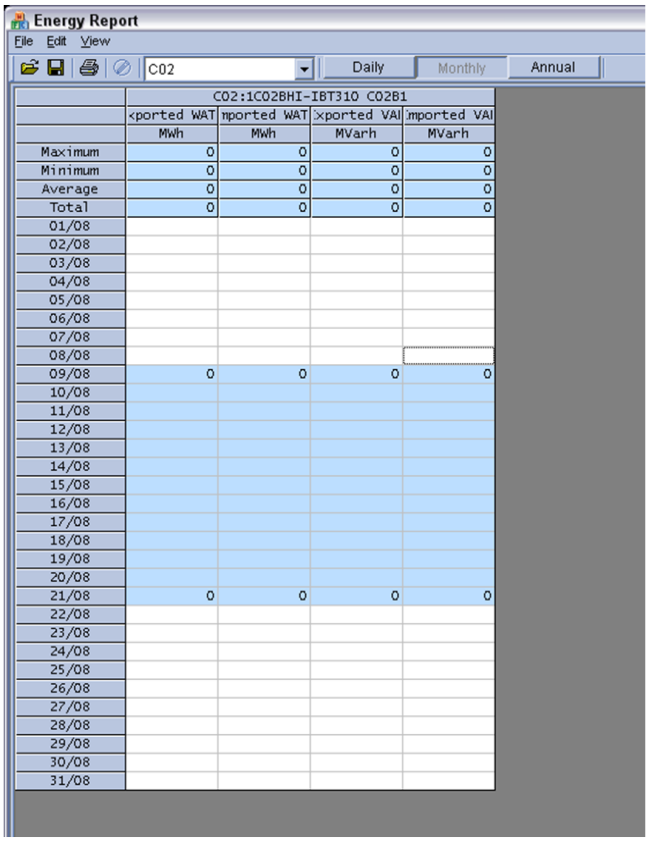


2) Daily Energy Report is displayed.

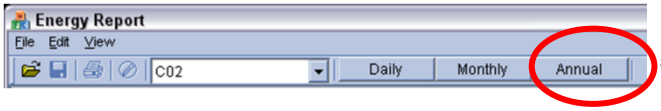


<Monthly Energy Report>

3) After selecting a group, click Monthly in the tool bar of the “Energy Report” window.

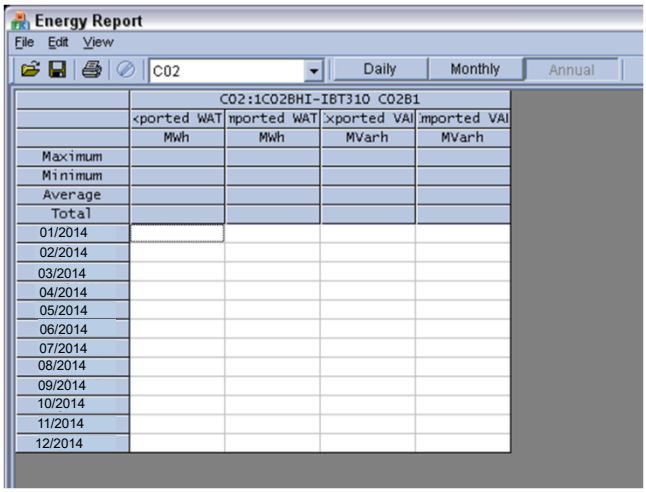


4) Monthly Energy Report is displayed.



<Annual Energy Report>

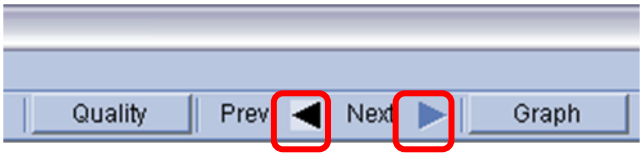
5) After selecting a group, click Annual in the tool bar of the “Energy Report” window.



6) Annual Energy Report is displayed.

4.99 Displaying the Energy Report of the Previous/Next Date

How to switch the Energy Report to previous/next date is indicated below.



1) To change the “Energy Report” to previous or next date, click Prev or Next in the tool bar of the “Energy Report” window.

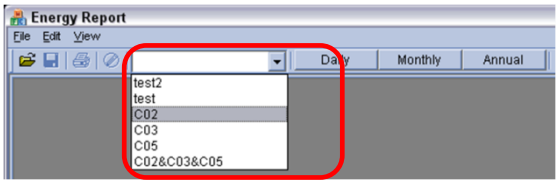
Daily Report: The window transitions to previous day or next day.

Monthly Report: The window transitions to previous month or next month.

Annual Report: The window transitions to previous year or next year.

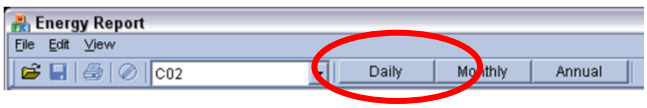
4.100 Displaying the Energy Report of the Specified Date

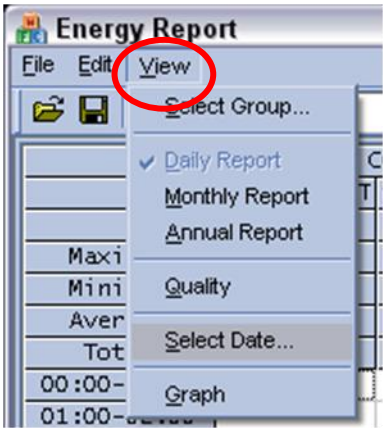
How to display the Energy Report of the specify date is indicated below.



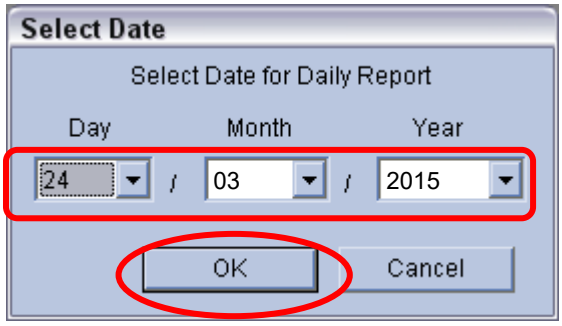
1) Specify the group and click Daily in the tool bar of the “Energy Report” window.

The Daily Energy Report window is displayed.





2) From the menu bar, select [View] - [Select Date].



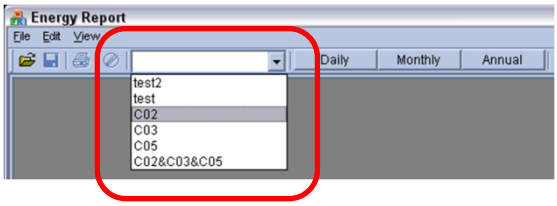
3) The “Select Date” dialog is displayed.

4) Select “Day”,” Month” and “Year”, and then click OK.

5) The Daily Energy Report of the specified date is displayed.

4.101 Displaying the Monthly Energy Report of the Specified Month

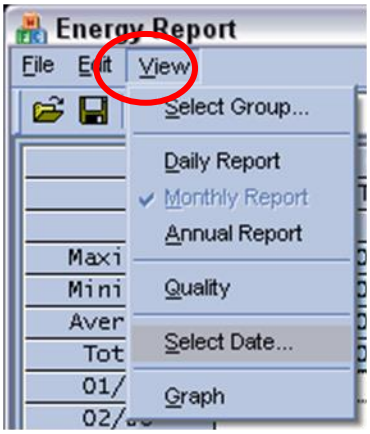
How to display the Monthly Energy Report of the specified month is indicated below.



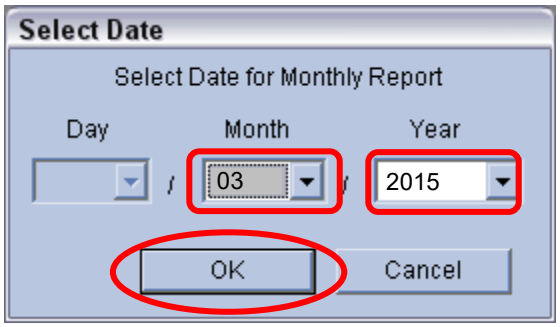
1) Specify the group and click Monthly in the tool bar of the “Energy Report” window.

Monthly Energy Report is displayed.





2) From the menu bar, select [View] — [Select Date].



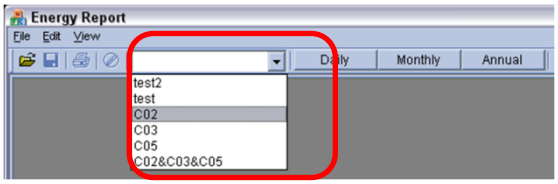
3) The “Select Date” dialog is displayed.

4) Select “Month” and “Year” and click OK.

5) The Monthly Energy Report of the specified month and year is displayed.

4.102 Displaying the Annual Energy Report of the Specified Year

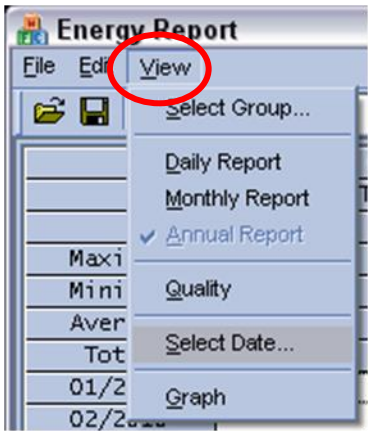
How to display the Annual Energy Report of the specified year is indicated below.



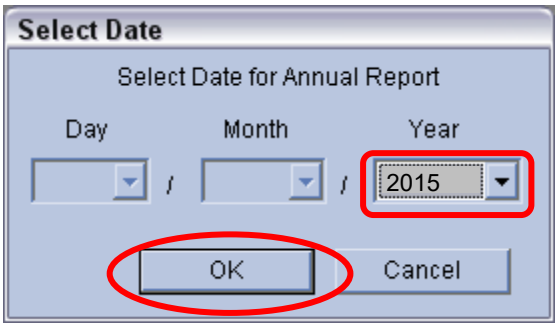


1) Specify the group and click Annual in the tool bar of the “Energy Report” window.

The Annual Energy Report is displayed.



2) From the menu bar, select [View] — [Select Date].



4) The “Select Date” dialog is displayed.

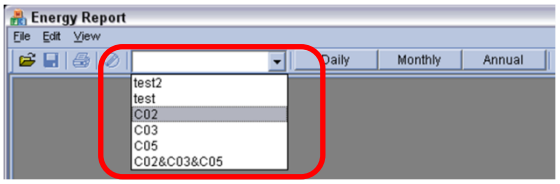
5) Select “Year” and click OK.

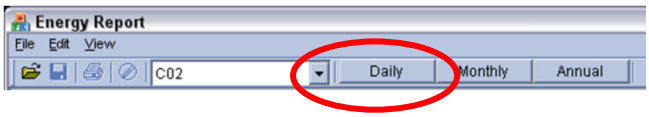
6) The Annual Energy Report of the specified year is displayed.

4.103 Correcting the Data of the Daily Energy Report

How to correct the data of the Daily Energy Report is indicated below.

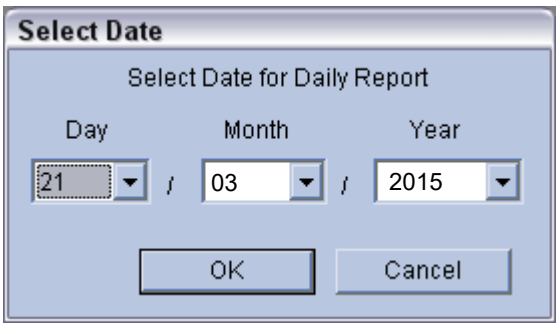
NOTE	Data correction is available only on the Daily Energy Report. The data of the present day cannot be corrected.



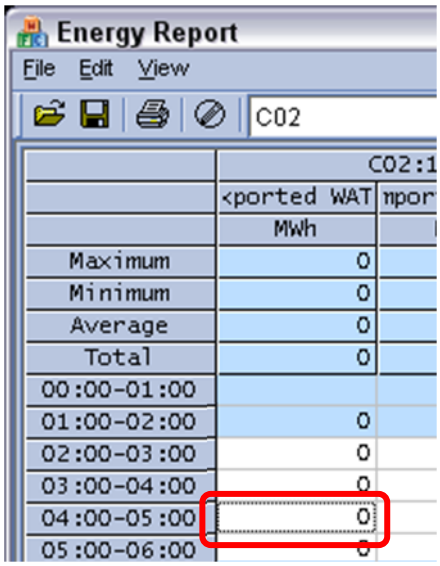


1) Specify the group and click Daily of the “Energy Report” window to display the Daily Energy Report.

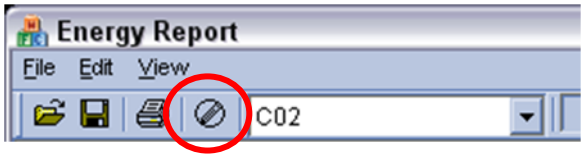




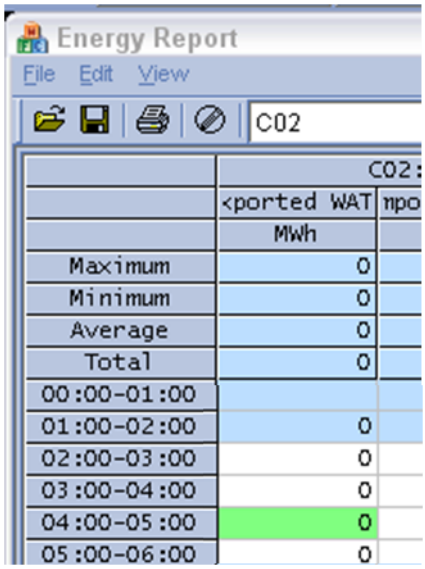
2) Display the Daily Energy Report of the corresponding date using Prev / Next or using the “Select Date” dialog. ([View] — [Select Date])



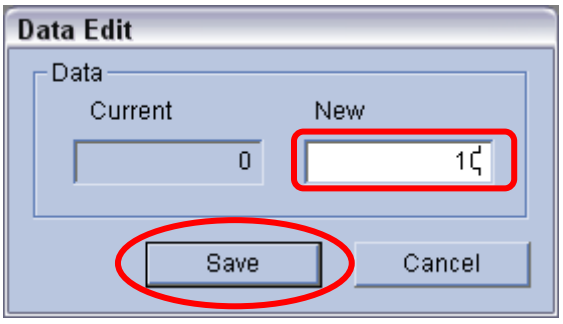
3) Click the cell you want to change.



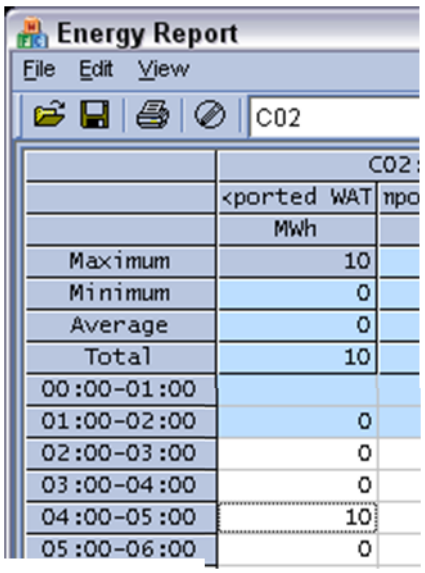
4) Click the “Edit” icon the tool bar or “Edit” in the menu.



5) The color of the cell to change the value becomes green and the “Data Edit” dialog is displayed.



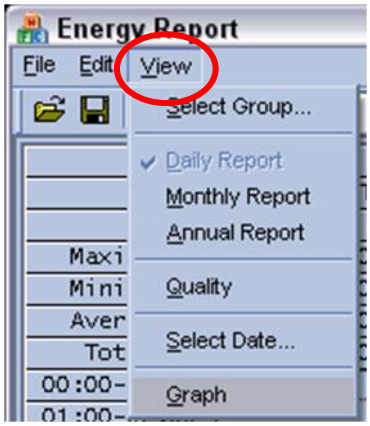
6) Input the corrected data in the “Data Edit” dialog and click Save.



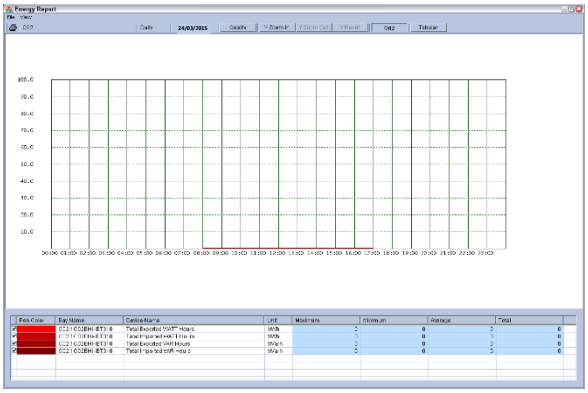
7) The corrected data is reflected to the cell, and the color of the cell returns to the ordinary color (white).

4.104 Displaying the Energy Report Data in Graphical Format

How to display the “Energy Report” window in graphical format is indicated below.



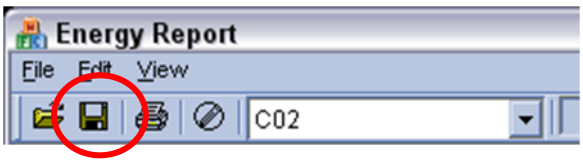
1) From the menu bar of the “Energy Report” window, select [View] — [Graph].



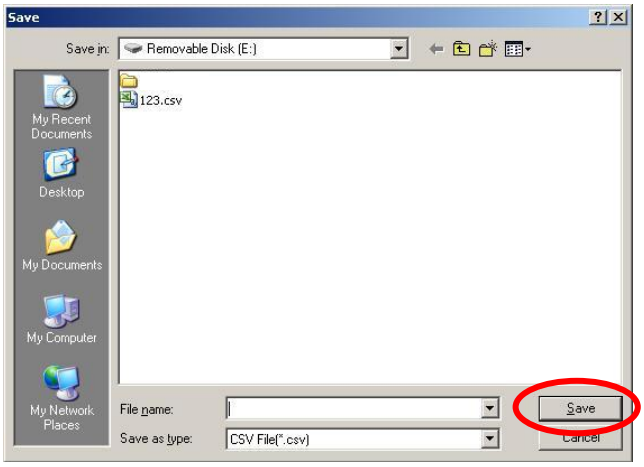
2) The “Energy Report” window is displayed in graphical format.

4.105 Saving the Energy Report Data in CSV Format

How to save the energy report data in CSV format is indicated below.



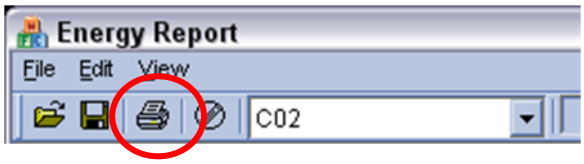
1) Click “Save” icon in the tool bar of the “Energy Report” window.



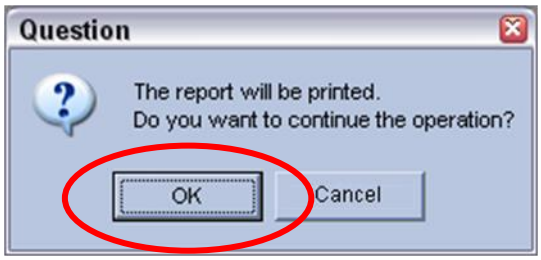
2) The “Save” dialog is displayed. Specify the folder and the file name and click Save. The data currently displayed is saved in CSV format.

4.106 Printing the Energy Report Data

How to print the energy report data is indicated below.



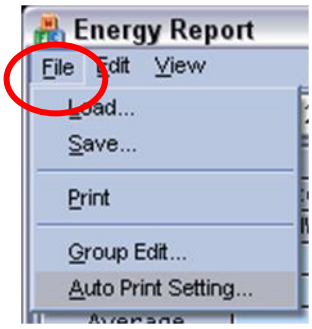
1) Click the “Print” icon in the tool bar of the “Energy Report” window.



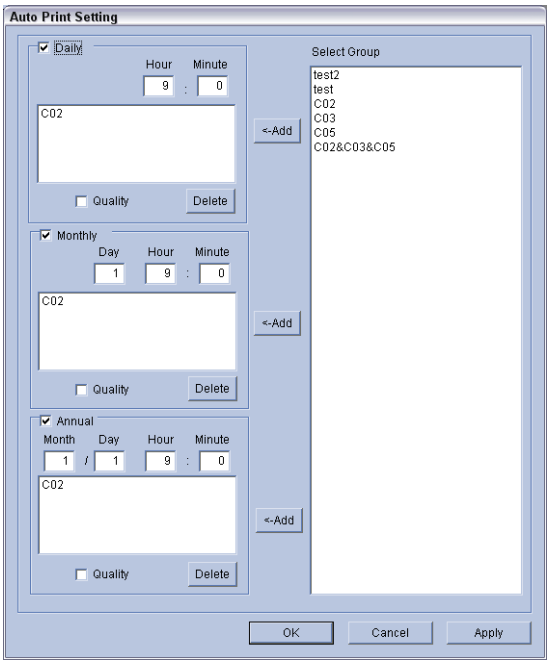
2) The confirmation dialog is displayed. Click OK. The data currently displayed is printed out.

4.107 Setting/Canceling Automatic Printing of the Energy Report

How to set or cancel automatic printing of the “Energy Report” window is indicated below.

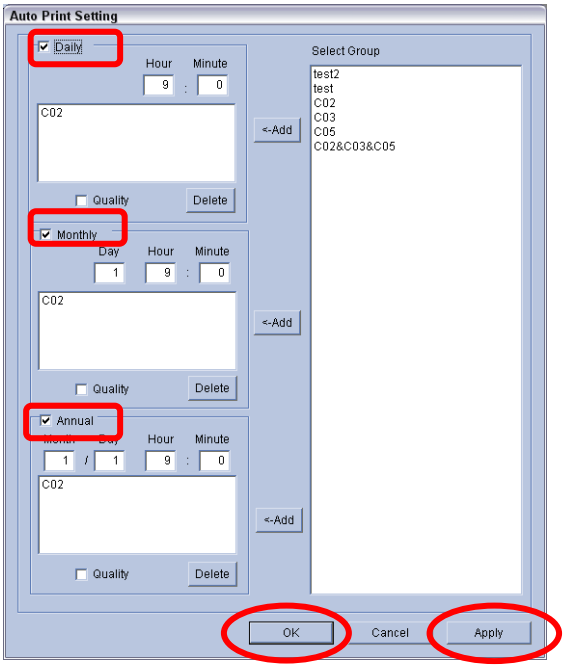


1) From the menu bar of the “Energy Report” window, select [File] - [Auto Print Setting].



2) The “Auto Print Setting” dialog is displayed.

The current setting for automatic printing is displayed.

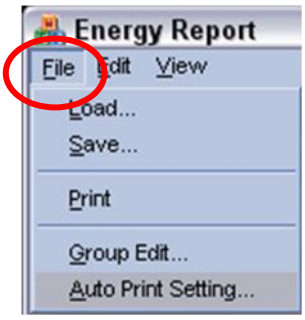


3) Put a tick in the check box of “Daily”, “Monthly” or “Annual”.
Edit the condition referring to 4.100 if necessary.
Click OK or Apply.
Automatic printing of Daily, Monthly or Annual Energy Report is set respectively.

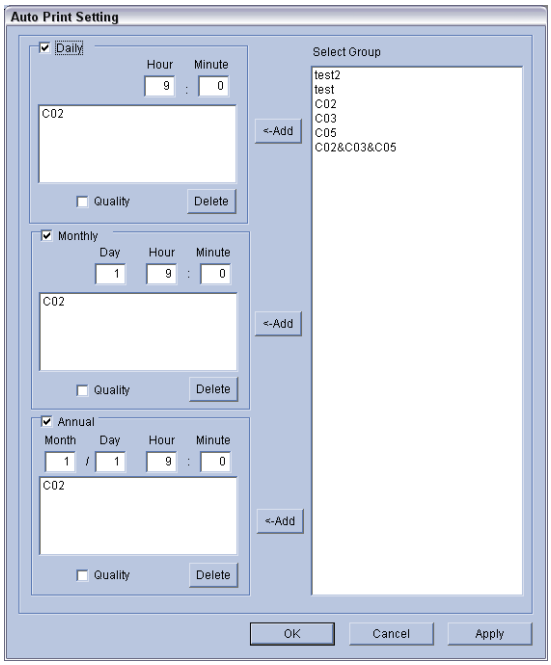
To cancel the automatic printing, remove the tick in the check box and click OK or Apply.

4.108 Changing the Energy Report Group for Automatic Printing

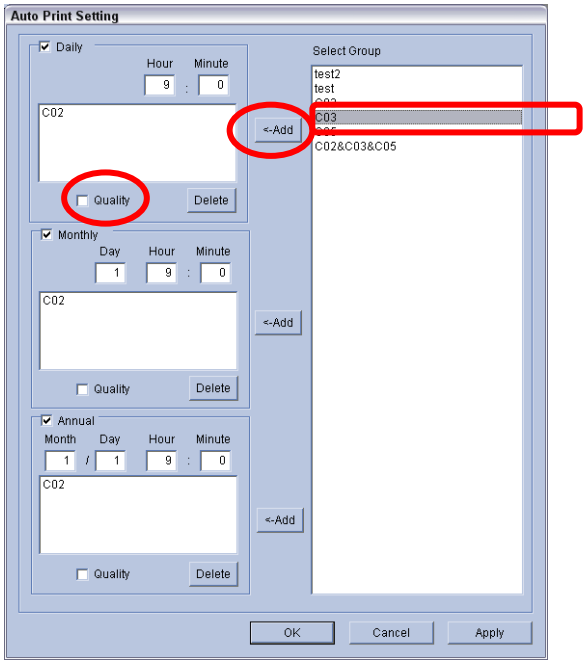
How to change the Energy Report group for automatic printing is indicated below.



1) From the menu bar of the “Energy Report” window, select [File] - [Auto Print Setting].



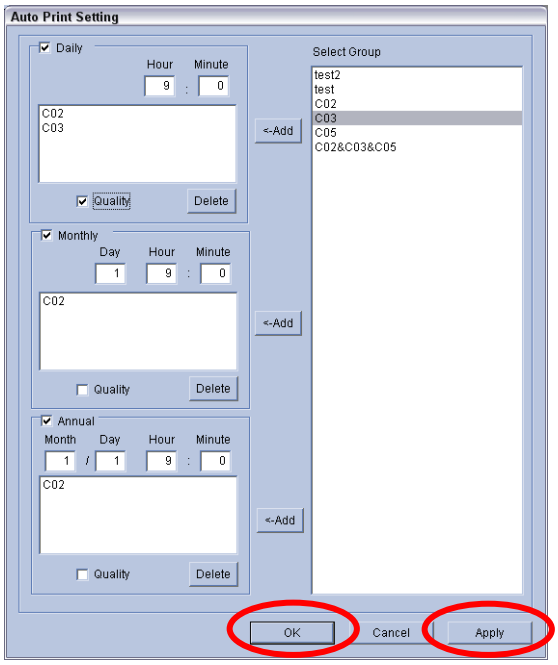
2) The “Auto Print Setting” dialog is displayed.



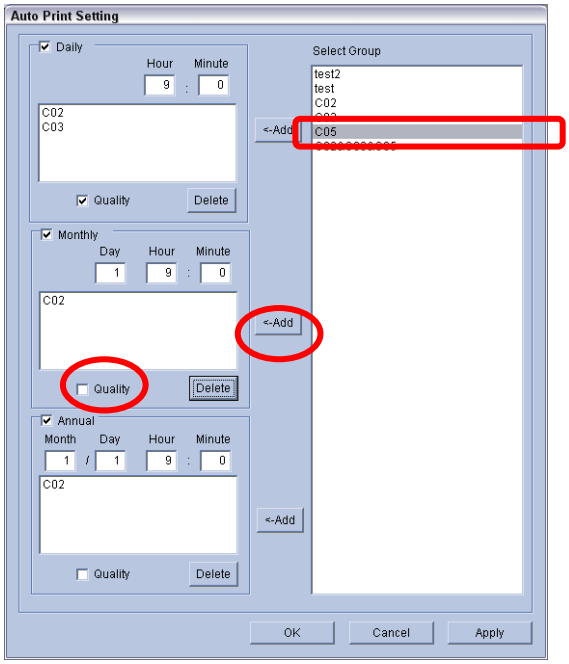
3) **Addition of Daily Energy Report printing group**

a) Select the group you want to add into automatic printing from the “Select Group” list.
Then click <-Add in the “Daily” section.

To add the quality of the data in the printed report, put a tick in the “Quality” check box.



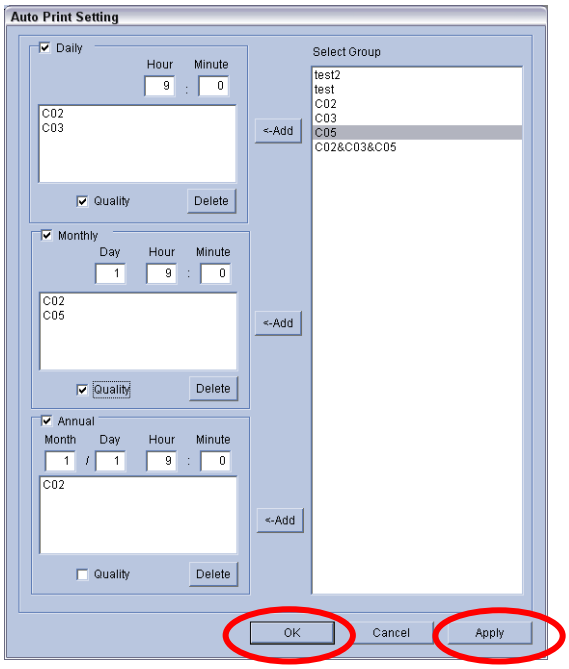
b) The selected group is added to the printing group of the Daily Energy Report.
Click OK or Apply.



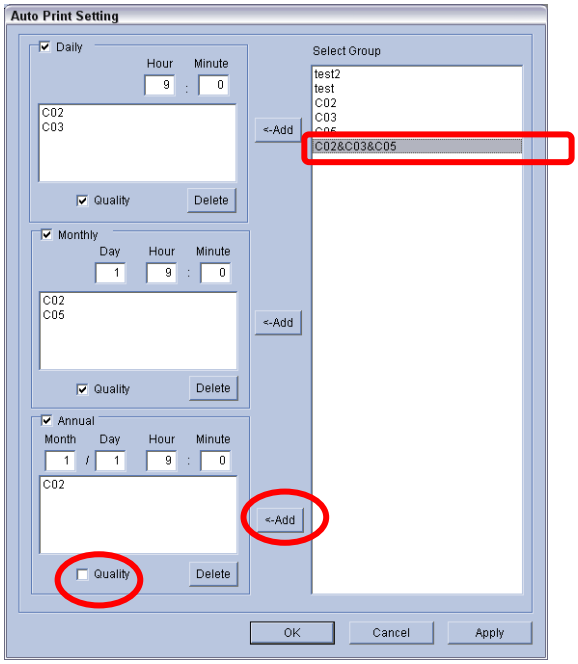
4) **Addition of Monthly Energy Report printing group**

a) Select the report group you want to add into automatic printing from the “Select Group” list.
Then click <-Add in the “Monthly” section.

To add the quality of the data in the printed report, put a tick in the “Quality” check box.



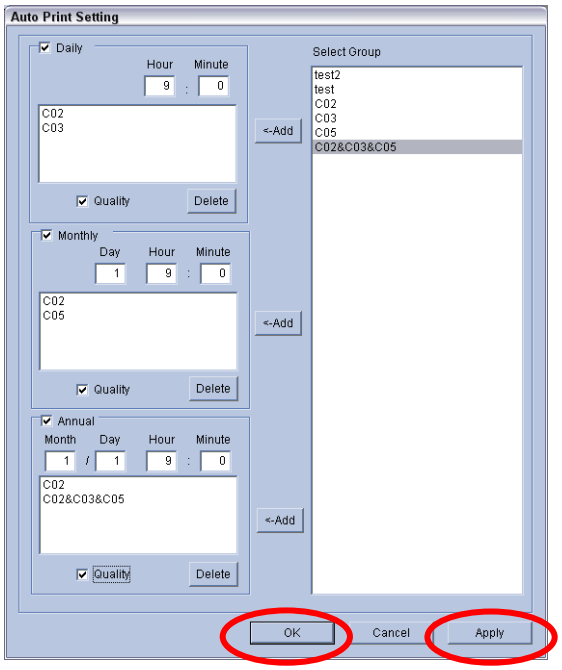
b) The selected group is added to the printing group of the Monthly Energy Report.
Click OK or Apply.



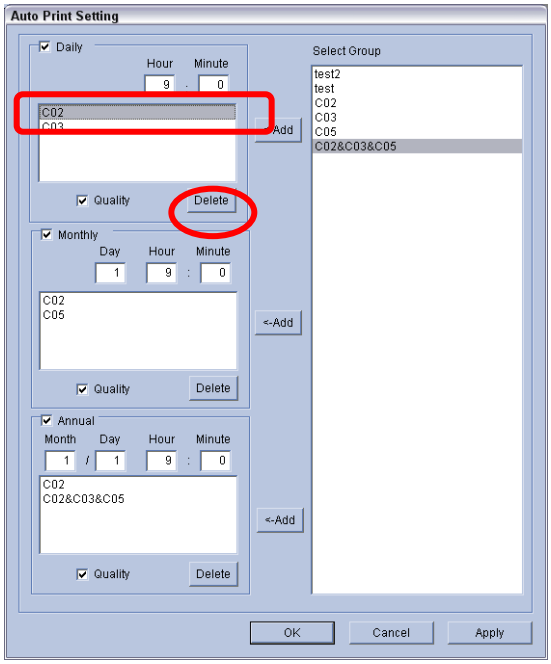
5) **Addition of an Annual Energy Report printing group**

a) Select the report group you want to add into automatic printing from the “Select Group” list.
Then click <-Add in the “Annual” section.

To add the quality of the data in the printed report, put a tick in the “Quality” check box.

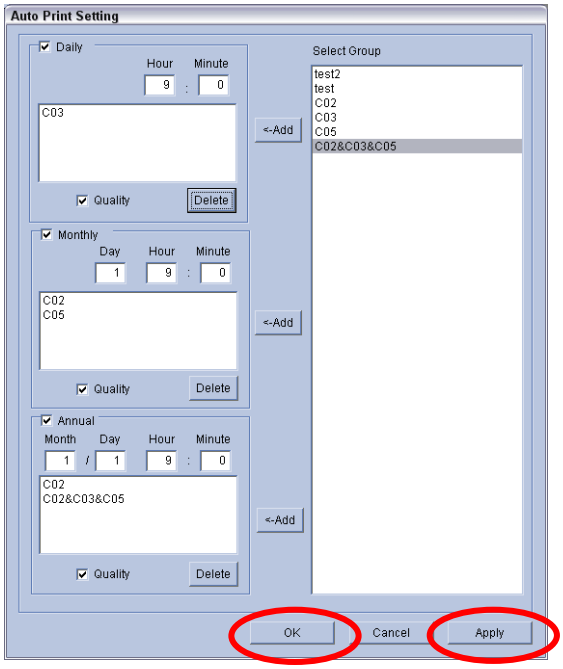


b) The selected group is added to the printing group of the Annual Energy Report.
Click OK or Apply.

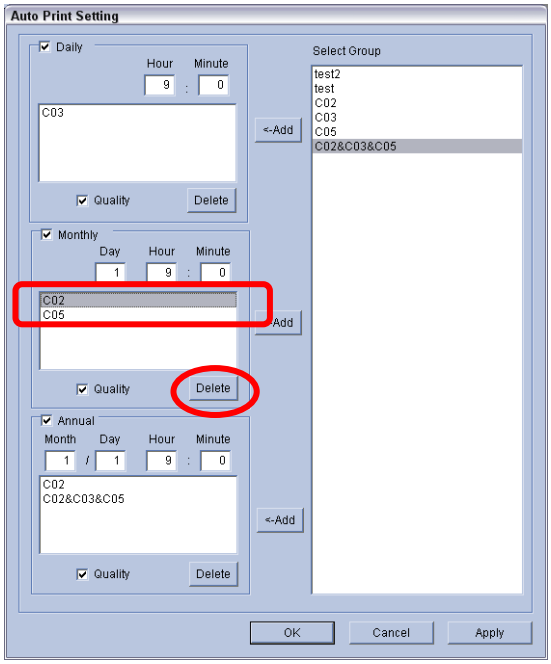


6) **Deletion of a group from the Daily Energy Report printing group**

a) Select the report group you want to delete from automatic printing of the Daily Energy Report.
Then click Delete in the “Daily” section.

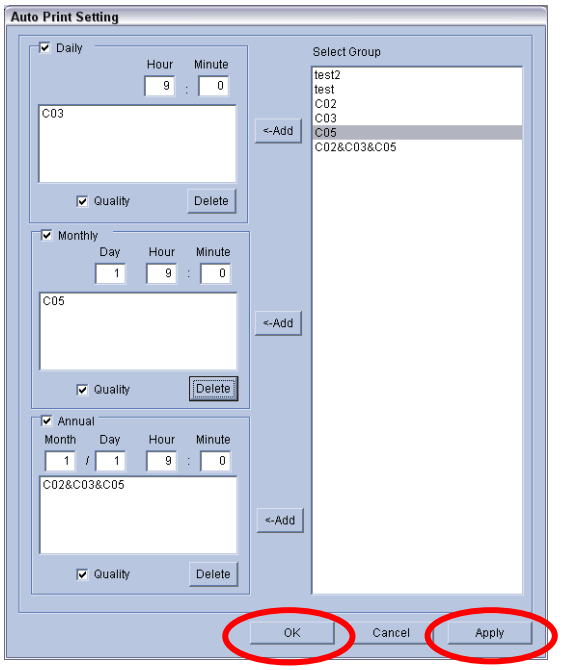


b) The selected group is deleted from the printing group of the Daily Energy Report.
Click OK or Apply.

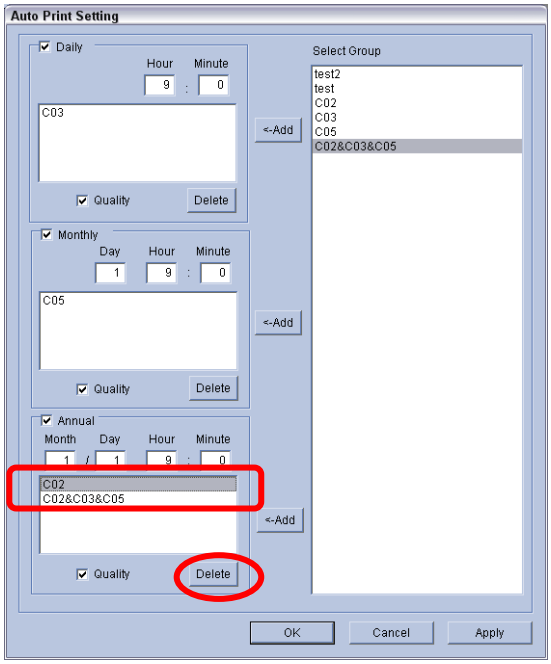


7) **Deletion of a group from the Monthly Energy Report printing group**

a) Select the report group you want to delete from automatic printing of the Monthly Energy Report.
Then click Delete in the “Monthly” section.

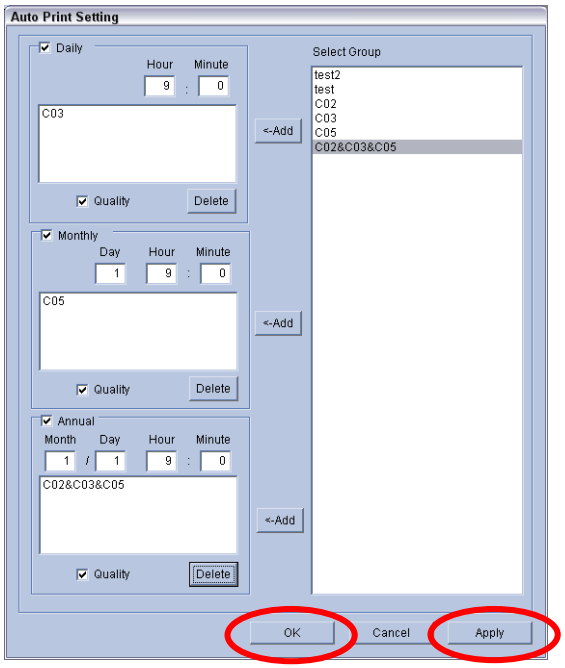


b) The selected group is deleted from the printing group of the Monthly Energy Report.
Click OK or Apply.



8) **Deletion of a group from the Annual Energy Report printing group**

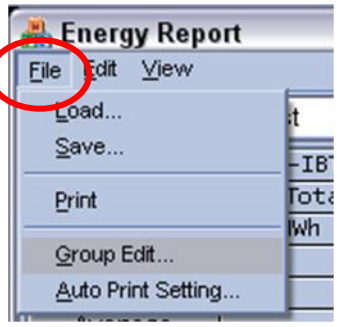
a) Select the report group you want to delete from automatic printing of the Annual Energy Report.
Then click Delete in “Annual” section.



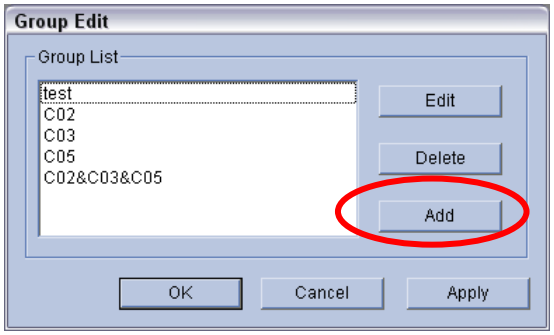
b) The selected group is deleted from the printing group of the Annual Energy Report.
Click OK or Apply.

4.109 Adding a New Energy Report Group

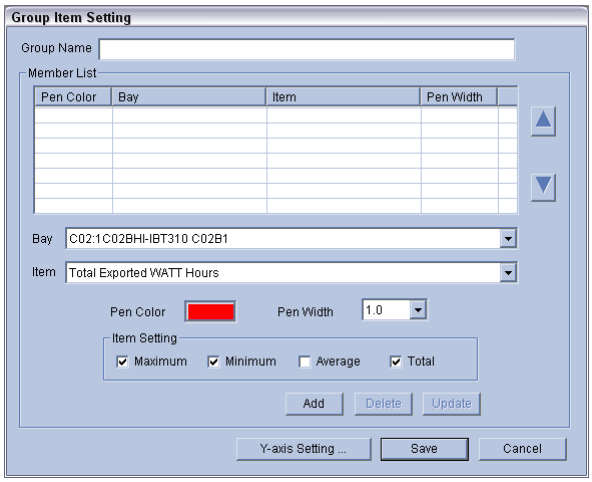
How to add a new Energy Report group is indicated below.



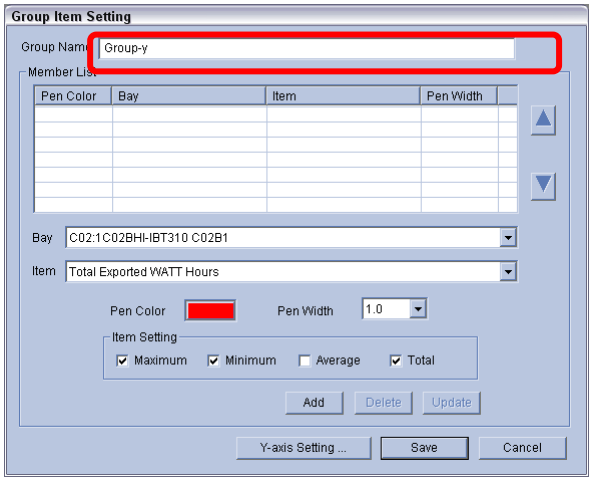
1) From the menu bar of the “Energy Report” window, select [File] - [Group Edit].



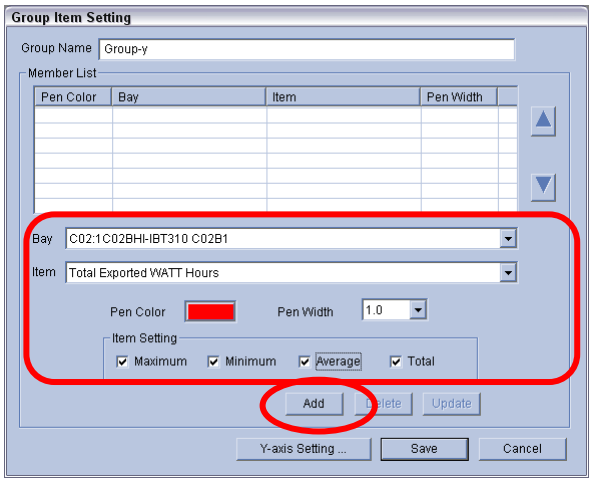
2) The “Group Edit” dialog is displayed.
Click Add.



3) The “Group Item Setting” dialog is displayed. Group Name and Member List are displayed blank. (The “Group Edit” dialog becomes inactive.)



4) Input a new name in the “Group Name” section.



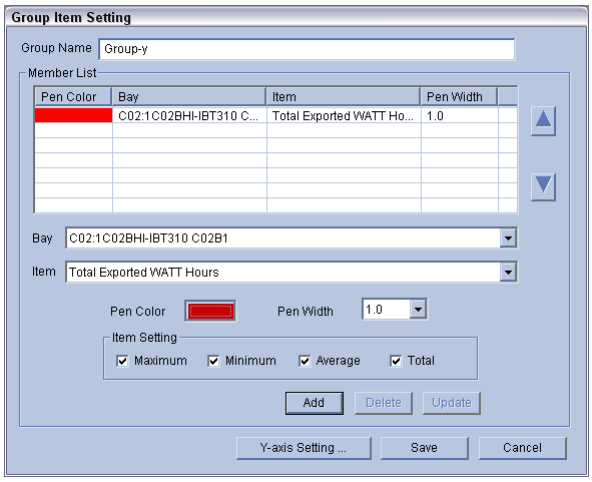
5) **Addition of member**

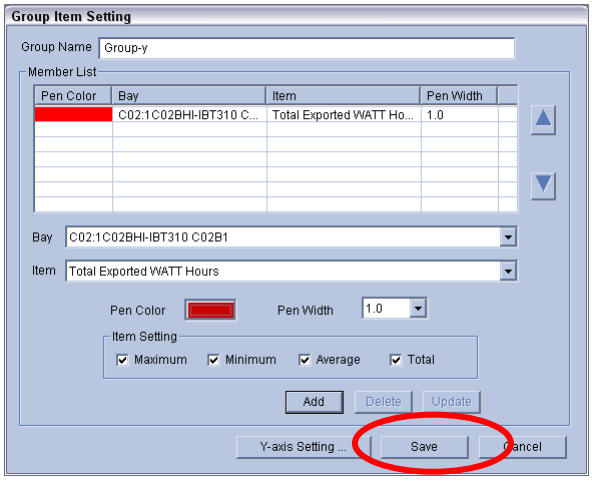
a) Select a member from the “Bay” selection combo box and from the “Item” selection combo box and put a tick in the check boxes of “Maximum”, “Minimum”, ”Average”, and “Total” for display.

b) Double-click the color at “Pen Color” to open the color pallet and select the color of the member.

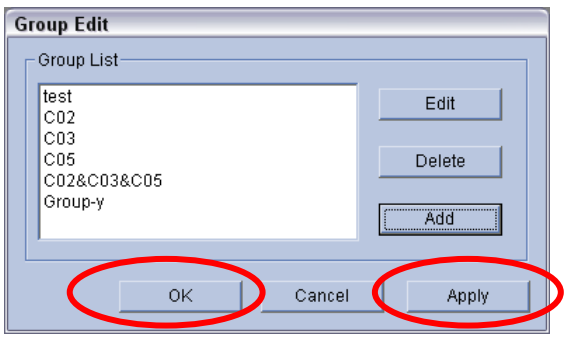
c) Click Add.

d) The selected member is added to the Member List.





c) When addition of the member is completed, click Save.

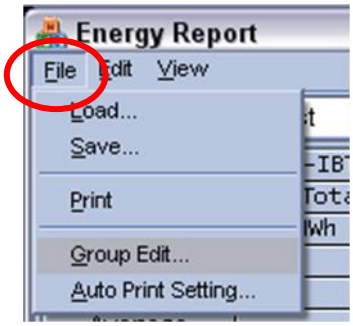


6) The “Group Item Setting” dialog is closed and The “Group Edit” dialog becomes active.

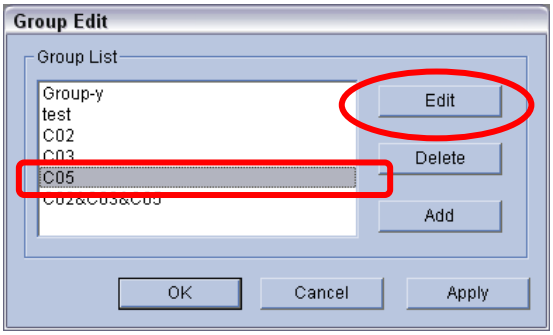
Check that a new group is added in the Group List and then click OK or Apply.

4.110 Editing an Energy Report Group

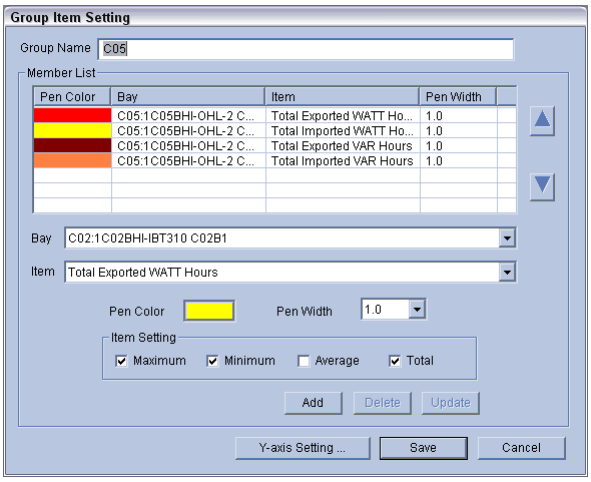
How to edit an Energy Report group is indicated below.



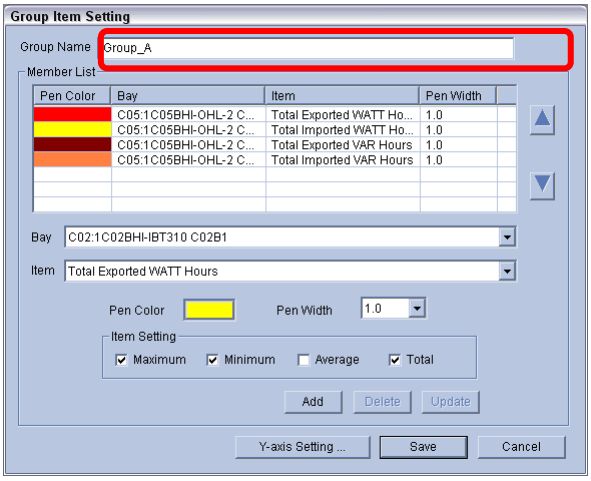
1) From the menu bar of the “Energy Report” window, select [File] - [Group Edit].



2) The “Group Edit” dialog is displayed. Select the group to edit and click Edit.



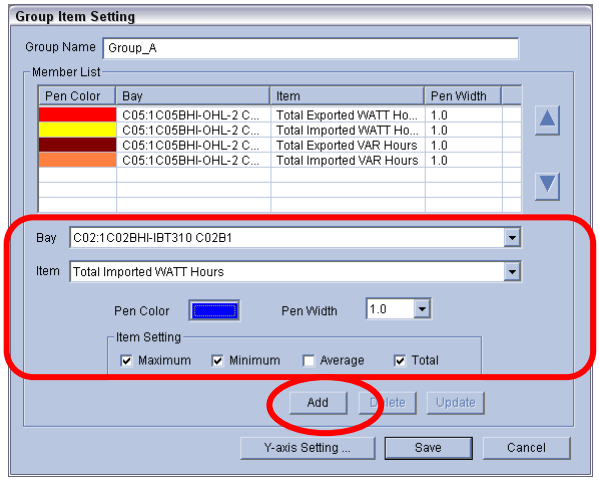
3) The “Group Item Setting” dialog is displayed. Group Name and members currently registered is displayed. (The “Group Edit” dialog becomes inactive.)



4) **Changing the group name**

To change the group name, input the new group name in “Group Name” section.

To finish the editing, proceed to step 9).

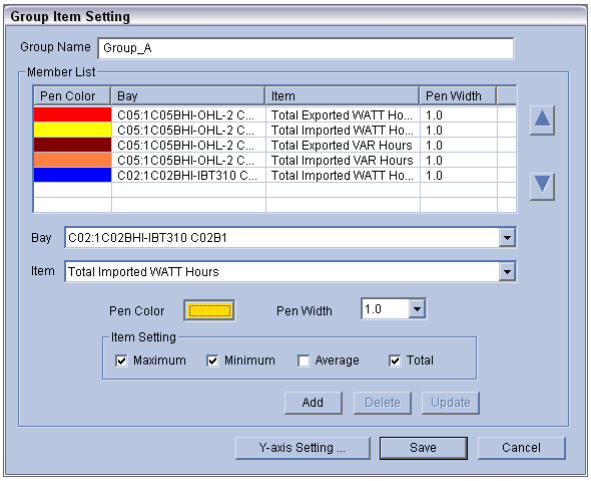


5) **Adding a member to Member List**

a) Select a member to add from the “Bay” selection combo box and from the “Item” selection combo box and put tick in the check boxes of “Maximum”, “Minimum”,” Average”, and “Total” for display.

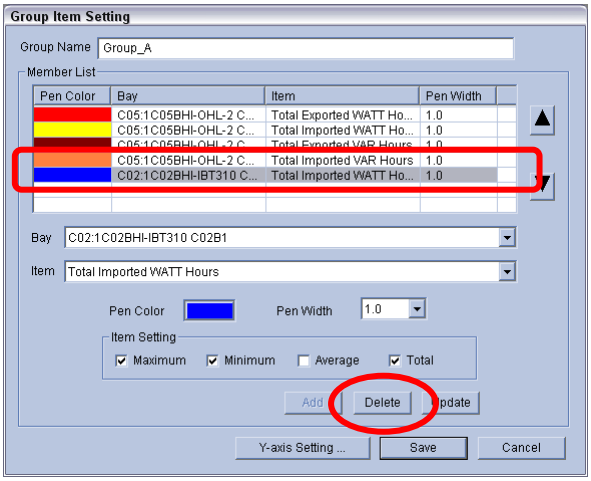
Double-click the color at “Pen Color” to open the color pallet and select the color of the member.

b) After setting is completed, click Add.



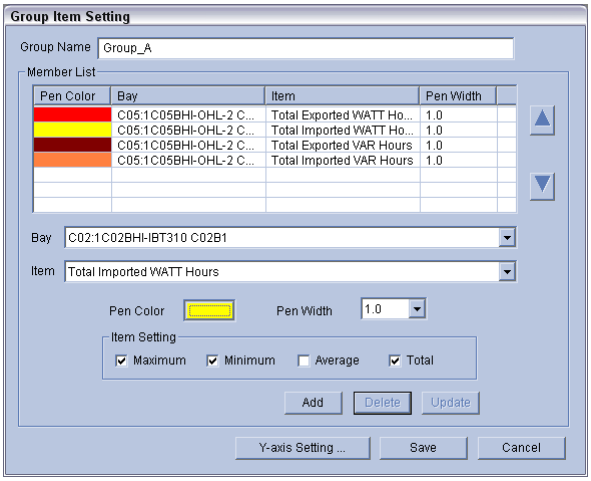
c) The selected member is added to the Member List.

e) To finish the editing, proceed to step 9).



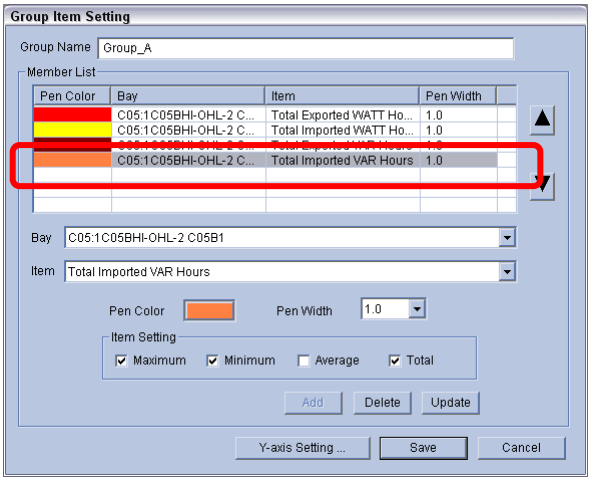
6) **Deleting a member from Member List**

a) Select the member to delete from the Member List and click Delete.



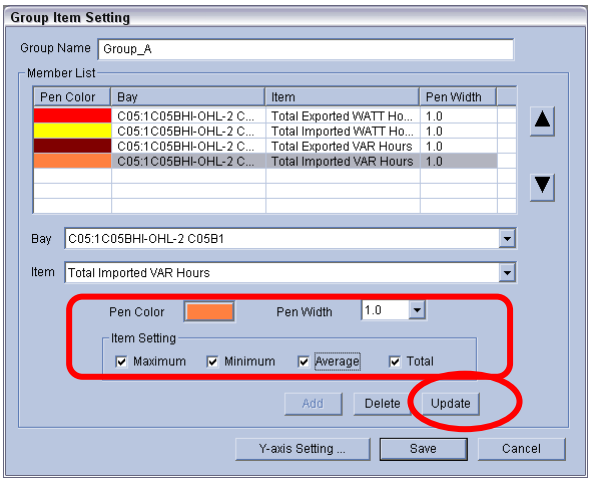
b) The selected member is removed from the Member List.

c) To finish the editing, proceed to step 9).



7) **Changing the setting of a member**

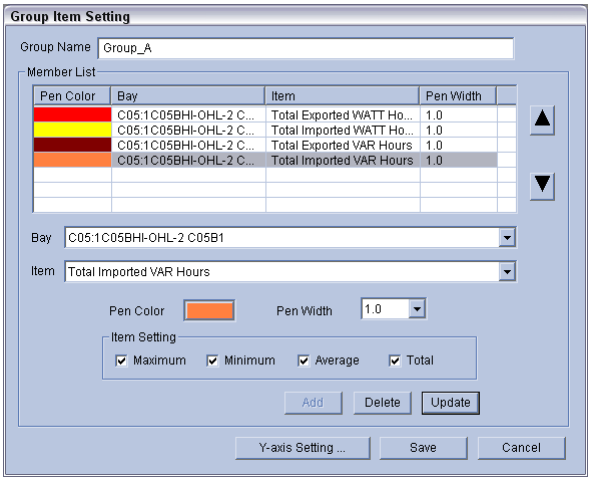
a) Select the member from the Member List whose item you want to change.



b) The contents of the setting of the selected member are displayed.
Add or remove the tick from the check "Maximum", "Minimum", "Average" and "Total".

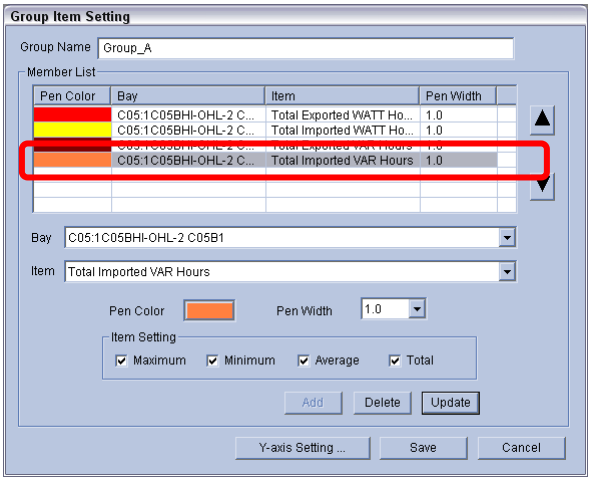
To change the color, double-click the color at "Pen Color" to open the color pallet and select the color.

c) Click Update.



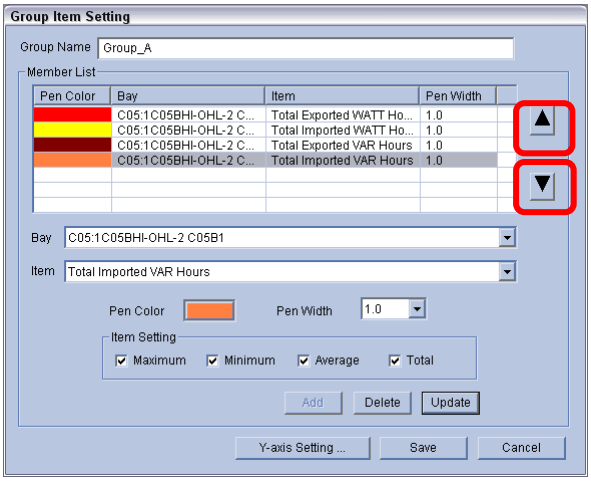
d) The changed item is reflected to the Member List.

e) To finish the editing, proceed to step 9).



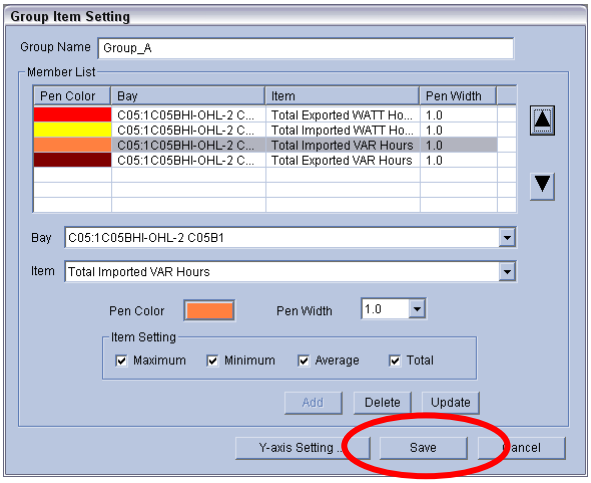
8) **Changing the display order of members**

a) Select the member from the Member List.

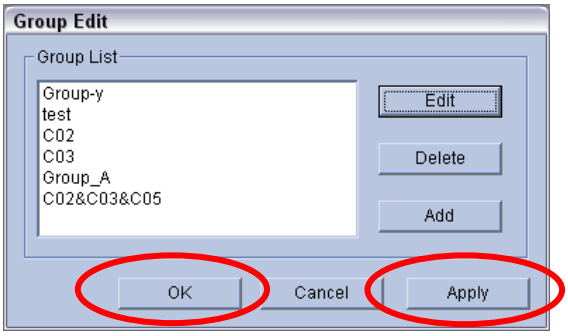


b) When ▲ or ▼ is clicked, the selected member's display position moves up or down by one respectively.
Move the member's display position using this method.

c) To finish the editing, proceed to step 9).



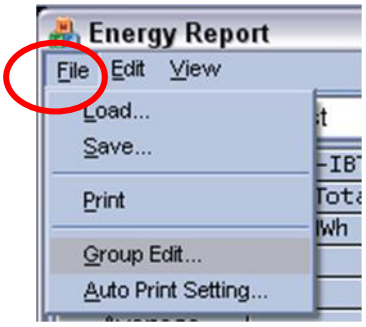
9) c) When editing of the member is completed, click Save.



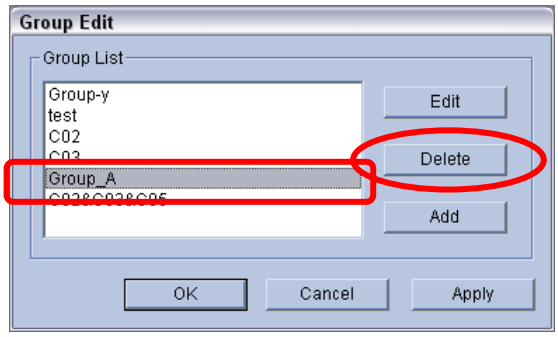
10) The “Group Item Setting” dialog is closed and The “Group Edit” dialog becomes active. Click OK or Apply.

4.111 Deleting an Energy Report Group

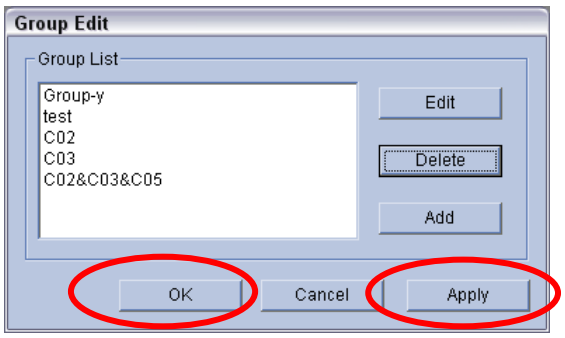
How to delete an Energy Report group is indicated below.



1) From the menu bar of the “Energy Report” window, select [File] - [Group Edit].



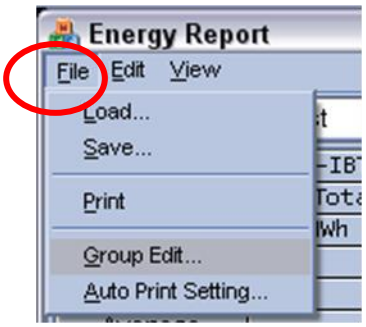
2) The “Group Edit” dialog is displayed.
Select the group you want to delete and click Delete.



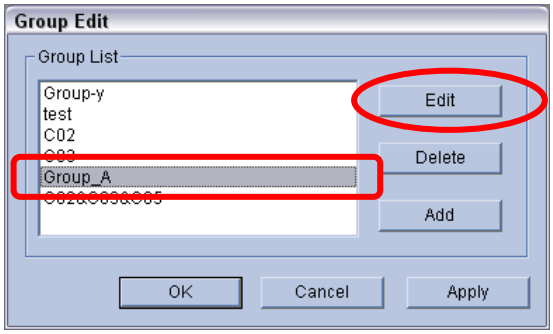
3) The selected group disappears from the Group List.
Click OK or Apply.

4.112 Changing Y-axis setting of Energy Report

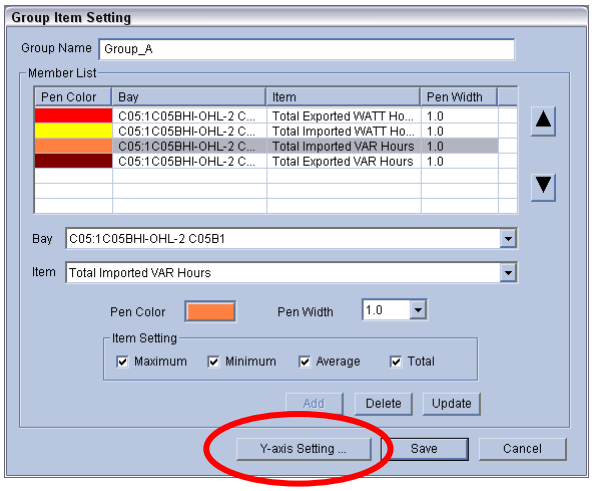
How to change the setting of Y-axis of the “Energy Report” window is indicated below.



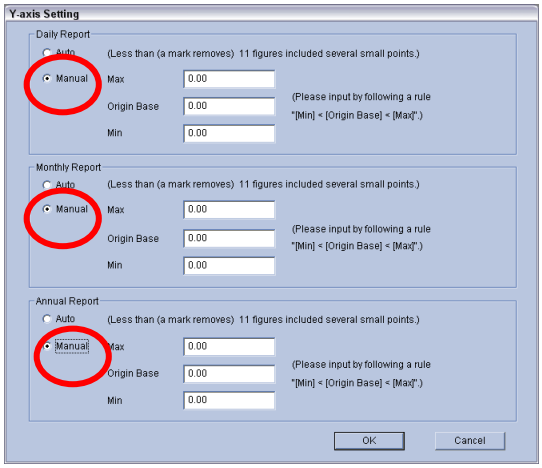
1) From the menu bar of the “Energy Report” window, select [File] - [Group Edit].



2) The “Group Edit” dialog is displayed.
Select the group for which you want to change the Y-axis setting and click Edit.

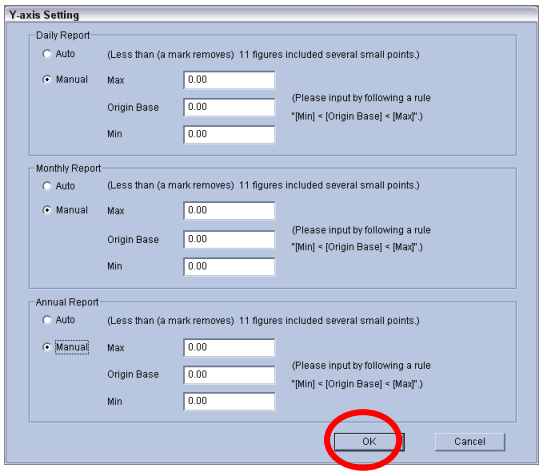


3) The” Group Item Setting” dialog is displayed.
Click Y-axis setting…..

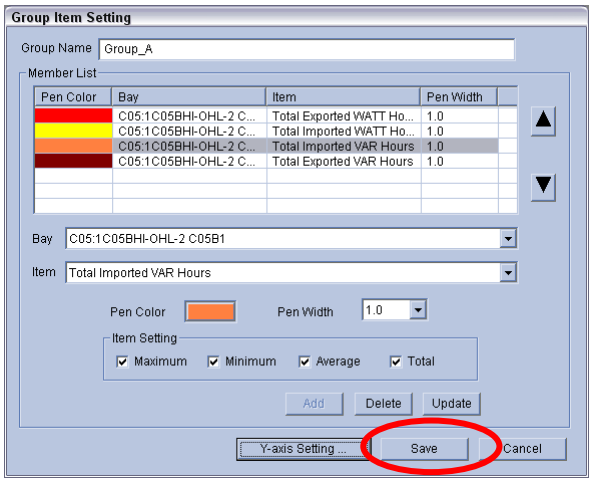


4) The “Y-axis setting” dialog opens.
Click the radio buttons of “Manual” to change the Y-axis setting and input the setting.

Max: Input the value of top position at Y-axis. Origin Base: Input the value of cross point with X-axis. Min: Input the value of bottom position at Y-axis.

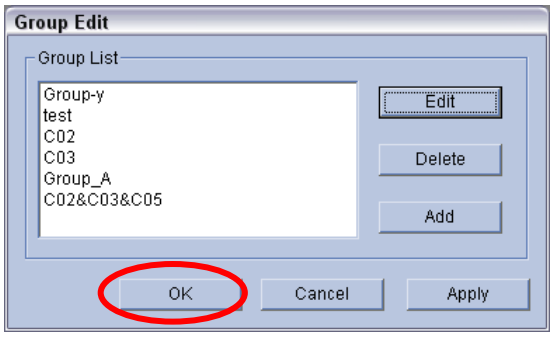


5) Click OK.



6) The “Y-axis Setting” dialog is closed and the “Group Item Setting” dialog is displayed.

Click Save.



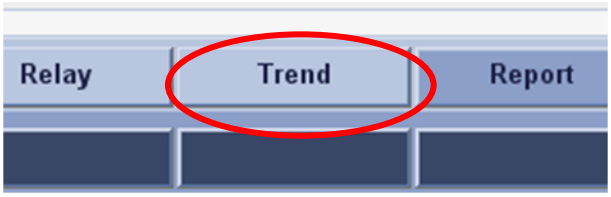
7) The “Group Item Setting” dialog is closed and the “Group Edit” dialog is displayed.

Click OK or Apply.

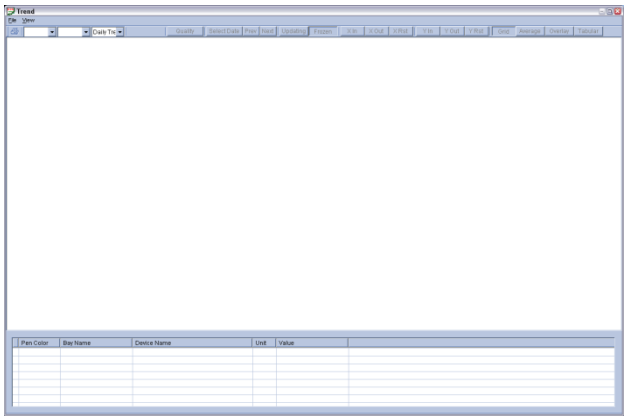
<Trend Window>

4.113 Displaying the Trend Window

How to display the “Trend” window from the main menu bar is indicated below.



1) Click Trend in the main menu bar.



2) The “Trend” window is displayed.

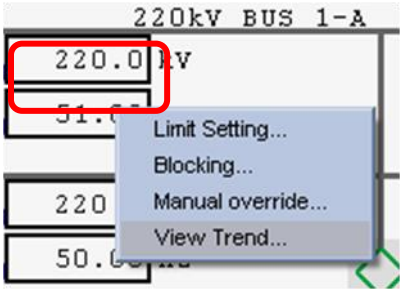
NOTE	Initial display of the window is blank. Registering the Trend Group by the procedure of 4.137 is necessary. The graph and the data are displayed after selecting the Trend group and time span by the procedure explained in the following sections.

4.114 Displaying the Trend Window from a Single Line Diagram

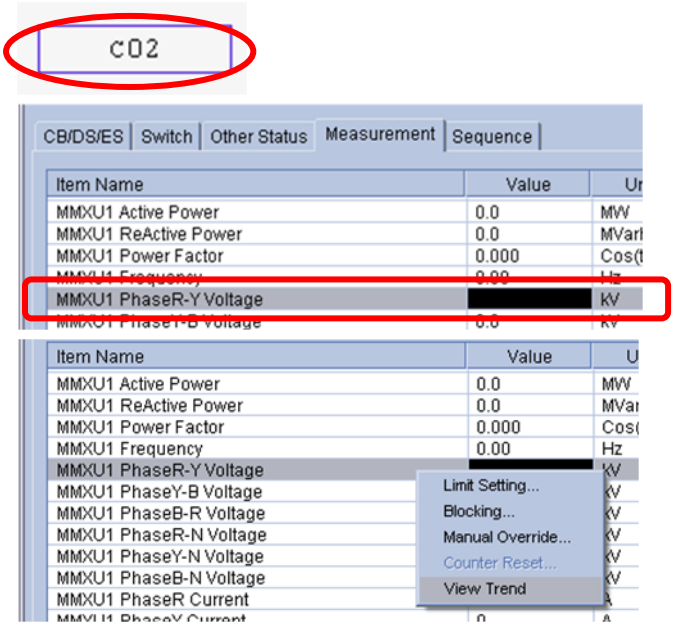
How to display the “Trend” window by selecting a measurement value from the single line diagram is indicated below.

1) Carry out either one of the following.

(a) Right-click the measurement value on the single line diagram to display the context menu.
Click “View Trend”.

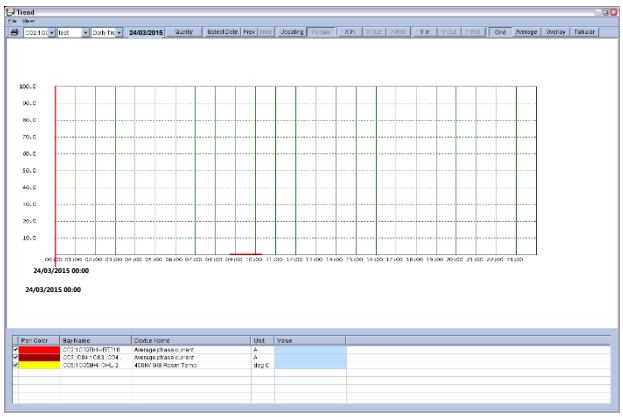


(b) Click the bay name in the single line diagram to display the “Bay Information” dialog. Select the corresponding row of the measurement item in the “Measurement” tab.



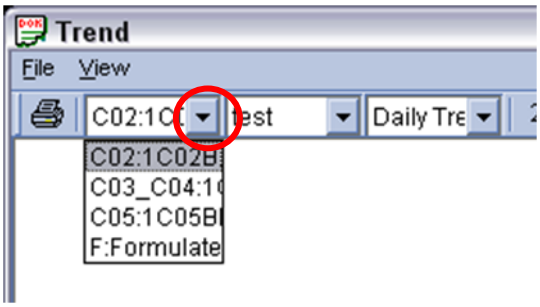
Right-click it to display the context menu.
Click “View Trend” in the context menu.

2) The “Trend” window including the selected measurement value is displayed.

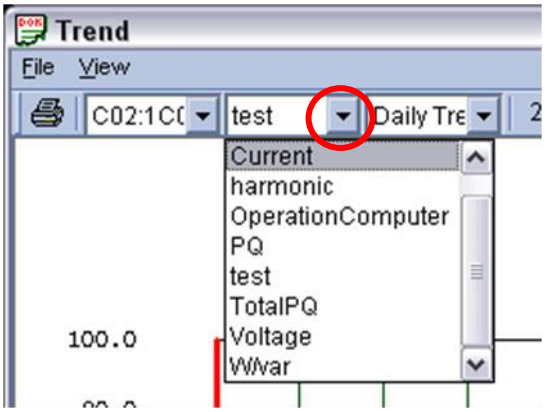


4.115 Displaying the Daily/Weekly/Monthly/Annual Trend Window

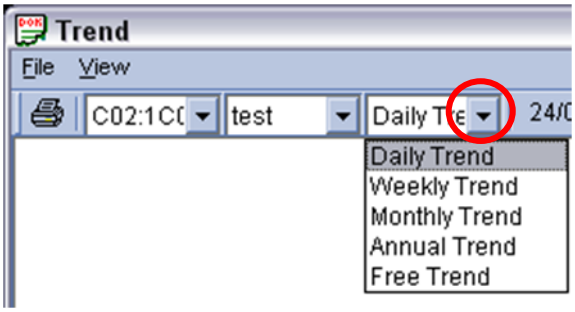
How to display the “Trend” window by selecting a group is indicated below.



1) Select the bay from the bay selection combo box in the tool bar of the “Trend” window.



2) Select the group from the group selection combo box.

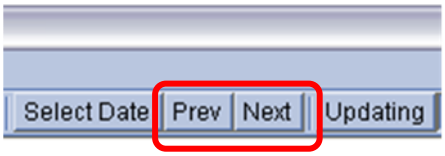


3) Select the time base you want to display from the pull down menu.

“Daily Trend”: The Daily Trend of today is displayed.
“Weekly Trend”: The Weekly Trend of this week is displayed.
“Monthly Trend”: The Monthly Trend of this month is displayed.
“Annual Trend”: The Annual Trend of this year is displayed.
“Free Trend”: The “Select Date” dialog to select the date is displayed.

4.116 Scrolling the Trend Graph

How to scroll the Trend graph is indicated below.

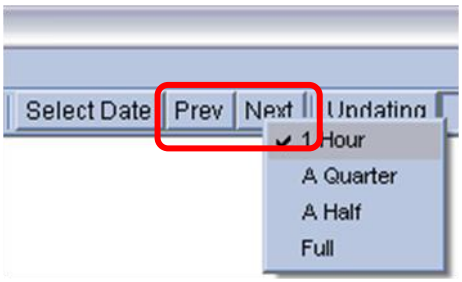


1) When Prev or Next of the tool bar of the "Trend" window is clicked, the Trend graph scrolls.
When left clicking Prev, the graph scrolls toward the previous time.
When left clicking Next, the time base scrolls toward the next time.

NOTE	Scrolling width is set by the procedure of the next section.

4.117 Changing the Scrolling Width of the Trend Graph

How to change the scrolling width of the Trend graph is indicated below.



1) Right-click Prev or Next of the tool bar of the "Trend" window.

2) The Context menu shown in the left figure is displayed for Daily Trend.
For Weekly Trend: "1 Day, A Quarter, A Half, Full" is displayed.
For Monthly Trend: "1 Day, 1 Week, 2 Week, Full" is displayed.
For Annual Trend: "1 Month, A Quarter, A Half, Full" is displayed.

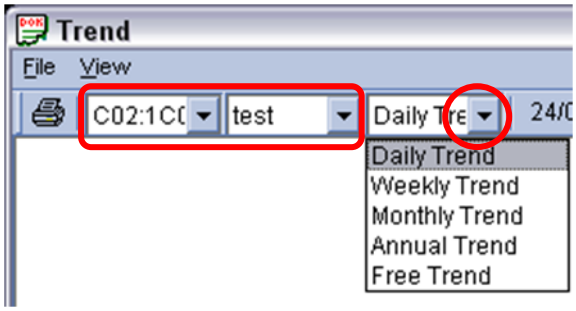
3) When clicking the scroll width you want, the graph scrolls by the specified width.

The specified scroll width is the same for Prev and Next.

After setting, this specification is valid also for left-clicking.

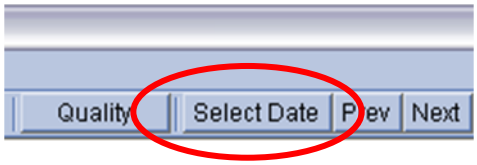
4.118 Displaying the Daily Trend of the Specified Date

How to display the Daily Trend window of the specified date is indicated below.

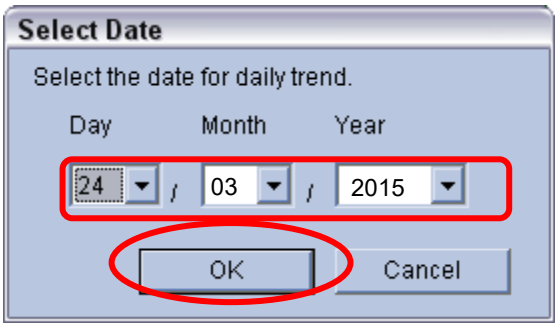


1) Select the bay name and a group name, and then click the time base selection combo box in the tool bar of the “Trend” window.

2) Select “Daily Trend” from the pull down menu. The Daily Trend is displayed.



3) Click Select Date in the tool bar of the “Trend” window.



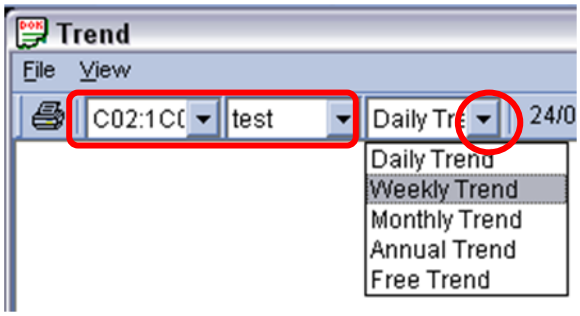
4) The “Select Date” dialog is displayed.

5) Select the date and click OK.

6) The Daily Trend of the specified date is displayed.

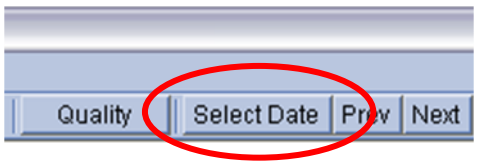
4.119 Displaying the Weekly Trend of the Specified Week

How to display the Weekly Trend window of the specified date is indicated below.

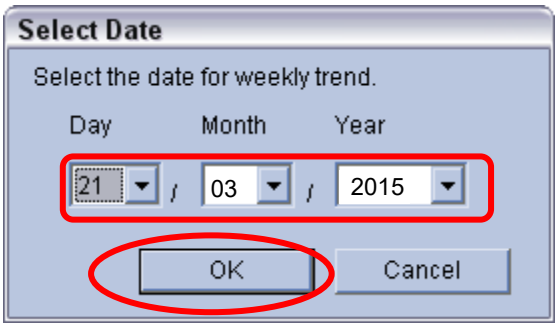


1) Select the bay name and a group name, and then click the time base selection combo box in the tool bar of the “Trend” window.

2) Select “Weekly Trend” from the pull down menu.
The Weekly Trend is displayed.



3) Click Select Date in the tool bar of the “Trend” window.



4) The “Select Date” dialog is displayed.

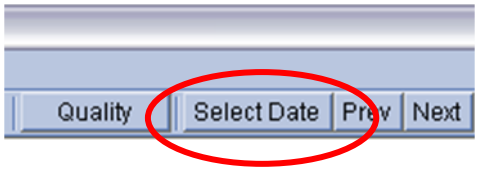
5) Select the date and click OK.

6) The Weekly Trend including the specified date is displayed.

4.120 Displaying the Monthly Trend of the Specified Month and Year

How to display the Monthly Trend of the specified month and year is indicated below.

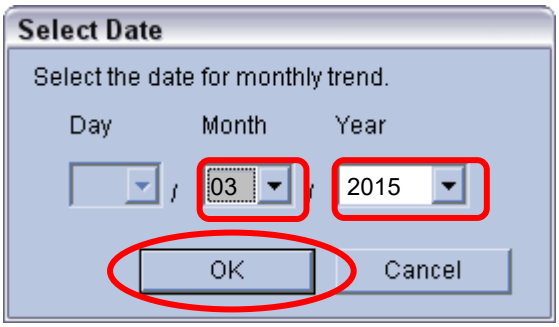




1) Select the bay name and a group name, and then click the time base selection combo box in the tool bar of the “Trend” window.

2) Select “Monthly Trend” from the pull down menu.
The Monthly Trend is displayed.

3) Click Select Date in the tool bar of the “Trend” window.



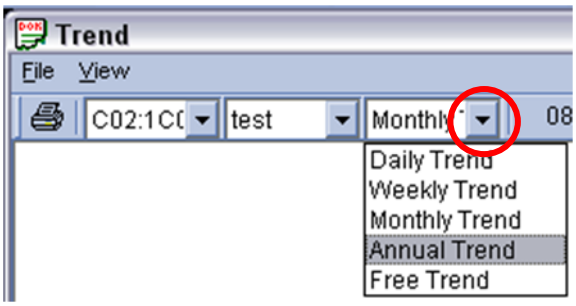
4) The “Select Date” dialog is displayed.

5) Select “Month” and “Year” and click OK.

The Monthly Trend of the specified month and year is displayed.

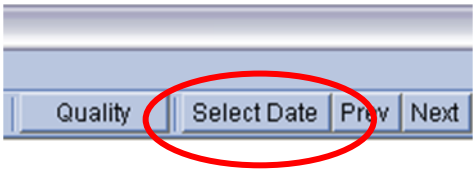
4.121 Displaying the Annual Trend of the Specified Year

How to display the Annual Trend of the specified year is indicated below.

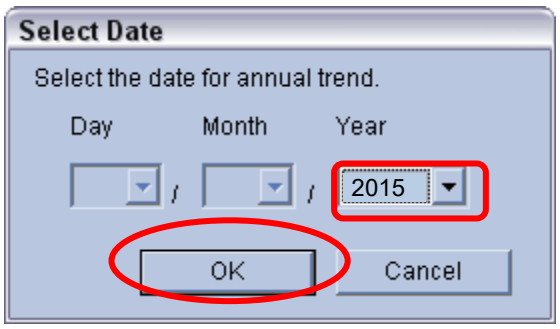


1) Select the bay name and a group name, and then click the time base selection combo box in the tool bar of the “Trend” window.

2) Select “Annual Trend” from the pull down menu.
The Annual Trend is displayed.



3) Click Select Date in the tool bar of the “Trend” window.



4) The “Select Date” dialog is displayed.

5) Select “Year” and click OK.

6) The Annual Trend of the specified year is displayed.

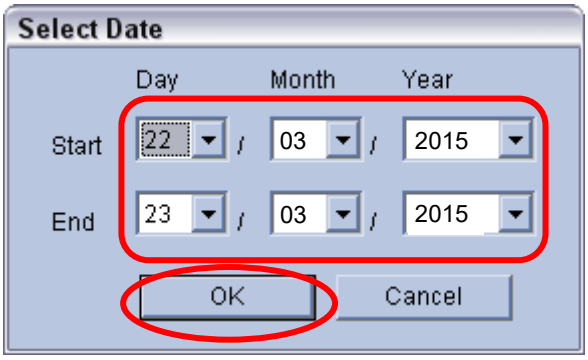
4.122 Displaying the Trend of the Specified Period

How to display the Trend of the specified period is indicated below.



1) Select the bay name and a group name, and then click the time base selection combo box in the tool bar of the “Trend” window.

2) Select “Free Trend” from the pull down menu.



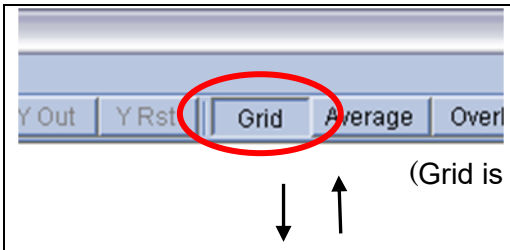
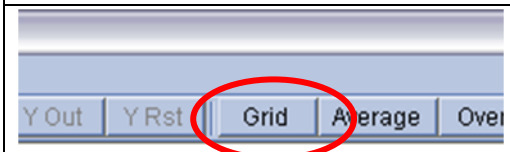
3) The “Select Date” dialog is displayed.

4) Select start date and end date in the combo box and click OK.

The Trend window of the specified period is displayed.

4.123 Setting Grid of the Trend Graph Visible/Invisible

How to set the grid of the Trend graph visible/invisible is indicated below.

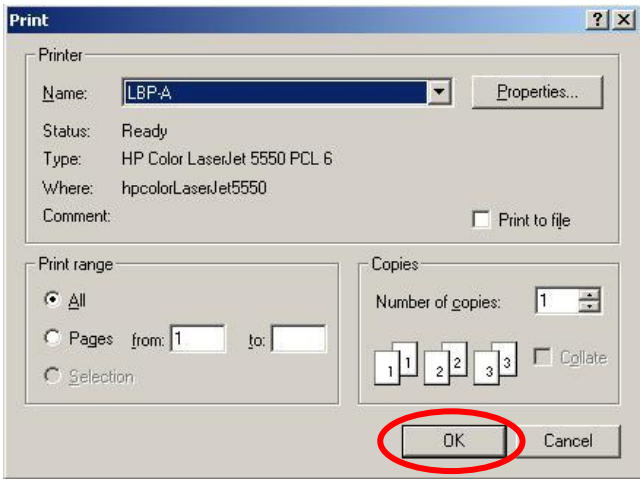
 (Grid is visible)	1)	When Grid is clicked while grid lines are displayed (in this case Grid is clicked as shown in the left figure), the grid line of the Y-axis becomes invisible and Grid changes to OFF status (not sunken.)
 (Grid is invisible)	2)	When Grid is clicked again, the grid line of Y-axis becomes visible and Grid changes to ON status (sunken.)

4.124 Printing the Trend Graph

How to print the Trend graph is indicated below.



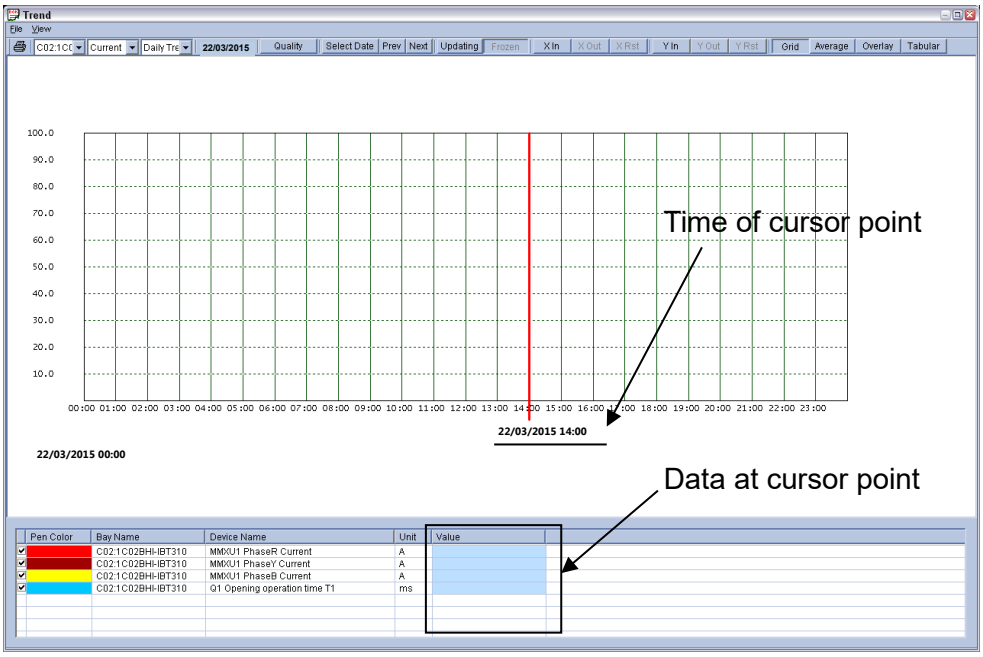
1) Click the “Print” icon in the tool bar of the “Trend” window.



2) The “Print” dialog is displayed. Click OK.
The Trend graph currently displayed is printed out.

4.125 Reading Data at Cursor Point of the Trend Graph

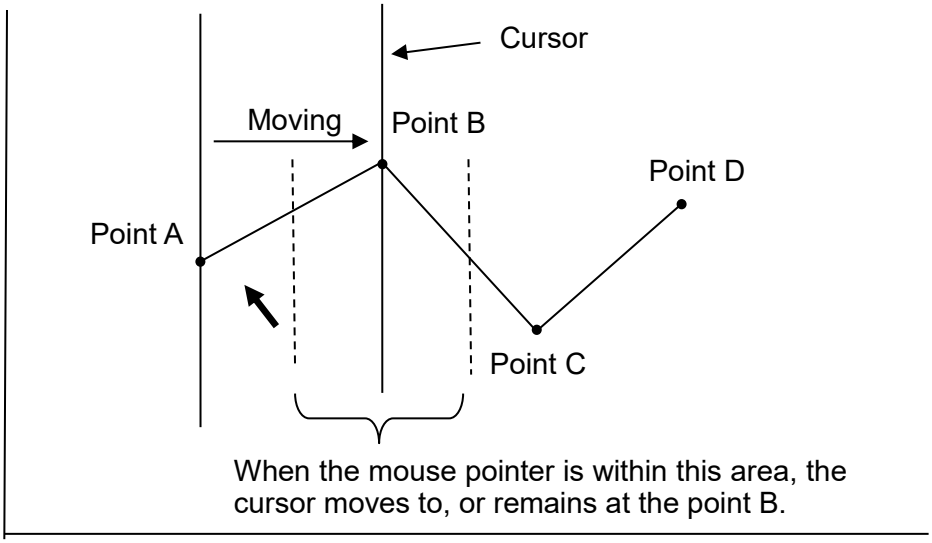
The data and time of the cursor point is displayed under the cursor and the data of each trend at the cursor point is displayed in the table at the bottom of the window as shown below.



4.126 Moving Cursor Point of the Trend Graph

The cursor can be moved by dragging a mouse.

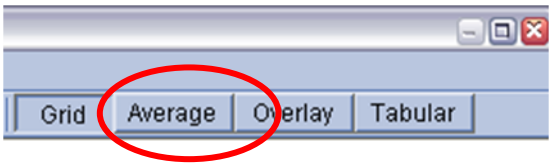
The cursor can stop at plotted points only. When moving the mouse from one plotted point to another plotted point, the cursor moves to the second point if the mouse moves more than a half of distance between these two points.



NOTE	The cursor does not move in Updating mode or during X-axis zoom-in operation. The cursor may disappear from the visible area following X-axis zoom-in operation. The cursor retains its cursor point even if it is not visible.

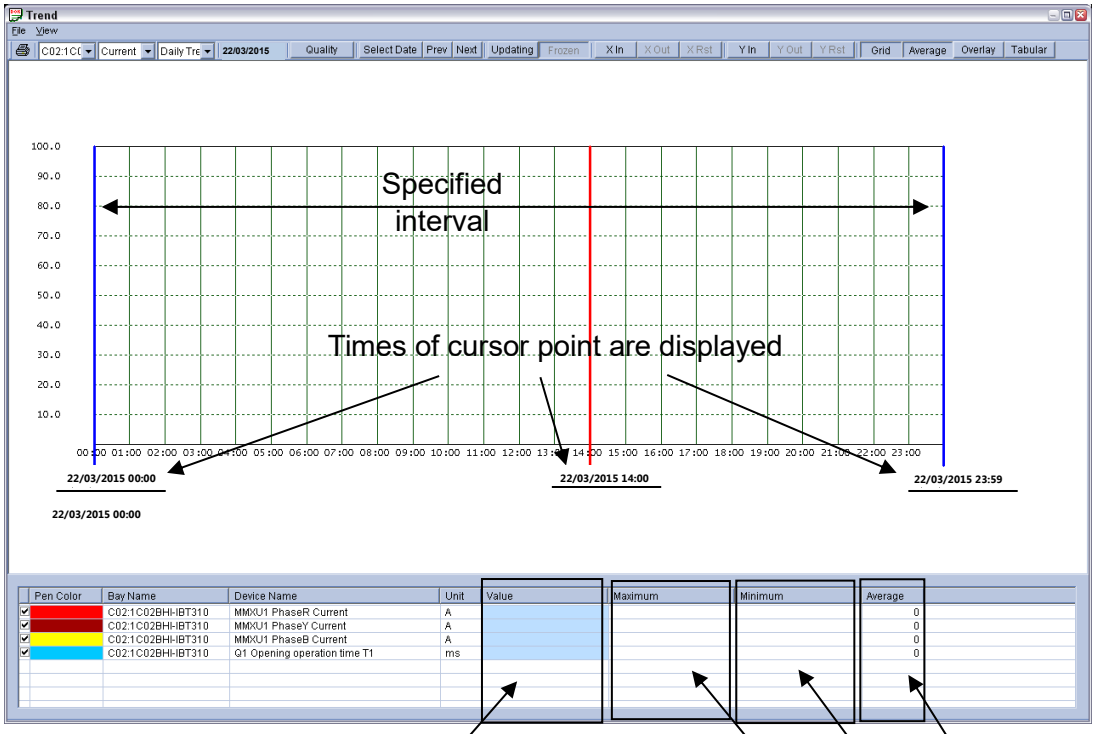
4.127 Displaying Average, Maximum and Minimum Values of the Trend Data

How to display average, maximum and minimum values of the trend data is indicated below.



1) Click Average in the tool bar of the “Trend” window.

2) A blue line cursor is displayed at both ends of X-axis. The maximum, minimum, average values of each trend data in the interval are displayed.
You can change the start and the end of the interval by dragging the cursor using the mouse.

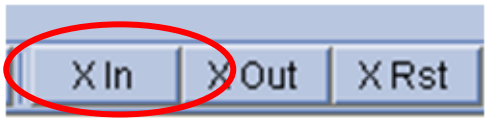


When Average in the tool bar is clicked again while the blue cursor is displayed, the blue cursor, maximum, minimum, and average values disappear.

NOTE	The cursor may disappear from the visible area following X-axis zoom-in operation. The cursor retains its cursor point even if it is not visible. Click Average twice when the blue cursor is out of the visible area, then the blue cursors appear at both ends of X-axis.

4.128 Magnifying Time Base (X-axis) of the Trend Graph

How to magnify the time base (X-axis) of the Trend graph is indicated below.



1) Click X In in the tool bar of the “Trend” window.

2) The X-axis of the graph is magnified by a factor of 2 in both directions horizontally from the center of the hair cursor position.
The horizontal scroll bar becomes active.
You can change the display area of X-axis direction by operating the scroll bar.
X Out and X Rst become active.

NOTE	Magnification is 32 at maximum. If you click X In 5 times consecutively, X In becomes inactive.

4.129 Reducing Time Base (X-axis) of the Trend Graph

How to reduce the time base (X-axis) of the Trend graph is indicated below.

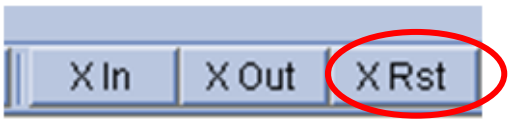


1) Click X Out in the tool bar of the “Trend” window.

2) The window returns to the window that was displayed prior to Zoom-in operation.

4.130 Returning Magnification of Time Base (X-axis) of the Trend Graph

How to reset the magnification of the time base (X-axis) of the Trend graph is indicated below.

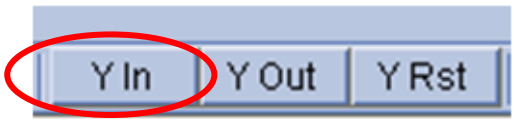


1) Click X Rst in the tool bar of the “Trend” window.

2) The window returns to the original window without magnification of the X-axis.

4.131 Magnifying Measurement Value Scale (Y-axis) of the Trend Graph

How to magnify the measurement value scale (Y-axis) of the Trend graph is indicated below.



1) Click Y In in the tool bar of the “Trend” window.

2) The Y-axis of the graph is magnified by a factor of 2 in both directions vertically from the center of the Y-axis.
The vertical scroll bar becomes active.
You can change the display area of Y-axis direction by operating the scroll bar.
Y Out and Y Rst become active.

NOTE	Magnification is 32 at maximum. If you click Y In 5 times consecutively, Y In becomes inactive.

4.132 Reducing Measurement Value Scale (Y-axis) of the Trend Graph

How to reduce the measurement value scale (Y-axis) of the Trend graph is indicated below.

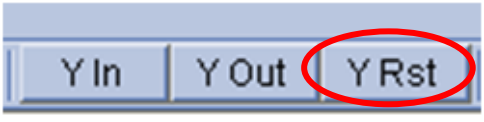


1) Click Y Out in the tool bar of the “Trend” window.

2) The window returns to the screen that was displayed before Zoom-in operation.

4.133 Resetting Magnification of Measurement Value Scale (Y-axis) of the Trend Graph

How to reset the magnification of the measurement value scale (Y-axis) of the Trend graph is indicated below.

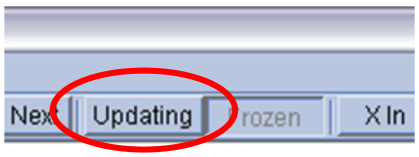


1) Click Y Rst in the tool bar of the “Trend” window.

2) The window returns to the original window without magnification in Y-axis.

4.134 Setting the Trend Window to Updating Mode

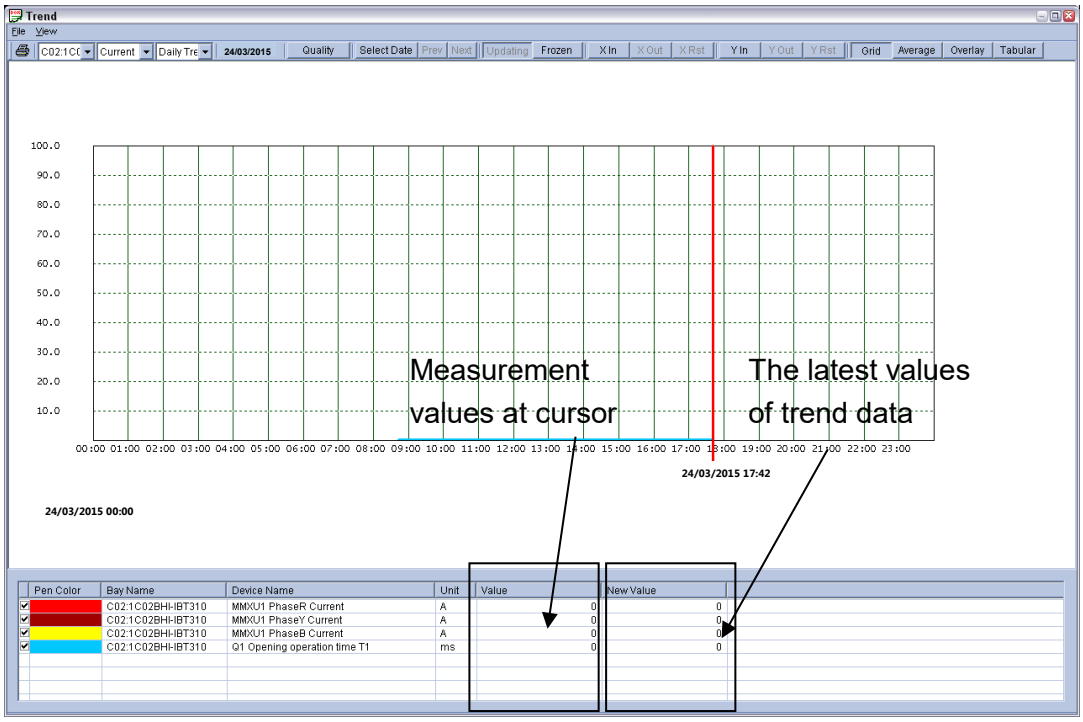
How to set the Trend window Updating mode is indicated below.



1) Click Updating in the tool bar of the Daily Trend window.

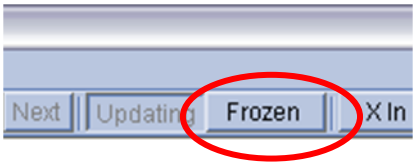
NOTE	Updating is active only in the Daily Trend window.

2) The “Trend” window changes to updating mode and the latest trend data is added and displayed.
If the “Trend” window without present time is displayed, the “Trend” window is forcibly changed to the “Trend” window including present time. Updating becomes inactive and Frozen becomes active.
Prev and Next also become inactive.
The latest Trend data is updated in a fixed cycle.



4.135 Setting the Trend Window to Frozen Mode

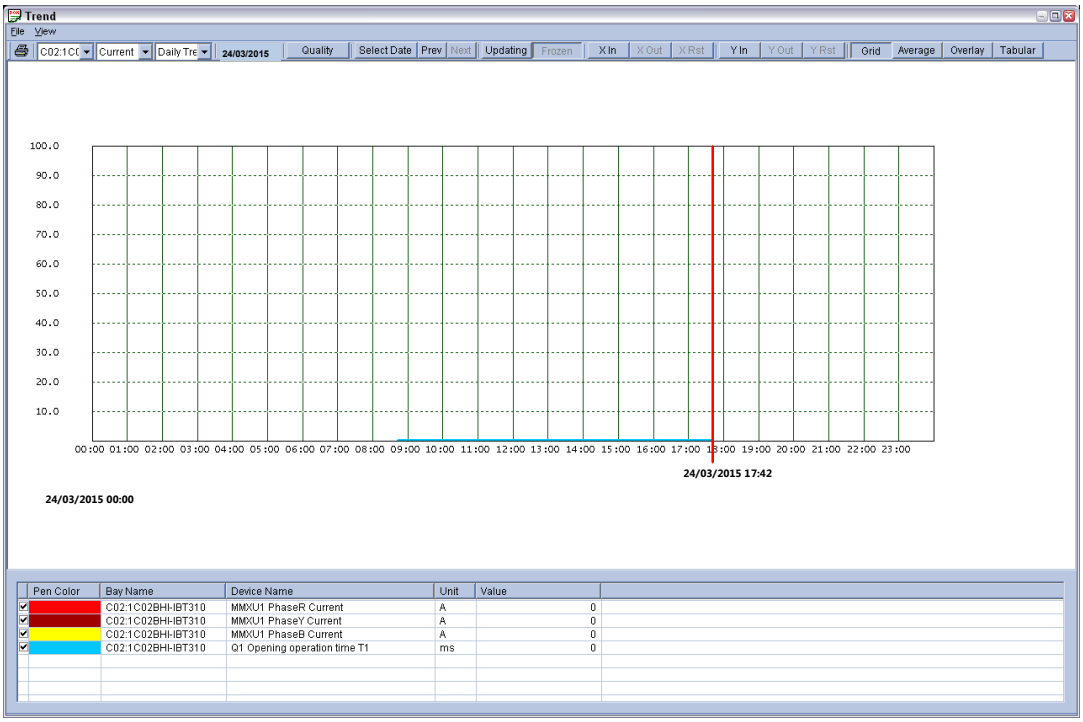
How to set the Trend window to Frozen mode is indicated below.



1) Click Frozen in the tool bar of the Daily Trend window in updating mode.

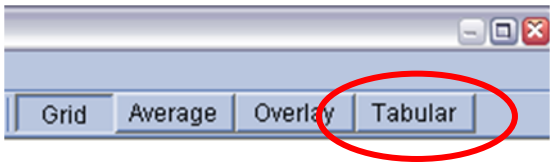
NOTE	Frozen is active only in the Daily Trend window.

2) The “Trend” window changes to frozen mode and the latest trend data disappears.
Updating and Prev become active.

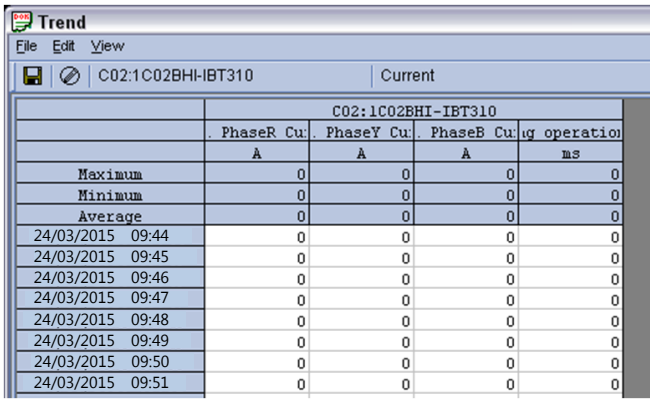


4.136 Displaying the Trend Data in Tabular Format/Returning to Graph Display

How to display the Trend data in tabular format and how to return to graph display from tabular format is indicated below.

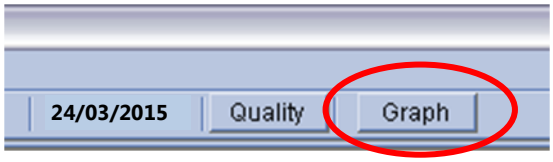


1) Click Tabular in the tool bar of the “Trend” window.



	C02:1C02BHI-IBT310			
	PhaseR Cu	PhaseY Cu	PhaseB Cu	ug operatio
	A	A	A	ms
Maximum	0	0	0	0
Minimum	0	0	0	0
Average	0	0	0	0
24/03/2015 09:44	0	0	0	0
24/03/2015 09:45	0	0	0	0
24/03/2015 09:46	0	0	0	0
24/03/2015 09:47	0	0	0	0
24/03/2015 09:48	0	0	0	0
24/03/2015 09:49	0	0	0	0
24/03/2015 09:50	0	0	0	0
24/03/2015 09:51	0	0	0	0

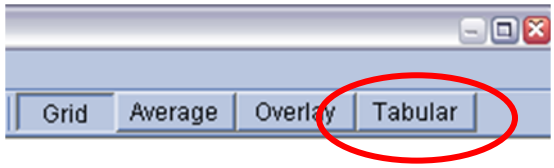
2) The Trend data currently displayed in a graph is displayed in a table.



3) Click Graph in the tool bar of “Trend” window. The trend data in tabular format is closed and the window returns to graph format.

4.137 Saving the Trend Data in CSV Format

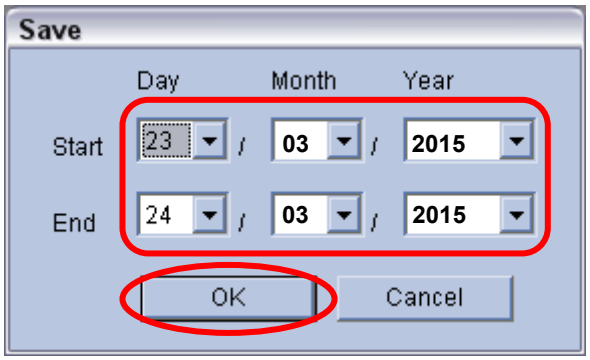
How to save the trend data in CSV format is indicated below.



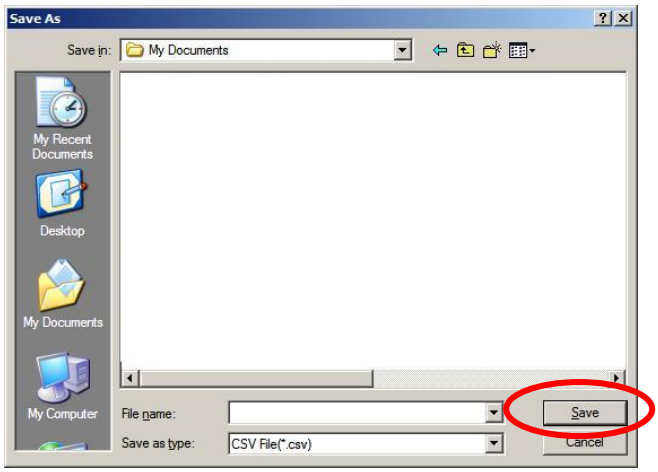
1) Click Tabular in the tool of the “Trend” window to display the data in tabular format.



2) Click the “Export” icon.



3) The “Save” dialog is displayed. Specify the start date and end date and click OK.

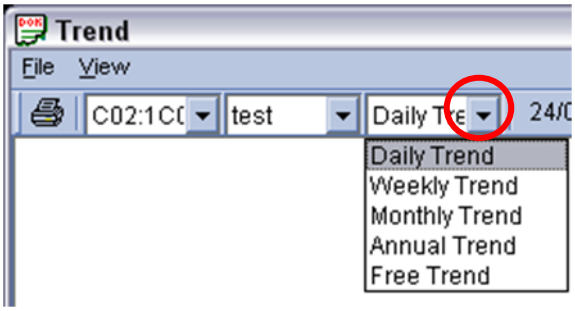


4) Dialog to save the data in CSV format opens. Specify the folder and file name.
Click Save.
The data currently displayed in tabular format is output to the specified file in CSV format.

4.138 Correcting the Trend Data

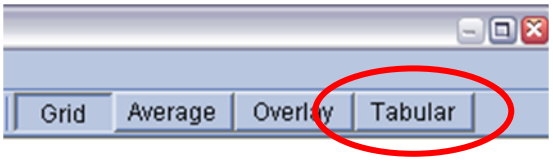
How to correct the Trend data is indicated below.

NOTE	You cannot change the data of the present day.

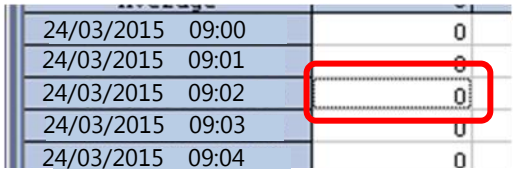


1) Click the time base selection combo box in the tool bar of the “Trend” window.
Select “Daily Trend” from the pull down menu.

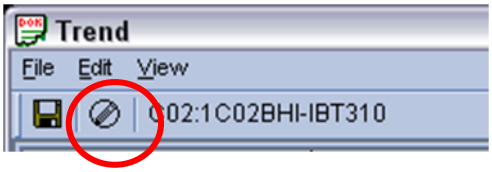
2) Display the Daily Report of the corresponding date using Prev or Next.



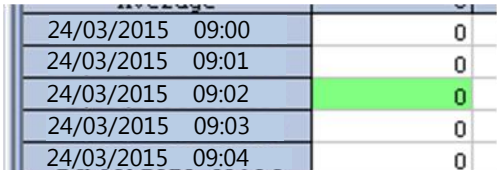
3) Click Tabular in the tool bar to display the data in tabular format.



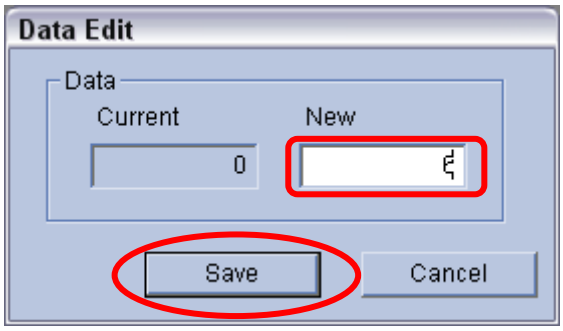
4) Click the cell to edit.



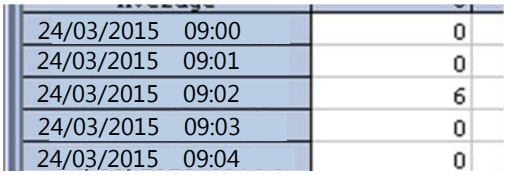
5) Click the "Edit" icon at the top of the window in tabular format.



6) The color of the cell to be edit becomes green and the "Data Edit" dialog opens.



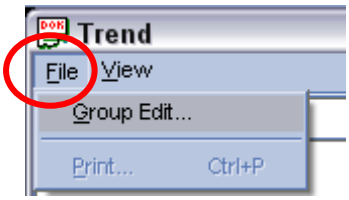
7) Input the correction data into the "Data Edit" dialog and click Save.



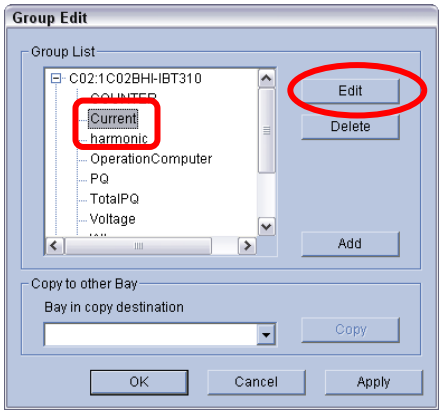
8) Corrected data is reflected to the cell and the color of the cell returns to its ordinary color (white).

4.139 Changing Measurement Value Scale (Y-axis) Setting of the Trend Graph

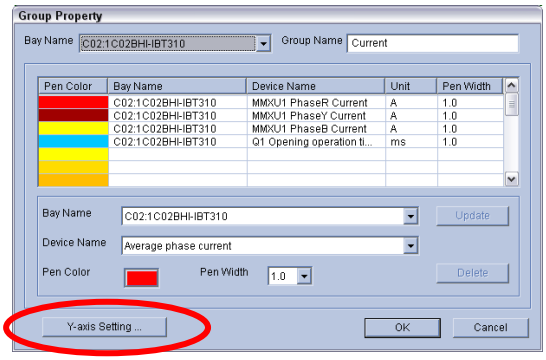
How to change the measurement value scale ranges (Y-axis) setting of the Trend graph (Y-axis) is indicated below.



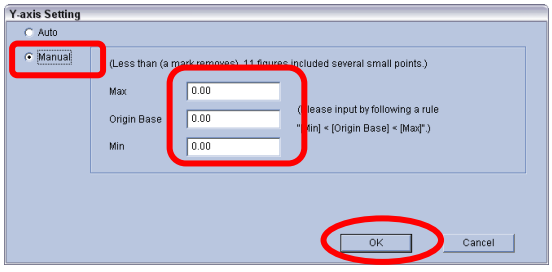
1) From the tool bar of the “Trend” window, select [File] - [Group Edit].



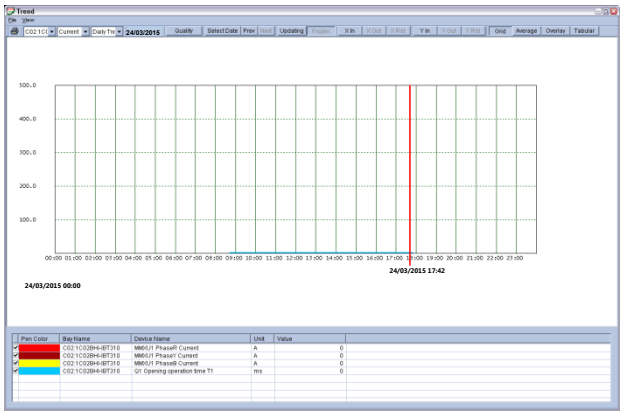
2) The “Group Edit” dialog is displayed.
Select the group name you want to edit from the Group List and click Edit.



3) The “Group Property” dialog is displayed.
Click Y-axis Setting….



4) The “Y-axis Setting” dialog is displayed.
Select “Manual” position. Set maximum, minimum, origin base value, and then click OK.



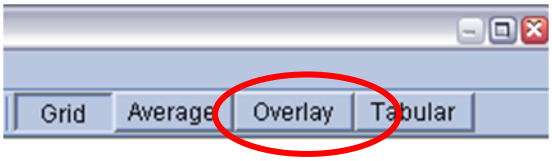
5) The graph is displayed by the set Y-axis parameter.

NOTE	Y-axis setting is saved for each trend group.

4.140 Overlaying a Graph on the Past Trend Data

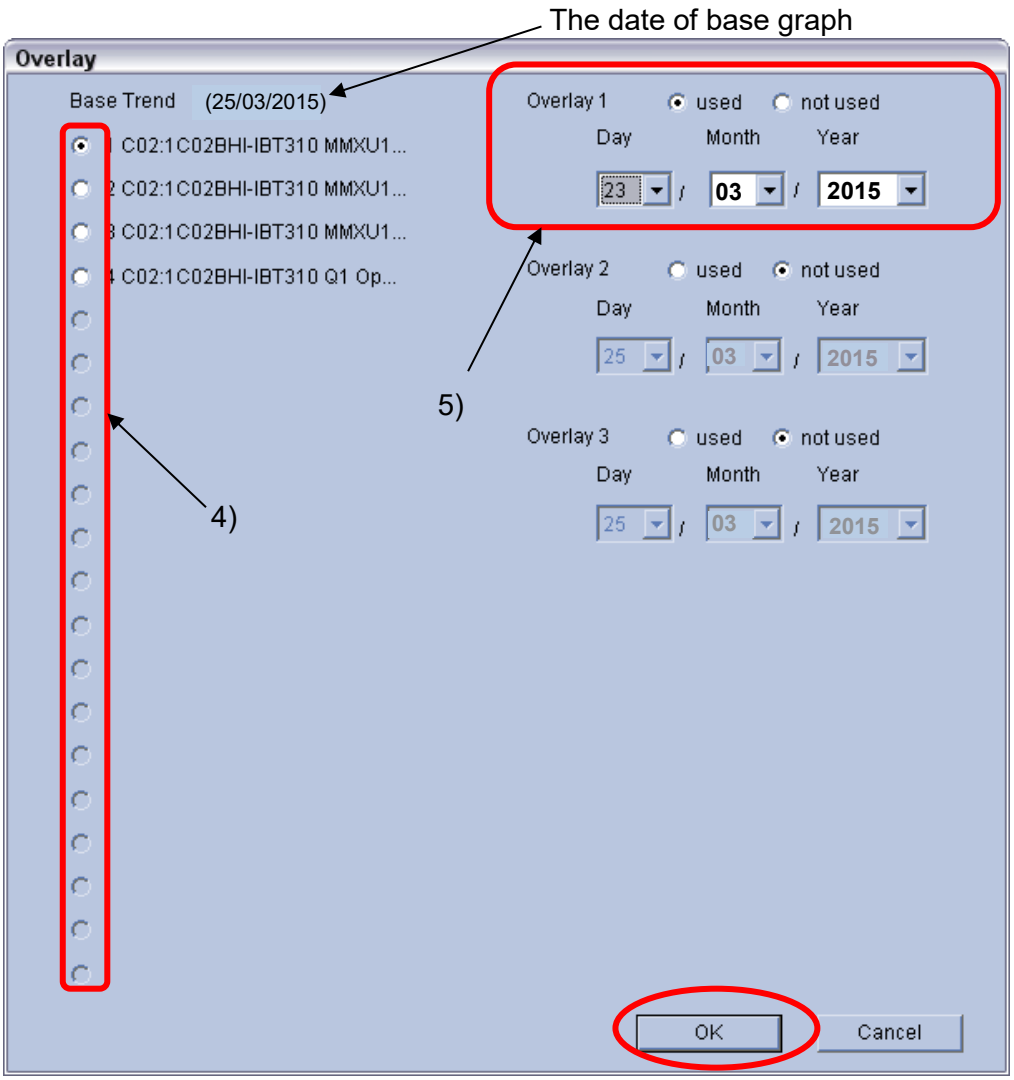
How to overlay a graph on a past trend graph is indicated below.

1) Display the “Trend” window including the trend you want to overlay.



2) Click Overlay in the tool bar.

3) The following “Overlay” dialog is displayed.



4) Select the graph to be the base using the radio button.

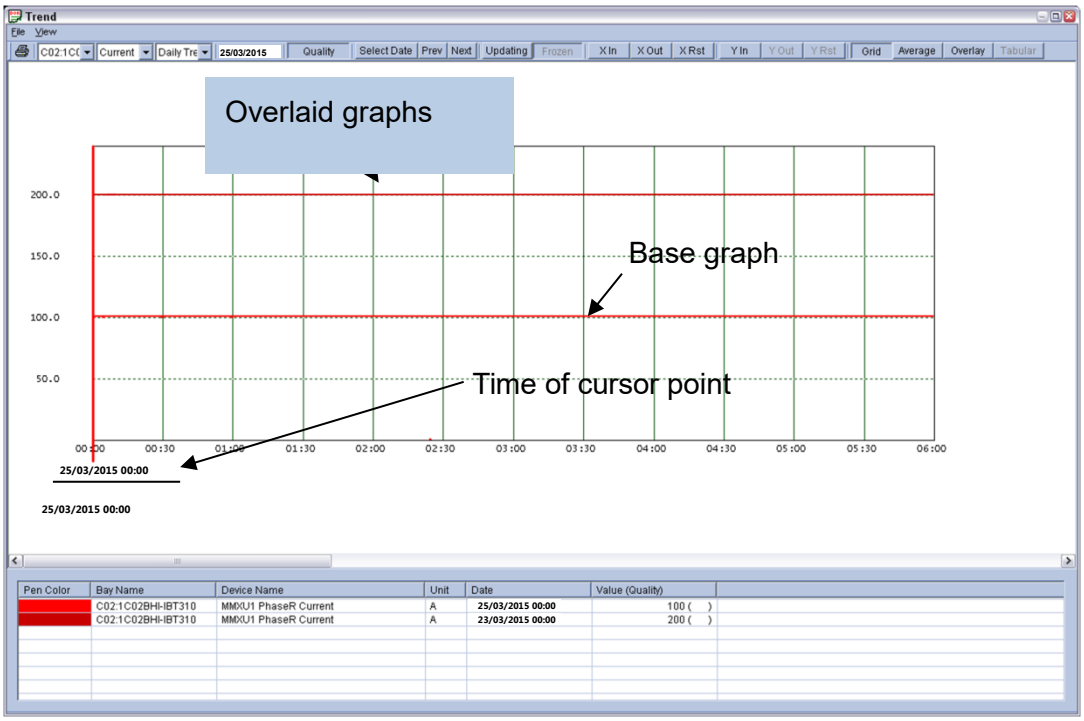
5) Set Overlay 1 to “used” and specify the date of trend data to overlay on the base trend.

   Weekly Trend: Specify the first day in the week.
   Monthly Trend: Specify year and month
   Annual Trend: Specify year.

6) Set Overlay 2 and 3 in the manner similar to Overlay1.
   When they are not used, select “not used”.

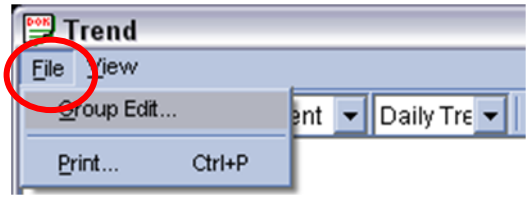
7) Click OK.

8) The Trend graphs of the specified date are overlaid and displayed.

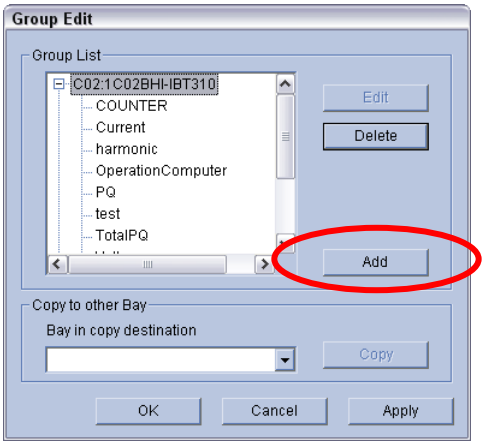


4.141 Adding a New Trend Group

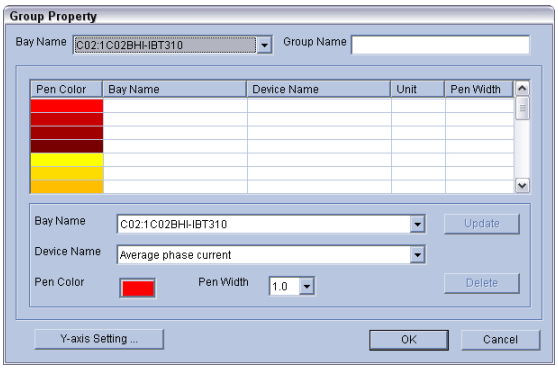
How to add a new Trend group is indicated below.



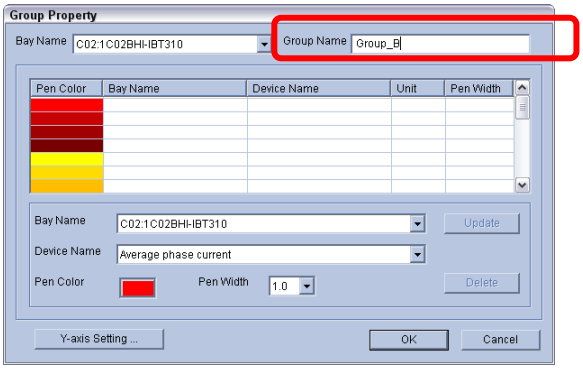
1) From the menu bar of the “Trend” window, select [File] - [Group Edit].



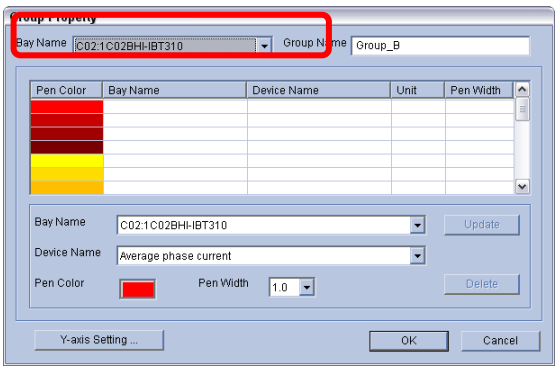
2) The “Group Edit” dialog is displayed. Click Add.



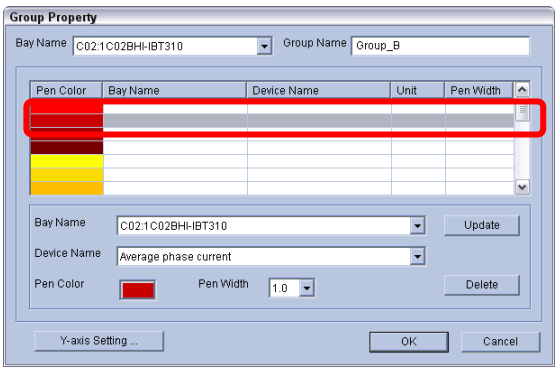
3) The “Group Property” dialog is displayed. (The “Group Edit” dialog becomes inactive.)



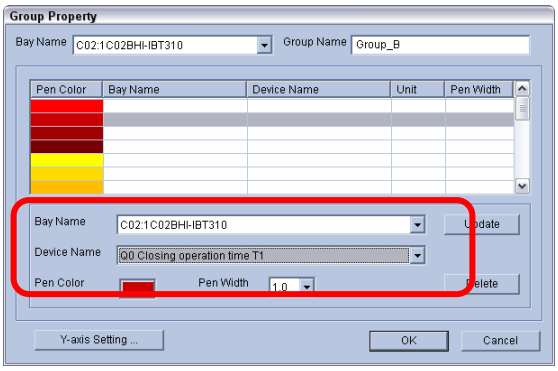
4) **Addition of group name**
Input Group Name.



5) **Specification of the bay to which the group belongs**
Select the bay to which this group belongs from the combo box.

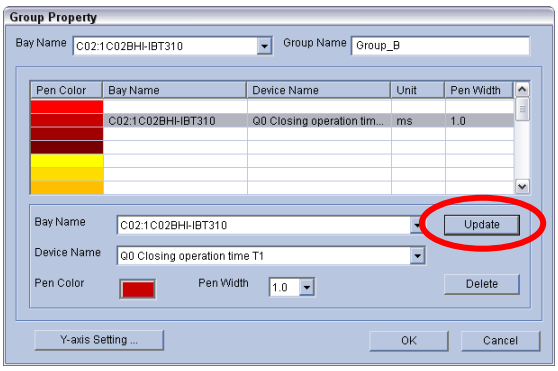


6) **Registration of a member**
When a blank row of the member list is selected, the color of the row appears in the box of “Pen Color” and the default value is displayed in “Pen Width”.

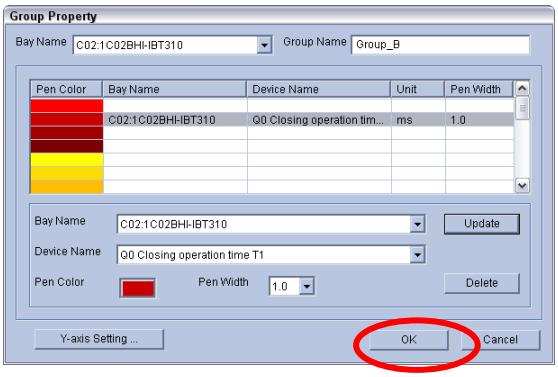


7) Select a member using “Bay Name” selection combo box and “Device Name” selection combo box.
Change “Pen Color” and “Pen Width” if necessary.

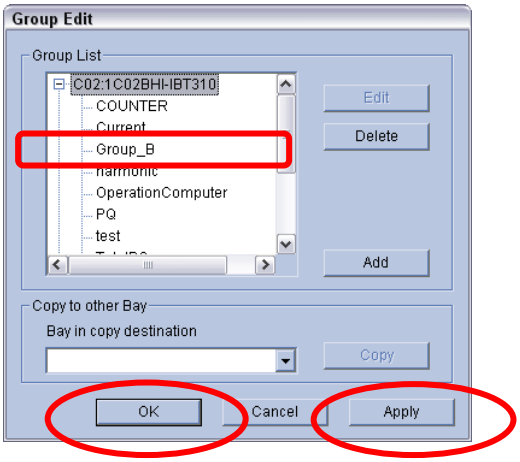
When changing the color, click the color at “Pen Color” to open the color pallet and select the color you want.
When changing pen width, re-select it from the combo box.



8) When Update is clicked, the contents set at step 7) are displayed in the member list.



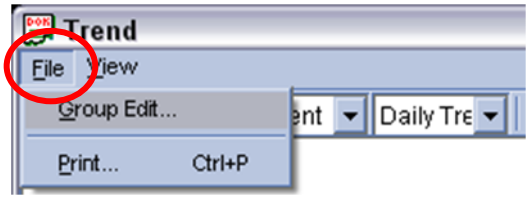
9) After the registration of necessary members is completed, click OK.



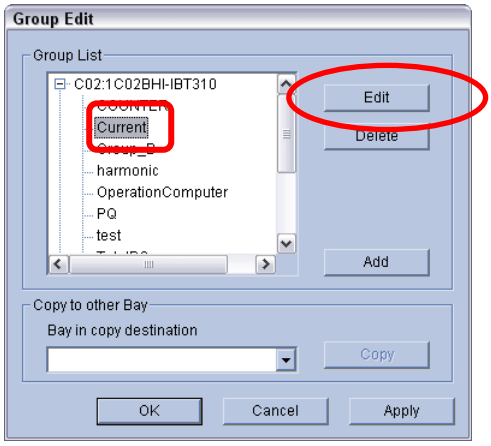
10) The “Group Property” dialog is closed and the “Group Edit” dialog becomes active.
Check that the added group is displayed in the Group List, and click OK or Apply.

4.142 Editing Trend Groups

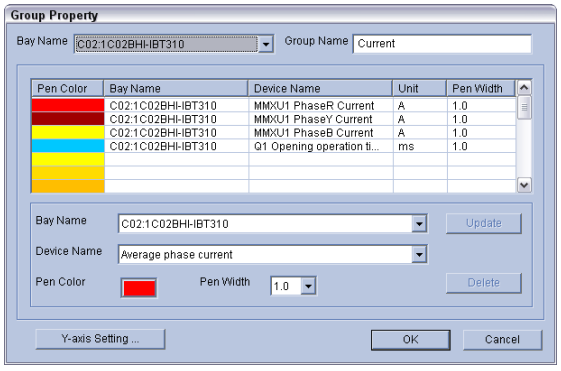
How to edit Trend groups is indicated below.



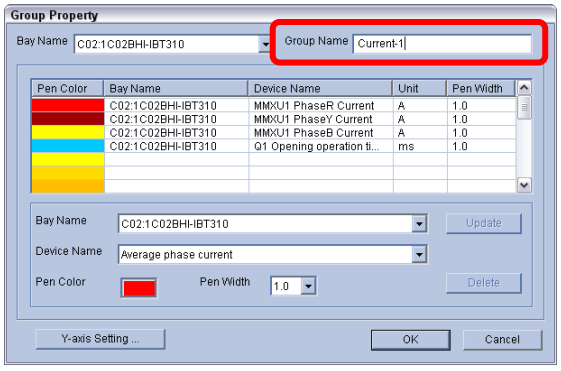
1) From the menu bar of “Trend” window, select [File] - [Group Edit].



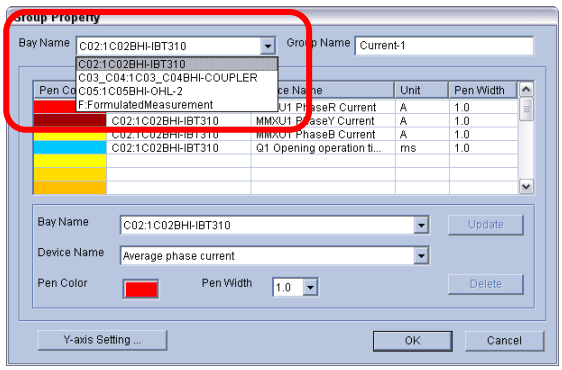
2) The “Group Edit” dialog is displayed.
Select the group you want to edit and click Edit.



3) The “Group Property” dialog is displayed with currently set contents.
(The “Group Edit” dialog becomes inactive.)

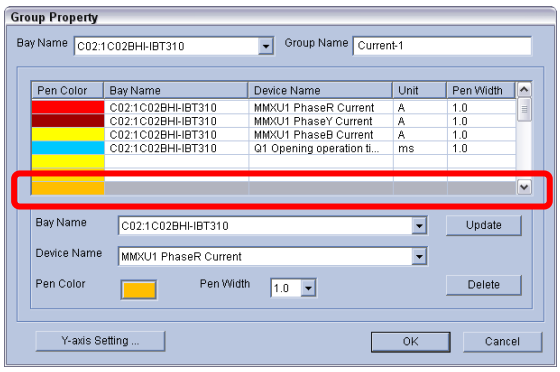


4) **Change of Group Name**
Input the changed group name into “Group Name”.



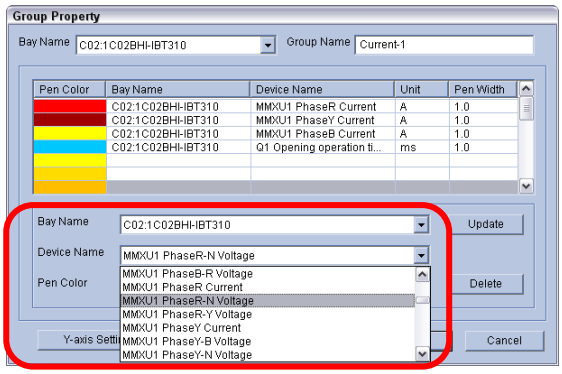
5) **Change of the bay to which the group belongs**

Select the bay to which this group belongs from the combo box.



6) **Addition of a member**

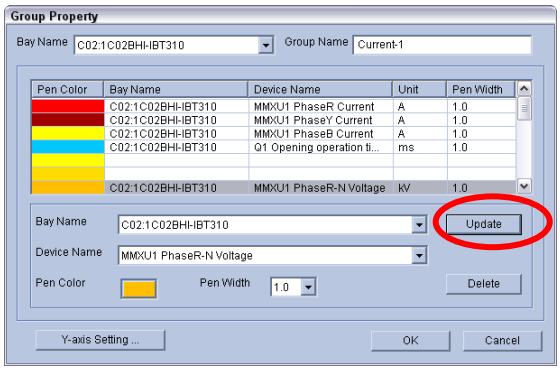
When a blank row of the member list is selected, the color of the row appears in the box of “Pen Color” and the default value is displayed in “Pen Width”.



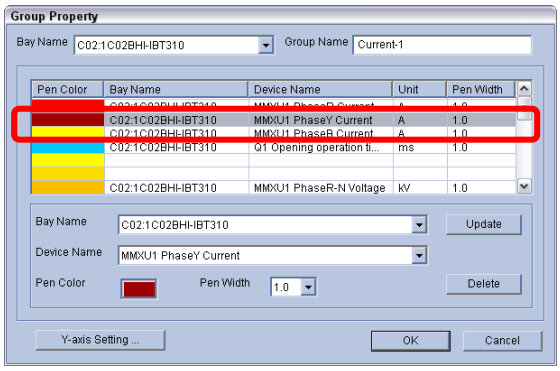
7) Select a member using the “Bay Name” selection combo box and the “Device Name” selection combo box.

When changing the color, click the color at “Pen Color” to open the color pallet and select the color.

When changing pen width, re-select it from the combo box.

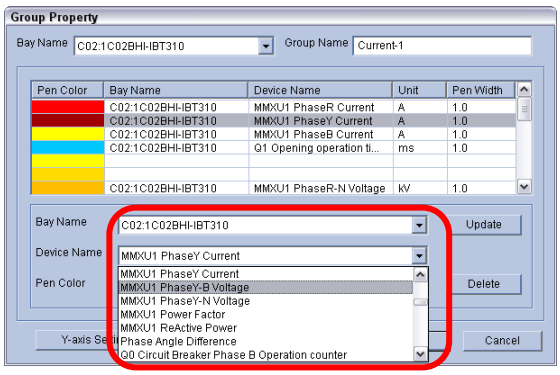


8) When Update is clicked, the contents set at step 7) are displayed in the member list.

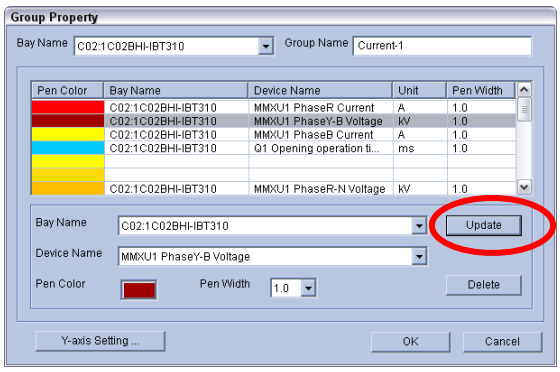


9) **Change of member item**

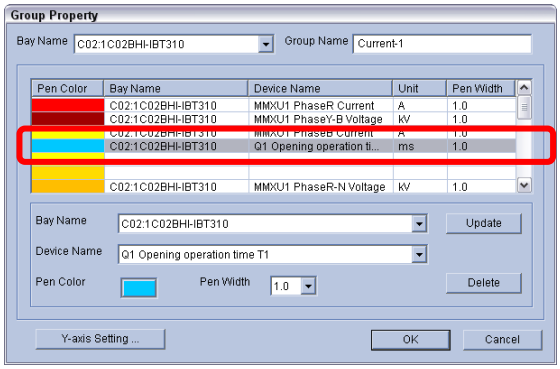
When the row of the member you want to change is selected, the currently set contents are displayed at the lower stage of the dialog.



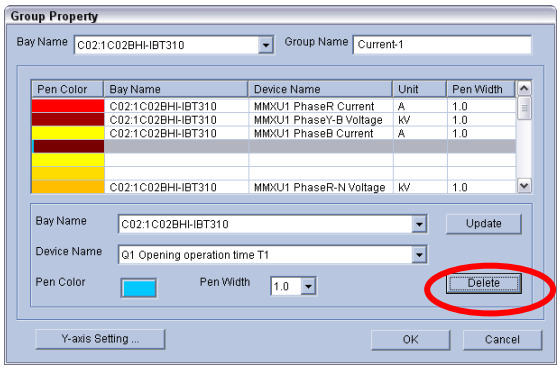
10) Select a new item from the “Bay Name” selection combo box and the “Device Name” selection combo box.
When changing the color, click the color at “Pen Color” to open the color pallet and select the color.
When changing pen width, re-select it from the combo box.



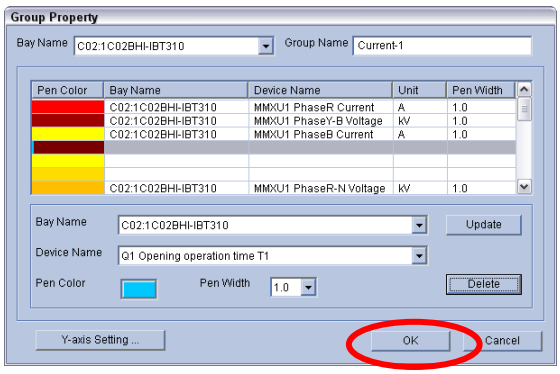
11) When the change of member item is completed, click Update.
The contents set at step 10) are displayed in the member list.



12) **Deletion of a member**
Select the member to delete from the member list.

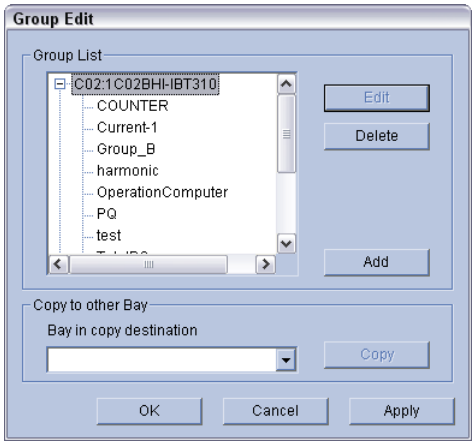


13) When Delete is clicked, the selected row become blank except its color.

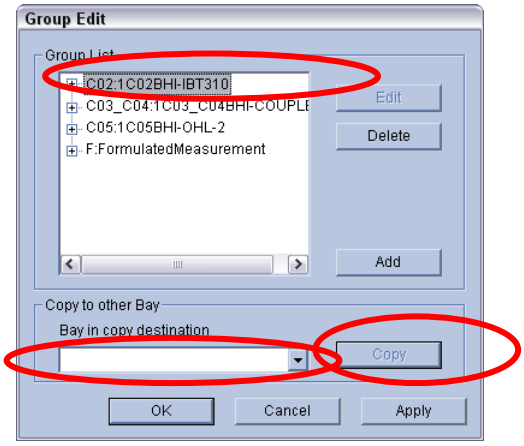


14) **End of editing**

After the editing of each member is completed, click OK.



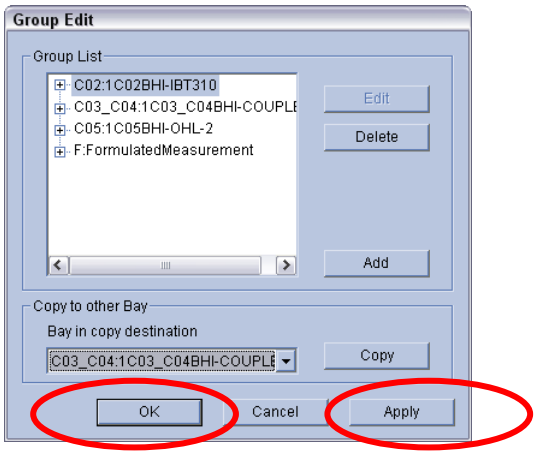
15) The “Group Property” dialog is closed and the “Group Edit” dialog becomes active.



16) **Copy a group to another bay**

To copy the group to another bay, select the group from “Group List” and select the bay from the combo box of “Copy to other Bay” and click the “Copy””.

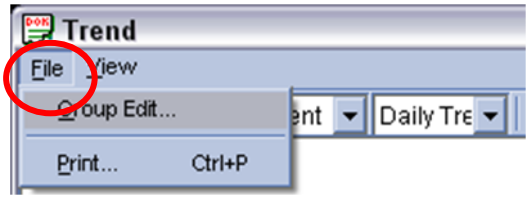
If the selected group already exists in the selected bay, a confirmation dialog to confirm overwriting is displayed.



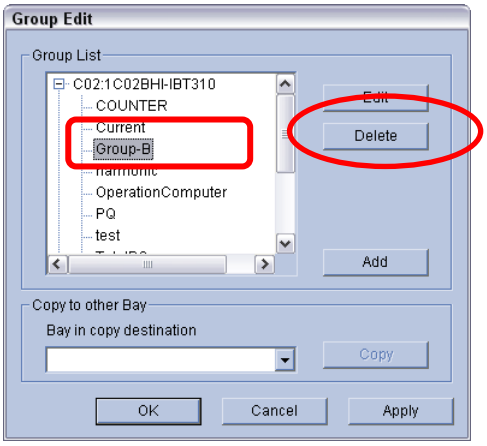
17) To end the editing, click OK or Apply.

4.143 Deleting a Trend Group

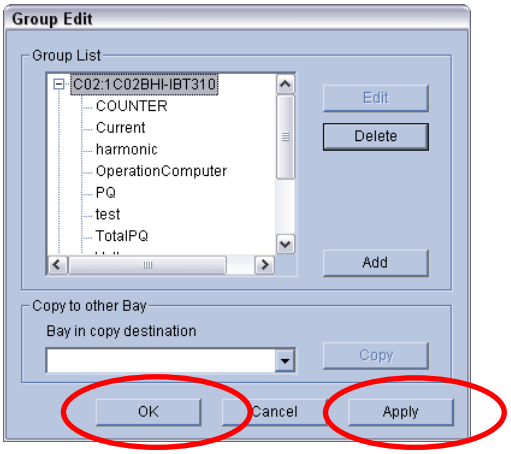
How to delete a Trend group is indicated below.



1) From the menu bar of the “Trend” window, select [File] - [Group Edit].



2) The “Group Edit” dialog is displayed.
Select the group you want to delete and click Delete.



3) The selected group is deleted from the Group List.
Click OK or Apply.

<Alarm Annunciator Window> (Option)

Indication function of Common Alarm Annunciator Window and Bay alarm Annunciator Window is provided as option.

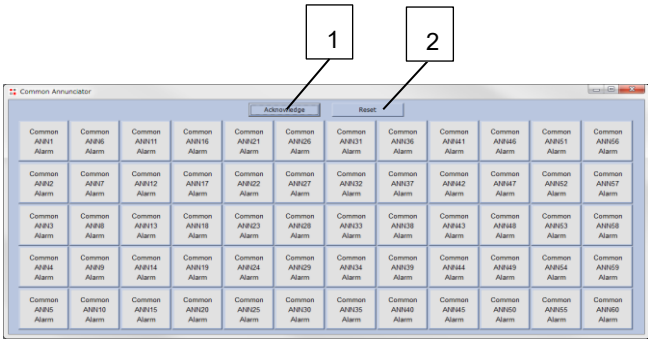
4.144 Common Alarm Annunciator (ANN) Window

How to display the Common Alarm ANN Window from main menu bar is indicated below.

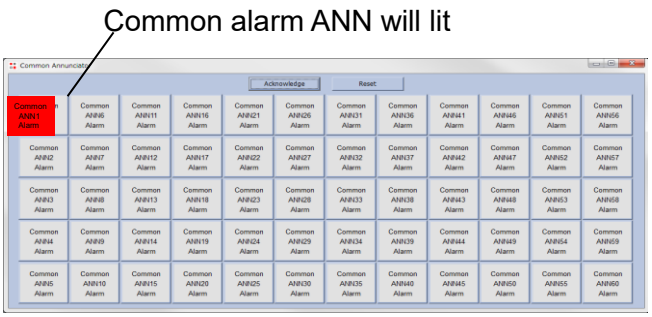
1) Click Annunciator in the main menu bar.



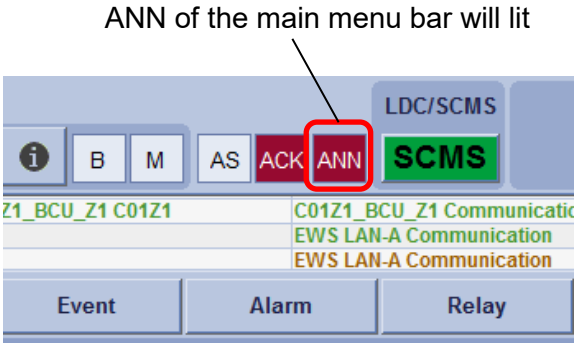
2) The Common Alarm ANN Window is displayed. Function of each button is as follows.



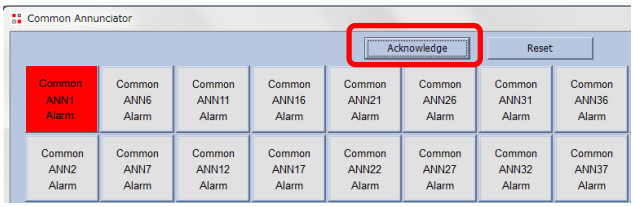
No	Button	Function
1	Acknowledge	When the ANN is flicker setting, flicker stops by pressing acknowledge button.
2	Reset	Alarm indicator turns off by pressing reset button after failure recovery.



3) When common alarm occurs, the corresponding ANN is lit, and ANN of the main menu bar will lit also.

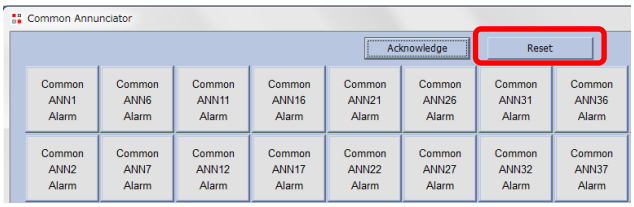


> **NOTE** Lighting color, text color and text character can be selected freely using Annunciator Editor. Refer to Operation Manual Annunciator Editor (6F2M2031) for details.



4) When the ANN is flicker setting, flicker will be stopped by pressing the Acknowledge button, and ANN is lit continuously

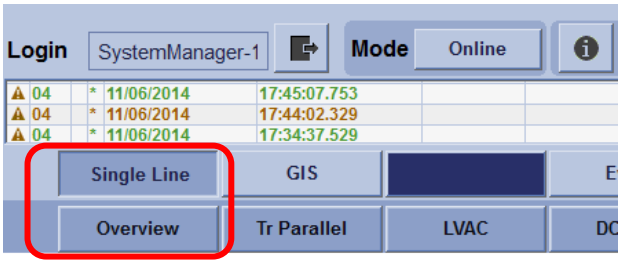
> **NOTE** After pressing the Acknowledge button, if a failure occurs again, ANN flickers again.



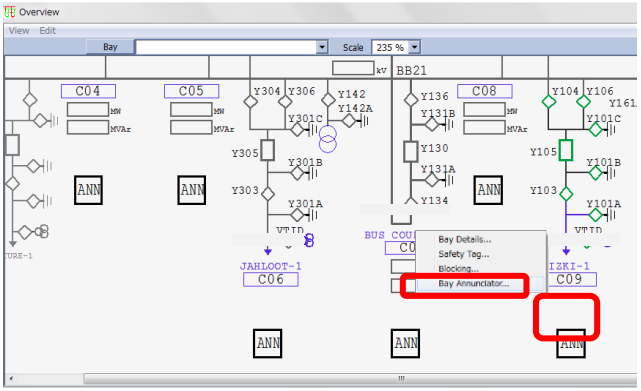
5) Fault indicator turns off by pressing the Reset button after a failure recovery.

4.145 Bay Alarm Annunciator(ANN) Window

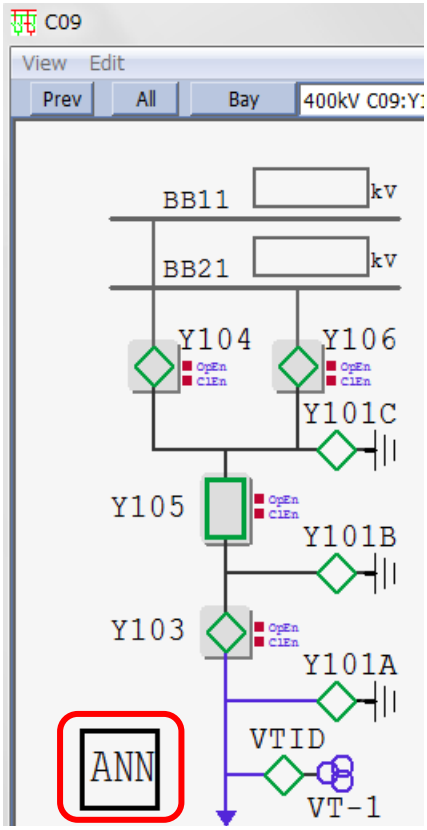
How to display the Bay Alarm ANN Window from main menu bar is indicated below.



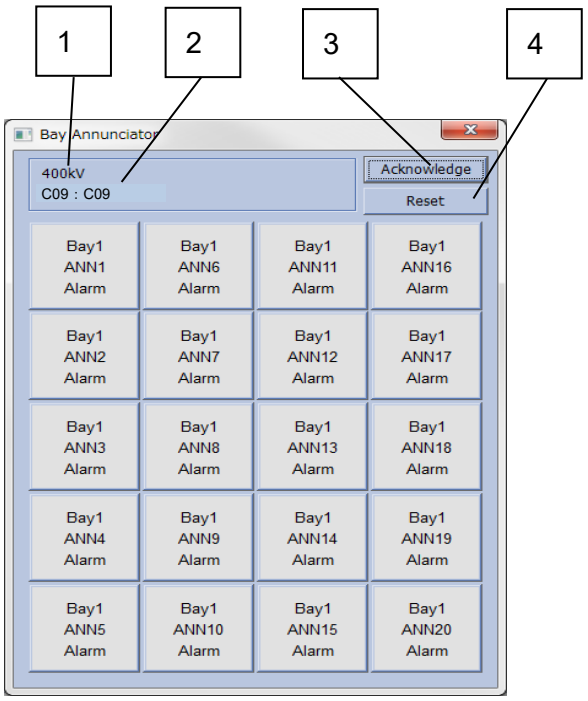
1) Click Single Line –Overview button.



2) Over view Window is displayed. Click on the ANN symbol of Bay that you want to display the Alarm ANN. Or select the "Bay Annunciator…" from the context menu that appears by right-clicking the ANN symbol.



You can also click the ANN symbol from the screen of the bay single line diagram.



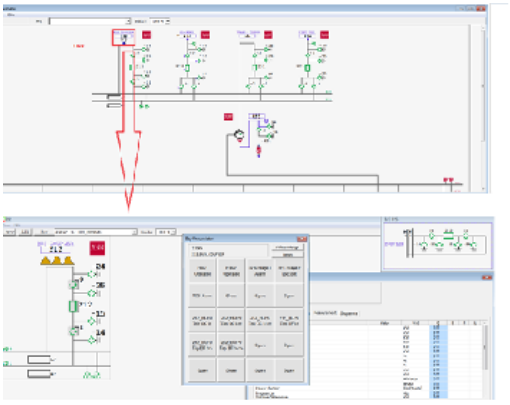
3) The Alarm Annunciator Window of the corresponding Bay is displayed.

Function of each button is as follows.

No	Button	Function
1	Voltage class	Display the voltage class
2	Name of Bay	Display the name of bay
3	Acknowledge	When the ANN is flicker setting, flicker stops by pressing acknowledge button.
4	Reset	Alarm indicator turns off by pressing reset button after failure recovery.

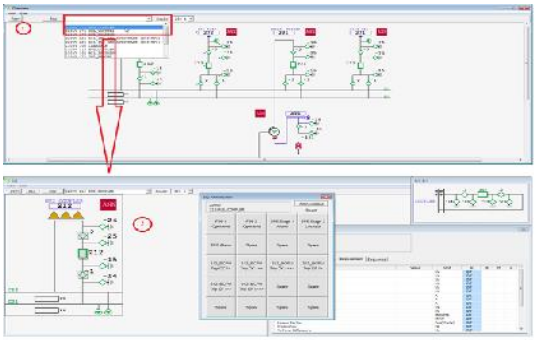
By engineering, ANN window can be seen directly by the following operation.

-Clicking on Bay Button

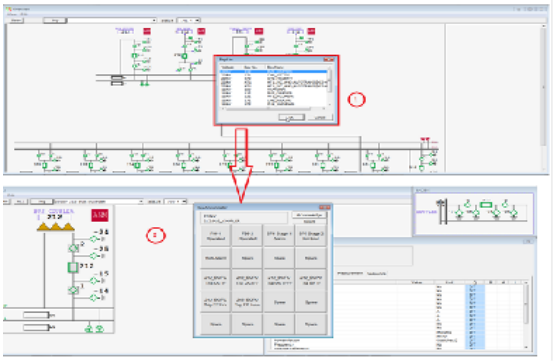


-Clicking on Bay in Bay List Combo Box

NOTE

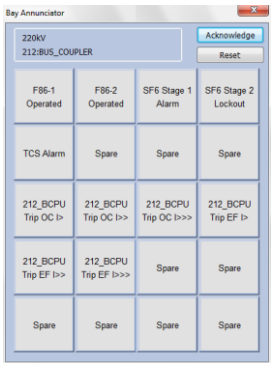


-Clicking on Bay in Bay List Dialog

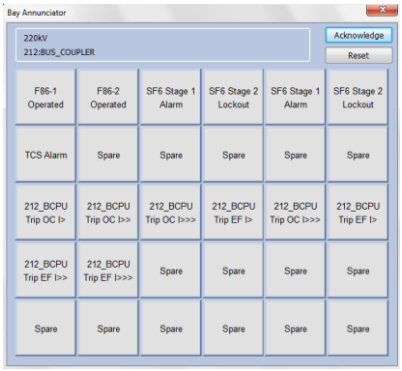


NOTE

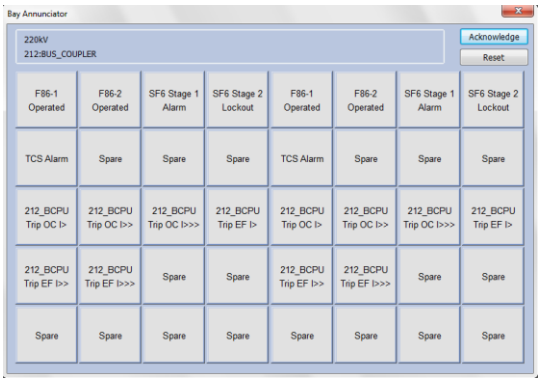
The number of BAY ANN windows displayed on the HMI will be 20, 30 or 40 lamps depending on the ANN Editor setting in Workbench. Refer to Operation Manual Annunciator Editor (6F2M2031) for details.



Example of 20 lamps display

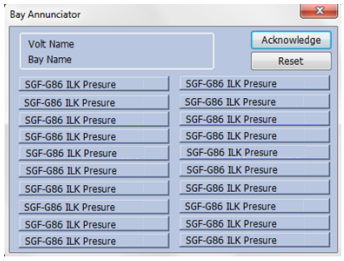


Example of 30 lamps display

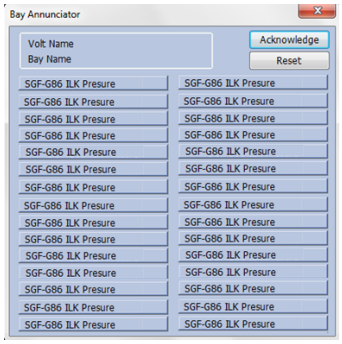


Example of 40 lamps display

ANN window can be seen in list format as shown below by engineering. This format will not occupy too much HMI area.

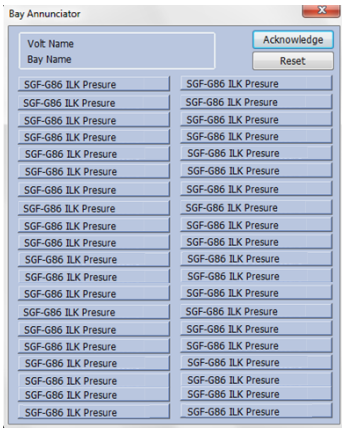


20 lamps display in list format



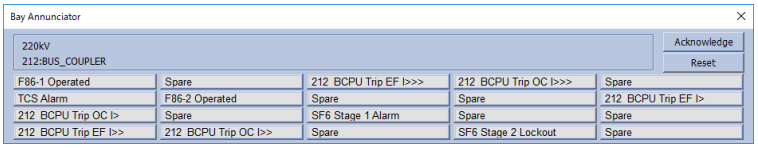
30 lamps display in list format

NOTE

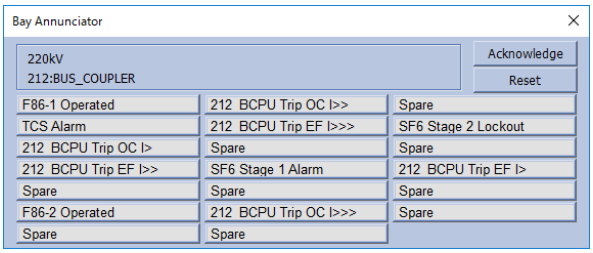


40 lamps display in list format

In addition, the number of rows and the number of columns of the lamp display can be specified freely by engineering as shown below.

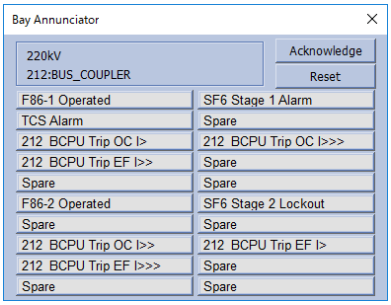


5 columns 4 rows display

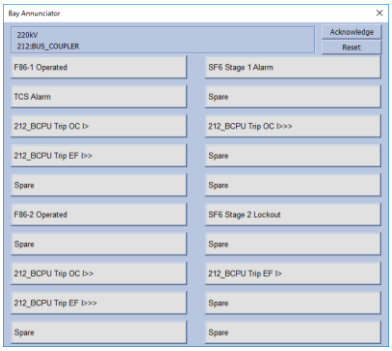


3 columns 7 rows display

Also, display pitch of the ANN window can be varied by engineering as shown below.



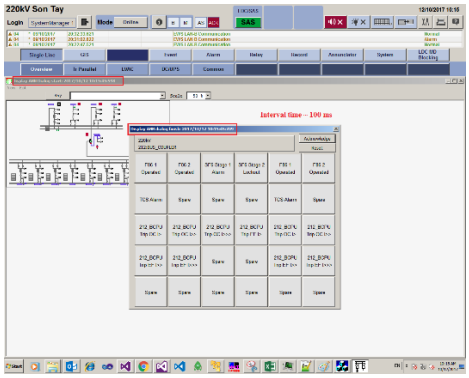
Default display pitch



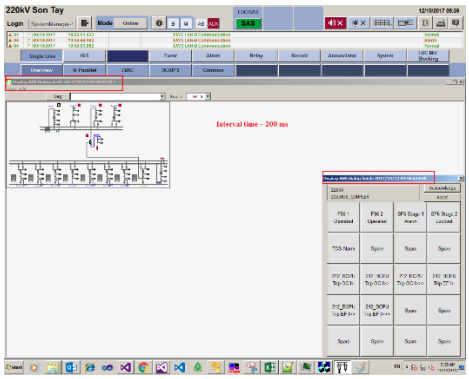
Set the display pitch widely

In case of default setting, ANN window is displayed center of screen. The location of ANN window can be varied freely by engineering.

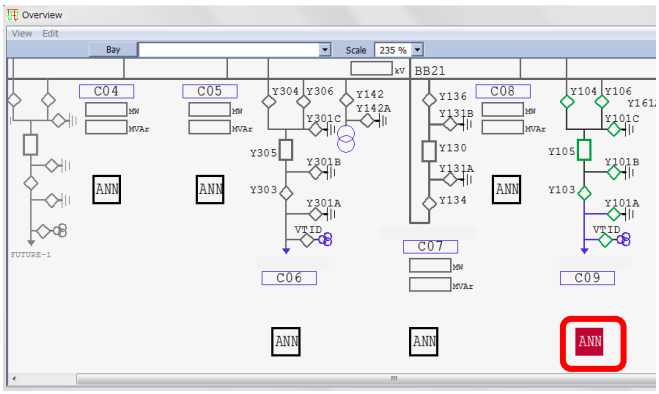
NOTE



Default location of ANN window

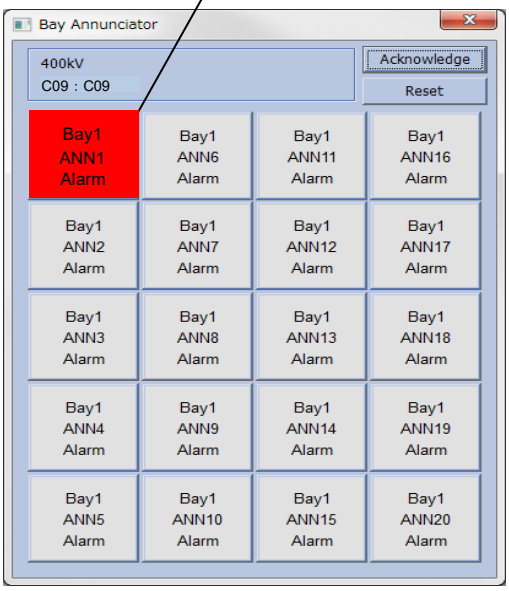


Set the location of ANN window in the lower right



4) When alarm occurs in the Bay, corresponding ANN symbol is lit. Click ANN symbol.

Bay alarm ANN will lit

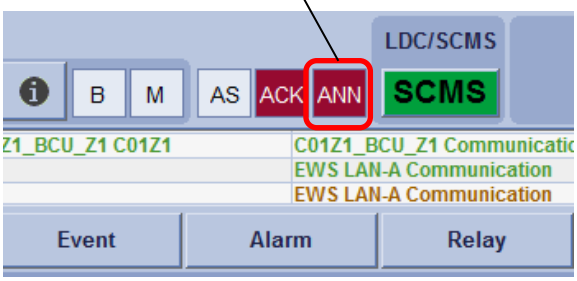


5) The Alarm Annunciator Window that alarm ANN is lit is displayed. ANN of the main menu bar will lit and ANN of the Bay Information dialog will lit also.

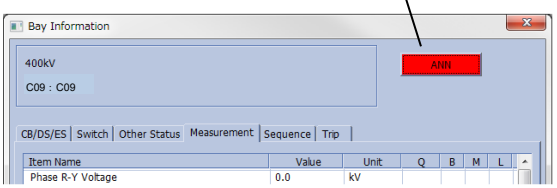
NOTE

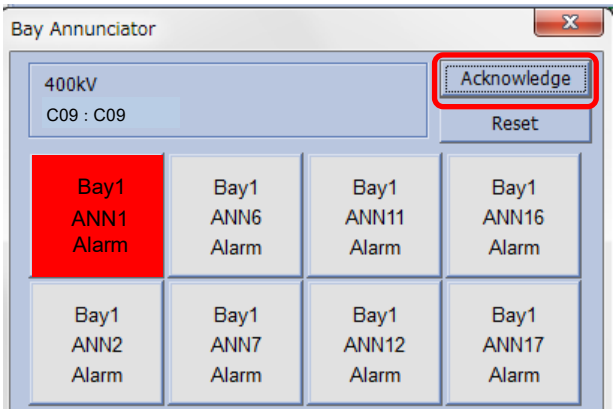
Lighting color, text color and text character can be selected freely according to customer's specification. Refer to Operation Manual Annunciator Editor (6F2M2031) for details.

ANN of the main menu bar will lit



Bay information dialog will lit

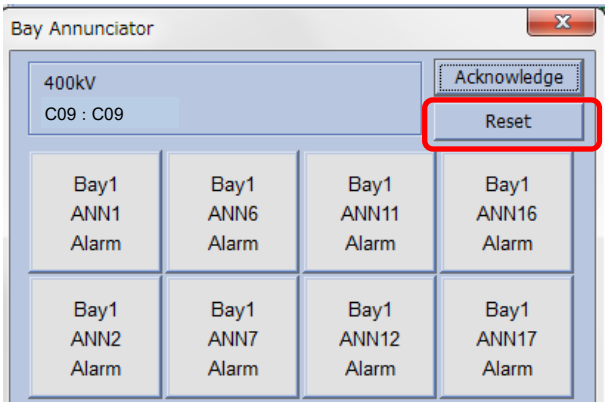




6) When the ANN is flicker setting, flicker will be stopped by pressing Acknowledge button.

NOTE

After pressing the Acknowledge button, if a failure occurs again, ANN flickers again.



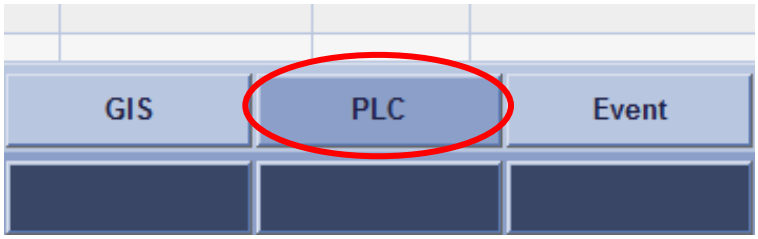
7) Fault indicator turns off by pressing the Reset button after a failure recovery.

<PLC Window>

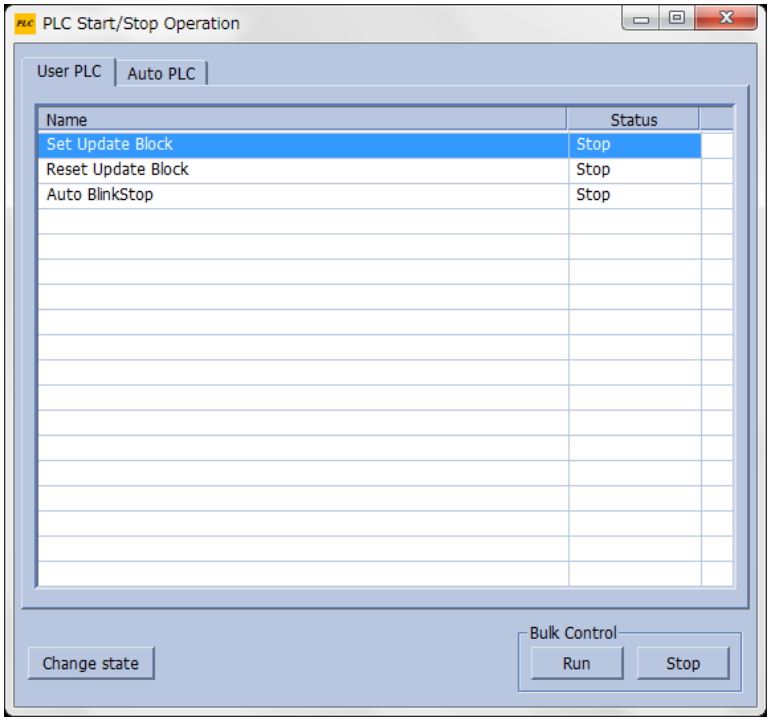
The PLC function is provided on the Station Computer.

4.146 Displaying the PLC Window

How to display the PLC window from the main menu bar is indicated below.



1) Click PLC in the main menu bar.

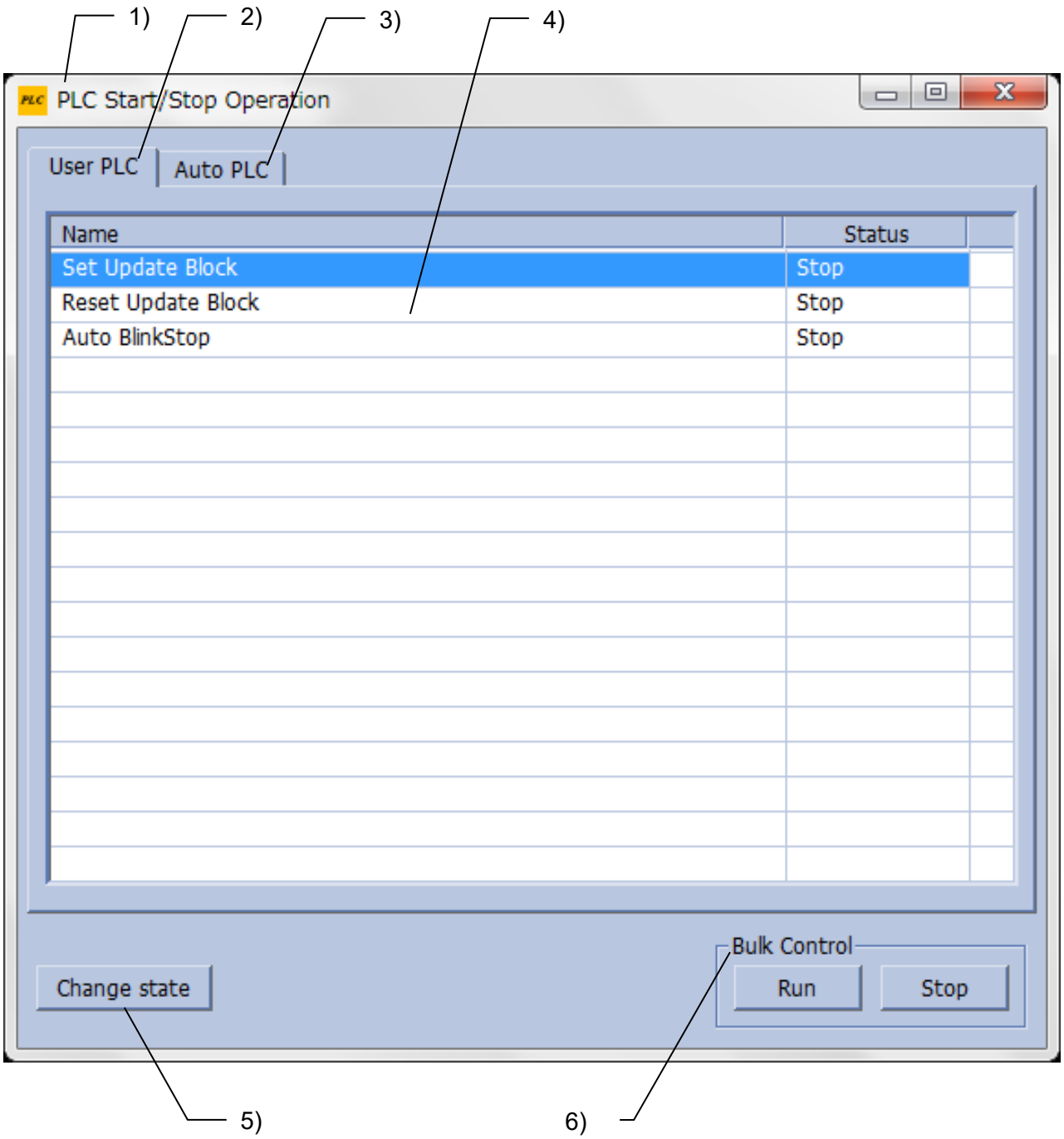


2) The “PLC” window is displayed.

NOTE	The PLC window may not be displayed due to security level setting of user. For security level and the operations allowed for each security level, see Table 1.5.1.

4.147 Function of the PLC Window

The function of the PLC window is indicated below.



1) Window title

2) User PLC — All of the PLC logic names that are registered in the user PLC mode during the engineering stage are displayed on the screen. The execution status of PLC is displayed also.

PLC function that was registered in the user PLC mode is executed by the operation from the SC (PLC function does not work automatically).

3) Auto PLC All of the PLC logic names that are registered in the Auto PLC mode during the Engineering stage are displayed on the screen. The execution status of PLC is displayed also.

PLC function that was registered in the Auto PLC mode is executed at the same time the SC is changed to online.

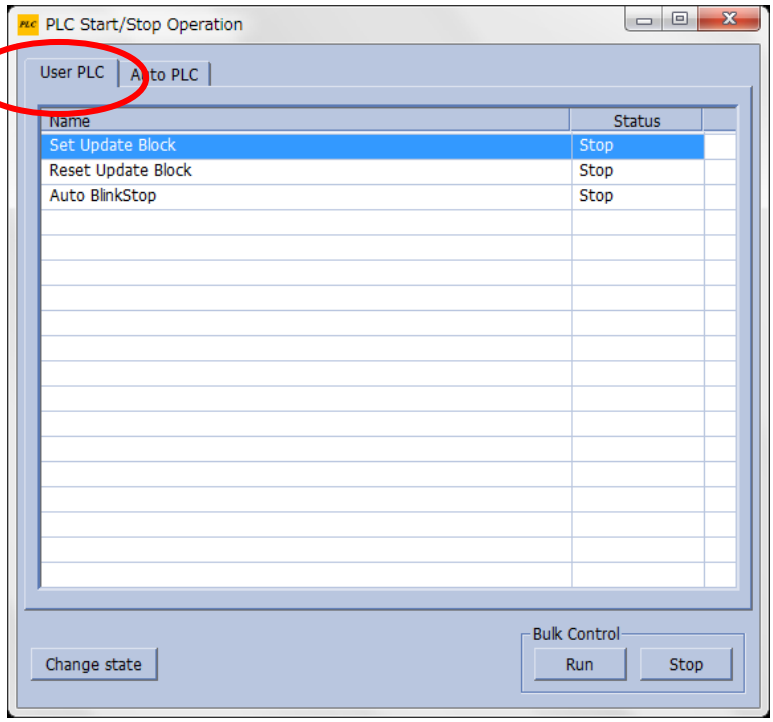
4) PLC list Area to display the PLC name and status.
Name: Logic Name. Name that is set in the DB will be displayed.
Status: Current status of the PLC logic (run or stop) is displayed.

5) Change state Change over the current state of the PLC logic selected from the list.
When Change state is clicked, PLC State Change dialog is displayed.

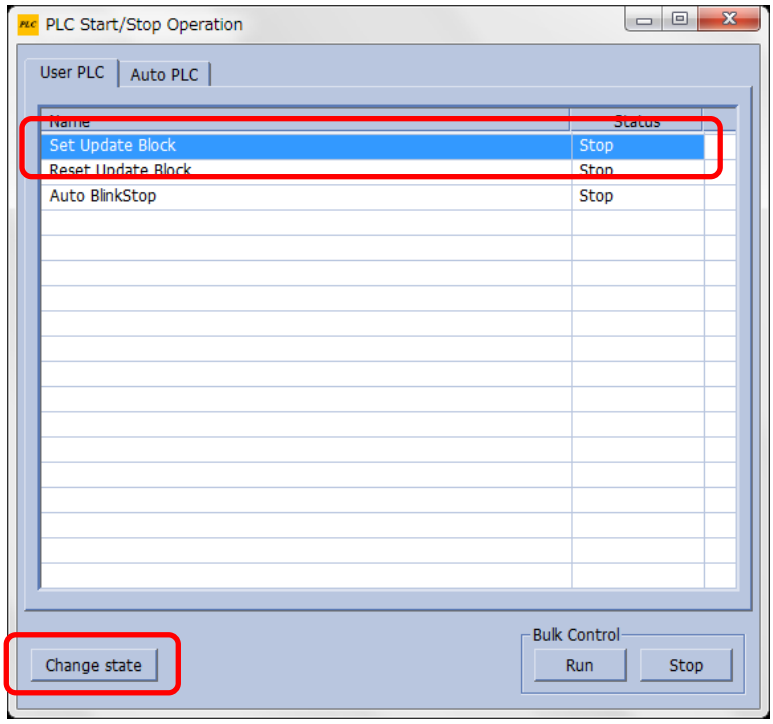
6) Bulk Control Buttton for bulk control.
When Run is clicked, all PLC logic that are registered in the Auto PLC mode is executed in a bulk.
When Stop is clicked, all PLC logic that are registered in the User P LC mode and Auto PLC mode is stopped in bulk.

4.148 Operation in the User PLC

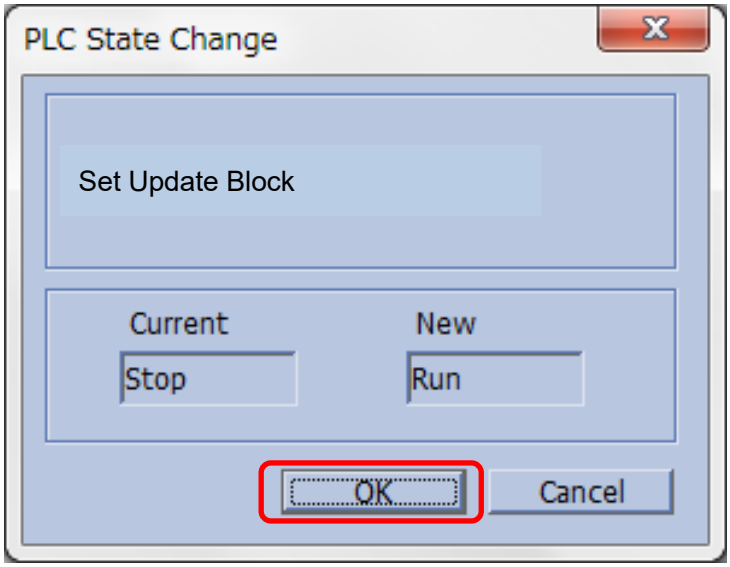
How to operate “User PLC” is indicated below.



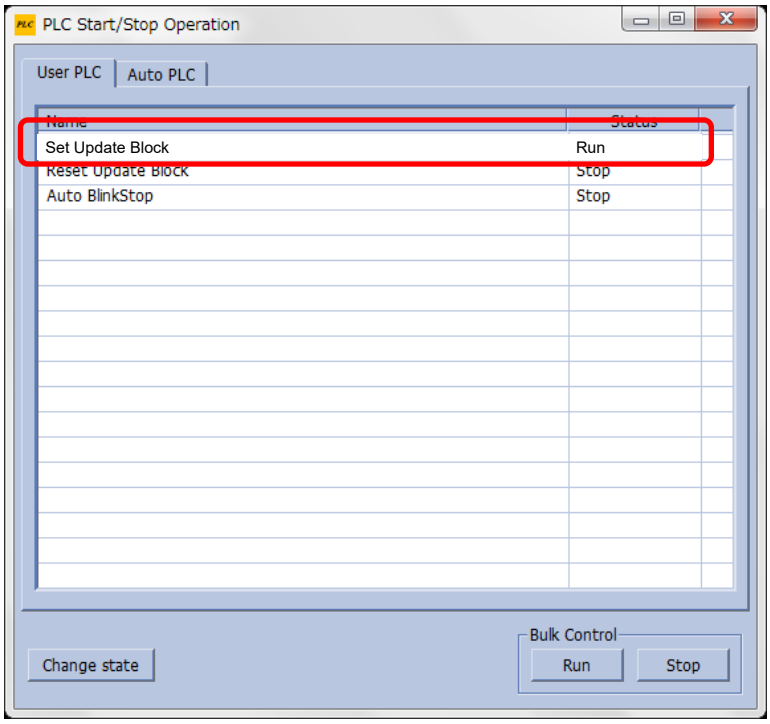
1) Click User PLC. All of PLC list that is registed in “User PLC” is displayed.



2) Select the PLC logic name that you want to run. Change state button becomes active. Click Change state.



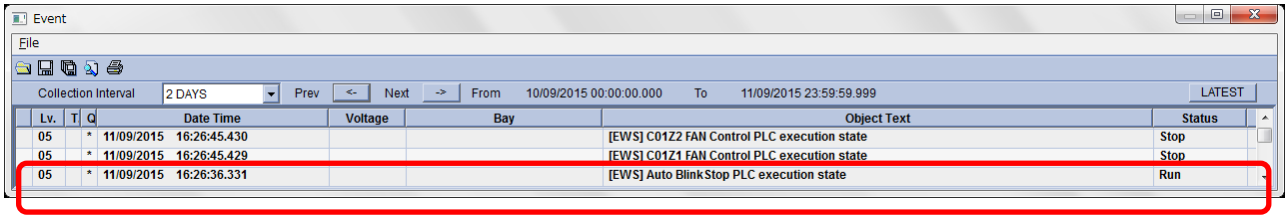
3) PLC State Change dialog is displayed. Click OK.



4) Close the PLC State Change dialog. Make sure that the status column of the PLC screen is displayed to "Run".

NOTE

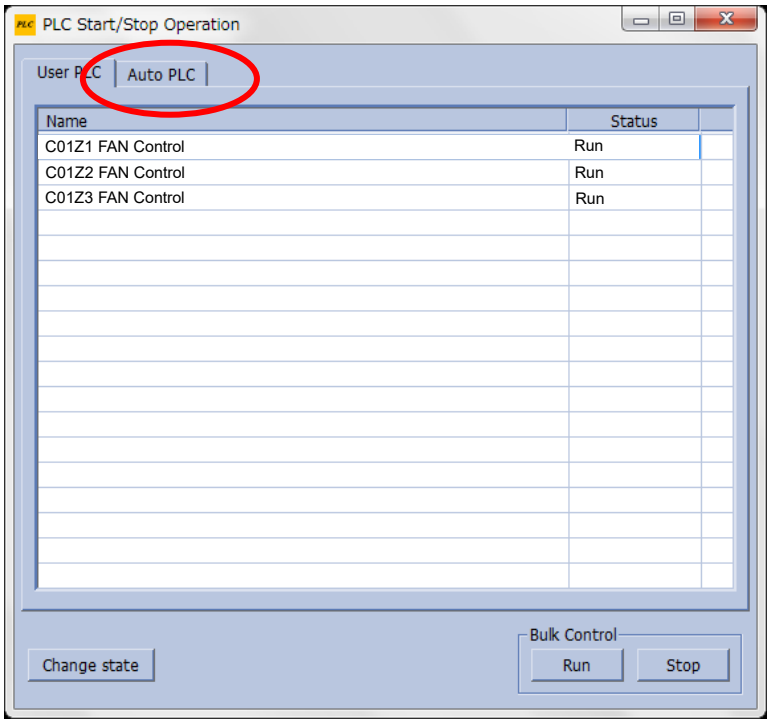
1. When operation mode is set to “LDC”, PLC function does not operate. When click OK in the PLC State change dialog, pop-up indicating that there is no control authority is displayed.
2. When the PLC function has been completed successfully, Event record is displayed on the Event window along with the information of operation source (EWS, OWS etc). Refer to the figure below.



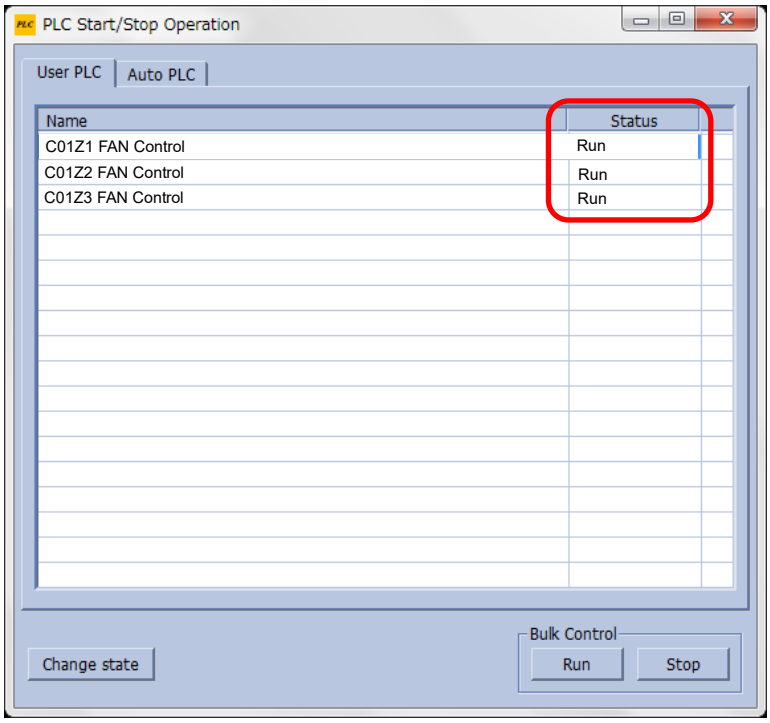
3. When the SC is stopped, all of the running PLC logic to stop. Stopping of the PLC logic is displayed in the event record.
4. When the SC in operation is changed from on-line to standby, all of the running PLC logic to stop.
5. Do the same manner to carry out PLC stop.

4.149 Operation in the Auto PLC

How to operate “Auto PLC” is indicated below.



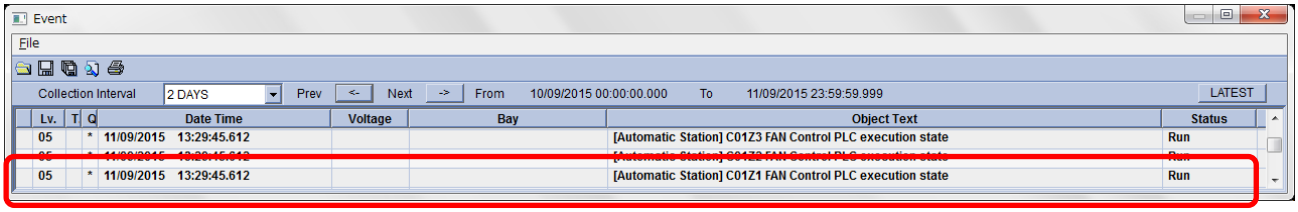
1) Click Auto PLC. All of PLC list that is registed in “Auto PLC” is displayed.



2) When SC is set to on-line mode, all of the PLC logic runs automatically. Make sure that the status column of the PLC screen is displayed to all "Run".

NOTE

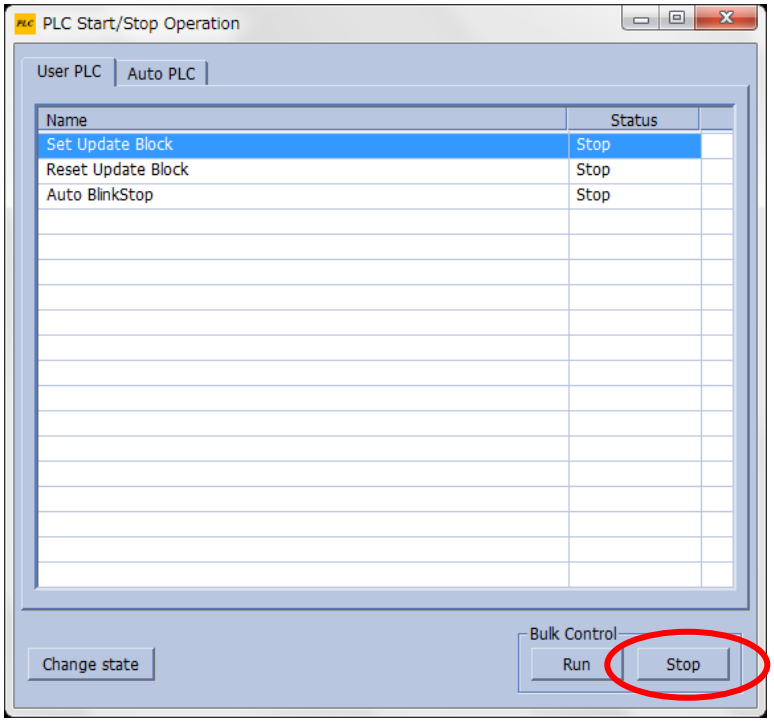
1. PLC function will work regardless of the operation mode setting (LDC/SAS).
2. When the PLC function has been completed successfully, Event record is displayed on the Event window along with the [Automatic Station] showing an automatic execution. Refer to the figure below.



3. When the SC is stopped, all of the running PLC logic to stop. Stopping of the PLC logic is displayed in the event record.
4. When the SC in operation is changed from on-line to standby, all of the running PLC logic to stop once. PLC function is restarted from the new on-line SC.

4.150 Operation in the Bulk Control

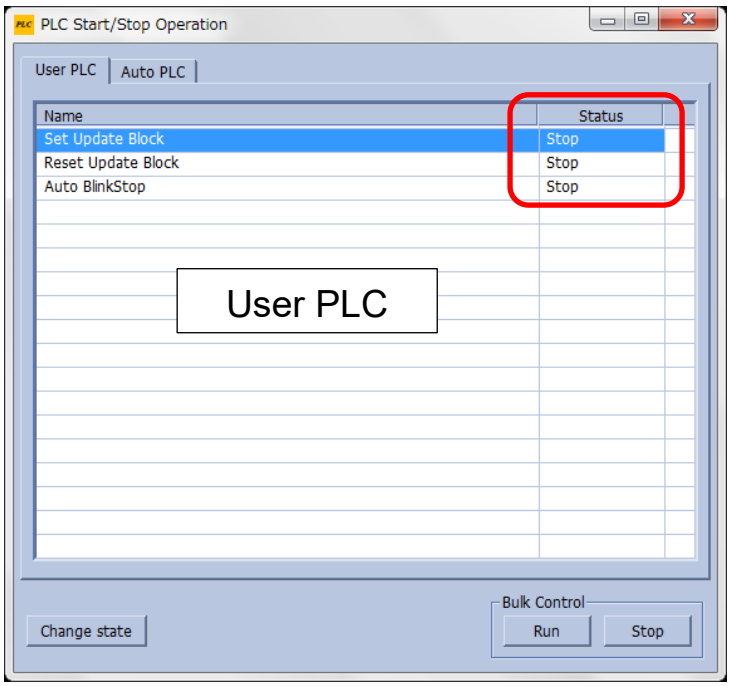
How to operate “Bulk Control” is indicated below.



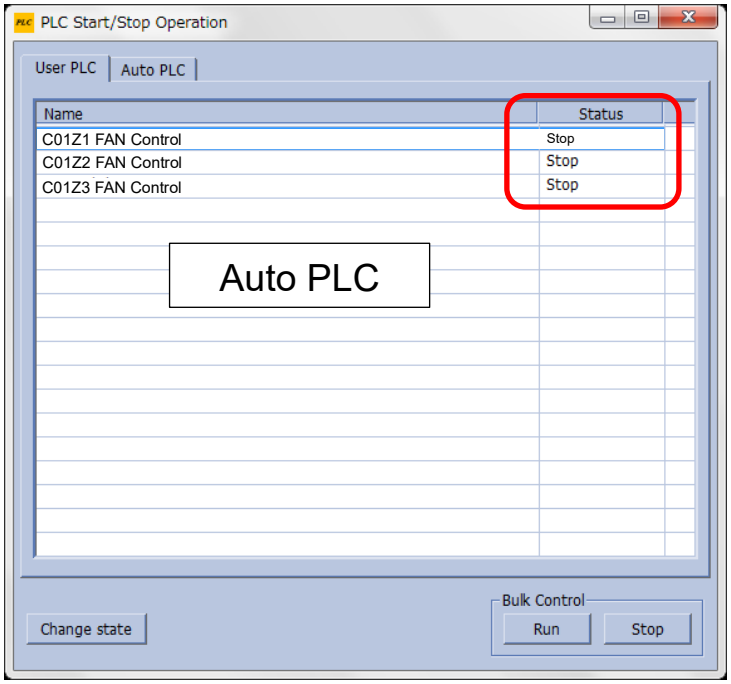
1) Bulk stop control

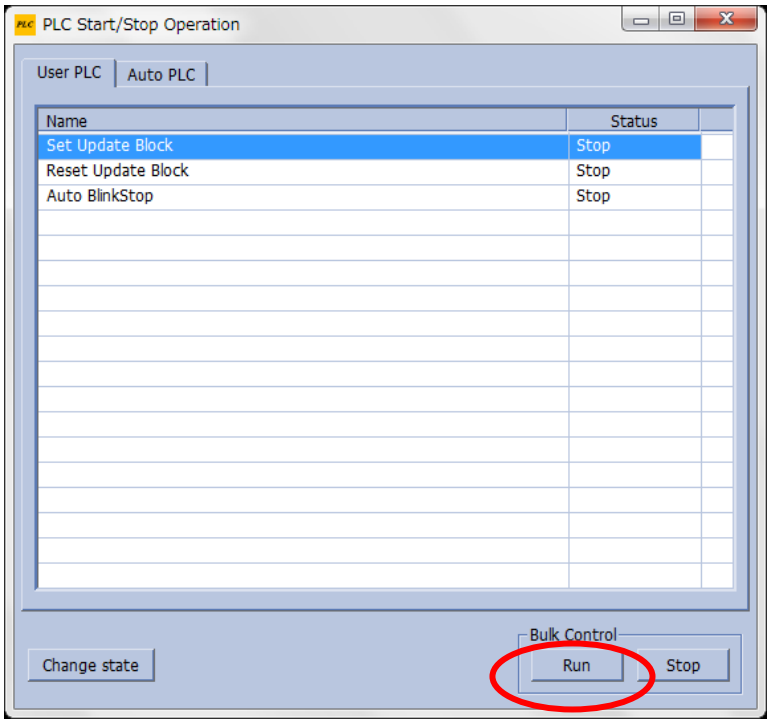
Click Stop in the Bulk Control column.

Confirmation dialog is displayed. Click OK.



2) PLC logic that is registed in “User PLC” and “Auto PLC” is stopped. Make sure that status column of the PLC screen is displayed to all “Stop”.

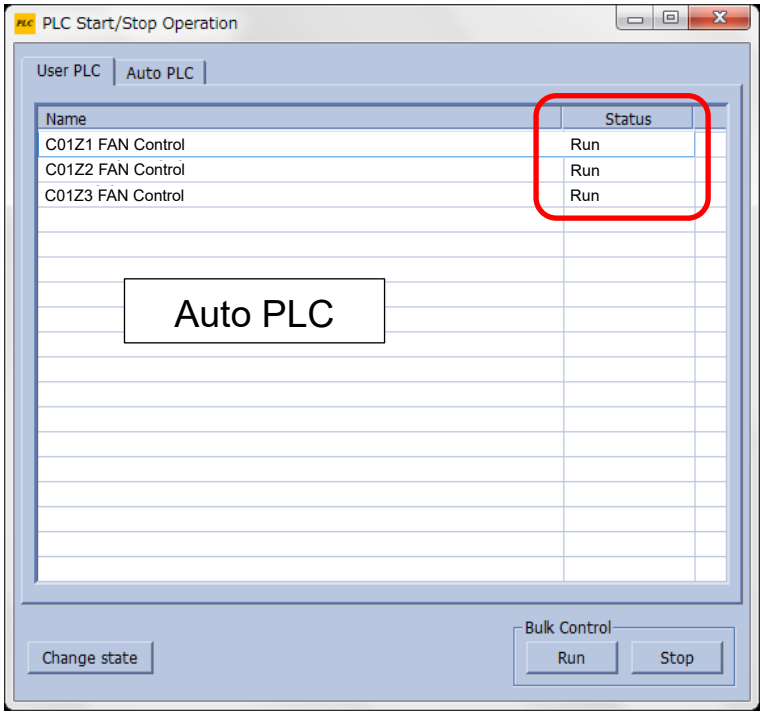




Bulk Run control

1) Click Run in the Bulk Control column.

Confirmation dialog is displayed. Click OK.



2) All of the PLC logic that is registed in “Auto PLC” is started. Make sure that status column of the “Auto PLC” screen is displayed to all “Run”.

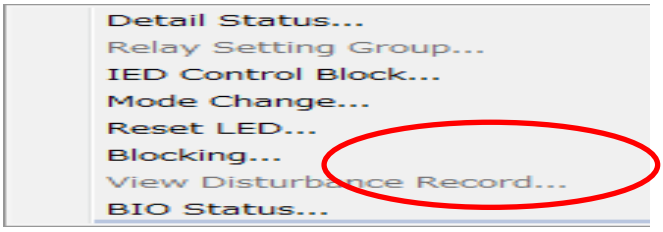
NOTE
PLC logic that is registed in “User PLC” do not start.

NOTE
Bulk control function will work regardless of the operation mode setting (LDC/SAS).

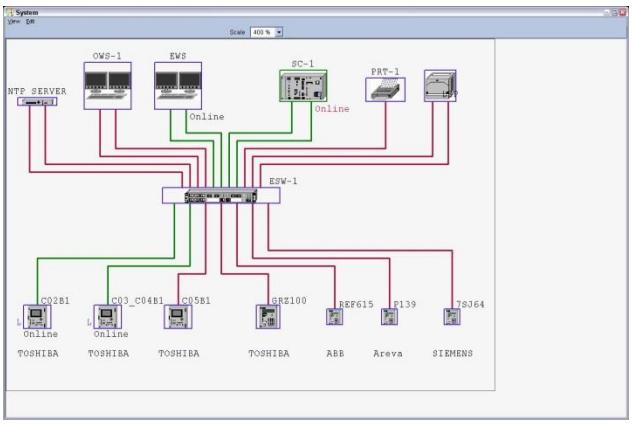
5 Relay Setting from HMI Screen

5.1 Changing the Relay Setting Group

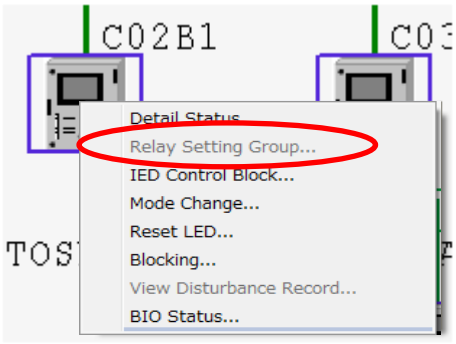
How to change the relay setting group from the main menu bar is indicated below.



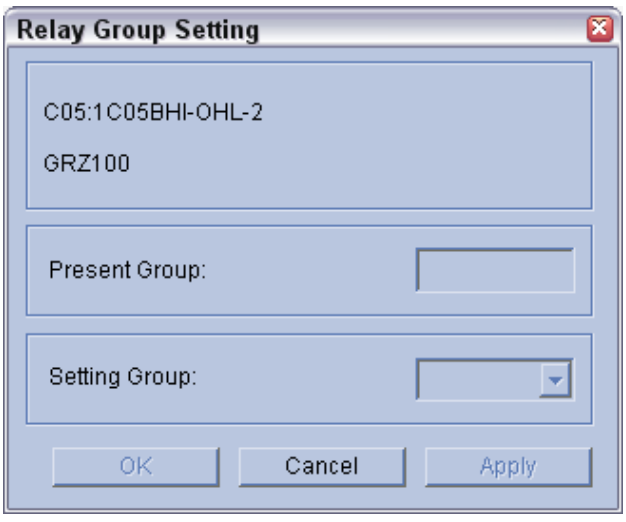
1) Click System in main menu bar.Area



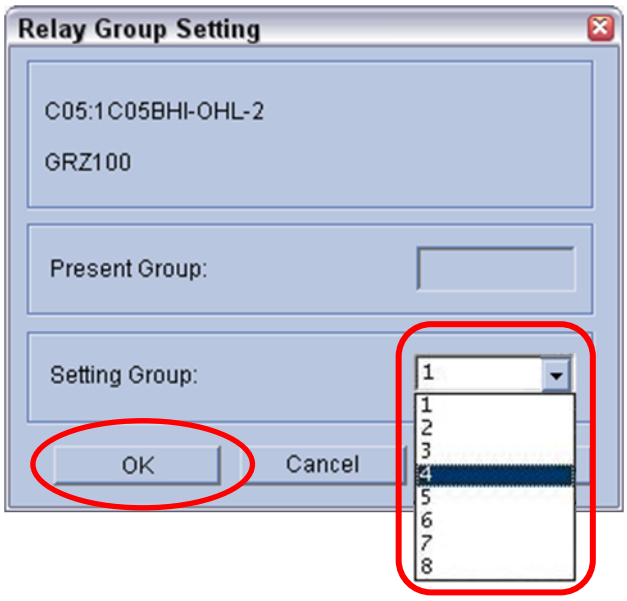
2) The “System” window is displayed.



3) Identify the relay whose relay setting group you want to change.
Right-click it to display the context menu and select “Relay Setting Group”.



4) The “Relay Group Setting” dialog is displayed.



5) Select a new group from the combo box and click OK or Apply.
The relay setting group is updated.

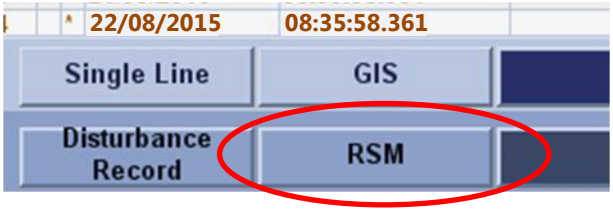
6) The new relay setting group is transmitted to the selected relay and the relay setting group in the “System” window is updated.

5.2 Starting the RSM Software

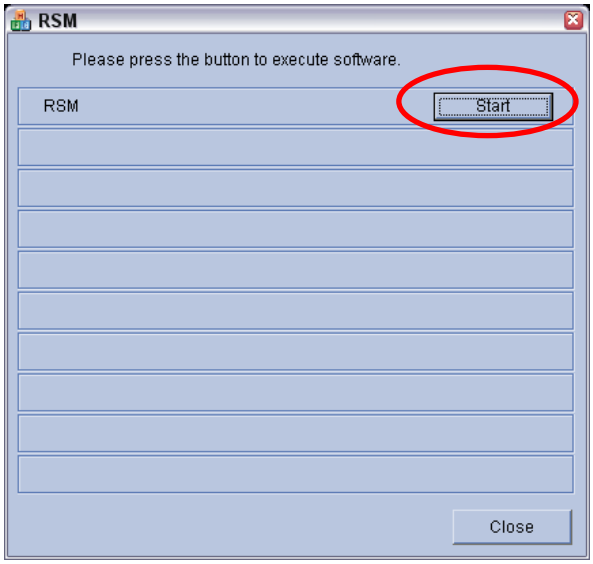
How to start the RSM software from the main menu bar is indicated below.



1) Click Relay in the main menu bar.

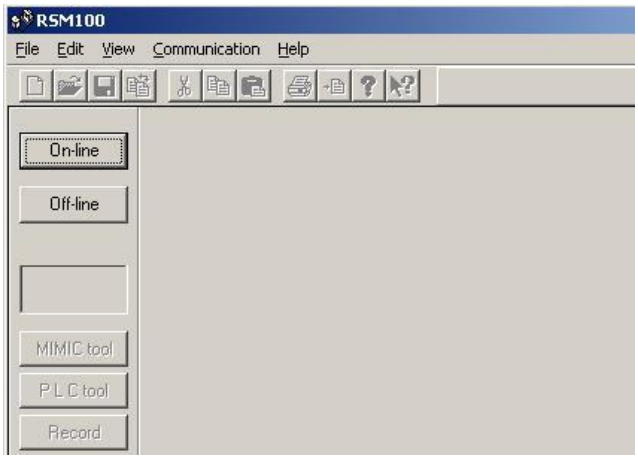


2) Click RSM.



3) The “RSM” dialog is displayed.

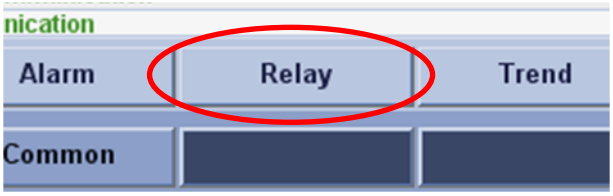
4) Click Start for the RSM software.



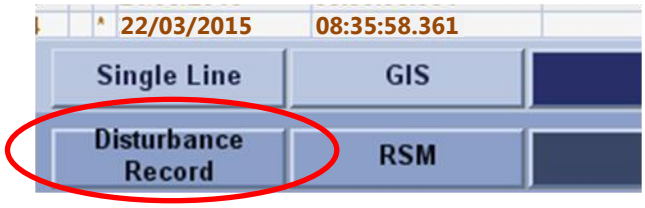
5) The RSM software window is displayed.

5.3 Displaying the Disturbance Waveform

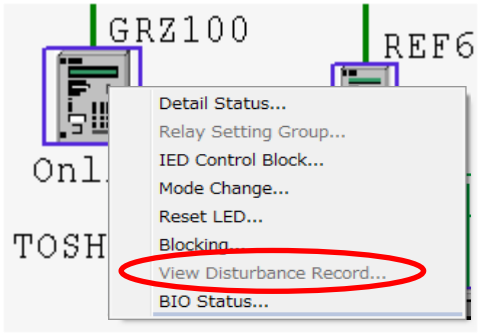
How to display a disturbance record waveform from the main menu bar is indicated below.



1) Click Relay in the main menu bar.

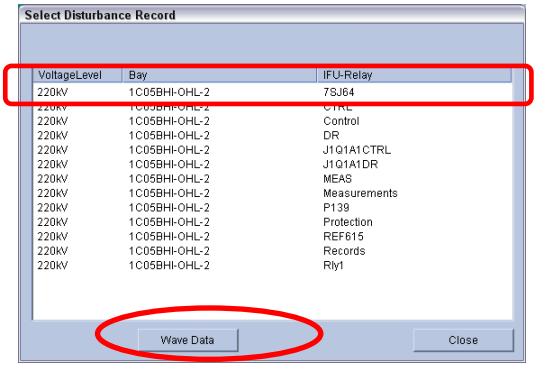


2) Click Disturbance Record.

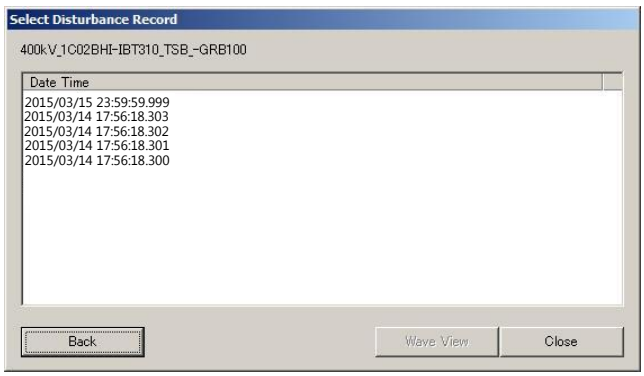


(Operation from the “System” window.)

(The “Select Disturbance Record” dialog is also displayed by right-clicking the relay symbol in the “System” window and by selecting “View Disturbance Record” from the context menu.)



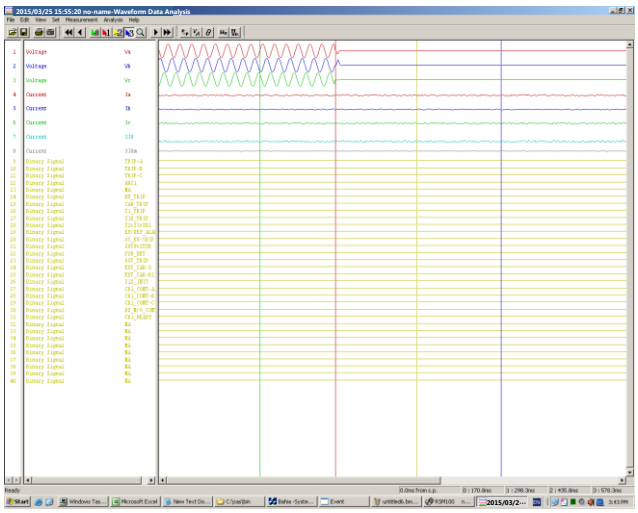
3) The “Select Disturbance Record” dialog listing the relays is displayed.
Select the relay and click Wave Data, or double-click the row of the relay.



4) The “Select Disturbance Record” dialog listing the disturbance waveforms is displayed.

Select the date of the disturbance waveform you want to display.

To return to the list of relays, click Back.



5) Disturbance waveform is displayed.

6 Detailed Explanation of HMI Screen

6.1 Screen Layout

6.1.1 Basic layout

The basic layout of the screen is shown below. The screen of a single monitor is composed of the following components:

a) Main menu bar (fixed)

The main menu bar is always displayed in the front during login. It displays common information and buttons for windows.

b) Display area for windows and dialogs (multi window area)

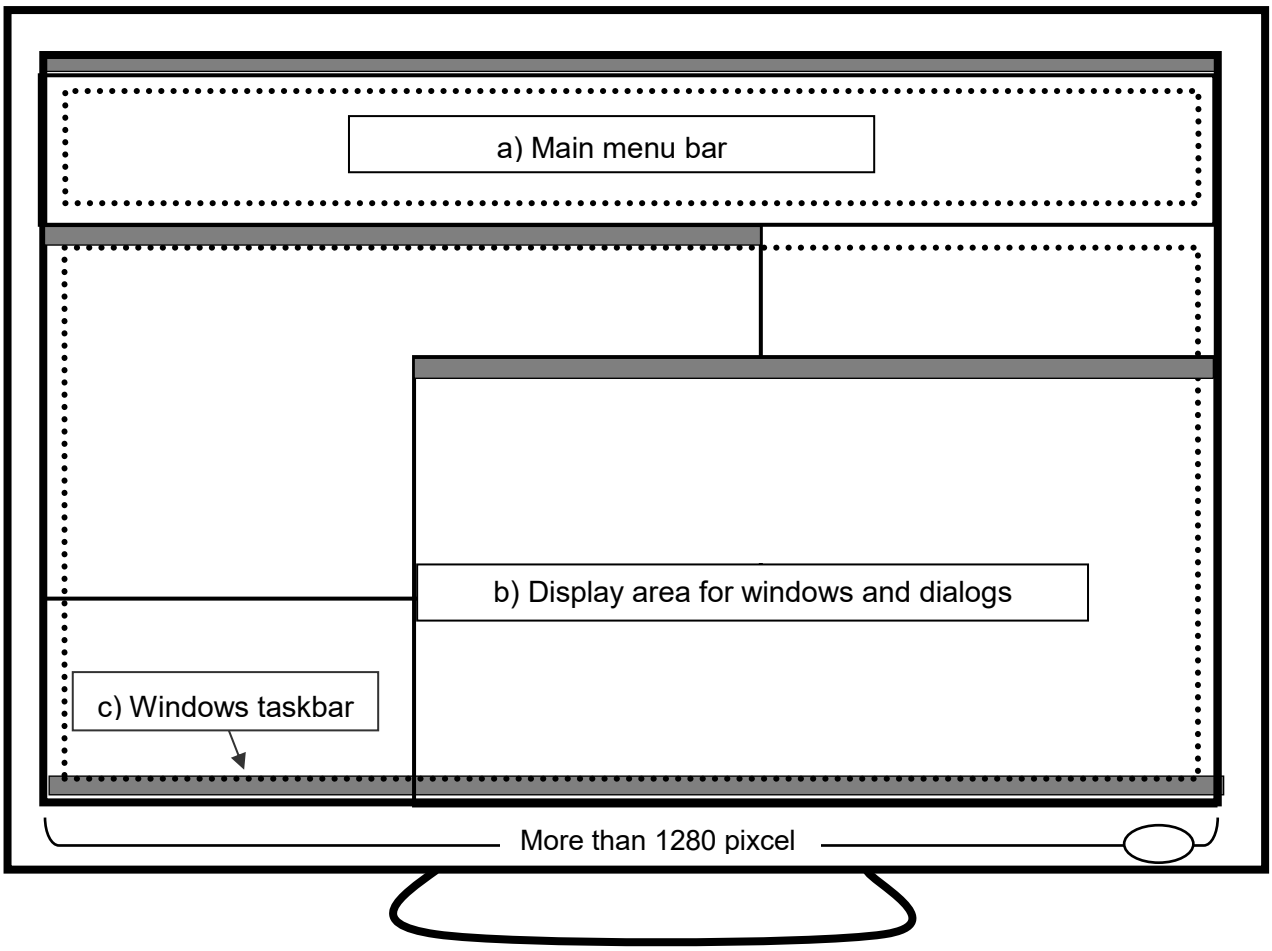
This area is available for multi window display.

Windows are displayed when the buttons in the main menu bar is clicked.

Dialogs are displayed from each symbol in the windows and from the context menu.

c) Windows taskbar

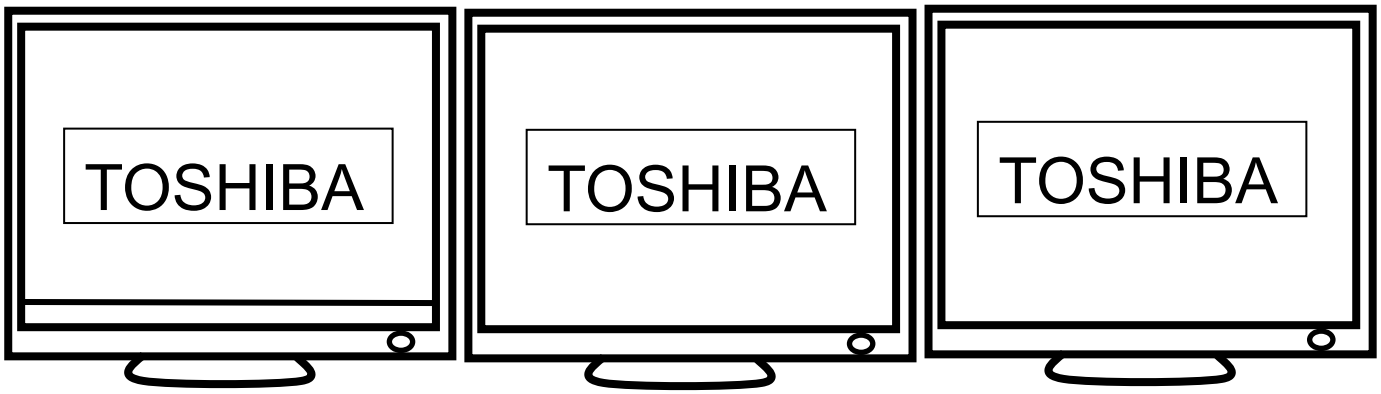
This area displays the standard Windows taskbar.



6.1.2 Multi monitor layout

The client HMI can be connected up to three monitors. The screen displayed on each monitor is same for all monitors except for Windows taskbar. (Windows taskbar displays on the main monitor only). In addition, it can be operated from any screen. Detailed information should be compliant with the specifications of the Windows and video card.

Sample of screen layout of each monitor is shown below.



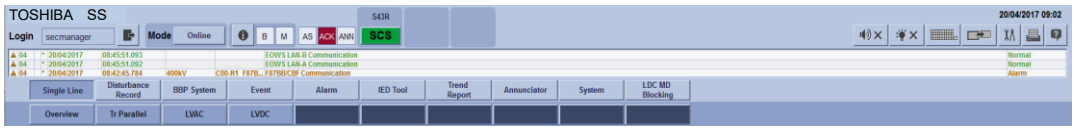
Main monitor Sub monitor 1 Sub monitor 2

NOTE

By specifying the display width of the HMI in the setting file, the main menu is displayed with the specified width. If the specified value is less than 1,280 pixcel, the specified value is ignored and the width of screen is displayed. Display example of the main menu is shown below.



Display width: 1,280 pixcel



Display width: More than 1,280 pixcel

6.1.3 Windows and dialogs

The windows and dialogs are in compliance with Windows® unless otherwise described.
The basic layout and basic functions of windows and dialogs are shown below.

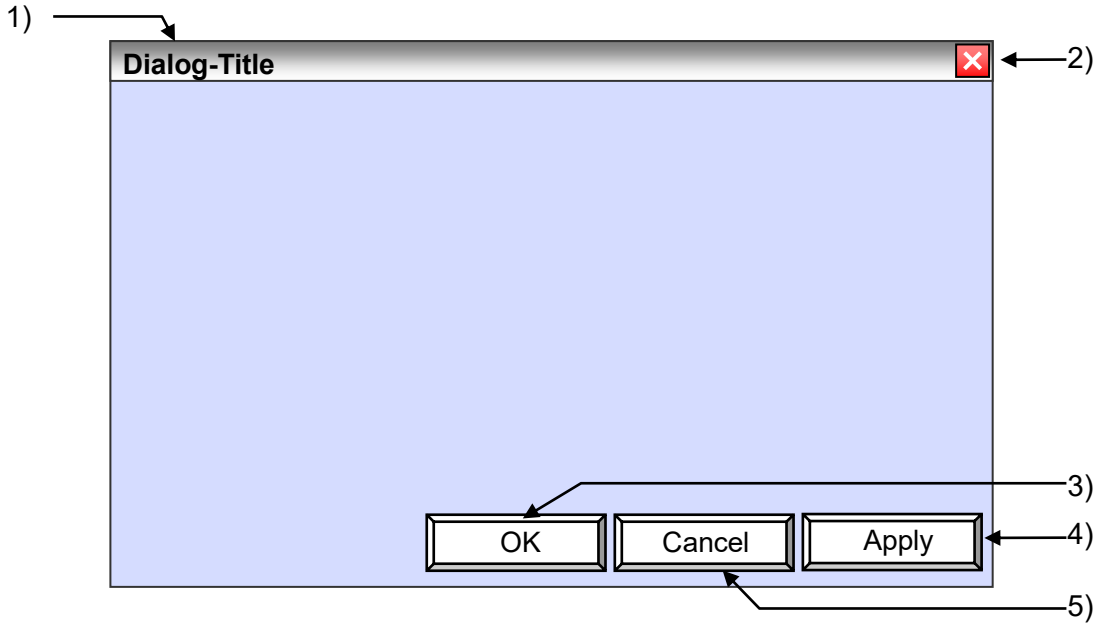
●Windows



1) Display of window title
   Window title is displayed here.
2) Minimize button
   This button appears only for a window that can be minimized.
   When clicking this button, the window is stored in the tool bar.
3) Reset button
   This button appears only for a window that can be resized.
   When clicking this button, the window is resized to the default size.
4) Close button
   When clicking this button, the window is forcibly closed.
5) Scroll bar
   Scroll bar appears only for a window that can be scrolled.
   You can scroll the window in both the vertical and horizontal directions.
6) Resize
   Resizing is allowed only for windows that can be resized.

.

● Dialogs



1) Display of dialog title

Dialog title is displayed here. Display contents depend on each dialog.

2) Close button

When clicking this button, the dialog is forcibly closed.

3) OK

When clicking this button, the set contents are executed and the dialog is closed.

4) Cancel

When clicking this button, the setting is cancelled and the dialog is closed.

5) Apply

This button becomes active when any content of the dialog is changed.

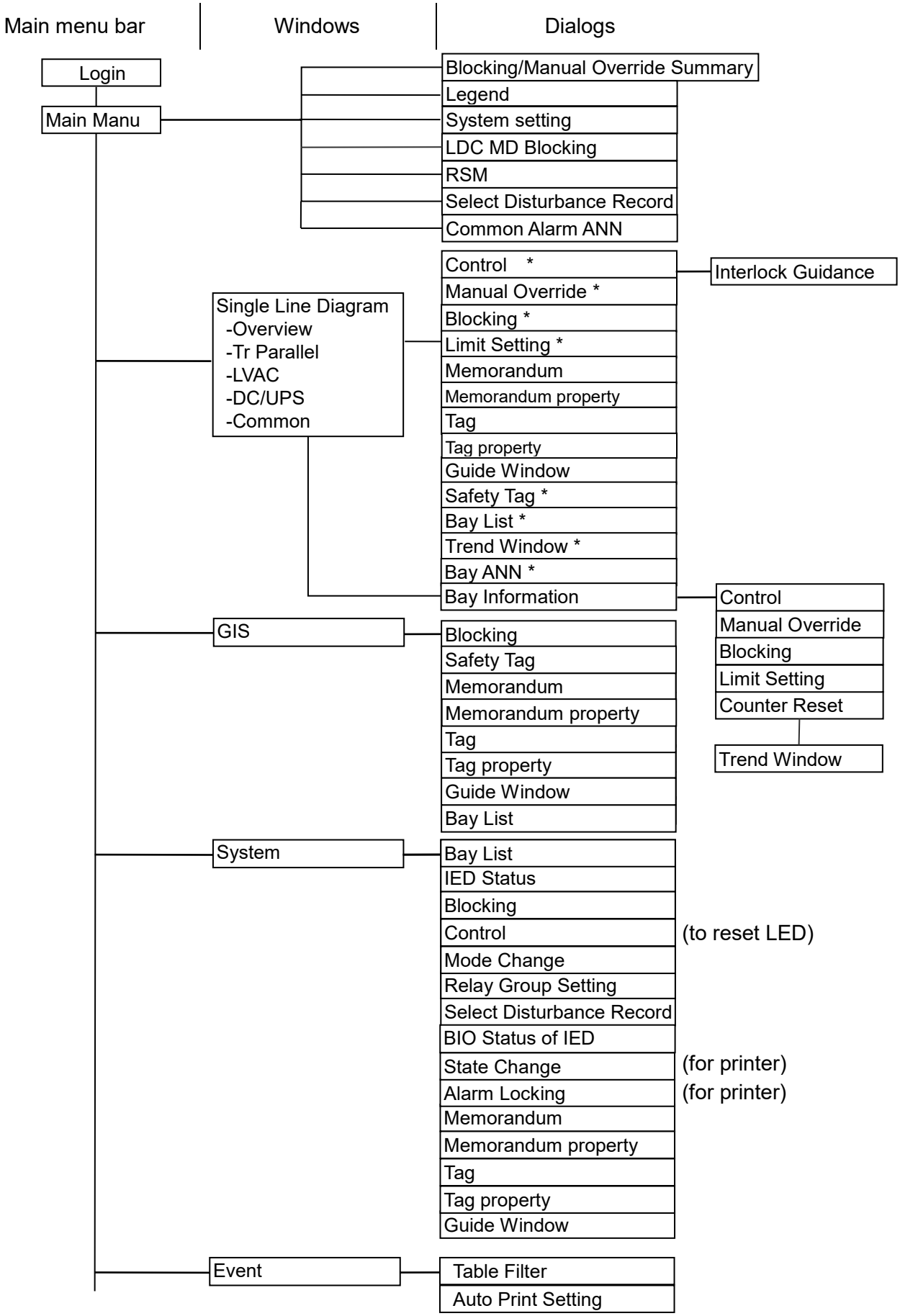
When clicking this button, the setting is executed. The dialog is not closed.

● Information dialogs

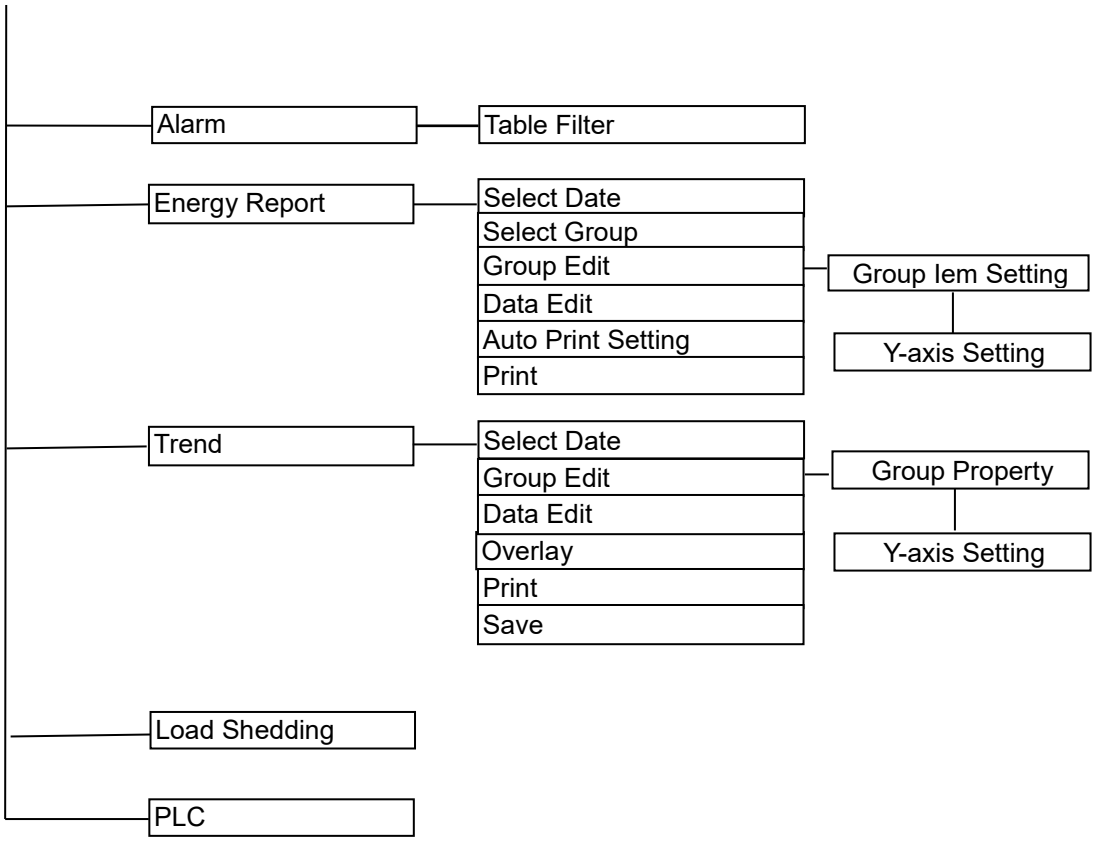
Pop-up dialogs to inform or confirm various messages to the user are displayed.

6.2 Screen Composition

The relationship between windows and dialogs is described below.



Dialogs with * are displayed only from Overview window and from Tr Parallel window.



Dialogs with * are displayed only from Overview window and from Tr Parallel window.

Outline of windows are listed in the following table. (Table 6.2.1)

Table 6.2.1 List of windows

Window		Outline
	Single line diagram - Overview - Tr Parallel - LVAC - DC/UPS, - Common) (Refer to Section 6.5)	Single line diagram display. Following operations are enabled: ・ Selection and control of devices and switches ・ Sequence control ・ Tap control ・ Manual override, blocking and safety tag setting ・ Measurement value setting ・ Transit to the “Trend” window
	GIS (Refer to section 6.5.2)	GIS gas compartment status display. Display of GIS gas pressure list
	System monitoring (Refer to section 6.5.3)	Display of system operating status of each equipment failure status Temperature measurement value display Following operations are enabled: ・ Control of IED mode ・ Printer setting ・ Reset LED of IED ・ Change relay group setting ・ Display disturbance record ・ Start the RSM software
Event (Refer to section 6.7)		Display of event list Filtering of displayed contents
Alarm (Refer to section 6.6)		Display of alarm list Filtering of displayed contents
Trend (Refer to section 6.9)		Trend display of various data
Energy Report (Refer to section 6.8)		Display and print out of Energy Report
Load shedding		Setting of load shedding
PLC (Refer to section 4.142)		Display and run control of PLC

6.3 Login Dialog

The login dialog is displayed when the client HMI is started or after log out operation from the main menu bar. The HMI is terminated from this dialog.

NOTE	In multi monitor, the login dialog is displayed only in the primary monitor.

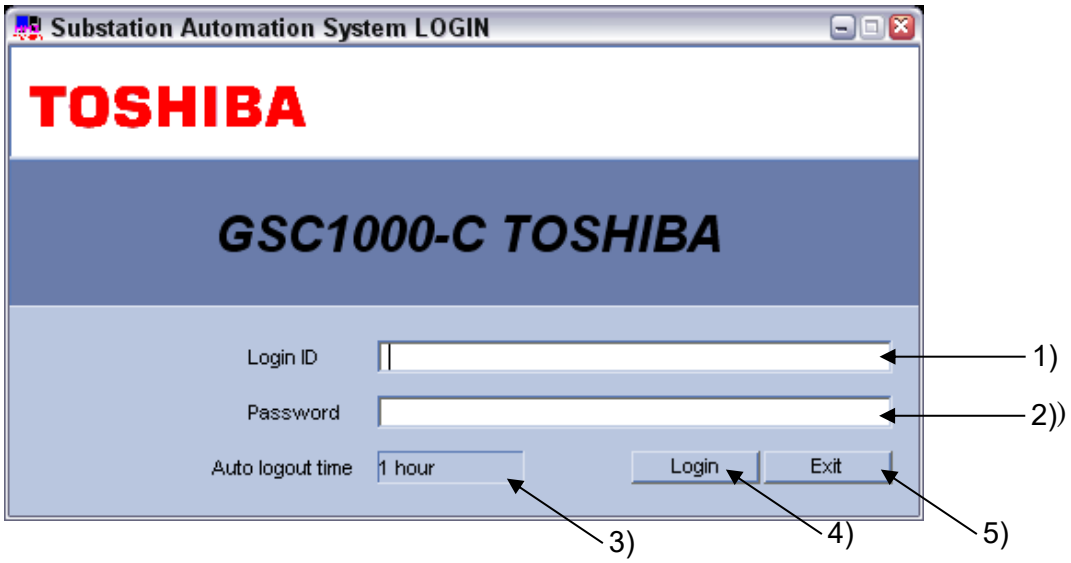


Figure 6.3.1 Login Dialog

1) Login ID input column: Input Login ID.

2) Password input column: Input the password.
Asterisk '*' is displayed instead of the input characters

3) Auto logout time display column: Displays the set automatic logout time.

4) Login: Closes dialog and displays the main menu bar.

5) Exit: Closes dialog and terminates HMI.

6.4 Main Menu Bar

From the main menu bar, common operation of the whole HMI is carried out and common information is displayed.

The main menu bar isalways displayed in front.

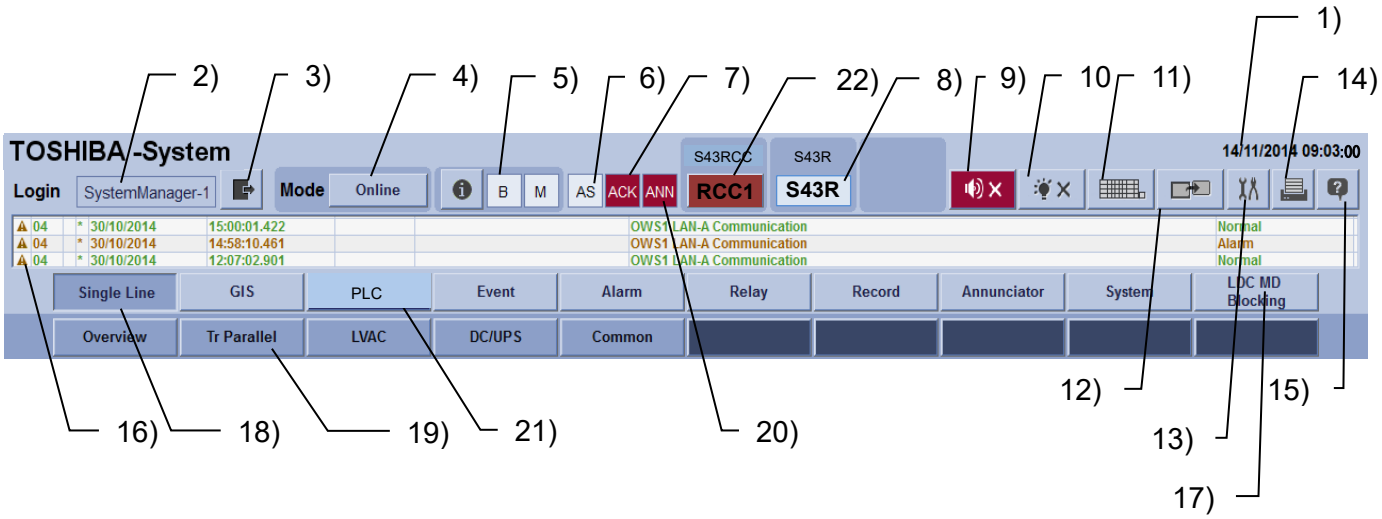


Figure 6.4.1 Main menu bar

1) Present time display: The present time is displayed.

2) Login user name display button: Login user name is displayed.

3) "Logout" button: This button carries out logout from the main menu bar and displays the login dialog.



4) Mode button: The present HMI mode is displayed.
Online Test The mode is switched over between Online and Test.

5) Collective information display: Collective information is displayed.



B M Default settings are as follows. If any setting is set, the color of the mark changes.

Blocking: [B]
Manual Override setting: [M]
The "Blocking/Manual Override Summary" opens by clicking the "Information" button .

6) AS: The color of this button changes when automatic event suppression works.

7) ACK: The color of this button changes when unacknowledged alarm exists.

8) Button for control right selection switch: Displays the status of control right selection (RCC/SAS)

RCC SAS Switching control right is carried out by clicking this button.

9) "Stop Alarm" button: This button stops alarm sound of the HMI.



10) "Stop Blink" button: This button stops blinking to notify unauthorized status change.



11) "Station Common Alarm Reset" button: This button turns off station common alarm.



12) "Print Screen" button: This button carries out hard copying of whole screen.



13) "System Setting" button: This button displays the "System Setting" dialog.



14) "Change Log Print Status" button: This button changes status of log printer.
(Printing available/ printing stopped)



15) "Help" button: This button displays "Legend" dialog for help.



16) Three latest not-Ack alarm display area:Three latest not-acknowledged alarms are displayed.
In Test mode, the Test mode alarm is displayed.

17) LDC MD Blocking: This button blocks sending information to LDC.

18) Buttons for windows:This area displays buttons to display windows.

- Single Line: Displays the buttons for bay single line diagram windows.
- GIS: Displays the "GIS" window.
- Event: Displays the "Event" window.
- Alarm: Displays the "Alarm" window.
- Relay: Displays the buttons for relay setting.
- Trend: Displays the "Trend" window.
- Annunciator: Displays the "Common Alarm Annunciator" window.
- System: Displays the "System" window.

19) Window button area: This area displays window buttons corresponding to the button

selected at 18).

When Single Line is selected at 18)

- Overview: Displays the “Overview“ window
- Tr Parallel: Displays the “Tr Parallel” window
- LVAC: Displays the “LVAC” window
- DC/UPS: Displays the “DC/UPS” window
- Common: Displays the “Common” window

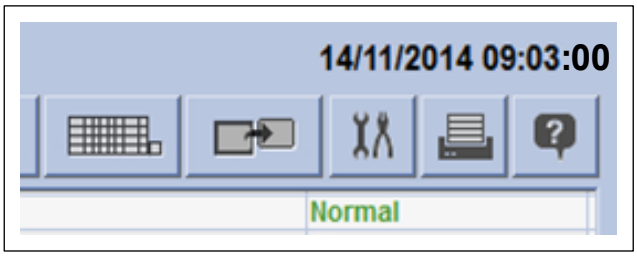
When Relay is selected at 18)

- RSM: Displays the “RSM” dialog
- Disturbance Record: Displays the “Select Disturbance Record” dialog

20) ANN: The color of this button changes when alarm detected.

21) PLC: Display the “PLC” window.

22) S43RCC: Button for control right selection switch. Select the RCC to be connected to the SCMS separately. Refer to section 8 for details.



NOTE The date time format (minute display / second display) of the Main Menu can be change by configuring setting given in the configuration file (ini file).

6.4.1 Blocking/Manual Override Summary dialog

The “Blocking/Manual Override Summary” dialog is displayed when the “Information” button  in the main menu bar is clicked.
The dialog displays the devices, IEDs, and measurement values to which blocking or manual override are set. You can reset the blocking and manual override from this dialog.

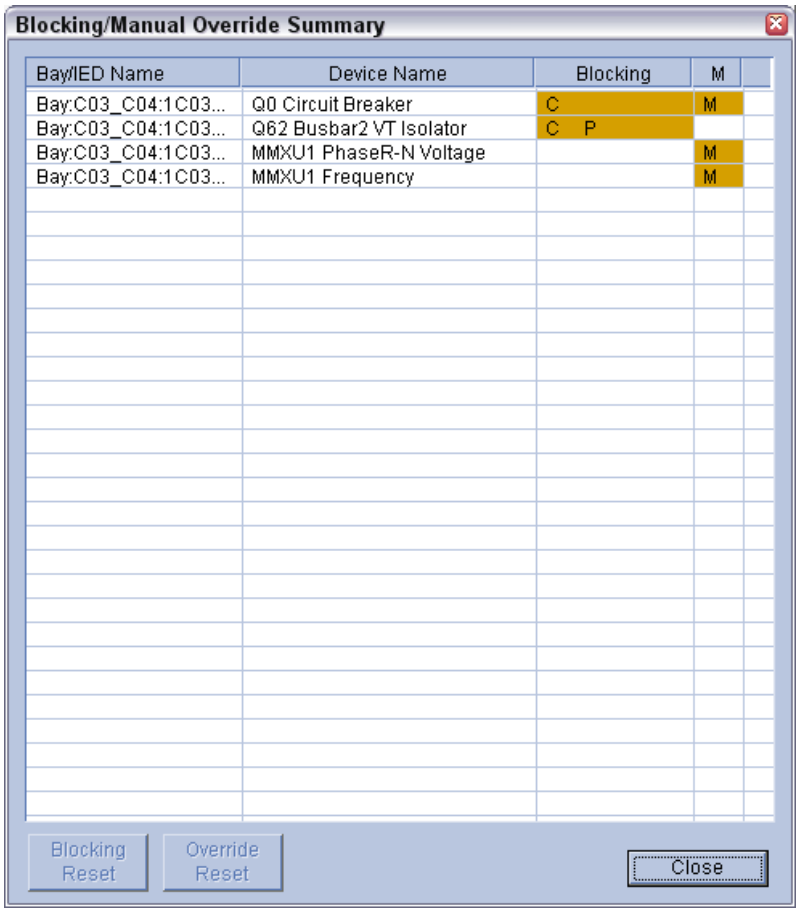


Figure 6.4.2 Blocking/Manual Override Summary dialog

[Bay/IED Name]: Bay name or IED name is displayed.
[Device Name]: Device name is displayed
[Blocking]: Whether blocking is set or not is displayed.
C: Control Blocking is set
E: Event Blocking is set
A: Alarm Blocking is set
P: Print Blocking is set
U: Update Blocking is set
[M]: Whether Manual Override setting is set or not is displayed.
M: Manual Override is set
- : This mark is displayed when the device is IED.

Blocking Reset:
When any row in the list is selected, the button becomes active.
When this button is clicked, all blocking of the selected device are reset collectively.

Override Reset:
When any row in the list is selected, the button becomes active.
When this button is clicked, manual override of the selected device is reset.

POINT	To reset the blocking (C, E, A, P, U) individually, use the “Blocking” dialog (Refer to 6.5.11.)

6.4.2 System Setting dialog

The System Setting dialog is displayed by clicking the “System Setting” button in the main menu bar.
You can change the password and set automatic logout from this dialog.

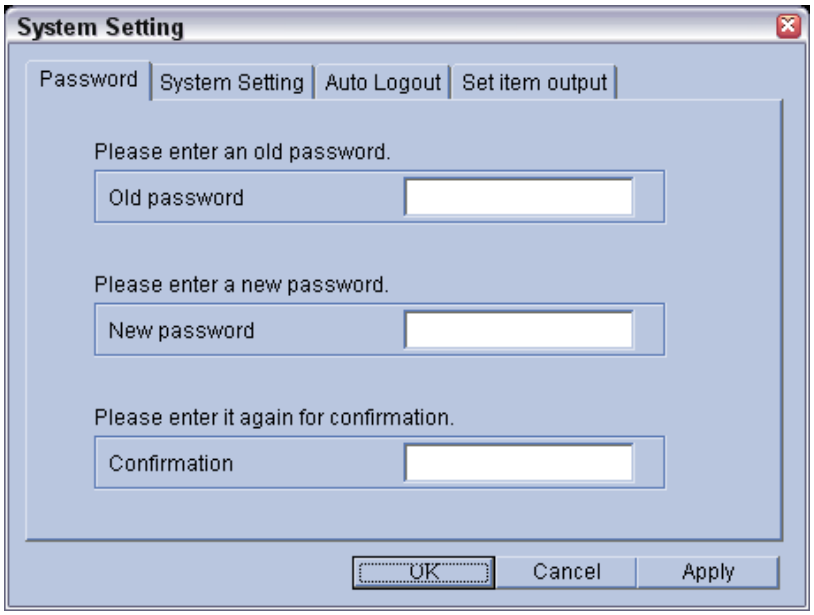


Figure 6.4.3 System Setting dialog

1) Password setting tab

This tab is used to change the login password of the user currently logged in.

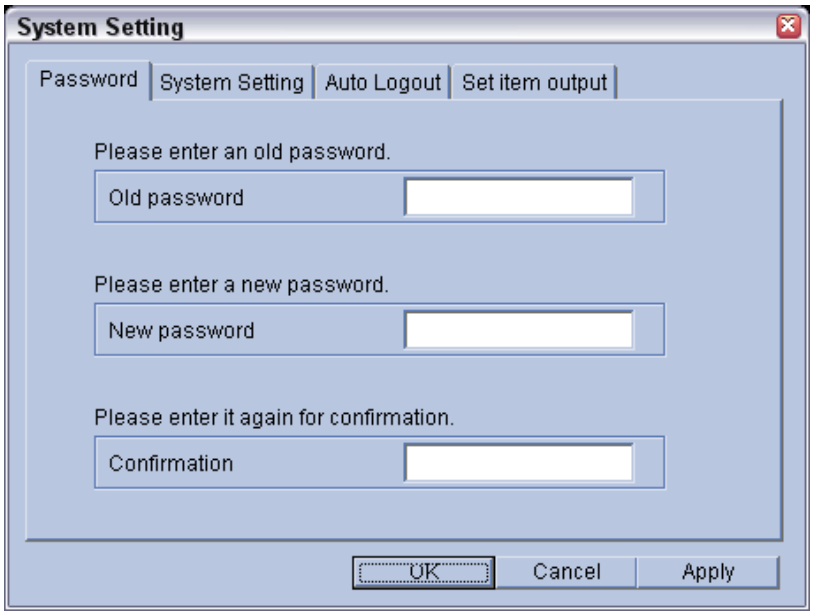


Figure 6.4.4 Password setting tab

- Old password column: Input the current password. Asterisk “*” of the same number as the input characters are displayed.



- New password column: Input the new password. Asterisk “*” of the same number as the input characters are displayed.



- New password confirmation column: Input the new password again. Asterisk “*” of the same number as the input characters are displayed.



2) Auto Logout setting tab

This tab is used to set Auto Logout time. Select the time for out logout from the pull down menu.

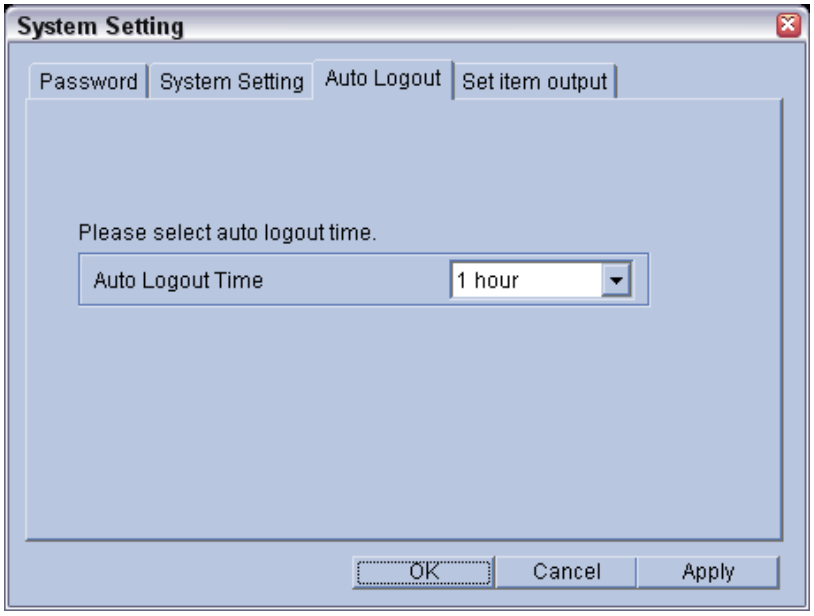


Figure 6.4.5 Auto Logout setting tab

NOTE	The auto logout time set at this step is valid only while the user is logging into the HMI. When logging out from the HMI, the auto logout time returns to the default value (1 hour).

3) Set item output tab

The system set values of the HMI are output to a file in printing format.
When Execute is clicked, the “upper and lower limit setting” and “IP address”, etc. are output to the excel form.

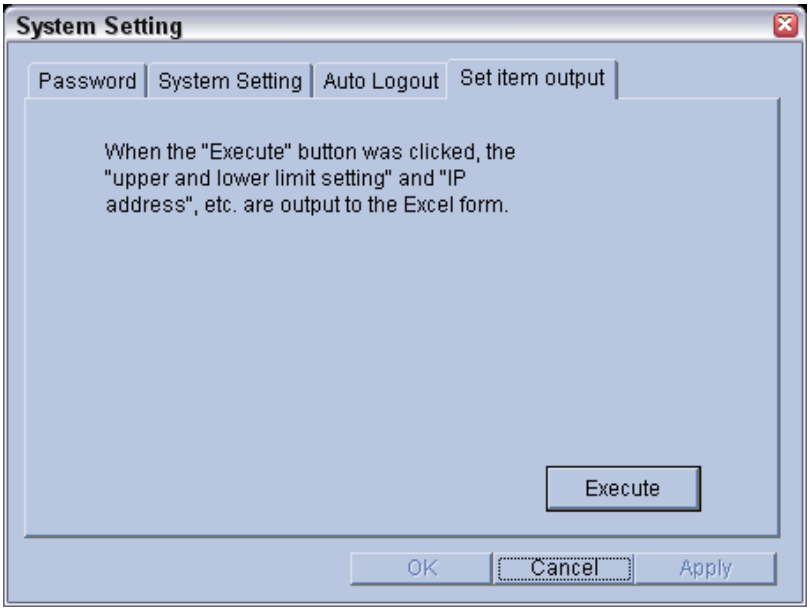


Figure 6.4.6 Set item output tab

4) System setting tab

This tab is used to switch between manned operation and unmanned operation.
Click the radio buttons to select manned / unmanned operation.

NOTE	For the systems in which switchover between manned operation/unmanned operation is interlocked with the switch for local/remote control selection, this tab is not displayed.

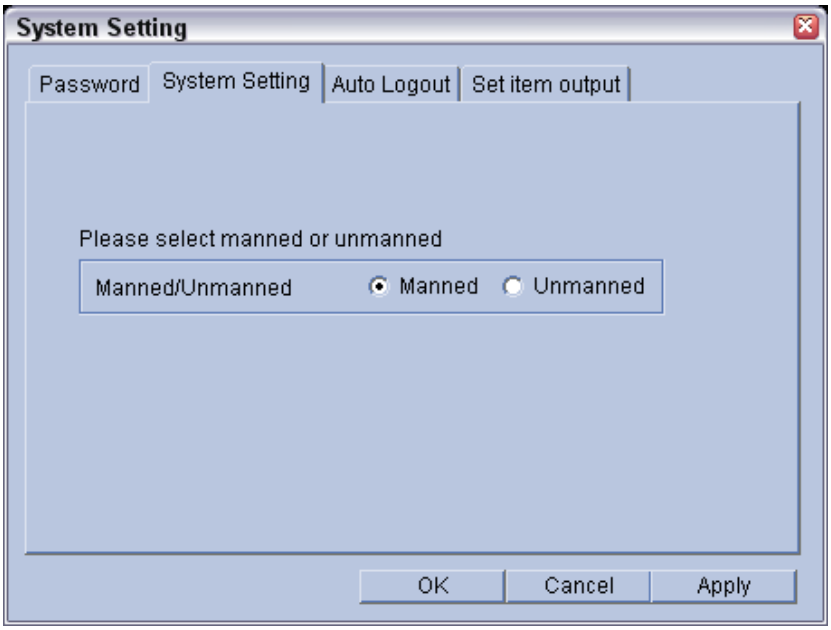


Figure 6.4.7 System Setting tab

6.4.3 LDC MD Blocking dialog

The “LDC MD Blocking” dialog is used to set whether to transfer data transfer between LDC. This dialog is displayed by clicking LDC MD Blocking in the main menu bar.

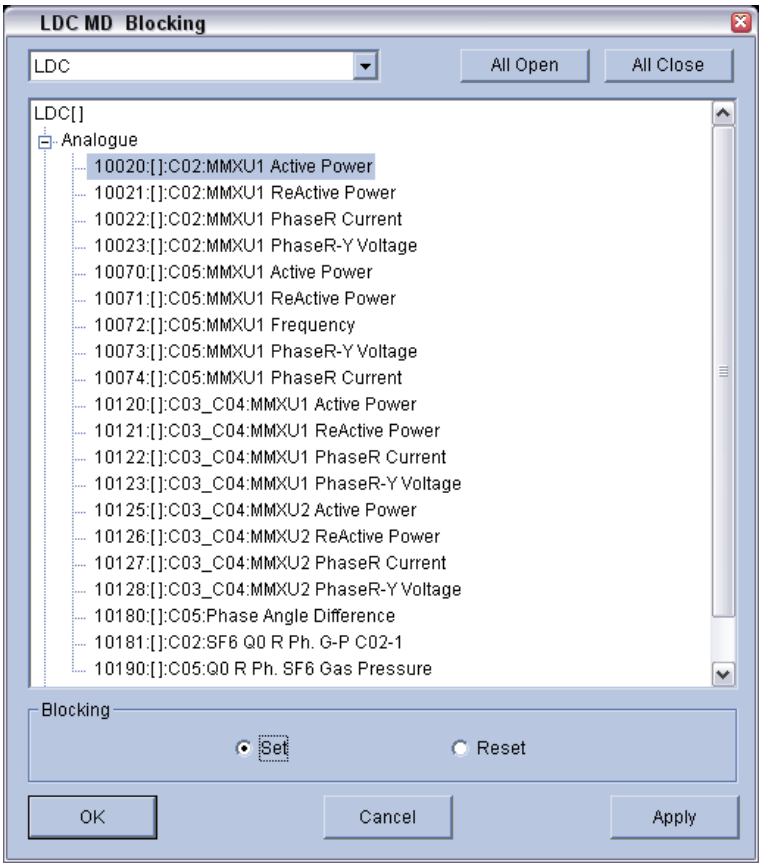


Figure 6.4.8 LDC MD Blocking dialog

Gateway line selection combo box: Select the Gatewayline.



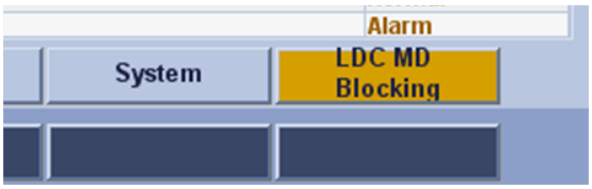
Signal selection area:

Signal sent or not sent to LDC is listed. Clicking ALL Open deploys all signals.

Blocking setting area: To set LDC MD blocking, select the signal from the signal selection area, click the “Set” radio button and then click OK or Apply.



When LDC MD Blocking is set, the color of LDC MD Blocking in the main menu bar changes (to yellow).



6.4.4 Legend dialog

The “Legend” dialog provides various information on “Overview”, “GIS”, “System”, “Alarm”, “Report” windows, and on the “Blocking/Manual Override Summary” dialog.

This dialog is displayed by clicking the “Help” button in the main menu bar.

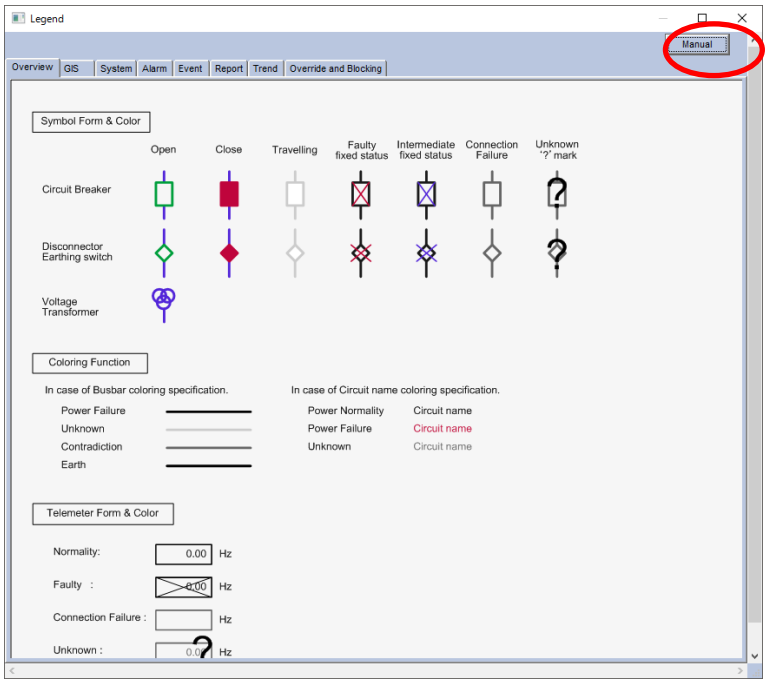


Figure 6.4.9 Legend dialog

NOTE	Display/no display of “Manual” button in the Legend screen is possible by parameter setting of configuration file. In case of display setting, it is possible to refer the SAS instruction manual. Refer to section 4.4 for details.

6.5 Control and Monitoring Windows

This section describes the single line diagram windows for substation control and monitoring, the “GIS” window, the “System” window and related items.

6.5.1 Single line diagram windows

The single line diagram windows display the system status of the whole substation and various measurement values and power flow status.
You can select and control devices and switches as well as blocking setting, manual override setting, safety tag setting, tagging setting, and creating a memorandum.

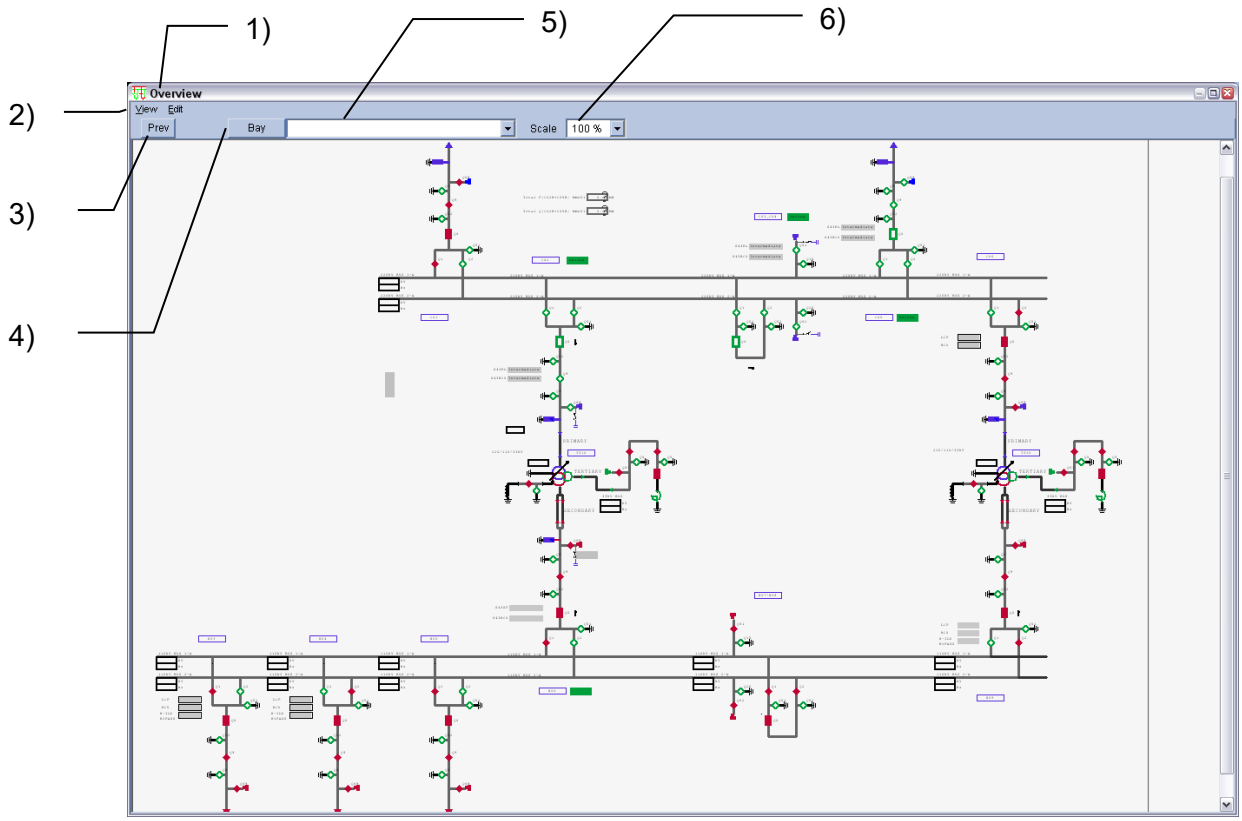


Figure 6.5.1 Single line diagram window (Overview)

1) Window title: The window title varies according to the displayed single line diagram.
   Whole system: “Overview”
   Trans parallel diagram: “Tr Parallel”
   Auxiliary AC: “LVAC”
   Auxiliary DC: “DC/UPS”
   Common: “Common”

2) Menu bar: [View]
   Guide Window: Displays the “Guide Window” dialog.
   Previous: Displays the window opened previously.
   100% View: Returns the magnification to 100 %.

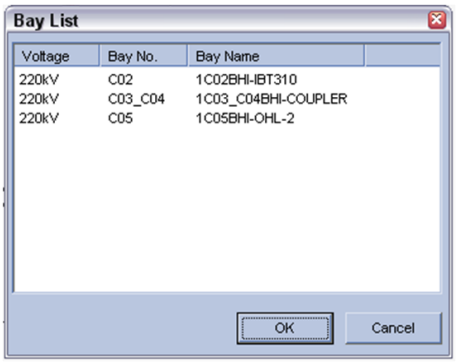
All View: Displayed only in the “Overview” window.
Displays the whole single line diagram.

[Edit]

Memorandum Property: Displays the number of stuck memorandum.
Tag: Displays the “Tag” dialog.
Tag Property: Displays the number of used tags.

3) Prev: Clicking this button displays the window opened previously.

4) Bay: This button displays the “Bay List” dialog.



(Bay List dialog)

5) Bay select combo box: Selected bay is displayed.

6) Scale combo box: The scale value of the display is selected from this combo box.

6.5.2 GIS window

The “GIS” window displays the GIS gas compartment information and SF6 gas pressure value.

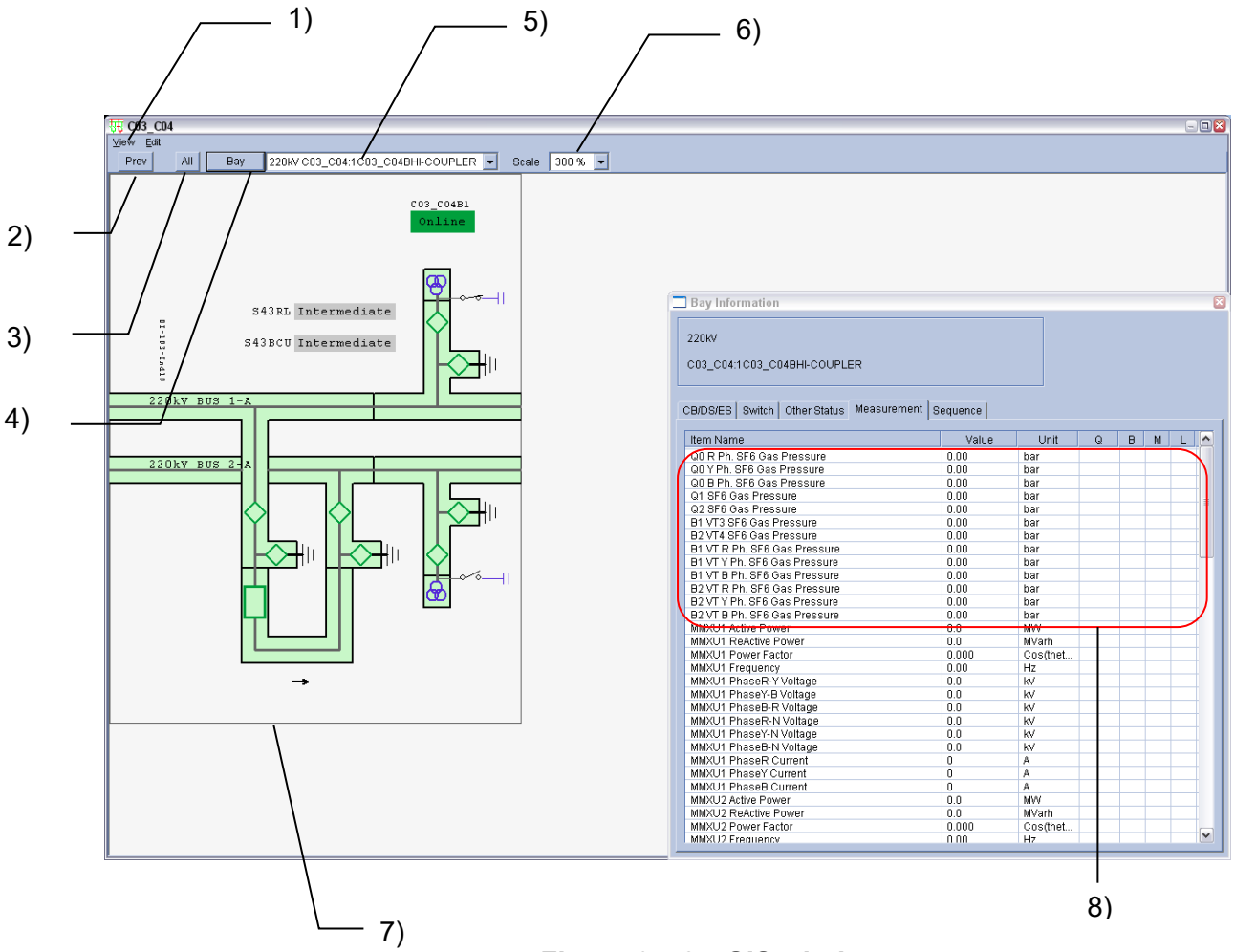


Figure 6.5.2 GIS window

1) Menu bar: [View]

Guide Window: Displays the Guide Window” dialog.
Previous: Displays the window opened previously.
100% View: Returns the magnification to 100 %.
All View: Displays the whole GIS window.

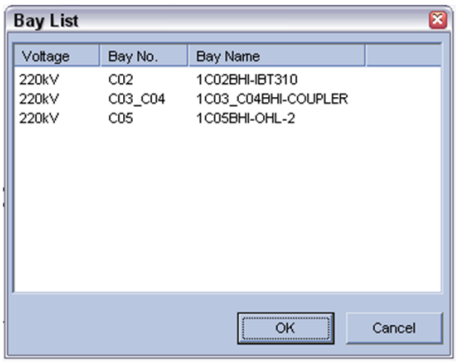
[Edit]

Memorandum Property: Displays the number of stuck memorandum.
Tag: Displays the “Tag” dialog.
Tag Property: Displays the number of used tags.

2) Prev: Clicking this button displays the window opened previously.

3) All: Clicking this button displays the whole GIS window.

4) Bay: This button displays the “Bay List” dialog



(Bay List dialog)

5) Bay select combo box: Selected Bay is magnified.

6) Scale combo box: The scale value of the display is selected from this combo box.

7) GIS status display: The status of a GIS gas compartment is expressed using colors.

8) Gas pressure list: SF_6 gas pressure of each GIS gas compartment is listed in the "Bay Information" dialog.

6.5.3 System window

The “System” window displays Substation Automation System operating status, failure status of devices composing the system, their transmission status, protection relay status and temperature measurement values.

You can carry out the change of protection relay setting group, the display of detailed failure, IED mode switching and IED blocking.

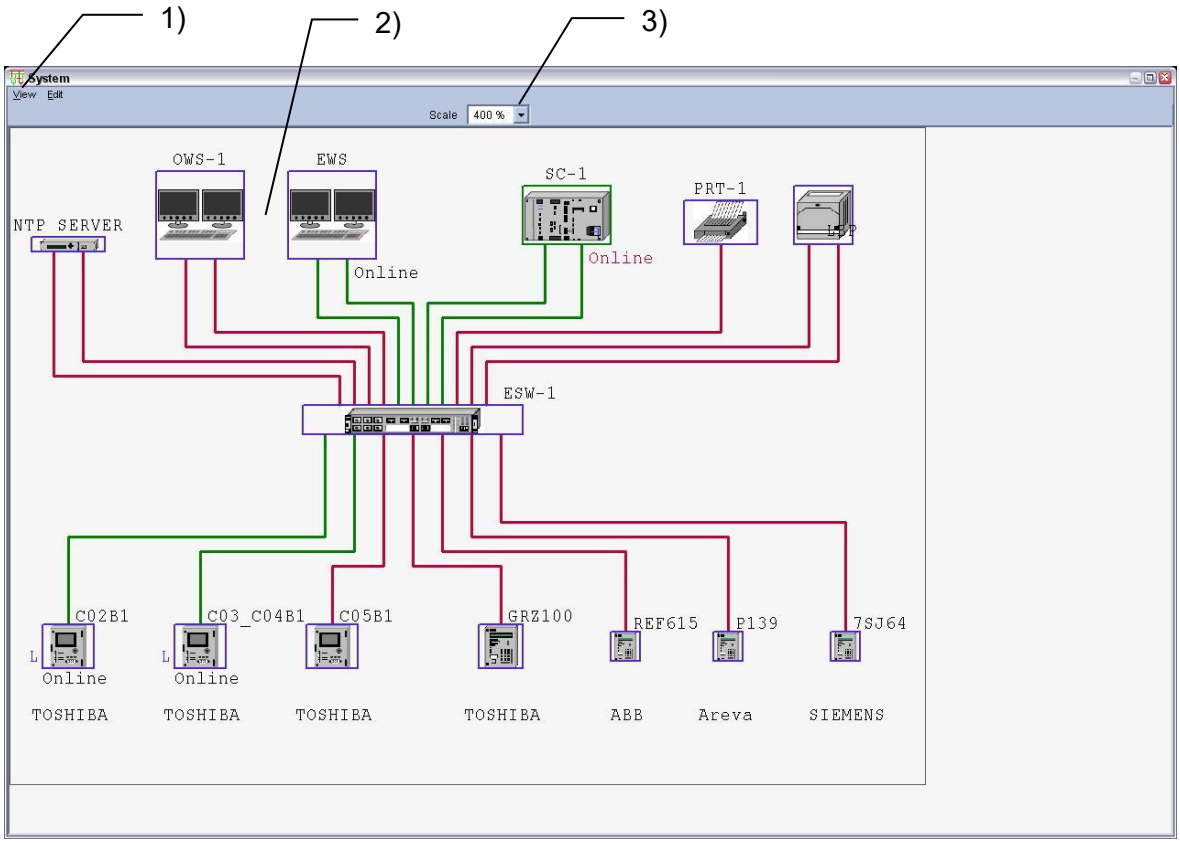


Figure 6.5.3 System window

1) Menu bar: [View]

Guide Window: Displays the Guide Window” dialog.
Previous: Displays the window opened previously.
100% View: Returns the magnification to 100 %.
All View: Displays the whole window.

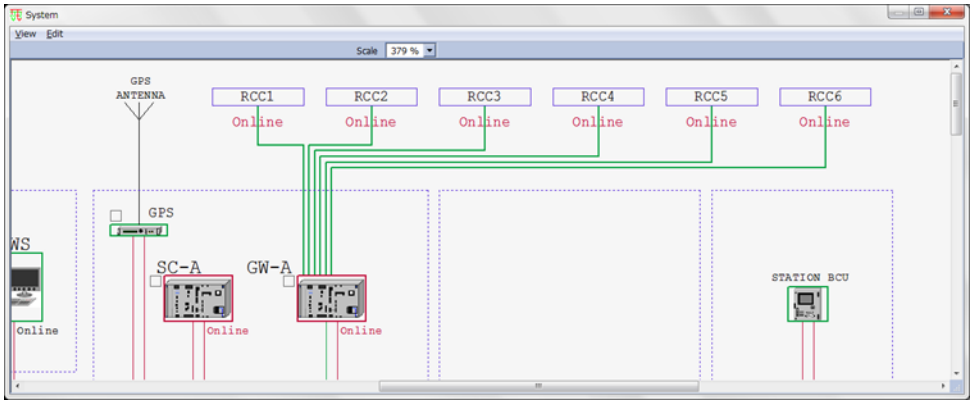
[Edit]

Memorandum Property: Displays the number of stuck memorandum.
Tag: Displays the “Tag” dialog.
Tag Property: Displays the number of used tags.

2) System display area: System configuration and status are displayed.

3) Scale combo box: The scale value of the display is selected from this combo box.

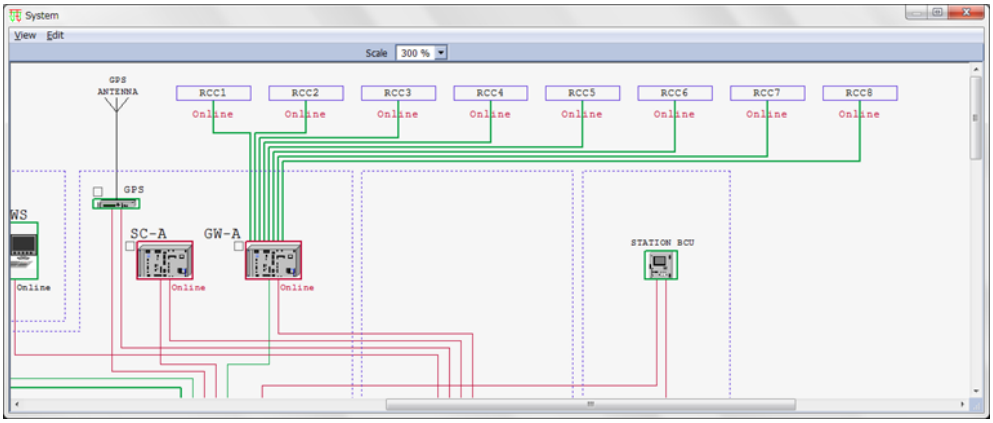
1. The SC/Gateway can communicate with up to Six of RCC/LDC when IEC60870-5-101 connection and with the communication route is single. Refer to the figure below.



NOTE

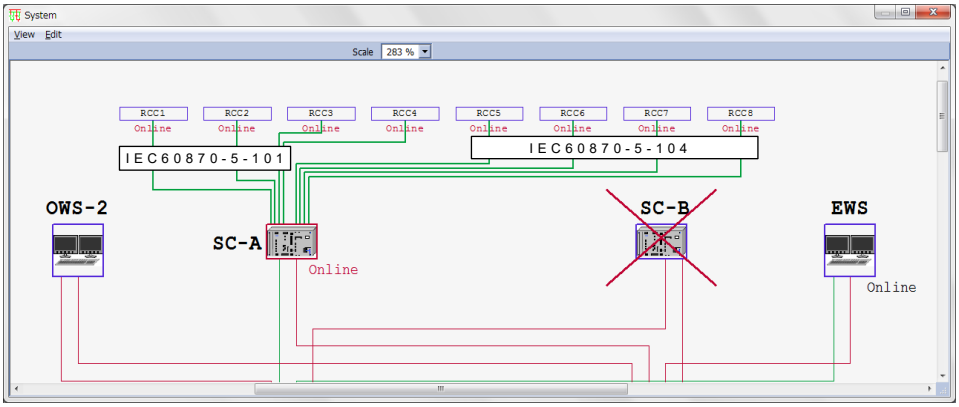
In case of IEC60870-5-101 communication and duplicated connection (Hot Standby connection), the SC/Gateway can communicate with up to Three of RCC/LDC.

2. The SC/Gateway can communicate with up to Eight of RCC/LDC when IEC60870-5-104 connection and with the communication route is single. Refer to the figure below.



NOTE

3. The SC / Gateway can be applied to IEC60870-5-101 and IEC60870-5-104 connection with RCC/LDC at same time. The case of Four IEC60870-5-101 communication (single route) and Four IEC60870-5-104 communication (single route) is shown below.



6.5.4 Bay List dialog

The “Bay List” dialog displays the list of bays to select and display the bay on the window.

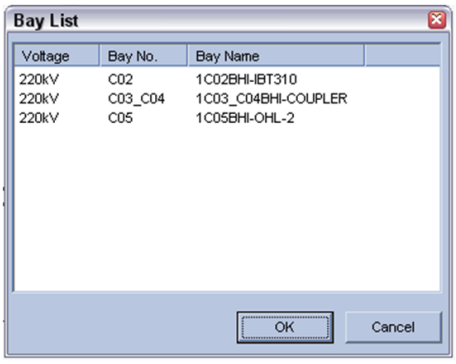


Figure 6.5.4 Bay List dialog

6.5.5 Bay Information dialog

The “Bay Information” dialog displays the detailed information of a bay. The information is separated into CB/DS/ES, Switch, Other Status, Measurement and Sequence Control.
This dialog is displayed when the bay name on the single line diagram is clicked or when the bay name is right-clicked and “Bay Details” is selected from the context menu. The dialog is also displayed when the bay is selected from the bay select combo box or from the “Bay List” dialog.

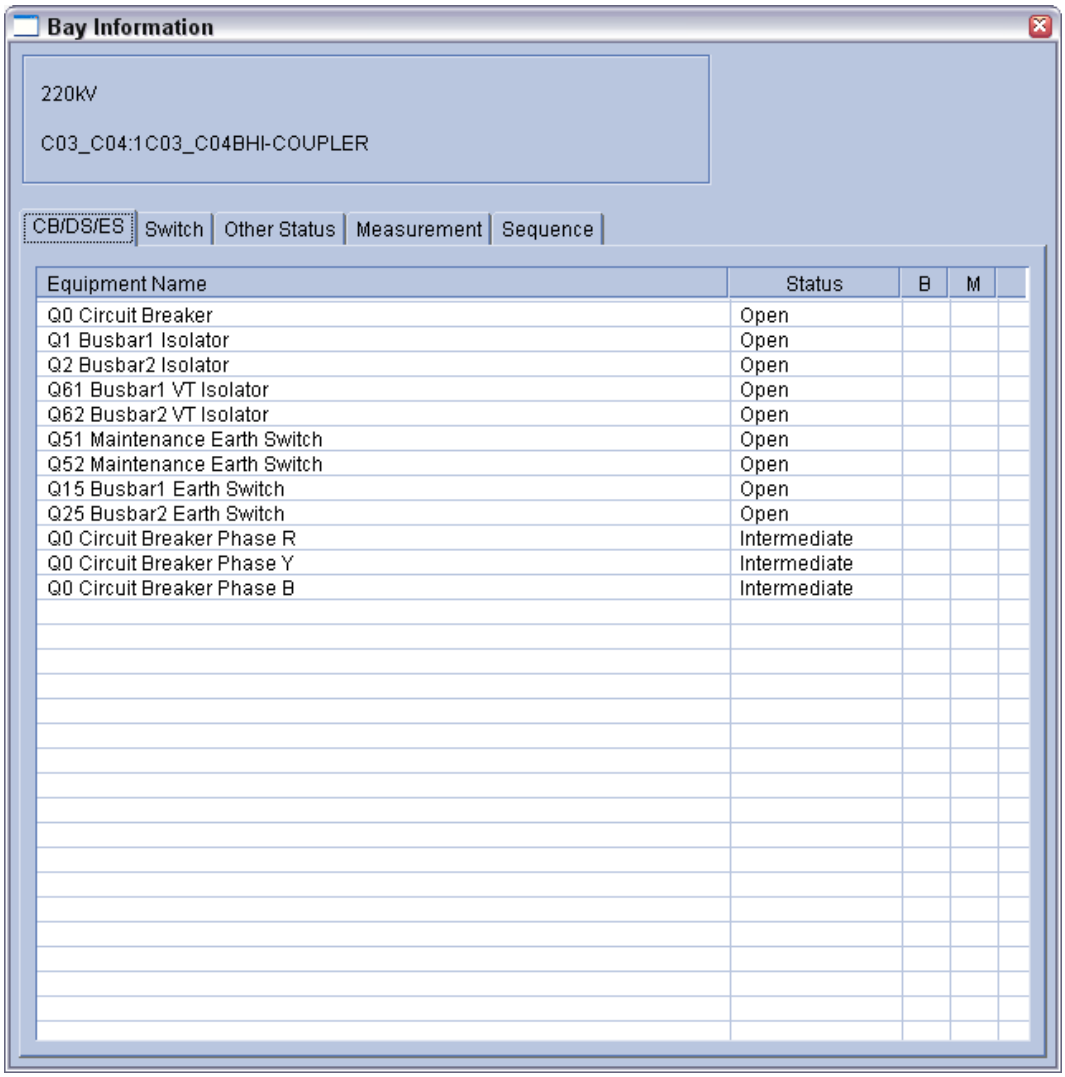


Figure 6.5.5 Bay Information dialog

- Bay Name display area: Line name and bay name are displayed.
- Item tab: ”CB/DS/ES”: Tab for device status.
  “Switch”: Tab for switch status.
  “Other Status”: Tab for status other than mentioned above.
  “Measurement”: Tab for measurement value.
  “Sequence”: Tab for sequence control.

1) CB/DS/ES tab

This tab displays the current status and blocking and manual override setting of the device in the bay. (Details of blocking and manual override setting status are displayed in the “Blocking/Manual Override Summary” dialog. See 6.4.1.)

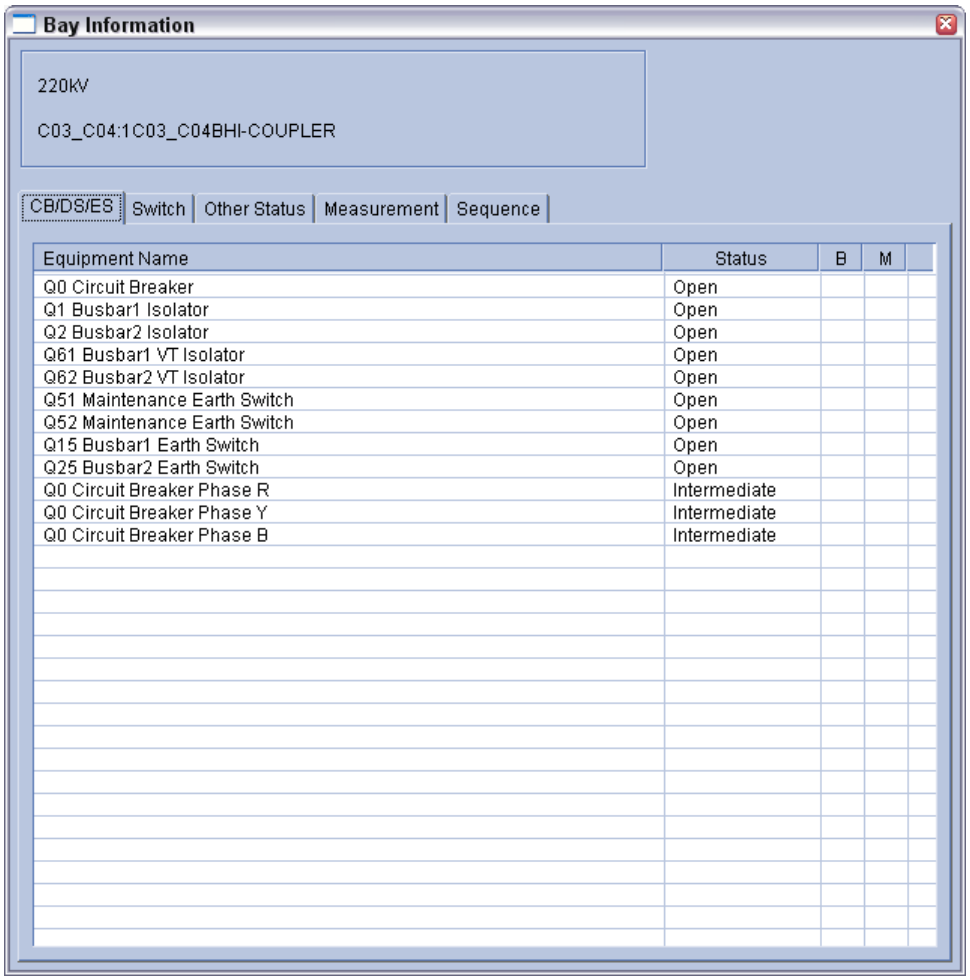


Figure 6.5.6 CB/DS/ES tab

[Equipment name] = Displays the names of CB/DS/ES.
[Status] = Displays current status of CB/DS/ES.
[B] = Displays blocking is set or not. When blocking is set, “B”mark is displayed.
[M] = Displays manual override is set or not. When manual override is set, “M”mark is displayed.

- When a row is right-clicked, the context menu is displayed.
  Control = The “Control” dialog is displayed.
  Blocking = The “Blocking” dialog is displayed.
  Manual Override = The “Manual Override” dialog is displayed.

2) Switch tab

This tab displays current status and blocking and manual override setting of switches in the bay.

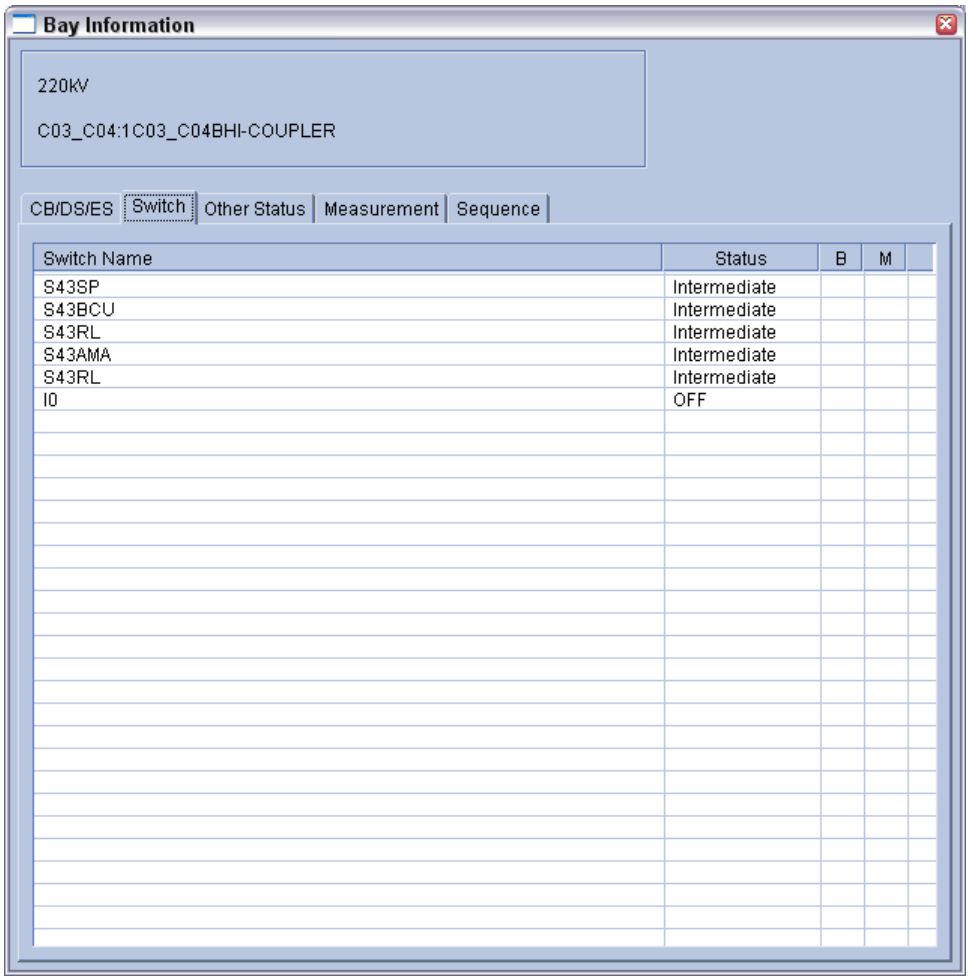


Figure 6.5.7 Switch tab

[Switch name] = Switch names are displayed.
[Status] = Displays current status of switches.
[B] = Displays blocking is set or not. When blocking is set, “B”mark is displayed.
[M] = Displays manual override is set or not. When manual override is set, “M”mark is displayed.

- When a row is right-clicked, the context menu is displayed.
  Control = The “Control” dialog is displayed.
  Blocking = The “Blocking” dialog is displayed.
  Manual Override = The “Manual Override” dialog is displayed.

NOTE	When the switch is a “status only” switch, “Control” menu is inactive.

3) Other Status tab

This tab displays current status and blocking and manual override setting of evinces other than CB/DS/ES and switches in the bay.

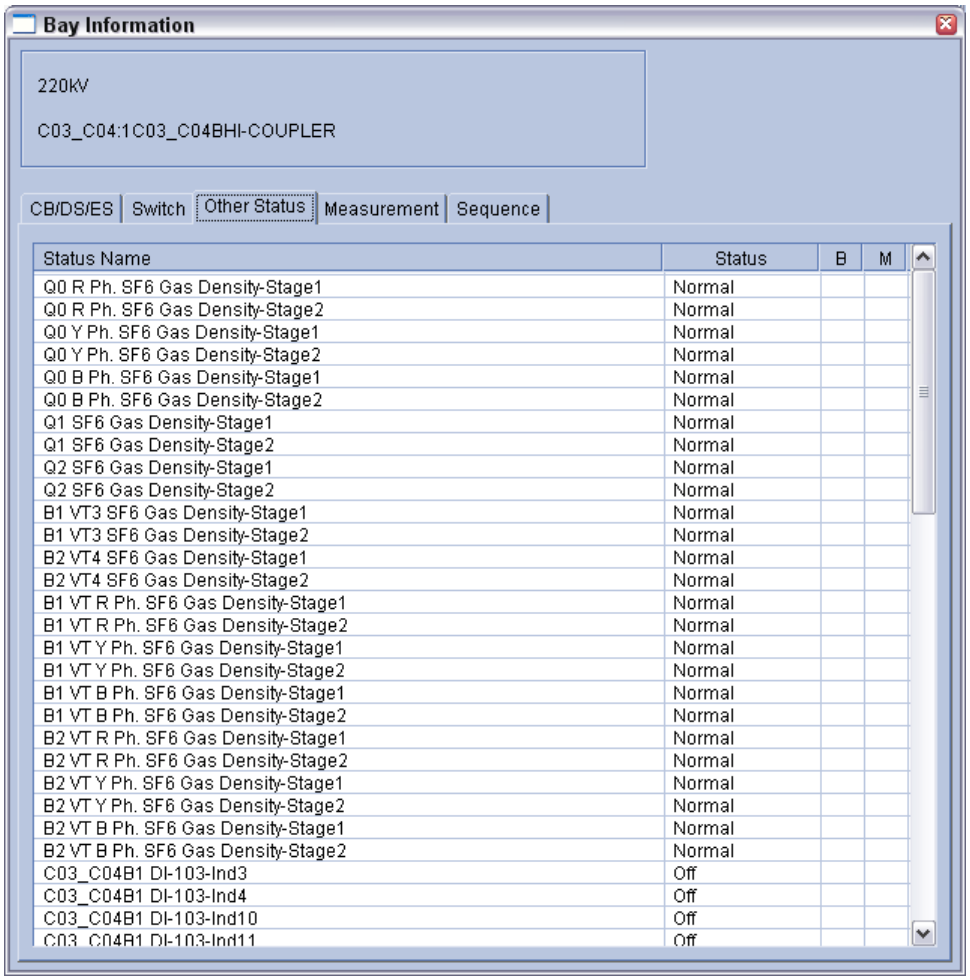


Figure 6.5.8　Other Status tab

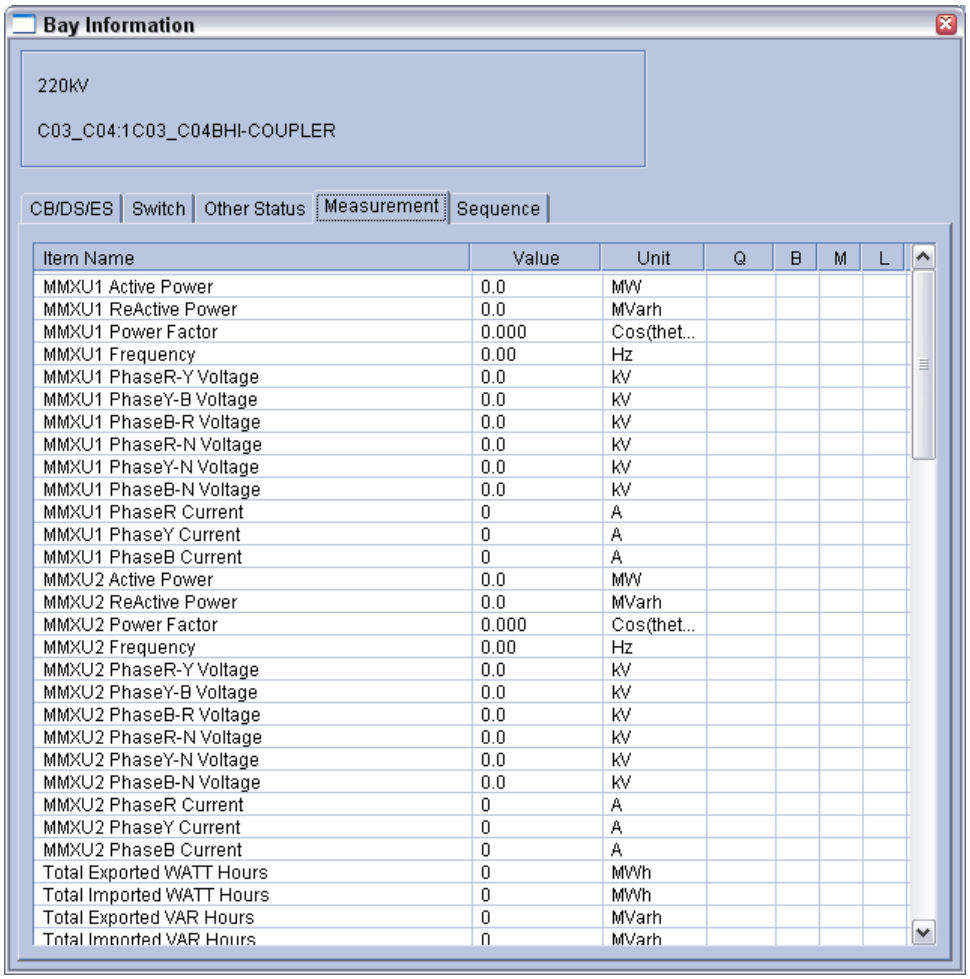
[Status name] = Displays the status name.
[Status] = Displays current status of those other than devices and switches.
[B] = Displays blocking is set or not. When blocking is set, “B”mark is displayed.
[M] = Displays manual override is set or not. When manual override is set, “M”mark is displayed.

- When a row is right-clicked, the context menu is displayed.
  Blocking = The “Blocking” dialog is displayed.
  Manual Override = The “Manual Override” dialog is displayed.

4) Measurement tab

This tab displays measurement value information and blocking and manual override setting

in the bay.



Item Name	Value	Unit	Q	B	M	L
MMXU1 Active Power	0.0	MW				
MMXU1 ReActive Power	0.0	MVarh				
MMXU1 Power Factor	0.000	Cos(thet...				
MMXU1 Frequency	0.00	Hz				
MMXU1 PhaseR-Y Voltage	0.0	kV				
MMXU1 PhaseY-B Voltage	0.0	kV				
MMXU1 PhaseB-R Voltage	0.0	kV				
MMXU1 PhaseR-N Voltage	0.0	kV				
MMXU1 PhaseY-N Voltage	0.0	kV				
MMXU1 PhaseB-N Voltage	0.0	kV				
MMXU1 PhaseR Current	0	A				
MMXU1 PhaseY Current	0	A				
MMXU1 PhaseB Current	0	A				
MMXU2 Active Power	0.0	MW				
MMXU2 ReActive Power	0.0	MVarh				
MMXU2 Power Factor	0.000	Cos(thet...				
MMXU2 Frequency	0.00	Hz				
MMXU2 PhaseR-Y Voltage	0.0	kV				
MMXU2 PhaseY-B Voltage	0.0	kV				
MMXU2 PhaseB-R Voltage	0.0	kV				
MMXU2 PhaseR-N Voltage	0.0	kV				
MMXU2 PhaseY-N Voltage	0.0	kV				
MMXU2 PhaseB-N Voltage	0.0	kV				
MMXU2 PhaseR Current	0	A				
MMXU2 PhaseY Current	0	A				
MMXU2 PhaseB Current	0	A				
Total Exported WATT Hours	0	MWh				
Total Imported WATT Hours	0	MWh				
Total Exported VAR Hours	0	MVarh				
Total Imported VAR Hours	0	MVarh				

Figure 6.5.9 Measurement tab

[Item name] = Displays the name of the measurement value.
[Value] = Displays measurement value.
[Unit] = Displays the unit of the measurement value.
[B] = Displays blocking is set or not. When blinking is set, “B”mark is displayed.
[M] = Displays manual override is set or not. When manual override is set, “M”mark is displayed.
[L] = Displays upper/lower limit is set or not. When limit setting is set, “L” mark is displayed.

- When a row is right-clicked, the context menu is displayed.
  Limit Setting = The “Limit Setting” dialog is displayed.
  Manual Override = The “Manual Override” dialog is displayed.
  Blocking = The “Blocking” dialog is displayed.
  Counter Reset = The “Counter Reset” dialog is displayed. (Only for counters)
  View Trend = The “Trend” window is displayed.

5) Sequence tab

This tab displays sequence control status of the device in the bay.

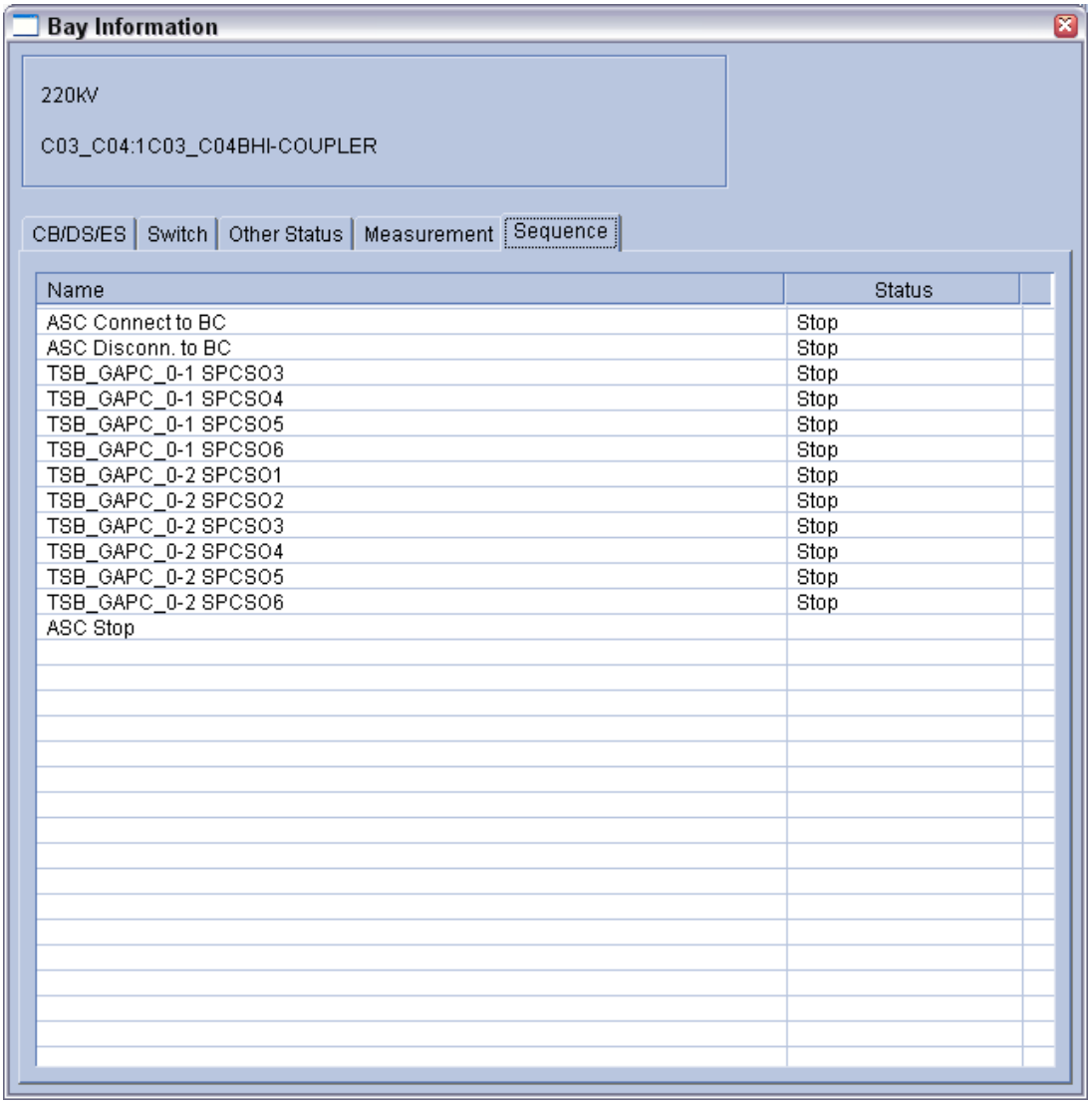


Figure 6.5.10 Sequence tab

[Name] = Name of sequence control

[Status] = Displays sequence control status.

When the status is not normal, the background color is changed.

- When a row is right-clicked, the context menu is displayed.

Control = “Control” dialog is displayed.

NOTE	When the device is “status only” device, “Control” menu is inactive.

6.5.6 Control dialog

1) Dialog for CB

This dialog displays the information to control a CB.
This dialog is displayed by clicking the symbol of a CB or by selecting “Control” from the context menu displayed by right-clicking the symbol on the single line diagram.

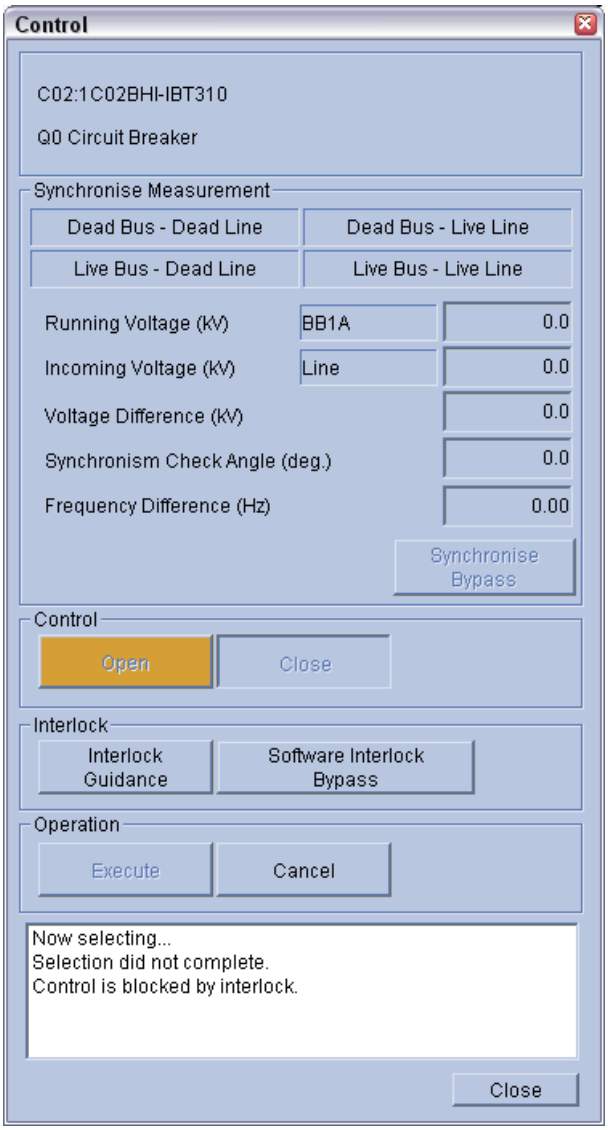
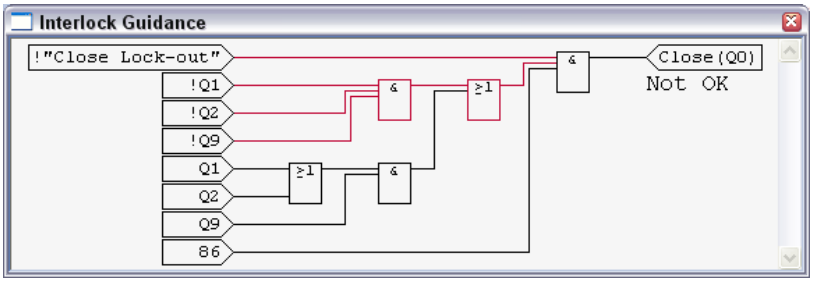


Figure 6.5.11 Control dialog

- Name Display area: Displays the name of the bay and the device.
- Synchronise Measurement area: This area displays the setting value of synchronism check and the current value information.

- Synchronise Bypass: Click this button to bypass the synchronize check.

- Interlock Guidance: Click this button to display the “Interlock Guidance” dialog.



(Interlock Guidance dialog)

- Software Interlock Bypass: Click this button to bypass the interlock check.
  This button is displayed when the Interlock condition is set for the device and if the Interlock condition is not satisfied.

NOTE	This button is displayed only to a user with an authority for bypassing Interlock.

- Control direction buttons: These buttons set the control direction of a device.
  Open Close:
  When the operational direction is selected, the conformation message is displayed. When OK is clicked, Execute becomes active.

- Execute: When this button is clicked, the conformation message is displayed. When OK button is clicked, the operation command is sent.

- Cancel: Clicking this button releases the selection.

- Control guidance display area: This area displays guidance messages.



- Close: Clicking this button closes the dialog.

2) Dialog for other devices and switches

This dialog is to control devices other than CB and to control the switches.
This dialog is displayed by clicking the device or switch symbol or by selecting “Control” from the context menu which is displayed by right-clicking the device or switch symbol on the single line diagram.

.

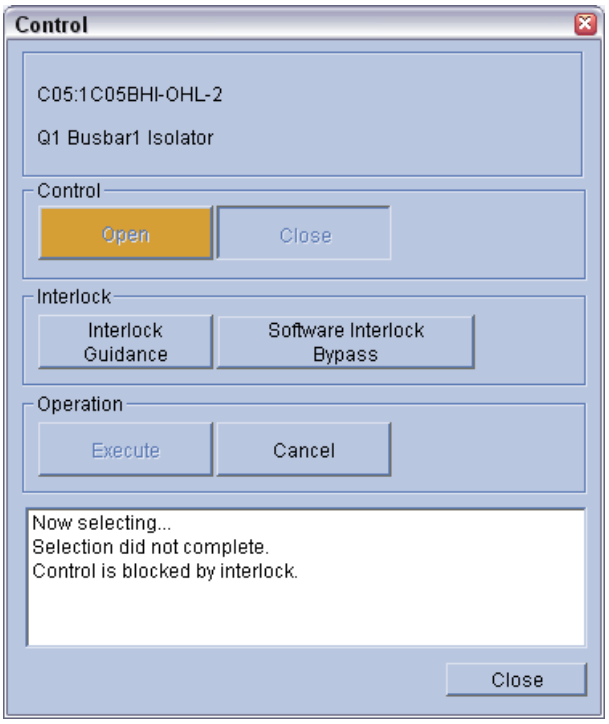


Figure 6.5.12 Control dialog for other device and Switch

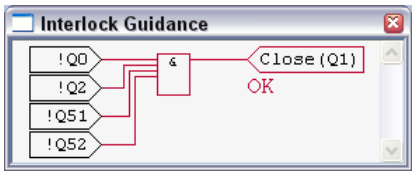
- Name display area: Displays the bay name and a device or switch name.

- Control direction buttons: These buttons set the control direction of a device or switch.
  Open Close

NOTE	When the control object is a switch, OFF and ON are displayed. When the dialog is for three position switch, buttons such as Local, Remote, and Off or Master, Follower, and Independent are displayed. When the dialog is for resetting the IED’s LED, only On is displayed.

When the operational direction is selected, Execute becomes active.

- Interlock Guidance: Click this button to display the “Interlock Guidance” dialog.



(Interlock Guidance dialog)

- Soft Interlock Bypass: Click this button to bypass the interlock check.
  This button is displayed when the Interlock condition is set for the device and if the Interlock condition is not satisfied.

NOTE	This button is displayed only to a user with an authority for bypassing Interlock.

- Execute: Operation command is sent when this button is clicked.
- Cancel: Clicking this button releases the selection.
- Control guidance display area: This area displays guidance messages.



- Close: Clicking this button closes the dialog.

3) Dialog for Tap control

This dialog is to raise or lower a tap.
This dialog is displayed when a tap label is clicked or “Control” is selected from the context menu displayed by right-clicking a tap label.



Figure 6.5.13 Control dialog for Tap

- Name display area: Displays the bay name and a tap name.
- Tap control buttons Lower Raise:
  You can perform tap raise/lower operation with these buttons. When the tap reaches the upper/lower limits, the corresponding tap operation button becomes inactive.
- Interlock Guidance: Click this button to display the “Interlock Guidance” dialog.
- Software Interlock Bypass button: Click this button to bypass the interlock check.
  This button is displayed when the Interlock condition is set for the Tap raise/lower control and if the Interlock condition is not satisfied.

NOTE	This button is displayed only to a user with an authority for bypassing Interlock.

- Execute: Operation command is sent when this button is clicked.
- Cancel: Clicking this button cancel the selection.
- Close: Clicking this button closes the dialog.

6.5.7 Trans Parallel window

When the “Tr Parallel window is displayed, the small window indicating the transformer paralleling information is displayed.

Bays in the same transformer paralleling group are indicated in the same color.

If “Master”, “Follower”, and “Independent” are set, “M”, “F”, and “I” are also indicated.

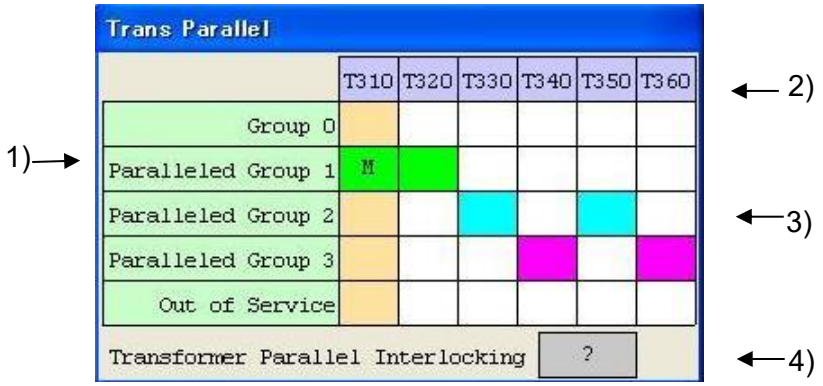


Figure 6.5.14 Trans Parallel window

1) Paralleling Group number display area: The paralleling groups are listed.
2) Transformer name display area: Transformer names (bay names) are displayed.
3) Paralleling Group display area: The transformers in the same paralleling group are indicated in the same color. “M” (=Master), “F” (=Follower), ”I” (=Independent) are indicated.

Sates / Quality		Intermediate (Undefined) 0,0,0	Master 0,0,1	Follower 0,1,0	Independent 1,0,0	Faulty 1,1,1
=0:Normal			M	F	I	
=1:Invalid		?	?	?	?	X
=2:Other		?	?	?	?	?
=3:Questionable		X	?	?	?	?
Communication fail	OLTC-BCU					
	TPI unit					

4) Transformer Paralleling Interlocking display area:

Transformer Paralleling Interlocking status, that is, if the status of change over switch for Interlocking bypass (USE/BYPASS) is displayed.

Status / Quality	Intermediate (Undefined) 0,0	BYPASS 0,1	USE 1,0	Faulty 1,1
=0:Normal		Bypass	Use	
=1:Invalid	?	?	?	X
=2:Other	?	?	?	?
=3:Questionable	X	?	?	?

6.5.8 Limit Setting dialog

The “Limit Setting” dialog is used to set the upper and lower limits of the measurement value and whether the measurement value is monitored or not.

This dialog is displayed when the measurement symbol on the single line diagram or the measurement item in the “Bay Information” dialog is right-clicked, and then “Limit Setting” is selected from the context menu.

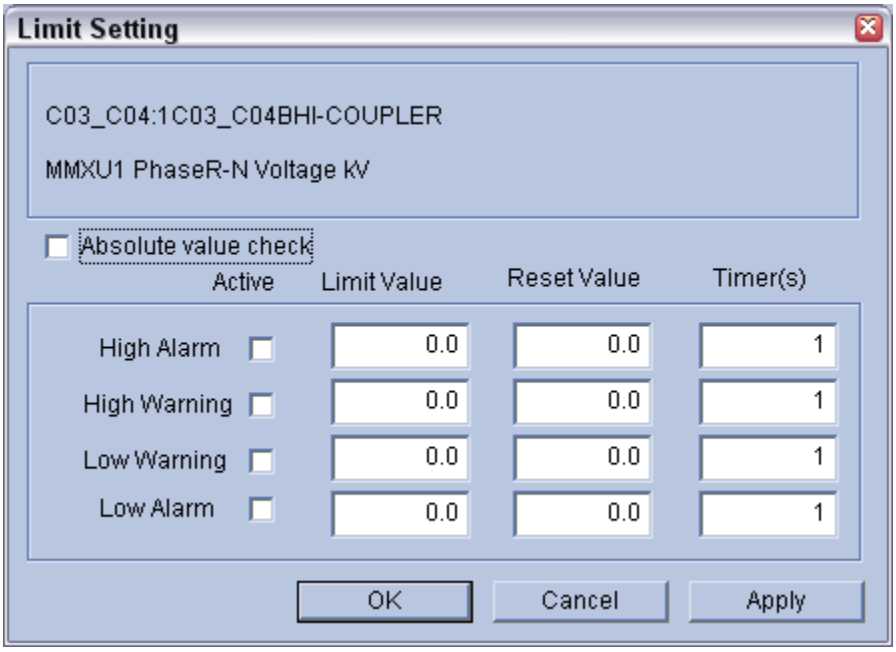


Figure 6.5.15 Limit Setting dialog

- Name display area: Displays the bay name and the measurement item name.
- Absolute Value Check: Whether the absolute value is monitored or not is set.



The absolute value is monitored when this check box is checked. When the box is not checked, the value is monitored with a minus sign.

- Active check box: Whether Upper/Lower limit is monitored or not is set by input or remove a tick from this check box.



- Limit value area: Setting value for upper and lower limits are input here. The number of decimal point to display is the same as that of the measurement value currently displayed in the single line diagram.

High Alarm = Upper limit alarm
High Warning = Upper limit warning
Low Warning = Lower limit warning
Low Alarm = Lower limit alarm

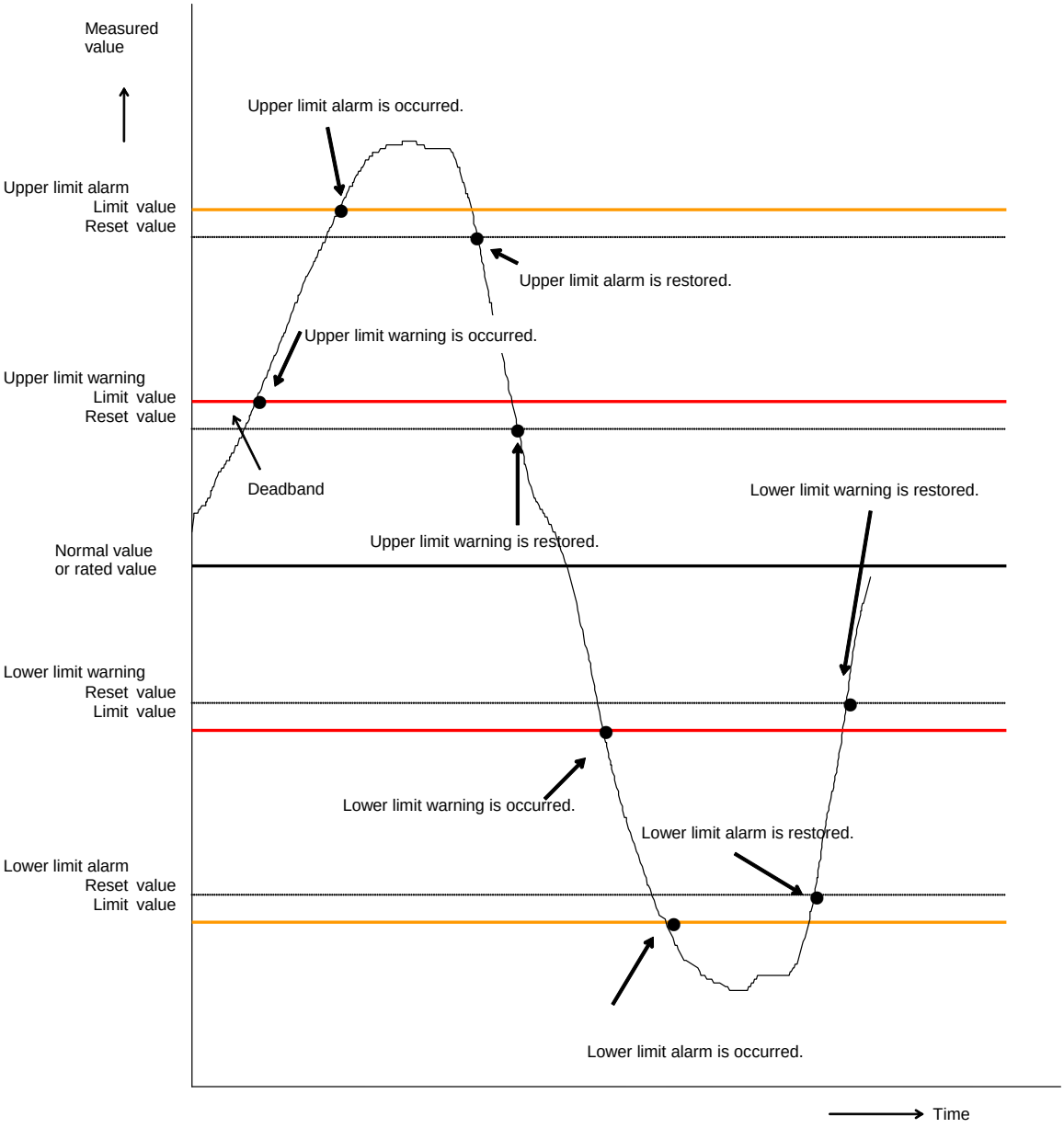


Figure 6.5.16 Upper and Lower Limit

6.5.9 Safety Tag setting dialog

The “Safety Tag” dialog is to set the safety tag of a bay.
“Safety Tag” dialog is displayed when “Safety Tag” is selected from the context menu displayed by right-clicking the bay name on the single line windows (Overview and Tr Parallel) and the “GIS” window.

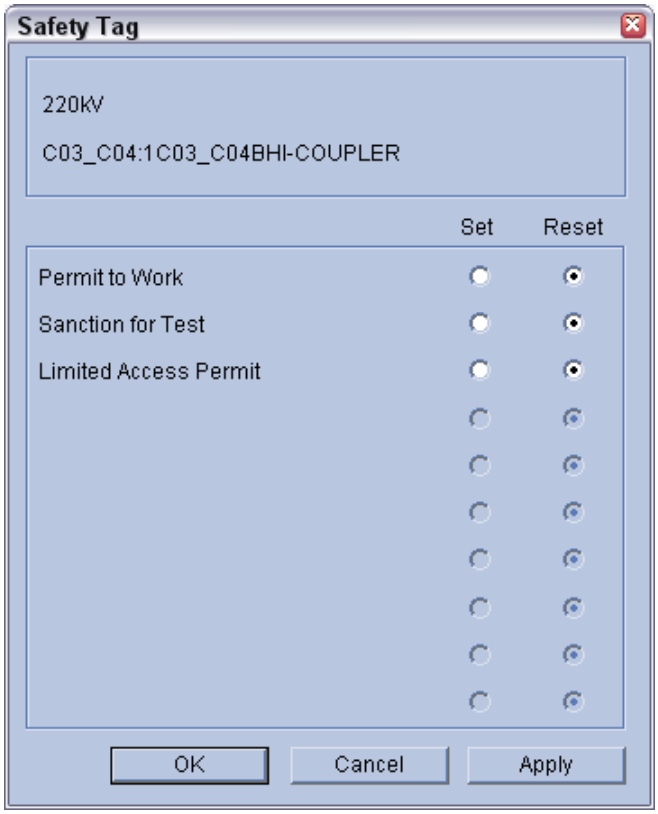


Figure 6.5.17 Safety Tag dialog

- Name display area: Displays the voltage class and the bay name.

- Safety tag radio button: Displays the setting status of the Safety Tag.
  ○ ● To change the setting, set the radio button to ●.
  You can set this setting for each bay.

When a Safety Tag is set, the following symbol is displayed on the window.



“PTW”: Permit to Work



“SFT”: Sanction for Test



“LAP”: Limited Access Permit

6.5.10 Manual Override dialog

The “Manual Override” dialog is used to set the device status and the measurement value manually. Two types of “Manual Override” dialogs are provided; namely the dialog for device and the dialog for a measurement value.

This dialog is displayed when a symbol on the single line diagram is right-clicked or the device/measurement value in the “Bay Information” dialog is right-clicked, and “Manual Override” is selected from the context menu.

1) The “Manual Override” dialog for a device

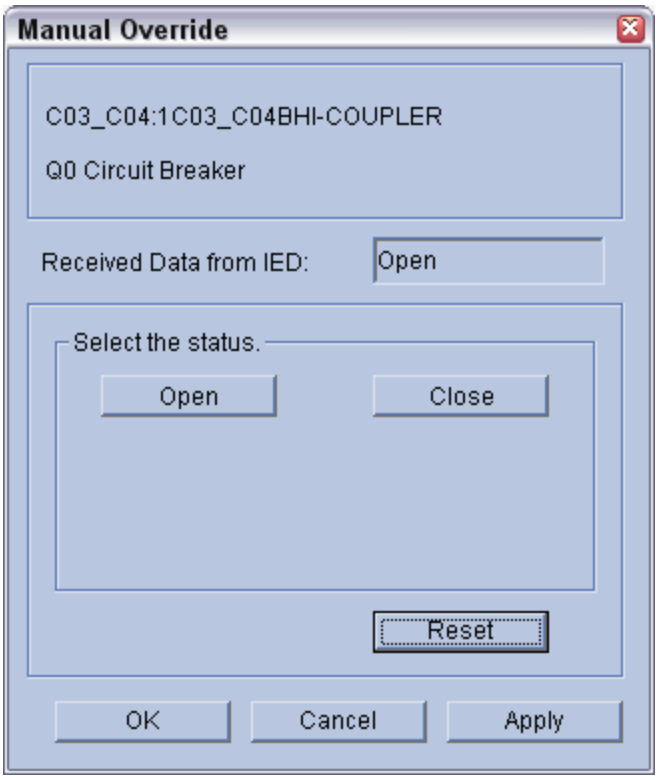


Figure 6.5.18 Manual Override dialog for device

- Name display area: Displays the bay name and the device name.
- Received Data from IED: Displays the status received from IED.
- “Select the status” buttons: The status to set is selected by these buttons.
  Open Close

  When the status is already set, the corresponding setting status button is displayed in depressed and yellow.
- Reset: Clicking this button resets the manual override setting, and reflects online status.

2) “Manual Override” dialog for the measurement value

.

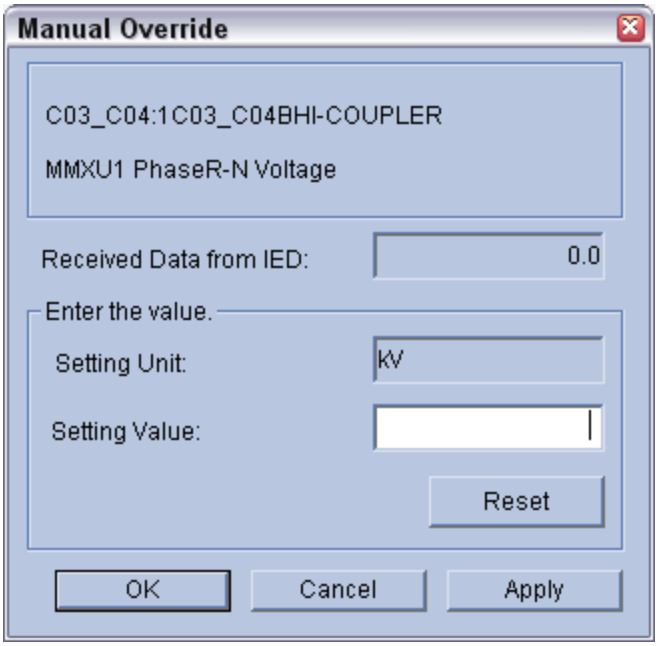


Figure 6.5.19 Manual Override dialog for measurement value

- Name display area: Displays the bay name and the measurement item name.
- Received Data from IED: Displays the value received from IED.
- Setting Unit display area: Unit of the measurement value is displayed.
- Setting Value input column: Text box to input the manual setting value.
- Reset: This button resets the manual override setting and reflects the setting of online status.

6.5.11 Blocking dialog

The “Blocking” dialog is used to set blocking of functions such as Control blocking and Alarm blocking.
This dialog is displayed when a blocking allowed symbol in the single line diagram is right-clicked or a row of device/switch/measurement value/other status in the “Bay Information” dialog is right-clicked, and “Blocking” is selected from the context menu.

.

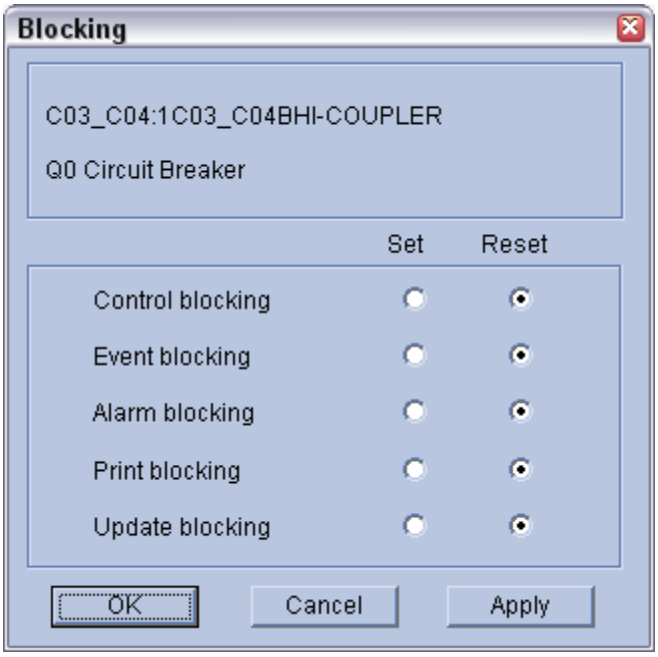


Figure 6.5.20 Blocking dialog

- Name display area: Displays the bay name and the device name.
- Setting item display area: Set or reset blocking by radio buttons.



Control Blocking:	Control is blocked
Event Blocking:	Event is blocked
Alarm Blocking:	Alarm is blocked
Print Blocking:	Printing is blocked
Update Blocking:	Update is blocked

POINT	The blocking status is also displayed in the “Blocking/Manual Override Summary” dialog. See 6.4.1.

6.5.12 Counter Reset dialog

The “Counter Reset” dialog is used to reset a counter or change a counter value.
This dialog is displayed when the row of a counter is right-clicked from the Measurement tab of the “Bay Information” dialog, and “Counter Reset” is selected from the context menu.

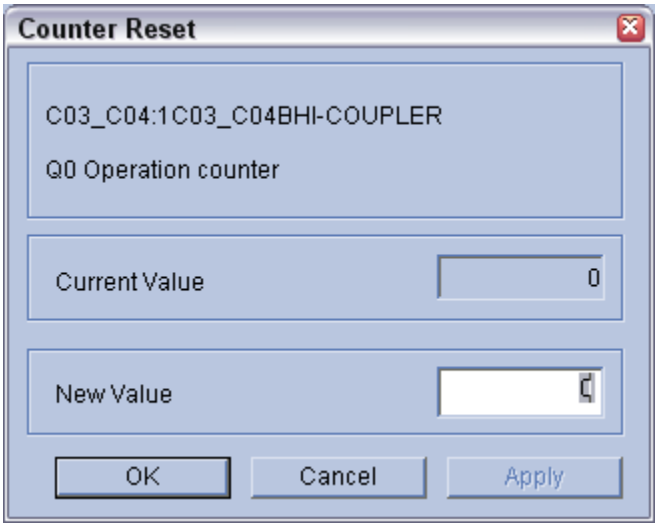


Figure 6.5.21 Counter Reset dialog

- Name display area: Displays the bay name and the counter name.
- Current Value display column: Displays the present value of the counter.
- New Value display column: Input the reset value here.

6.5.13 Memorandum dialog

The “Memorandum” dialog is used to create text into a memorandum and place it on the single line diagram windows, the “GIS” window or the “System” window.
This dialog is displayed when right-clicking at any point on the single line diagram windows, on the “GIS” window or on the “System” window, and “Memorandum” is selected from the context menu.
Maximum 128 memorandums can be created. The number of memorandum created is displayed in the “Memorandum Property” dialog (Refer to 6.5.14).

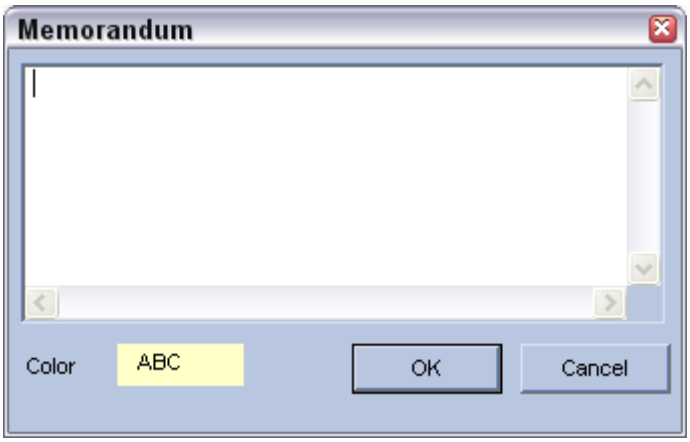
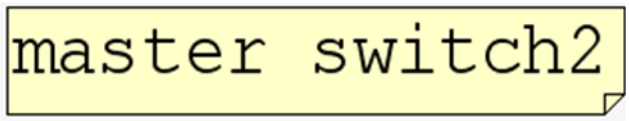


Figure 6.5.22 Memorandum dialog

- Text input area: Input the text to be written into the memorandum. Maximum 1,024 characters. Memorandum size is automatically adjusted to display the whole text.
- Color specification area: Specify the color of the memorandum here. To change the color, double-click the color to open the color palette.

(1) Ordinary display of a memorandum



● The following context menu is displayed by right-clicking the memorandum.

a) Edit: Changes the text contents of the memorandum.
b) Delete: Deletes the memorandum.
c) Icon: Minimizes the memorandum to icon.

(2) Display of a memorandum minimized to an icon



- The following context menu is displayed by right-clicking the icon.
  a) Edit: Changes the text contents of the icon.
  b) Delete: Deletes the icon.
  c) Icon: Develop the memorandum (Display the memorandum in the original size).

6.5.14 Memorandum Property dialog

The “Memorandum Property” dialog is used to check the number of created memorandums. This dialog is displayed by selecting [Edit] – [Memorandum Property] from the tool bar of single line diagram windows, the “GIS” window or the “System” window.

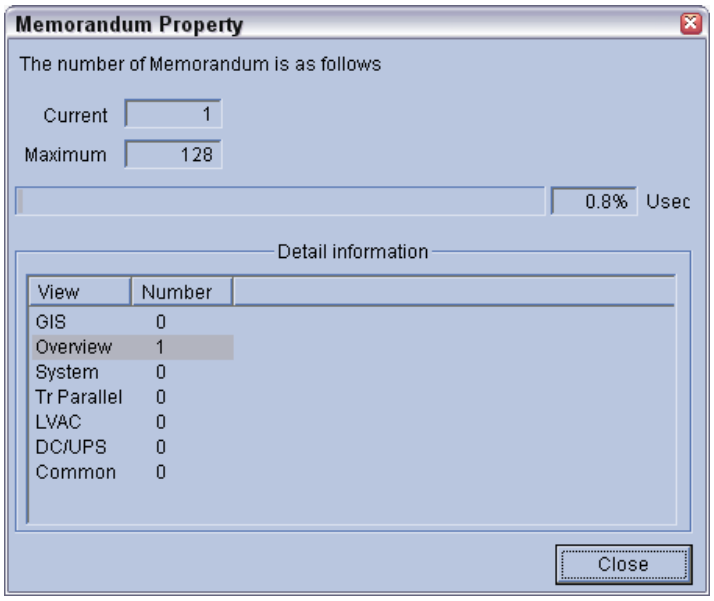


Figure 6.5.23 Memorandum Property dialog

6.5.15 Tag dialog

The “Tag” dialog is used to place a Tag on the single line diagram windows, the “GIS” window or the “System” window. Maximum 512 Tags can be placed.

This dialog is displayed by selecting [Edit] – [Tag] from the tool bar of the single line diagram windows, the “GIS” window or the “System” window.

It can be also displayed by right-clicking a mouse at any point of the windows and “Tag” is selected from the context menu.

The number of Tags placed is displayed in the “Tag Property” dialog (Refer to 6.5.16).

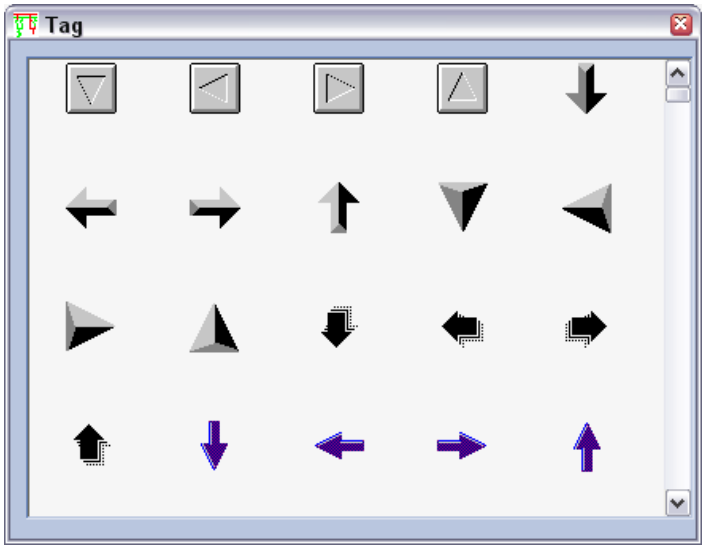


Figure 6.5.24 Tag dialog

The Tag is placed on the window by drag& drop. When the Tag is placed, the “Tag” dialog is closed.

6.5.16 Tag Property

The “Tag Property” dialog is used to check the number of placed Tags.

This dialog is displayed by selecting [Edit] – [Memorandum Property] from the tool bar of the single line diagram windows, the “GIS” window or the “System” window.

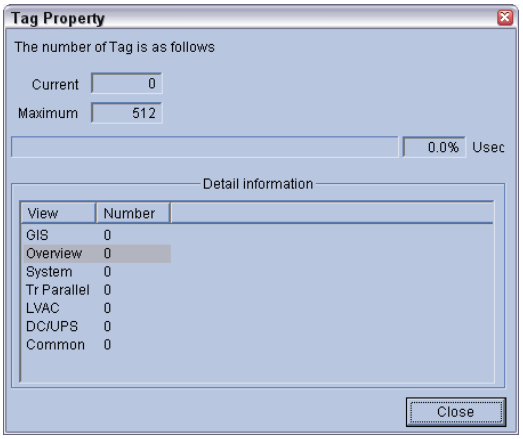


Figure 6.5.25 Tag Property dialog

6.5.17 Guide Window dialog

The “Guide Window” dialog is displayed when selecting [View] – [Guide Window] from the tool bar of the single line diagram windows, the “GIS” window or the “System” window.
This dialog indicates the currently displayed area of the window. By dragging the frame the display area is moved.

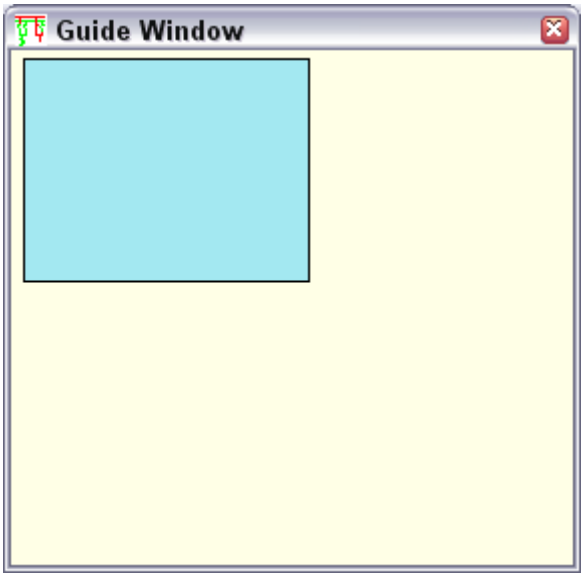


Figure 6.5.26 Guide Window dialog

6.5.18 IED Status dialog

The “IED Status” dialog displays the detailed information on IED failure.
This dialog is displayed when the IED symbol in the “System” window is clicked or the IED symbol is right-clicked and “Detail Status” is selected from the context menu.

.

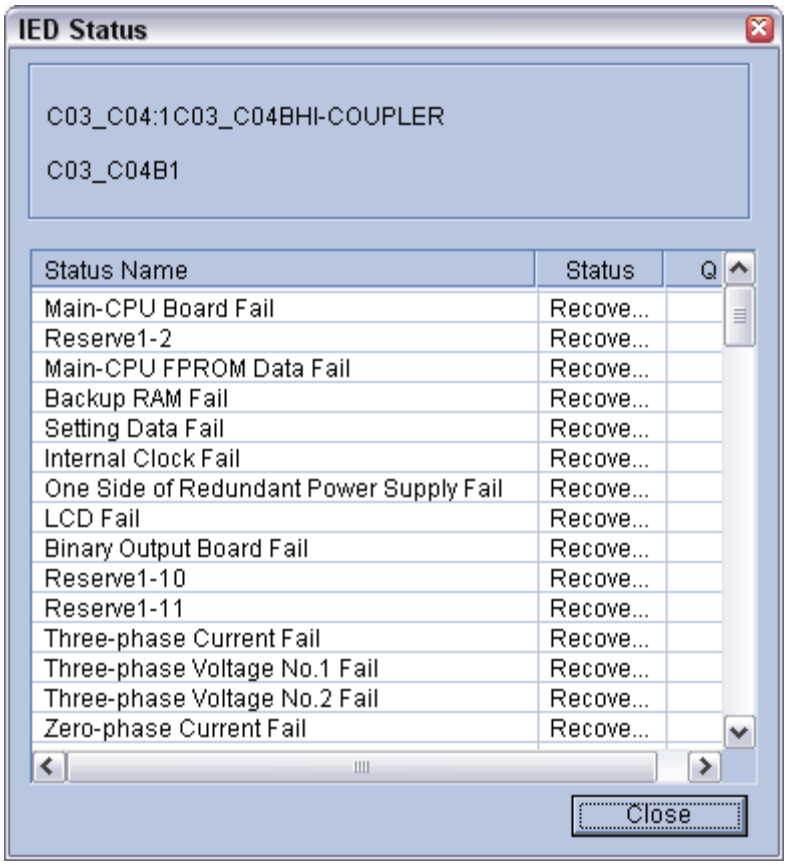


Figure 6.5.27 IED Status dialog

- Name display area: Displays the bay name and the IED name.

- [Status name] = Displays status name.
  [Status] = Displays current status.
  [Q]= Indicates the quality of the status by the following letters.
  I: invisible
  Q: Questionable
  B: Update blocking
  M: Manual Override
  D: Connection failure
  L: Limit over
  I: Uncollected
  T: Test

6.5.19 Mode Change dialog

The Mode Change" dialog is used to change the operation mode of IED.

This dialog is displayed when the IED symbol in the "System" window is right- clicked and "Mode Change" is selected from the context menu.

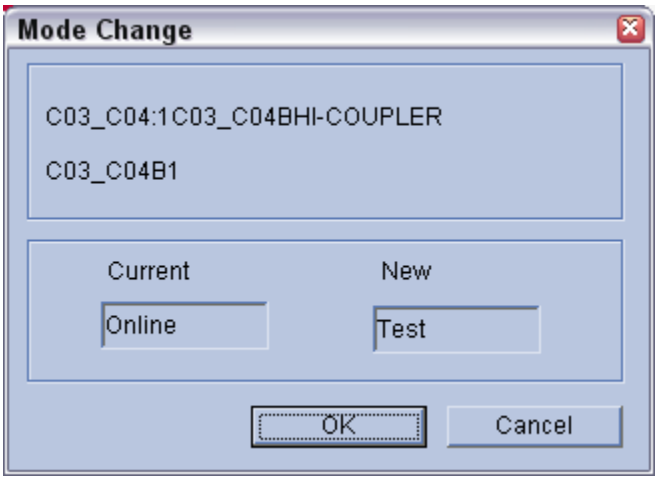


Figure 6.5.28 Mode Change dialog

- Name display area: Displays the bay name and the IED name.
- Current mode display area: Displays the current mode.
- New mode display area: Displays the following according to the current mode.
  When current mode is Online: Test
  When current mode is Test : Online

By clicking OK, the current mode and the new mode are switched.

6.5.20 Relay Group Setting dialog

The “Relay Group Setting” dialog is used to set the relay group.

This dialog is displayed when the relay symbol in the “System” window is right-clicked and “Relay Setting Group” is selected from the context menu.

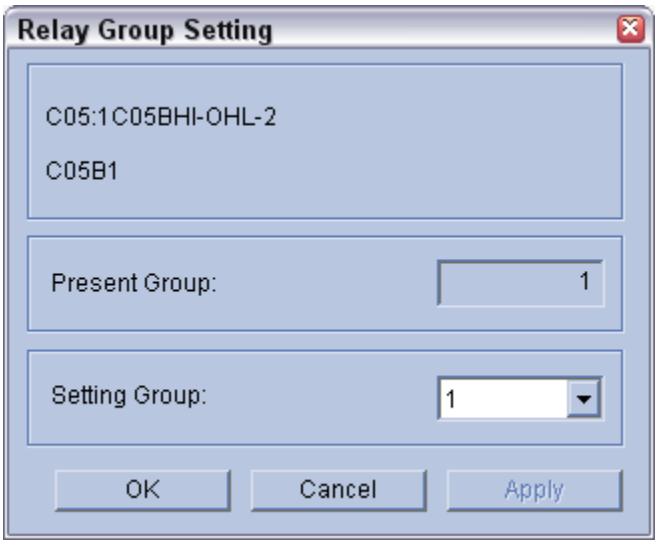


Figure 6.5.29 Relay Group Setting dialog

- Name display area: Displays the bay name and the relay name.
- Present Group display area: Displays the current group number.
- Setting Group combo box: Select the new group number from here.

6.5.21 State Change dialog for printer

The “State Change” dialog is used to change the state of the printer.

This dialog is displayed when the printer symbol in the “System” window is clicked or when the printer symbol is right-clicked and “State Change” is selected from the context menu.

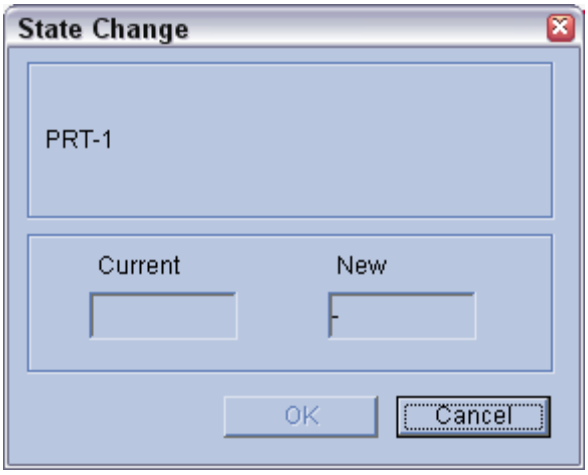


Figure 6.5.30 State Change dialog

- Name display area: displays printer name.
- Current mode display area: Displays the current mode.
- New mode display area: Displays the following according to the current mode.
  When current mode is Online: Test
  When current mode is Test : Online

6.5.22 Alarm Locking dialog

The “Alarm Locking” dialog is used to set the alarm lock of the printer.

This dialog is displayed when the printer symbol in the “System” window is right-clicked and “Alarm Lock…” is selected from the context menu.

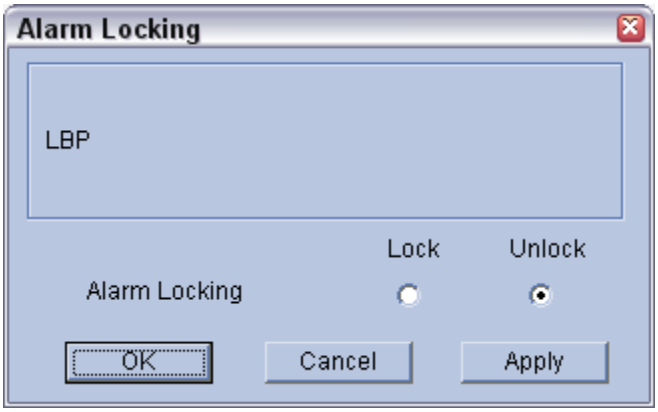
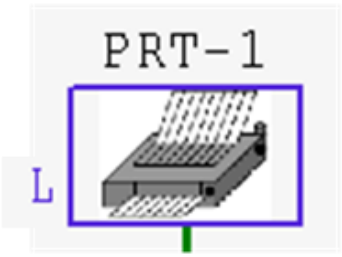


Figure 6.5.31 Alarm Locking dialog

- Name display area: Displays printer name.
- Alarm lock set area: Set or reset the alarm by clicking the radio button.

When the Alarm lock is set, "L" mark indicating that the Alarm Lock is set is displayed at the side of the printer symbol of the “System” window.





6.6 Alarm Window

The “Alarm” window displays the alarms detected by the Substation Automation System and the alarms sent from IED in Test mode.

Unacknowledged alarms and persistent alarms are displayed.

When the alarm status is recovered and acknowledgement is done, the alarm is removed from the alarm list.



Figure 6.6.1 Alarm window

1) Window title: “Alarm” = Alarm display without filtering
“Alarm (Filtered)”= Alarm display with filtering

2) Menu bar [File] - Filter: Displays the “Table Filter” dialog

3) Tool bar:
Filter: Displays the “Table Filter” dialog.

4) ALL ACK: All unacknowledged alarms are acknowledged collectively.
SEL ACK: Selected alarms are acknowledged.

NOTE	When filtering is used, acknowledgement is unavailable. ALL ACK and SEL ACk becomes inactive.

5) LATEST Window is forcibly switched to the page displaying the latest data and. Fixed cycle updating starts.

NOTE	Fixed cycle display is not carried out at filtering.

6) Alarm list: Area to display alarm. Alarms are displayed in the following color.

Red: Major failure
Orange: Minor failure
Blue: Occurring alarm that is acknowledged.
Green: Recovered alarms
Background color: When the alarm is selected, the background of the selected row is displayed in orange.
When the occurring alarm is acknowledged, the background of the row is displayed in light gray.

● When the failure is recovered (alarms in green) and acknowledged, the alarm will disappear from the list.



a) Failure symbol: : Heavy (event level 01 and 02)
: Light (event level 03 and 04)

b) Lv.: Displays Alarm level.
01: Major failures such as protection relay operation
02: Major failures in SAS
03: Minor failures such as switchgear and transformer
04: Minor failures in SAS

c) T: Indicates the test discrimination.
Blank : Alarm message in Online mode
T : Alarm message in Test mode

d) Q: Indicates the quality of date.
Blank: Date and time given by the IED synchronized with the master clock (GPS 1, 2, SC-A or SC-B)
* : Date and time not synchronized with the master clock

e) Date Time: Displays date and time.

f) Voltage: Displays the voltage level

g) Bay: Displays the bay name.

h) Object Text: Displays the contents of the failure.

i) Status : Displays the device status.

● Sort:

Data is sorted when the title cell of the column (a) to h)) is clicked. Sorting order is numerical order>alphabetical order.

Real time updating is not carried out after sorting. To resume real time updating, click LATEST.

● Adjustment of Column width

Width of each column is automatically adjusted by double-clicking the boundary between columns. The width is adjusted to the wider one; either maximum width of a column title (item name) or maximum width of column text. You can also adjust the width to the desired one by dragging the boundary between columns.

6.6.1 Table Filter dialog

The “Table Filter” dialog is used to set the filtering function on currently displayed data.
This dialog is displayed when the “Filter” icon in the tool bar of the “Event” or the “Alarm” window is clicked, or [File]- [Filter] in the menu bar of the “Event” window or the “Alarm” window is selected.

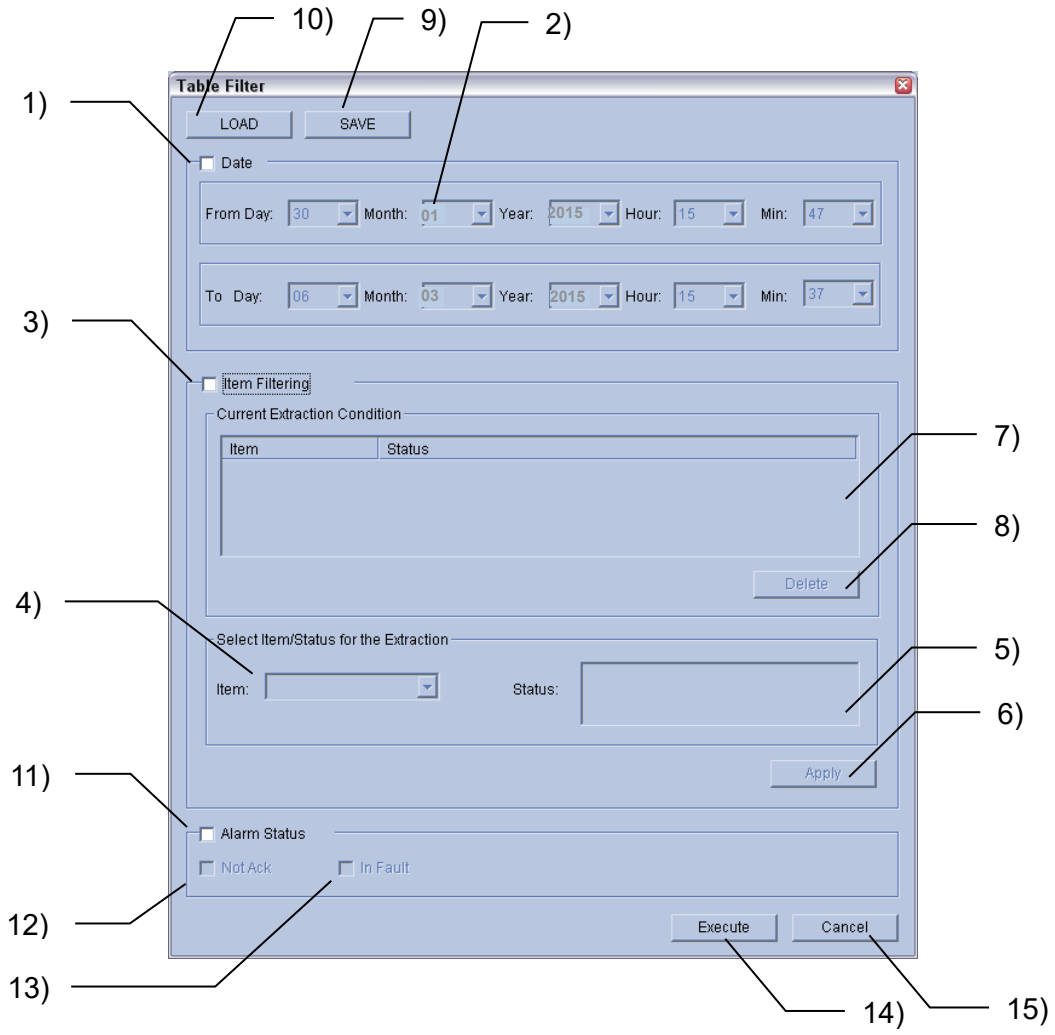


Figure 6.6.2 Table Filter dialog (Alarm window)

NOTE	11), 12), 13) are not displayed in the “Table Filter” dialog for the “Event” window.

1) Date check box: Check this box to set extraction by date.

2) Extraction date setting columns: These columns are used to set the extraction period.
From Day = Date to start extraction
To Day = Date to end extraction

3) Extraction condition setting check box: Check this box to set filtering by the extraction condition.

4) Extraction item setting combo box: This combo box is used to select the column title for the extraction condition.

The title name of each column is displayed in the combo box.

5) Extraction status setting combo box: This combo box is used to select the status for the extraction condition.
The status corresponding to the item selected in above 4) is displayed in a list format. The background color of the row already set as extraction condition is indicated in reversed color. The selection is reset by clicking the selected row again.

6) Apply: Button to apply the condition set in above step 4) and 5) and to display it at 7).

7) Display colum for set extraction condition: This column displays the extraction condition already set.

Item: Item name (column title) used as the condition
Status: Status used as the condition

● The extraction condition of status under the same item name becomes OR condition. Other conditions are AND condition.

8) Delete: This button is used to delete the set extraction condition.
When the row is selected from the display column for set extraction condition 7) and Delete is clicked, the corresponding row is deleted.

9) SAVE: This button is used to save the extraction condition in a file by CSV format.

10) LOAD: This button is used to load the extraction condition from a file.

11) Alarm status check box: This check box is used to set a filtering by the status of alarms.

12) Not-ACK extraction check box: This check box is used to extract unacknowledged alarms.

13) Fault extraction check box: This check box is used to extract a persistent fault.

14) Execute: Clicking this button extracts the data with set condition and displays the extracted data in a list.

15) Cancel: Clicking this button cancels condition setting and closes the dialog.

6.7 Event Window

The “Event” window displays events detected in the Substation Automation System and events

sent from IED in Test mode.

This window displays the status change of power equipment, the status change of the units composing the system, operation such as selection, control, switchover of local/remote control, and setting/canceling of various set items as event messages.

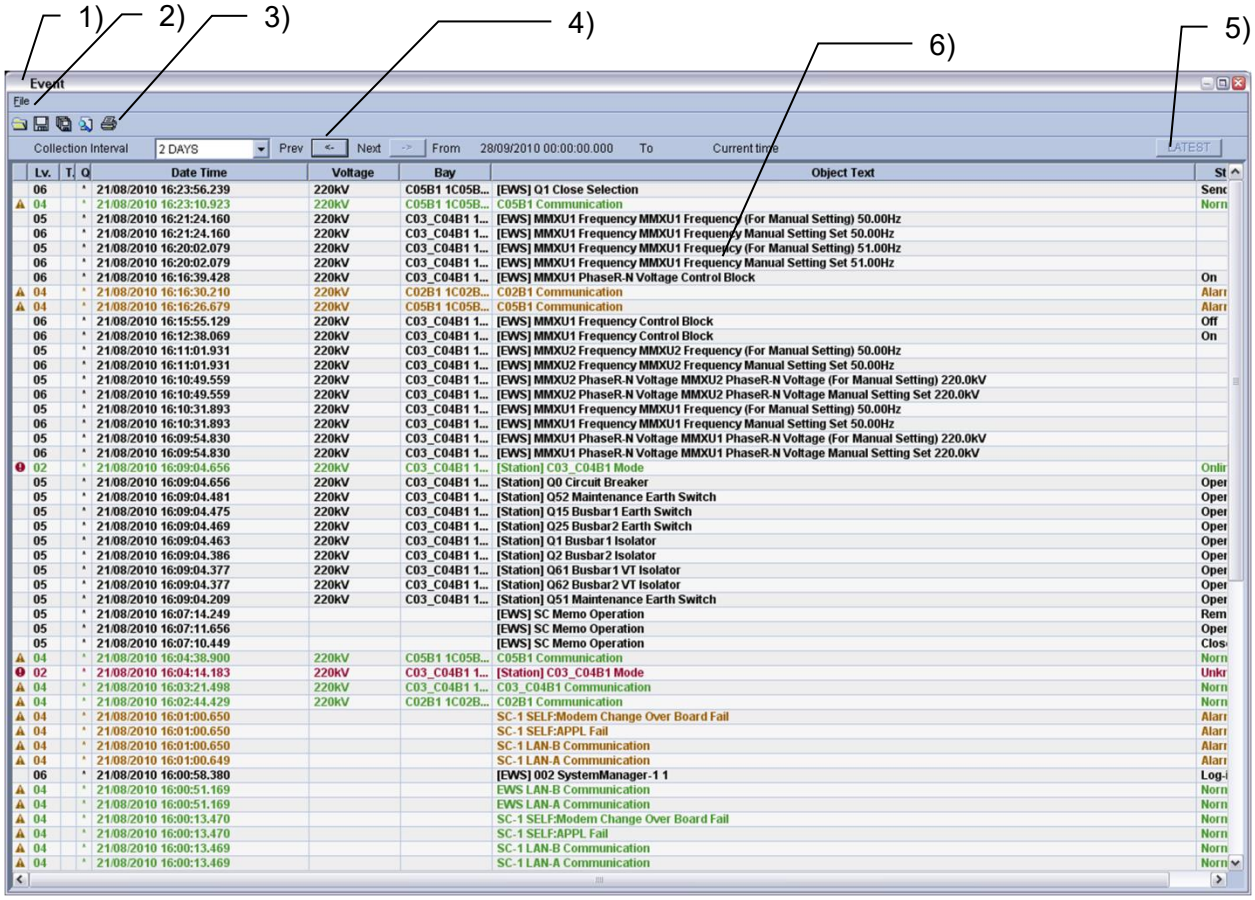


Figure 6.7.1 Event window

1) Window title: "Event": Event display without filtering
"Event (Filtered)": Event display with filtering or Event display by loading the filtering condition from a file.
"Event (Loaded)": Event display loaded from a file.

2) Menu bar [File]

Load:	The "Load" dialog is displayed.
Save:	The "Save" dialog is displayed.
Backup:	The "Backup" dialog is displayed.
Filter:	The "Table Filter" dialog is displayed.
Print:	Displayed data is printed out.
Auto Print Setting:	The "Auto Print Setting" dialog is displayed.

3) Tool bar:

Load:	Data is loaded. (The “Load” dialog is displayed.)
Save:	Data is saved. (The “Save” dialog is displayed.)
Backup:	Non saved event data is saved as backup file. (The “Backup” dialog is displayed.)
Filter:	The “Table Filter” dialog is displayed.
Print:	Displayed data is printed out.

4) Data block bar: This tool bar is used to shift/change the width of display period of events.



- Collection interval combo box: Data display period is selected here.
  - This combo box becomes inactive when displaying the filtered data.
    - “2 Days”: 2 days/block
    - “1 Week”: 1 week/block
    - “1 Month”: 1 month/block
- Prev and Next: Data display period is transitioned.
  - Real time updating is stopped. Real time updating is resumed when the LATEST is clicked.
  - These buttons become inactive when displaying the filtered data.
  - When the display arrives at the end of the data, these buttons become inactive.
- From and To text column: The oldest and the latest date of the displayed data are displayed.
  - “Current time” is indicated at the To side in real time display mode.

5) LATEST: This button forcibly switches the window to the page displaying the latest data.

NOTE	When this button is clicked while displaying the filtered data, the window return to the online (not-filtered) data.

6) Event list: Area to display the event data.

Red: Major failure (Event level 01 and 02)

Orange: Minor failure (Event level 03 and 04)

Black: General event and operation recorded event (Event level 05 and 06)

Green: Recovered event



a) Failure symbol: : Heavy (event level 01 and 02)

: Light (event 03 and 04)

b) Lv. : Displays event level.

01: Major failures such as protection relay operation

02: Major failures in SAS

03: Minor failures such as switchgear or transformer

04: Minor failures in SAS

05: General event

06: Operation recorded event

c) T: Indicates the test discrimination.

Blank: Event message in Online mode

T : Event message in Test mode

d) Q: Indicates the quality of date.

Blank: Date and time given by the IED synchronized with master clock. (GPS 1, 2, SC-A or SC-B)

* : Date and time not synchronized with master clock

e) Date Time: Displays date and time.

f) Voltage: Displays the voltage level

g) Bay: Displays the bay name.

h) Object Text: Displays the event messages.

i) Status: Displays the device status.

● Sort:

Data is sorted when the title cell of the column (a) to h)) of the column is clicked. (Sorting order is numerical order>alphabetical order)

Real time updating is not carried out after sorting. To resume real time updating, click LATEST.

● Adjustment of Column width

Width of each column is automatically adjusted by double-clicking the boundary between columns. The width is adjusted to the wider one; either maximum width of a column title (item name) or maximum width of column data. You can also adjust the width to the desired one by dragging the boundary between columns.

6.7.1 Table Filter dialog

Refer to “Table Filter” dialog of the “Alarm” window. (Section 6.6.1).
However, check boxes of “Alarm Status”, ”Not Ack”, and “In Fault” are not displayed.

6.7.2 Auto Print Setting dialog (for Event)

The “Auto Print Setting” dialog is used to set or cancel automatic printing of event log.

This dialog is displayed by selecting [File]-[Auto Print Setting] in the menu bar of the “Event “window.

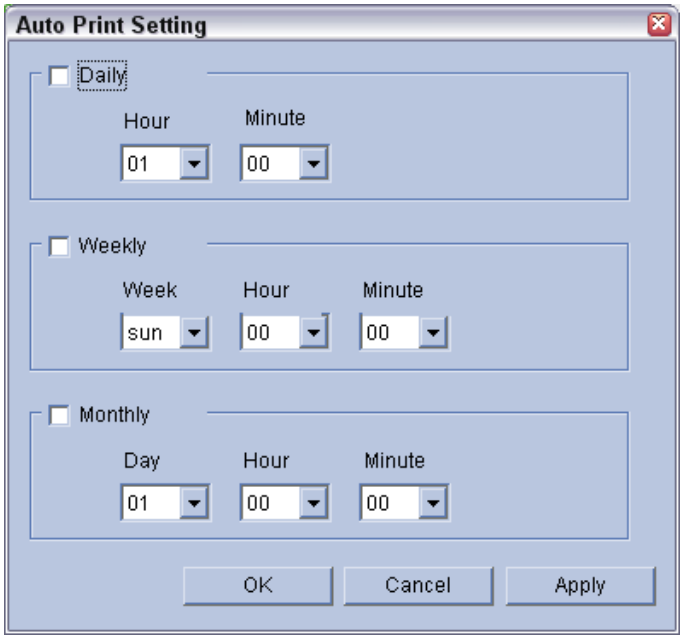


Figure 6.7.2 Auto Print Setting dialog

- Daily: Specifies daily printing.
- Weekly: Specifies weekly printing.
- Monthly: Specifies monthly printing.

6.8 Energy Report Window

The “Energy Report” window displays Daily/Monthly/Annual Report of electrical energy (Wh, varh) in a table format.

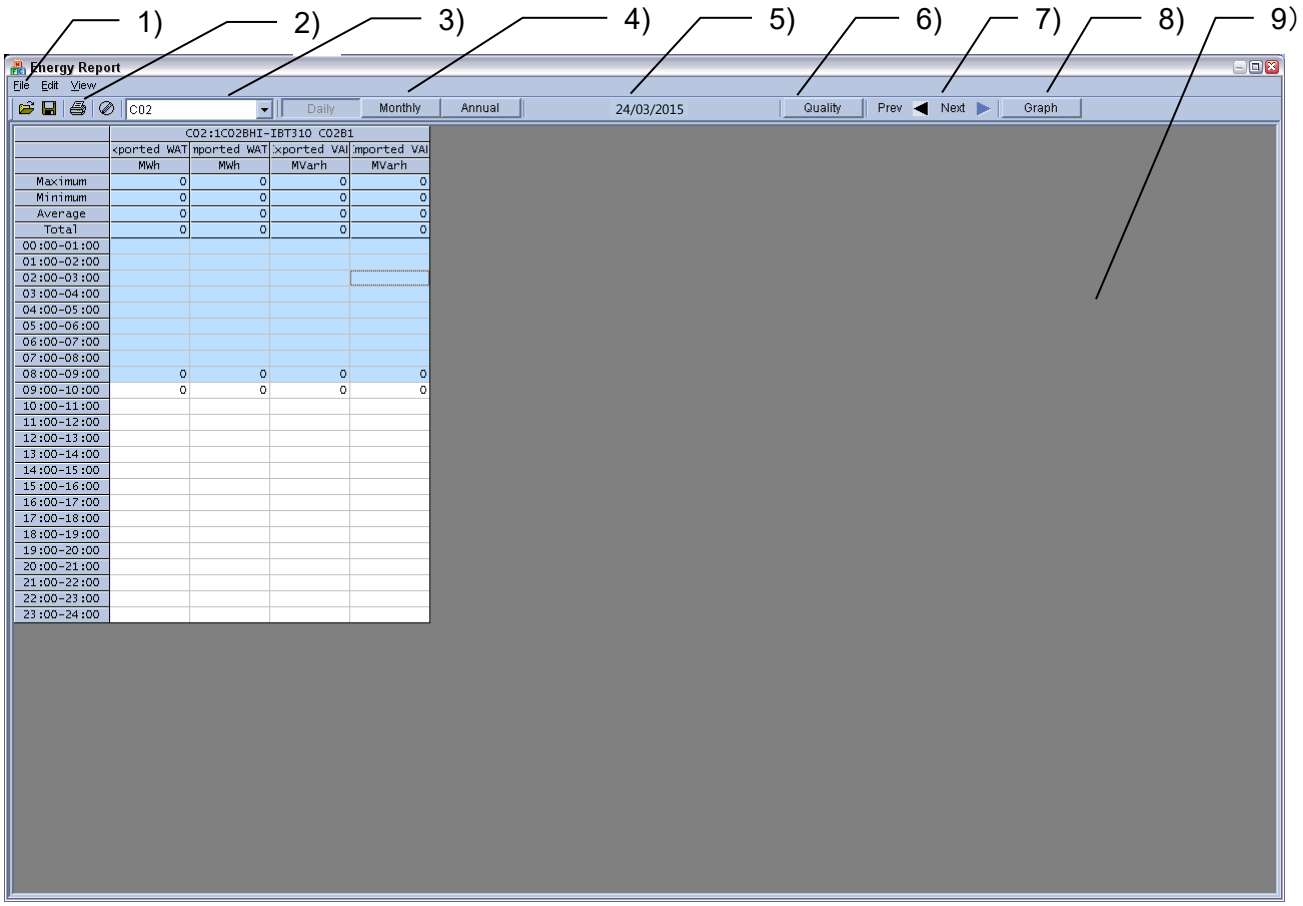


Figure 6.8.1 Energy Report window

1) Menu bar

[File]

Load:	The “Load” dialog is displayed.
Save:	The “Save” dialog is displayed.
Print:	The “Print” dialog is displayed.
Group Edit:	The “Group Edit” dialog is displayed.
Auto Print Setting:	The “Auto Print Setting” dialog is displayed.

[Edit]

Edit:	The “Data Edit” dialog is displayed.

[View]

Select Group:	The “Select Group” dialog is displayed.
Daily Report:	Daily Report is displayed.
Monthly Report:	Monthly Report is displayed.
Annual Report:	Annual Report is displayed.
Select Date:	The “Select Date” dialog is displayed.
Quality:	Displays the quality of the data
Graph:	Data is displayed in graph format.

2) Tool bar



Load: Data is loaded. (The “Load” dialog is displayed.)

Save: Data is saved. (The “Save” dialog is displayed.)

Print: Displayed data is printed out.

Edit: Data is edited. (The “Data Edit” dialog is displayed.)

3) Group selection combo box: Select the report group to display.

4) Period specify button: Select either of Daily, Monthly and Annual.

Daily Monthly Annual

5) Day /Month/ Year display: Day/Month/Year of the report is displayed for Daily Report. Year and month are displayed for Monthly Report, and year for Annual Report respectively.

6) Quality: Clicking this button displays the quality of the data.

I: invisible
Q: Questionable
B: Update blocking
M: Manual Override
D: Connection failure
L: Limit over
I: Uncollected
T: Test

7) Prev / Next: When this button is clicked while displaying the Daily Report, the Daily Report of the previous/next day is displayed. While displaying the Monthly Report, the Monthly Report of the previous/next month is displayed. While displaying the Annual Report, the Annual Report of the previous/next month is displayed.

8) Graph: Clicking this button displays data in a graph format.

9) Data display area

Data of the Daily Report, the Monthly Report or the Annual Report is displayed here.

Status	Window
Normal (Data collected)	Character: normal color Background: normal color
Defective (Data collected, Quality abnormal)	Character: normal color Background: defect color
Defective (Data not collected, Quality normal)	Blank Background: defect color
Not collected (Future time)	Blank

6.8.1 Select Date dialog

The “Select Date” dialog is used to set the data to display the report in the past.
This dialog is displayed by selecting [View]-[Select Date] in the menu bar of the “Energy Report” window.

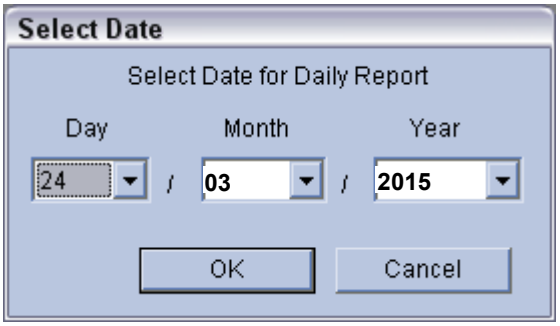


Figure 6.8.2 Select Date dialog

Date input area: Date of data to display is input here.
Daily Report = Specify year, month and day.
Monthly Report = Specify year and month.
(Day cannot be specified.)
Annual Report = Specify year.
(Date and Month cannot be specified.)

6.8.2 Select Group dialog

The “Select Group” dialog is used to select the group to display.

This dialog is displayed by selecting [View]-[Select Group] in the menu bar of the “Energy Report” window.

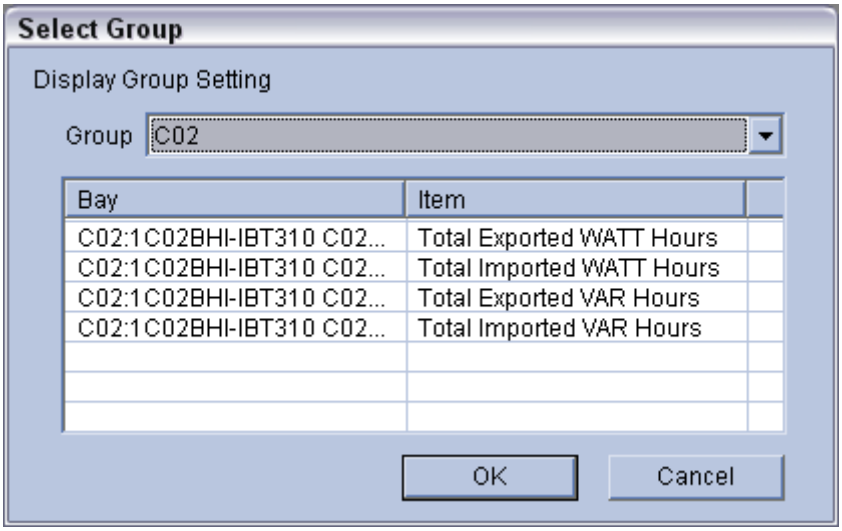


Figure 6.8.3 Select Group dialog

6.8.3 Group Edit dialog

The “Group Edit” dialog is used to edit a group for Energy Report.
This dialog is displayed by selecting [File]-[Group Edit] in the menu bar of the “Energy Report” window.

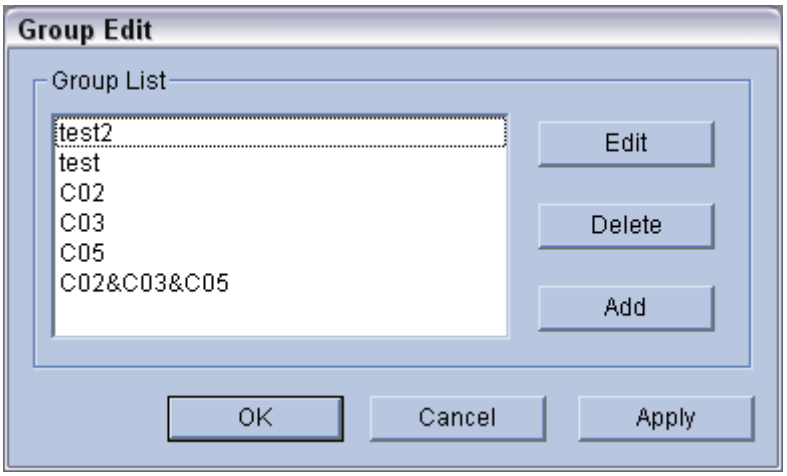


Figure 6.8.4 Group Edit dialog

Group List display area: List of group names is displayed.

Edit: Displays the “Group Item Setting” dialog (Figure 6.8.5) to edit the group selected in the Group List display area.

Delete: The group selected in the Group List display area is deleted.

Add : Displays the “Group Item Setting” dialog (Figure 6.8.5) to register a new group.

6.8.4 Group Item Setting dialog

The “Group Item Setting” dialog is used to register a new group or change the members of an existing group.
This dialog is displayed by clicking Edit or Add in the “Group Edit” dialog of the “Energy Report” window.

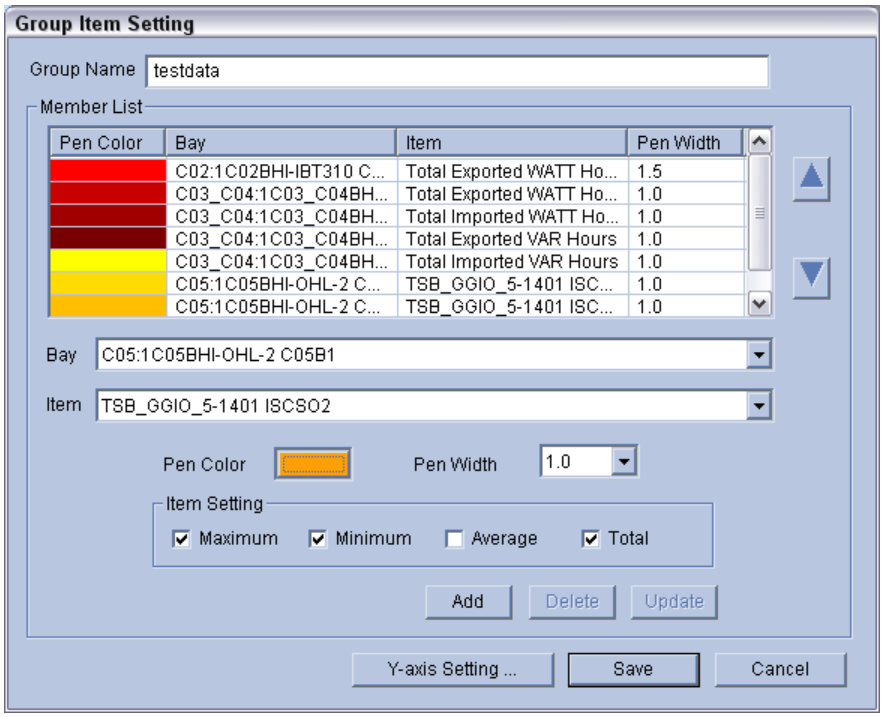


Figure 6.8.5 Group Item Setting dialog

Group Name area: Area to display/input the group name.
When displaying the dialog from Add of the “Group Edit” dialog, initial display is blank.
When displaying the dialog from Edit of the “Group Edit” dialog, initial display is the selected group name.

Member List display area: All members registered to the group are displayed here.
When displaying the dialog from Add of the “Group Edit” dialog, initial display is blank.
When displaying the dialog from Edit of the “Group Edit” dialog, initial display is the registered members of the selected group.

“Bay” select combo box: Select the bay name to register to the group.



“Item” select combo box: Select the name of the element you want to register to the group.



“Pen Color”: Pen Color specifies the color of a polygonal line. Double-clicking opens the color palette.



“Pen Width”: Pen Width specifies the width of a polygonal line.



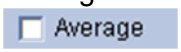
Maximum value display check box: This check box is used to set the display of maximum value.



Minimum value display check box: This check box is used to set the display of minimum value.



Average value display check box: This check box is used to set the display of average value.



Total value display check box: This check box is used to set the display of total value.



Add: A member set at the “Bay” select combo box and the “Item” select combo box are added to Member List display area.

Delete: The element selected from the Member List display area is deleted.

Update: Clicking this button confirms the edited contents.

Save: Clicking this button saves the group contents and closes the dialog.

Y-axis Setting…: Clicking this button displays the “Y-Axis Setting” dialog (Figure 6.8.6).

Position change buttons:



The selected member’s display position in Member List display area goes up or down.

6.8.5 Y-Axis Setting dialog (for Energy Report)

The “Y-Axis Setting” dialog is displayed when Y-axis Setting… of the “Group Item Setting” dialog is clicked.

Normally, Y-axis area of the window is set to “Auto” position. When you want to change the Y-axis area, change “Auto” position to “Manual” position and set the parameter appropriately.

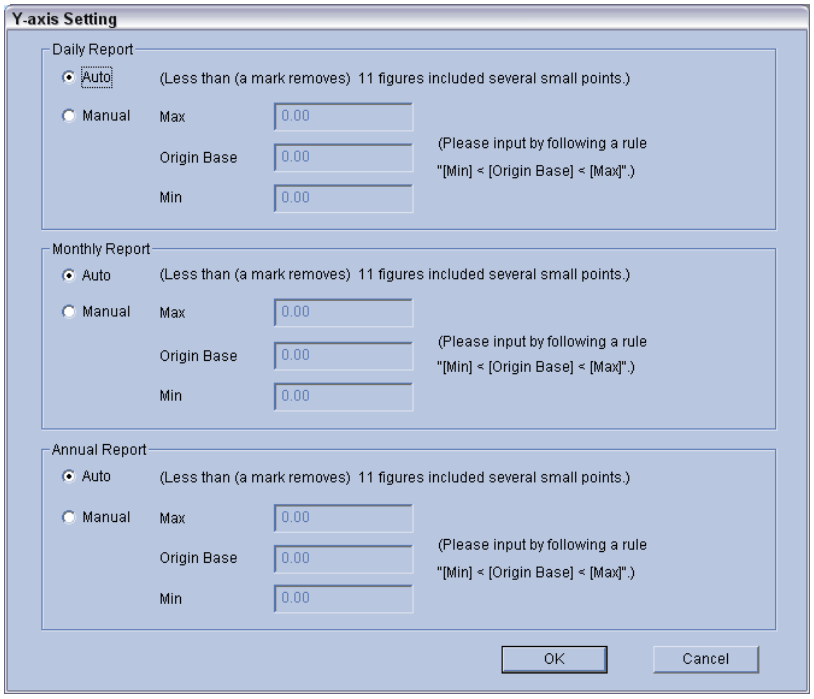


Figure 6.8.6 Y-Axis dialog (for Energy Report)

Auto/Manual selection button: Click the radio button of “Manual” to change the Y-axis setting.

Max:	Input the value of top position at Y-axis.
Orign Base:	Input the value of cross point with X-axis.
Min:	Input the value of bottom position at Y-axis.

6.8.6 Auto Print Setting dialog (for Energy Report)

The “Auto Print Setting” dialog is used to set the automatic printing for Energy Report. Specify the time, date and the group for Daily, Monthly and Annual Report you want to print.

This dialog is displayed by selecting [File]-[Auto Print Setting] in the menu bar.

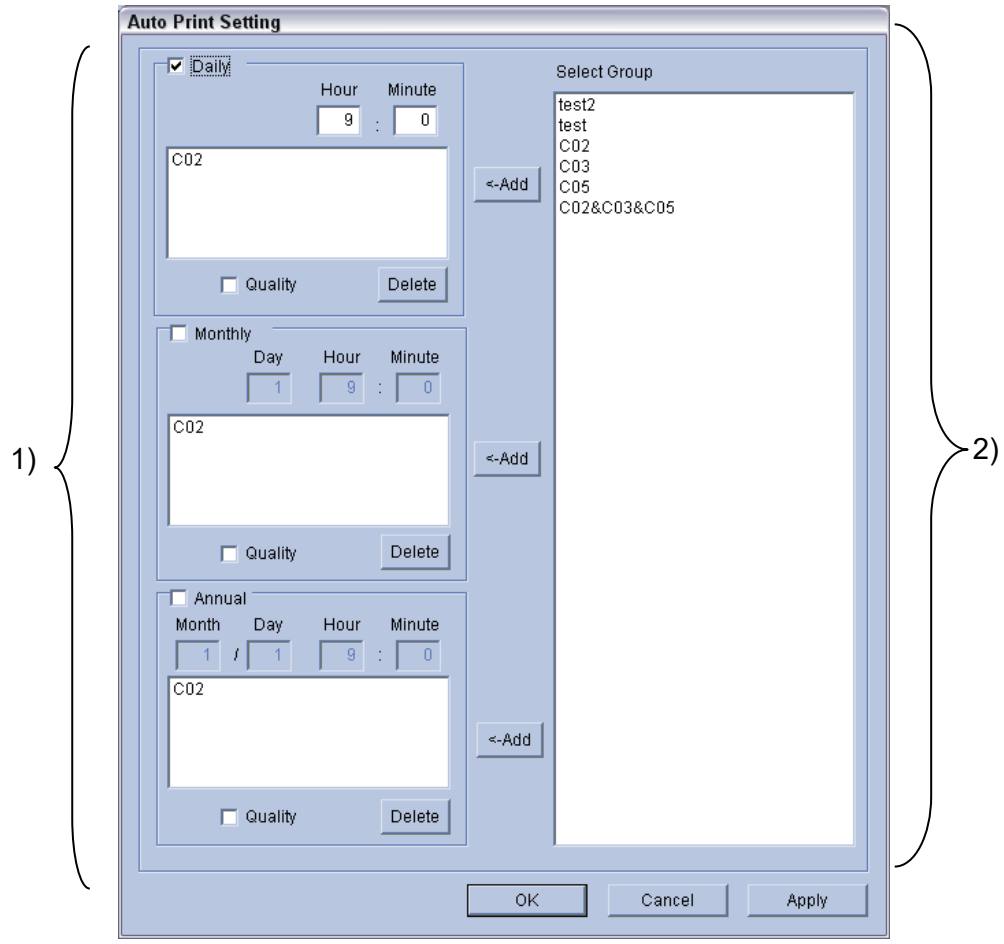


Figure 6.8.7 Auto Print Setting dialog

1) Print group display area: Group name set to automatic printing for Daily/Monthly/Annual Report is displayed.

2) Select Group area: Select the group you want to add to automatic printing for Daily, Monthly, and Annual Report.

(Daily Report automatic printing setting area)

Daily report print check box: This check box is used to set automatic printing for the Daily Report.



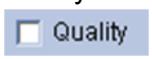
Daily report cycle input area: Input the time for the Daily Report automatic printing.



<-Add: The group specified in the Select Group area is added to Daily Report print group display area.

Delete: The group selected in Daily Report print group display area is deleted.

Quality check box: This check box is used to add the quality of data in the printed report.

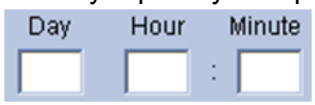


(Monthly Report automatic printing setting area)

Monthly report print check box: This check box is used to set automatic printing for Monthly Report.



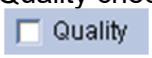
Monthly report cycle input area: Input the time for the Monthly Report automatic printing.



<-Add: The group specified in the Select Group area is added to the Monthly Report print group display area.

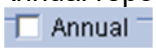
Delete: The group selected in Mmonthly Report print group display area is deleted.

Quality check box: This check box is used to add the quality of data in the printed report.



(Annual Report automatic printing setting area)

Annual report print check box: This check box is used to set automatic printing for Annual Report.



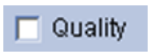
Annual report cycle input area: Input the time for the Annual Report automatic printing.



<-Add: The group specified in the Select Group area is added to the Annual Report print group display area.

Delete: The group selected in Annual Report print group display area is deleted.

Quality check box: This check box is used to add the quality of data in the printed report.



6.8.7 Graph display

When selecting [View] – [Graph] from menu bar of the “Energy Report” window, the Energy Report data currently displayed is displayed in a graph as shown below.
You can select the data to display using the check box described in 8) below.

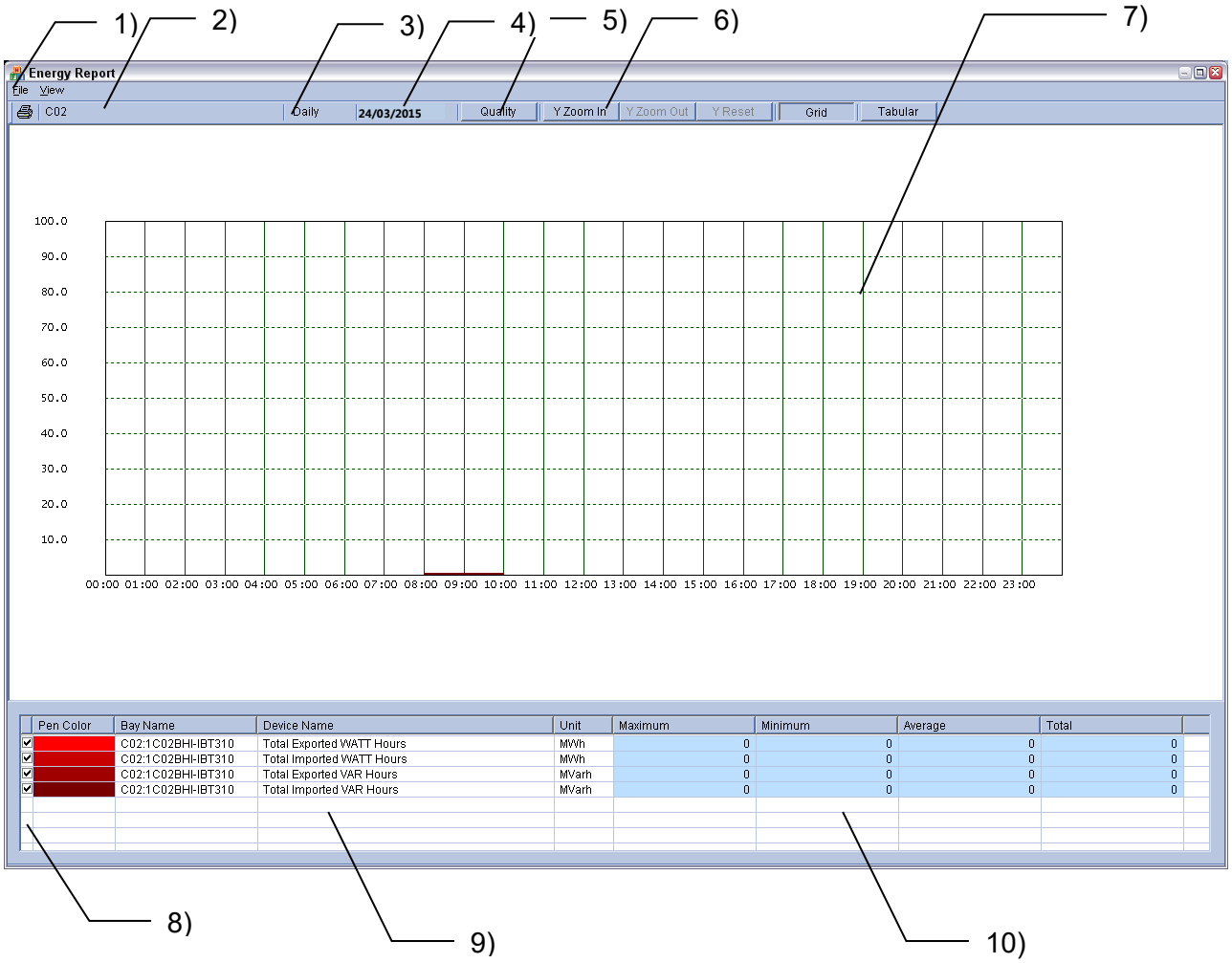


Figure 6.8.8 Energy Report window in Graph display

1) Menu bar [File]

Print:	Print the displayed data.

[View]

Quality:	Displays the quality of the data.
Y-Axis:	Zoom In, Zoom Out, or Reset the Y-axis.
Grid:	Switches display/not display grid.
Tabular:	Displays the window in tabular format.

2) Group name display area

The group name currently displayed on the window is displayed.

3) Time base display area

Daily, Monthly or Annual is displayed.

4) Start date and time area

The date and time to start displaying the data is displayed. The display varies depending on the time base.

When Time base is Daily: day/month/year

When Time base is Monthly: month/year

When Time base is Annual: year

5) Quality: Clicking this button displays the quality of the data.

I: invisible
Q: Questionable
B: Update blocking
M: Manual Override
D: Connection failure
L: Limit over
I: Uncollected
T: Test

6) Tool bar: Tool bar is equipped with the following buttons. Refer to the chapter of the “Trend” window for the function of each button.

- “Print” icon: Clicking this icon prints out the graph now active.
- Y Zoom In / Y Zoom Out / Y Reset
- Grid
- Y Setting
- Tabular: Clicking this button closes the graph display and the window returns to tabular format.

7) Graph display area

The graph checked at 8) is displayed.

8) Graph display/not display check box

You can set the graph not to be displayed temporarily by removing the tick from this check box.

9) Data name display area

Bay name, Device name, unit and the graph color of the report data are displayed.

10) Statistical data display area

This area displays the total, average, maximum and minimum value of the data.

6.8.8 Data Edit dialog

The “Data Edit” dialog is used to edit the data of the Daily Report.
This dialog is displayed by selecting the cell in the Daily Report window and clicking the “Edit” icon in the tool bar or select [Edit] in the menu bar of the “Energy Report” window.

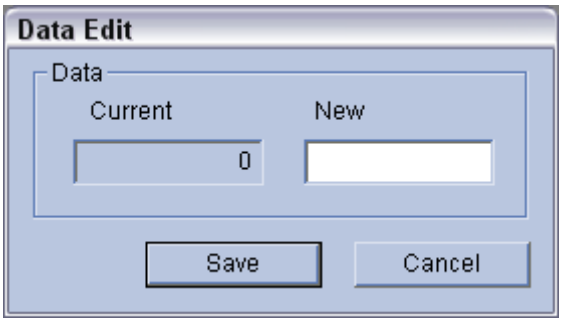


Figure 6.8.9 Data Edit dialog

Current data display area: The current data is displayed here.
New data display area: The data after editing is input here.

Save: Clicking this button closes the dialog and reflects the edited contents.

Cancel: Clicking this button closes the dialog without setting.

6.8.9 Save/Load of report data

Windows OS standard “Save” and “Load” dialogs are used for saving and loading the data.

1) Save The data is output to the specified file in CSV format.
2) Load After loading, the loaded information is displayed in the following items;
   - Window title: The window title becomes “Energy Report (Loaded)”
   - Group selection combo box: Displays the group name of the loaded data.
   - Day/Month/Year display area: Displays the date of the loaded data.
   - Data display area: Displays the loaded data.

After the loaded data is displayed, online data is displayed by selecting the period specify button or group selection combo box again.

Daily Monthly Annual 

While the loaded data is displayed, data editing, saving, printing, Prev/Nex operation, and Graph display cannot be carried out.

6.9 Trend Window

The “Trend” window displays the measurement values stored for the past three years in a line graph. You can display the graph for Daily / Weekly / Weekly/ Monthly Trend in the specified period.

The window displayed previously is displayed again when Trend in the main menu bar is clicked. Nothing is displayed immediately after HMI is started.

You can also display the “Trend” window by selecting the measurement item on the single line diagram window or in the “Bay Information” dialog.

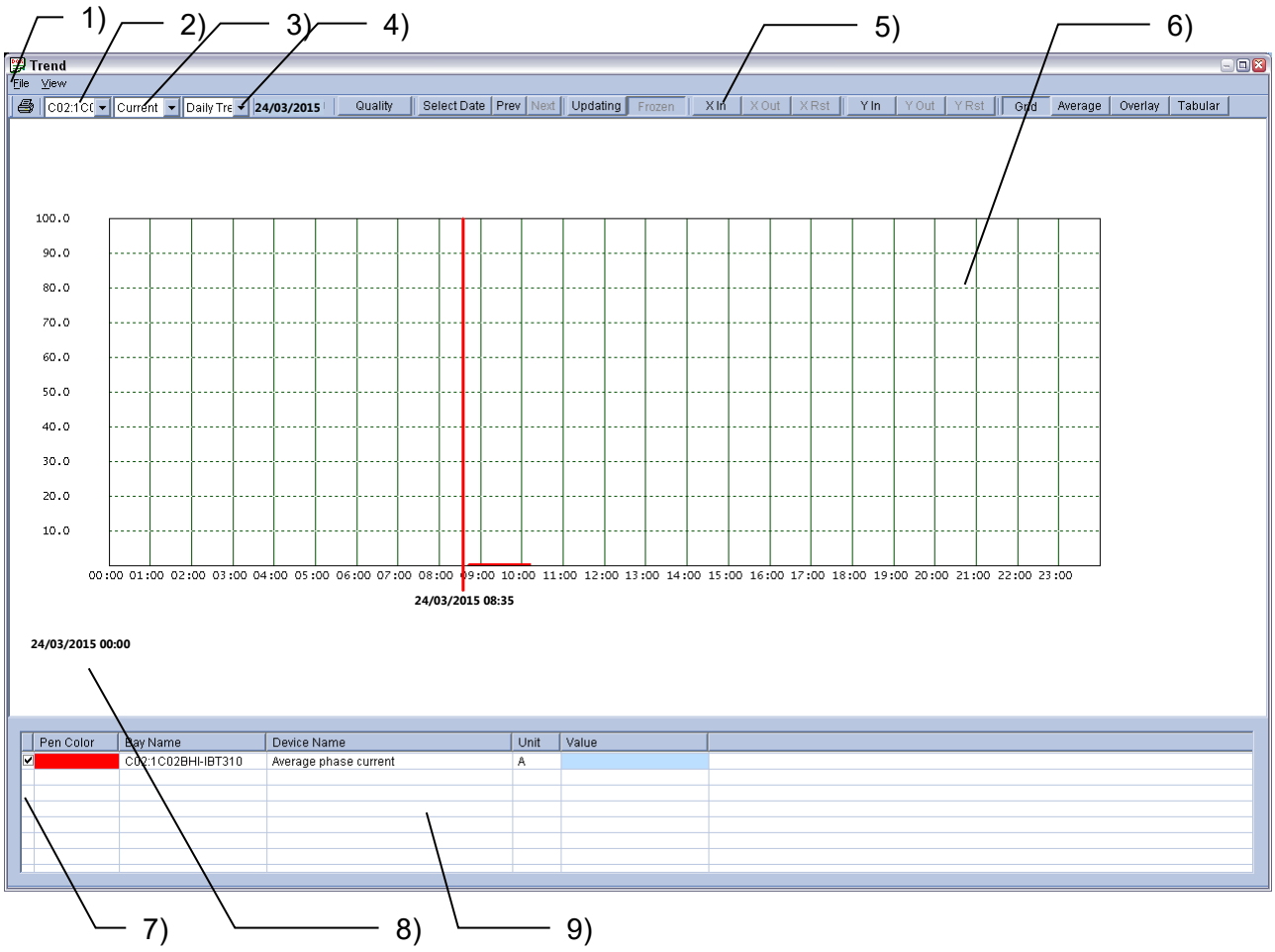


Figure 6.9.1 Trend window

1) Menu bar [File]

Group Edit:	Displays the “Group Edit” dialog.
Print:	Prints out the displayed data.
[View]	
Daily Trend:	Displays Daily Trend.
Weekly Trend:	Displays Weekly Trend.
Monthly Trend:	Displays Monthly Trend.
Annual Trend:	Displays Annual Trend.
Free Trend:	Displays specified period trend. (The “Select Date” dialog is displayed.)
Quality:	Displays quality of the data (*)
Select Date:	Displays the “Select Date” dialog.
Updating:	Carries out automatic updating.
Frozen:	Suspends automatic updating.
X-Axis:	Changes X-axis scale.
Zoom In:	Magnify the time base (X-axis)
Zoom Out:	Reduce the time base (X-axis)
Reset:	Reset the magnification of the time base (X-axis)
Y-Axis:	Changes Y-axis scale.
Zoom In:	Magnify the time base (Y-axis)
Zoom Out:	Reduce the time base (Y-axis)
Reset:	Reset the magnification of the time base (Y-axis)
Grid:	Switches display/not display the grid.
Average:	Displays the average value.
Overlay:	Displays the “Overlay” dialog.
Tabular:	Displays data in tabular format.

*Quality I: invisible
Q: Questionable
B: Update blocking
M: Manual Override
D: Connection failure
L: Limit over
I: Uncollected
T: Test

2) Bay selection combo box:

Select the group you want to display. Group names of the selected bay are displayed in

3) Group selection combo box:

The group name corresponding to the bay selected at 2) are displayed.
Select the group you want to display.

4) Time base selection combo box:

Select the time base from Daily Trend, Weekly Trend, Monthly Trend, Annual Trend and Free Trend.

5) Tool bar: Tool bar is equipped with the following buttons.

- Quality
- Select Date
- Prev / Next
- Updating / Frozen
- X In / X Out / X Rst
- Y In / Y Out / Y Rst
- Grid
- Average
- Overlay
- Tabular

6) Graph display area

The graph checked at 7) is displayed.

7) Graph display/not display specify check box

The line graph becomes temporarily not displayed by removing the check mark in this check box. Upon changing the check in this check box, the corresponding graph is displayed/not displayed.

8) Date and time to start displaying the trend is displayed.

The date and time of the data to start displaying the Trend are always displayed here. When the Trend graph is displayed overlaying the past data, the start date of the Base Trend is displayed.

9) Trend data display area

The name of the measurement value, its present value, the measurement values at the specified point, quality of the data, and colors assigned to the group are displayed in this area. (Maximum 20 rows)

6.9.1 Select date dialog

The time base can be moved to and fro by Prev / Next or by specifying the date using the "Select Date" dialog.

When Select Date in the "Trend" window is clicked, the "Select Date" dialog is opened. This dialog is also displayed by selecting "Free Trend".

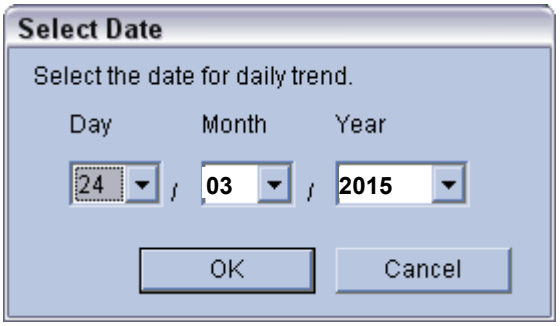


Figure 6.9.2 Select Date dialog

6.9.2 Previous Trend / Next Trend

When Prev / Next are clicked, the displayed graph scrolls to and fro in the time base. You can specify the width of scrolling. The following pull down menu is displayed when the Prev/ Next is right-clicked.

Daily Trend: 1 Hour (1 hour scroll)
A Quarter (6 hour scroll)
A Half (half day scroll)
Full (scroll to the next day)

Weekly Trend: 1 Day (1 day scroll)
A Quarter (2-day scroll)
A Half (3-day scroll -> 4-day scroll ->3day scroll)
Full (scroll to the next/previous week)

Monthly Trend: 1 Day (1 day scroll)
1 Week (1 week scroll)
2 Week (2-week scroll)
Full (scroll to the next month)

Annual Trend: 1 Month (1 month scroll)
A Quarter (3-month scroll)
A Half (6-month scroll)
Full (scroll to the next/previous year)

(1) Previous Trend

When Prev is left clicked, the time base scrolls to the past with the specified scroll width. The Next becomes active. When the graph reaches the oldest data in the storage, Prev becomes inactive.

(2) Next Trend

When Next is left clicked, the time base scrolls to the future with the specified scroll width. When the graph reaches the present time, Next becomes inactive.

6.9.3 Plotting interval

The plotting interval and the time of typical data of Daily / Weekly / Monthly / Annual Trend are set by system initial setting.
Their default values are shown in Table 6.9.1are collection cycle of trend data is 1 minute.

Table 6.9.1 Default values of plotting interval

	Initial	X-axis magnified by 2	X-axis magnified by 4	X-axis magnified by 8	X-axis magnified by 16	X-axis magnified by 32
Daily Trend	1 min	1 min	1 min	1 min	1 min	1 min
Weekly Trend	10 min	5 min	5 min	1 min	1 min	1 min
Monthly Trend	60 min	30 min	10 min	5 min	5 min	5 min
Annual Trend	1 day	6 hours	3 hours	1 hours	1 hours	1 hours

1 hour typical data time: 00 minute (every O'clock)
1 day typical data time: 14 hour 00 minute

This means that the Weekly Trend and the Monthly Trend plot the data hourly on the hour while the Annual Trend plots the data at 1400 hrs . When the X-axis of the Annual Trend is magnified by 2, the Trend graph plots the data at 0200, 0800, 1400 and 2000 hrs.

The plotting interval of Free Trend becomes as follows:
When the period specified by the "Select Date" dialog is 1 day, 2 to 8 days, 9 to 50 days, and 51 days or more, each plotting period is set in accordance with the Daily Trend, the Weekly Trend, the Monthly Trend and the Annual Trend, respectively.

You can move cursor by dragging a mouse.
The cursor can stop at a plotted point only. When moving the mouse from one plotted point to another, the cursor moves to the second plotted point if the mouse moves more than a half of distance between these two plotted points.

6.9.4 Cursor point

Normally a cursor is displayed in a graph area and the time of cursor point is indicated at the bottom of the cursor. The data of the cursor point of each trend is displayed in the table at the bottom of the window.

The cursor is displayed initially at the center point of the X-axis. The cursor does not move in the display updating mode screen or by the X-axis zoom-in operation.

The cursor may disappear from the visible zone by an X-axis zoom-in operation. In this case the cursor cannot be seen but retains the original cursor point.

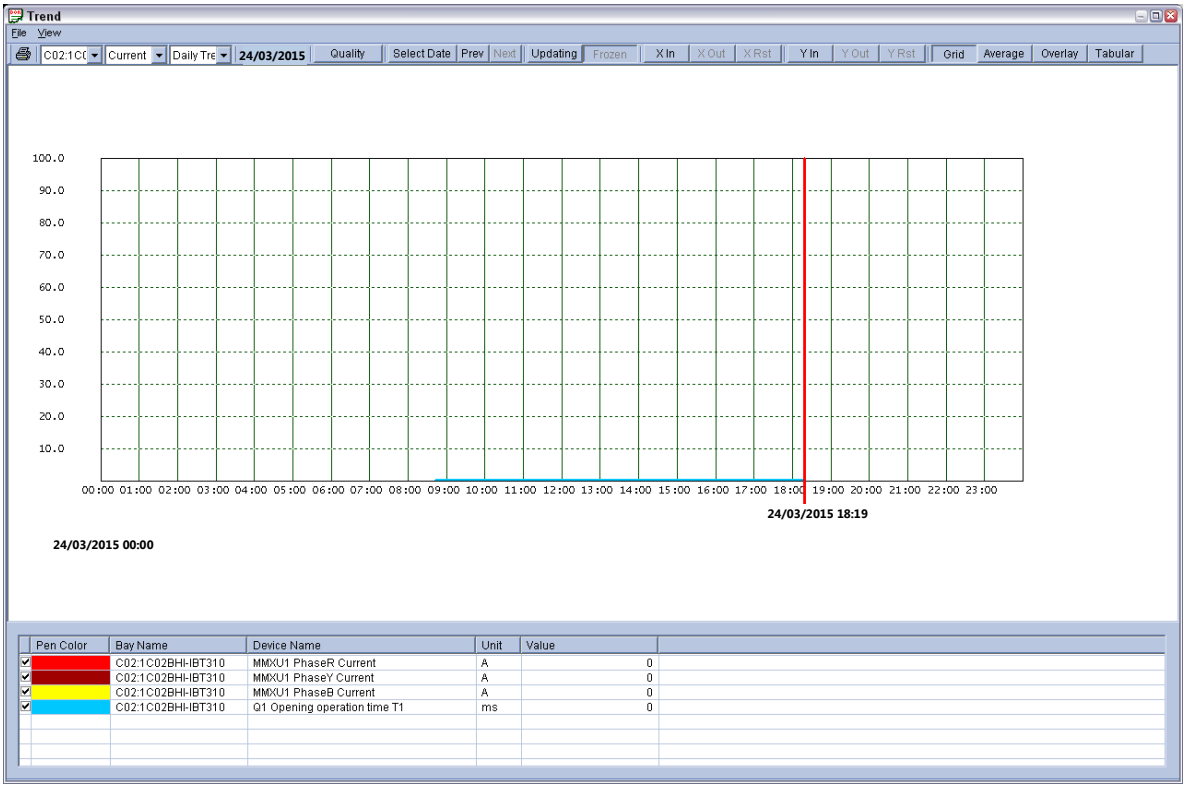
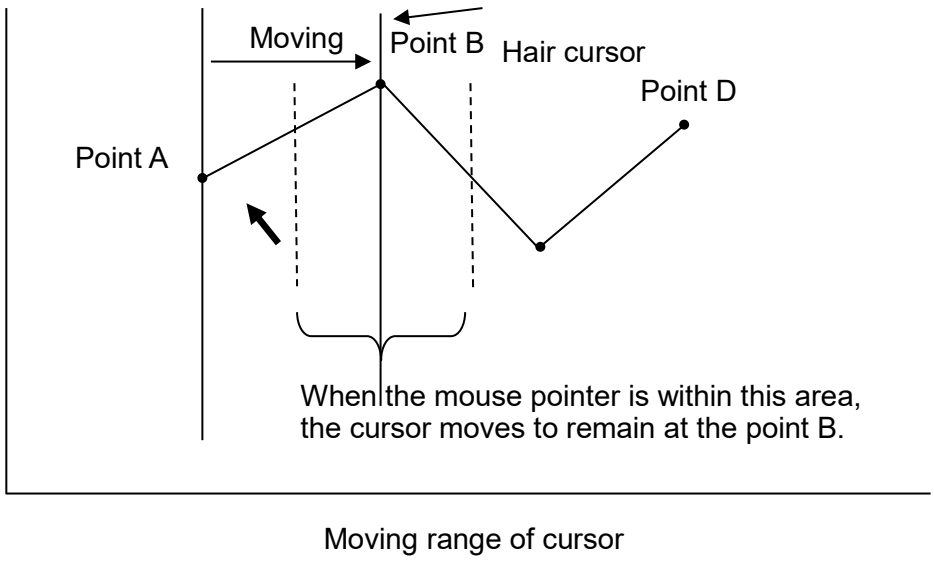


Figure 6.9.3 Cursor point



6.9.5 Updating mode and Frozen mode

When Updating on the Daily Trend window is clicked, the latest trend data is added and displayed. The trend is updated by a fixed cycle. This mode is called Updating mode.
When Updating is clicked while the “Trend” window not including the present time is displayed, the window switches to the “Trend” window that includes the present time. In this case, Updating becomes inactive and Frozen becomes active. Also Prev / Next become inactive.
When Frozen is clicked, fixed cycle updating of the latest Trend data is stopped. This mode is called Frozen mode. In this case, Updating and Prev become active and Frozen becomes inactive.

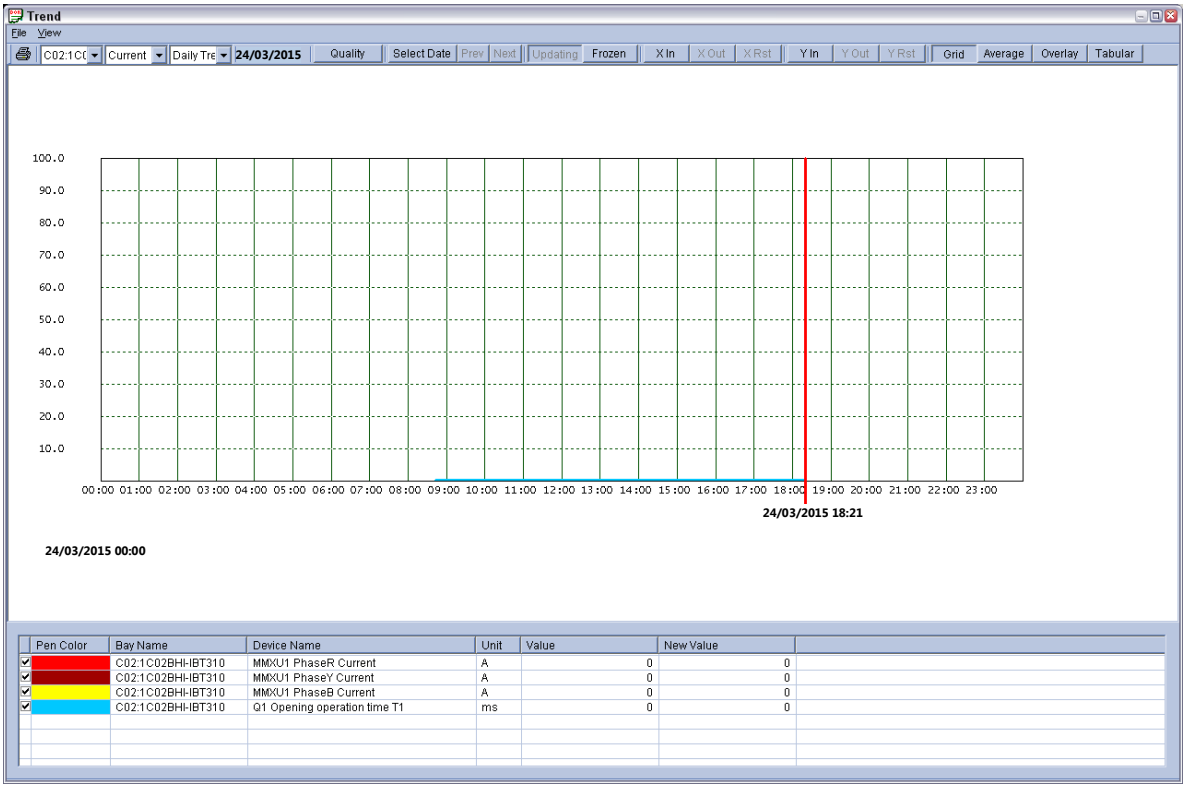


Figure 6.9.4 Updating Mode

6.9.6 Zoom

(1) Display magnified in X-axis

When X In is clicked, the graph is magnified by 2 times, toward both directions of the X-axis centering on the position of the cursor, and the horizontal scroll bar becomes active. X Out and X Rst become active.

You can change the display area in the X-axis direction by operating the horizontal scroll bar.

Maximum magnification is 32 times. When X In is clicked for 5 consecutive times, it becomes inactive.

When X Out is clicked, the window returns to the window before zooming operation. When X Rst is clicked, the window returns to the original window without magnification in the X-axis.

When the window returns to the original window before magnification, X Out and X Rst become inactive.

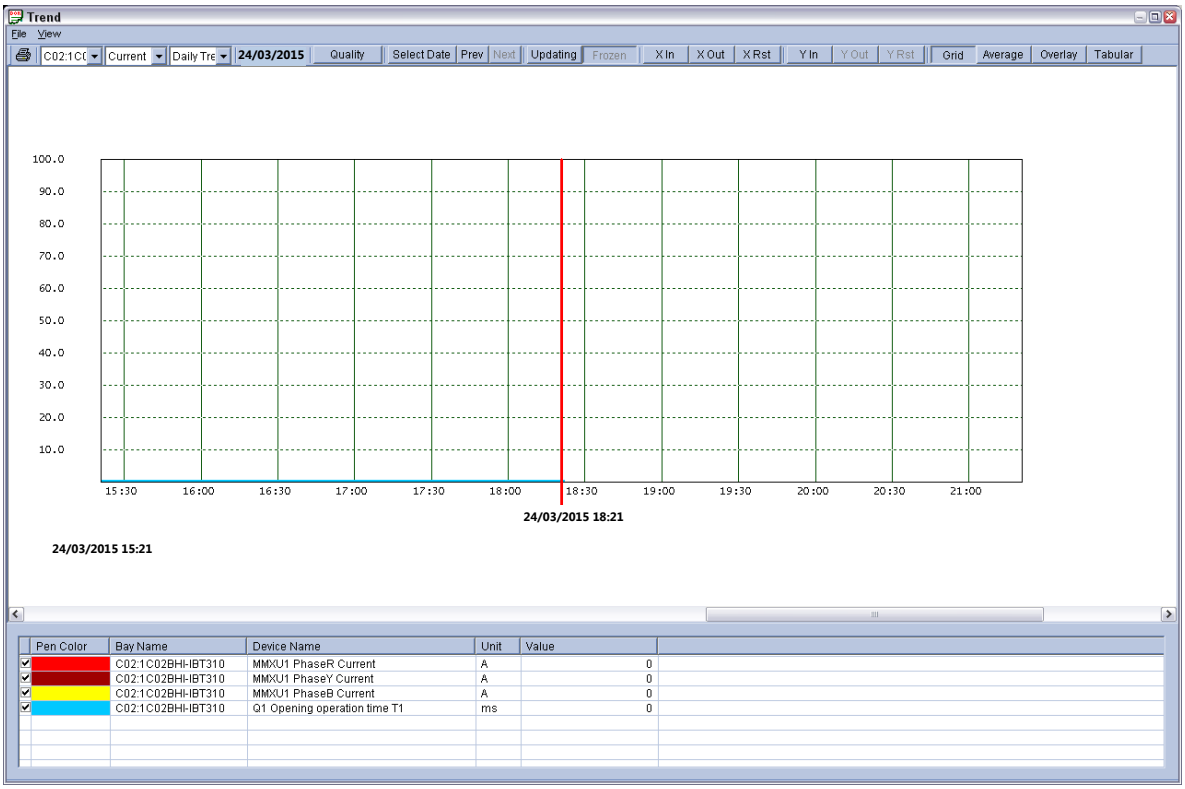


Figure 6.9.5 Zoomed-in Trend window

(2) Display magnified in Y-axis

When Y In is clicked, the graph is magnified by 2 times, toward both directions of the Y-axis centering on the center position of the Y-axis, and the vertical scroll bar becomes active. Y Out and Y Rst become active.

You can change the display area in the Y-axis direction by operating the vertical scroll bar.

Maximum magnification is 32 times. When Y In is clicked for 5 consecutive times, it becomes inactive.

When Y Out is clicked, the window returns to the window before zooming operation. When the Y Rst is clicked, the window returns to the original window without magnification in the Y-axis.

6.9.7 Display of average, maximum and minimum values

When Average is clicked, two blue cursors are displayed. The average, maximum and minimum values of each trend data plot in the interval between the start and end points of the two blue cursors are displayed.

The average, maximum and minimum values are calculated based not only on the plotted points but also on all 1 minute data between the blue cursor of the specified interval.

You can change the start and the end of the interval by dragging the corresponding blue cursor using the mouse. The time at the cursor point is indicated under the blue cursor. The blue cursor can stop at a plotted point only. It stops at the plotted point closer to the mouse pointer when the mouse pointer is in between two plotted points.

When Average is clicked with the blue cursor displayed on the window, the blue cursor, average, maximum and minimum values disappear from the window.
The initial display position of the blue cursor is at both ends of X-axis of the currently displayed window.
The cursor may disappear from the visible zone following X-axis zoom-in operation. In this case the hair cursor cannot be seen but retains the original cursor point. When Average is clicked twice without the blue cursor in the window, the blue cursors re-appear at both ends of the X-axis.

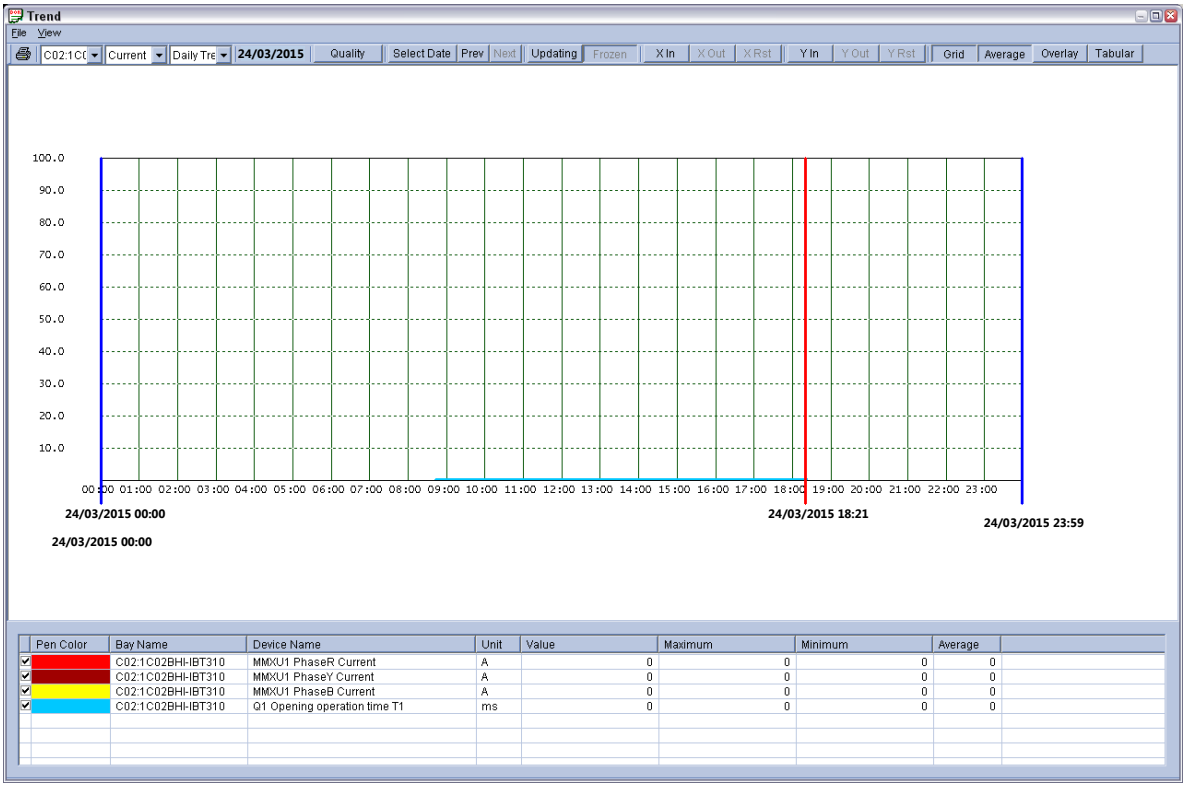


Figure 6.9.6 Display of Average, Maximum, Minimum values in the Trend window

6.9.8 Tabular format display

When Tabular on the “Trend” window is clicked, Trend data is displayed in tabular format.

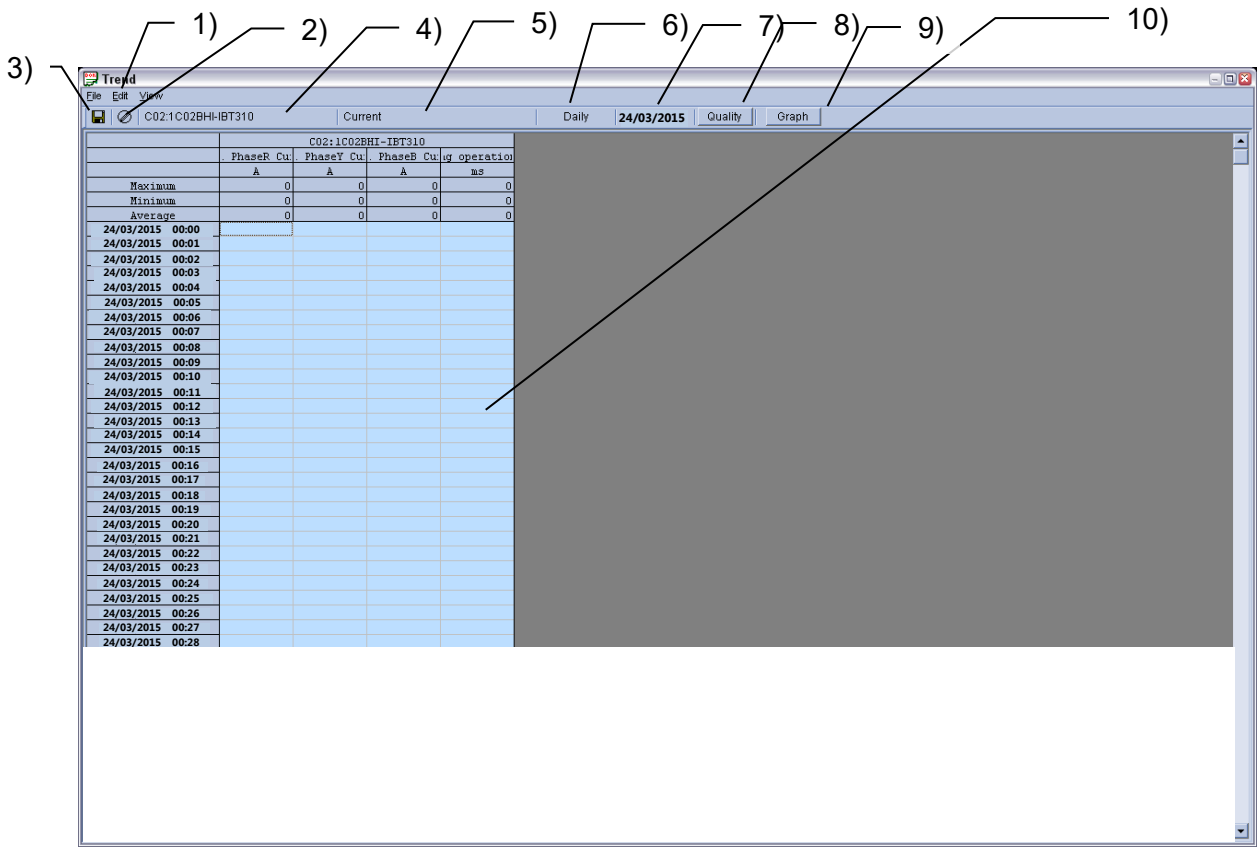


Figure 6.9.7 Tabular format display of Trend data

1) Menu bar:

[File]	Save:	Displays the “Save” dialog.
[Edit]	Edit:	Displays the “Data Edit” dialog.
[View]	Quality:	Displays quality of the data (*)
	Graph:	Displays Trend data in graph format

(*) I: invisible
Q: Questionable
B: Update blocking
M: Manual Override
D: Connection failure
L: Limit over
I: Uncollected
T: Test

2) Data edit icon:

You can edit the measurement value manually in the Daily Trend window.
Select the cell and click “Edit” icon (“ ” icon) or [Edit] from the menu bar to open the “Data Edit” dialog.
When the edited value is input and Save is clicked, the edited value is reflected to the tabular format window.

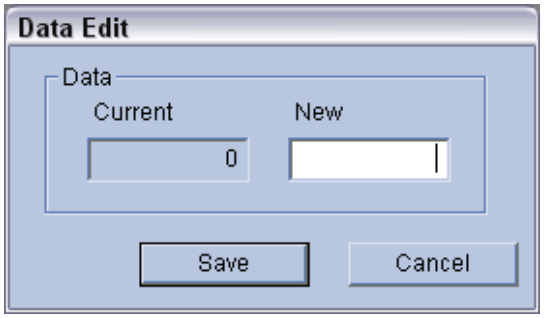


Figure 6.9.8 Data Edit dialog

3) Save icon:
Click “ ” icon at the upper right of the tabular format window. The dialog to specify the saving period opens. Specify the date and click OK.

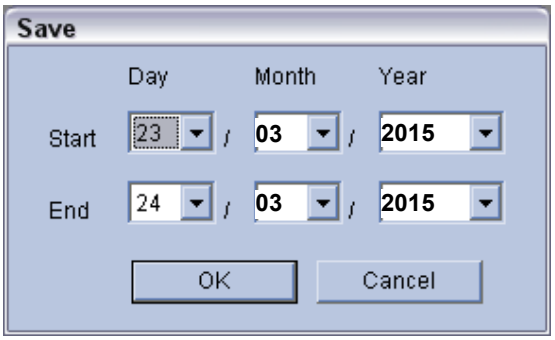


Figure 6.9.9 Save dialog

After that, a dialog to save the CSV format opens. The data currently displayed in the tabular format is output to the specified file in CSV format.

4) Bay name display area: Bay name is displayed.

5) Group name display area: Group name currently displayed on the screen is displayed.

6) Time base display area: Daily, Weekly, Monthly or Annual is displayed.

7) Start date area:
The date and time to start displaying the data is displayed. The display varies depending on the time base.
When Time base is Daily and Weekly: day/month/year
When Time base is Monthly: month/year
When Time base is Annual: year

8) Quality: Click this button to display the quality of the data.

9) Graph: Click this button to close the tabular format.

10) Data display area:

- How to calculate maximum, minimum, and average values

  The maximum, minimum and average values are calculated excluding elements with missing data.

  Elements with missing data are not included in the parameter of average.

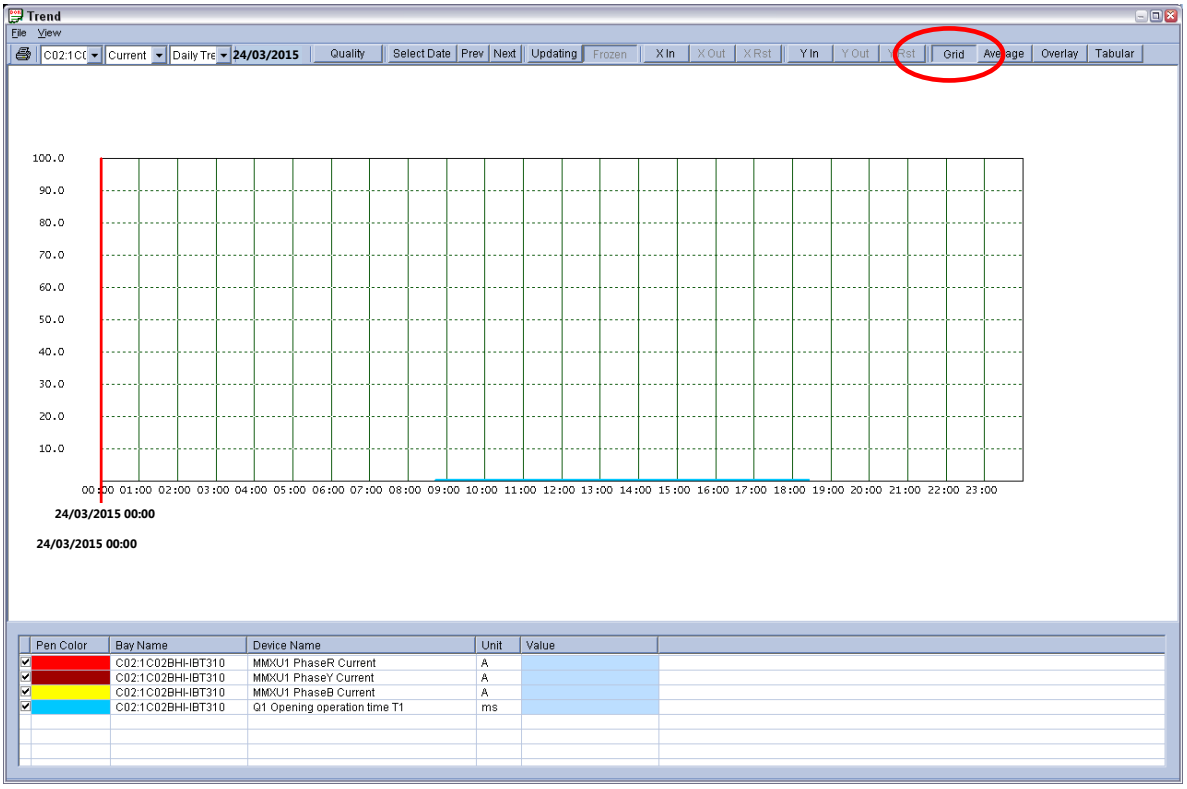
  Therefore, all these values (max., min, and average) are regarded normal.

- Display is in the following table.

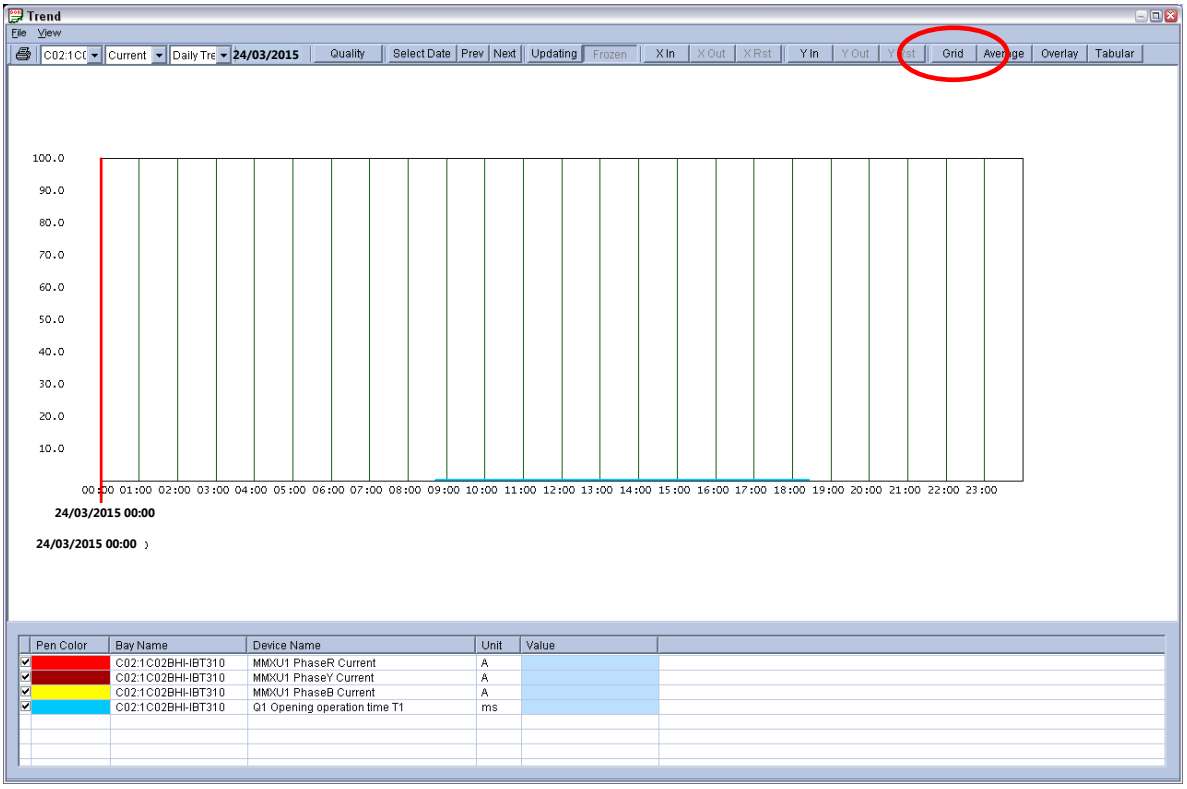
Status	Window
Normal (Collected)	Character: Ordinary color Background: Ordinary color
Defective (Collected, Quality abnormal)	Previous value Character: Ordinary color Background: Defective color
Defective (Not collected, Quality normal)	Previous value Character: Ordinary color Background: Defective color
Not yet collected	Blank

6.9.9 Display/Not display of grid

When Grid in the “Trend” window is clicked while grid line is displayed, the grid line of Y-axis becomes invisible and Grid changes to be not depressed. When Grid is clicked again, the grid line of Y-axis becomes visible and Grid changes to pressed status.



(Grid is displayed)



(Grid is not displayed)

Figure 6.9.10 Grid line of the Trend window display/not display

6.9.10 Group Edit dialog

If [File]-[Group Edit] is selected from the menu bar of the “Trend” window, the “Group Edit” dialog opens.

To edit an existing group, select the group name from Group List and click Edit. The “Group Property” dialog opens.

To create a new group, click Add of the “Group Edit” dialog. The “Group Property” dialog shown opens.

If OK is clicked, the “Trend” window of the last edited group is displayed.

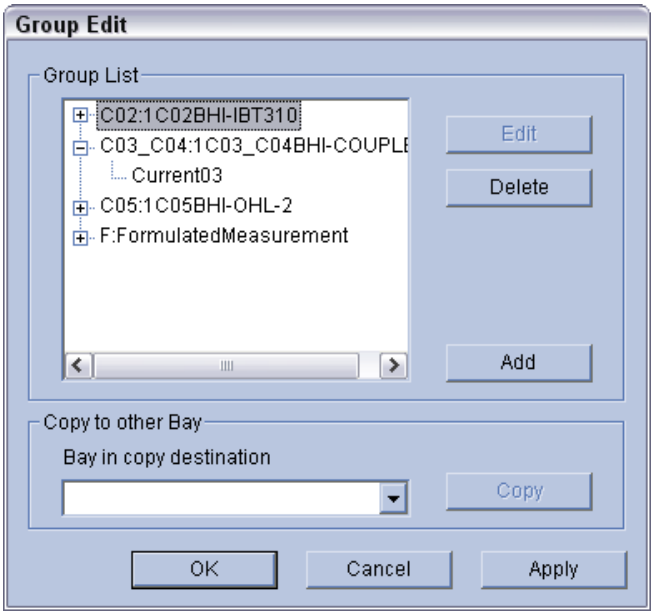


Figure 6.9.11 Group Edi dialog

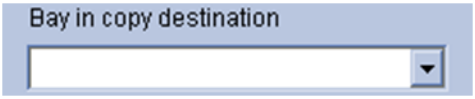
Group List display area: Displays the list of group names.

Add: Displays the “Group Property” dialog to register a new group.

Edit: Displays the details of the group selected from Group List display area in the “Group Property” dialog.

Delete :Deletes the bay or group selected in the Group List display area.

“Bay in copy destination” selection combo box: Displays the copy destination bay.



Copy: Copy the group to the bay selected in the above combo box. A confirmation dialog is displayed if the same group name exists in the bay of copy destination.

6.9.11 Group Property dialog

The “Group Property” dialog is used to add a new group or edit the contents of an existing group. This dialog is displayed when Add or Edit is clicked in the “Group Edit” dialog.

Bay Name, Device Name, Unit, Pen Colour, and Pen Width of the member selected from the upper part of the dialog are displayed in the lower part.
In the initial display of each element of a new group is displayed blank but Pen Colour is assigned as a default setting.

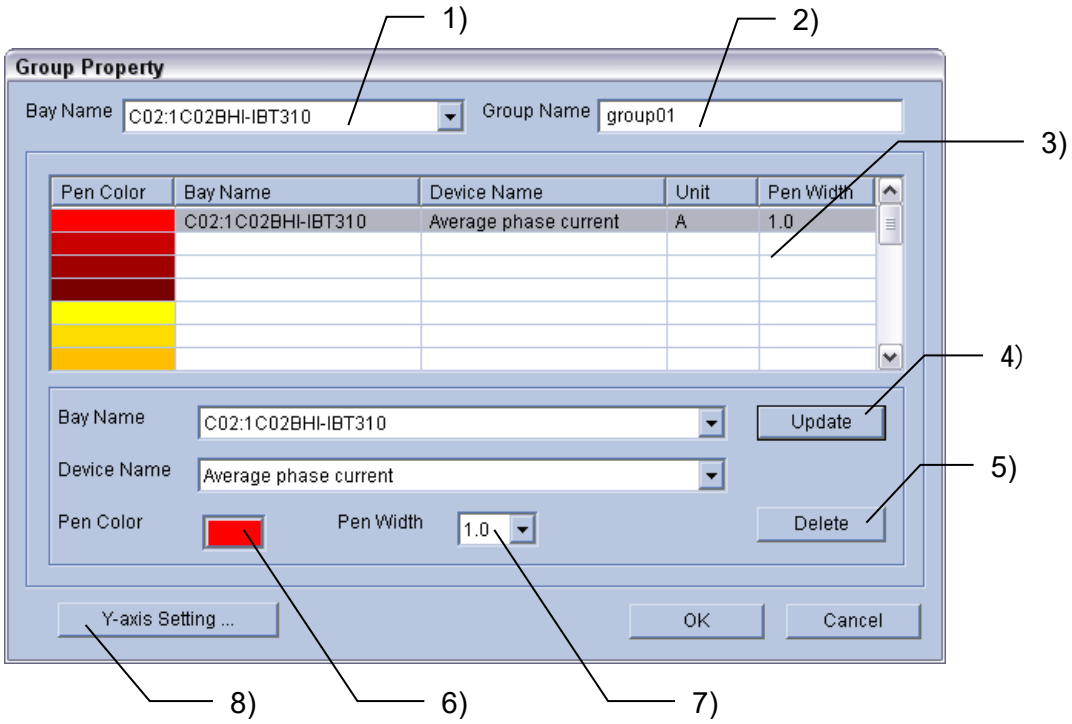


Figure 6.9.12 Group Property dialog

1) Bay Name combo box: Select the bay to which the group belongs.
2) Group name: Input the name of trend group from keyboard.
3) Member list:
   This list displays the information to be displayed in the graph (Bay Name, Device Name, Unit, Pen Color and Pen Width). Maximum 20 members can be registered.
4) Update:
   If an item displayed in the lower part of the dialog is changed and this button is clicked, the changed item is reflected to the Member list.
5) Delete:
   If the member you want to delete is selected from the Member list displayed in the upper part of the dialog and this button is clicked, the corresponding element is deleted and Bay Name, Device Name and Unit are cleared.
6) “Pen Color”:
   Pen Color specifies the color of a polygonal line. Double clicking opens the color palette.
7) “Pen Width”:
   Pen Width specifies the line width of a polygonal line.
8) Y-axis Setting…:
   The “Y-axis Setting” dialog is displayed when this button is clicked.

6.9.12 Y-Axis Setting for the Trend window

If Y-axis Setting… of the “Group Property” dialog is clicked, the “Y-axis Setting” dialog is displayed. Normally the Y-axis area of the “Trend” window is set to “Auto” position. If you want to change the Y-axis area, change “Auto” position to “Manual” position and set the parameter appropriately. Y-axis setting is saved for each group.

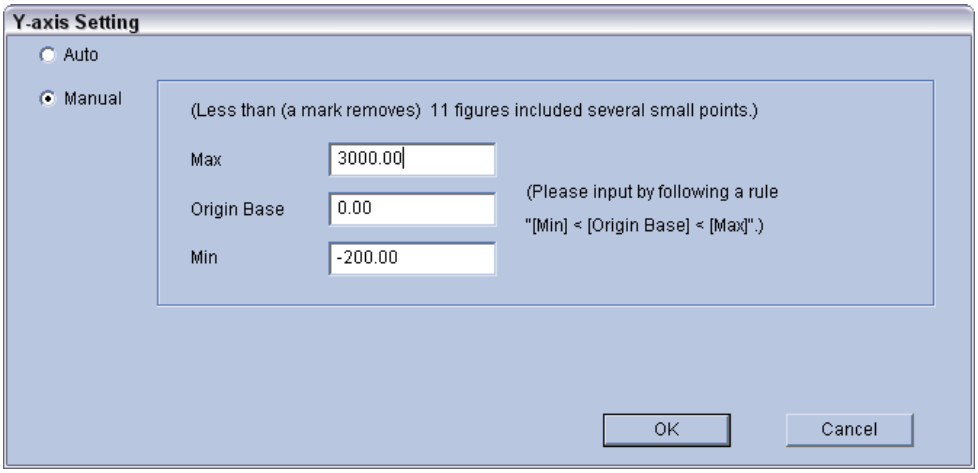


Figure 6.9.13 Y-Axis Setting dialog

1) Max

Input the maximum value of the Y-Axis.

2) Origin Base

Input the value of the crossing point with X-Axis.

3) Min

Input the minimum value of the Y-Axis.

6.9.13 Overlay dialog

The “Overlay” dialog is used to overlay a specified trend onto past data.
When Overlay in the “Trend” window in graph display is clicked, the “Overlay” dialog opens.
Specify the trend graph to be the base and the date (Day, Month, and Year) of data to be overlaid.
When OK is clicked, the graph specified as the base is displayed with the past data and the window changes to Frozen mode.

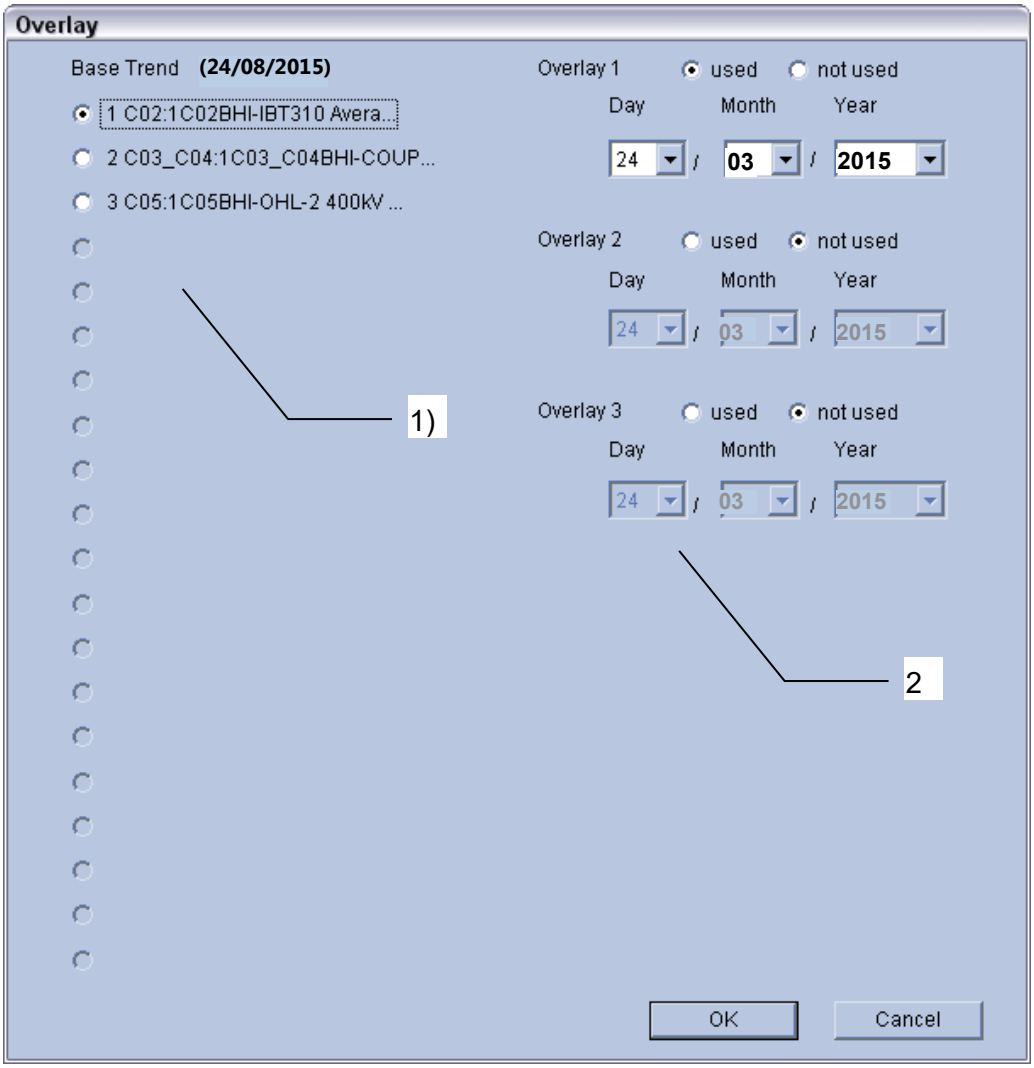


Figure 6.9.14 Overlay dialog

1) Base Trend selection area: Select the Trend to be the base

2) Overlay Trend selection area: Select the date of the Trend to overlay on the base Trend.

6.10 RSM Dialogs

6.10.1 RSM dialog

The “RSM” dialog is used to start the RSM software.

This dialog is displayed when the Relay in the main menu bar is clicked and RSM is selected.

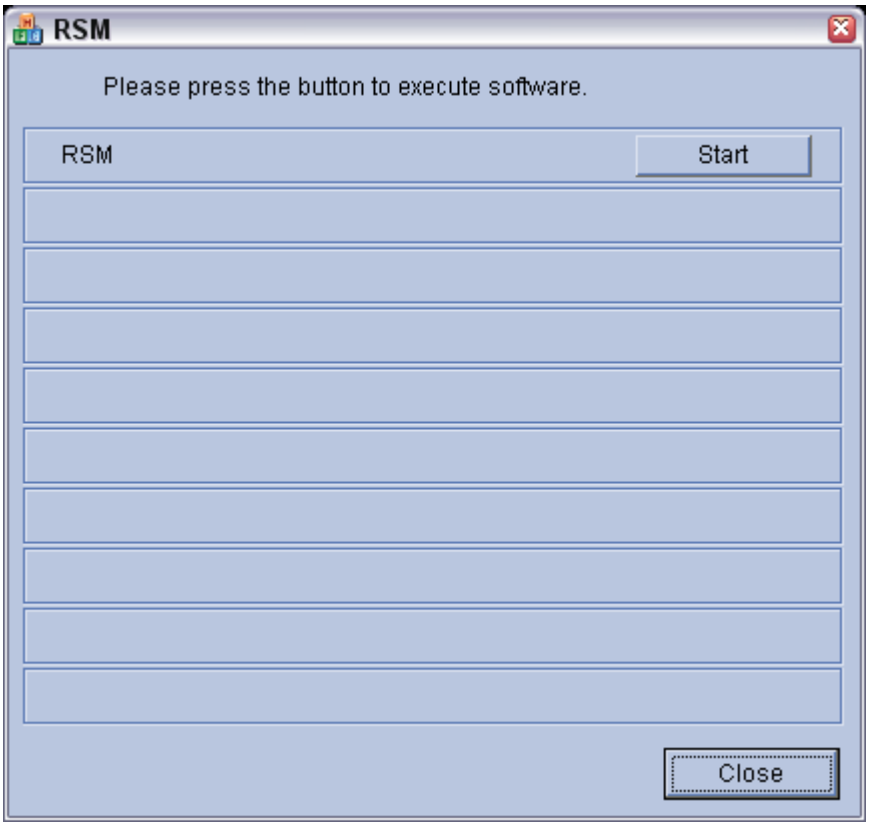


Figure 6.10.1 RSM dialog

Start: When this button is clicked, the RSM software is started.

6.10.2 Select Disturbance Record dialog

The “Select Disturbance Record” dialog is used to display the disturbance waveform of the selected relay.

This dialog is displayed by clicking Relay → Disturbance Record from main menu bar or by right-clicking the of the relay symbol in the “System” window and select “View Disturbance Record” from the context menu.

(1) List of relays

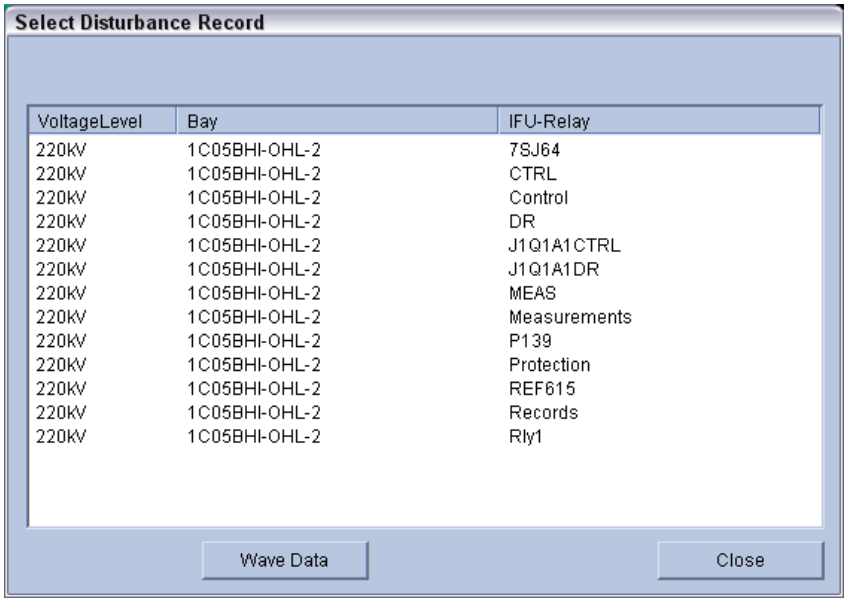


Figure 6.10.2 Select Disturbance Record dialog (list of relays)

Relay selection area: Relays in the system are listed. Double-clicking a relay displays the list of disturbance record of the relay.

VoltageLevel	Bay	IFU-Relay
220kV	1C05BHI-OHL-2	7SJ64

Wave Data: Clicking this button after selecting a relay in the relay selection area or double-clicking a relay in the relay selection area displays the list of disturbance records.

(2) List of disturbance records

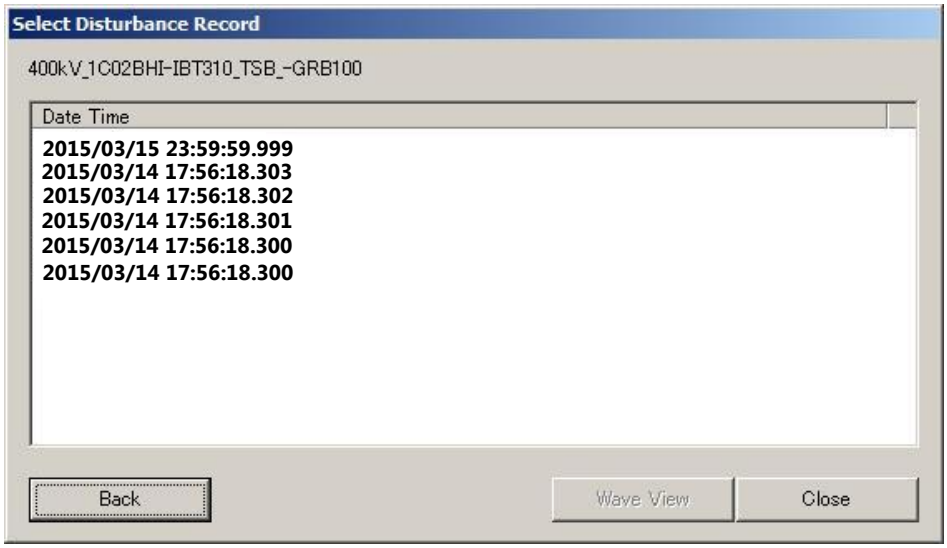


Figure 6.10.3 Select Disturbance Record dialog (list of disturbance records)

Subtitle area: Display format is as follows;

400kV_1C02BHI-IBT310_TSB_-GRB100

In case of IFU relay: Voltage level_Bay name_IFU name_relay name

In case of relay other than IFU relay: Voltage level_Bay name_Relay name

List of disturbance record area: Disturbance records' Date and Time are listed. Double-clicking a row displays the disturbance record.



Wave View: Clicking this button after selecting a row from the List of disturbance record area displays the disturbance record.

Back: By clicking this button the dialog changes to the list of relays.

6.11 Symbol

6.11.1 Outline

The objects to display various pieces of information and status in the HMI are called symbols.

This section describes each symbol.

6.11.2 Context menu

A context menu is provided from various symbols. The context menu is displayed by right-clicking the symbol.
The context menus are as in the table below.

Device symbol(CB,DS,ES)	Control Blocking Manual Override
Measurement value symbol	Limit Setting Blocking Manual override View Trend
Bay symbol	Bay Details Safety Tag Blocking
IED symbol	Detail Status Relay Setting Group Mode Change Reset LED Blocking View Disturbance Record
Printer symbol	State Change Alarm Lock
Tag symbol	Delete
Memorandum symbol	Icon Edit Delete

Displayed context menu of IED varies according to IED type.

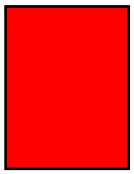
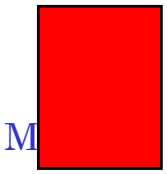
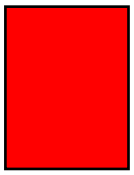
No.		BCU	BCPU	Toshiba Relay (IEC61850)	Relay of manufacturers other than Toshiba (IEC61850)	IFU	Toshiba Relay (IEC103)	Relay of manufacturers other than Toshiba (IEC103)
1	Detail Status	X	X	X	-	X	-	-
2	Relay Setting Group	-	X	X	X	-	X	X
3	Mode Change	X	X	X	-	X	-	-
4	Reset LED	-	X	X	X	-	X	X
5	Blocking	X	X	X	X	X	X	X
6	View Disturbance Record	-	X	X	-	-	X	-

X: Context menu is displayed. -: Context menu is not displayed

6.11.3 Symbols with override setting and blocking setting

Symbols with override or blocking setting are displayed with a mark indicating setting status on the symbol.

i.g.) CB symbol

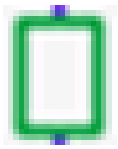
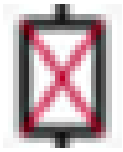
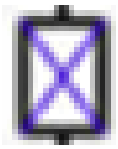
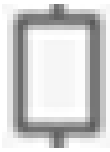
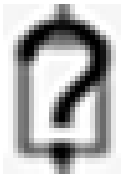
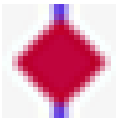
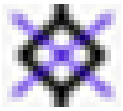
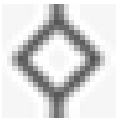
Ordinary	Override setting	Blocking setting
		

6.11.4 Details of each symbol

This subsection describes the list of symbols, type of the context menu and the operation characteristic of each symbol.

1）CB, DS, ES Symbols

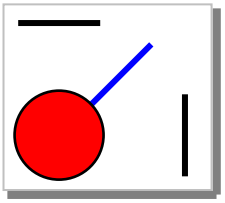
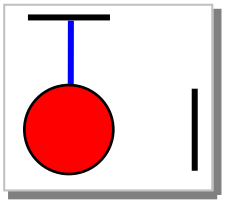
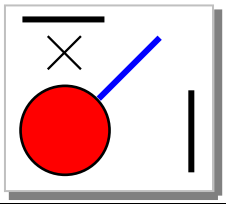
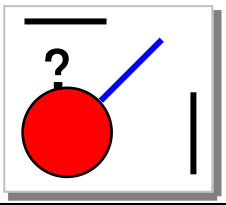
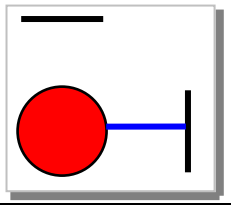
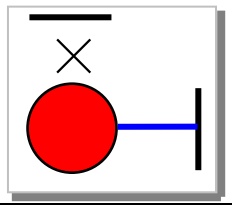
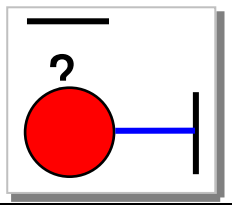
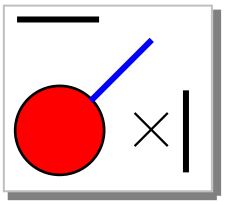
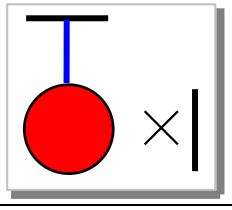
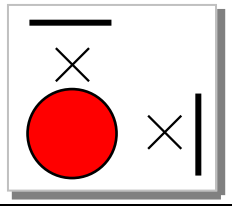
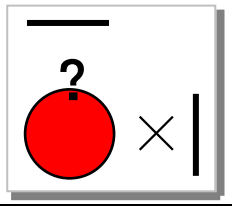
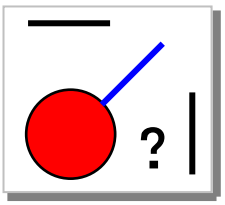
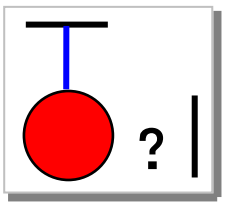
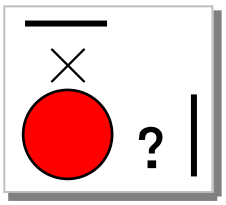
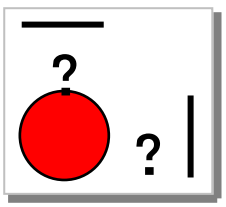
Table 6.11.1 List of symbols

Status	Open	Close	Traveling	Faulty	Intermediate	Connection failure	Unknown
Symbol （CB）							
Symbol (DS,ES)							
Dialogs at clicking	Left-click: Displays the “Control” dialog Right-click: Displays the following context menu. Control: Displays the “Control” dialog. Blocking: Displays the “Blocking” dialog. Manual Override: Displays the “Manual Override” dialog.						

2) 3-Position device (Combined DS/ES)

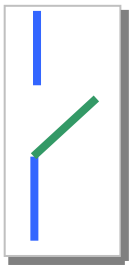
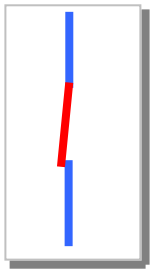
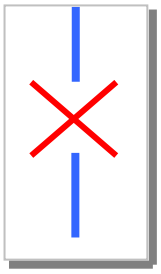
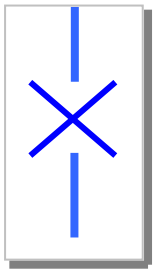
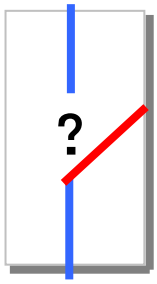
This symbol is used for devices that have 3 status conditions.

Table 6.11.2 List of 3-POS device symbols

ES \ DS	Open	Close	Faulty	Unkown
Open				
Close				
Faulty				
Unkown				
Dailogs at clicking	Click: Displays the following context menu. Control: Displays the “Control” dialog. Blocking: Displays the “Blocking” dialog. Manual Override: Displays the “Manual Override” dialog.			

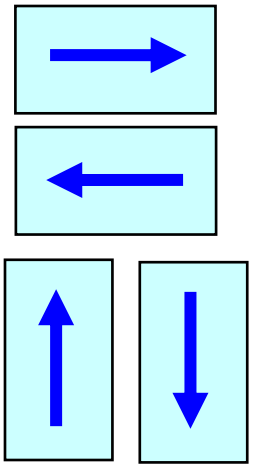
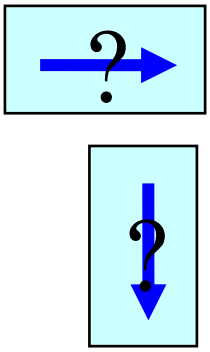
3) Device status display symbol for special request

Table 6.11.3 List of device status display symbols for special request

Status	Open	Close	Faulty	Undefined	Unknown
Symbol					
Dialog at clicking	Left-click: Displays the “Control” dialog Right-click: Displays the following context menu. Control: Displays the “Control” dialog. Blocking: Displays the “Blocking” dialog. Manual Override: Displays the “Manual Override” dialog.				

4) Power flow status display

Table 6.11.4 List of power flow direction indications

Status	Normal	Unknown
Symbol		

5) Single Line diagram status

(A) In case of busbar coloring specification

Table 6.11.5 List of status display of live/dead (1)

Status	Live(*)	Dead	Unknown	Contradiction	Earth
Symbol					

* The color varies depending on the voltage level.

(B) In case of line name coloring specification

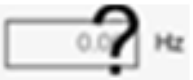
Table 6.11.6 List of status display of live/dead (2)

Status	Live(*)	Dead	Unknown
Symbol	**Line name**	**Line name**	Line name

* The color varies depending on the voltage level.

6) Measurement value

Table 6.11.7 List of display of measurement value

Status	Normality	Faulty	Connection Failure	Unknown
Symbol				
Dialog at clicking Left-click: Displays “Limit Setting” dialog. Right -click: Displays the following context menu. Limit Setting: Displays the “Limit Setting” dialog. Blocking: Displays the “Blocking” dialog. Manual Override: Displays the “Manual Override” dialog. View Trend: Displays the trend of the corresponding measurement value (The “Trend” window).				

7) Bay label



Dialog at clicking

Left-click: Displays a bay single diagram and the “Bay Information” dialog.

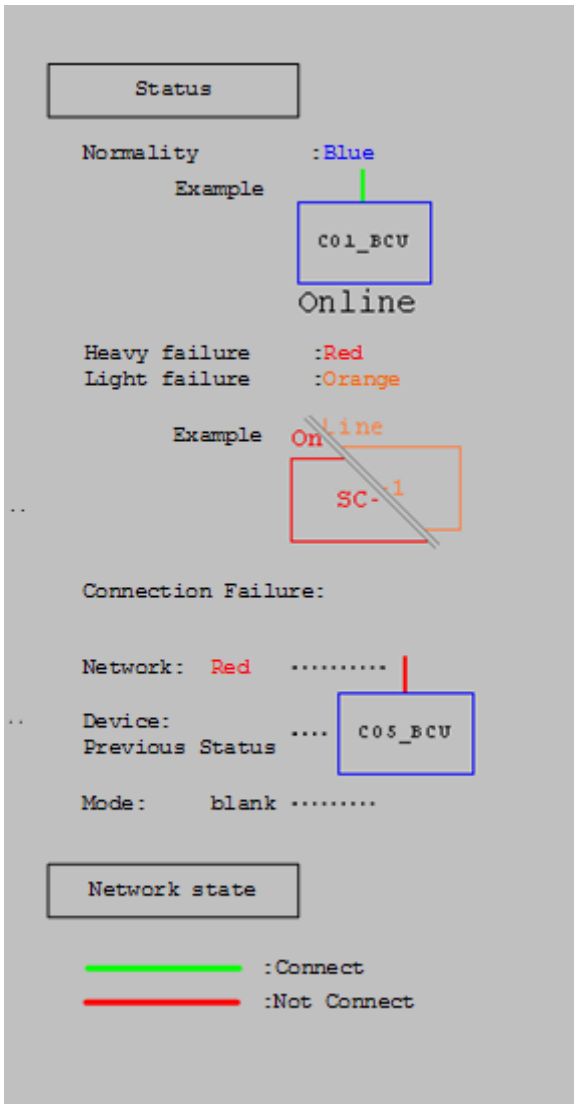
Right-click: Displays the following context menu.

Bay Details: Displays a bay single diagram and the “Bay Information” dialog.

Safety Tag: Displays the “Safety Tag” dialog.

Blocking: Displays the “Blocking” dialog.

8) Equipment and connecting lines in the “System” window



Equipmnt Status:

Normal: Blue with mode name (Online or Test)

Heavy failure: Red with mode name (Online or Test).

Light failure: Orange with mode name (Online or Test).

Connection failure:

Connection line: Red

Device: Shown in previous status color.

Mode name: Blank

Network status

Connected: Green

Not connected: Red

7 Multi-language representation

HMI screen of GSC1000-C is adopted the English (US Version) description as our standard. Multi-language description is also available by changing the configuration file.

HMI each screen and printer output can be represented by the local language.

8 Control Right

・GSC 1000 can be connected with up to Eight of RCC / LDC in the case of IEC 60870-5-101,104 communication, and the control right can be set for each RCC / LDC by change over switch “43RCC”. If 43RCC is not installed, GSC1000 can control from multiple RCC / LDC under the remote condition of change over switch “43R” that is located on the Station level.

・Setting 43R control right of local / remote operation can be set from the single line diagram window, BAY single diagram window, etc. by the following unit. In addition, 43R control right setting can only be changed from OWS / EWS, it can not be done from RCC / LDC.

-Substation unit

-Voltage class unit

-BAY unit

・Example of the control right of each layer including 43RCC is shown on Figure 8.1.

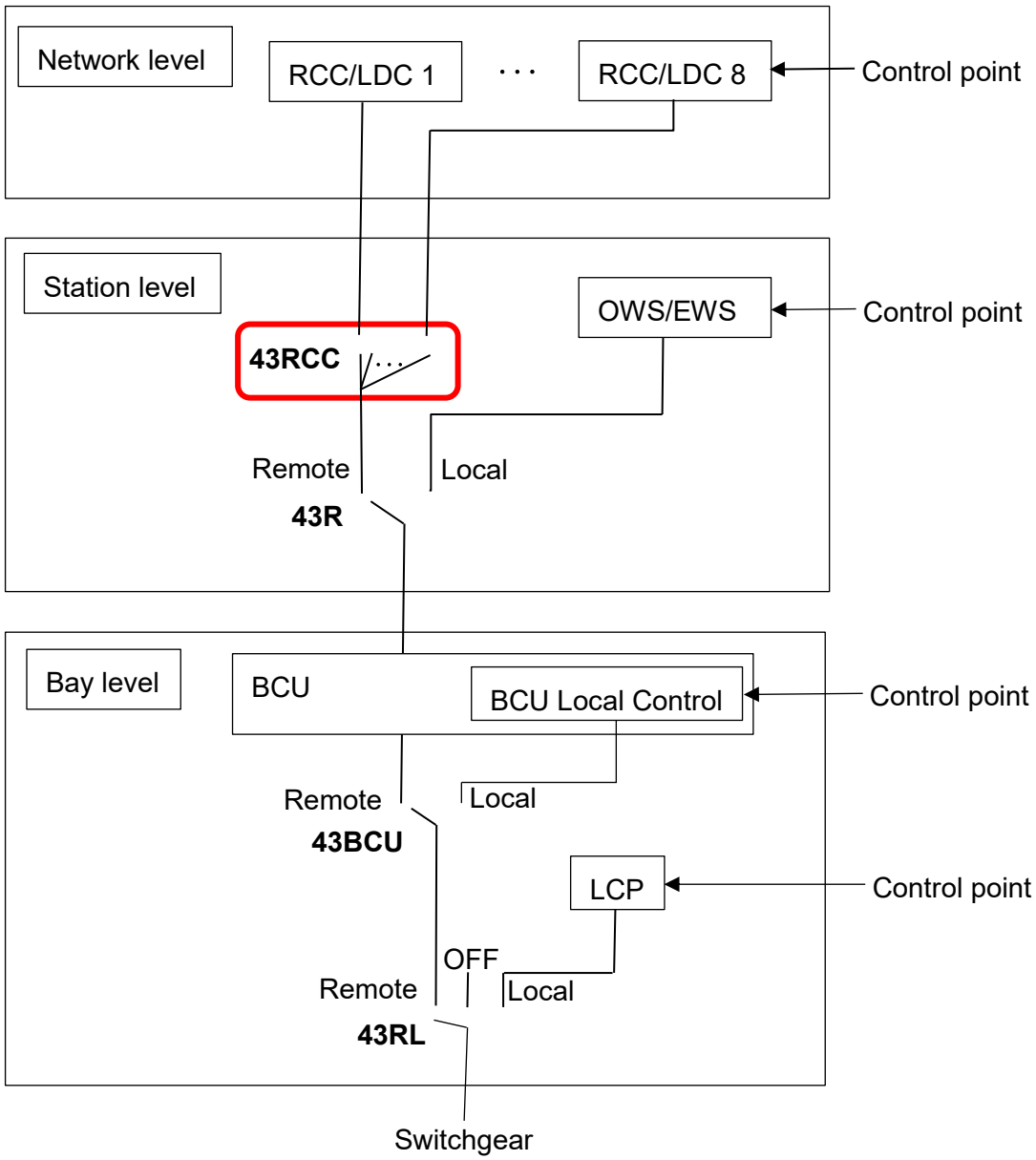


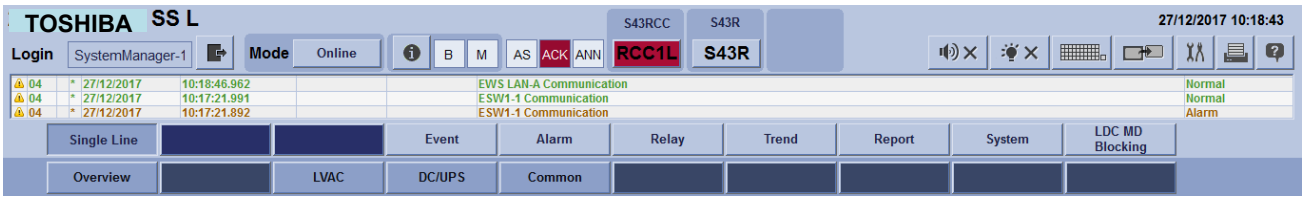
Figure 8.1 Example of control right including 43RCC

8.1 Setting of “43RCC” for control right change over switch

8.1.1 Display of “43RCC” for control right change over switch

By placing the class of SW43RCC using the Database Maintenance Tool, the control right can be set. How to display the “43RCC” from main menu is indicated below.

1) Display the main menu.







2) Check the S43RCC button. RCC name currently connected to SAS is displayed in red background (In the example, SAS and RCC1L are connected).

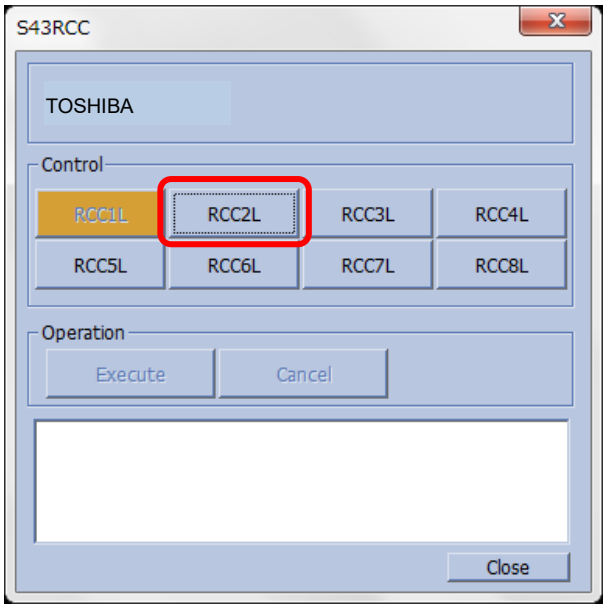
NOTE	If 43RCC is not connected to any RCC, S43RCC will be displayed as "---" in the green background as shown on the left.

8.1.2 Setting change of “43RCC”

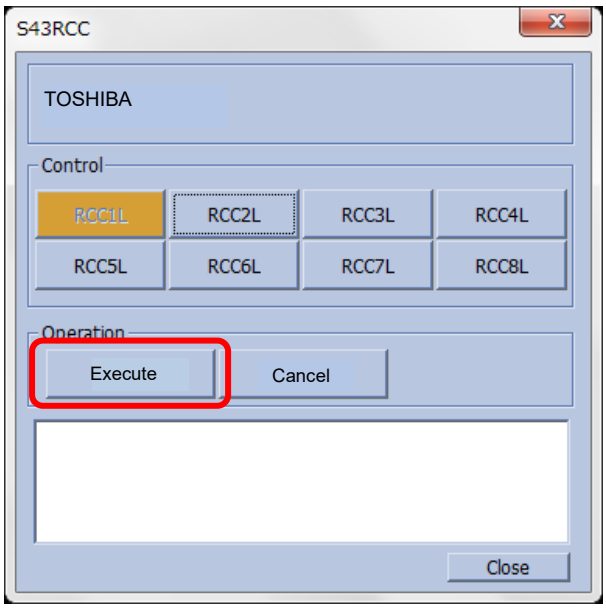
How to change the “43RCC” setting from main menu is indicated below.



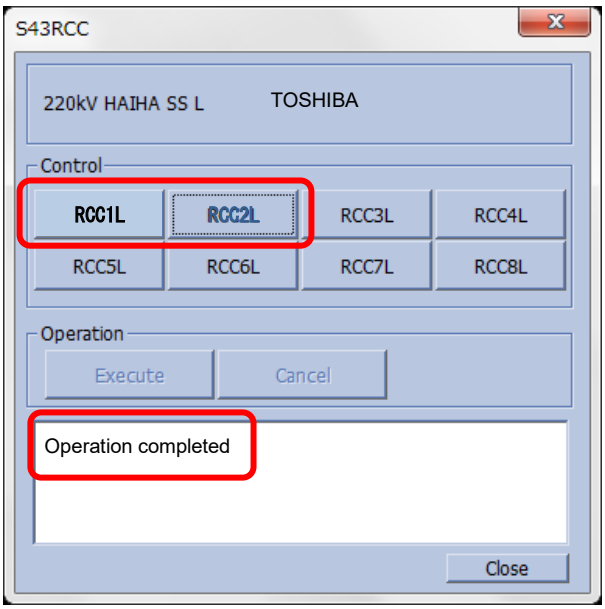
1) Click the S43RCC button on the main menu.



2) The S43RCC selection/control dialog is displayed. Button of RCC currently connected to SAS is displayed in orange background (RCC1L in this example), and the button is disabled. Click the RCC button to be changed (Click RCC2L in this example).



3) Two buttons in the Operation column become active. Click the Execute button.

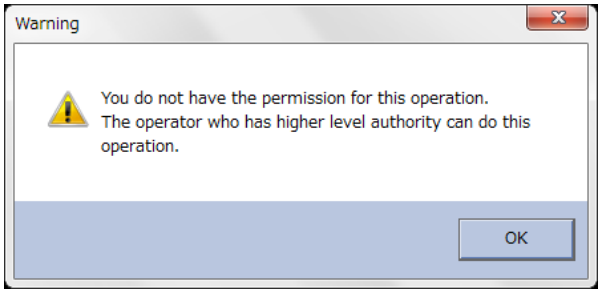


4) A message of operation completion is displayed.
The RCC2L button is displayed in orange background, and the RCC1L is displayed in blue background.
Also, the Operation column becomes non-active.

Click x button or Close button to exit.
When the control is completed successfully, the S43RCC selection/control dialog is closed.

NOTE

1.About for the change of control right by “43RCC”, security level “One” or more is necessary as standard. When changing the control right is performed under logging in with security level 0, the Warning dialog as shown on below is displayed and change of control right is not completed. Also, the security level can be changed by Security Setting Tool.



2.The control right change of 43RCC is possible from RCC under the IEC60870-5-101 or IEC60870-5-104 communication.

8.2 Setting of “43R” for control right change over switch

By placing the class of SW43R using the Database Maintenance Tool, the control right can be set in the following unit.

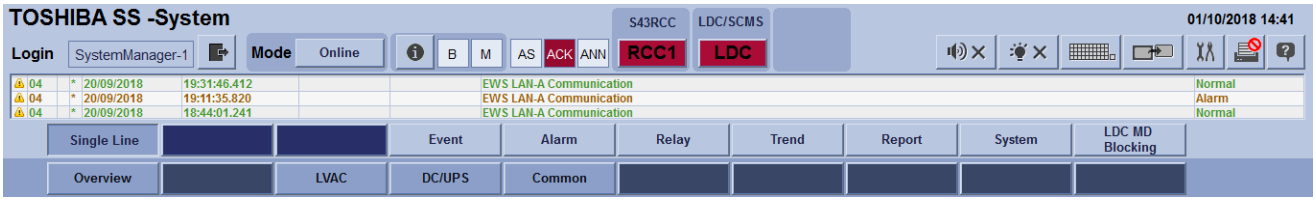
- Substation unit
- Voltage class unit
- BAY unit

TOSHIBA

8.2.1 "43R" setting by substation unit

How to set the 43R control right by substation unit is shown below.

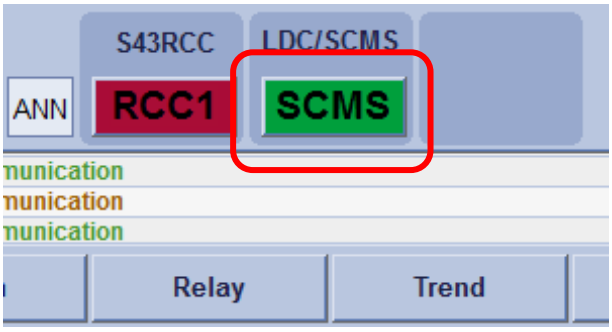
1) Display the main menu.



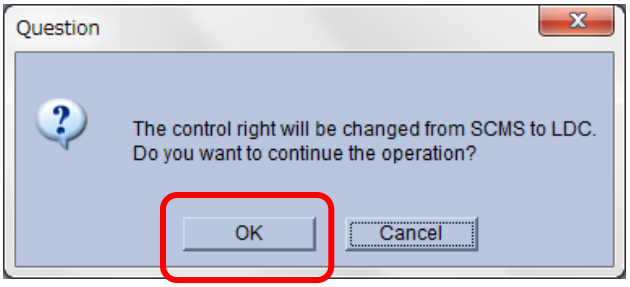
NOTE	If 43RCC is not set, S43R is displayed left-justified.



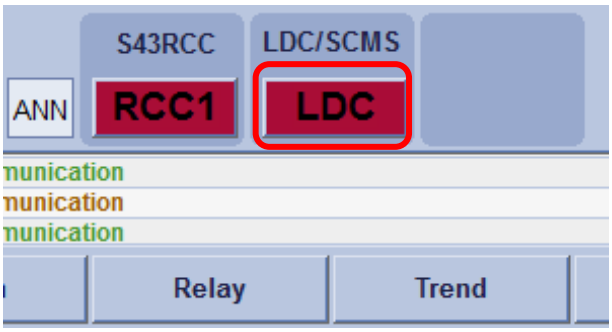
2) Check the button of S43R. In case, button is currently selected as Remote, S43R button is displayed in red background.



3) When S43R button is currently selected as Local, S43R button is displayed in green background.



4) Click the S43R button on the main menu. The Question dialog is displayed. Click OK.



5) S43R state is changed Remote from Local. S43R button displayed on the main menu is displayed in red background.
Note) When S43R is set to Local, control/operation can be possible only from OWS / EWS. If S43R is set to Remote, it can be possible only from all RCCs.

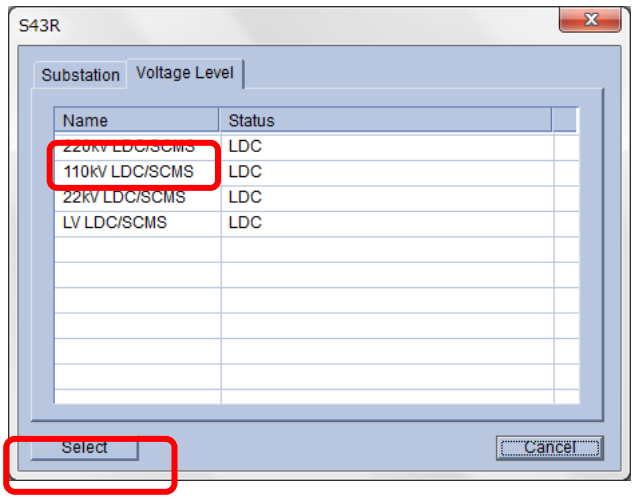
8.2.2 "43R" setting by voltage class unit

The control right can be set for each voltage class unit in the substation. How to set the 43R control right is shown below. When 43R set to Local, only equipment of voltage class that belongs 43R set to Local can be controlled from the HMI. And, when 43R set to Remote, only equipment of voltage class that belongs 43R set to Remote can be controlled from the RCC.

1) Display the main menu. S43R button displayed in main menu is gray background. Click S43R button.

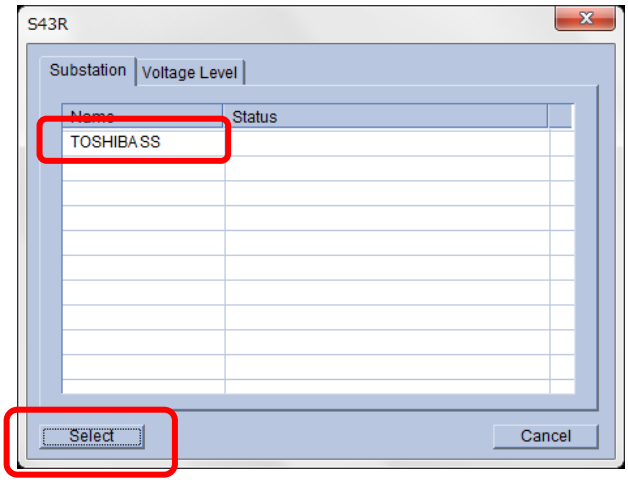


NOTE	If 43RCC is not set, S43R is displayed left-justified.

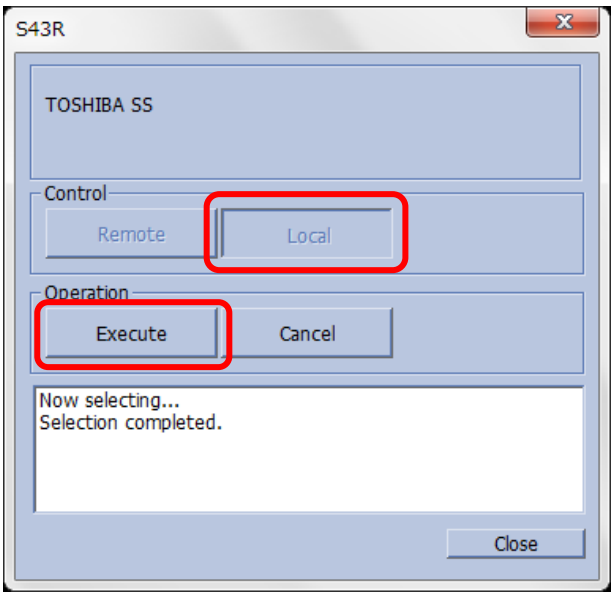


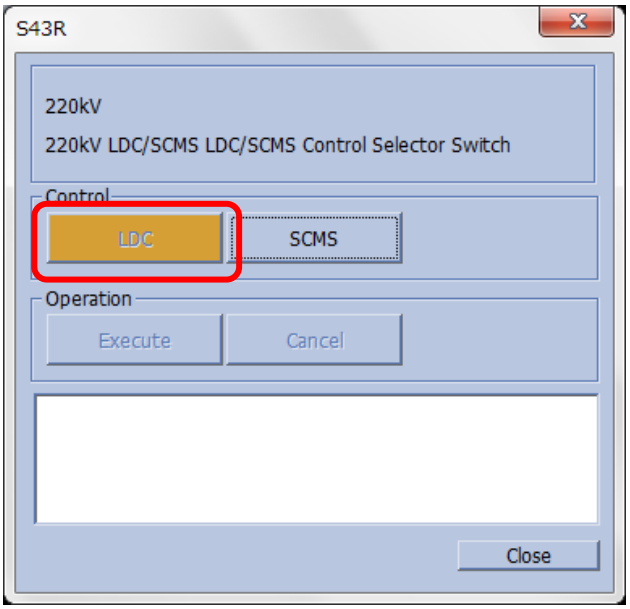
2) S43R dialog is displayed. The current S43R local/remote setting status is displayed for each voltage. Click the name of the Voltage Level that change the setting of the control right. And click Select button.

Note 1) When Voltage Level is set with Tool, the Substation tab which is the upper tab is also displayed (the Status column is blank). After selecting the substation name, click Select button.

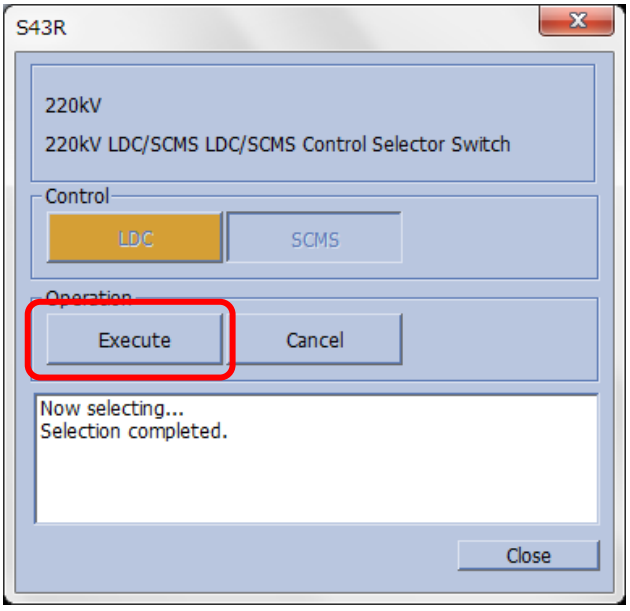


Note 2) S43R dialog is displayed. By selecting the Remote or Local button in the Control column and clicking Execute, all of 43R statuses can be set to Remote or Local at once.

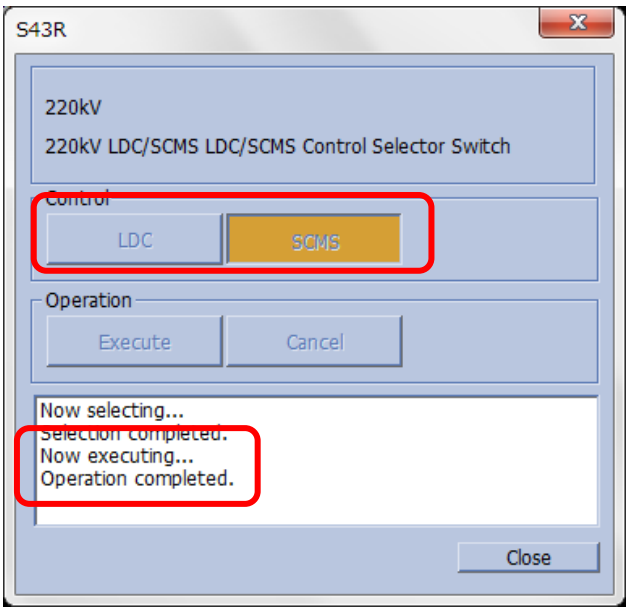




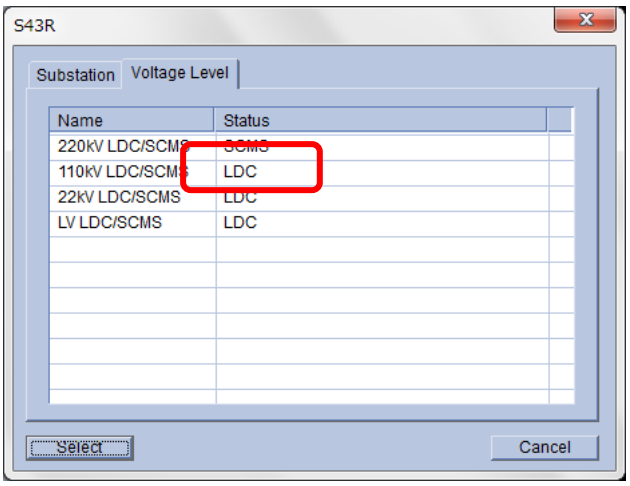
3) The S43R selection/control dialog of the selected voltage class is displayed. Button of S43R currently selected is displayed in orange background (LDC in this example), and the button is disabled. Click the SCMS button.



4) Two buttons in the Operation column become active. Click the Execute button.



5) A message of operation completion is displayed. The SCMS button is displayed in orange background, and the LDC button is displayed in blue background. Also, the Operation column becomes non-active.
When the control is completed successfully, the S43R selection/control dialog is closed.

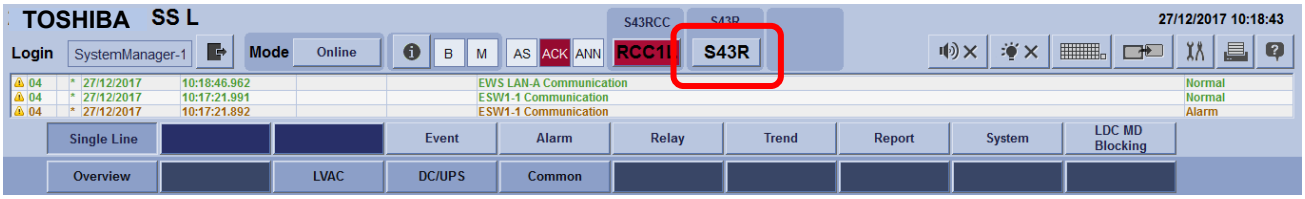


6) The column of Status of the S43R dialog is changed to SCMS.

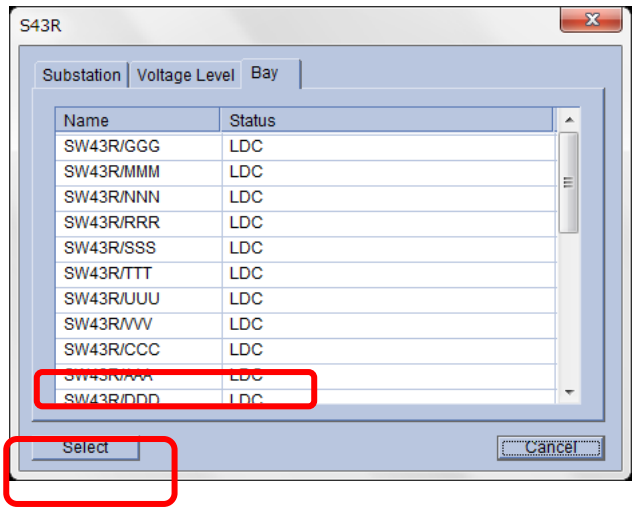
8.2.3 "43R" setting by each BAY unit

The control right can be set for each BAY unit in the substation. How to set the 43R control right is shown below. When 43R set to Local, only equipment of BAY that belongs 43R set to Local can be controlled from the HMI. And, when 43R set to Remote, only equipment of BAY that belongs 43R set to Remote can be controlled from the RCC.

1) Display the main menu. S43R button displayed in main menu is gray background. Click S43R button.

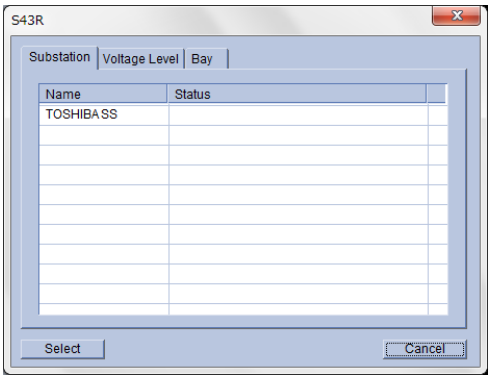


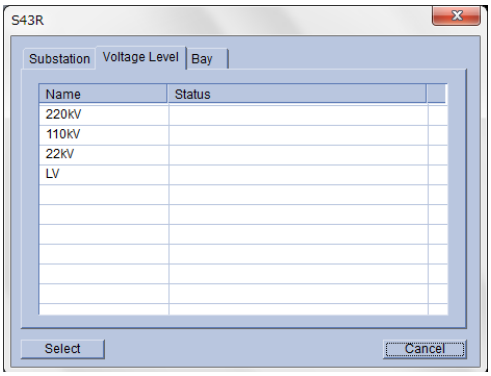
NOTE	If 43RCC is not set, S43R is displayed left-justified.

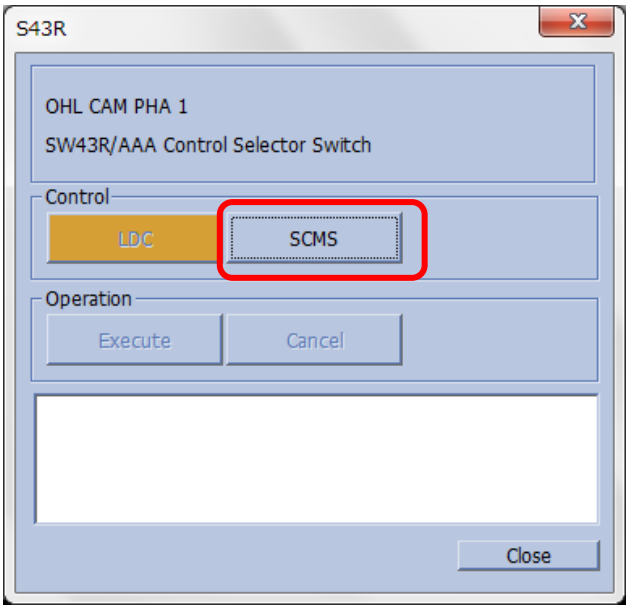


2) S43R dialog is displayed. The name of the 43R switch installed in each BAY is displayed in the Name column. The setting status of the current 43R is displayed in the Status column. Click the name of the Switch that change the setting of the control right. And click Select button.

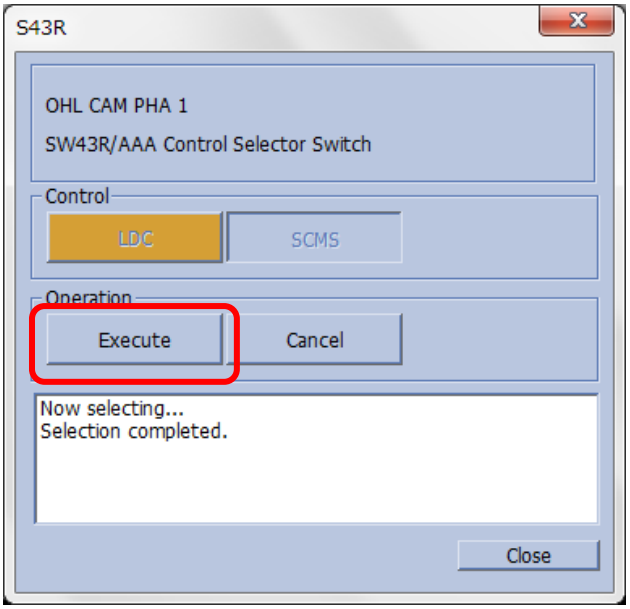
Note) When BAY is set with Tool, the Substation tab and Voltage Level tab which is the upper tab is also displayed (the Status column is blank). Select the substation name or Voltage Level. All of 43R statuses can be set to Remote or Local at once from the 43R selection/control dialog displayed after clicking the Select button. Refer to Note of Section 8.2.2 2).



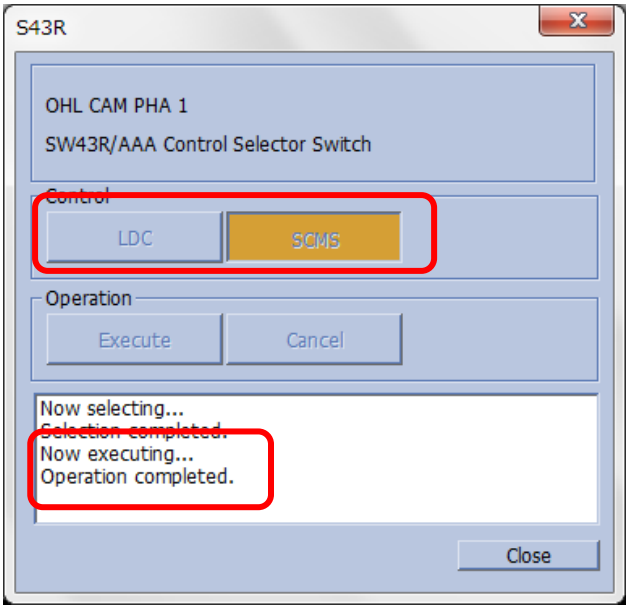




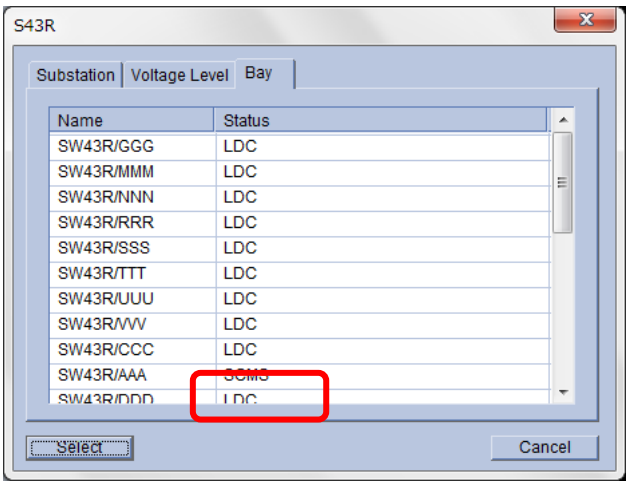
3) The 43R selection/control dialog of the selected BAY is displayed. Button of 43R currently selected is displayed in orange background (LDC in this example), and the button is disabled. Click the SCMS button.



4) Two buttons in the Operation column become active. Click the Execute button.



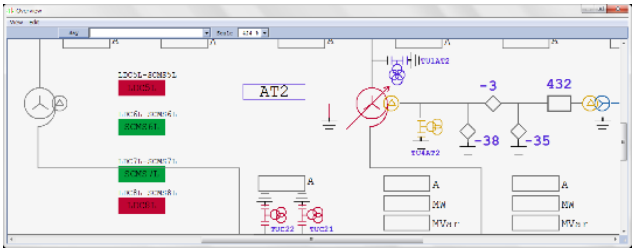
5) A message of operation completion is displayed. The SCMS button is displayed in orange background, and the LDC button is displayed in blue background. Also, the Operation column becomes non-active.
When the control is completed successfully, the S43R selection/control dialog is closed.



6) The column of Status of the S43R dialog is changed to SCMS.

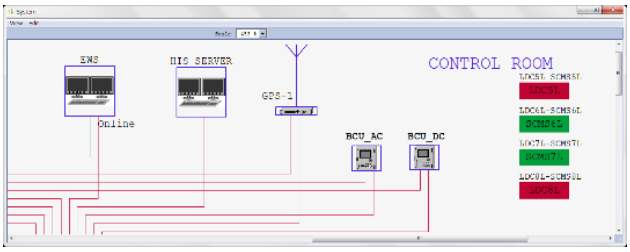
8.2.4 Setting change of 43R condition from Overview and System window

By placing the parts of SW43R using the Drawing Tool, setting change of the 43R condition set in chapter 8.2.1 to 8.2.3 can be done also from the Overview and System window. Details are as follows.

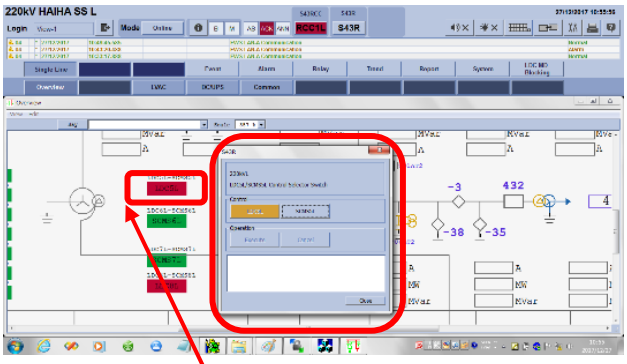


Overview window

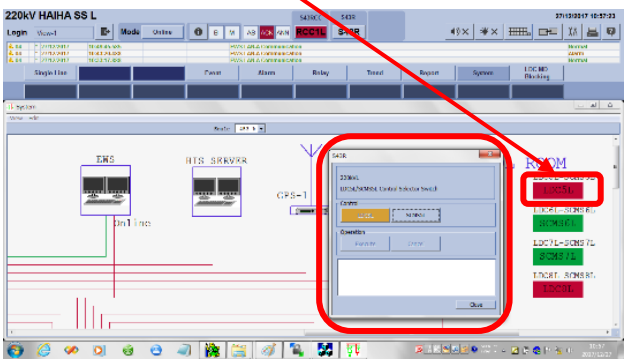
1) Display the Overview window or System window. 43R name and current status are displayed. If 43R is selected as Local, 43R status will be displayed in green background and 43R status will be displayed in red background if it is selected as Remote.



System window

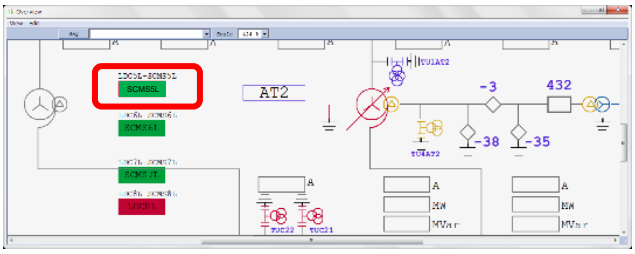


Click 43R button to be changed



2) To change the state of 43R from the Overview or System window, click the 43R button to be changed. The 43R selection/control dialog is displayed. Change the 43R condition follow the previous chapter.

Note) If the 43R button on the System Menu is clicked while the selection/control dialog is displayed, the selection control dialog will not be displayed furthermore.



3) New 43R condition is displayed.

8.2.5 Automatic Remote setting of 43R

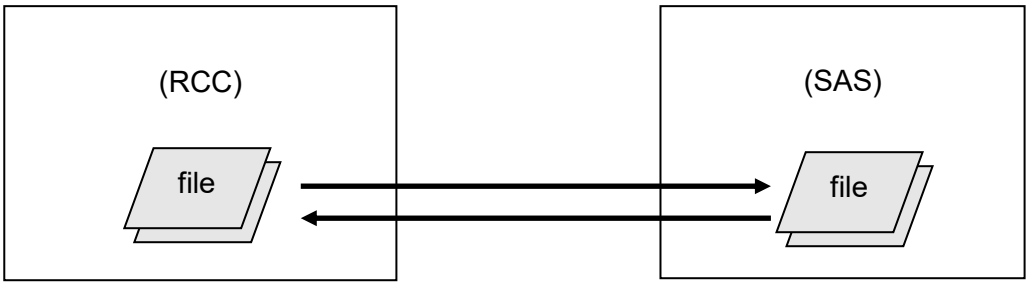
When the 43R automatic Remote setting function of the setting file is set to ON, the 43R condition set as Local is automatically changed to Remote when logs out the System Menu.

8.2.6 Automatic Acknowledge setting

When all 43R conditions are set to Remote, Alarm List becomes ALL Ack with automatically. If at least one of 43R conditions is set to Local, it will not become ALL Ack with automatically.

9 File Transfer

GSC1000 provide File Transfer function between RCC and SAS by IEC60870-5-101/104 standard.



Files held by RCC can be written to SAS according to the command from RCC. Also, a list of files held by SAS is acquired using “CALL_DIRECTORY” function of RCC. Selection/Control of IED and status change notification can be performed during File Transfer. Refer to Setting Manual IEC60870-5-101/104 File Transfer (6F2M2061) for details.

10 Appendix A List of Related Documents

Manual	Document No.
Substation Automation System Operation Manual	6F2M2000
SAS Design Manual	6F2M2013
Instruction Manual Station Computer Unit GSU100	6F2M2004
Instruction Manual Bay Control Unit GBU200	6F2M2005
Configuration Manual (for SC/HMI)	6F2M2006
Configuration Manual for BCU/BCPU	6F2M2007
Operation Manual Work Bench	6F2M2014
Operation manual CID Reload Tool	6F2M2015
Operation Manual Database Maintenance Tool	6F2M2016
Operation Manual Drawing Tool	6F2M2017
Operation Manual Signal List Tool	6F2M2018
Operation Manual SFS Document Tool	6F2M2019
Operation Manual Interlock Tool	6F2M2020
Operation Manual Bay Information Editor	6F2M2021
Operation Manual Setting Tool	6F2M2022
Operation Manual Security Setting Tool	6F2M2023
Operation Manual Mimic Editor	6F2M2024
Operation Manual BI Tool	6F2M2025
Operation Manual Annunciator Editor	6F2M2031
Operation Manual GR-TIEMS Data Import Tool	6F2M2032

11 Appendix B Q and A

This section describes typical failure modes and solution methods for each phenomenon related to the SCMS (Substation Control and Monitoring System).

1. Abnormal conditions of the OWS/EWS hardware

This part describes the problems and solutions associated with abnormal conditions of the OWS/EWS hardware.

(1) Monitor

If you notice a strange smell or smoke coming from the Monitor, stop using immediately and unplug the power cable from the plug socket.

Phenomenon	Causes	Corrective action
Unable to switch on power	Power cable is not connected correctly.	Check cable connection.
Nothing is displayed on the screen	Connector cable is not connected to OWS/EWS correctly.	Check cable connection.
	OWS/EWS is not switched on.	Switch on OWS/EWS.
	Power source is not supplied to the monitor.	Check AC power source.
	Brightness and contrast are not correctly adjusted.	Adjust them correctly by referring to setup guide of the monitor.
	OWS/EWS setting is set to screen saver or power saving mode.	Display is returned to window when you move the mouse. Set OWS/EWS to maintenance mode and check the screen property settings.  NOTE We do not recommend the use of a screen saver.
Display is distorted	Connector cable is not connected to OWS/EWS correctly.	Check cable connection.
	Adjustment of screen is incorrect.	Adjust screen by referring to setup guide of the monitor.
A rolling picture	Connector cable is not connected to OWS/EWS correctly.	Check cable connection.
	Adjustment of screen is incorrect.	Adjust screen by referring to setup guide of the monitor.
Doesn't recognize double-clicks	Double-clicking speed and do not match.	Set OWS/EWS to maintenance mode. To check mouse setting, select 'control panel' in 'my computer' and set appropriate using condition.

(2) OWS/EWS

If you notice a strange smell or smoke coming from the OWS/EWS, stop using immediately and unplug the power cable from the plug socket.

Phenomenon	Causes	Corrective action
Unable to switch on power	Power cable is not connected correctly.	Check cable connection.
	The master switch, which is positioned on the back of the OWS/EWS, is turned off.	Turn on the master switch.
	Power source is not supplied to OWS/EWS.	Check AC power source.
	HDD lock is unlocked.	By using attached key, lock HDD lock which is positioned in front of the HDD.
OS doesn't start up	Board is under abnormal conditions and an error message from BIOS is displayed on the screen.	Replacement of OWS/EWS main unit is needed.
	HDD lock is unlocked.	Lock HDD by using attached key.
	HDD failure has occurred (Red LED is continuously illuminated or not illuminating at all).	HDD replacement is needed.
CD/DVD cannot be read	CD has been inserted upside-down.	Place CD/DVD into the tray with recorded side (silver, plain side) down.
	CD/DVD is damaged.	CD/DVD replacement is needed.
Noise from OWS/EWS	FAN is damaged.	OWS/EWS replacement is needed.
No FAN sound produced from OWS/EWS	FAN has ceased to operate.	OWS/EWS replacement is needed.
OWS/EWS power is down automatically	Serious malfunction of OWS/EWS has occurred (a message is displayed on the monitor).	OWS/EWS replacement is needed.
	Abnormal condition in OWS/EWS applications or in OS has occurred.	Restart OWS/EWS and if the phenomenon continues, re-installation of software is needed.

(3) Mouse

Phenomenon	Causes	Corrective action
Mouse doesn't move	Cable is not connected correctly.	Check cable connection.
	Mouse cable is unplugged while OWS/EWS power is on.	Switch off OWS/EWS power, connect mouse, and then start up OWS/EWS again. If this doesn't solve the problem, OWS/EWS main unit needs replacing.
	Optical sensor is dirty.	Check the optical sensor and remove dust.
	Mouse is damaged.	Mouse needs replacing.
Doesn't recognize clicks	Mouse is damaged.	Mouse needs replacing.
Strange movement	OS setting of the mouse for left-hander and right-hander is reversed.	Set OWS/EWS to maintenance mode. To check mouse setting, select 'control panel' in 'my computer' and change to appropriate using condition.
	Optical sensor is dirty.	Check the optical sensor and remove dust.
	Mouse is damaged.	Mouse needs replacing.
Doesn't recognize double-clicks	Double-clicking speed and setting do not match.	Set OWS/EWS to maintenance mode. To check mouse setting, select 'control panel' in 'my computer' and set appropriate using condition.

(4) Keyboard

Phenomenon	Causes	Corrective action
Cannot input by key entry	Cable is not connected correctly.	Check cable connection.
	Keyboard cable is unplugged while OWS/EWS power is on.	Switch off OWS/EWS power, connect keyboard, and then start up OWS/EWS again. If this doesn't solve the problem, OWS/EWS main unit needs replacing.
	Keyboard is damaged.	Keyboard needs replacing.
All inputted characters are displayed in capital letters	CAPS LOCK is activated.	Press SHIFT key and CAPS LOCK key together to release.

(5) Speakers

Phenomenon	Causes	Corrective action
No sound produced	Volume is low.	Adjust volume.
	Cable is unplugged from OWS/EWS.	Check cable connection.
	Volume inside OWS/EWS is low.	Set OWS/EWS to maintenance mode and select 'multimedia' in the 'control panel' of 'my computer' and adjust the playback volume.
	Headphone is connected.	Unplug the headphone.
	Speaker Unit is not correctly connected to the OWS/EWS.	Check the Speaker Unit is correctly connected to the OWS/EWS.
Sound distorts	Volume inside OWS/EWS is high.	Set OWS/EWS to maintenance mode and select 'multimedia' in the 'control panel' of 'my computer' and adjust the playback volume.
	Cable from OWS/EWS not connected correctly.	Check cable connection.

(6) Printer (Color laser printer)

Phenomenon	Causes	Corrective action
Unable to switch on power	Power cable is not connected correctly.	Check cable connection.
	Power source is not supplied to printer.	Check AC power source.
Unable to print	No paper. 'Paper Out' LED is illuminated.	Replenish paper.
	No toner. 'Toner Out' message is displayed.	Replenish toner.
	Cable from station level LAN is not connected correctly to printer converter.	Exchanges media converter between optical cord and twisted pair cable.
	Cable between converter and printer not connected correctly.	Check cable connection.
	Power off at the converter.	Check the power at the converter.
	OWS/EWS is not set for connection to a remote printer.	Set remote printer to OWS/EWS.
	Remote printer is not set for use as OWS/EWS standard printer.	Set OWS/EWS to maintenance mode and select remote printer from 'printer' in 'my computer'. Then select 'printer' from menu bar and check printer that is in normal use.

Phenomenon	Causes	Corrective action
	Properties of printer are incorrect.	Set OWS/EWS to maintenance mode and select remote printer from ‘printer’ in ‘my computer’. Then select ‘printer’ from menu bar and check properties, especially check that the paper is set to A4 landscape.
	Printing buffer is FULL for some reason.	Restart printer and OWS/EWS.
	A different printing process is in operation.	It will be printed sequentially, so wait for a while.
Color on paper does not match color on screen	Properties of printer have been altered.	Set OWS/EWS to maintenance mode and select remote printer from ‘printer’ in ‘my computer’. Then select ‘printer’ from menu bar and check properties. Return altered graphics back to standard settings.
	No toner	Replenish toner.
Direction of printing doesn't match (length and breadth)	Properties of printer are set to portrait printing.	Set OWS/EWS to maintenance mode and select remote printer from ‘printer’ in ‘my computer’. Then select ‘printer’ from menu bar and check properties, especially check that the paper is set to A4 landscape.
Paper jam has occurred	Paper is jammed in printer.	Clear paper jam by referring to the page in the manual of the printer.

(7) Printer (Event log printer)

Phenomenon	Causes	Corrective action
Unable to switch on power	Power cable is not connected correctly.	Check cable connection.
	Power source is not supplied to printer.	Check AC power source.
Unable to print	No paper. 'Paper Out' LED is illuminated.	After turning off the printer, replenish paper.
	Cable from station level LAN is not connected correctly to the converter.	Converter exchanges LAN media between optical cord and twisted pair wire cable.
	Cable between converter and printer is not connected correctly.	Check cable connection.
	OWS/EWS is not set for connection to a remote printer.	Set remote printer to OWS/EWS.
	Properties of printer are incorrect.	Set OWS/EWS to maintenance mode and select remote printer from ‘printer’ in ‘my computer’. Then select 'printer' from menu bar and check properties, especially check that the paper is set to series paper.
	Printing buffer is FULL for some reason.	Restart printer and OWS/EWS
	A different printing process is in operation.	It will be printed sequentially, so wait for a while.
Paper jam has occurred	Paper is jammed in printer.	After turning off the printer, clear paper jam by referring to page in the manual.
Communication failure has occurred.	Cable from station level LAN is not connected correctly to the converter.	Change media converter between optical cord and twisted pair wire cable.
	Cable is between the converter and the printer not connected correctly.	Check cable connection.
	The pause button has been available.	Set the pause button to not available, and restart the printer.

2. OWS/EWS functions anomaly

This part describes OWS/EWS function anomalies and corrective actions.

(1) Problems related to top menu selection

Phenomenon	Cause	Corrective action
Top menu is not displayed.	SC is not started.	Start up SC.
	SC is not in normal mode.	Check that LED (STTS1) of SC unit lights in red. If it does not light, restart SC.
Mouse does not move.	Mouse is not connected to HMI.	If you use a USB mouse, insert the connector to USB connector. If you use a PS/2 mouse, shut down HMI (PC), connect the mouse and then restart HMI (PC).
Unable to login although Login button is clicked.	Login ID and password are incorrect.	Input correct login ID and password. Be careful that upper case letters and lower case letters are regarded as different letters.
	SC is not started.	Start up SC.
	SC is not in normal mode.	Check that LED (STTS1) of SC unit lights in red. If it does not light, restart SC.

(2) Problems common to all windows

Phenomenon	Cause	Corrective action
Main Menu bar is not displayed.	SC is not started.	Start up SC.
	SC is not in normal mode.	Check that LED (STTS1) of SC unit lights in red. If it does not light, restart SC.
Window switching button cannot be pressed	You clicked right button of the mouse.	Click left button of the mouse.
	Resource such as memory for HMI (PC) OS is insufficient.	Terminate unnecessary applications to secure the memory area. If not improved, restart HMI (PC).
No reaction even if the window switching button is clicked.	You clicked right button of the mouse.	Click left button of the mouse.
	Resource such as memory for HMI (PC) OS is insufficient.	Terminate unnecessary applications to secure the memory area. If not improved, restart HMI (PC).
No printing is performed even if the hard copy button is clicked.	You clicked right button of the mouse.	Click left button of the mouse.
	Resource such as memory for HMI (PC) OS is insufficient.	Terminate unnecessary applications to secure the memory area. If not improved, restart HMI (PC).
	Printer failure.	Remove the failure cause of the printer.
	Printer paper is run-out	Replenish printer paper.
	Printer setting different from the printer setting of HMI (PC) (printer setting of OS).	Return the correct network printer setting.
	Printer IP address is different from the setting.	Return the correct IP address.
	Printer IP address of the equipment DB is different.	Return the correct IP address setting by maintaining equipment DB.
Sound stop button has no effect.	SC application error.	Restart SC.
	HMI (PC) application error.	Try to stop alarm from other HMI (PC).
		Restart HMI (PC).
Blink stop button has no effect.	SC application error.	Restart SC.
	HMI (PC) application error.	Try to stop blinking from other HMI (PC).
		Restart HMI (PC).
No reaction when clicking the Help button.	HMI (PC) application error.	Restart HMI (PC).

Phenomenon	Cause	Corrective action
"X" is automatically displayed before clicking Print button.	SC application error.	Restart SC.
	HMI (PC) application error	Restart HMI (PC).
Screen switch is abnormally slow.	SC application error.	Restart SC.
	HMI (PC) application error.	Restart HMI (PC).

(3) Problems in the OVERVIEW window

Phenomenon	Cause	Corrective action
Whole system is not displayed.	HMI (PC) application error.	Restart HMI (PC).
	Incorrect bay allocation at Equipment DB maintenance.	Check the maintenance contents in equipment DB.
Equipment symbol is white with "?"	HMI (PC) application error.	Restart HMI (PC).
	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
Color frame is displayed in the Bay label.	Color frame may be drawn as a figure by Drawing Tool.	Check the maintenance contents executed on Equipment DB.
No reaction takes place even if the mouse is moved to the Bay label.	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error	Restart HMI (PC).
Going over to the Bay single line window is impossible.	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
Measurement value is displayed in abnormal color.	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value is displayed "?".	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.

(4) Bay single-line diagram window

Phenomenon	Cause	Corrective action
Bay different from the Bay selected is displayed.	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
Device symbol shows “?”.	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement display shows “?”.	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Something is wrong in values measured and displayed.	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Something is wrong in mode display of the BCU/BCPU (IED).	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Equipment symbols cannot be selected.	Condition to select device is not established	Remove the error contents and re-select the device.
	Contents of IED information and maintenance DB do not match.	Check the contents of both DBs and execute equipment DB maintenance properly.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.

Phenomenon	Cause	Corrective action
Measurement value is displayed in abnormal color.	Incorrect data sent from IED	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value is displayed "?".	Incorrect data sent from IED	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Error is displayed when an Equipment symbol is selected.	Condition to select device is not established	Remove the error contents and re-select the device.
	Contents of IED information and maintenance DB do not match	Check the contents of both DBs and execute equipment DB maintenance properly.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Interlock condition cannot be established even though the Equipment is not set with interlock.	DB of SC and of IED does not match.	Check the contents of both DBs and execute Equipment DB maintenance properly.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
After selecting CLOSE, the operation takes too long to complete.	IED error.	Contact IED manufacturer.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Selection was cancelled during selection and control.	Factor to cancel selection occurs at IED side.	Check the canceling factor displayed in “Control” dialog of HMI.
	Selection was automatically cancelled because of no operation for a long time after selection.	This is a normal operation. If necessary the no operation period can be altered.

Phenomenon	Cause	Corrective action
Upper and lower limits for measurement values cannot be set.	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement values on bus bar voltage, w, and var. are displayed with zero.	IED error.	Contact IED manufacturer.
	Contents of IED information and maintenance DB do not match.	Check the contents of both DBs and execute Equipment DB maintenance properly.
	Incorrect measurement value allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value for synchronism check is not displayed.	IED error.	Contact IED manufacturer.
	Contents of IED information and maintenance DB do not match.	Check the contents of both DBs and execute Equipment DB maintenance properly.
	Incorrect measurement value allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.

(5) Problems in the LVAC, DC/UPS window

Phenomenon	Cause	Corrective action
Whole system screen is not displayed.	HMI (PC) application error.	Restart HMI (PC).
Equipment symbol is white with "?"	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect device symbol allocation at equipment DB maintenance.	Check the maintenance contents executed on equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value is displayed in abnormal color.	Incorrect data sent from IED	Check the IED status and data.
	Incorrect measurement symbol allocation at equipment DB maintenance.	Check the maintenance contents executed on equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value is displayed "?".	Incorrect data sent from IED	Check the IED status and data.
	Incorrect measurement symbol allocation by equipment DB maintenance.	Check the maintenance contents executed on equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
Upper and lower limits for measurement values cannot be set.	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.

(6) GIS window

Phenomenon	Cause	Corrective action
Gas section is displayed in white.	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect GIS section symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value is displayed in white.	Incorrect data sent from IED.	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
Measurement value is displayed "?".	Incorrect data sent from IED	Check the IED status and data.
	Incorrect measurement symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.

(7) Alarm and Event window

Phenomenon	Cause	Corrective action
Display date is indicated in reversed order.	Sorting is carried out in reversed order by clicking “Date Time” title.	Click “Date Time” again to carry out sorting. Or, click the LATEST button in the corresponding screen to return to the initial status.
No storage is possible even if the Save button is clicked.	HMI (PC) application error.	Restart HMI (PC).
	SC application error	Restart SC.
	Insufficient space in HDD of HMI. (PC)	Delete unnecessary files in HMI (PC) or add another HDD.
No loading is possible even if the Load button is clicked.	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
	Saved file is damaged.	Check the file contents. If the file is damaged, correct the file and load it again.
No printing is possible even if the Print button is clicked.	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
No display on the window. (Alarm, or Event window)	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.

(8) Trend screen and Energy Report window

Phenomenon	Cause	Corrective action
Graph is not displayed.	Measurement value is incorrect.	Check the measurement value status in tabular format.
		Check IED status.
	Group is not defined.	Register the group.
	Scale is too large.	Set the scale appropriately using X/Y Zoom function.
	When X/Y is zoomed in, the graph is drawn outside of the display area.	Reset X/Y Zooming, check the graph display and set the scale and the display position in the display area appropriately using Zoom function.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error	Restart SC.
Current time is not displayed on the Daily Report.	HMI (PC) application error.	Restart HMI (PC).
Data changed on the Daily report returns to the previous data when the window is switched.	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Daily data is not displayed on the Monthly Report screen.	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.
Monthly data is not displayed on the Annual Report.	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.

(9) System window

Phenomenon	Cause	Corrective action
Unit is displayed with red and orange colors.	Error in the corresponding equipment error.	Refer to Alarm List and remove the cause of error.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Unit is displayed white.	The corresponding equipment error.	Refer to Alarm list and remove the cause of error.
	Incorrect device symbol allocation by Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Mode is displayed "UNKNOWN".	Error in the corresponding Equipment.	Refer to Alarm list and remove the cause of error.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error.	Restart HMI (PC).
	SC application error.	Restart SC.
Error in mode display of the BCU/BCPU.	BCU/BCPU error.	Restart the corresponding BCU/BCPU.
	Incorrect device symbol allocation at Equipment DB maintenance.	Check the maintenance contents executed on Equipment DB.
	HMI (PC) application error	Restart HMI (PC).
	SC application error.	Restart SC.

12 Appendix C How to Deal with System Failure

1 Outline of diagnosis method for system failure

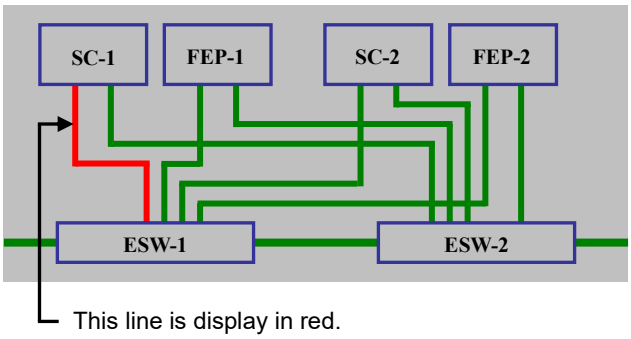
When any failure has occurred, Alarm is notified by OWS/EWS (NOTE) and Alarm message is displayed in the Alarm window on EWS/OWS. Check the following steps and restore the system from failure.

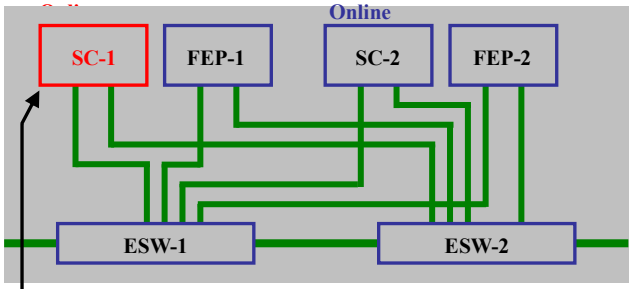
NOTE	When the Control Authorization Switch is set to LDC, the system does not sound alarm. LAN between ESW and EWS is not the object of system monitoring.

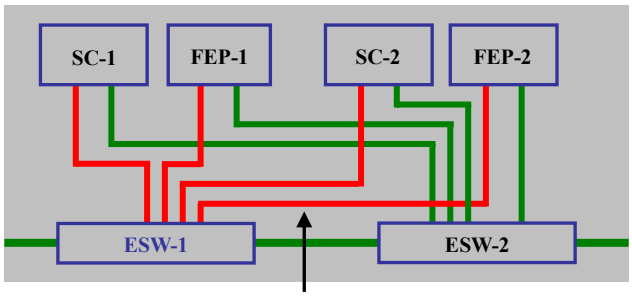
Step1: When an alarm sounds with the Control Authorization Switch in LOCAL position, click the “Stop Alarm” button on OWS or EWS screen.
Step2: Confirm the alarm message on the Alarm window. After confirmation, click ACK to stop blinking.
Step3: Confirm the failure point using alarm message and “System” window.
These indicate the failed unit and part.
The following section helps to analyze the failure point.
Step4: Repair the failed equipment by the following method.
Step5: Re-start the system after repair.

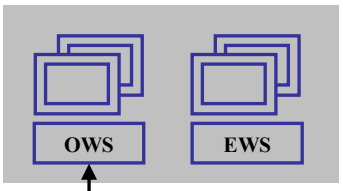
2 Detail description of failure mode and “System” window

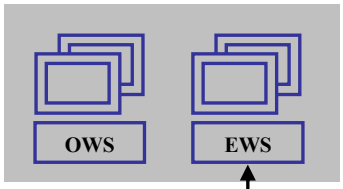
This section describes the relationship between the failure mode and “System” window and “Alarm” window. If a failure has occurred, refer to the following items and confirm the failure point.

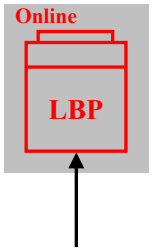
<table>
<tr><td rowspan="2">Problems</td><td>OWS/
EWS
System
window</td><td>
</td></tr>
<tr><td>Alarm
window</td><td>Message of transmission error is displayed.</td></tr>
<tr><td colspan="2">Causes</td><td>Failure in transmission between SC-1 and ESW-1. (Failure in the station level ring LAN.)</td></tr>
<tr><td colspan="2">Remedies</td><td>Check the following :
1. Check that LAN cable connecting SC-1 and ESW-1 is properly connected.
2. Check that LED for LIN ACT of SC-1 Ethernet port lights or is blinking.
3. Check there is no damage or bend in the optical cable connecting SC-1 and ESW-1.</td></tr>
</table>

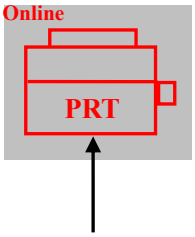
Problems	OWS/ EWS System window	 This part is displayed in red or orange.
	Alarm window	Message of server failure is displayed.
Causes		SC-1 failure
Remedies		Check the following : 1. Check whether SC-1 power is turned OFF. 2. If the power is ON, turn it OFF and then turn it ON to restart SC-1.

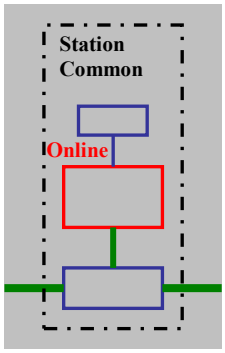
Problems	OWS/ EWS System window	 Lines between ESW-1 and other equipment are shown in red.
	Alarm window	Message of transmission error is displayed.
Causes		ESW-1 power off or ESW-1 failure
Remedies		Check the following : 1. Check that the Power indicator of ESW-1 lights. 2. Check that the power cable is properly connected to the ESW-1 power terminal. 3. Check if “ALARM” LED of ESW-1 is lit or not. If lit, ESW-1 has detected some error. Refer to user guide of ESW for the procedure to identify the error.

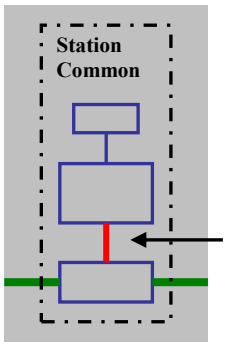
Problems	OWS/ EWS System window	 OWS does not operate properly. (Display colour of OWS/EWS is fixed. It does not vary even in equipment failure.)
	Alarm window	No message is displayed.
Causes		OWS main unit error or OWS software error
Remedies		Check the following : 1. Restart OWS. If it still does not operate after restart, contact us.

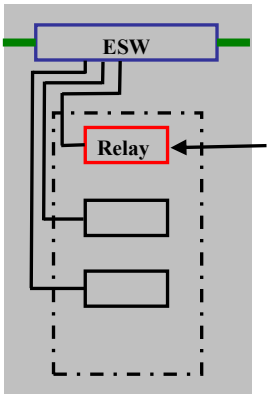
Problems	OWS/ EWS System window	 EWS does not operate. (Display colour of OWS/EWS is fixed. It does not vary even in equipment failure.)
	Alarm window	No message is displayed.
Causes		EWS main unit error or EWS software error
Remedies		Check the following : 1) Restart EWS. If it still does not operate after restart, contact us.

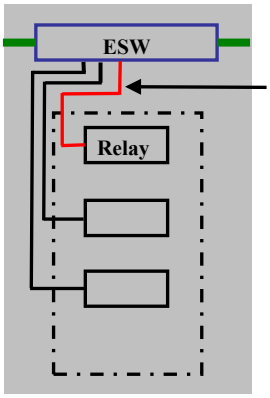
Problems	OWS/ EWS System window	 This portion is displayed in red or orange.
	Alarm window	LBP error message is displayed.
Causes		LBP toner run-out, printer paper run-out, paper jam.
Remedies		Check the following : 1. Check LBP toner level, printer paper, and paper jam.

Problems	OWS/ EWS System window	 This portion is displayed in red or orange.
	Alarm window	Printer error message is displayed.
Causes		Printer paper jam, paper run-out, toner run-out
Remedies		Check the following : 1. Check for paper jam, printer paper, toner level.

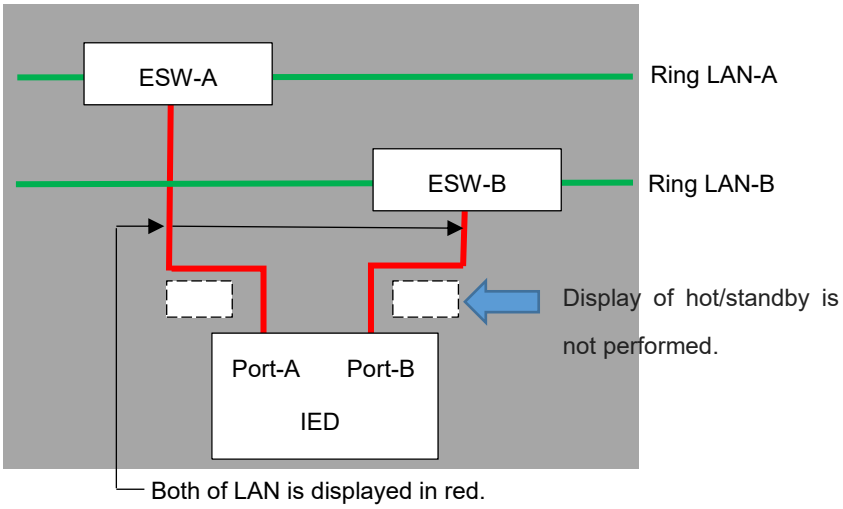
Problems	OWS/ EWS System window	
	Alarm window	BCU/BCPU failure message is displayed.
Causes		BCU/BCPU error
Remedies		Check the following : 1. BCU/BCPU board failure, or LCD panel failure 2. Database mismatch between BCU/BCPU and server Match the database of BCU/BCPU and that of the server.

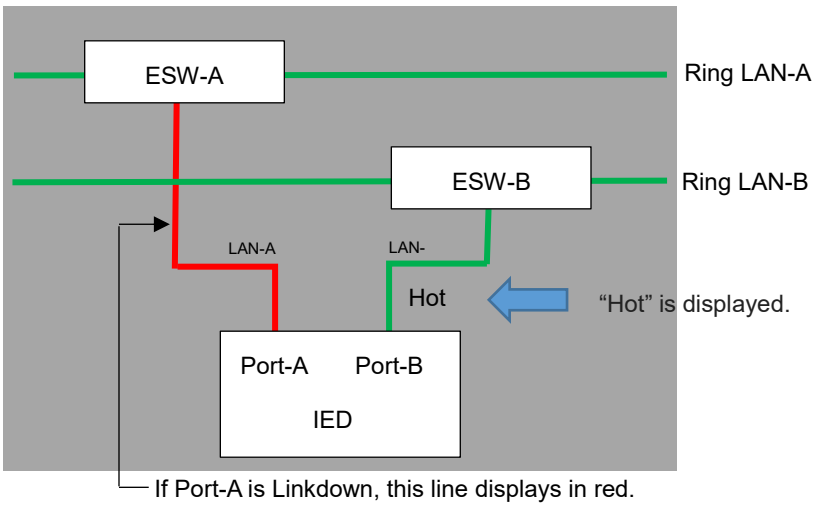
Problems	OWS/ EWS System window	 This portion is displayed in red.
	Alarm window	Transmission error between BCU/BCPU and ESW is displayed.
Causes		BCU/BCPU transmission unit error, or transmission failure between ESW and BCU
Remedies		Check the following : 1. Check that LAN cable connecting BCU/BCPU and ESW is properly inserted to the connector. 2. Check for BCU/BCPU board failure.

Problems	OWS/ EWS System window	
	Alarm window	Relay failure message is displayed.
Causes		Relay failure
Remedies		Check the following : Refer to the relay manual.

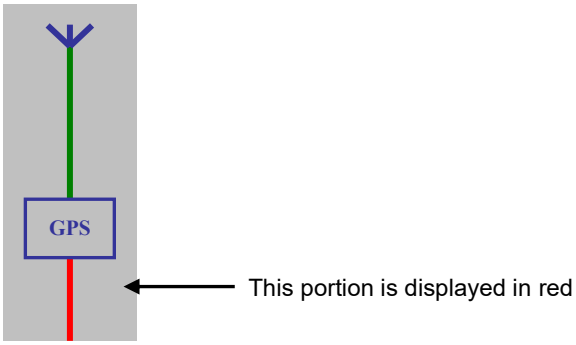
Problems	OWS/ EWS System window	
	Alarm window	Transmission error message is displayed.
Causes		Relay equipment failure, transmission error, or database mismatched between the relay and the server
Remedies		Check the following : 1. Check that the database in the server coincides with the one in the relay. 2. Transmission error between ESW and Relay. Check that LAN cable connecting ESW and Relay is securely inserted to the connector. 3. ESW port failure. Use another connecting port.

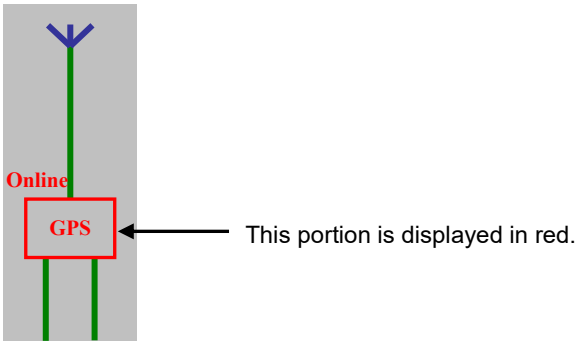
LAN condition monitoring of IED with two-port is as follows.

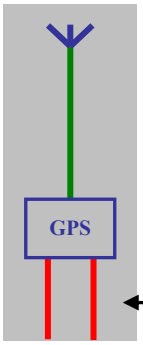
<table>
<tr><td rowspan="2">Problems</td><td>OWS/
EWS
System
window</td><td>
</td></tr>
<tr><td>Alarm
window</td><td>Massage of transmission error is displayed.</td></tr>
<tr><td colspan="2">Causes</td><td>Failure in transmission between SC and IED.
<table><tr><td>NOTE</td><td>When failure in transmission between SC and IED is happened, both of LAN shows in red.</td></tr></table></td></tr>
<tr><td colspan="2">Remedies</td><td>Check the following :
1. Check whether SC power is OFF.
2. If the power is ON, restart SC. If it still does not operate after restart, contact us.</td></tr>
</table>

<table>
<tr><td rowspan="2">Problems</td><td>OWS/
EWS
System
window</td><td>
</td></tr>
<tr><td>Alarm
window</td><td>Massage of transmission error is displayed.</td></tr>
<tr><td colspan="2">Causes</td><td>Link failure of LAN port.

NOTE
By a location of the link failure of LAN port, color of the LAN-A/LAN-B is displayed as follows.
<table>
<tr><th rowspan="2">No.</th><th colspan="2">Link condition</th><th colspan="2">Display colour of LAN</th></tr>
<tr><th>Port-A</th><th>Port-B</th><th>LAN-A</th><th>LAN-B</th></tr>
<tr><td>1</td><td>Linkdown</td><td>Linkup</td><td>Red</td><td>Green</td></tr>
<tr><td>2</td><td>Linkup</td><td>Linkdown</td><td>Green</td><td>Red</td></tr>
<tr><td>3</td><td>Linkdown</td><td>Linkdown</td><td>Red</td><td>Red</td></tr>
</table></td></tr>
<tr><td colspan="2">Remedies</td><td>Check the following :
1. Check that LAN cable connecting IED and ESW is properly connected.
2. Check there is no damage or bend in the optical cable connecting IED and ESW.</td></tr>
</table>

Problems	OWS/ EWS System window	
	Alarm window	GPS clock failure message is displayed.
Causes		Transmission error between GPS clock and ESW
Remedies		Check the following : 1.Check whether GPS clock power is OFF. 2.Check that communication cable connecting GPS clock and ESW is properly connected to the connecting port.

Problems	OWS/ EWS System window	
	Alarm window	GPS clock failure message is displayed.
Causes		GPS clock detects any error.
Remedies		Check the following : 1.Check whether “ALARM” LED on the front panel of GPS clock is lit or not. If it is lit, the GPS clock detects an error. Refer to “Technical Information Operating Instructions M300/GPS” of GPS clock for the details of the error.

Problems	OWS/ EWS System window	 This portion is displayed in white with red.
	Alarm window	GPS clock failure message is displayed.
Causes		GPS clock power is OFF, or connection failure.
Remedies		Check the following : 1. Check whether GPS clock power is OFF. (When no LED on the front panel of GPS clock is lit and nothing is displayed on LCD panel, power may be turned OFF. Check that power cable is properly connected, or that power source is available.) 2.Check that the communication cable connecting GPS clock and ESW is properly connected to the connecting port.

13 Appendix D Display Color of HMI Screen

This section defines the display color of each window (Refer to Table 10.1).

- When the “Maker” column of Change column is checked with ✓ mark, the color can be modified by the manufacturer.
- When “GUI” column of Change column is checked with ✓ mark, the color can be modified by the Drawing Tool.

  The item “Compliant to Windows” can be set from the screen property dialog (design tab) of Windows.

Table 10.1 List of screen display color settings

Screen	Definition	Display color				Change		Remark
		Color	R	G	B	Maker	GUI	
General	Character							Compliant to Windows
	Background							Compliant to Windows
	Button character							Compliant to Windows
	Button background							Compliant to Windows
	Label character							Compliant to Windows
	Label background							Compliant to Windows
	Textbox character							Compliant to Windows
	Textbox background							Compliant to Windows
	Tab control character							Compliant to Windows
	Tab control background							Compliant to Windows
	Selection disabled item character							Compliant to Windows
	Selection disabled item background							Compliant to Windows
Control	Synchronize Bypass button character					✓		Compliant to Windows
	Synchronize Bypass button background					✓		Compliant to Windows
	Control direction character (same direction)					✓		Compliant to Windows
	Control direction background (same direction)	Yellow	255	255	0	✓		
	Control direction character					✓		Compliant to Windows
	Control direction background					✓		Compliant to Windows
	Interlock Guidance button character					✓		Compliant to Windows
	Interlock Guidance button background					✓		Compliant to Windows
	Soft Interlock Bypass button character					✓		Compliant to Windows
	Soft Interlock Bypass button background					✓		Compliant to Windows
	Execute button character					✓		Compliant to Windows
	Execute button background					✓		Compliant to Windows
	Cancel button character					✓		Compliant to Windows
	Cancel button background					✓		Compliant to Windows
	Close button character					✓		Compliant to Windows
	Close button background					✓		Compliant to Windows
Main menu bar	Mode button highlight	Yellow	255	255	0	✓		
	Information label highlight	Yellow	255	255	0	✓		
	ACK label highlight	Red	255	0	0	✓		
	Control right selection switch button highlight _Local	Green	0	255	0	✓		
	Alarm Stop button highlight	Red	255	0	0	✓		
	Print stop button highlight	Dark Gray	128	128	128	✓		
	Print stop button X symbol	Red	255	0	0			
	Latest 3 alarm Not ACK alarm background	Cyan	0	255	255			
Bay Information	Measurement display character							Compliant to Windows
	Measurement display character_U/L limit exceeding warning	Yellow	255	255	0			
	Measurement display character_U/L limit exceeding alarm	Red	255	0	0			

Screen	Definition	Display color				Change		Remark
		Color	R	G	B	Maker	GUI	
	Measurement display background							Compliant to Windows
	Measurement display background_ failure	Dark Gray	128	128	128			
	Status display background							Compliant to Windows
	Status display background_failure	Dark Gray	128	128	128			
	Blocking status background_Now setting	Yellow	255	255	0			
	Manual Override status background_Now setting	Yellow	255	255	0			
	Limit Setting status background_Now setting	Yellow	255	255	0			
Single line diagram	Background	Light Gray	192	192	192	✓		
	CB/DS/ES_OPEN	Green	0	255	0	✓		
	CB/DS/ES_CLOSE	Red	255	0	0	✓		
	Control object CB/DS background	—	—	—	—			Auto set from background
	Control object CB/DS background shadow	—	—	—	—			Auto set from background
	Status symbol_Faulty:X	Red	255	0	0			
	Status symbol_Undefined:X	Blue	0	0	255			
	Status symbol_Questionable:?	Black	0	0	0	✓		
	Status symbol_Update Block:B	Brown	128	64	0	✓		
	Status symbol_Manual Override:M	Blue	0	0	255	✓		
	Transmission cut:?	Black	0	0	0	✓		
	Power flow symbol frame	Black	0	0	0	✓		
	Power flow symbol arrow	Blue	0	0	255	✓		
	Power flow symbol background	Cyan	0	255	255	✓		
	Power flow symbol_Questionable:?	Black	0	0	0	✓		
	Synchronizing symbol character	Black	0	0	0	✓		
	Synchronizing symbol background	Yellow	255	255	0	✓		
	Measurement display character_Normal	Black	0	0	0	✓		
	Measurement display character_Invalid	—	—	—	—			Retains previous status
	Measurement display character_Questionable	White	255	255	255	✓		
	Measurement display character_UpdateBlock	—	—	—	—			Retains previous status
	_Measurement display character_Manual Override	Black	0	0	0	✓		
	Measurement display character_Transmission cut	White	255	255	255	✓		
	Measurement display character_ warning for exceeding U/L limit	Yellow	255	255	0	✓		
	Measurement display character_ alarm for exceeding U/L limit	Red	255	0	0	✓		
	Measurement display background	—	—	—	—			Transparent
	Bay name label character_Normal	Black	0	0	0	✓		
	Bay name label background_Normal	Light Gray	192	192	192	✓		
	Bay name label frame_Normal	Blue	0	0	255	✓		
	Bay name label symbol_UpdateBlock:B	Brown	128	64	0	✓		
	Safety tag character_Display	Red	255	0	0	✓		
	Safety tag background_Display	Yellow	255	255	0	✓		
	Voltage class_400kV	Blue	0	0	255	✓	✓	
	Voltage class_220kV	Yellow	255	255	0	✓	✓	
	Voltage class_132kV	Red	255	0	0	✓	✓	
	Voltage class_33kV	Green	0	255	0	✓	✓	
	Voltage class_11kV	Brown	128	64	64	✓	✓	
	Live/iDead_Dead	Dark Gray	50	50	50	✓		
	Live/Dead_Unknown	Gray	100	100	100	✓		
	Live/Dead_Inconsistent	White	255	255	255	✓		
	LiveDead_Earth	Black	0	0	0	✓		
Event	Background_Normal	Cyan	188	222	255			
	Background_When selecting	Orange	255	165	0			
	Event_Level 1_Occurrence	Red	255	0	0	✓		System major failure
	Event_Level 2_Occurrence	Red	255	0	0	✓		SAS System major failure

Screen	Definition	Display color				Change		Remark
		Color	R	G	B	Maker	GUI	
	Event_Level 3_Occurrence	Orange	255	128	64	✓		System minor failure
	Event_Level 4_Occurrence	Orange	255	128	64	✓		SAS System minor failure
	Event_Level 5_Occurrence	Black	0	0	0	✓		General event
	Event_Level 6_Occurrence	Black	0	0	0	✓		Operation recorded
	Event_Level 7_Occurred					✓		Reserved
	Event_Level 8_Occurrence					✓		Reserved, undefined
	Event_Level 9_Occurrence					✓		Reserved, undefined
	Event_Level 10_Occurrence					✓		Reserved, undefined
	Event_All levels_Recover	Green	0	255	0	✓		
Alarm	Background_Normal	Cyan	188	222	255			
	Background_When selecting	Orange	255	165	0			
	Alarm_All levels_Backgrond (already Acknowledged)	Light Gray	192	192	192	✓		
	Alarm_Level 1_Occurrence (Not ACK)	Red	255	0	0	✓		System major failure
	Alarm_Level 2_Occurrence (Not ACK)	Red	255	0	0	✓		SAS major failure
	Alarm_Level 3_Occurrence (Not ACK)	Orange	255	128	64	✓		System minor failure
	Alarm_Level 4_Occurrence (Not ACK)	Orange	255	128	64	✓		SAS minor failure
	Alarm_All levels_Occurrence (already Acknowledged)	Blue	0	0	255	✓		
	Alarm_All levels_Recove（Not ACK)	Green	0	255	0	✓		
System	HMI (OEW, EWS) Normal	Blue	0	0	255	✓		
	SC/FEP/GW/LBP/LOG/HUB/GPS_Normal	Blue	0	0	255	✓		
	SC/FEP/GW/LBP/LOG/HUB/GPS_Failure	Red	255	0	0	✓		
	SC/FEP/GW/LBP/LOG/HUB/GPS_Unknown	White	255	255	255	✓		
	IED_Normal	Blue	0	0	255	✓		
	IED_Minor failure	Orange	255	120	60	✓		
	IED_Major failure	Red	255	0	0	✓		
	IED_Unknown	White	255	255	255	✓		
	Equip. mode character_Normal	Black	0	0	0	✓		
	Equip. mode character_Minor failure	Orange	0	0	0	✓		
	Equip. mode character_Major failure	Red	255	255	255	✓		
	Equip. name character_Normal	Black	0	0	0	✓		
	Equip. name character_Minor failure	Black	0	0	0	✓		
	Equip. name character_Major failure	White	255	255	255	✓		
	Equip. name character_Unknown	White	255	255	255	✓		
	Transmission line_Normal	Green	0	255	0	✓		
	Transmission line_Failure	Red	255	0	0	✓		
	Display for measurement is same with that of single line diagram.							
GIS	GIS gas pressure monitor_Gas pressure_Normal	Dark Green	0	120	0	✓		
	GIS gas pressure monitor_Gas pressure_Alarm (Stage 1)	Orange	255	120	60	✓		
	GIS gas pressure monitor_Gas pressure_Alarm (Stage 2)	Pink	180	0	180	✓		
	GIS gas pressure monitor_Gas pressure_Unknown	Light Gray	192	192	192	✓		
Energy Report	Other displays are same to that of single line diagram.							
	Measurement display background							Compliant to Windows
	Measurement display character							Compliant to Windows
	Measurement display character_Invalid	Black	0	0	0			
	Measurement display character_ warning for exceeding U/L limit	Yellow	255	255	0			
	Measurement display character_alarm for exceeding U/L limit	Red	255	0	0			
	Measurement display background							Compliant to Windows
	Measurement display background_Invalid	Cyan	0	255	255			
	Measurement display background_Questionable	Cyan	0	255	255			
	Measurement display background_Transmission cut	Cyan	0	255	255			
	Measurement display symbol_UpdateBlock:B	Brown	128	64	0			
	Measurement display symbol_ManualOverride:M	Blue	0	0	255			
	Measurement display symbol_Test:T							Compliant to Windows

Screen	Definition	Display color				Change		Remark
		Color	R	G	B	Maker	GUI	
	Measurement display character_Now editing							Compliant to Windows
	Measurement display background_Now editing	LightGreen	128	255	128			
	Measurement display character_Not yet collected	—	—	—	—			Blank display
	Measurement display backgrond_Not yet collected	Cyan	0	255	255			
Trend	Measurement display background							Compliant to Windows
	Measurement display character_Not yet collected							Compliant to Windows
	Measurement display background_Not yet collected	Cyan	0	255	255			
	Other displayes are same with that of Energy Report.							
Interlock guidance	Interlock guidance_Background	LightGray	192	192	192	✓		
	Interlock guidance_Logic circuit symbol	Black	0	0	0	✓		
	Interlock guidance_Logic circuit connecting line_Established	Green	0	255	0	✓		
	Interlock guidance_Logic circuit connecting line_ Not established	Red	255	0	0	✓		
	Interlock guidance_Logic circuit connecting line_3POS	Black	0	0	0	✓		
	Interlock guidance_Logic circuit connecting line_Unknown	White	255	255	255	✓		
	Interlock guidance_Input symbol	Black	0	0	0	✓		
	Interlock guidance_Output symbol_Established	Green	0	255	0	✓		
	Interlock guidance_Output symbol_Not established	Red	255	0	0	✓		
Load shedding	Load shedding_Unit step background_Normal	Cyan	0	255	255			
	Load shedding _Unit step background_Changed	Orange	255	120	60			

変　更　記　録　REVISIONS

変更記号 REV.MARK 変更発行日 REV.ISSUED	ページ PAGE	変更箇所_・_変更内容 CHANGED PLACE AND CONTENTS	承認 APPROVED BY	調査 CHECKED BY	担当 PREPARED BY	保管 REGISTERED
0 20.May.'15	-	First issue			H.Higeta	
1 17.Feb.'16	1,13 213-215 235 17,217-225,236,237,239,241 147,184,356	-Delete the description of LCD Screen of BCU/BCPU (Sec.7 and 8). -Change the description of ANN Window. -Add the description of PLC function (Sec. 4.142 to 4.146). -Correction of error.	J.Nagata 17.Feb.'16	Y.Watabe 17.Feb.'16	H.Higeta 17.Feb.'16	
2 01.June '16	31-34,38,41,140,141,216,243 45 63,68 112-114 337 362,363	-Change the system menu screen by the seconds display. -Change the Bay single line screen since the display position of BC/BS diagram was changed. -Add the displaying the forced setting of IED and Measurement Value (Sec.4.27 and 4.30) -Add the description of changing SC/FEP Mode (Online/Standby)(Sec4.56). -Add the description of multi-language representation of HMI screen (Sec.7). -Adde the LAN condition monitoring of IED with two port.	J.Nagata 01.June '16	Y.Watabe 31.May '16	H.Higeta 31.May '16	
3 14. Mar '17	45 46 116 120-123 222 262	-Added Note 2 to Sec.4.13.2). -Added the description of LED symbol display. -Added the Sec.4.57. -Changed the description of BIBO/LED display. -Added Note to Sec.4.145.3). -Added Note to Sec.6.5.3.	J.Nagata 14.Mar. '17	Y.Watabe 16.Feb.'17	H.Higeta 01.Feb '17	
4 08. Dec '17	222-225	-Added Note to Sec.4.145.3).	J.Nagata 08.Dec. '17	J.Nagata 08.Dec. '17	H.Higeta 01.Dec.'17	
5 08. June '18	39-40 267-268	- Changed the description of Sec.4.4. - Changed the description of Note of Sec.6.5.3.	J.Nagata 08.June'18	Y.Watabe 08.June'18	H.Higeta 06.June'18	

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6 03.Oct.'18	17-19, 244-245, 252-254 348-360	-Changed the description. -Added the description of Control Right (Sec.8).	J.Nagata 03.Oct.'18	J.Nagata 03.Oct.'18	M.Ohkubo 03.Oct.'18	
7	31-36 43 45 266 366	-Add description of login/logout/change password (Sec.3.3-3.5). -Changed description of Accessing SAS Instruction Manual (Sec.4.4). -Changed description of Stopping an Alarm of Station Common (Sec.4.6). -Changed description of Legend dialog (Sec.6.4.4). -Add File Transfer (Sec.9)	13-May-2020	13-May-2020	13-May-2020	

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