

**S2**

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S-System2 Version23.5

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## 1. Introduction

This functional specification describes the functions of the operator station (S-System2) used for the project described on the front cover of this specification. It is an operator station used in a system that monitors and controls processes using a PLC.

## 2. Operating Environment

The operator station runs on Microsoft Windows10. The requirements for the hardware and software to be used are as follows.

### 2.1 Hardware Requirements (S2)

Item	Description	Required specifications
1.	PC Main unit	Windows10 based(LTSC 2019 recommended) PC Keyboard, with mouse
2.	CPU speed	3.0 GHz The above
3.	Main memory size	Approximately 16 GB recommended
4.	Hard disk/SSD size	500 GB or higher
5.	Hard disk redundancy	RAID 1 redundancy recommended
6.	Interface	100Base-TX or higher
7.	Monitor	FULL HD wide LCD, 23 inches or more recommended

### 2.2 Hardware requirements (S2 client)

Item	Description	Required specifications
1.	PC Main unit	Windows10 based(LTSC 2019 recommended) PC Keyboard, with mouse
2.	CPU speed	2.0 GHz The above
3.	Main memory size	Approximately 16 GB recommended
4.	Hard disk/SSD size	120 GB or higher
5.	Interface	100Base-TX or higher
6.	Monitor	FULL HD wide LCD

## Operator Station (S-System2) Functional Specifications

## 2.3 Hardware Requirements (App Server)

Item	Description	Required specifications
1.	PC Main unit	Windows Server 2019 based PC Keyboard, with mouse
2.	CPU speed	Intel made Xeon 3.0 GHz The above
3.	Main memory size	Approximately 32 GB with ECC function recommended
4.	Graphics card	Equivalent to Quadro P620 made of NVIDIA
5.	Hard disk/SSD size	500 GB or higher
6.	Hard disk redundancy	RAID 1 redundancy recommended
7.	Interface	100Base-TX or higher
8.	Monitor	FULL HD wide LCD, 23 inches or more recommended

## 2.4 Software Requirements (S2/S2 Client)

Item	Description	Installed software
1.	Basic software	Microsoft Windows 10 Professional/ LTSC 2019 64-bit version (Japanese, English, Chinese(Simplified/Traditional), Korean, Thai, Vietnamese)
2.	SCADA software	PA-Panel6 manufactured by Roboticsware Use our specified rev
3.	Supervisory control software package	Packaging S-System 2 manufactured by Kyoto EIC
4.	Report	Microsoft Excel 2019/2021

## 2.5 Software Requirements (App Server)

Item	Description	Installed software
1.	Basic software	Japanese-language Microsoft Windows Server 2019 (Japanese, English, Chinese(Simplified/Traditional), Korean, Thai, Vietnamese)
2.	SCADA software	PA-Panel6 manufactured by Roboticsware Use our specified rev
3.	Supervisory control software package	Packaging S-System 2 manufactured by Kyoto EIC

### 3. Configure the Operator Station Screen

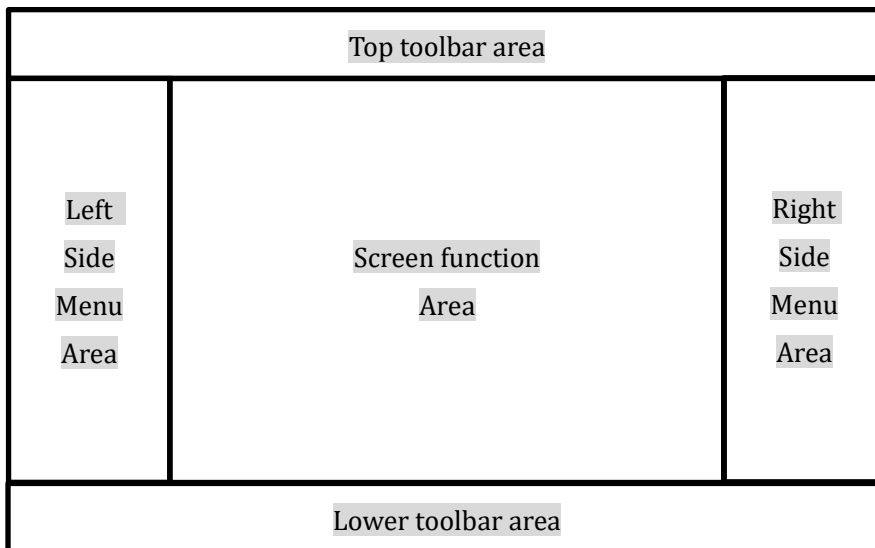
The operator station screen for the central monitoring device consists of the following five parts.

- Top toolbar area
- Lower toolbar area
- The left menu area
- The right side menu area
- The screen function area

#### 3.1 Screen configuration

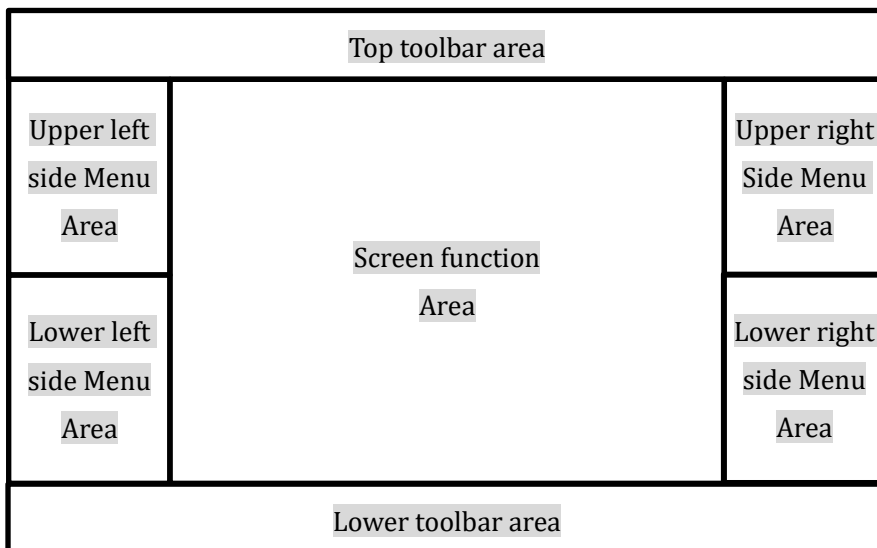
##### Single-Screen Mode Configuration

This mode enables you to use the single-screen function.



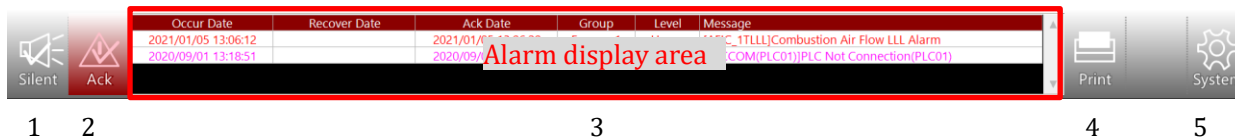
### Four-Screen Mode Configuration

In this mode, the four-screen display functions are available.



### 3.2 Top toolbar area

The top toolbar area is always displayed at the top regardless of which screen is displayed, and the buttons in the area and the functions and details of each display are as follows.



NOTE) When the operation guide function or system status function is optionally installed, the items in the alarm display area are always different.

## Operator Station (S-System2) Functional Specifications

No.	Name	Function
1	Mute button	This button mutes the alarm sound. Flashes yellow when an alarm sounds.
2	Status check button	Lights in red if there is an alarm or operation guide.
3	Alarm status display	Displays the information of the most recent alarm that is currently occurring. Display information : Alarm occurrence date/time Alarm recovery date and time Alarm confirmation date and time Alarm group Warning level (emergency, heavy failure, medium failure, light failure, information) Details of the alarm Display color according to alarm level Emergency : Magenta Serious failure : Red Medium failure : Orange Minor failure : Yellow Information : Cyan Indicator colour : When an alarm is generated and unconfirmed : Red If the alarm is being generated and confirmed: Orange When unconfirmed by alarm recovery : Green Click a message to view the faceplate of the tag. Up to 5 latest messages are displayed, and more messages are displayed by scrolling.
4	Print button	The screen can be printed. You can also right-click to print normally or hardcopy screens. (with black-and-white reverse printing function)
5	System button	Click the screen for system setting and shutdown of this equipment.



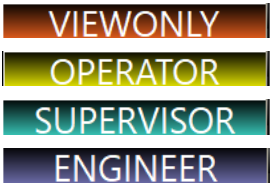
### 3.3 Lower toolbar area

The bottom toolbar area contains the following symbols and display areas, each with the following functions:



No.	Name	Function
1	Left menu area display/hide button	Shows/hides the left menu. You can enlarge the display of the screen function area by hiding it.
2	Screen function area zoom button	After clicking this icon, specify a range with the mouse in the screen function area to enlarge the range. You can use the scroll bar to move the displayed area of the enlarged screen.
3	Screen Function area Size Expansion Button	Magnifies Display in the screen function area at the same magnification.
4	Screen Function area Size Reduction Button	Reduces Display in the screen function area to the same size.
5	Screen Function area Actual Zoom Reset Button	Resets the enlargement in the screen function area to the original display size.
6	Faceplate search button	The faceplate search screen is displayed and up to eight faceplates of the specified tag are displayed.
7	Pop-up faceplate all clear button	Clears all pop-up faceplates displayed on the screen.
8	Pop-up full-screen delete button	Deletes all popup windows displayed on the screen.
9	Parameter search button	The Parameter Search screen appears, displaying up to eight faceplates that match the search criteria based on the parameters.
10	Condition display area	Indicates that the unit is in demo mode when the license USB is not inserted.
11	Test mode display	The red lamp lights in the test mode (simulated input mode). Click this button to display a list of tags in test mode.
12	1 Switch screen mode	Switches to single-image mode.
13	4 Screen mode switching	4 Change to the screen mode.

## Operator Station (S-System2) Functional Specifications

No.	Name	Function
14	Date and time display	Displays the current time in years (western calendar), months, days, hours, minutes, and seconds.
15	Master display	When unconfirmed by alarm recovery "M" lights up when the PC is the master.
16	PC node display	Displays the current alarm PC node state. For server machines: Server For the client machine: Client
17	Operation privilege display	Of the following privileges, the current operation privileges are displayed.  You can change the operation privilege by clicking. Refer to the table below for the contents of each operation permission.
18	Show/Hide right menu area button	Shows/hides the right side menu. You can enlarge the display of the screen function area by hiding it.

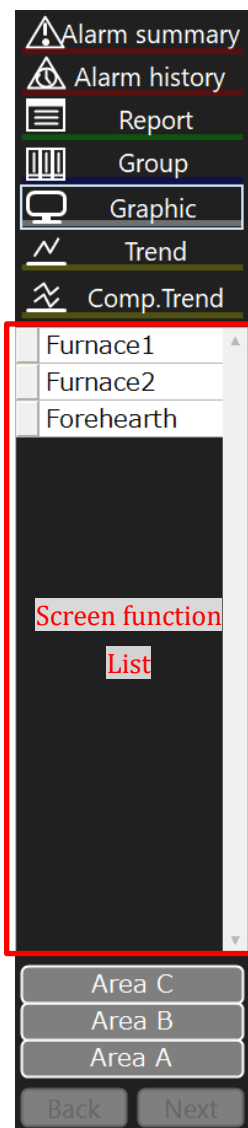
## [Operation Privileges]

Name	Description
VIEWONLY	Monitoring such as screen expansion is possible and operation is not possible. You can set bookmarks, trends, and groups.
OPERATOR	Normal plant operation mode. In addition to VIEWONLY function, basic control operations are available.
SUPERVISOR	In addition to the functions in OPERATOR mode, some settings related to system settings can be made. Password is required to enter SUPERVISOR mode.
ENGINEER	In addition to the function in SUPERVISOR mode, tag information can be set, and all functions of the system can be used. Password is required to enter ENGINEER mode.

A password is not required to migrate from a higher privilege to a lower privilege.

### 3.4 The left menu area

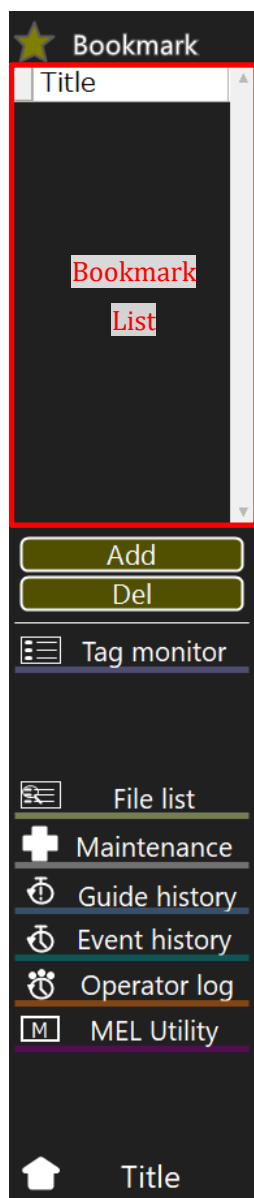
The left menu area provides the following functions:



Name	Function
Alarm condition	Calls up the screen to display the current alarm status.
Alarm history	Calls up the alarm history screen.
Report	The report list is displayed in the screen function list, and the desired name is selected to call up the report screen.
Group	The group screen list appears in the screen function list. Select the desired name to bring up the group screen.
Graphics	The graphics screen list appears in the screen function list. Select the desired name to bring up the graphics screen.
Trend	The trend group list is displayed in the screen function list, and select the desired name to bring up the trend screen.
Comparison trend	The comparison trend group list is displayed in the screen function list, and the desired name is selected to bring up the comparison trend screen.
Screen Function List	When you press the report button, group button, graphic button, trend button, or comparison trend button, the registered screen name is displayed. Select and call up the screen you want to display. You can display up to two popup windows by clicking the button on the left of the window name.
Back	Calls up the last displayed screen.
Next	Forward the returned screen one screen at a time.

### 3.5 The right side menu area

The menu area on the right has the following symbols and display areas, each with the following functions:



Name	Function
Bookmark List	The screen name registered in the bookmark list is displayed. Select the desired name to recall.
Add button	Pressing the Add button while the screen is displayed registers the bookmark and displays the screen name at the bottom of the bookmark list.
Delete button	You can delete items registered in the bookmark list.
Tag monitor	List the status of the tags in the current tag monitor group.
File list	You can list files in a specific folder.
Maintenance	List the start of use of registered equipment, inspection timing, and replacement timing.
Operation guide history	Operation Guide the operation guide history.
Event history	Tag events History: Displays the event history.
Operation history	Operation history in machine: Displays the operation history.
MEL Utility	Displays the internal data reference screen of PLC made by Mitsubishi Electric Corporation. To manipulate the value, you need to have operation permission greater than ENGINEER.
CS Utility	Displays the Omron PLC internal data reference screen. To manipulate the value, you need to have operation permission greater than ENGINEER.
Title button	Displays the title screen.

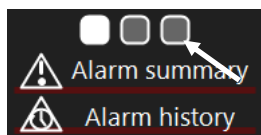
### 3.6 The screen function area

The screen selected from the left and right menu areas is displayed.

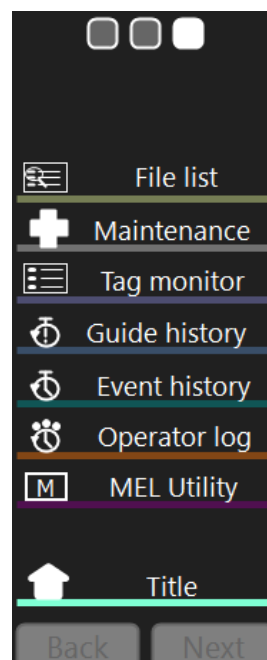
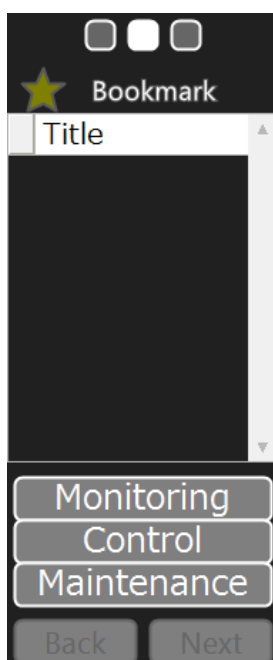
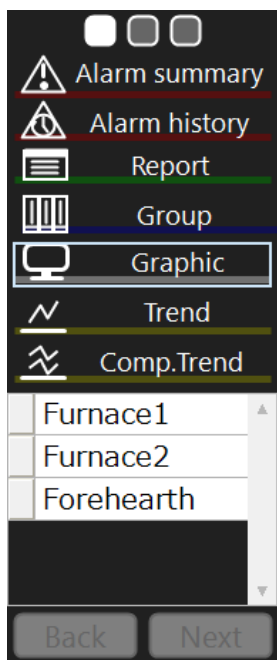
For the function of the displayed screen, refer to the function of each screen.

### 3.7 Menu area in 4-screen mode

In the 4-screen mode, the left and right menu areas are divided into upper and lower sections to enable screen selection corresponding to each of the 4-split screens, and to switch the display in the menu area.



The three  buttons at the top of the menu allow you to switch the display contents in the menu area as shown below.

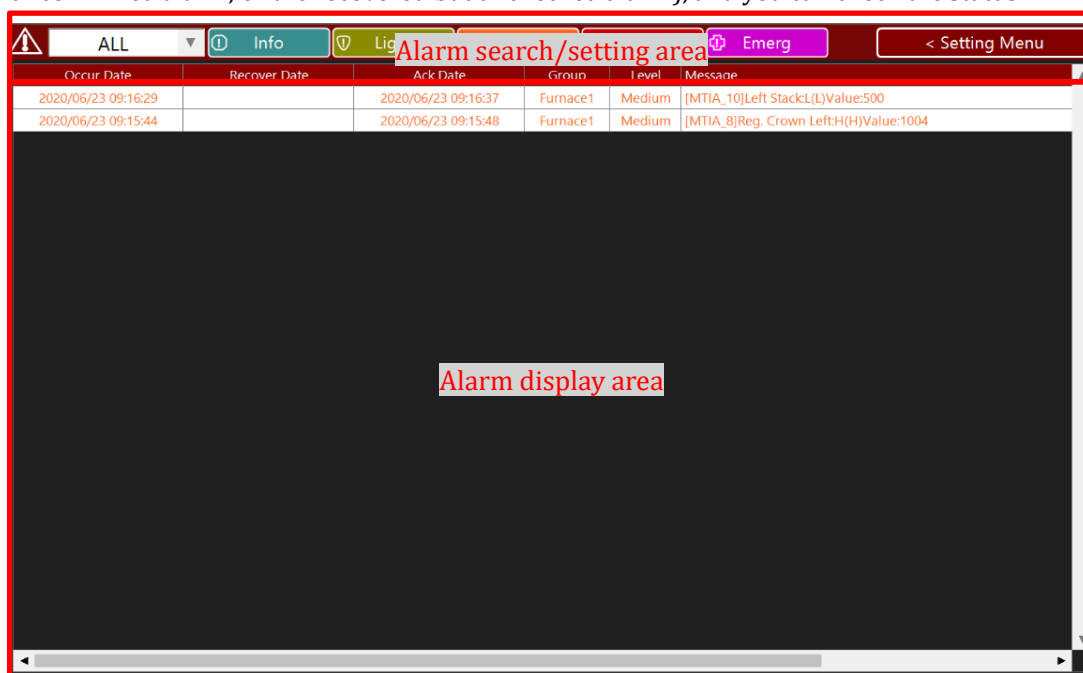


#### 4. Monitoring screen functions

This section describes the functions and details of the various screens displayed in the screen function area.

##### 4.1 Alarm status display screen

The alarm status display screen displays the current alarm (the currently occurring alarm, the unconfirmed alarm, or the recovered but unchecked alarm), and you can check the status.



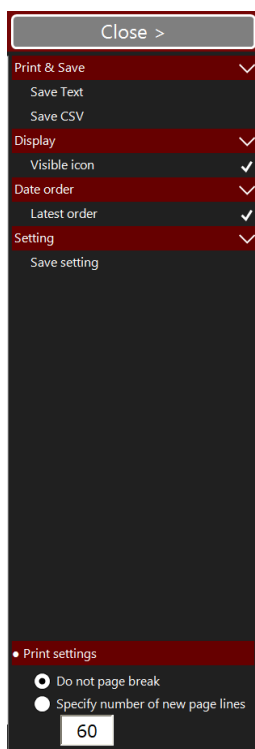
##### 4.1.1 Alarm search/setting area



No.	Name	Function
1	Group combo box	You can filter the alarm groups.
2	Alarm level filter button	You can filter the alarm level. When the filter is applied, the corresponding button is grayed out.
3	Setting menu	Displays menus related to alarm settings.

## Operator Station (S-System2) Functional Specifications

## Alarm setting menu



Name	Function
Close	Closes the alarm setting menu.
Text printing	Display the alarm currently displayed in the alarm display area in text using Notepad.
CSV output	The alarm being displayed in the alarm display area is saved in CSV format.
Icon display	When an alarm occurs, an icon corresponding to the alarm level is displayed along with the value on the screen. Default value: Display
Chronological order	Sorts alarms in new order from the time of occurrence.
Keep setting	Save the print sets and icon display settings.
No page break	Select if you do not want line breaks when printing text.
Page break with specified number of lines	Select this option to start a page break on a designated line when text is printed. The number of lines that can be specified for page breaks can be changed.

### 4.1.2 Alarm display area

Occur Date	Recover Date	Ack Date	Group	Level	Message
2020/06/23 09:16:29		2020/06/23 09:16:37	Furnace1	Medium	[MTIA_10]Left StackL(L)Value:500
2020/06/23 09:15:44		2020/06/23 09:15:48	Furnace1	Medium	[MTIA_8]Reg. Crown LeftH(H)Value:1004

The alarm display area displays the status of the currently occurring alarm.

Each line of alarms displays the following items:

- Time information  
Displays the date and time of occurrence, recovery date and time, and confirmation date and time in seconds.
- Group  
Select the group to which the message belongs (three types: "All", "Status", and "System")
- Level  
Selection of message type (Information, minor failure, medium failure, major failure, emergency)  
Indicator colour : Information = Cyan, Light Fault = Yellow, Fault = Orange, Serious Fault = Red, Emergency = Magenta
- Content  
Tag name and alarm status are displayed.  
For analog values, the value when an alarm occurs is also displayed.

The alarm characters and the display color of the background are classified according to the alarm status as follows.

Alarm condition	Font color	Background color
If the alarm is being generated and confirmed	Alarm Level Color	White
When an alarm is generated and unconfirmed	White	Alarm Level Color
When the alarm is restored	Alarm Level Color	Gray

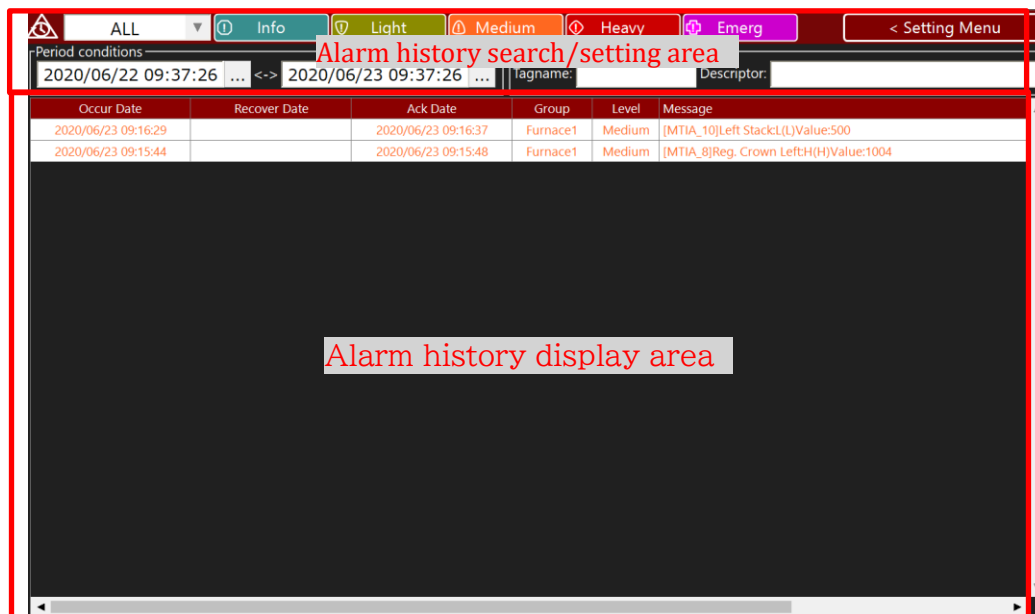
If an alarm that has already been acknowledged is restored, the display is automatically cleared.



## 4.2 Alarm history screen

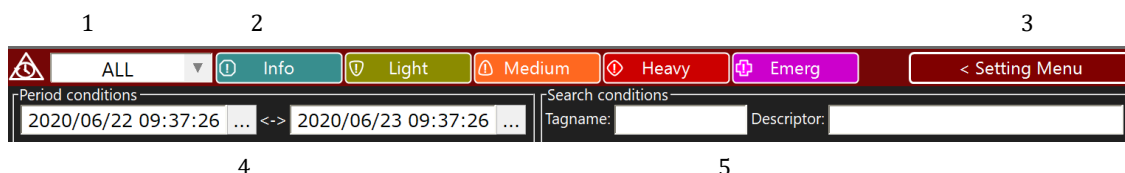
This screen displays the history of alarms that have occurred. The display contents and their methods are the same as those of the alarm status display screen, but they are equipped with a function for easily confirming past alarms and a saving function.

Records older than one year are automatically deleted.



In the Alarm History screen, up to 5000 alarm histories can be displayed from the current time for one day.

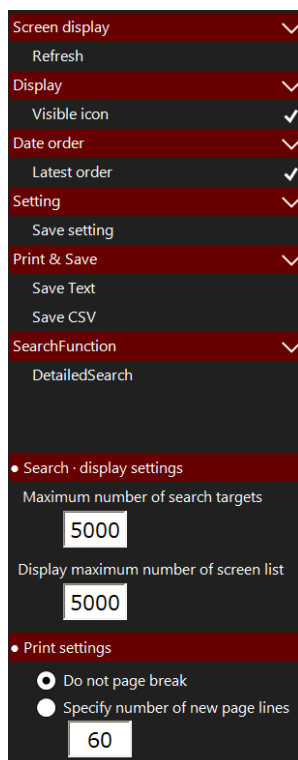
### 4.2.1 Alarm history search/setting area



No.	Name	Function
1	Group combo box	You can filter the alarm groups.
2	Alarm level filter button	You can filter the alarm level. When the filter is applied, the corresponding button is grayed out.
3	Setting menu	Displays menus related to alarm settings.
4	Period selection condition	The alarm history information can be searched by specifying the start date and time and the end date and time.
5	Search condition	You can search the alarm history information by specifying the tag name or characters in the tag.

## Operator Station (S-System2) Functional Specifications

## Alarm setting menu



Name	Function
Close	Closes the alarm setting menu.
Latest display	Alarm history information is always updated. A maximum of 5000 cases are available in a one-day period from the current point.
Icon display	When an alarm occurs, an icon corresponding to the alarm level is displayed along with the value on the screen. Default value: Display
Chronological order	Sorts alarms in new order from the time of occurrence.
Keep setting	Save the print sets and icon display settings.
Text printing	Display the alarm currently displayed in the alarm display area in text using Notepad.
CSV output	The alarm being displayed in the alarm display area is saved in CSV format.
Detailed search	Used when you want to set further conditions in addition to the conditions in the alarm history search/setting area.
Maximum number of searches	Set the maximum value of the alarm history information to be searched.
Maximum number of screen list displays	Set the maximum value of the alarm history information to be displayed on the screen.
No page break	Select if you do not want line breaks when printing text.
Page break with specified number of lines	Select this option to start a page break on a designated line when text is printed. The number of lines that can be specified for page breaks can be changed.

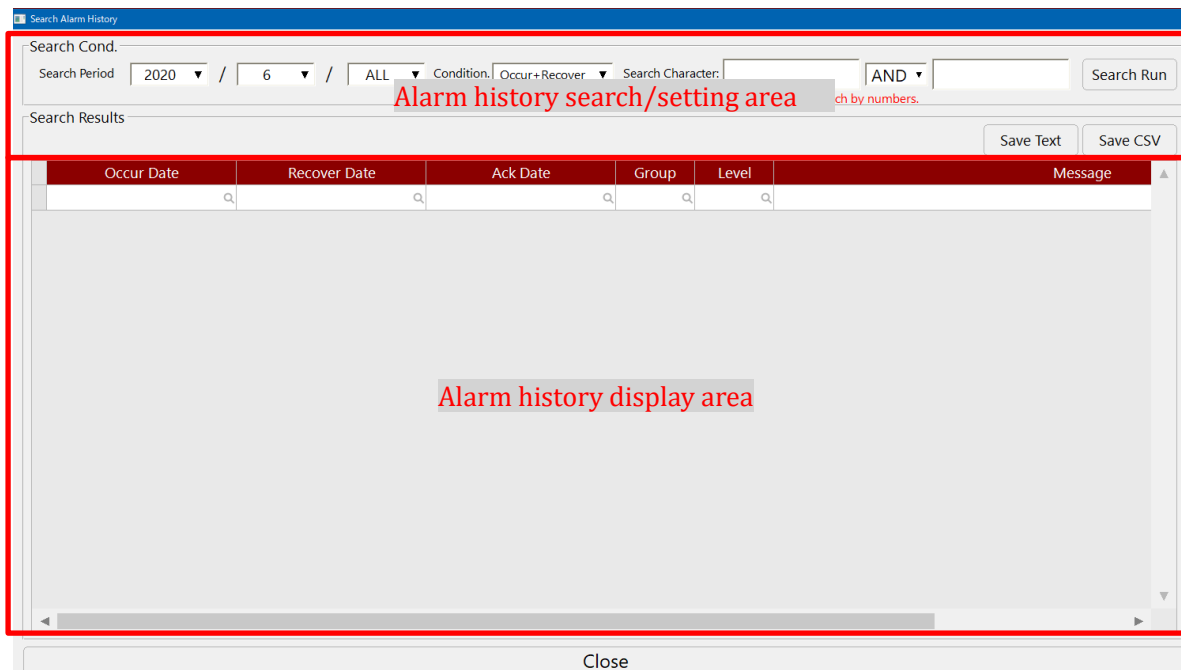
Operator Station (S-System2) Functional Specifications

4.2.2 Alarm history display area

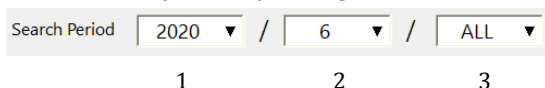
Refer to the same as the alarm status display screen.

4.2.3 Detailed search

The alarm history information can be refined and searched, and up to 10000 alarm history information that matches the search condition can be acquired.



【Alarm history search/setting area】



No.	Search target	Function
1	Year	Searches for the specified year. If you select "All", all data will be searched.
2	Month	Searches for the specified month in the specified year. If you select "All", the data specified by the year will be searched.
3	Day	When "All" is selected, the data specified by the month is searched. If you select "1-9", the search will be performed on the 1st to 9th of the specified month. If you select "10-19", the search will be performed from the 10th to the 19th of the specified month. If you select "20-29", the search will be performed on the 20th to 29th of the specified month.

Operator Station (S-System2) Functional Specifications

Condition:  ▼

Conditions	Function
Occurrence + recovery	The alarm that occurred and the recovered alarm are searched.
Occurrence	The generated alarm is searched.
Restoration	The recovered alarm is searched.
Confirm	The confirmed alarm is searched.

Search Character:  AND    
\* Please do not search by numbers.

Search can be performed by alarm group name, alarm level name, tag, name, and character in state.

In addition, two types of search characters can be set, and AND and OR conditions can be set. (You cannot search only numeric values.)

The results that match the search conditions are displayed in the alarm history display area.

**【After Alarm History Search Results/Setting Area】**

Search can be performed according to the search result in the alarm history search result/setting area.

Search can be performed by setting the alarm occurrence date and time, alarm restoration date and time, and alarm confirmation date and time.

Occur Date	Recover Date	Ack Date	Group	Level	Message
2020/06/23 09:15:44			Furnace1	Medium	[MTIA_8]Reg. Crown Left(H)Value:1004
2020/06/23 09:16:00			Furnace1	Medium	[MTIA_10]Left Stack(1)Value:500

Text is displayed using Notepad for the contents displayed in the alarm display area.

The content displayed in the alarm display area is output in CSV format.

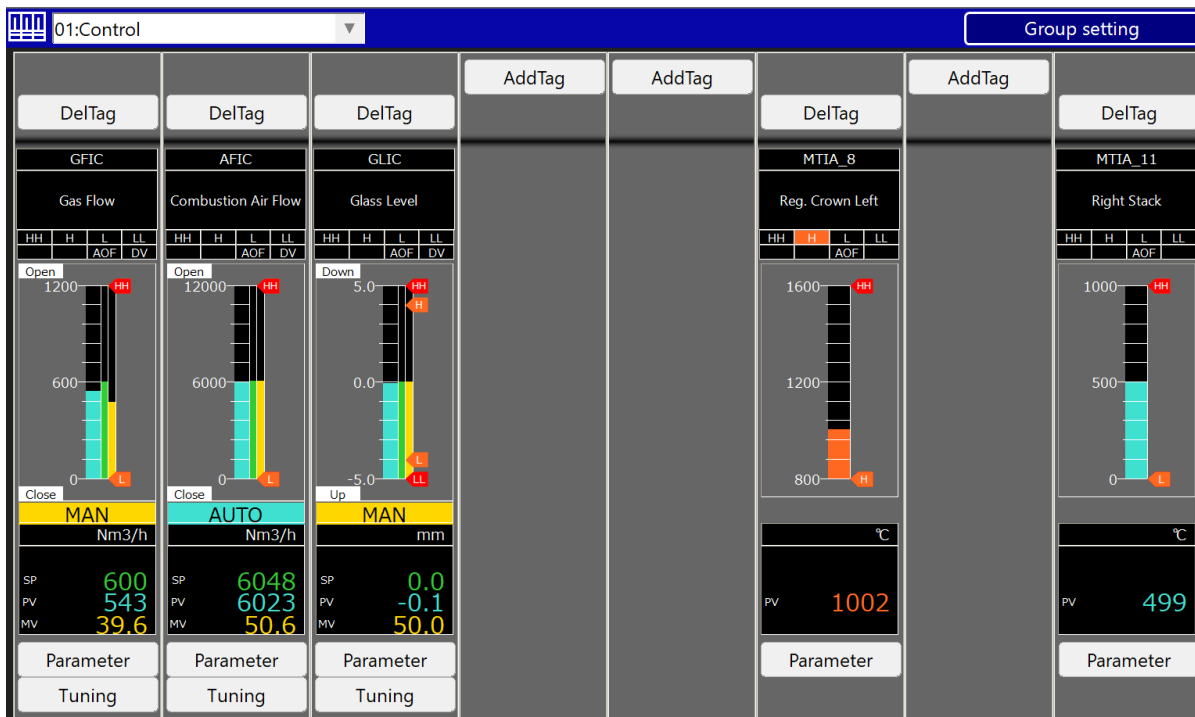
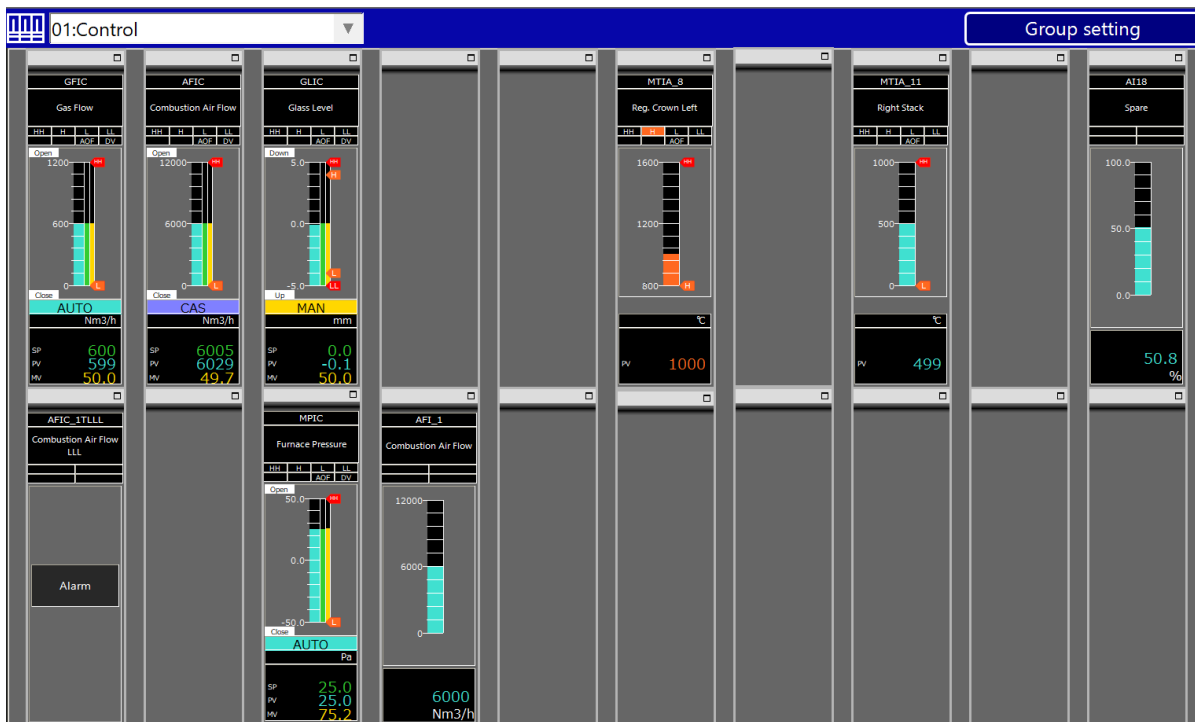
**【Alarm history display area】**

Refer to the same as the alarm status display screen.

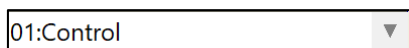
Operator Station (S-System2) Functional Specifications

4.3 Group screen

This screen displays the instrument and actuator faceplates as a group. There are two types, up to 20 faceplates and 8 faceplates per screen.



You can recall a group page that you want to display by selecting its name from the selection box.



If the screen displays 20 faceplates, click  on the upper right of each faceplate. It can be recalled enlarged as a pop-up faceplate.

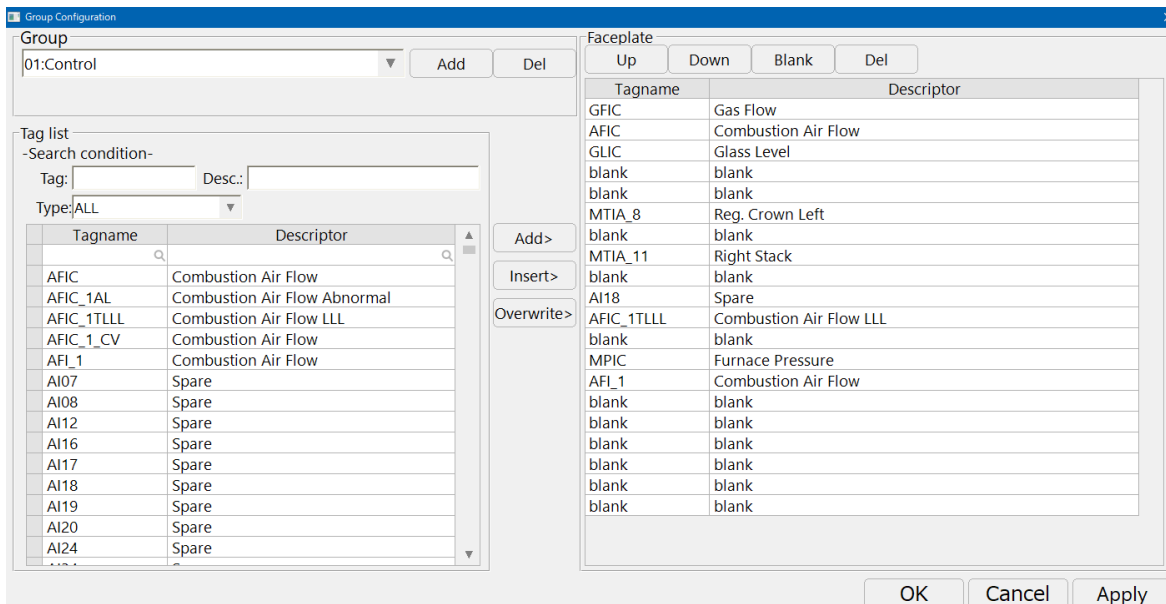


Refer to the separate instruction manual for the type and parameters of the faceplate displayed in the group page.

### 4.3.1 Group registration function

#### Group setting

With the privileges above SUPERVISOR, pressing the group registration button brings up the following window, allowing you to add or delete group pages, and to register, delete, or change tags in group pages. The following window is for a group page with 20 faceplate displays.



Title	Function
Group	Group pages can be added or deleted. You can also rename a group page.
Tag list	When you search by tag number, name, or type, the tags that match the conditions are displayed.
Add>	Selects the tag displayed in the search and adds it to the bottom of the group page.
Insert >	Selects the tag displayed in the search and inserts it at the selected position on the group page.
Override>	Selects the tag displayed in the search and overwrites it to the selected position on the group page.
Upper	Moves the selected tag position up one position.
Bottom	Moves the selected tag position down one position.
Blank	Creates a blank space one position below the selected tag.
Delete	Deletes the position of the selected tag.

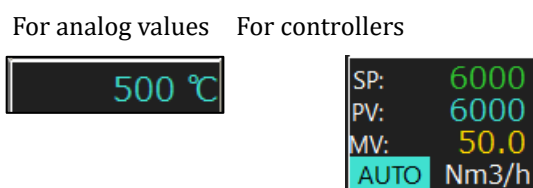
#### 4.4 Graphics screen

From the graphic screen, you can monitor the status of the plant and perform control operations by invoking the faceplate. Note that the contents that can be operated differ depending on the operator's permission.

Graphic screens are plant-specific screens, so only symbols and display functions used in the screen are described.

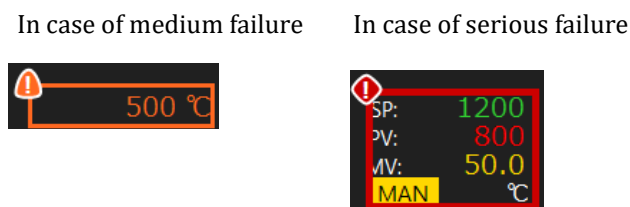
##### 4.4.1 How to display analog values

Normally: Cyan characters and numbers are displayed.

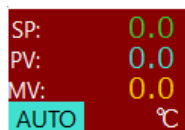


In case of an alarm (in case of a fault): The orange frame is displayed with the in progress fault icon.

In case of alarm (in case of serious failure): Red frame is displayed together with the Critical Failure icon.



Communication error: The area inside the frame is displayed in deep red.



PID loop status display color

Control mode	Display character	Indicator color	Value	Indicator color
Manual	MAN	Yellow	PV	Cyan
Automatic	AUTO	Cyan	SP	Green
Cascade	CAS	Purple	MV	Yellow



#### 4.4.2 How to display digital values

ON/OPEN/OPERATION: RED DISPLAY(Standard Time)



OFF/Closed/Stopped: Green display.(Standard Time)



Error: Flashes in orange. (Standard Time)

Alert icons can also be displayed at the same time by setting.

【How to display the opening of the control valve, etc.】

The color of the symbol changes according to the output signal to the control valve, etc.

When the output is less than 1%: Green display.(Standard Time)

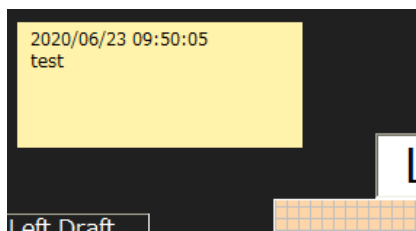


When the output is 1% or more: Indicates in red.(Standard Time)



#### 4.4.3 How to call up sticky notes and faceplates

Sticky note function:



You can leave the content you want to convey to the graphic screen on the sticker.

Maximum number of labels per screen is 5.

Addition of sticker

Click the Add Tag icon on the Graphics screen.

After clicking, a new tag is added to the upper left.



:Add tag icon

Displaying or hiding sticky notes



:Hide tag icon

Hides registered stickers collectively.

Used to reference objects behind sticky notes.



:Tag display icon

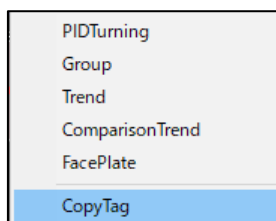
Display registered stickers collectively.

To recall a faceplate :

The faceplate of the registered tag can be recalled by left-clicking the analog value display area and digital value display area.

The menu is displayed by right-clicking the analog value display area.

(figure below)



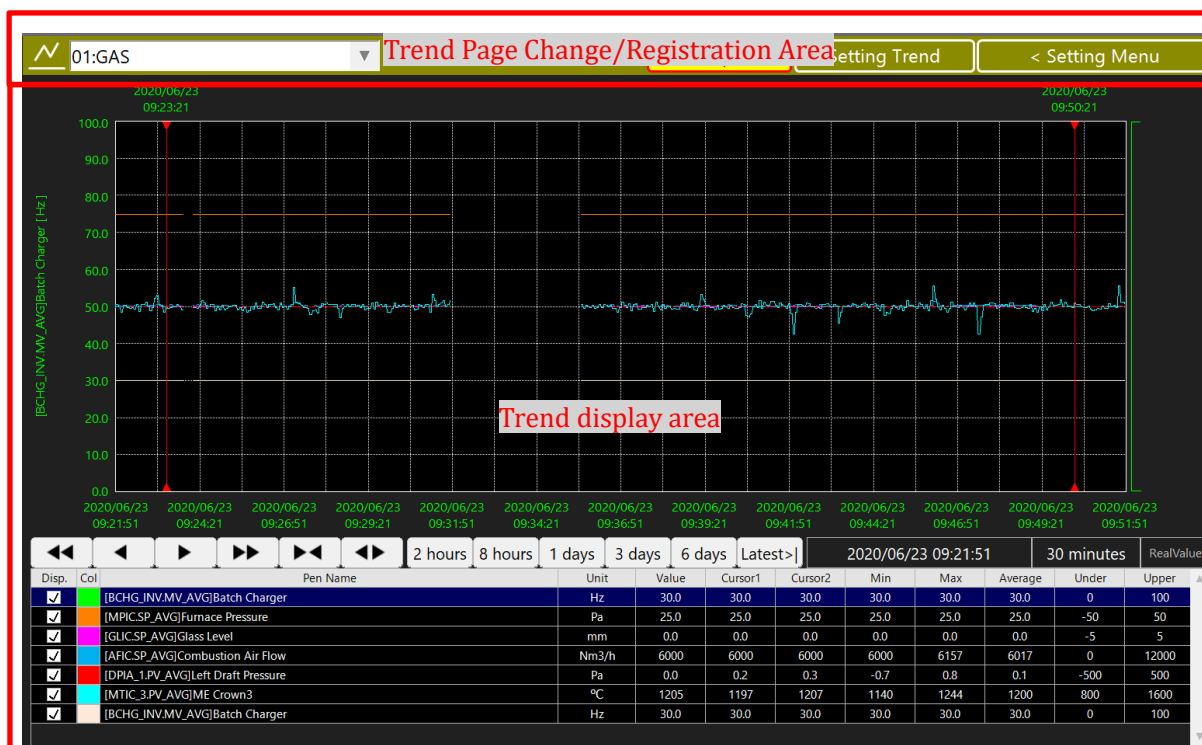
Title	Function
PID tuning	The PID tuning screen is displayed.
Group	The group screen (first applicable screen for tag search) to which this tag is assigned is called up.
Trend	The trend screen (first applicable screen for tag search) to which this tag is assigned is called up.
Comparison trend	The comparison trend screen (first applicable screen in tag search) to which this tag is assigned is called up.
Face Plate	The faceplate assigned to this tag is called.
Copy Tag	You can assign this tag by copying the tag assigned to this object and pasting it on another screen.

Operator Station (S-System2) Functional Specifications

4.5 Trend screen

The trend screen displays tag values in chronological order using a line chart, and stores tag values for one year at a specified interval.

Up to 8 points can be registered on the trend screen.



4.5.1 Trend page change and registration area

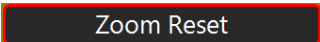
The trend page change/registration area has the following functions.



Function	Description
Group combo box	The trend group can be selected.
Automatic update	The trend graph is updated every fixed time (2 seconds). Note that automatic updating cannot be performed on multiple trend screens. The button lights up yellow during automatic update.
Trend registration	You can add/delete trend groups and register/delete/change trend tags in groups. Note that you need more than SUPERVIOR privilege.
Setting menu	Perform basic setting and output setting of trend.

## Operator Station (S-System2) Functional Specifications

Dragging the graph screen with the mouse in the trend display area enlarges the graph. During the enlargement display, the [Release Enlargement] button is displayed in the trend page registration/change area.



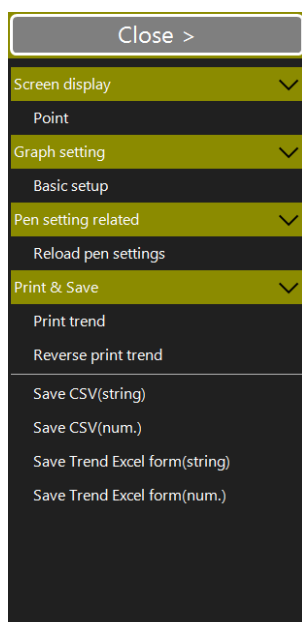
Zoom Reset

When you place the cursor on the zoom release button, the button is displayed in red, and when you click it, the zoom is released.



Zoom Reset

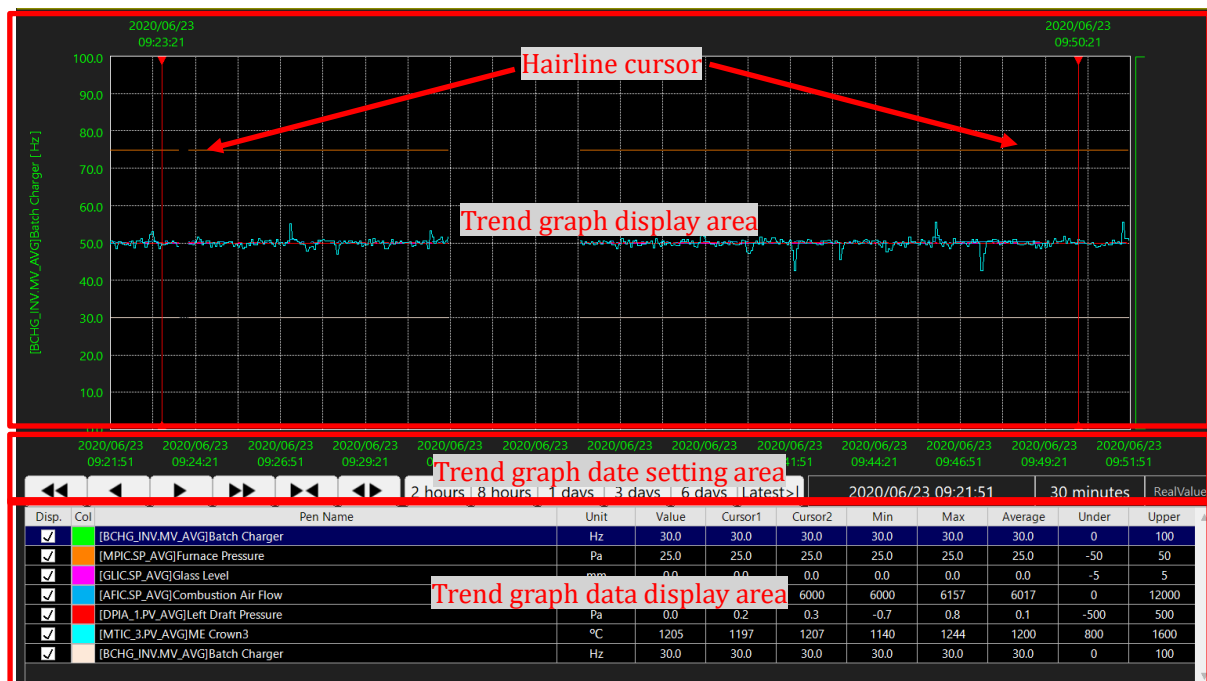
## 4.5.2 Setting menu



Name	Function
Close	Closes the Settings menu.
Point display	Displays the position of the collected data as a point.
Basic setting	Set the trend background color, crease color, and pen thickness.
Reload pen settings	Reload the trend setting information.
Normal printing	Prints the trend screen without including the upper and lower tool bars and left and right menus.
Reversed printing	Prints the trend screen in black and white without including the upper and lower tool bars and left and right menus.
CSV character output	Text output of the trend data between the left and right hairline cursors in the trend display area in CSV format.
CSV numerical output	Outputs the trend data between the left and right hairline cursors in the trend display area in CSV format.
Trend Excel (Character)	The trend data between the left and right hairline cursors in the trend display area is output as text in Excel together with the screen hardcopy.
Trend Excel (Numerical value)	The trend data between the left and right hairline cursors in the trend display area is outputted in Excel together with the screen hardcopy.

### 4.5.3 Trend display area

The trend display area consists of a trend graph display area, a date setting area, and a data display area.



The left and right hairline cursors in the trend graph display area can be freely moved with the mouse, and the values on the cursor at this time are displayed in the data display area.

Up to eight trend graphs are displayed in the trend graph display area, and the details of each trend tag are listed in the data display area.


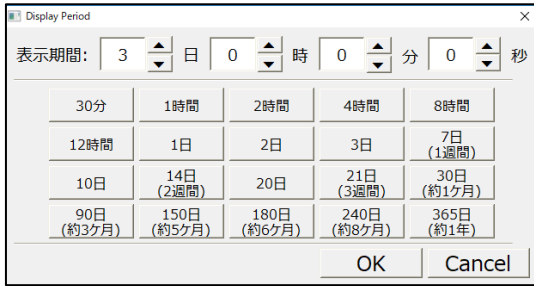
The vertical axis of the trend graph displays the name and range of the tag selected in the list display in industrial units, and the horizontal axis displays the date and time.

The trend graph is drawn from left to right and can be changed depending on whether the reference time is at the right end or at the left end.

### 4.5.4 Trend graph date setting area

In the trend graph date setting area, you can scroll the trend graph and change the time width.



No.	Name	Function
1.	Scroll	Scrolls through the trend graph.
2.	Scaling	Enlarges or reduces the trend graph.
3.	Time Width Selection	Sets the time width of the trend graph.
4.	Latest >	Sets the reference time of the trend to the latest time.
5.	Reference time	Clicking the reference time display area displays the date setting dialog box, which allows you to change the date. 
6.	Trend time width	Clicking on the trend time width display area displays the time width setting dialog box, which can be changed. 
7.	Data Type	Displays the data type displayed in the trend graph. Click this button to display the time between the hairline cursors.

### Data Type

When you change the trend time width, the data types that appear change automatically based on the time width, and the data that is stored in CSV-and Excel-formatted files is also based on the data type at that time.

Time Width	Display	Display contents
Within 3 hours	1 sec	Instantaneous value of 1 second cycle
Within 16 hours	5 sec	Average value of data collected at 5-second intervals
Within 33 hours	10 sec	Average of 10-second-interval aggregated data
Within 65 hours	20 sec	Average of tabulated data at 20-second intervals
Within 100 hours	30 sec	Average of 30-second-interval aggregated data
Within 130 hours	40 sec	Average of data collected at 40-second intervals
Within 160 hours	50 sec	Average value of data collected at 50-second intervals
Within 200 hours	60 sec	Average of tabulated data at 60-second intervals
Within 270 hours	80 sec	Average of data collected at 80-second intervals
Within 340 hours	100 sec	Average of data collected at 100-second intervals
Within 405 hours	120 sec	Average of data collected at 120-second intervals
Within 475 hours	140 sec	Average of data collected at 140-second intervals
Within 540 hours	160 sec	Average of data collected at 160-second intervals
Within 610 hours	180 sec	Average of data collected at 180-second intervals
Within 900 hours	240 sec	Average of data collected at 240-second intervals
Within 3 months	10 min	Average of data collected at 10-minute intervals
Within 5 months	15 min	Average value of 15-minute interval aggregated data
Within 7 months	22 min	Average of 22-Minute Interval Aggregated Data
Within 9 months	30 min	Average of 30-minute-interval aggregated data
Within one year	40 min	Average of data collected at 40-minute intervals



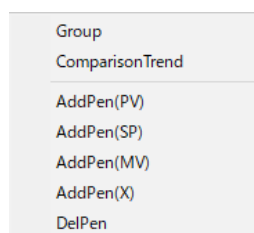
#### 4.5.5 Trend graph data display area

For tags registered in the trend graph, the following items are displayed in detail.

Item	Description
Display	The check box can be used to toggle between visible and hidden.
Color	Indicates the color of the trend graph. With SUPERVISOR or higher privileges, you can change the colors by clicking.
Pen name	The pen name of the trend graph is displayed.
Unit	The industrial unit attached to the tag is displayed.
Updated value	Displays the value of the latest collected data for the tag.
Cursor 1	Indicates the value at the position of the hairline cursor on the left.
Cursor 2	Indicates the value at the position of the hairline cursor on the right.
Minimum value	Indicates the minimum value between the left and right hairline cursors.
Maximum value	Indicates the maximum value between the left and right hairline cursors.
Mean value	Indicates the average value between the left and right hairline cursors.
Lower limit setting	Indicates the value relative to the 0% position of the trend graph.
Upper limit setting	Indicates the value relative to the 100% position of the trend graph.

Double-click the pen in the trend screen to recall the faceplate of the tag.

If you right-click with the pen selected, a pull-down menu is displayed, allowing you to expand the corresponding tag to the registered screen, register or delete the copied tag in the graphics screen as a trend pen (PV value, SP value, MV value, or digit



#### 4.5.6 Basic setting of trend

The following settings can be made in the basic settings in the “Setting menu” in the trend graph page change/registration area.

- Background color of the trend graph
- Crease color of trend graph
- Line thickness of trend graph
- Bar shading (enabled only for digital signals)
- Basic time setting of trend graph (left side or right side)

#### Registering Trends

The following items can be changed when operation permission above SUPERVISOR is given.

Item	Description
Group	You can select, rename, add, or delete trend groups.
Pen	You can change, add, and delete pens for trends.
Tag Search	You can search for tags that you want to add as trend pens by number, name, and type.
Add/Insert/Above	Searched tags can be added, inserted, or overwritten to the pen list.
Pen list	<p>The position of the pen can be moved up and down to arrange them in the desired order.</p> <p>Color: Double-click to change the graph color.</p> <p>Pen name : Double-click to change the name.</p> <p>Lower limit setting : The 0% position of the trend graph can be changed.</p> <p>Upper limit setting : 100% position of trend graph can be changed.</p> <p>Scale low limit: The scale low limit position of the trend graph can be changed.</p> <p>Scale upper limit: The scale upper limit position of the trend graph can be changed.</p>
Display setting	The display time of the trend group can be changed.

### 4.6 Tag monitor screen

Displays a tabular listing of information about tags and displays values for up to 50 tags in real time on a single screen.



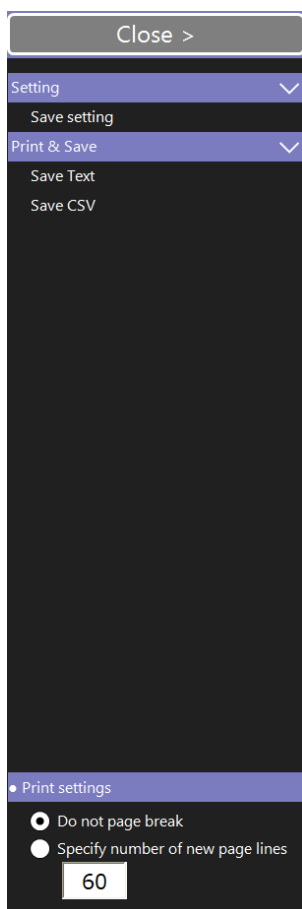
#### 4.6.1 Tag monitor page change/registration area

The Tag Monitor page change/registration area has the following functions.



Function	Description
Group combo box	Tag monitor group can be selected.
Tag monitor registration	You can add/delete tag monitor groups and register/delete/change tags in tag monitor groups. Note that you need more than SUPERVIOR privilege.
Setting menu	Perform tag monitor and output settings.

Setting menu



Name	Function
Close	Closes the Settings menu.
Keep setting	Preserves the presence of icons and print settings.
Text printing	Display the alarm currently displayed in the alarm display area in text using Notepad.
CSV output	The alarm being displayed in the alarm display area is saved in CSV format.
No page break	Select if you do not want line breaks when printing text.
Page break with specified number of lines	Select this option to start a page break on a designated line when text is printed. The number of lines that can be specified for page breaks can be changed.

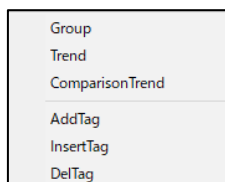
4.6.2 Tag monitor display area

The tag monitor display area displays the following information in a tabular format.

- Tag            Number assigned to the tag
- Name         Name attached to the tag
- Status 1     Displayed when an alarm is present
- Status 2     Indicates controller mode only for PID controller
  - PV value  
Displays the current value of the process input.
  - SP value  
Indicates the setting value for the controller tag.
  - MV value  
Indicates the output value of the controller tag.
- Industrial unit     Display industrial unit of process input value
- PV%          Displays the process input value in the 0-100% range.

Double-click a tag in the Tag Monitor screen to recall a tag's faceplate.

If you right-click with a tag selected, a pull-down menu is displayed, allowing you to expand to the screen where the corresponding tag is registered, or to add, insert, or delete the copied tag in the graphics screen. You must have at least SUPERVISOR privileges to add, insert, or remove tags.



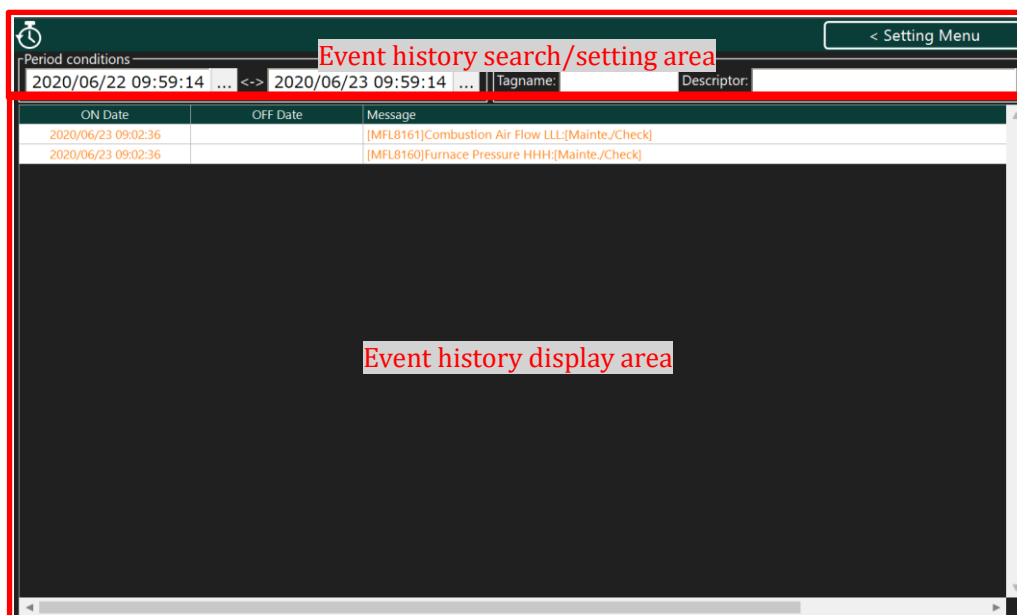
### Registering to Tag Monitor

The following items can be changed when operation permission above SUPERVISOR is given.

Item	Description
Group	You can select, rename, add, or delete tag monitor groups.
Display count setting	You can set the number of tags to be displayed on the tag monitor screen. A maximum of 50 tags per screen.
Tag Search	You can search tags that you want to register on the tag monitor screen by number, name, and type.
Add/Insert	You can add or insert a searched tag to the selection tag list.
Select tag list	You can move the selected tags up or down in the desired order or remove them from the list.

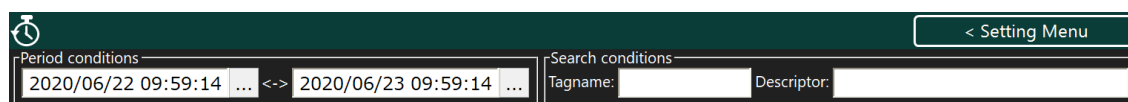
### 4.7 Event history window

Displays the history of ON/OFF status of equipment and facilities. The history retention period is one year. In the initial display, you can display up to 5000 records of one day's worth of data from the displayed time.



#### 4.7.1 Event search/Setting area

3

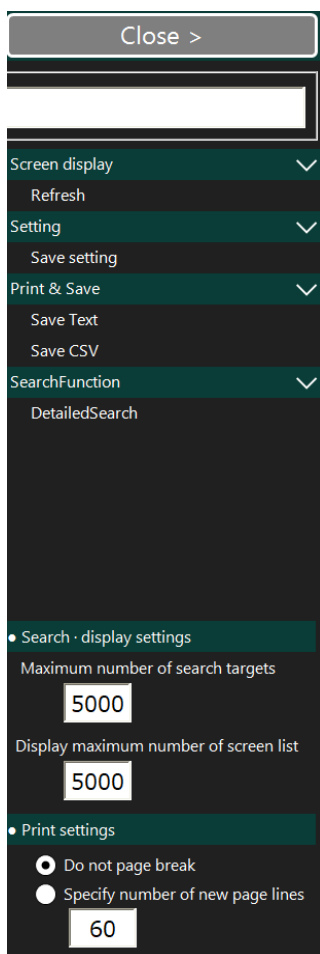


1

2

No.	Name	Function
1	Period selection condition	Event history information can be retrieved by period. Left Side : Search period start date and time Right Side : Search period end date and time The calendar is displayed and can be set.
2	Search condition	Event history information can be searched by tag and tag name.
3	Setting menu	Displays menus related to event history settings.

Setting menu



Item	Description
Close	Closes the Settings menu.
Renewal display	The event history information is always updated.
Keep setting	Keeps the print settings.
Text printing	Text is displayed using Notepad for the event displayed in the event history display area.
CSV output	Saves the displayed event in the event history display area in CSV format.
Detailed search	This function is used to set conditions in addition to the conditions in the event history search/setting area.
Maximum number of searches	Sets the maximum number of events to search.
Maximum number of screen list displays	Sets the maximum number of event histories to be displayed on the screen.
No page break	Select if you do not want line breaks when printing text.
Page break with specified number of lines	Select this option to start a page break on a designated line when text is printed. The number of lines that can be specified for page breaks can be changed.

#### 4.7.2 Event history display area

In the event history display area, it is displayed as follows.

- Operation (ON) time  
Date and time the operation or signal was turned on
- Stop (OFF) time  
Date and time when the stop or signal was turned OFF
- Description  
Event content (tag, tag name, event source)

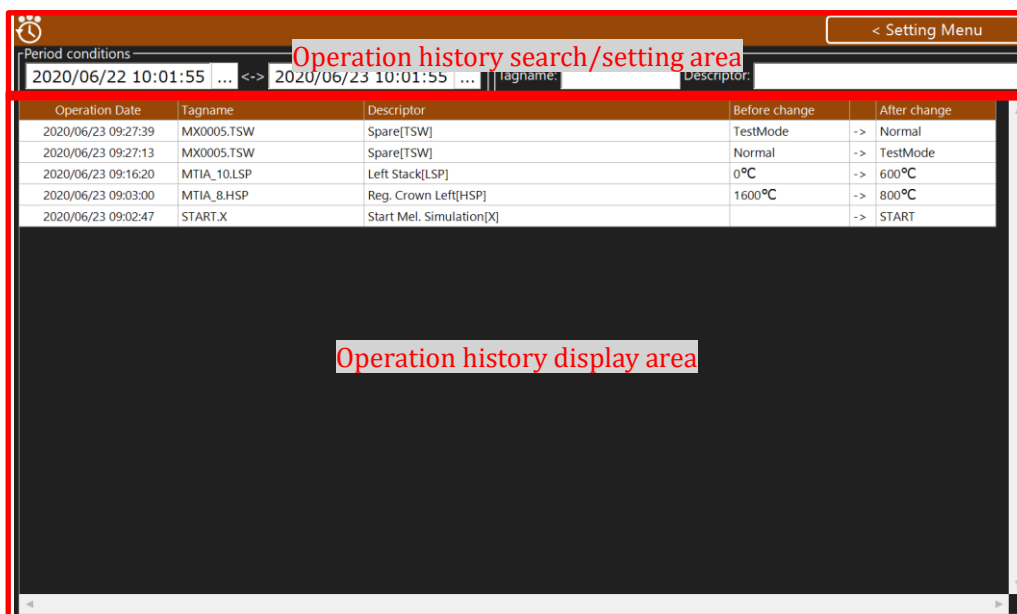
Displayed color of events: Orange color at operation or on: Green color at → or off

The event history search function is similar to the alarm search function. Refer to the alarm history section.



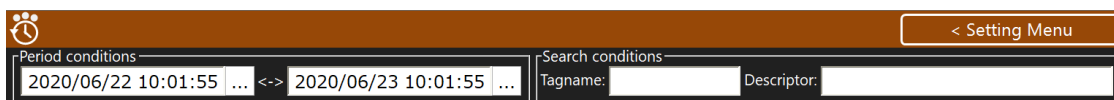
### 4.8 Operation history screen

Displays the change history of information related to tags from this machine in chronological order. The history retention period is one year. In the initial display, you can display up to 5000 records of one day's worth of data from the displayed time.



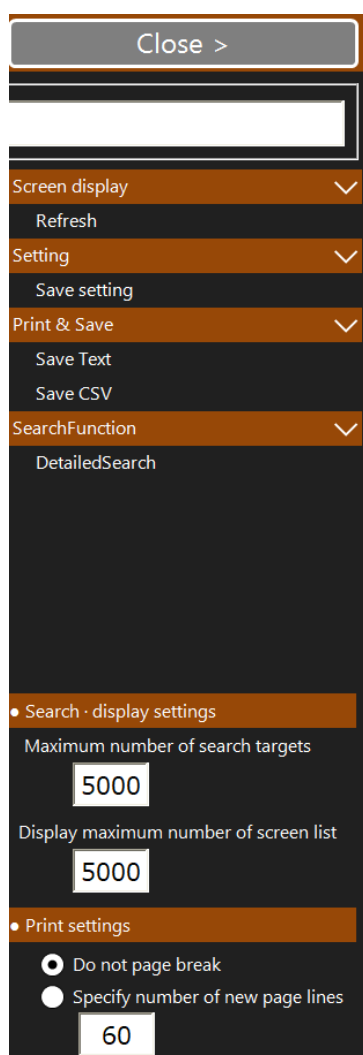
#### 4.8.1 Operation history search/setting area

3



No.	Name	Function
1	Period selection condition	Operation history information can be searched by period. Left Side : Search period start date and time Right Side : Search period end date and time The calendar is displayed and can be set.
2	Search condition	You can search the operation history information by tag and tag name.
3	Setting menu	Displays the menus related to the operation history setting.

## Setting menu



Item	Description
Close	Closes the Settings menu.
Renewal display	The event history information is always updated.
Keep setting	Keeps the print settings.
Text printing	Text is displayed using Notepad for the event displayed in the event history display area.
CSV output	Saves the displayed event in the event history display area in CSV format.
Detailed search	This function is used to set conditions in addition to the conditions in the event history search/setting area.
Maximum number of searches	Sets the maximum number of events to search.
Maximum number of screen list displays	Sets the maximum number of event histories to be displayed on the screen.
No page break	Select if you do not want line breaks when printing text.
Page break number of lines	Select this option to start a page break on a designated line when text is printed. The number of lines that can be specified for page breaks can be changed.

## 4.8.2 Operation history display area

In the operation history display area, it is displayed as follows.

- Operation change date and time : Date and time when the operation change was performed
- Tag : Tag that performed the operation change
- Name : Name of the tag for which the operation change was performed
- Value before change : Value before operation change
- Value after change : Value after operation change

The operation history search function is similar to the alarm search function. Refer to the alarm history section.

Operator Station (S-System2) Functional Specifications

5. Report function

This operator station has a standard report function which can create, print, and save daily, monthly, and yearly reports as files.

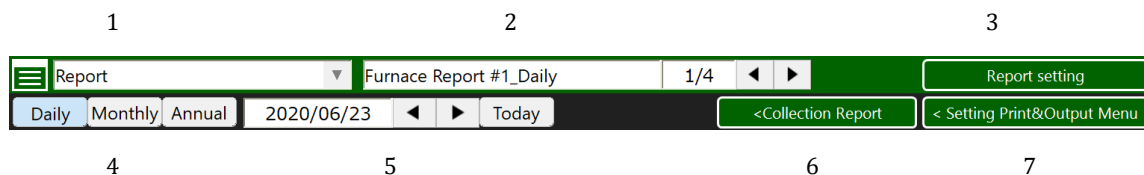
5.1 Report screen

On the report screen, you can display pre-set reports, report operations such as printing, and set reports. In addition, up to 18 tags can be registered in one report at this operator station.

The data required to create the report that is older than one year is automatically deleted. For long-term storage, print it out in Excel report and save it.

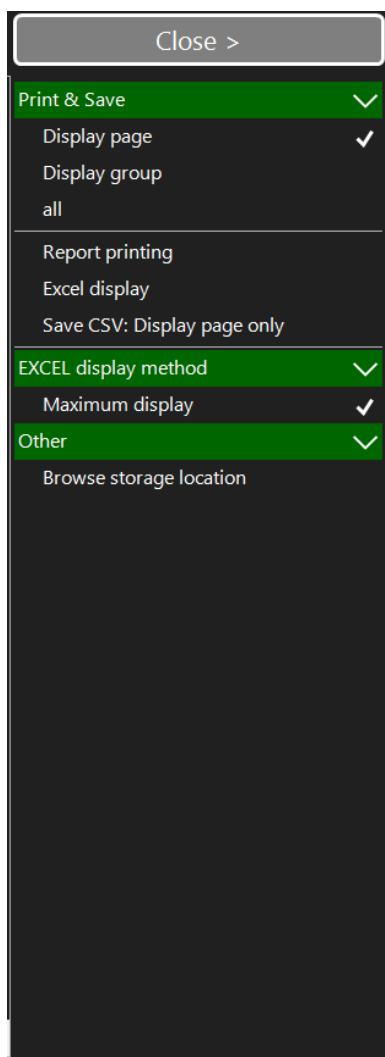
	Gas flow	Gas flow	Combustion Air Flow1	Combustion Air Flow2	Furnace Pressure	Furnace Pressure	Throat [Report]	ITV Water Cooling
	SP	PV	SP	PV	SP	PV	Temp.	Temp.
	GFIC.SP	GFIC.PV	AFIC.SP	AFIC.PV	MPIC.SP	MPIC.PV	MND2054.PV	MND2068.PV
	Nm3/h	Nm3/h	m3	Nm3/h	Nm3/h	Pa	°C	°C
0								
1								
2								
3								
4								
5								
6								
7								
8	0	0	0	0	0.0	0.0	0	0
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
Total							0	0
Ave	0	0	0	0	0.0	0.0	0	0
Max	0	0	0	0	0.0	0.0	0	0
Min	0	0	0	0	0.0	0.0	0	0

## 5.1.1 Report search/setting area



No.	Name	Function
1	Group combo box	The report group can be selected.
2	Report page selection	The report page can be changed with the arrow buttons.
3	Registration of reports	You can add or delete report pages, change tags in reports, and change names. Note that you need more than SUPERVIOR privilege.
4	Change of report type	You can change the report to be displayed on the screen.
5	To change the report date	You can specify the date of the report to be displayed on the screen.
6	Report revision	Used to correct the report data. Note that you need more than SUPERVIOR privilege.
7	Print/Output Menu	Printing and output of reports can be set.

## 5.1.2 Print/Output Menu



Item	Description
Close	Closes the Settings menu.
View Page	When report print or Excel is displayed, only the currently displayed report page is displayed.
Display group	When report print or Excel is displayed, all pages in the currently displayed report group are displayed.
All groups	When report print or Excel is executed, all report groups and all pages are output.
Report printing	Execute report printing.
Excel display	Displays the report in Excel report.
CSV output : Display Pages Only	Only the currently displayed report page is output as numerical data in CSV report.
Maximize display	When Excel report is displayed, it is maximized and displayed.
See storage location	Display the folder in which the form data is saved in File Explorer.

Operator Station (S-System2) Functional Specifications

5.1.3 Reports display area

Report data is displayed in the Report display area.

There are five headers in the upper row, report items are displayed, and “total value”, “average value”, “maximum value”, and “minimum value” are displayed in the lower row.

In the case of a daily report, the data for each day is displayed, in the case of a monthly report, and in the case of a yearly report, the data for each year is displayed. However, in the case of a monthly report, a blank space is left in the place where

	Gas flow	Gas flow	Combustion Air Flow1	Combustion Air Flow2	Furnace Pressure	Furnace Pressure	Throat [Report]	ITV Water Cooling Temp.
	SP	PV	SP	PV	SP	PV		
	GFIC.SP	GFIC.PV	AFIC.SP	AFIC.PV	MPIC.SP	MPIC.PV	MND2054.PV	MND2068.PV
	Nm3/h	Nm3/h	m3	Nm3/h	Nm3/h	Pa	°C	°C
0								
1								
2								
3								
4								
5								
6								
7								
8	0	0	0	0	0.0	0.0	0	0
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
Total							0	0
Ave	0	0	0	0	0.0	0.0	0	0
Max	0	0	0	0	0.0	0.0	0	0
Min	0	0	0	0	0.0	0.0	0	0

### 5.1.4 Correction of report data

The report data can be corrected by manual entry, but it requires more than SUPERVISOR privilege.

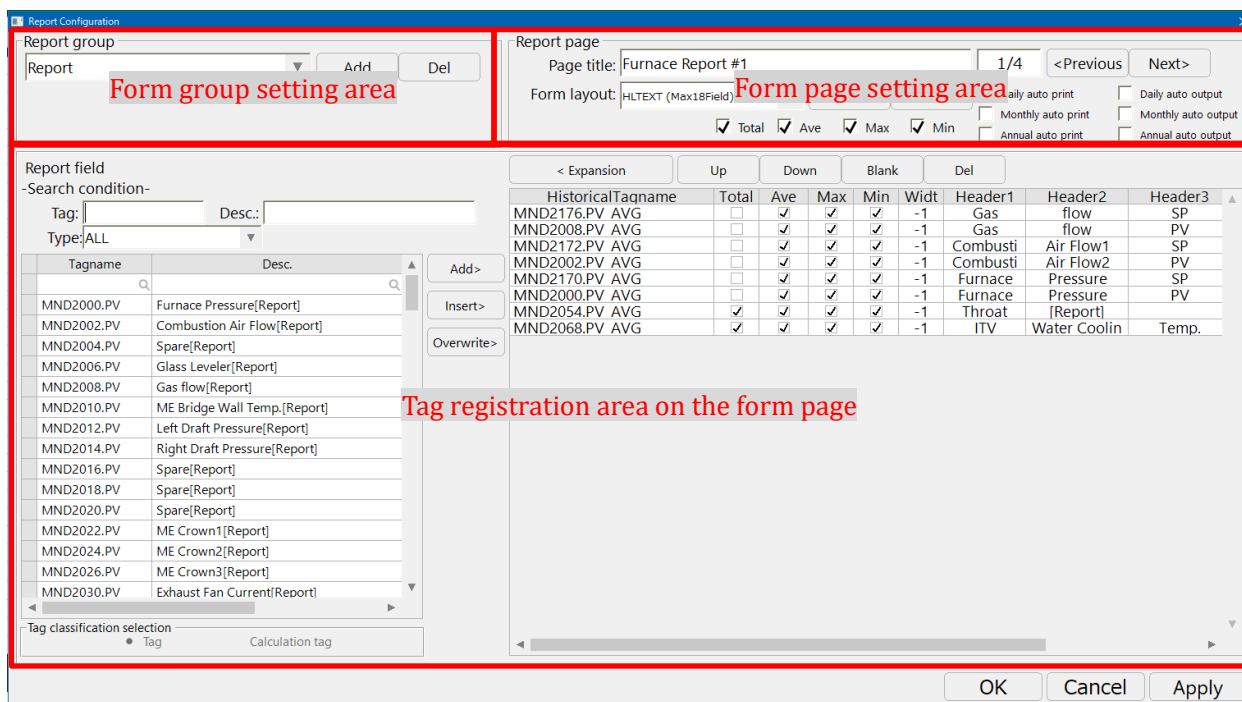


Name	Function
Initiation of correction	Select the report to be corrected (daily, monthly or annual report) and click the start of correction to change the value of the desired part in the report display area.
Corrective saving	Reflect the corrected data. If the daily report is adjusted, it will be reflected in all daily reports. If the monthly report is adjusted, it will be reflected in all monthly reports. If the annual report is revised, it will be reflected in all annual reports.
Coverage copy	Copy the area to be edited by specifying the range.
Range attachment	Click Start correction, and paste the copied contents from the selected cell.
Re-tabulation	Recalculate the currently displayed report. When the daily report is displayed, the data will be recollected based on the actual collected data. When the monthly report is displayed, it is recollected based on the daily report data. While the annual report is displayed, the monthly report data is re-tabulated based on the monthly report data.

Operator Station (S-System2) Functional Specifications

5.1.5 Registration of reports

The following items can be changed when operation permission above SUPERVISOR is given.



Item	Description
Report group	Report groups can be selected, renamed, added, and deleted.
Report page	<p>Page title</p> <p>The name of the report page can be changed.</p> <p>If there are multiple pages, press the previous/next button to change the page.</p> <p>Report layout</p> <p>Set the format for displaying in Excel format.</p> <p>Report display items</p> <p>You can select the items (Total, Average, Maximum, Minimum) to be displayed in the selected report page.</p> <p>Report auto print/output setting</p> <p>Print output at the closing time of the selected report page and file output in Excel reportat can be set.</p>
Report field	<p>Search condition</p> <p>When you search by tag number, name, or type, the tags that match the conditions are displayed.</p>



## Operator Station (S-System2) Functional Specifications

Item	Description
Add>	Select the tag displayed in Search and add it at the bottom of the report tag.
Insert >	Select the tag displayed in Search and insert it at the selected position in the report tag.
Override>	Select the tag displayed in Search and overwrite it to the selected position of the report tag.
Tag type	Select normal tag or operation tag.
Tag registration area	Total, average, maximum, and minimum Check this to display the desired value. Width Enter this to specify the width of the report. (Initial value-1) Headers 1-5 Fill in the name of the report item, etc.
Extension	The report tag registration area can be expanded and entered easily.
Upper	Moves the selected tag up one line.
Bottom	Moves the selected tag down one line.
Blank	Inserts a blank line below the selected tag by one line.
Delete	Deletes the selected tag one line.

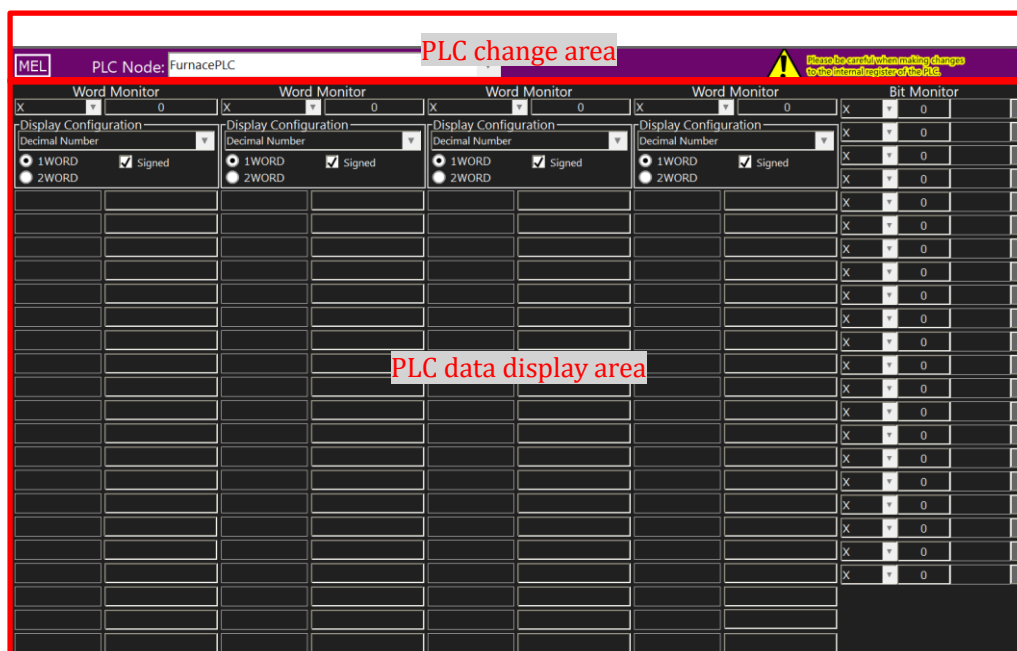
## 6. Other screens and functions

### 6.1 Switch utility screen

Data in the PLC can be referenced. This function is not used in normal operation/monitoring operation. However, you can use this screen to refer to data in the PLC with SUPERVISOR privilege and operate data in the PLC with ENGINEER permission.

When using PLCs manufactured by Mitsubishi Electric Corporation (MELSEC Q series or iQ-R series), use MEL Utility.

When using a PLC (SYSMAC CS series or CJ series) manufactured by OMRON Corporation, use CS Utility.



### 6.1.1 PLC change area



The PLC to be referenced can be changed in the combo box.

### 6.1.2 PLC data display area

Displays the internal data of the PLC.

SUPERVISOR Privilege does not allow you to view and set the data in the PLC. ENGINEER Privilege allows you to operate the data in the PLC. However, the warning screen is displayed first. Be careful when operating the PLC.

#### 【Word Monitor】

When address type is selected and address is entered, continuous data of 20 words is displayed.

To change the data, enter the desired value in the field to the right of the displayed data.

#### 【Bit Monitor】

When you select an address type and enter an address, each value is displayed.

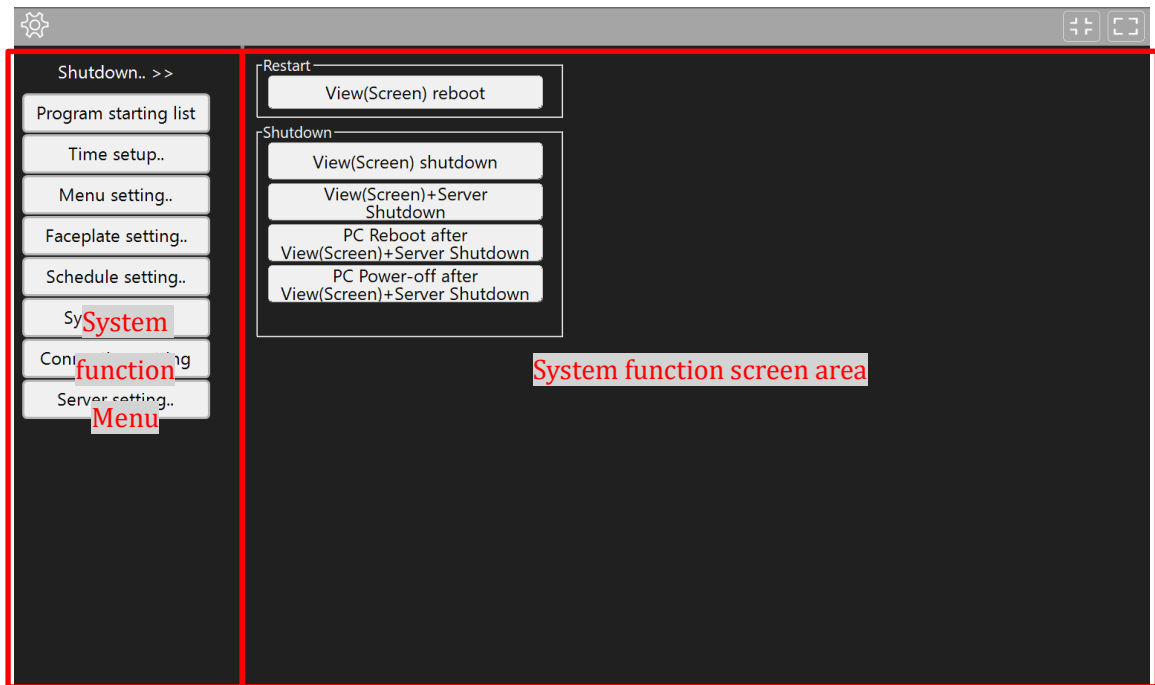
When the value is ON, the button is displayed in red, and when it is OFF, it is displayed in gray.

To change the data, click the button.

## 6.2 System screen

The System screen is used to set the system functions of the operator station.

To use this window, you must have permission to operate ENGINEER.



### 6.2.1 System functions menu

Selecting a function from the System Functions menu displays a menu related to the selected function in the System Functions screen area.

Function	Description
External start setting	This function starts an external application. Use the Start button to start the displayed application.
Time setting related	This window is used to set the time of PCs and PLCs with SUPERVISOR or higher privilege.  When two servers are used, there is a function to synchronize the time, synchronize the time of the client machine to the server, and reflect the date of the PC to the PLC.
Menu-related	You can rename the created graphics screen, select "Used"/"Unused"(if unused), and set the screen order to be displayed in the left menu with the privileges above SUPERVISOR.  You can also change the name and display position of bookmarked screens.
Related of faceplates	Parameter operation permission information and display delay setting time in the faceplate can be checked.  You can also set operational limits for a particular faceplate with SUPERVISOR or higher privileges.
Schedule Related Extensions	The specified tag can be turned ON according to the set schedule.  In addition, the status of the hard disk mounted on the PC is checked based on the set schedule, and an alarm is issued if an abnormality is detected.  The user holder cleaner deletes the output CSV file and the txt file according to the schedule set.
Configuration Synchronization	When multiple server units are used, this function allows the settings of other server units to be set to the same setting.
Connection-related	You can use ENGINEER privilege to view the communication data with the PLCs you are using and switch to the other when disconnecting, changing connections, or making duplexing.
Server Details	With ENGINEER privilege, you can set the time synchronization master PC, change the access level password, and restart the system.

### 6.2.2 Shutdown related extensions

This function performs shutdown of this system. This will not stop the PLC.

Function	Description
Restart	<p>Restarting View (Display)</p> <p>The screen can be restarted with the privileges above OPERATOR.</p> <p>Note that the data collection function does not stop.</p> <p>When changing the graphics screen, this function allows you to reflect the changes without stopping data collection.</p>
Shutdown	<p>Various shutdown menus for the server are available with SUPERVISOR or higher privileges.</p> <p>View (Display) + Server (Collection) Shutdown            Stop the screen, alarm monitoring, and data collection functions.</p> <p>View (Window) + Server (Collection) Restart PC after Shutdown            Stop the screen, alarm monitoring, and data collection functions, and restart the PC. Note that this system does not start automatically.</p> <p>View (Window) + Server (Collection) Power Off After Shutdown            Stop the screen, alarm monitoring, and data collection functions, and turn off the PC.</p>

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