GRAPHIC PANEL DESIGNING SOFTWARE
FOR RGP30 SERIES
Model: RGP-Designer (V1.5)

USERS MANUAL

Table of Contents

1. INTRODUCTION

Thank you for choosing us.

Before starting use of RGP (Remote Graphic Panel) unit and RGP-Designer, check the following information.

1.1 COMPATIBLE VERSIONS OF HARDWARE AND SOFTWARE

This Users Manual is compatible with the following versions of RGP unit and RGP-Designer.

1.1.1 RGP30 Hardware Version

• This Users Manual is compatible with the model RGP30 version 1.0 or later.

• Check the version of your RGP30 unit with referring to "2.6 TIME ZONE SETTINGS" on page 24.

1.1.2 RGP30-W Hardware Version

• This Users Manual is compatible with the model RGP30-W version 1.0 or later.

• Check the version of your RGP30-W unit with referring to Users Manual of RGP30-W (EM-8581-D).

1.1.3 RGP6 Hardware Version

• This Users Manual is compatible with the model RGP6 version 1.0 or later.

• Check the version of your RGP6 unit with referring to Users Manual of RGP6 (NM-8582-B; currently available only in Japanese), which is downloadable at our web site.

1.1.4 RGP-Designer Software Version

• This Users Manual is compatible with the model RGP-Designer version 1.5 or later.

• Check the version of your RGP-Designer with referring to "2.8 INSTALLING AND STARTING UP RGP-DESIGNER" on page 25.

1.1.5 About This Users Manual

• This Users Manual assumes that the user is familiar with basic operation and configuration of Windows and the Modbus protocol.

• Note that the images used in this Users Manual are prototypes and they may be slightly different from actual images of your version of this software program.

1.2 TRADEMARKS

Company names and product names referred to in this manual are trademarks or registered trademarks of respective companies.

QR Code is a registered trademark of DENSO WAVE INCORPORATED in Japan and in other countries.

Microsoft, Windows, Windows Vista, Windows Server, Internet Explorer, Windows Media, Excel, Visio, DirectX, Visual Basic, Visual C++, and Visual Studio are trademarks or registered trademarks of Microsoft® Corporation in the United States and other countries

Intel, Pentium, and Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

■ **The following product is referred to in short in this manual.**

REFERRED TO AS IN THIS MANUAL	OFFICIAL TRADE NAME
Windows 10	Microsoft(R) Windows(R) 10 Operating System

1.3 TERMINOLOGY

In this Users Manual, collective terms are used to refer to RGP-Designer and respective models and versions of RGP.

TERM	DESCRIPTION
RGP / RGP unit	Collective term for Remote Graphic Panel models RGP30-N, RGP30-W and RGP6-N
RGP30-N	Collective term for RGP30-N Ver1.0
RGP30-N2	Collective term for RGP30-N Ver1.1
RGP30-W	Collective term for RGP30-W Ver1.0
RGP6-N	Collective term for RGP6-N Ver1.0
RGP6-N2	Collective term for RGP6-N Ver1.1
RGP30	Collective term for RGP30-N and RGP30-W
RGP6	Collective term for RGP6-N
RGP-Designer / this software program	Collective term for Graphic Panel Designing Software for RGP30 Series model RGP-Designer

1.4 POINTS OF CAUTIONS

■ GENERAL PRECAUTIONS

• Before removing the unit or mount it, turn off the power supply for safety.

■ ENVIRONMENT

• Indoor use.

• When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.

• Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.

• RGP30 must be used in an environment where the temperature is within -10 to 50°C (14 to 122°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

• RGP6 must be used in an environment where the temperature is within 0 to 40°C (32 to 104°F) with relative humidity within 10 to 90% RH in order to ensure adequate life span and operation.

• Use in clean atmosphere. Do not expose the unit for a prolonged period of time to an atmosphere containing vapor of organic solvent or acidic gases, such as paint thinner, acetone, formalin or sulfurous acid gas.

• Do not expose the unit to direct sunlight.

■ WIRING

• Do not install cables close to noise sources (relay drive cable, high frequency Line, etc.).

• Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

■ CALENDAR CLOCK IN RGP30

• A primary lithium battery is incorporated for calendar clock IC backup.
  Backup period without external power supply is approx. 10 years at 25°C.

• The battery does not wear while the external power is supplied.
  As the total elapsed time without power supply exceeds 10 years, the calendar clock data can no longer be backed up, and the calendar clock cannot keep correct date and time.

• The battery is not replaceable by customer. When replacement is required, consult us.

■ BROWSER INSTALLED IN RGP30

Internet Explorer 11 is preinstalled in RGP30 unit and ready to be used.
However, we strongly recommend NOT to use Internet Explorer 11 as it is no longer updated and may involve functional and security problems.

Install a browser such as Microsoft Edge, Google Chrome, or Firefox.

■ APPLICATION PROGRAMS ON RGP30

RGP30 employs "Windows 10 IoT Enterprise 2016 LTSB" as an operating system.

• Windows Update is factory-set to OFF.

• Basically, do not install any application programs on Windows 10 except Web browser.
  We do not guarantee correct operation if an application program other than RGP-Designer and Web browser is installed. Nevertheless, if an application program such as an anti-virus security software needs to be installed, confirm the system requirements of the software and do so at your own risk.

■ APPLICATION

• RGP is for use in general industrial environments, therefore may not be suitable for applications which require higher level of safety such as safety instrumentation, accident prevention systems, life-support, environmental protection, etc. or of reliability such as vehicle control or combustion control systems.

1.5 PRECAUTIONS ON RGP SPECIFICATIONS

■ CONNECTING RGP UNIT WITH PC ON WHICH RGP-DESIGNER IS RUNNING

• Data must be transferred to RGP unit from a single PC only.
  We do not guarantee correct operation if multiple PCs transfer data to the RGP unit simultaneously.

■ DISPLAY SCREEN (GRAPHIC PANELS) AND WEB BROWSER

• RGP serves as a web server and fulfills function of a display unit using Web browser on the customer's terminal such as a tablet, smartphone, etc. Note that display of Graphic Panels may be affected by the operation specifications of the browser used on the terminal. Also note that theses specifications may change with the version update of the browser.

• Each display screen (hereinafter, referred to as 'Graphic Panel') created on RGP-Designer may be displayed differently on your browser. Specific screen display specifications differ depending on the browser. Check how the created Graphic Panel is displayed on your browser and consider differences in display, if any, when designing Graphic Panels.

• Functions of Sub Screen, Dialog Screen, and Popup Screen are implemented by using HTML iframe tags.
  Behavior of created screens may be slightly different depending on the browser. Preview created Graphic Panels and confirm how each screen behaves on your browser.

• Note that some external sites cannot be embedded in iframes due to e.g. the 'X-Frame Options' setting. When embedding an external site, perform an operation test to check if the site can be accessed.

• When a video site such as YouTube is embedded in an iframe of Sub Screen, etc., the autoplay function may not work in some cases. Perform an operation test to check if the autoplay function is forbidden by your browser.

• Favicons may not be showing properly on Microsoft Edge depending on environment.

• RGP6 does not support Internet Explorer 11. If the user tries to connect with RGP6 via Internet Explorer 11, the user will be redirected to the following page.

■ ACCESSING RGP FROM MULTIPLE TERMINALS

• When multiple terminals write in RGP unit simultaneously, only the last data written in the RGP unit is valid.

• When the Bit Action type is 'Alternate' or when the Word Action type is 'Increment' or 'Decrement', data is subject to Read After Write verification (an operation is performed on a value read from a device and the value is written in the device). Simultaneity is not guaranteed when multiple devices try to access the RGP unit simultaneously.

• When the access type is smaller in number of bits than the device size, data is subject to Read After Write verification. Thus, simultaneity is not guaranteed when multiple devices try to access RGP unit simultaneously.

1.6 RGP30 COMPONENT IDENTIFICATION

RGP30-N, RG30P-N2

RGP30-W
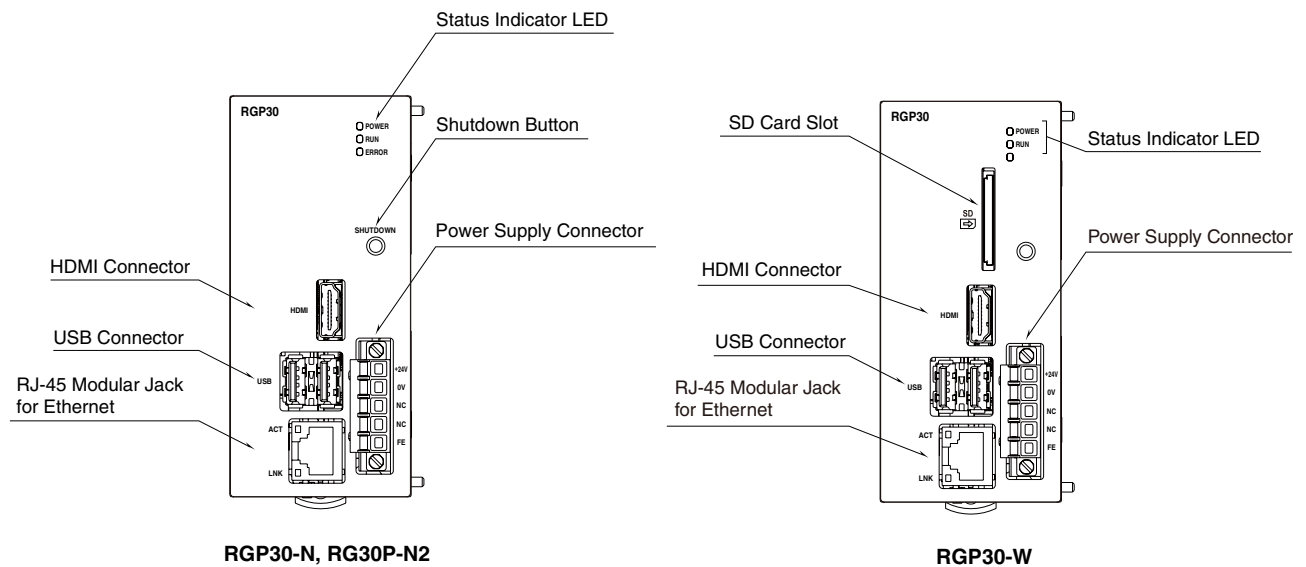
■ STATUS INDICATOR LED

ID	COLOR	STATUS	
POWER	Green	ON	Power is ON
		OFF	Power is OFF
RUN	Green	ON	Shutdown is in process before turning Power OFF (approx. 30 sec.)
		OFF	Power is OFF
ERROR	Red	BLINKING	Communication error with slave / Setting file error *1
		OFF	Operating normally

*1 ERROR LED blinks 3 or 4 times when the Power is turned ON.

■ ETHERNET INDICATOR LED

ID	COLOR	STATUS
ACT	Amber	Turns ON during communication
LNK	Green	Turns ON when Link is established

■ BUTTON

ID	FUNCTION
SHUTDOWN	Pressing the button for ≥ 3 seconds shuts down the unit and turns OFF Power.

■ TERMINAL ASSIGNMENT
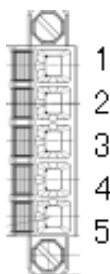
NO.	ID	FUNCTION
1	24V	Power supply (24V DC)
2	0V	Power supply (0V DC)
3	NC	Unused
4	NC	Unused
5	FE	Functional earth

1.7 RGP6 COMPONENT IDENTIFICATION

Status Indicator LED

RJ-45 Modular Jack
for Ethernet

Jack for AC Adapter

Reset Switch

Memory Card Slot
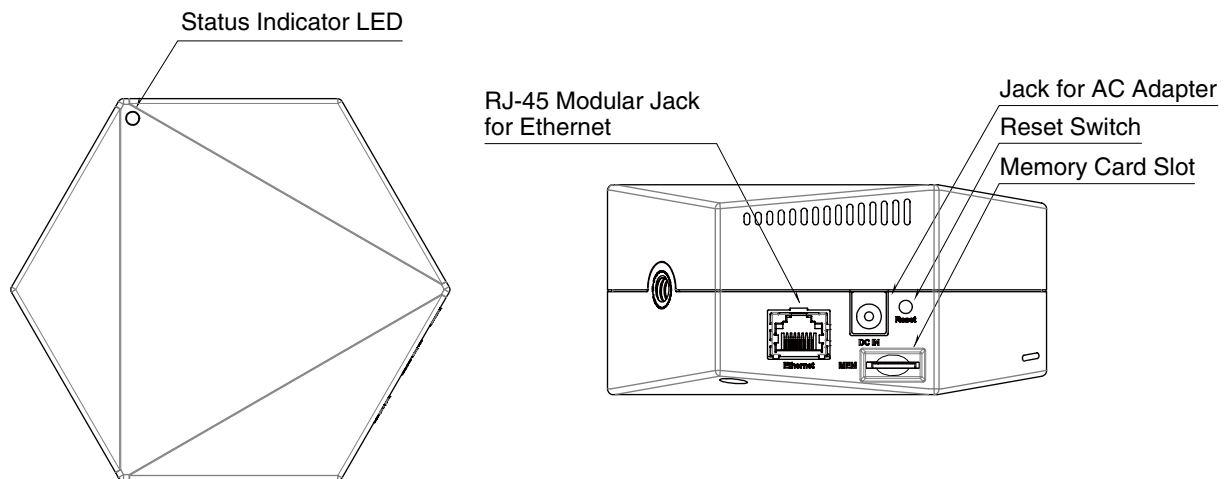
■ STATUS INDICATOR LED

COLOR		STATUS
Green	ON	Power is ON / Operating normally
	BLINKING	Updating firmware / Initializing system
Amber	ON	Starting up
	BLINKING	–
Red	ON	Communication error with slave / Setting file error / EEPROM error
	BLINKING	–
–	OFF	Power is OFF / Device error

■ SWITCH

NAME	FUNCTION
RESET	Pressing the button for ≥ 3 seconds turns the status indicator LED ON Green and starts initialization to: • Reset system settings to factory default; • Delete the project having been transferred; and • Delete CA certificate. After initialization, RGP unit is automatically restarted. Be sure to perform system settings. (See Users Manual of RGP6 (NM-8582-B; currently available only in Japanese.))

1.8 ABOUT RGP-DESIGNER

1.8.1 Features of RGP-Designer

Graphic Panel Designing Software for RGP30 Series (model: RGP-Designer) has the following major features.

- Configuring slave devices (IP address, protocol, driver, etc.) to communicate with RGP unit

- Designing Graphic Panels
  (Max. 8 Graphic Panels and 1024 screens can be created; 10 Screens can be edited at the same time)

- Transferring/Receiving Graphic Panels to/from RGP unit

- Comparing the currently edited Graphic Panel with the one stored in the RGP unit

- Only RGP30-W is equipped with the monitor screen for power measuring devices compatible with RGP unit.
  For details, refer to Users Manual of RGP30-W (EM-8581-D).

1.8.2 Communication with RGP unit

RGP unit is connected via Ethernet (TCP/IP).
Configure communication parameters including IP Address of RGP unit, port No., user ID and password on RGP-Designer.

1.8.3 System requirements

Prepare a PC which satisfies the following system requirements.

HARDWARE	REQUIREMENTS
PC	PC/AT or compatible
OS	Windows 10 Home, Professional, Enterprise editions (32-bit / 64-bit) Version 1903 or later Windows 11 Home, Professional, Enterprise editions
DOT.NET Framework	Version 4.8 or later
Memory	2 GB or greater
CPU	1 GHz or higher
Hard disk	500 MB or more Separately secure hard disk space for user data (Project files, etc.)
Display resolution	XGA (1024 x 768) or more
Language	English / Japanese

1.9 OTHERS

1.9.1 Web server

The RGP unit serves as a web server and fulfills function of a display unit using browser on the user's terminal.

■ RGP30

For details of the operation-verified operating systems and browsers, refer to the RGP30 specifications (ES-8581).

■ RGP6

For details of the operation-verified operating systems and browsers, refer to the RGP6 specifications (NS-8582; currently available in Japanese only).
Note that RGP6 does not support Private/Secret mode.

NOTE
• The operation and/or behavior of RGP-Designer may change without notice due to specification change of OS or browser.

1.9.2 Operating system for RGP30

RGP30 employs 'Windows 10 IoT Enterprise 2016 LTSB' as an OS.

Please be reminded that Microsoft will end security support for 'Windows 10 IoT Enterprise 2016 LTSB' in October 2025.

2. INSTALLATION AND SETUP

2.1 THINGS TO PREPARE

■ **RGP unit**

■ **Things required for Network setting for RGP30 (No need for RGP6)**

- PC
- USB mouse
- USB keyboard
- HDMI cable
- HDMI-compatible display (LCD monitor, etc.)

■ **Things required for creating Graphic Panels and system operation**

- PC
- Graphic Panel Designing Software for RGP30 series (model: RGP-Designer) *1
- LAN cable

In addition to the above, a Wi-Fi router or a fixed IP Address contract may be necessary depending on your system configuration.

*1 The software program is available for downloading at our web site.
   Please note that the program is currently downloadable from our Japanese site only.

2.2 RGP SETUP FLOWCHART

Before starting use of the RGP unit, follow the procedure given below to configure the setting.

Initial setting for RGP30 (No need for RGP6)
➔ "2.3 TURNING ON POWER SUPPLY TO RGP30" on page 19

▼

Install RGP-Designer
➔ "2.8.1 Installation" on page 25

▼

Create a new Project
➔ 3.1 FILE MENU > "3.1.1 New(N)" on page 30

▼

Configure slave devices to connect
➔ 3.8 PROJECT EXPLORER WINDOW > "3.8.2 Slave" on page 54
➔ "6.1 REGISTER SLAVE DEVICES" on page 88

▼

Create Screens
➔ "5. TUTORIAL (Creating Base Screens)" on page 75

▼

Save the project
➔ 3.1 FILE MENU > "3.1.4 Save As(A)" on page 31

▼

Preview the Project
➔ 3.4 TOOL MENU > "3.4.6 Preview(P)" on page 40

▼

Transfer the Project to RGP
➔ 3.4 TOOL MENU > "3.4.5 Transfer Project(T)" on page 39
➔ "5.3 TRANSFER CREATED GRAPHIC PANEL TO RGP UNIT" on page 78

▼

Connect RGP with registered slave device

▼

Display the RGP web server
➔ "5.4 ACCESS RGP VIA WEB BROWSER" on page 80

2.3 TURNING ON POWER SUPPLY TO RGP30

2.3.1 Turning ON power supply and logging in for initial setting

Login is required after turning on RGP30 unit for performing initial setting or setting change of the RGP30 unit.

1) Connect a USB mouse and a USB keyboard to a RGP30 unit.

2) Connect the RGP30 unit and a display with an HDMI cable before turning ON the power supply to the unit.

3) Wait for about 10 seconds until the Windows login screen appears, and enter user name and password.

■ **Default setting**
   User name: admin
   Password : admin

4) In order to change Port No. for HTTP or HTTPS connection, edit the file "RGP.ini" located in the "RGP" folder under C drive of the RGP30 unit.
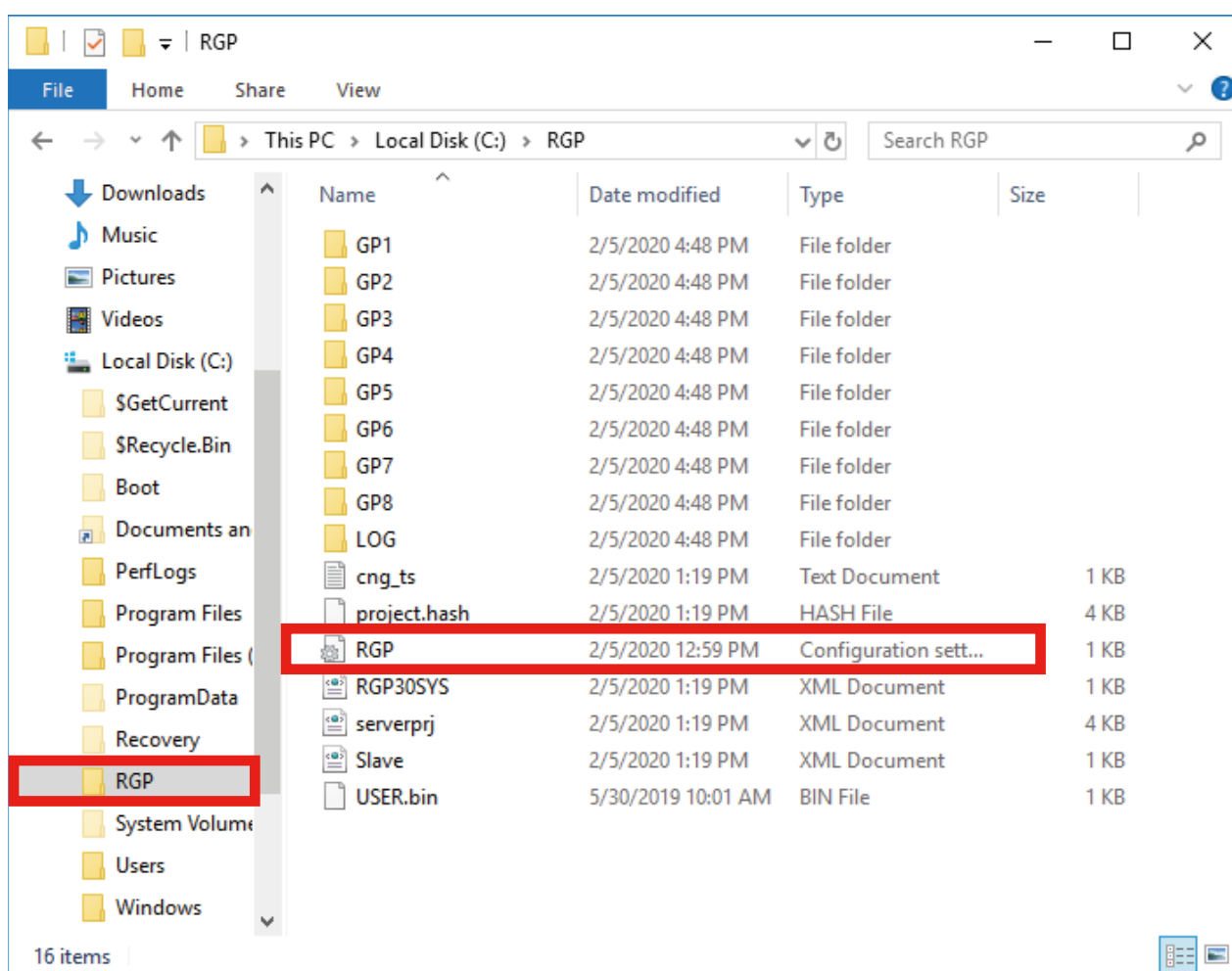
5) Configure parameters included in the file "RGP.ini" as shown in the table below.
   Edit the file using a text editor such as Windows Notepad.
   Turn OFF and ON the power supply to the RGP unit to enable the changes made to the parameters values.
   If invalid values are set, default values are automatically applied.

ITEM	SETTING CONTENT
HTTP Port No.	0 to 655535 (default: 80)
HTTPS Port No.	0 to 655535 (default: 443)
RGP-Designer Port No.	0 to 655535 (default: 30559)
LOG folder access level	0 to 7 (default: 0)
TLS certification file access level	0 to 7 (default: 0)
Normal power screen access level	0 to 7 (default: 0) *Only for RGP30-W.
Power setting screen access level	0 to 7 (default: 0) *Only for RGP30-W.

```
[RGP]
PORT_HTTP=80                        : Port No. for HTTP connection with RGP
PORT_HTTPS=443                      : Port No. for HTTPS connection with RGP


[COM]
PORT_DESIGNER=30559                 : Port No. for connecting with RGP-Designer


[LOG]
ACCESS_LEVEL=0                      : Access level to LOG folder (0 to 7)


[SERVICE]
START_UP=0                          : Parameter for updating RGP unit

[SSL]
ACCESS_LEVEL=0                      : TLS certification file access level (0 to 7)

[PW]
USER_LEVEL=0                        : Normal power screen access level (0 to 7)
ADMIN_LEVEL=0                       : Power setting screen access level (0 to 7)
```

2.4 TURNING OFF POWER SUPPLY TO RGP30

2.4.1 Turning OFF power supply

RGP30 unit must be shut down before turning OFF the power supply to the unit.

1) Press SHUTDOWN button for more than 3 seconds and wait for about 30 seconds until the shutdown is complete and RUN LED turns OFF.

2) Turn off the power supply to the unit after confirming that RUN LED has turned OFF.

NOTE
• When instantaneous interruption or failure of power supply occurs, the RGP unit fails to shut down, resulting in damaging internal data. Take a measure by protecting the unit with e.g. UPS, as needed.

2.5 SETTING/CHANGING RGP IP ADDRESS

Follow the procedure below for setting or changing the IP Address of the RGP unit.

2.5.1 RGP30 IP Address

1) On RGP, click [Start] > [Windows System Tool] > [Control Panel].

2) Open [Network and Internet] > [Network and Sharing Center], and click [Ethernet].

3) Open [Properties], then open the [Internet Protocol Version 4 (TCP/IPv4) Properties] window.
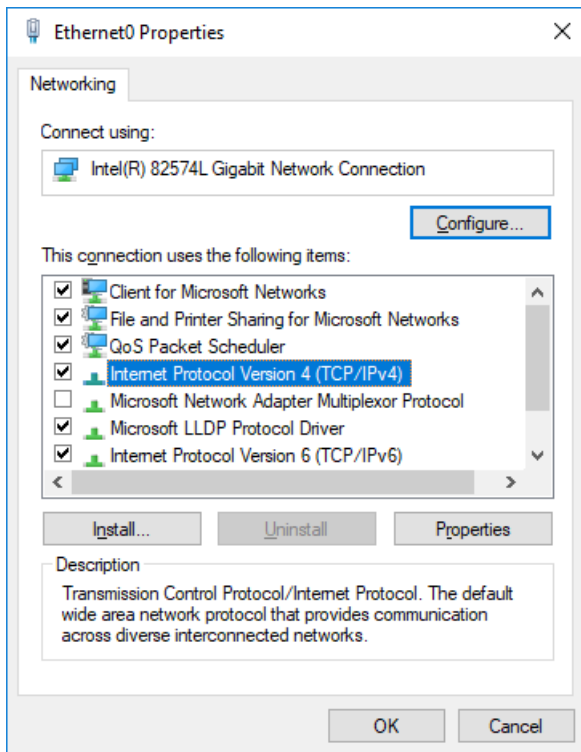
4) Configure each parameter as necessary.
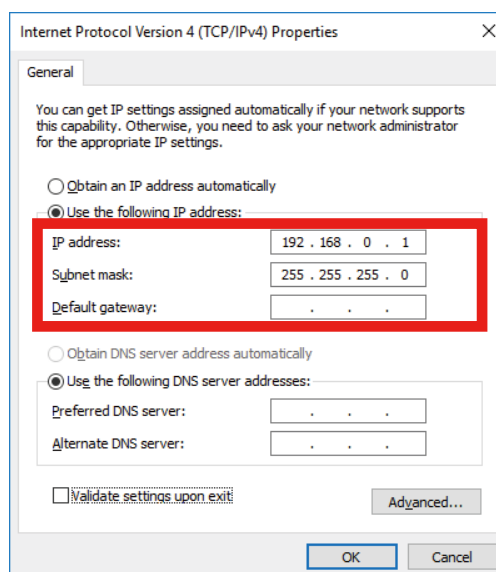
Consult your network administrator for setting contents when connecting via a router.

2.5.2 RGP6 IP Address

IP Address of RGP6 can be set on System Menu of the RGP6 web server via browser on your terminal.
Connect the terminal with RGP6 unit using an Ethernet cable and connect to the web server of the RGP6 unit.

For details, refer to Users Manual of RGP6 (NM-8582-B; currently available in Japanese only).

2.6 TIME ZONE SETTINGS

Follow the procedure below for setting or changing the time zone of the RGP unit.

1) On RGP, click [Start] > [Windows System Tool] > [Control Panel].

2) Open [Clock. Language and Region] > [Dae and Time], and click [Change the timezone].

3) Open the Time Zone Settings dialog and change the settings as needed.

The setting is applied after rebooting the RGP30.
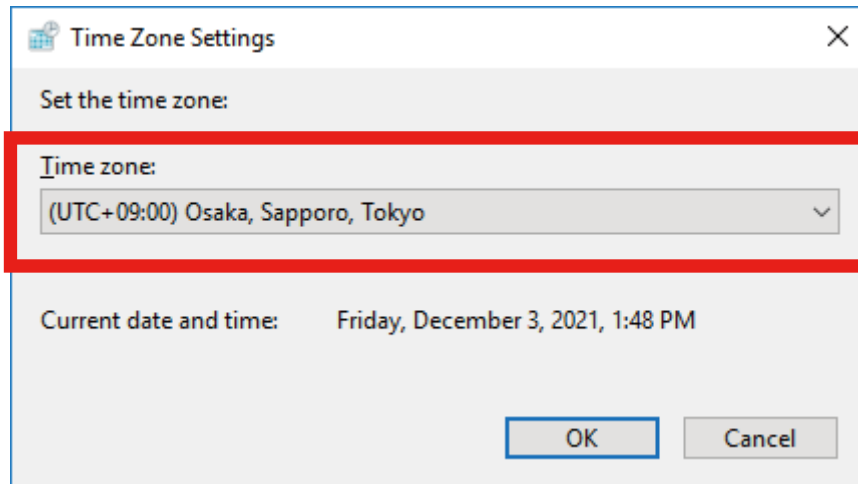
2.7 CONFIRMING RGP30 FIRMWARE VERSION

The firmware version of RGP30 unit can be confirmed by viewing the LOG file on Web browser.

1) Enter a URL in the address bar of Web browser using the correct case.
   http://(IP Address of RGP30)/LOG/LOG.txt

2) The RGP30 firmware version is included in a startup message and indicated as 'RGP30 Start Ver x.x.x.x' as shown below.
   In this example, confirm that the firmware version of RGP30 is 'Ver 1.0.6.0'.
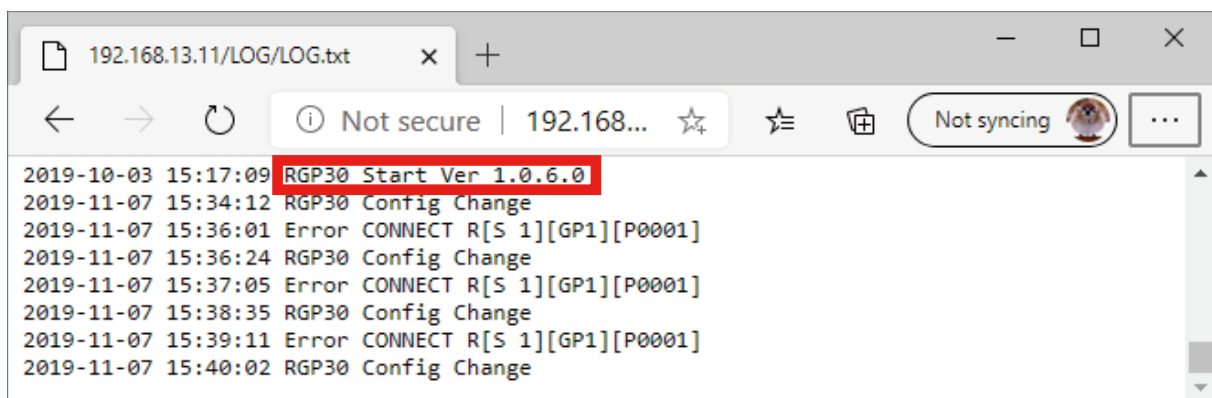
NOTE

- Check the version of your RGP6 unit with referring to Users Manual of RGP6 (NM-8582-B; currently available only in Japanese), which is downloadable at our web site.

- Check the version of your RGP30-W unit with referring to Users Manual of RGP30-W (NM-8581-D; currently available only in Japanese), which is downloadable at our web site.

2.8 INSTALLING AND STARTING UP RGP-DESIGNER

2.8.1 Installation

The software program of RGP-Designer can be downloaded from the our web site:

1) Download the compressed file on your PC and decompress the file that contains 'Setup.exe'.

2) Execute 'Setup.exe' and follow the instructions on the installer.

> **NOTE**
>
> • If an older version of the program is already installed on your PC, uninstall the older version before installing the latest version.

2.8.2 Uninstallation

When the RGP-Designer needs to be upgraded or reinstalled for some reason, be sure to uninstall the existing program before reinstalling it.

1) Go to Control Panel on your PC.

2) Open [Programs and features] and select "RGP-Designer" from the program list and click [Uninstall].

2.8.3 Starting up RGP-Designer

1) Click [Start] > [M-SYSTEM] > [RGP-Designer] to start up RGP-Designer.

2) The initial screen of RGP-Designer appears.
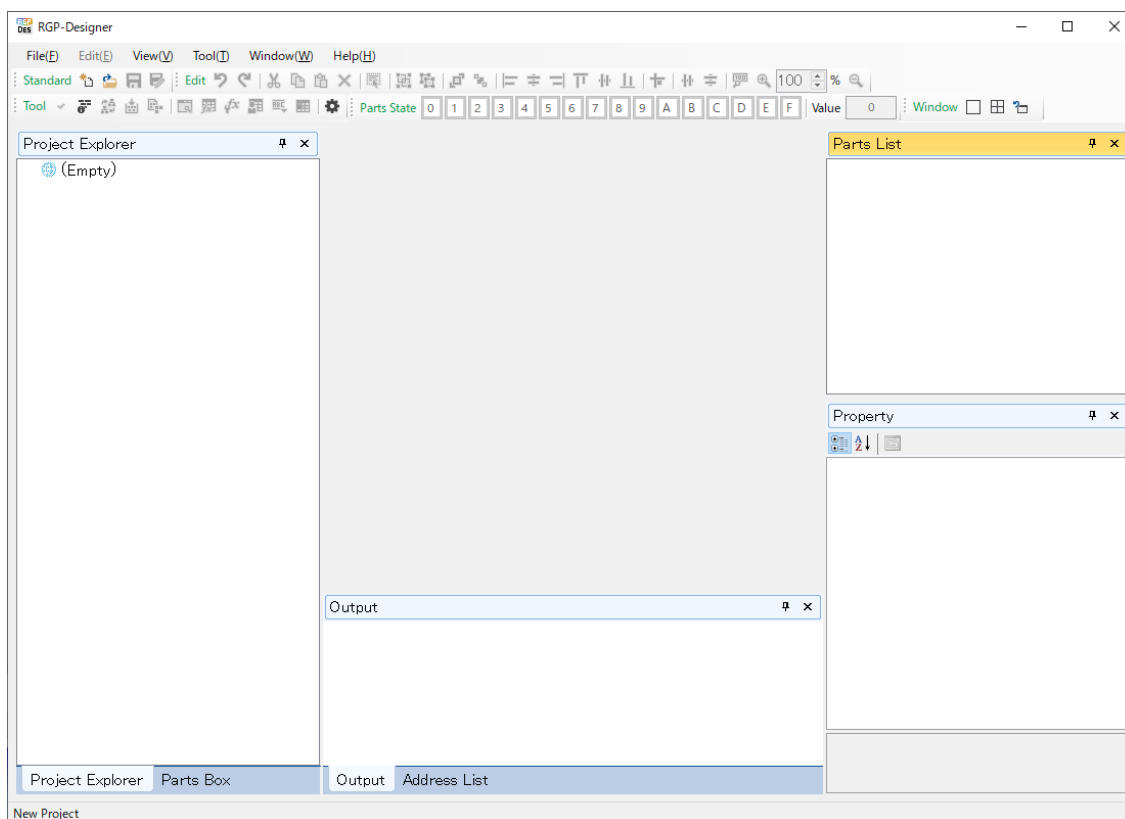
2.8.4 RGP-Designer display screen components

The screen as shown below appears when: creating a new project; or ➔ "3.1 FILE MENU" on page 30 opening an existing project.➔ "3.2 EDIT MENU" on page 32

(1) Menu Bar
(2) Tool Bar
(6) Parts List
(3) Editor
(4) Project Explorer
(7) Property
(8) Output
(9) Address List
(5) Parts Box
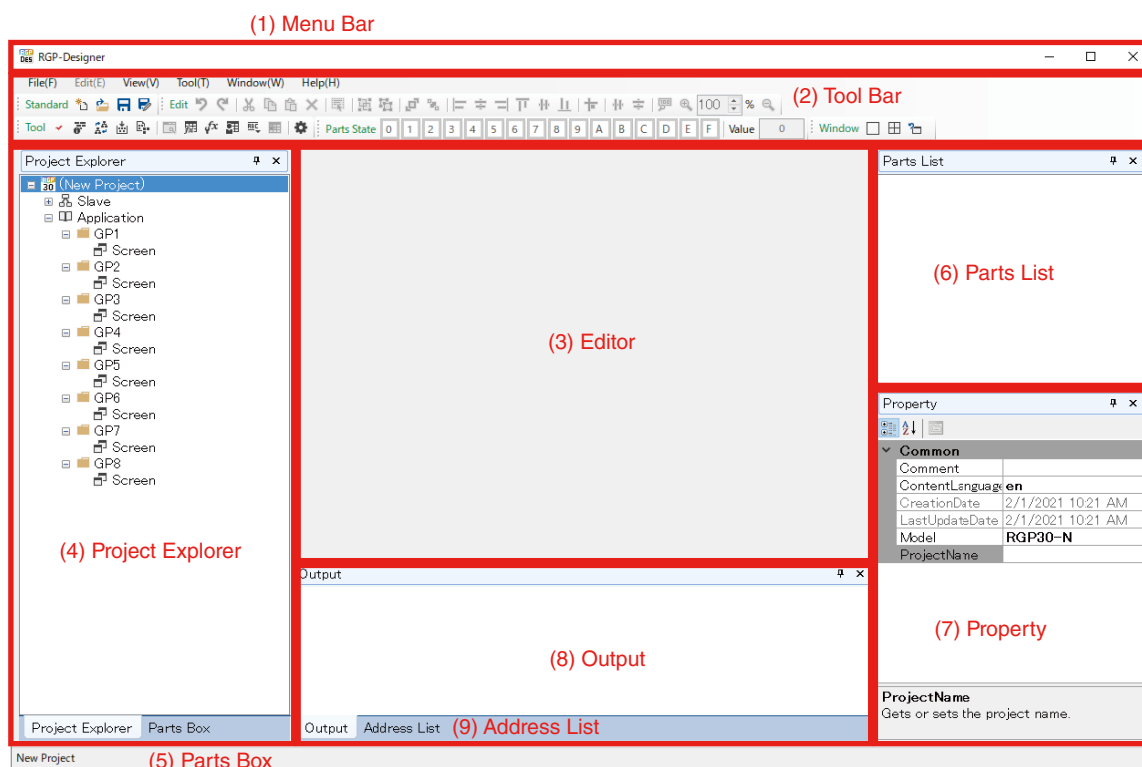
(1) Menu Bar
Menu bar contains menus for operating RGP-Designer. Select each menu to show sub-menus.

(2) Tool Bar
Tool bar is a set of command icons for designing, editing, etc. for creating and editing Project.
The icons are divided into groups of 'Standard', 'Tool', 'Parts State', and 'Windows'.
Click each icon to execute its command.

(3) [Editor] window
Up to 10 Screens can be opened and edited at the same time. Click each tab to switch between Screens.

(4) [Project Explorer] window
Components of the Project are displayed in a hierarchical structure.
Operations such as: registration and deletion of slave devices; and creation, copy, and deletion of Application (Graphic Panels) can be performed.

(5) [Parts box] window
A desired part can be selected among the displayed items and pasted on the workspace.

(6) [Parts List] window
A list of parts allocated on the Screen which is currently displayed on the [Editor] window is displayed along with their respective names and types.

(7) [Property] window
Property attributes of the selected part or Screen are displayed.

(8) [Output] window
Result or progress of an operation such as a build process, error check, etc. for Project is displayed.

(9) [Address List] window
A list of devices used for the Screen currently being displayed on the [Editor] window.

For details of each component, refer to "3. FUNCTIONS OF MENUS AND COMMANDS" on page 30.

2.8.5 Connecting with RGP unit

Follow the procedure below for connecting a PC with RGP unit via a network.

(1) Set the IP Address of the PC to e.g. '192.168.0.5' which allows connection with the IP Address '192.168.0.1 (default)' of the RGP unit.

(2) Connect the PC with the RGP unit using an Ethernet cable.
Prepare a router, hub, etc. according to need.

(3) Turn ON the power supply to the RGP unit and confirm that the unit has started up normally and RUN LED turns ON Green.

(4) To confirm connection with the RGP unit, start RGP-Designer, click [Tool] on the Menu Bar, and select [Compare Project] to display the [Compare Project] dialog for setting the transfer destination RGP unit.
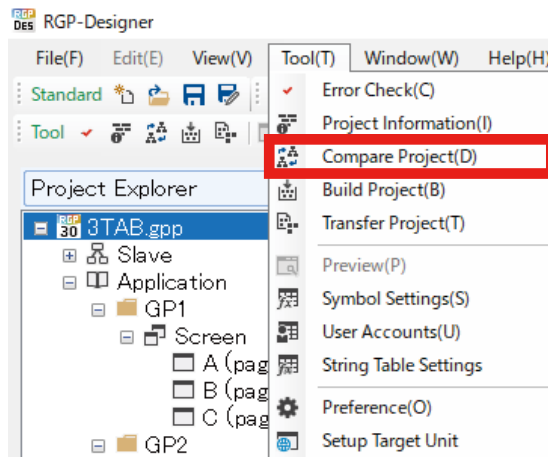
(5) On the [Compare Project] dialog, enter IP Address of the transfer destination RGP unit, Port No., and User name and password. Then, click [Compare].
Default user name: admin
Default password : admin

(6) Confirm if the connection is successful or has failed.
When the connection with the RGP unit is successful, the dialog below appears.
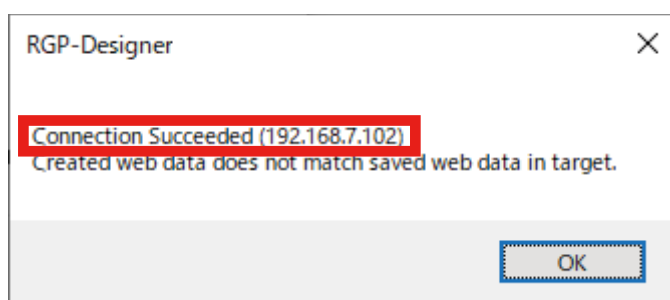
If the connection has not been established, the dialog below appears when a predetermined time period has elapsed.
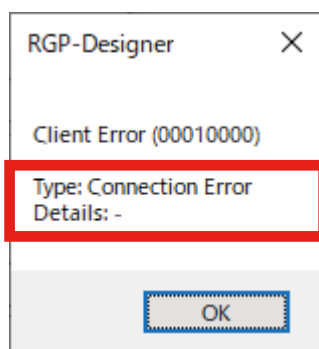
2.8.6 Confirming the version of RGP-Designer

(1) Click [Help] on the Menu Bar, and click [Version Information] to display the [Version Information] dialog.
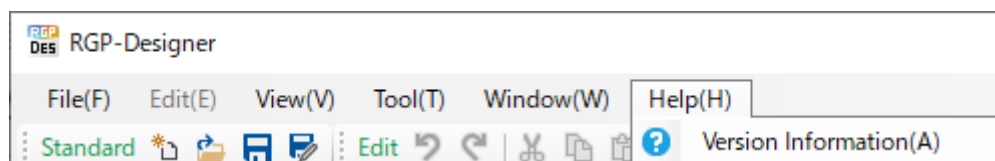
(2) Confirm the version of RGP-Designer.
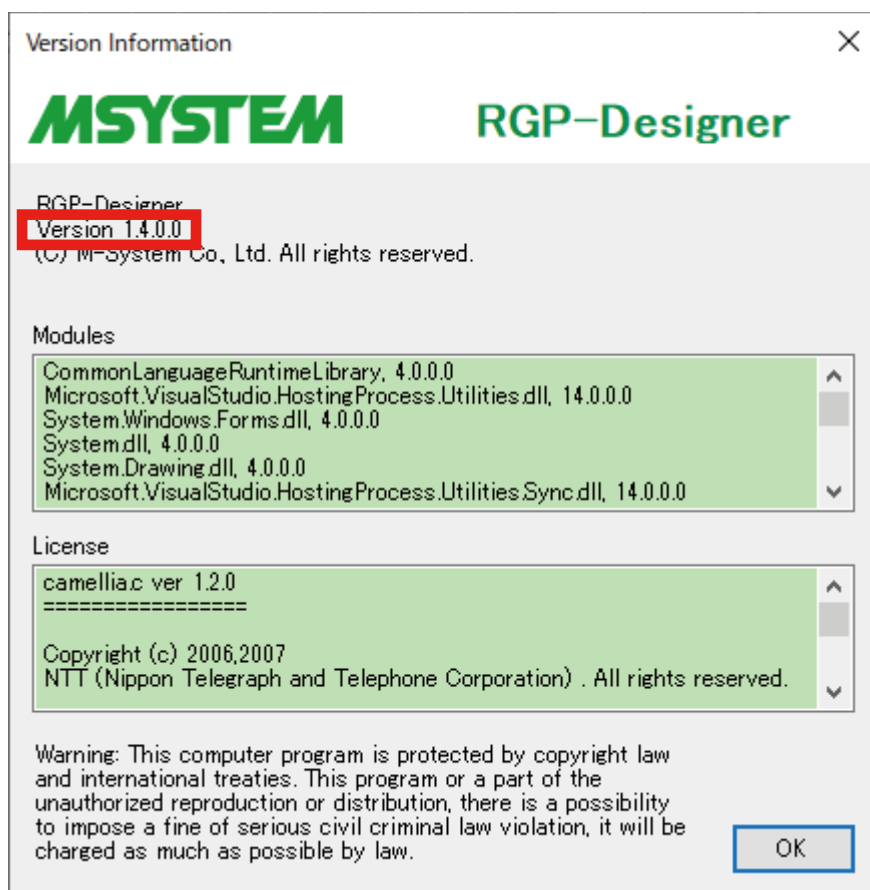
3. FUNCTIONS OF MENUS AND COMMANDS

In this section, details of menus, commands, and windows used in RGP-Designer will be described.

3.1 FILE MENU

Click [File] on the Menu Bar to display sub-menus as shown below.
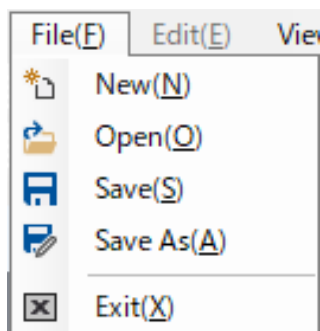
Each sub-menu also appears on the Tool Bar.
Click the icon representing each menu to execute its function.

3.1.1 New(N)

When creating a new project, click [File] > [New] to display the [New Project] dialog as shown below.
Enter [Project Name] and [Comment], select [Model] and [Content Language] from the respective drop-down lists, and click [OK].

If the [Project Name] field is left blank, the file is saved as 'New Project'.

3.1.2 Open(O)

When opening an existing project, click [File] > [Open], and select a Project file (extension.gpp) to open.

3.1.3 Save(S)

When overwriting the Project file which is currently open, click [File] > [Save].

3.1.4 Save As(A)

When saving the Project file which is currently open as another name, click [File] > [Save As] to display the [Save As] dialog.
Edit the file name and click [Save].

3.1.5 Exit(X)

When terminating RGP-Designer, click [File] > [Exit].
If any changes have been made but not saved, choose whether to save the Project file or ignore any changes.

3.2 EDIT MENU

Click [Edit] on the Menu Bar to display sub-menus as shown below.
Edit Menu is active only when Screen are being edited.
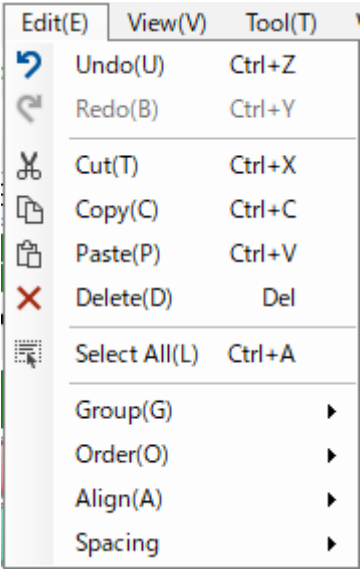
Edit(E)	View(V)	Tool(T)
↺	Undo(U)	Ctrl+Z
↻	Redo(B)	Ctrl+Y
✄	Cut(T)	Ctrl+X
⧉	Copy(C)	Ctrl+C
⎘	Paste(P)	Ctrl+V
✕	Delete(D)	Del
▦	Select All(L)	Ctrl+A
	Group(G)	▶
	Order(O)	▶
	Align(A)	▶
	Spacing	▶

Each sub-menu also appears on the Tool Bar.
Click the icon representing each menu to execute its function.

3.2.1 Undo(U) ↺

When cancelling the last operation, click [Edit] > [Undo].
Target workspace and contents with respect to which the operation is cancelled are as shown in the table below.

WORKSPACE	CONTENTS
[Project Explorer] window	Property attributes of Screen under GP folder.
[Screen Editor] window	Parts allocated on Screen.

3.2.2 Redo(B) ↻

When repeating the last operation, click [Edit] > [Redo].
Target workspace and contents with respect to which the operation is repeated are as shown in the table below.

WORKSPACE	CONTENTS
[Project Explorer] window	Property attributes of Screen under GP folder.
[Screen Editor] window	Parts allocated on Screen.

3.2.3 Cut(T) ✄

When removing a part, text, etc., first select the target to be cut, then click [Edit] > [Cut].

3.2.4 Copy(C)

When copying a part, text, etc., first select the target to be copied, then click [Edit] > [Copy].

3.2.5 Paste(P)

When pasting the cut or copied part, text, etc. in a new location, click [Edit] > [Paste].

3.2.6 Delete(D)

When deleting a part, text, etc., first select the target to be deleted, then click [Edit] > [Delete].

3.2.7 SelectAll(L)

When selecting all of parts, texts, etc. on the Screen, click [Edit] > [SelectAll].

3.2.8 Group(G) > Group(E) or Ungroup(U)

■ **Group(E)**

When making a group of multiple objects, first select two or more objects, then click [Edit] > [Group] > [Group].

■ **Ungroup(U)**

When separating the group of multiple objects, first select the group, then click [Edit] > [Group] > [Ungroup].

3.2.9 Order(O) > BringToFront or SendToBack

■ **BringToFront** , **SendToBack**

When changing the order of display of objects overlapping each other, first select the target object, then click [Edit] > [Order] > [BringToFront] or [SendToBack].

3.2.10 Align(A)

When aligning one or multiple objects being selected, click [Edit] > [Align], then select one of the following commands.

Align Left: for aligning the selected object(s) to left.

Align Center: for aligning the selected object(s) to center.

Align Right: for aligning the selected object(s) to right.

Align Top: for aligning the selected object(s) to top.

Align Middle: for aligning the selected object(s) to middle.

Align Bottom: for aligning the selected object(s) to bottom.

Align Grid: for aligning the one of the four corners of selected object to the closest grid.

3.2.11 Spacing(S)

When adjusting the space between three or more objects being selected, click [Edit] > [Align], then select one of the following commands.

Equal vertical: for adjusting the vertical space to be the same.

Equal horizontal: for adjusting the horizontal space to be the same.

3.2.12 Reset Zoom (only on the Tool bar)

Rest Zoom: for resetting the display magnification to 100%.

3.2.13 Zoom In / Zoom Out (only on the Tool bar)

Zoom In: for zooming in.

Zoom Out: for zooming out.

100 % Magnification: for specifying the display magnification.

3.3 VIEW MENU

Click [View] on the Menu Bar to display sub-menus as shown below.
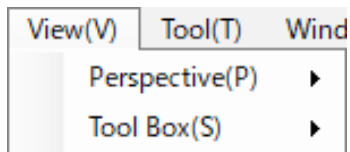
3.3.1 Perspective(P)

Select [Perspective] for specifying whether to show or hide respective Windows used on RGP-Designer.

3.3.2 Tool Box(S)

Select [Tool Box] for specifying whether to show or hide respective tool bars used on RGP-Designer.

3.4 TOOL MENU

Click [Tool] on the Menu Bar to display sub-menus as shown below.
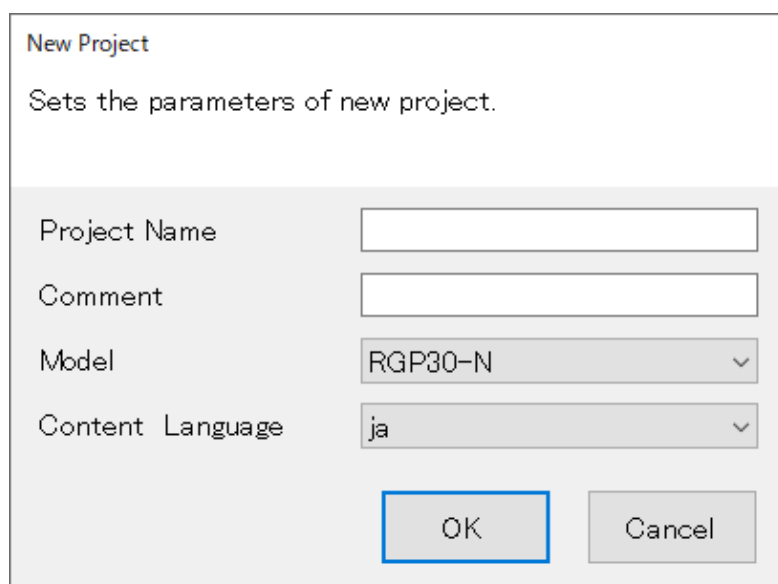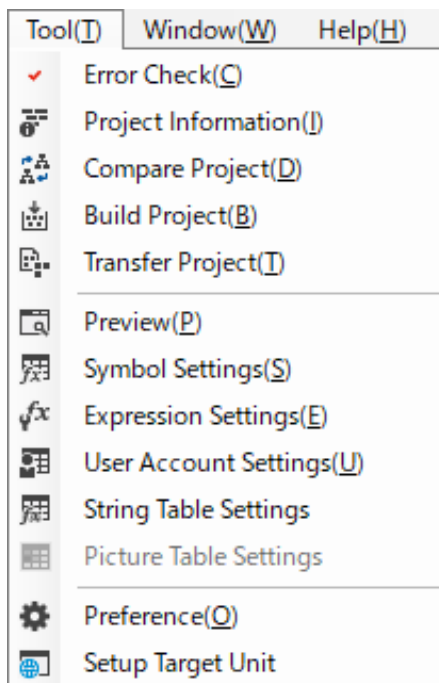

Each menu also appears on the Tool Bar.

Click the icon representing each menu to execute its function.

3.4.1 Error Check(C)

Select [Error Check] to perform error check on the Project being edited.
Confirm the error check result to be displayed on the [Output] window and modify the Project based on the error content, if any.

```
Output                                              ⊥  ✕
Checking...
Check Completed




 Output   Address List
```
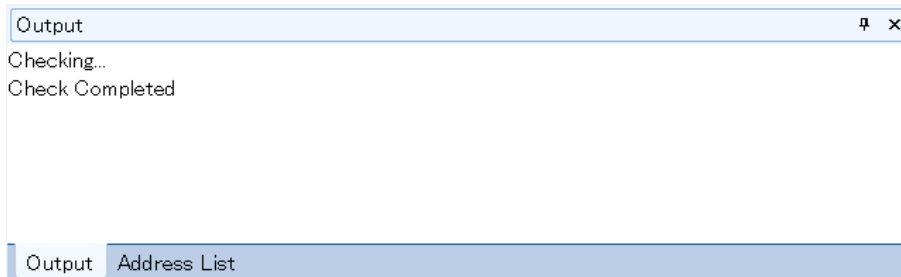
For specific examples of errors, refer to "3.13 OUTPUT WINDOW" on page 63.

3.4.2 Project Information(I)
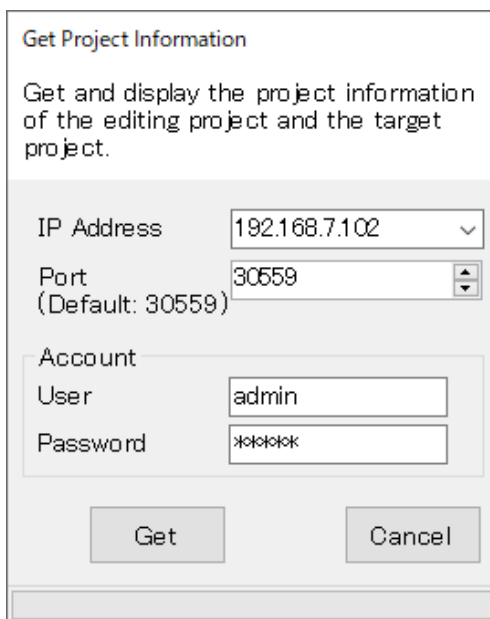
Select [Project Information] for displaying the information on the Project currently being edited and the Project already transferred to RGP unit.

First, select [Project Information] to display the [Get Project Information] dialog.
Enter IP Address of the RGP unit, Port No., and user name and password, then click [Get].
    Default user name: admin
    Default password : admin

```
Get Project Information

Get and display the project information
of the editing project and the target
project.


IP Address    192.168.7.102        ⌄

Port          30559                ▲▼
(Default: 30559)

┌ Account ─────────────────────────
 User          admin

 Password      *****
└──────────────────────────────────

     Get              Cancel
```

When the project information has been successfully obtained, the [Project Information] window showing 'Project Information' and 'Executable File Information' will be displayed.

[Local] represents the Project currently being edited on RGP-Designer and [Server] represents the Project already transferred to the RGP unit.

Items are shown in red if the Local data and the Server data do not match.

(1) Project Name: Project Name entered on the [Property] window of the Project.

(2) Product Version: Version of RGP-Designer on which the Project was created.

(3) Comment: Comment entered on the [Property] window of the Project.

(4) Creation Date: The date and time on which the Project was newly created.

(5) Last Update Date: The date and time on which the Project was last updated and saved.

(6) Executable File Information: Information on files constituting the program of RGP-Designer
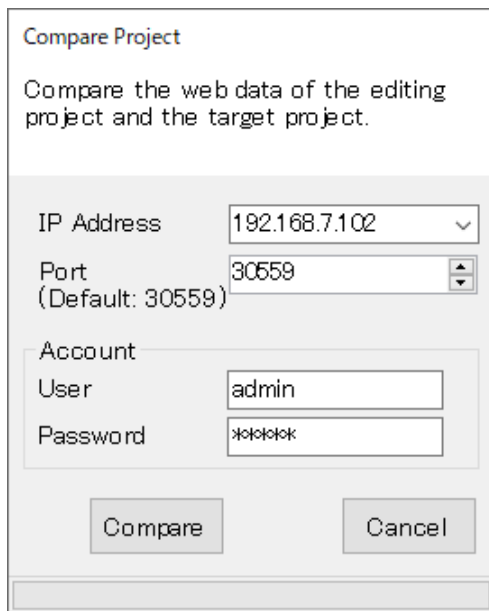
3.4.3 Compare Project(D)

Select [Compare Project] to display the [Compare Project] dialog for comparing the Project currently being edited on RGP-Designer and the Project already transferred to the RGP unit.

Enter IP Address of RGP unit, Port No., and user name and password, then click [Compare].

    Default user name: admin
    Default password : admin
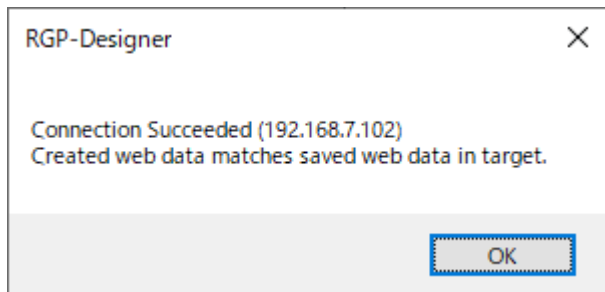
Compare Project

Compare the web data of the editing
project and the target project.

IP Address   192.168.7.102

Port   30559
(Default: 30559)

Account
User   admin
Password   *****

    Compare   Cancel

Confirm if the two data match or do not match each other.
When the two data match, the dialog below appears.
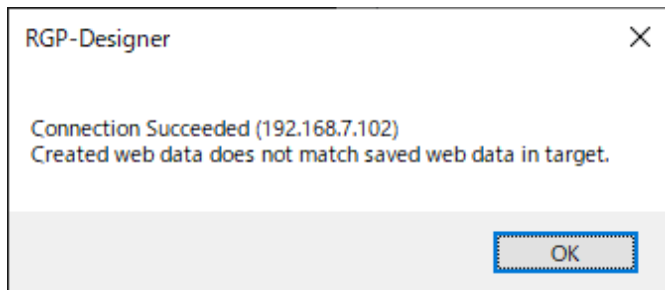
RGP-Designer   ×

Connection Succeeded (192.168.7.102)
Created web data matches saved web data in target.

                        OK

When the two data do not match, the dialog below appears.

RGP-Designer   ×

Connection Succeeded (192.168.7.102)
Created web data does not match saved web data in target.

                        OK

3.4.4 Build Project(B)

Select [Build Project] to execute a build process for the Project currently being edited.
The progress and result of the build process will be displayed on the [Output] window.

Confirm if there is any error and modify the Project, if necessary.

```
Output                                                    ⌁ ×
Building...
Checking...
Check Completed
Build Completed
```

```
Output   Address List
```
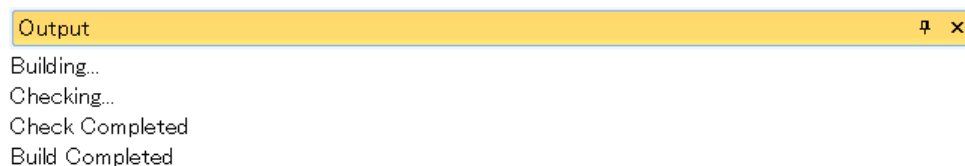
For specific examples of errors, refer to "3.13 OUTPUT WINDOW" on page 63.

NOTE
The Project cannot be transferred if the Project could not be built.
If the Project cannot be transferred, check the message on the [Output] window.
If there is an error message about a build process on the [Output] window, correct the Project in order to fix the error.
For the description on the [Output] window, refer to "3.13 OUTPUT WINDOW" on page 63.

3.4.5 Transfer Project(T)

Select [Transfer Project] to display the [Transfer Project] dialog for transferring the created Project to RGP unit.

Error check and a build process will be executed automatically before the project is transferred.
Enter IP Address of RGP unit, Port No., and user name and password, then click [OK].

    Default user name: admin
    Default password : admin

Click [Abort] to terminate the transfer being processed.

```
Transfer Project

Convert the editing project to web
data for target and transfer it.


IP Address   192.168.7.102      ∨
Port         30559              ⬍
(Default: 30559)
 Account
 User        admin
 Password    *****

    OK      Abort    Cancel
```
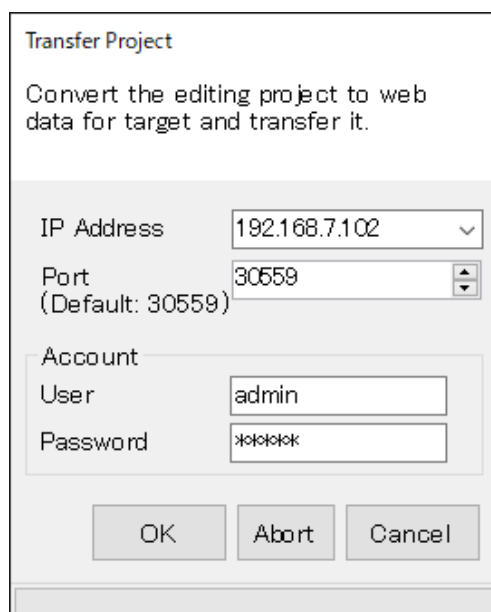
> **NOTE**
>
> The Project transferred to RGP unit cannot be exported to RGP-Designer.
>
> If the Project to be transferred is used later, save the Project and use it.

3.4.6 Preview(P) 🔲

Select [Preview] to preview screen configuration of the Graphic Panel(s) of the currently-being-edited Project on Web browser.

> **NOTE**
>
> • RGP-Designer's preview function cannot show Sub Screens and Dialog Screens on a Base Screen in the same manner as those transferred to RGP unit and viewed via Web browser. Instead, each Sub Screen or Dialog Screen appears as a colored square where it is supposed to be displayed on the Base Screen.
> However, each Sub Screen, Dialog Screen, or Popup Screen can be previewed individually in the manner as it is shown on Web browser.

Details of Base, Sub, Dialog, and Popup Screens, refer to "4. SCREENS (Base, Sub, Dialog, Popup)" on page 66.

3.4.7 Symbol Settings(S) and Expression Settings(E)

■ **Symbol Settings(S)** 🔳 **, Expression Settings(E)** 🔳

Select [Symbol Settings] to set symbol variables on the [Symbol Settings] window.
Symbol variables are aliases each representing a Device address, specialized memory of RGP unit, or expression and used instead of actual Device addresses.
By using symbol variables, setting change of connected devices, etc., can be migrated simply by editing the symbol variables on the [Symbol Settings] window without resetting each part on the Screen.
Unlike an actual Device address such as "B/S1:X10F," a symbol variable can be a comprehensible name such as "Conveyor operation button."

■ **Types of symbol variables**

There are three types of symbol variables as shown in the table below.

TYPE	DESCRIPTION
Device symbol	Alias of Device address. An optional symbol name can be created for each Device address.
System symbol (RGP30-N2, RGP6-N2 only)	Alias of specialized memory of RGP unit. Symbol name is fixed and not editable. 　Note: Not available for RGP30-N and RGP6-N as they do not have specialized memory.
Expression symbol	Alias of expression which is composed of Device address and symbol address. User can define the expression and symbol name. See "11. EXPRESSIONS" on page 179 for how to set expressions.

■ **Symbol variable specifications**

• Up to 1024 Device symbols can be registered.

• System symbol is previously incorporated and cannot be edited, deleted, or newly created.

• Up to 80 Expression symbols can be registered.

• Each symbol must be named uniquely using up to 20 characters.

■ Points to note

RGP-Designer manages symbols using Jet 4.0 database engine.
The database conforms to SQL-89 with our extensions and subject to the following collation rules.

• Not case sensitive

• No distinction between single-bye and double-byte for alphanumeric characters and sings

• No distinction among Hiragana, double-byte Katakana, and single-byte Katakana

For prohibited characters and character codes, refer to "16.1 PROHIBITED CHARACTERS" on page 210.

■ Symbol settings and Expression settings

Symbols and expressions can be configured on the [Symbol Settings] window.
Select [Symbol Settings(S)] or [Expression Settings(E)] from Tool Menu or click each icon on Tool bar.
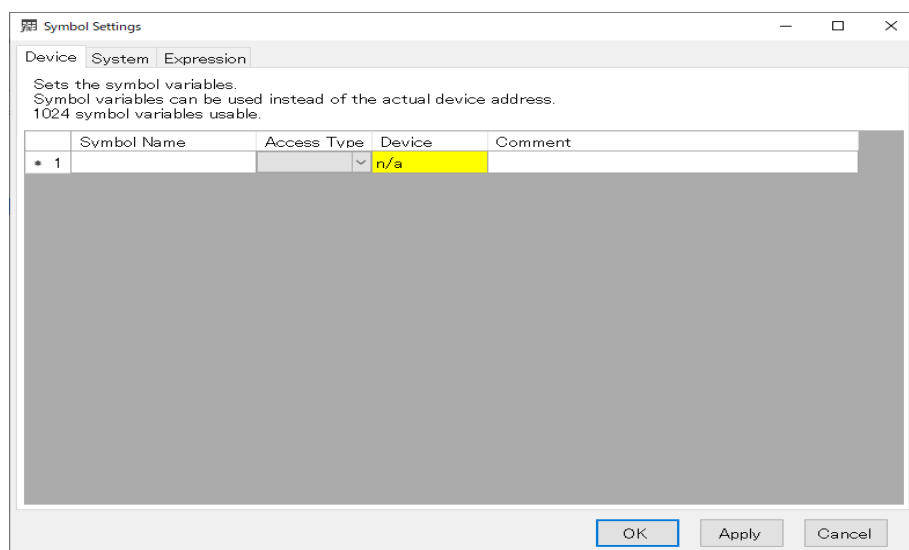
Symbol Settings - Device -
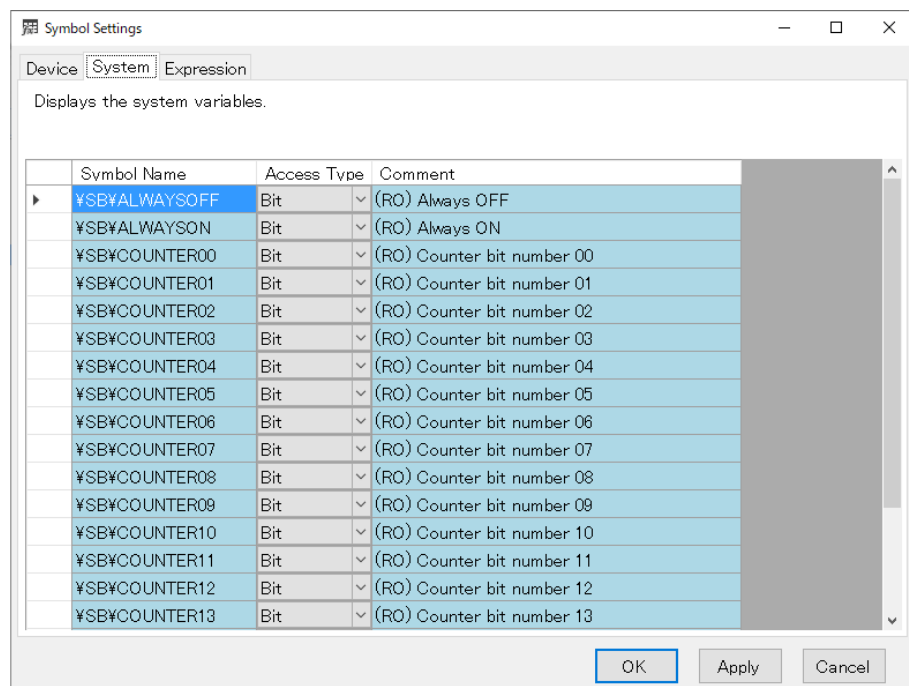
Symbol settings - System -
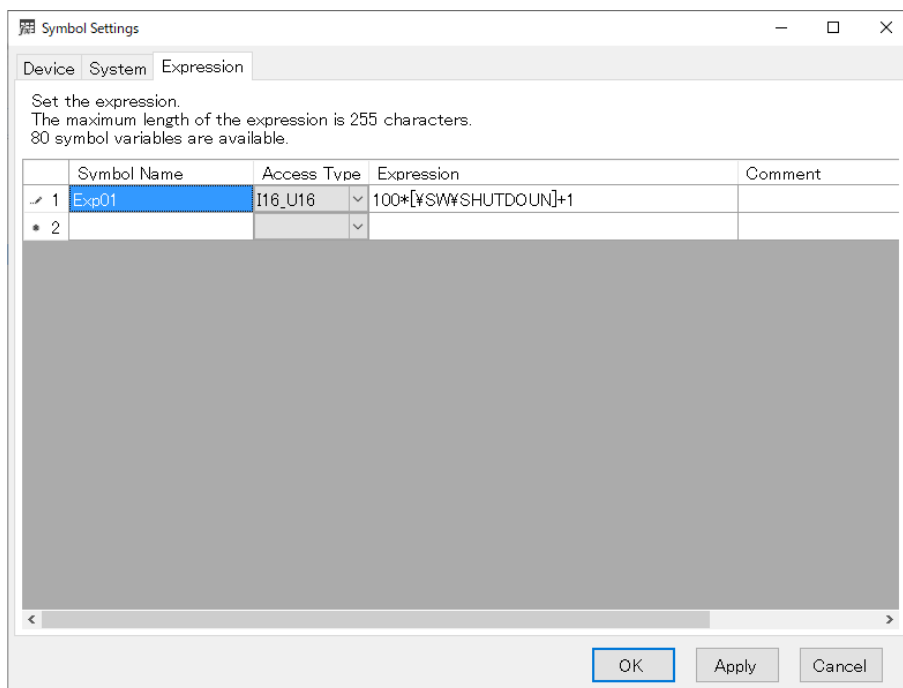
Symbol settings - Expression -

To delete a symbol variable, click to select the head of the row, and press [Delete] on your keyboard with the row being selected.
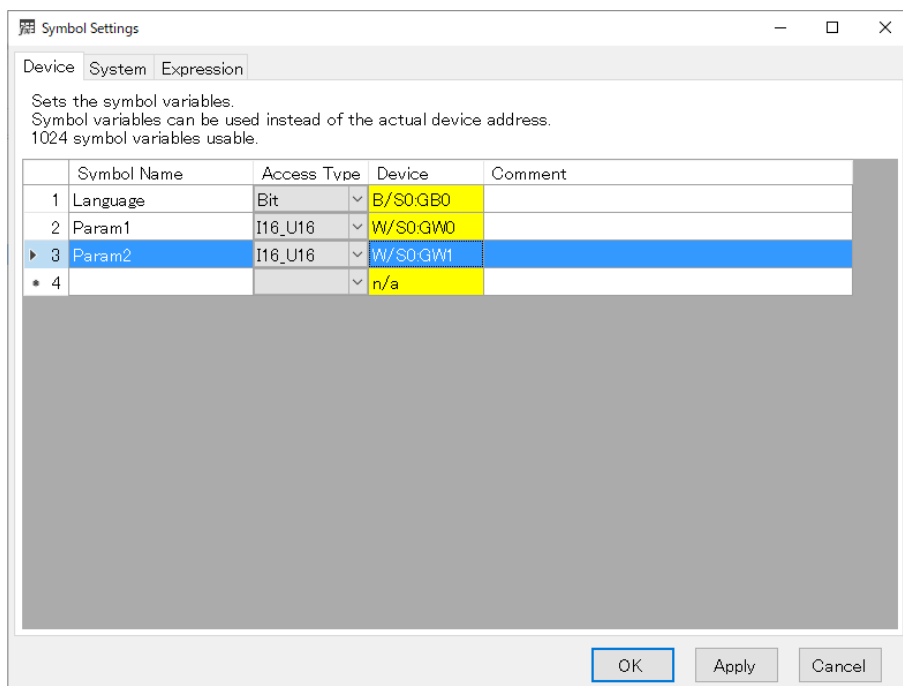
3.4.8 User Accounts(U) ▦

Select [User Accounts] to set accounts for connecting with RGP unit via Web browser on a terminal.
Up to 8 accounts can be registered.
Set Login name and password using up to 32 characters.
Usable characters are: 0-9; A-Z; a-z; and "_ (underline)".
Access level can also be set from 0 to 7 (highest).
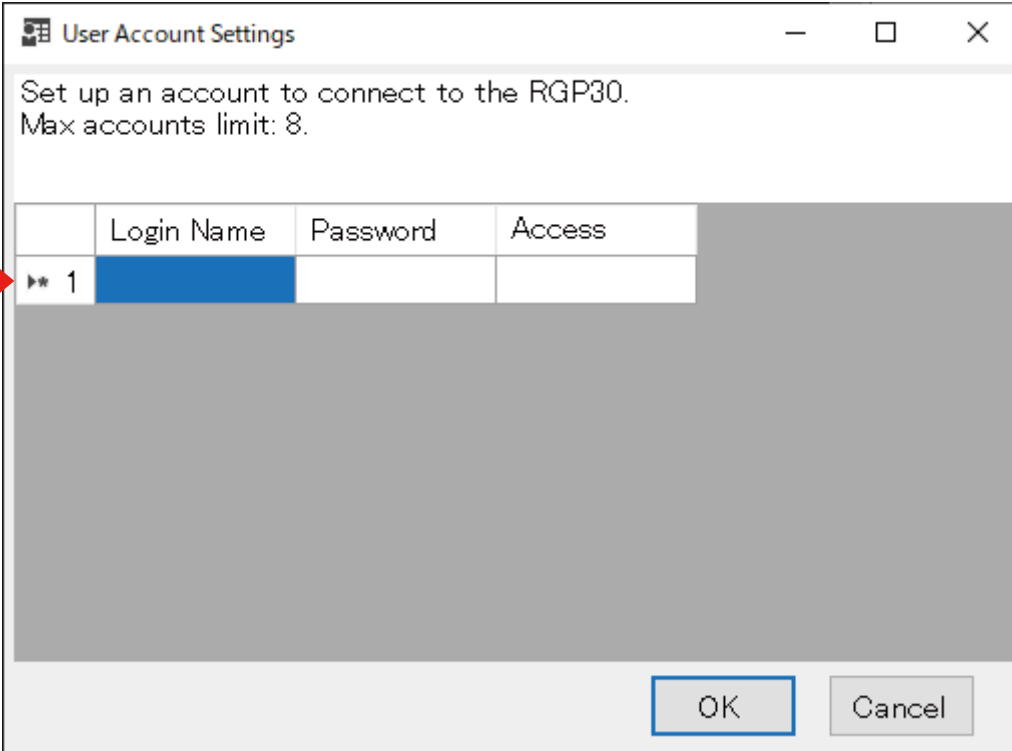
For detail of access level setting, refer to 3.8 PROJECT EXPLORER WINDOW > "3.8.3 Application" on page 55.

To delete a user account, click to select the head of the row and click [Delete] on your keyboard with the row being selected.

3.4.9 String Table Settings 🔤

String Table is a list of text strings which is commonly used within one Project and used for [Text List] parts which display different text strings according to a value of the Monitor Address.

That is, a [Text List] part displays a text string assigned to the [Number] on the String Table which coincides with the value of the Monitor Address.   ➔"7.6 [TEXT LIST] PART" on page 129

Select [String Table Settings] to display the [String Table Settings] window.

In the String Table, register text strings and assign them to respective numbers (0 to 255).

Up to 256 text strings each with up to 255 characters can be registered.

In the example below, when the value ([Number]) of the Monitor Address is '0', "Start" is displayed as the [Text List] part.
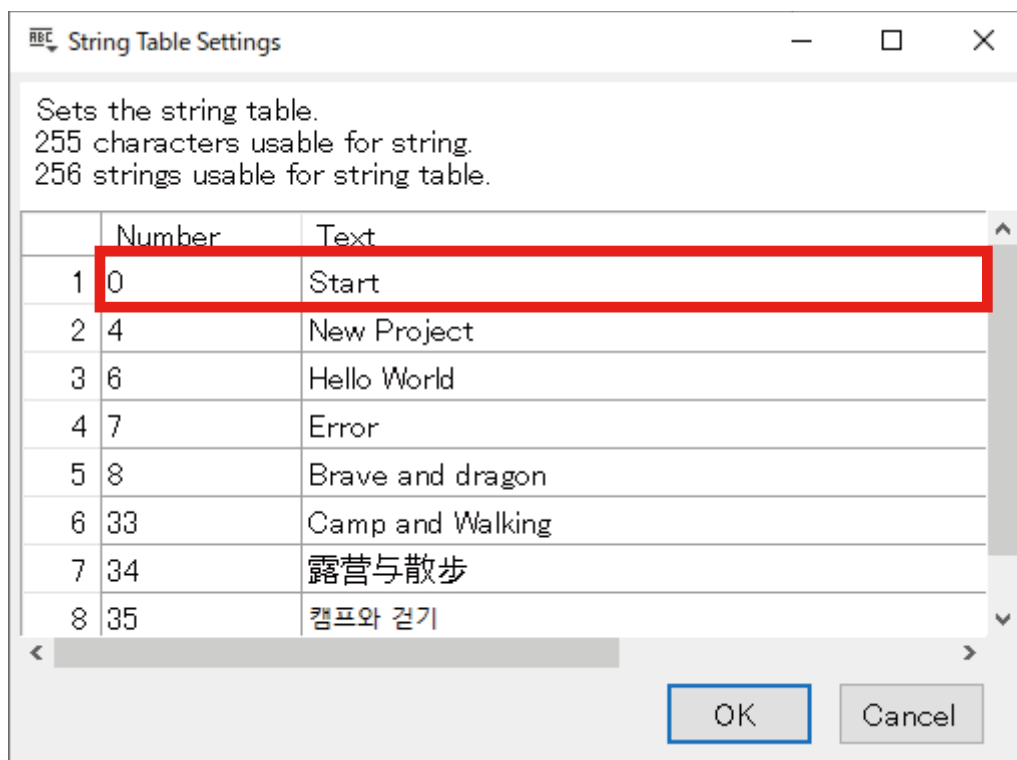
For the prohibited characters for the String Table, refer to "16.1 PROHIBITED CHARACTERS" on page 210.

3.4.10 Picture Table Settings

Picture Table is used for storing images which are commonly used within one Project.

The images are assigned with numbers, respectively, and these numbers can be used instead of actual images when setting an image for a part such as Lamp or Picture which allows image setting.
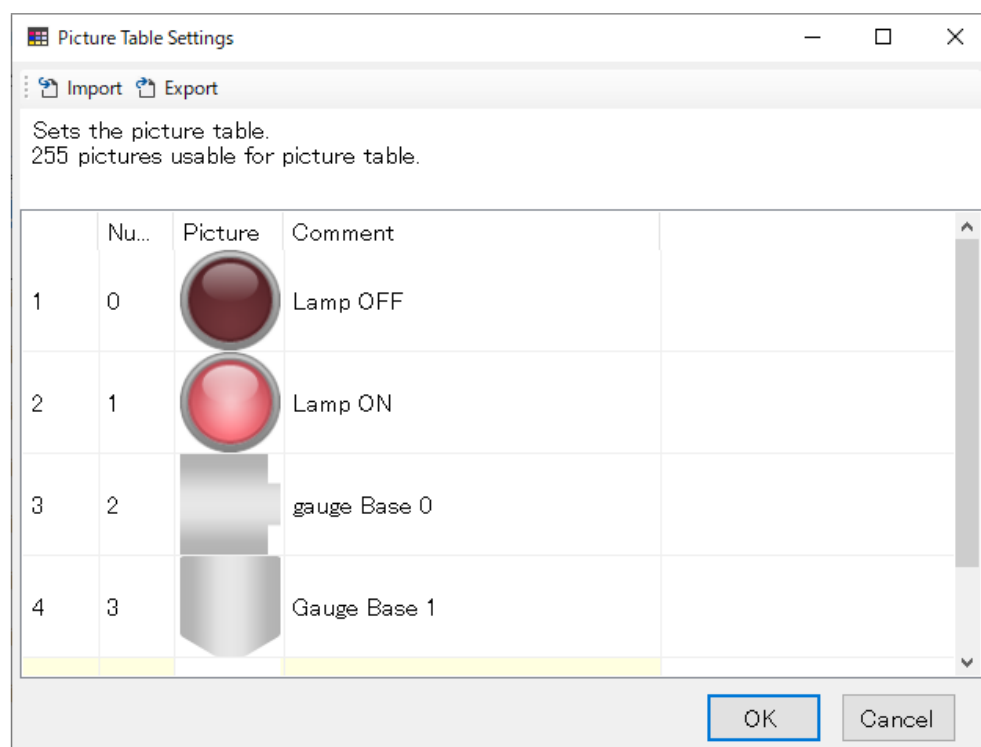
NOTE

- Picture Table is available for RGP30-N2 (v1.1. or later), RGP-6-N2 (v1.1 or later), and RGP30-W only.
- If your RGP unit is RGP30-N or RGP-6, update the firmware to enable Picture Table.

■ **Picture Table Specifications**

- Up to 256 pictures can be registered.
- Each picture must be assigned with a unique number within the range of 0 to 255.
- Allowable image capacity is max. 64 MByte per Screen.
- No limitation for the size of one image, however, if either side of the image exceeds 3840 px, the image is resized so as to reduce the side to 3840 px while keeping the aspect ratio.
- Allowable file format: BMP, JPG, JPEG, PNG, GIF, SVG

■ **Registering and editing image**

1) Select [Picture Settings] from Tool Menu to display the [Picture Table Settings] window.
2) Double-click a line of the image to edit or a blank line to register a new image on the table pane to display the [Select Image] dialog.
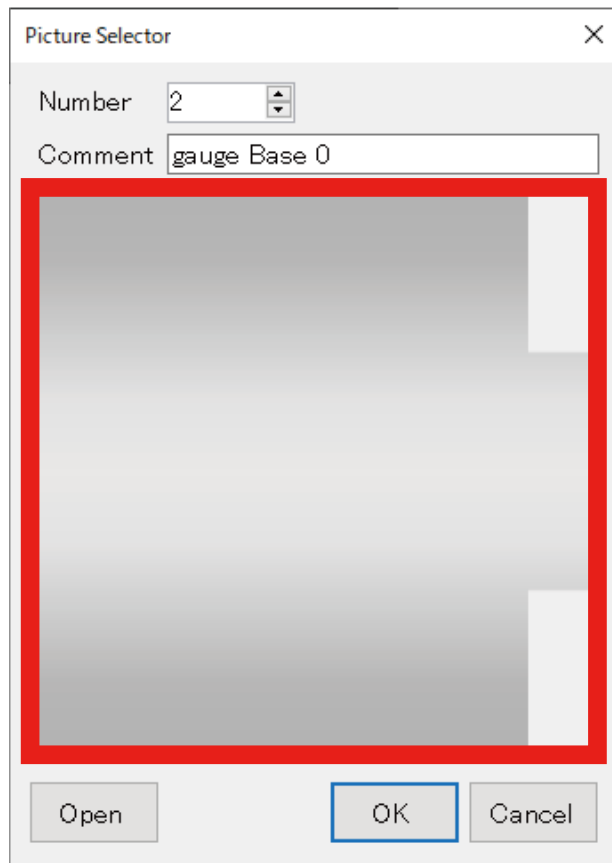
3) Click [Open] or the Preview pane surrounded by the red frame to display the [Open] dialog.
4) Select an image, enter an optional number and comment (up to 255 characters), and click [OK] to end editing and register the image.

■ **Deleting image**

1) Click the head of the line of the image to delete on the [Picture Table Settings] window.
2) Press [Delete] on your keyboard to delete the line.

■ **Exporting Picture Table**

Picture Table can be exported to an external folder.
Then, Picture Table can be imported again after editing the images using a retouch software or replacing images in the folder with other images.

To export Picture Table,
1) Click [Export] on the [Picture Settings] window to display the [Browse for Folder] dialog.
2) Specify the folder and click [OK].
3) Confirm that the Picture Table containing the files as shown in the following figure has been output.

NOTE
• When Picture Table is exported, all of files and folders in the destination folder will be deleted.
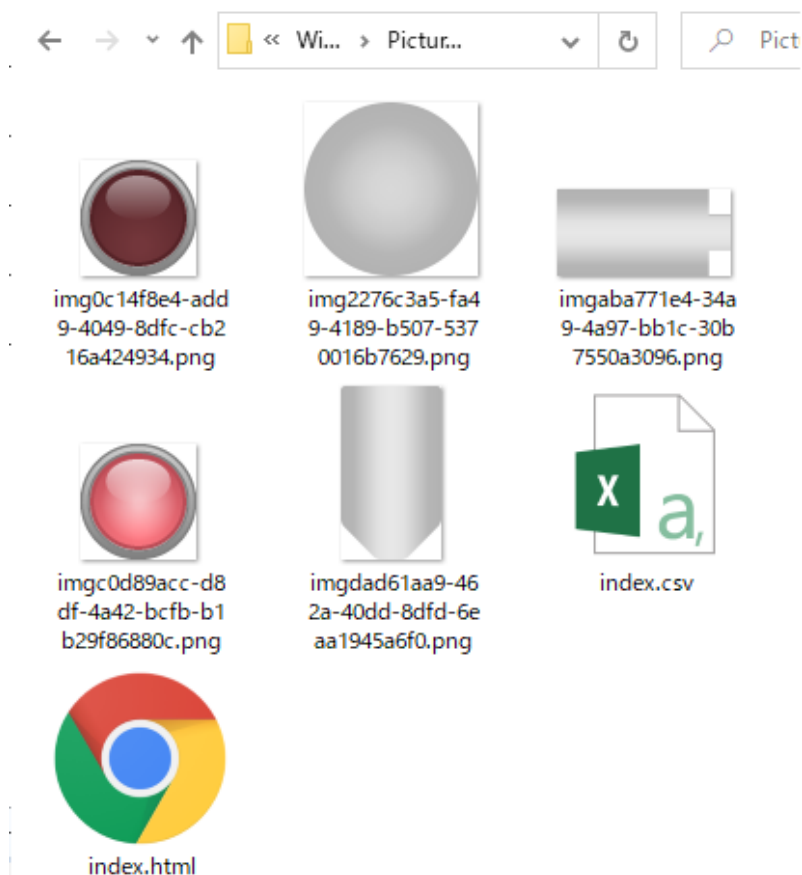
- Content of Picture Table folder

FILE NAME	DESCRIPTION
Image file name in Picture Table	Exported image file
index.csv	CSV file describing the Picture Table structure which is used when exporting Picture Table.
index.html	HTML file to preview images which have been exported on Browser. Not needed when Picture Table is imported.

■ Importing Picture Table

Images saved in an external folder can be imported and registered in Picture Table.

NOTE
• When Picture Table is imported, existing files in the Picture Table folder are deleted from RGP unit.

To import Picture Table,
1) Click [Import] on the [Picture Settings] window to display the [Browse for Folder] dialog.
2) Specify the folder and click [OK].
   Note that the index.csv must be included in this folder.
3) Confirm that the image files have been imported and Picture Table has been updated.

- Structure of index.csv (comma-delimited UTF-8)

0	imgf232e733-7712-4cfe-bb04-7dd283c8074f.png	ON
1	img44cfe96a-b117-4919-85fa-14d28b94dc74.png	ON
10	img2c6d16e6-1ecb-4633-a332-50f153c83c50.png	Gauge 0
11	img1510ed9e-f209-4942-bb1a-5de8a75e928f.png	Gauge 1
12	img30a2b8ed-87cd-4d98-b048-0868506e8ea4.png	Gauge 2

Column No.	DESCRIPTION
1	Number Set within the range of 0 to 255.
2	Image file name
3	Comment Set using up to 255 characters.

3.4.11 Preference(O) ⚙

Select [Preference] to display the [Preference] setting dialog.
The settings on this dialog are generally applied to RGP-Designer.
They appear as default on the [New Project] dialog so that user can skip these settings when creating a new Project.
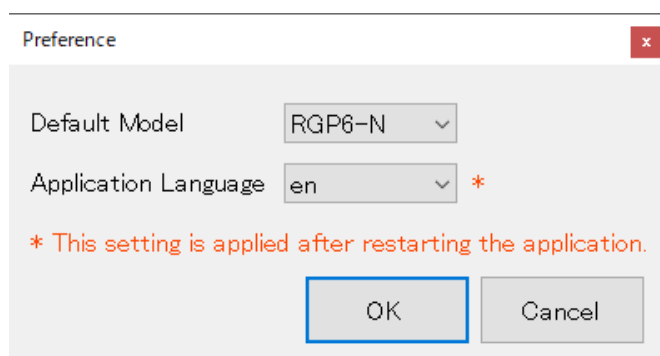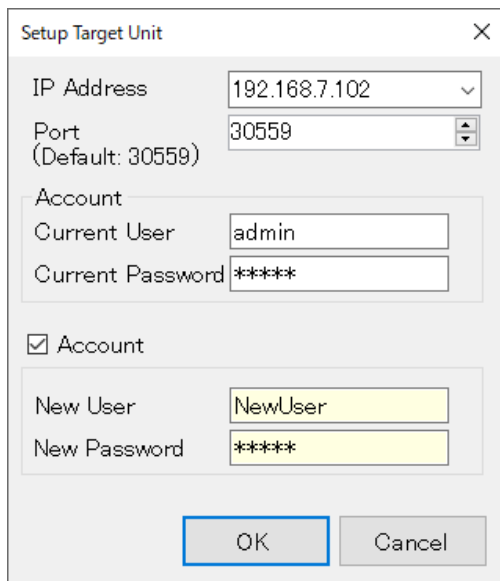
WORKSPACE	CONTENTS
Default Model	Selected model will be the default model on the [New Project] dialog.
Application Language	Select the language to be displayed on RGP-Designer between English (en) and Japanese (ja). When left blank, RGP-Designer will be displayed in Japanese or in English if your OS language is other than Japanese.

3.4.12 Setup Target Unit

Select [Setup Target Unit] to display the [Setup Target Unit] dialog for setting an account for connecting RGP unit with RGP-Designer.

Enter an optional new user name and password, and click [OK].
Usable characters: '0-9'; 'A-Z'; 'a-z'; and '_ (underline)'.

NOTE

■ **Initialization of RGP30 Account information**

To initialize RGP30 account information, delete the file "USER.bin" located in the "RGP" folder under C drive of the RGP unit. The file will be initialized and the account information returns to default values when the RGP unit is restarted.

　　　　Default user name: admin
　　　　Default password : admin
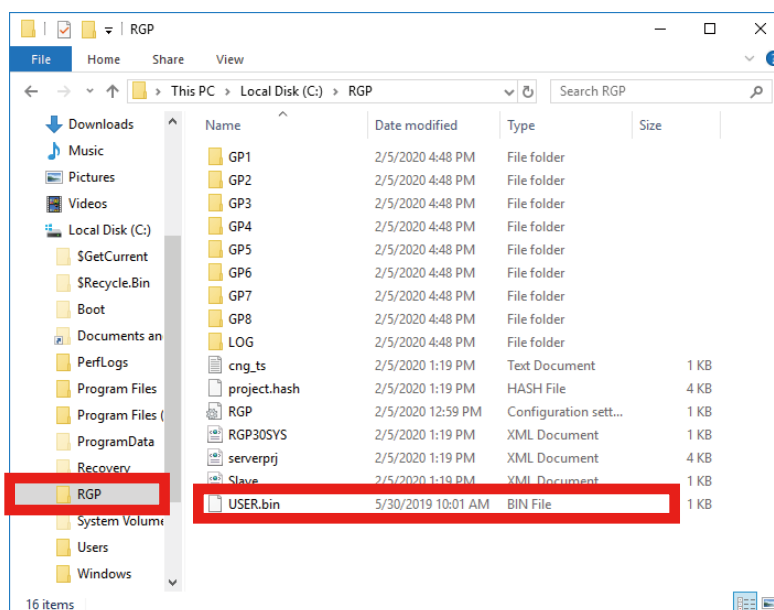
3.5 WINDOW MENU

Click [Window] on the Menu Bar to display sub-menus as shown below.
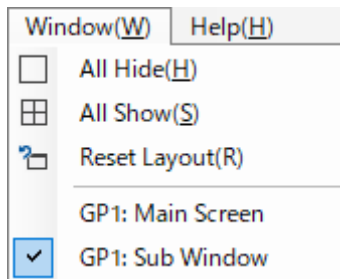
Each menu also appears on the Tool Bar. Click the icon representing each menu to execute its function.

3.5.1 All Hide(H) ☐

Select [All Hide] to hide all windows except the [Editor] window on RGP-Designer.

3.5.2 All Show(S) ⊞

Select [All Show] to display all windows on RGP-Designer.

3.5.3 Reset Layout(R) 🗗

Select [Reset Layout] to reset the layout of all windows on RGP-Designer to default settings.

3.5.4 Screens Being Edited

A list of Screens being edited is displayed.

3.6 HELP MENU

Click [Help] on the Menu Bar to display sub-menu as shown below.

Help(H)
? Version Information(A)
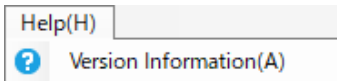
3.6.1 Version Information(A)

Select [Version Information] to display the [Version Information] dialog.

3.7 PARTS STATE (TOOL BAR)

Parts State is a part of Tool Bar of RGP-Designer.

Parts State 0 1 2 3 4 5 6 7 8 9 A B C D E F | Value   0

■ Parts State

Select a value to simulatively change input value of all of parts allocated on the Screen.
For a part assigned with a Device address which inputs a bit value, a simulative value is applied to the lower bit.

When '0' is selected:
'0' is displayed and the Lamp is OFF.
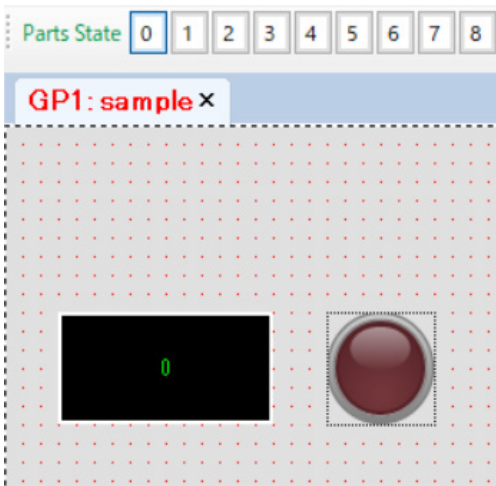
When '1' is selected:
'1' is displayed and the Lamp is ON.
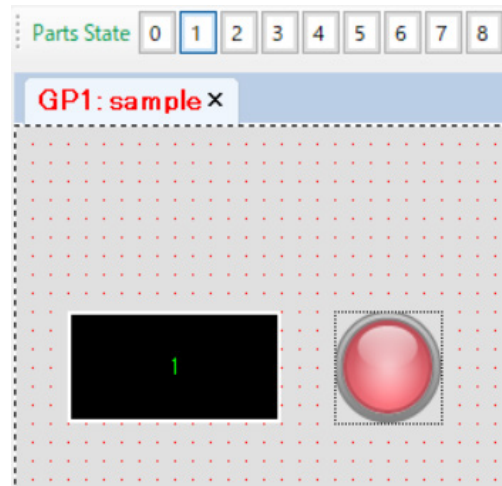
3.8 PROJECT EXPLORER WINDOW

The [Project Explorer] window is used for managing slave devices and applications (Graphic Panels).

3.8.1 Project

The file name of the Project being edited is displayed.
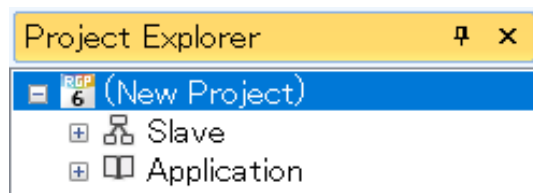
Click the Project name to display the [Property] window showing parameter items to configure.
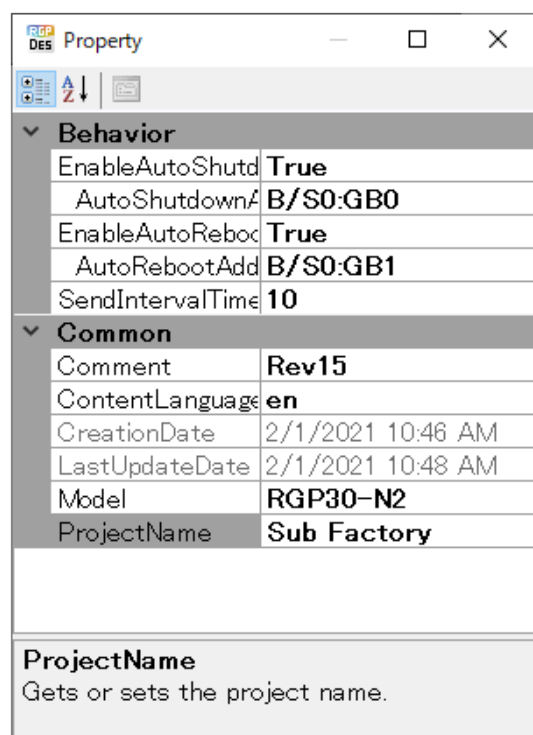
ITEM	DESCRIPTION
Comment	Enter any comment using up to 255 characters.
ContentLanguage	Select the language of contents of the Project to be transferred to RGP unit between Japanese (ja) and English (en). Default: ja
CreationDate	The date and time on which the Project was newly created.
LastUpdateDate	The date and time on which the Project was last updated.
Model	Select RGP model from among RGP30-N, RGP6-N, RGP30-N2, and RGP6-N2. Select RGP30-N2 for RGP30-W. To set the default model, refer to 3.4 TOOL MENU > "3.4.11 Preference(O)" on page 48.
ProjectName	Enter an arbitrary name for the Project using up to 80 characters.

ITEM	DESCRIPTION
EnableAutoShutdown *1	Enable Auto-shutdown of RGP unit. Default: False (Disable)
AutoShutdownAddress *1	Specify a Device address (See "12. DEVICE ADDRESS" on page 192) which acts as a trigger for Auto-shutdown. RGP unit shuts down when the value of the Device address stays ON for 12 seconds or longer. *RGP6-N2 automatically restarts after shutdown. This setting is ignored when [EnableAutoShutdown] is set as False. Default: n/a (No Device address is specified)
EnableAutoReboot *1	Enable Auto-reboot of RGP unit. Default: False (Disable)
AutoRebootAddress *1	Specify a Device address (See "12. DEVICE ADDRESS" on page 192) which acts as a trigger for Auto-reboot. RGP unit restarts when the value of the Device address stays ON for 12 seconds or longer. This setting is ignored when [EnableAutoReboot] is set as False. Default: n/a (No Device address is specified)
SendIntervalTime *1	Interval of command transmission between RGP and PLC for monitoring [EnableAutoShutdown] and [EnableAutoReboot]. Setting range: 0 to 1000 msec. Default: 10 msec. Note that the shorter the interval is, the higher the load on the PLC can be. If set to 0 msec., RGP unit transmits a command upon reception of data from PLC.

*1 Available for RGP30-N2, RGP30-W and RGP6-N2 only.
    This parameter does not show for RGP30-N or RGP6-N.

3.8.2 Slave

Configure each slave device to connect with RGP unit.
Up to 32 slave devices can be connected with the RGP unit.
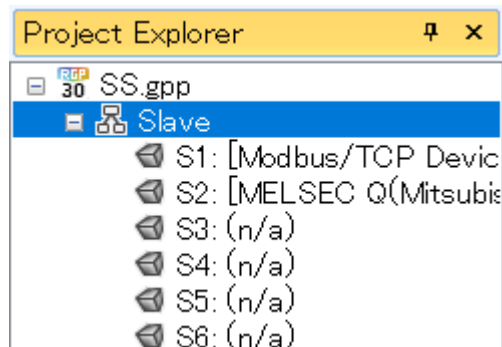
Right-click each slave number to configure to display the [Property] menu.
Select [Property] to display the [Slave Settings] window.
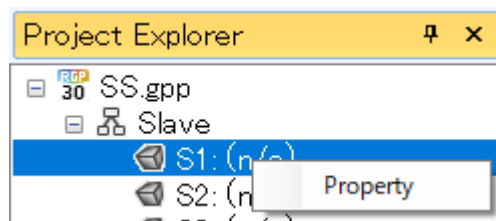
Select the slave device to connect with the RGP unit from the [Slave Driver] list.
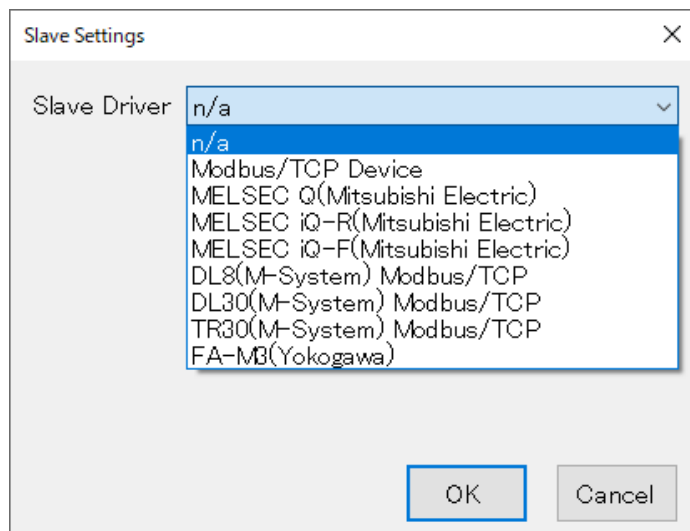
For details of slave device setting, refer to "6.2.1 Register / Configure Slave Devices" on page 93.

3.8.3 Application

Under [Application], GP folders (Graphic Panels) and Screens constituting each Graphic Panel are displayed in a tree structure.

A single RGP unit incorporates 8 Graphic Panels which respectively correspond to folders "GP1" to "GP8."

Thus, a maximum of 8 different transition patterns that meet a variety of application needs can be created.
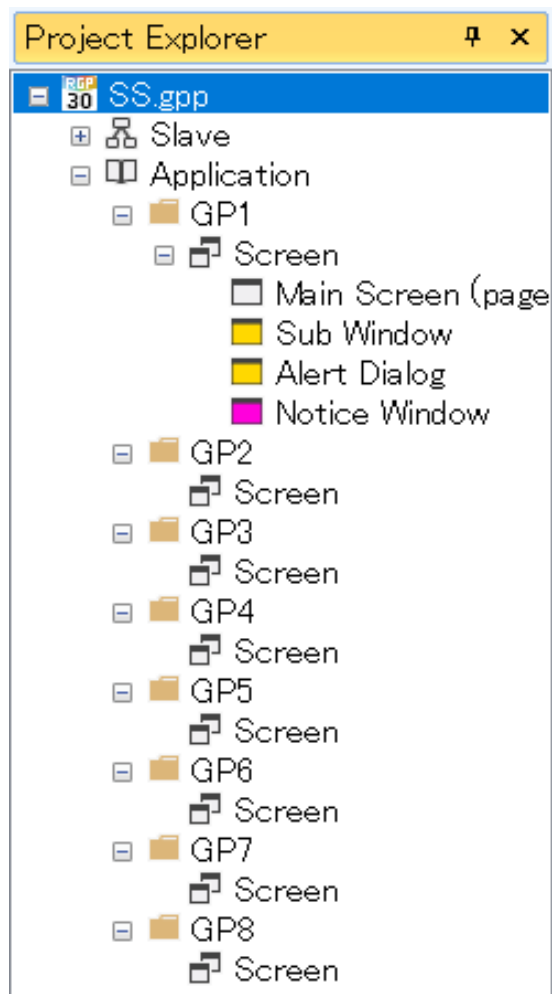
Click to select any of GP1 to GP8 folders to display the [Property] window showing parameter items to configure.

Property

Behavior
AccessLevel	0
ScreenSyncMode	Sync
ScreenUpdateInt	10
SendIntervalTime	10

ChangeScreen
EnableChangeExt	True
MonitorAddress	W/S0:GW0

Common
Comment	
HttpProtocol	HTTP

Execution of Actions
Triggers	RGPTrigger[] Arra...
> [0]	OnCycle
> [1]	OnTime
> [2]	OnBit

Popup
DisplayScreen	0000: (n/a)
EnablePopupWinc	True
MonitorAddress	B/S0:GB0
ScreenDisplayPo:	0, 0
X	0
Y	0

Triggers
Gets or sets the Triggers.

ITEM	DESCRIPTION	

AccessLevel	Access level can be set to each GP (Graphic Panel) folder and to each user to restrict access to the folder. A user is not allowed to access the folder which is set to a higher access level than the access level set to the user.
	Set the highest access level 7 to the administrator and an access level 1 to 6 to each user in order to prevent unintentional changes, etc.
	Set 0 if no access restriction is required.
	      Access level: 0 to 7 (highest)
	      Default: 0	

ScreenSyncMode	Select between 'Sync (synchronize)' and 'Async (Asynchronize)'.
	      Default: Async
	      Target: Base Screen	

	Sync	When the contents of the same GP folder are displayed on multiple terminals, a screen transition operation performed on one terminal is reflected on the rest of terminals.
	Async	When the contents of the same GP folder are displayed on multiple terminals, screen display is manipulated individually according to an operation performed on each terminal.
ScreenUpdateInterval	Set the interval at which the Web browser requests screen data from RGP unit. Setting range: 0 to 1000 msec. (default: 10 msec.) The smaller the value is, the heavier the load on the browser can be. If set to '0 msec.', the browser sends a request command immediately upon reception of data from RGP unit.	
SendIntervalTime	Set the command transmission interval between the RGP unit and PLC. Setting range: 0 to 1000 msec. (default: 10 msec.) The smaller the value is, the heavier the load on the PLC can be. If set to '0 msec.', the RGP unit sends a request command immediately upon reception of data from PLC.	
Comment	Max. 255 characters For prohibited characters and character codes, refer to "16.1 PROHIBITED CHARACTERS" on page 210.	
HttpProtocol	HTTP / HTTPS Note: When HTTPS is used, certificates must be transferred from Local Certification Authority Creator (model: LCA-RGP) to the RGP unit. For details, refer to the LCA-RGP Users Manual (NM-8581-C; currently available in Japanese only).	
	HTTP	Use HTTP only
	HTTPS	Use HTTPS only
	BOTH	Use both HTTP and HTTPS
Triggers	By setting Trigger list, a trigger action i.e., ChangeScreen action in this version of RDG-Designer, can be initiated by various triggers. For details of triggers and trigger actions, refer to "9. TRIGGER AND TRIGGER ACTION" on page 173.	

ITEM	DESCRIPTION		
EnablePopupWindow	One Popup Screen per GP folder can be created. Set as 'True' to enable Popup Screen. For details of Popup Screen, refer to "4.4 POPUP SCREEN" on page 72.		
	True	Popup Screen is enabled. Configure the following parameters.	
		MonitorAddress	Select a Bit Device.
		ScreenDisplayPosition	Specify the position from the range (0,0) to (3840,3840) X: X coordinate when the left top end of the Popup Screen is (0,0). Y: Y coordinate when the let top end of the Popup Screen is (0,0).
		DisplayScreen	Specify Popup Screen name to display.
	False	Popup Screen is disabled.	

Note: 'Screen Update Interval' and 'Send Interval Time' do not synchronize with each other.

3.9 Parts Box Window

On the [Parts Box] window, a list of parts to be allocated on each Screen is displayed.
When creating a Screen, select any part from the list and allocate the part by a drag-and-drop operation.

The pointer under [Common] is used to select the part already allocated on the [Editor] window, and not for allocating a part on the [Editor] window.

The pointer is active unless any part on the [Parts Box] window is being selected.
For details of respective parts, refer to .
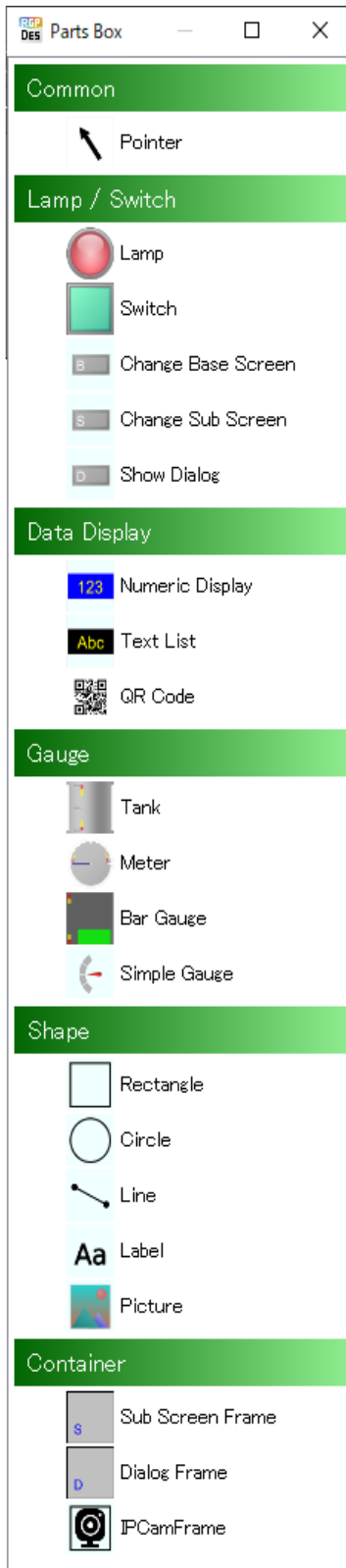
3.10 EDITOR WINDOW

Each Screen is edited on the [Editor] window.
Up to 10 Screens can be opened and edited at the same time.
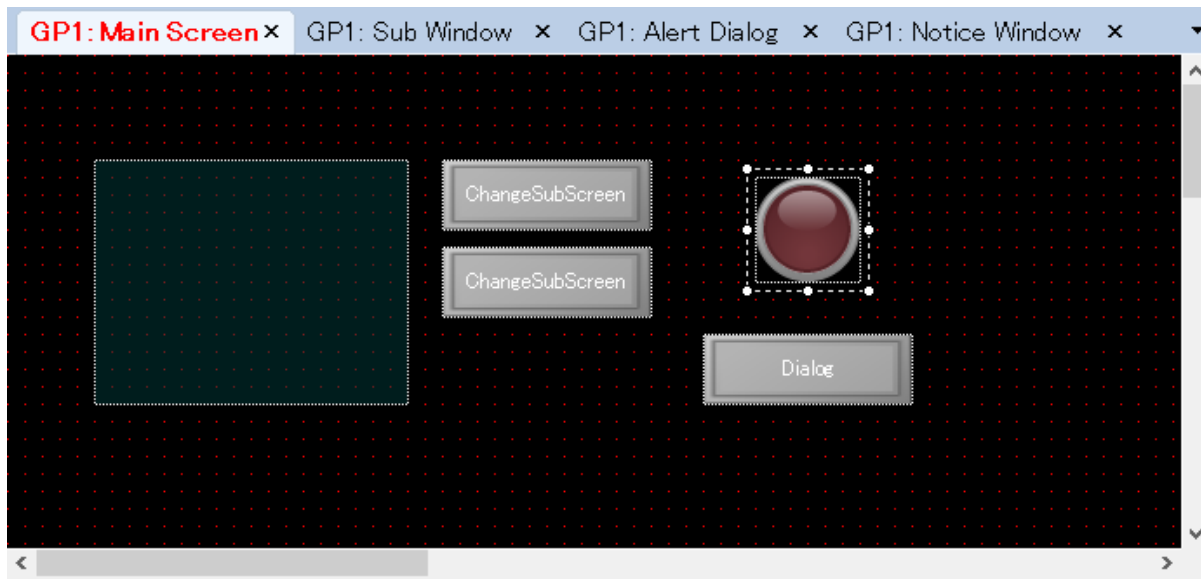
An error message will appear when 10 Screens are currently open and another Screen is to be opened. Click [OK] to close the error message, close any one of the currently-open Screens by clicking [X] to the right of each Screen name, and try again.
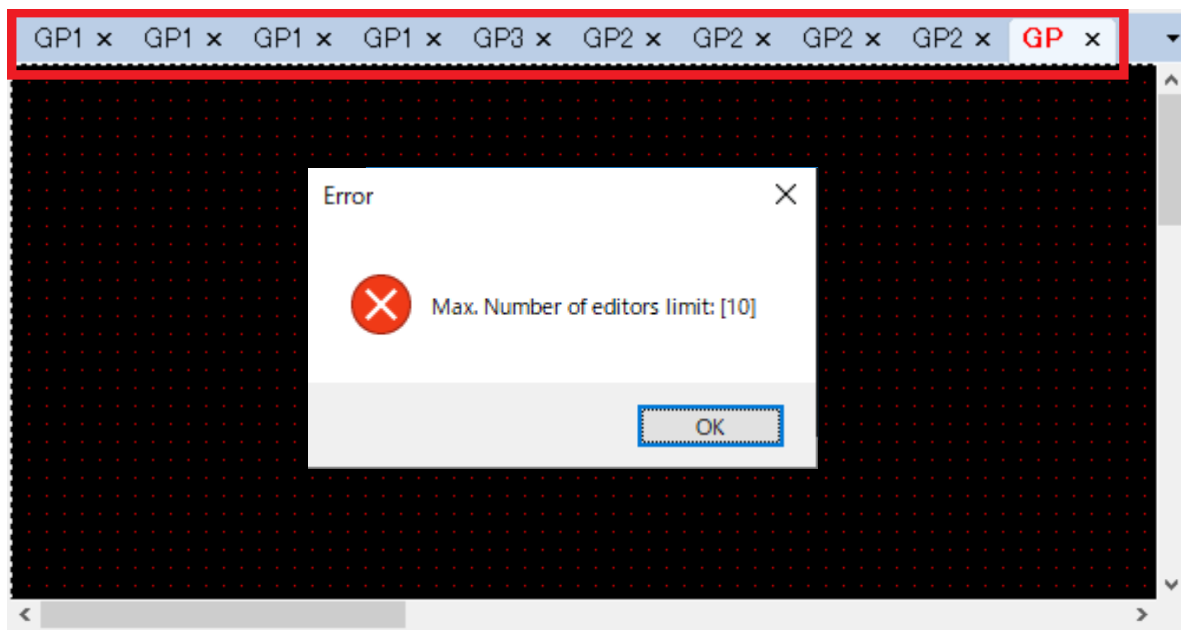
3.11 PARTS LIST WINDOW

The [Parts List] window shows a list of parts allocated on the Screen currently displayed on the [Editor] window.

Select any part on the list and confirm that the corresponding part on the [Editor] window becomes selected.

Similarly, select any part on the [Editor] window and confirm that the corresponding part on the [Parts List] window becomes selected.

```
Parts List                    ⏸ ✕
  IF0002 (Frame)
  LS0001 (Lamp/Switch)
  LS0002 (Lamp/Switch)
  LS0003 (Lamp/Switch)
  LS0004 (Lamp/Switch)
  LS0005 (Lamp/Switch)
  DD0001 (Numeric Display)
  DD0002 (Text List)
  GG0001 (Gauge)
  GG0002 (Gauge)
  GG0003 (Gauge)
  SP0001 (Rectangle)
  SP0002 (Circle/Ellipse)
  SP0003 (Line)
  SP0004 (Label)
  SP0005 (Image)
  IF0001 (Frame)
```
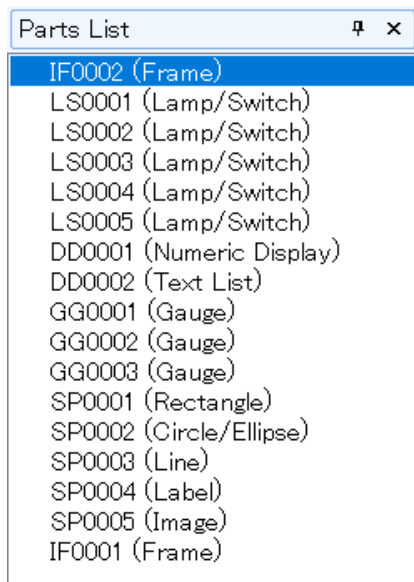
3.12 PROPERTY WINDOW

The property attributes of the part being selected on the [Parts List] window or on the [Editor] window are displayed.
Parameter items differ depending on the type of part.

Property	⏸ ✕
Common	
EnableLamp	False
EnableSwitch	True
Name	LS0002
PictureText	False
Layout	
Location	100, 100
Size	60, 60
Switch	
EnableInterlock	False
NormalFigure	(Display Format)
OffDelayTime(Sec)	0.0
OnDelayTime(Sec)	0.0
TouchBeep	False
TouchedFigure	(Display Format)
SwitchAction	
SwitchAction	SwitchAction[] Array

SwitchAction
Gets or sets the switch action.
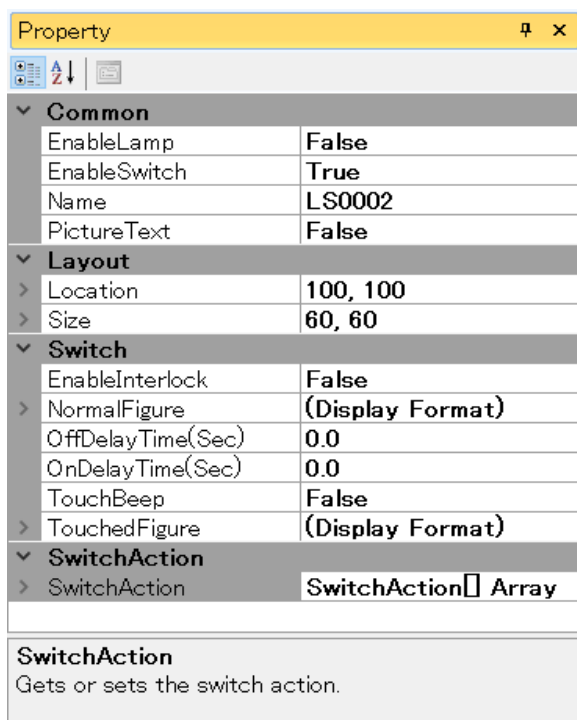
Property attributes of the part can be edited on the [Property] window.
The [Property] window has a tree structure.

Click [>] to expand attribute items.

For example, by clicking [>] beside the parameter [Figure], the attribute items, i.e., [BackgroundColor], [Border-

Color], [BorderWidth], [DataAlign], [Font], and [FontColor] are shown and their parameter values can be edited.

˅ Display	
DecimalPlaces	3
> Figure	(Display Format)

˅ Display	
DecimalPlaces	3
˅ Figure	(Display Format)
BackgroundColo	■ 0, 0, 255
BorderColor	□ 255, 255, 255
BorderWidth	2
DataAlign	Center
Font	MS UI Gothic, 9pt
FontColor	■ 255, 255, 0

3.13 OUTPUT WINDOW

The [Output] window shows the progress and result of a build process or error check.

```
Output                                                    ⊓ ✕
Building...
Checking...
Check Completed
Build Completed



 Output   Address List
```
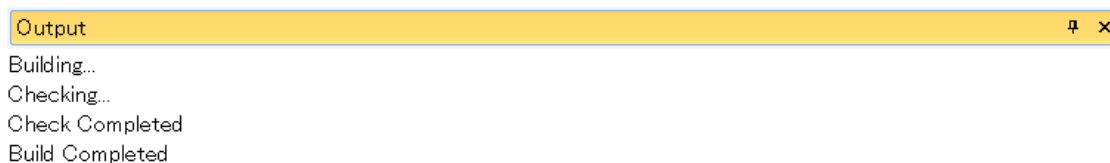
When an error has occurred, details of error are displayed with a specific error content (folder/part's Name).

```
Output                                                    ⊓ ✕
Building...
Checking...
Invalid device address. (GP1)
Invalid device address. (GP1)
There are one or more errors.
Build Failed


 Output   Address List
```
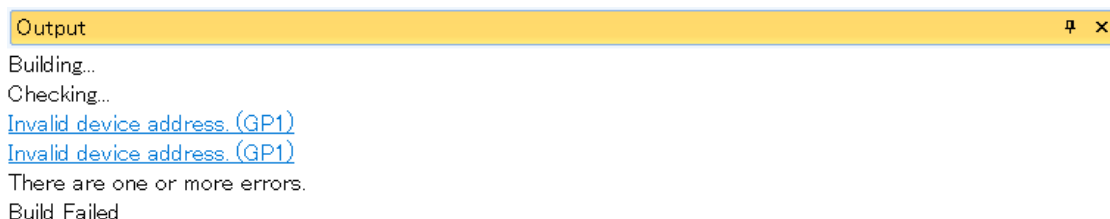
In this example, an error message indicating 'Invalid device address (GP1)' is displayed.

Click the GP1 folder on the [Project Explorer] window to display the [Property] window.

Confirm that the values of 'MonitorAddress' under [ChangeScreen] and 'MonitorAddress' under [Popup].

Although 'EnableChangeExternalScreen' and 'EnablePopupWindow' are enabled (True) and thus the 'MonitorAddress' must be set, both of the values indicate 'n/a', resulting in an error.

Error message will be cleared by properly setting each 'MonitorAddress' and performing a build process or error check again.

```
Property                              ⊓ ✕

∨ Behavior
  AccessLevel                  0
  ScreenSyncMode               Sync
  ScreenUpdateInterval         10
  SendIntervalTime             10
∨ ChangeScreen
  EnableChangeExternalScreen   True
  MonitorAddress               n/a
∨ Common
  Comment
  HttpProtocol                 HTTP
∨ Popup
  DisplayScreen                0000: (n/a)
  EnablePopupWindow            True
  MonitorAddress               n/a
> ScreenDisplayPosition        0, 0
```
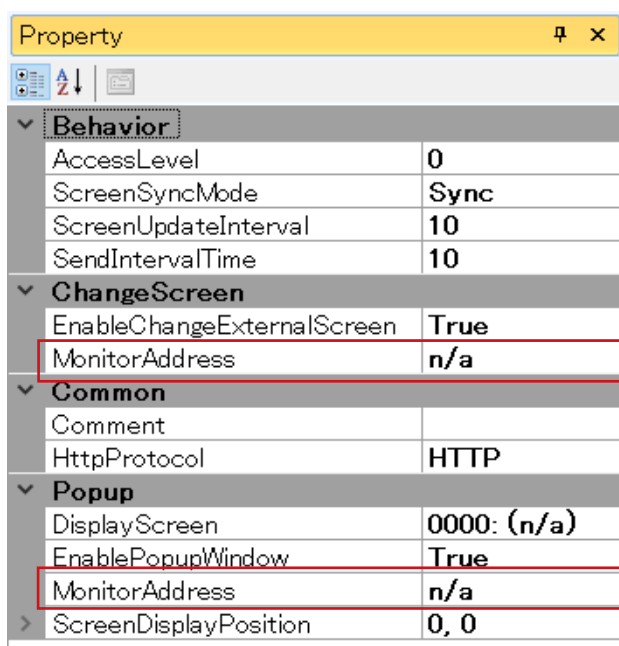
For details of 'MonitorAddress', refer to "12. DEVICE ADDRESS" on page 192.

3.14 ADDRESS LIST WINDOW

On the [Address List] window, devices (memory areas) being used for respective slave devices are displayed for each GP folder.

The device being used is indicated by highlighting in green.

NOTE

• The Device Address assigned to a symbol variable will be on the Address List only when the symbol variable is being used.

3.14.1 Refresh ⟳ Refresh

Click [Refresh] to update the information.

3.14.2 Folder Folder GP1 ▾

Select a GP folder from GP1 to GP8 from the drop-down list.

3.14.3 Slave Slave RGP Internal Device ▾

Select a slave device from the drop-down list.

3.14.4 Search Address   Search Address ▾

Specify the connected slave device to search parts assigned to the device.
Click [Search Address] and select an address type from the drop-down list to display the [Device Address] dialog.

Search Address ▾
- Bit Address
- 8-Bit Address
- 16-Bit Address
- 32-Bit Address
- Float Address
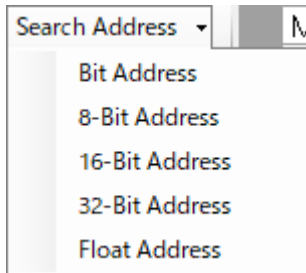
Specify [Connect driver], [Device Name], and [Address], then click [OK] to display the search result.

Device Address

○ Address   ○ Symbol

Connect Driver:
S0: [RGP Internal Device]

Device Name: GB

Address: 0000   0

OK   Cancel
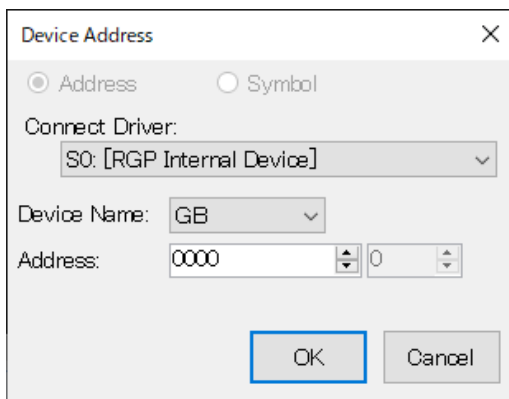
Address List

Refresh | Folder GP1 ▾ | Slave RGP Internal Device ▾ | Device Type GB ▾ | Search Address ▾

Addr...	+00	+01	+02	+03	+04	+05	+06	+07	+08	+09	+10	+11	+12	+13	+14	+15
GB0																
GB16																
GB32																
GB48																
GB64																
GB80																

Object	Address	Remarks
Screen		
Main Screen	B/S0:GB0	[R] LS0003 (Lamp/Switch)
Sub Window	B/S0:GB0	[R] LS0001 (Lamp/Switch)
Sub Window	B/S0:GB0	[R] LS0002 (Lamp/Switch)
Sub Window	B/S0:GB0	[W] LS0002 (Lamp/Switch)

Output   Address List

In the search result, the following items are displayed.
Object   : Screens for which the specified Address is used.
Address   : Character string of the data type, slave number, and Device address.
Remarks   : Parts for which the Device address is used.

4. SCREENS (Base, Sub, Dialog, Popup)

Each Graphic Panel is composed of Base Screen(s), Sub Screen(s), Dialog Screen(s), and a Popup Screen. A maximum of 1024 Screens can be created in each GP folder.

4.1 BASE SCREEN

Base Screen is the foundation of a Graphic Panel on which various parts such as switches, lamps, text strings, etc. can be allocated.

Shown below is the [Property] window of Base Screen.

ITEM	DESCRIPTION
BackgroundColor	Set the background color. Default: 0,0,0 (black)
BackgroundImage	Set the background image. Default: None
GridColor	Set the grid color. Default: 255,0,0 (red)
GridSpacing	Set the grid interval. Default: 10

ITEM	DESCRIPTION
GridVisible	Set as True (Enable) or False (Disable). Enable: Grid is shown Disable: Grid is hidden Default: True (Enable)
FitToGrid	Set as True (Enable) or False (Disable). Enable: Part is aligned to the grid. Disable: Part is allocated freely ignoring the grid. Default: True (Enable)
NextScreen	Specify the screen to switch to when executing "ChangeScreen", the trigger action set to folder (GP1 - GP8) This value will be ignored when the screen to switch to is specified at "DisplayScreen" of trigger action "ChangeScreen". Default: 0000: (n/a) Refer to "9. TRIGGER AND TRIGGER ACTION" on page 173 for the details of trigger action.
Name	Enter an optional name for the Base Screen using up to 16 characters.
ScreenType	Indicated as 'Base Screen'.

ScreenSize	The size of the specified [Size Name] is shown.
	Or, specify the size.
	   Width: Max. size: 3840; Min. size: 240
	   Height: Max. size: 3840; Min. size: 240

SizeName	Select the screen size from below:
	  VGA (640*480)
	  SVGA (800*600)
	  XGA (1024*768)
	  SXGA (1280*1024)
	  HD (1280*720)
	  FHD (1920*1080)
	  Custom *1
	
	*1 In order to customize the size, specify the size to [Screen Size].
	   When the specified size does not coincides the size of any of the above size names, the size name is automatically changed to "Custom".
	Default: FHD

ViewportAttribute	Enable (True) or Disable (False) the function of Web browser on a tablet or smartphone to automatically increase or decrease the width of Base Screen so as to fit the width of the viewport of Web browser. Default: True
		True	The width of Base Screen is adjusted to the width of Web browser.
		False	Base Screen is displayed in its actual size.

■ TIPS for Parts Allocation

• Max. 1024 parts can be allocated on a single Screen.
  Note that grouped parts are respectively counted but also counted one as a group.
  Thus, the maximum number of parts which can be allocated will be less than 1024 when there are grouped parts.

• There also may be a case where parts cannot be added any more before the number of parts reaches the maximum number due to capacity shortage.
  In such a case, delete some switch actions or move some parts to a Sub Screen, and try again.

■ About Background Image (common to all Screens)

• When an image with a large size is selected, the image is converted to a thumbnail image of max. 640*640 to reduce memory consumption on RGP-Designer.
  The original large size image will be transferred to RGP unit,

4.2 SUB SCREEN

Sub Screen is used as a part (subroutine) of a Graphic Panel.

Various parts such as switches, lamps, text strings, etc. can be allocated on a Sub Screen in the same manner as a Base Screen, however, the following parts cannot be used for Sub Screen.

> [Select Base Screen] switch
> [Select Sub Screen] switch
> [Display Dialog Screen] switch
> [Sub Screen Display Frame]
> [Dialog Screen Display Frame]

Shown below is the [Property] window of Sub Screen.

ITEM	DESCRIPTION
BackgroundColor	Set the background color. Default: 0,0,0 (black)
BackgroundImage	Set the background image. Default: None
GridColor	Set the grid color. Default: 255,0,0 (red)
GridSpacing	Set the grid interval. Default: 10

ITEM	DESCRIPTION
GridVisible	Set as True (Enable) or False (Disable). Enable: Grid is shown Disable: Grid is hidden Default: True
FitToGrid	Set as True (Enable) or False (Disable). Enable: Part is aligned to the grid. Disable: Part is allocated freely ignoring the grid. Default: True
NextScreen	Specify the sub screen to switch to when executing "ChangeSubScreen", the trigger action set to base screen This value will be ignored when the screen to switch to is specified at "DisplayScreen" of trigger action "ChangeSubScreen", or when the sub screen is not displayed on the Sub Screen Frame. Default: 0000: (n/a) Refer to "9. TRIGGER AND TRIGGER ACTION" on page 173 for the details of trigger action.
Scale	Acquire or specify the display scale (ratio) of contents within the frame to display the sub screen specified "NextScreen" property. Setting range: 0.5 to 1.0 in 0.1 unit Default: 1.0
Name	Enter an optional name for the Sub Screen using up to 16 characters.
ScreenType	Indicated as 'Sub Screen'.

ScreenSize	The size of the specified [Size Name] is shown.
	Or, specify the size
	  Width: Max. size: 3840; Min. size: 240
	  Height: Max. size: 3840; Min. size: 240

SizeName	Select the screen size from below:
	  VGA (640*480)
	  SVGA (800*600)
	  XGA (1024*768)
	  SXGA (1280*1024)
	  HD (1280*720)
	  FHD (1920*1080)
	  Custom *1
	
	*1 In order to customize the size, specify the size to [Screen Size].
	  When the specified size does not coincides the size of any of the above size names, the size name is automatically changed to "Custom".
	Default: FHD

For details of how to use Sub Screens, refer to "7.3 [CHANGE SUB SCREEN] SWITCH" on page 110.

4.3 DIALOG SCREEN

Dialog Screen is a Screen for prompting individual setting.

Various parts such as switches, lamps, text strings, etc. can be allocated on a Dialog Screen in the same manner as a Base Screen, however, the following parts cannot be used for Dialog Screen.

> [Select Base Screen] switch
> [Select Sub Screen] switch
> [Display Dialog Screen] switch
> [Sub Screen Display Frame]
> [Dialog Screen Display Frame]

While a Dialog Screen is displayed, operations can be performed only on the Dialog Screen.

NOTE

- While a Dialog Screen is displayed, screen transition by an operation performed on another terminal will not be reflected even in Sync mode.

[Close] button is allocated on each Dialog Screen as standard.
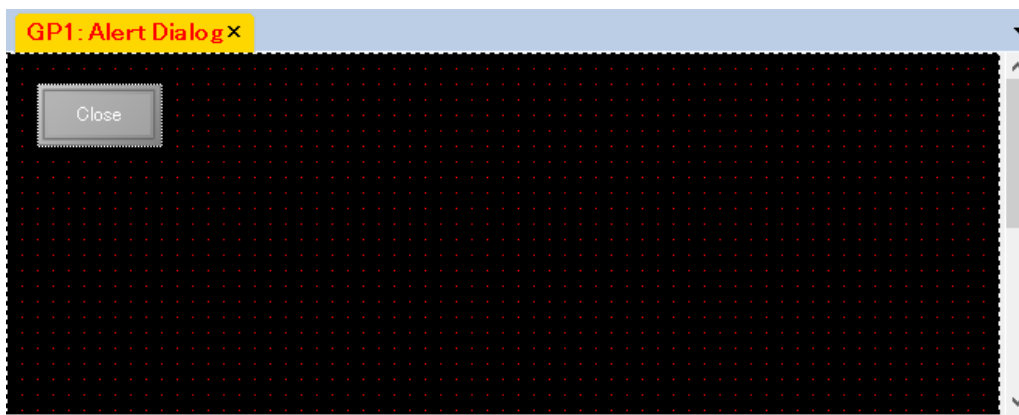
Shown below is the [Property] window of Dialog Screen.

ITEM	DESCRIPTION
BackgroundColor	Set the background color. Default: 0,0,0 (black)
BackgroundImage	Set the background image. Default: None
GridColor	Set the grid color. Default: 255,0,0 (red)
GridSpacing	Set the grid interval. Default: 10
GridVisible	Set as True (Enable) or False (Disable). Enable: Grid is shown Disable: Grid is hidden Default: True
FitToGrid	Set as True (Enable) or False (Disable). Enable: Part is aligned to the grid. Disable: Part is allocated freely ignoring the grid. Default: True
Name	Enter an optional name for the Dialog Screen using up to 16 characters.
ScreenType	Indicated as 'Dialog Screen'.
ScreenSize	The size specified as [Size Name] is shown. Or, specify the size Width: Max. size: 3840; Min. size: 240 Height: Max. size: 3840; Min. size: 240
SizeName	Select the screen size from below: VGA (640*480) SVGA (800*600) XGA (1024*768) SXGA (1280*1024) HD (1280*720) FHD (1920*1080) Custom *1 *1 In order to customize the size, specify the size to [Screen Size]. When the specified size does not coincides the size of any of the above size names, the size name is automatically changed to "Custom". Default: VGA

For details of how to use Dialog Screens, refer to "7.4 [SHOW DIALOG] SWITCH" on page 118.

4.4 POPUP SCREEN

Popup Screen is displayed on all terminals which are viewing the same GP folder, and is used for a notification from slave devices, for example.

Various parts such as switches, lamps, text strings, etc. can be allocated on Popup Screen in the same manner as Base Screen, however, the following parts cannot be used for Popup Screen.

    [Select Base Screen] switch
    [Select Sub Screen] switch
    [Display Dialog Screen] switch
    [Sub Screen Display Frame]
    [Dialog Screen Display Frame]

Shown below is the [Property] window of Popup Screen.

Property		🔲 ✕
Appearance		
BackgroundColor	⬛ 0, 0, 0	
BackgroundImage	(Image)	
GridColor	🟥 255, 0, 0	
GridSpacing	10	
GridVisible	True	
Behavior		
FitToGrid	True	
Common		
Name	Notice Window	
ScreenType	Popup Screent	
Layout		
ScreenSize	320, 240	
Width	320	
Height	240	
SizeName	Custom	

ITEM	DESCRIPTION
BackgroundColor	Set the background color. Default: 0,0,0 (black)
BackgroundImage	Set the background image. Default: None
GridColor	Set the grid color. Default: 255,0,0 (red)
GridSpacing	Set the grid interval. Default: 10
GridVisible	Set as True (Enable) or False (Disable). Enable: Grid is shown Disable: Grid is hidden Default: True
FitToGrid	Set as True (Enable) or False (Disable). Enable: Part is aligned to the grid. Disable: Part is allocated freely ignoring the grid. Default: True
Name	Enter an optional name for the Popup Screen using up to 16 characters.

ITEM	DESCRIPTION
ScreenType	Indicated as 'Popup Screen'.
ScreenSize	The size specified as [Size Name] is shown. Or, specify the size 　Width: Max. size: 3840; Min. size: 240 　Height: Max. size: 3840; Min. size: 240
SizeName	Select the screen size from below: 　VGA (640*480) 　SVGA (800*600) 　XGA (1024*768) 　SXGA (1280*1024) 　HD (1280*720) 　FHD (1920*1080) 　Custom *1 *1 In order to customize the size, specify the size to [Screen Size]. 　When the specified size does not coincides the size of any of the above size names, the 　size name is automaticclay changed to "Custom". Default: Custom (320, 240)

For details of how to use Popup Screen, refer to

4.5 SCREEN TRANSITION MODE

Screen transition mode can be selected between 'Sync Mode' and 'Async Mode'.

ITEM	DESCRIPTION
Async Mode	The Screens in the same GP folder can be switched individually according to an operation performed on each terminal.
Sync Mode	• When 'EnableChangeExternalScreen' is disabled Screens can be switched by 'Change Base Screen' switch only. A switch operation performed on one terminal is applied to all terminals which are viewing the same GP folder. *1 Default page: Page 1 *1 The switch operation for screen transition is not applied to a terminal on which a Dialog Screen is currently displayed. • When 'EnableChangeExternalScreen' is enabled Screens can be switched according to a value of the device set as the Monitor address. The change in the device value is applied to all terminals which are viewing the same GP folder. *1 Page 1 is displayed when the device value is 0 or out of range. Default page: Page 1 *1 The switch operation for screen transition is not applied to a terminal on which a Dialog Screen is currently displayed.

5. TUTORIAL (Creating Base Screens)

5.1 CREATE FIRST BASE SCREEN

1) Go to the [Project Explorer] window, right-click on [Screen] in the "GP1" folder to display sub-menus, and select [Add] to display the [Add Screen] dialog.
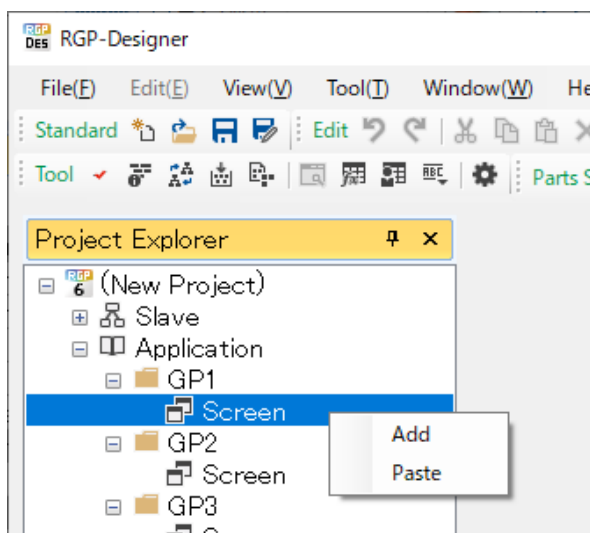
2) Enter 'sample' in the [Screen Name] field, check [Base Screen], and click [OK].
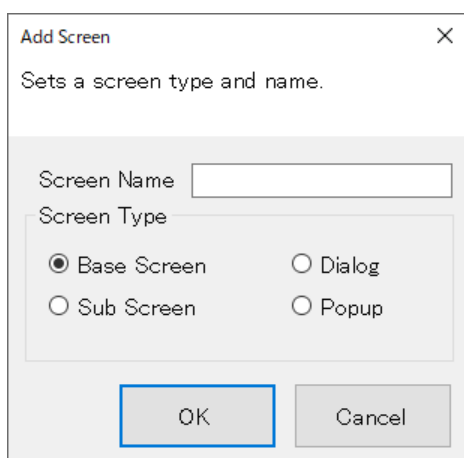
3) Confirm that the Base Screen named 'sample' has been created.
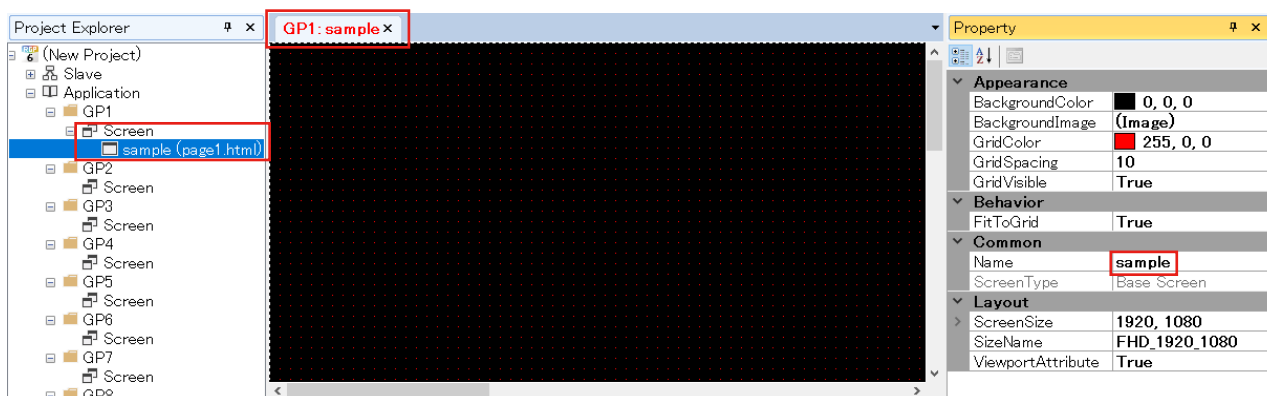
5.2 ALLOCATE SWITCH AND LAMP

5.2.1 Allocate a Switch

1) Go to the [Parts Box] window, click [Switch], and confirm that the row of [Switch] is highlighted in blue and selected.
Move the cursor to a desired position on the Base Screen, and click the desired position to allocate the [Switch] part.
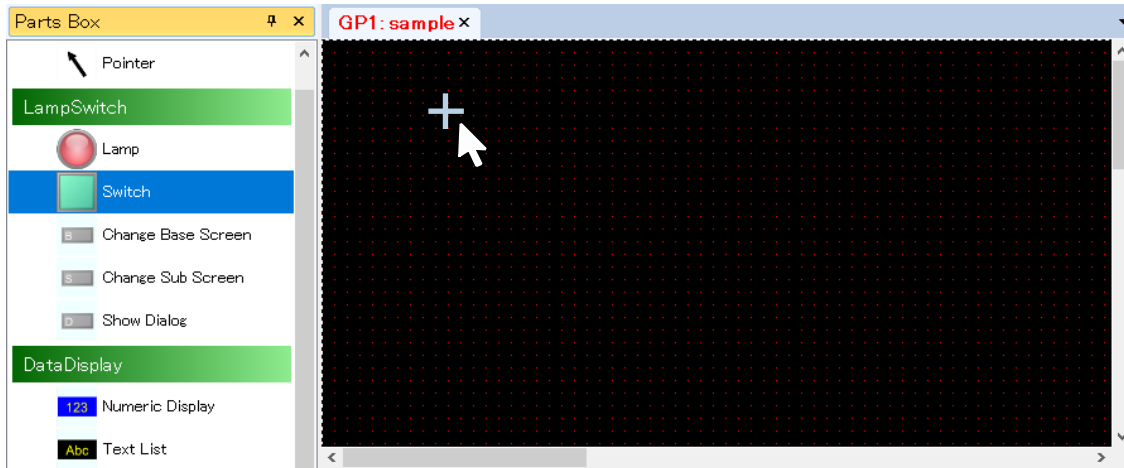
2) The part has been allocated in the state being selected.
Drag the corner of the frame to resize the part.
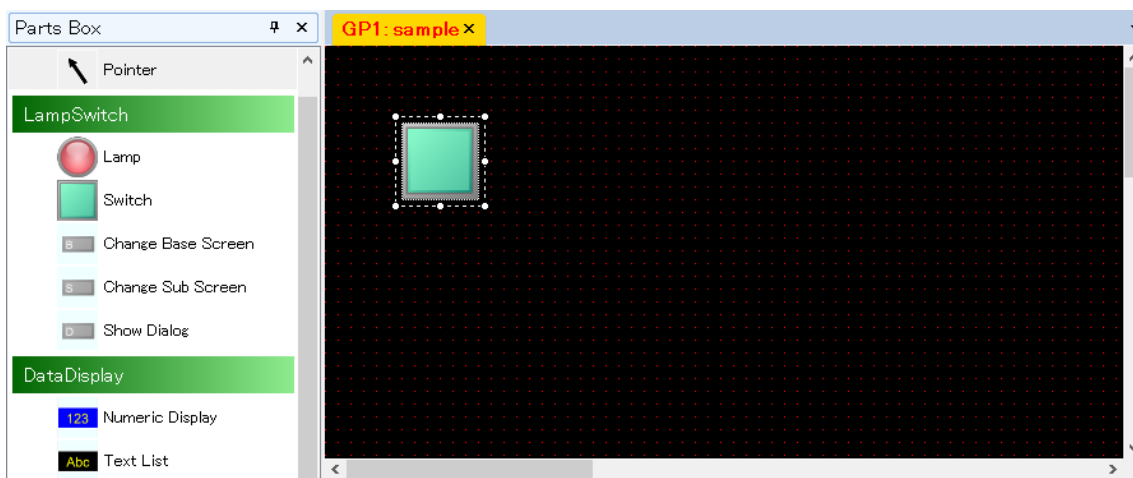
Note that the allocation position and the size of the part can be confirmed or changed on the [Property] window as well. Change the values of the property attributes under [Layout].
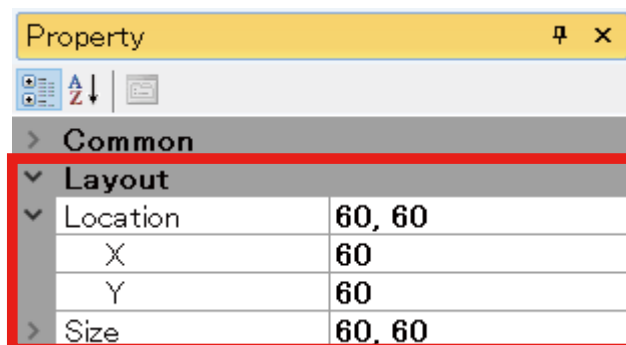
5.2.2 Allocate a Lamp

1) Go to the [Parts Box] window, click [Lamp], and confirm that the row of [Lamp] is highlighted in blue and selected.
Move the cursor to a desired position on the Base Screen, and click the desired position to allocate the [Lamp] part.
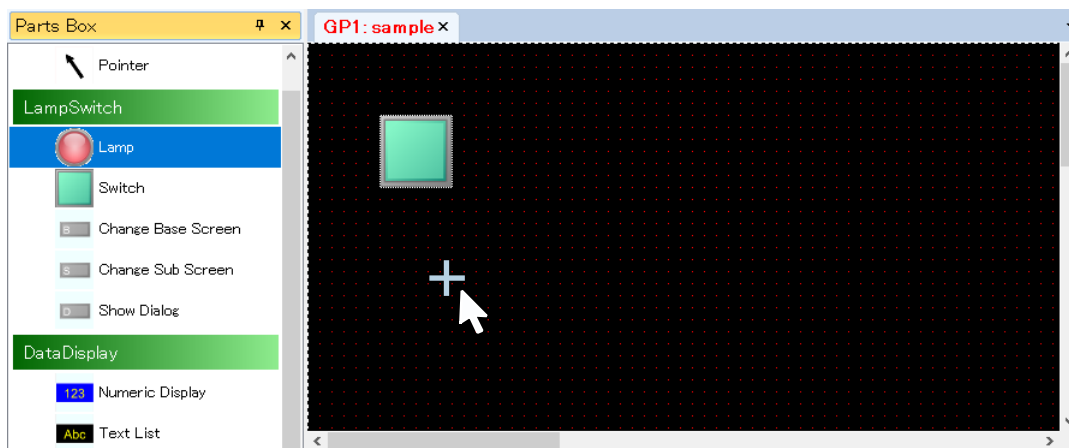
2) The part has been allocated in the state being selected.
Drag the corner of the frame to resize the part.
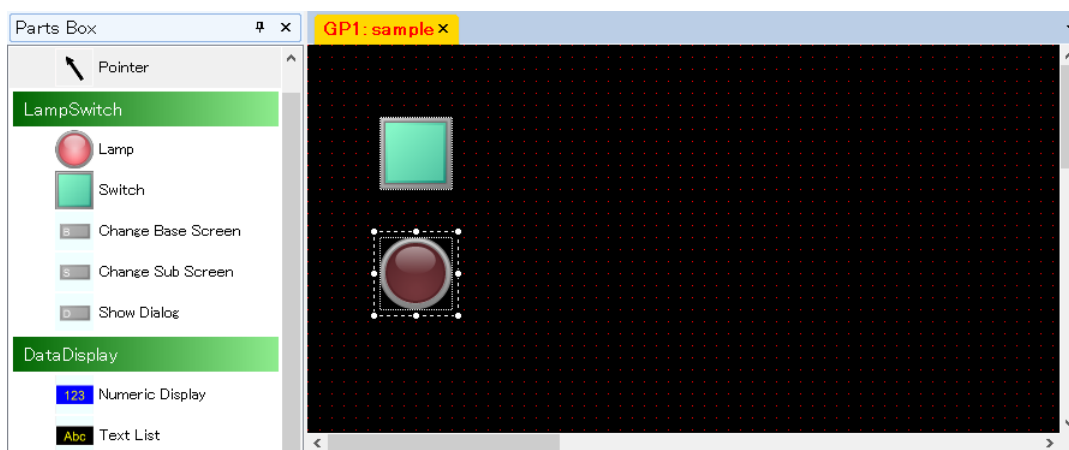
3) Click [File] on the Menu Bar, select [Save as] to display the [Save as] dialog, and click [Save] to save the Project.
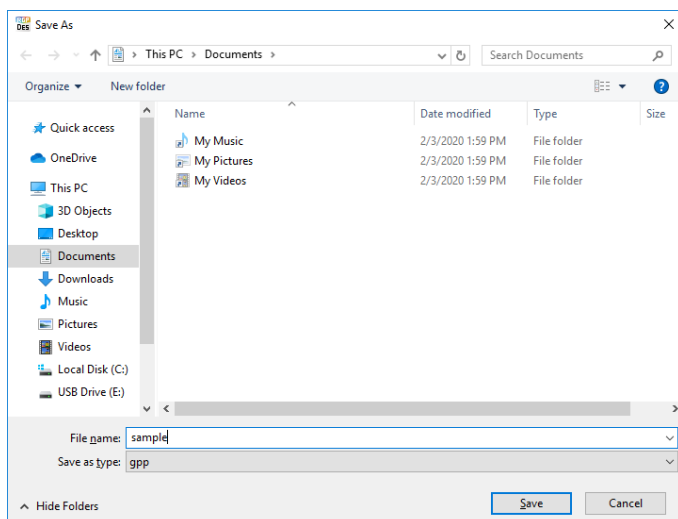
5.3 TRANSFER CREATED GRAPHIC PANEL TO RGP UNIT

The description will be made on the premise that the PC on which RGP-Designer is running and the RGP unit are connected via a Network.   ➔ "2.8.5 Connecting with RGP unit" on page 27

1)   Click [Tool] on the Menu Bar and select [Transfer Project].
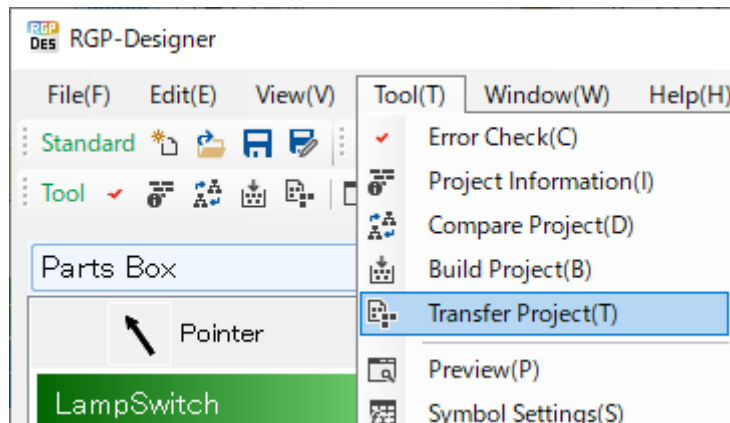
2)   Error check and a build process will be executed automatically.
     Confirm that the completion message appears on the [Output] window when the error check and build process have been completed normally,
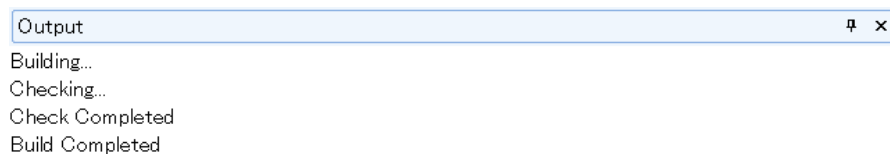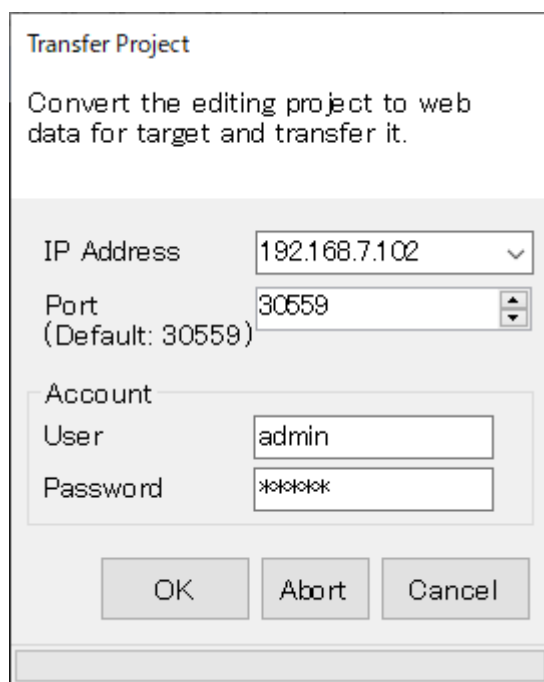
3)   When an error has occurred, details of error are displayed with a specific error content.
     Correct error, if any, according to the message.

4) As the build process has been completed normally, the [Transfer Project] dialog appears.
   Enter IP Address of RGP unit, Port No., and user name and password, then click [OK].

   Default user name: admin
   Default password : admin

5) Confirm that the completion message appears on the [Output] window when the Project has been transferred normally.

5.4 ACCESS RGP VIA WEB BROWSER

5.4.1 Set URL

1) Enter 'http://(IP Address)/(Folder name)/html/(Page No.).html' in the address bar of Web browser.

    IP Address   : IP Address of RGP unit
    Folder name : 'GP1' in which Screens have been created.
    Page No.   : Page No. as indicated beside the Screen name. ('page1' in this example)
                      The page number is assigned to each Base Screen automatically by RGP-Designer.
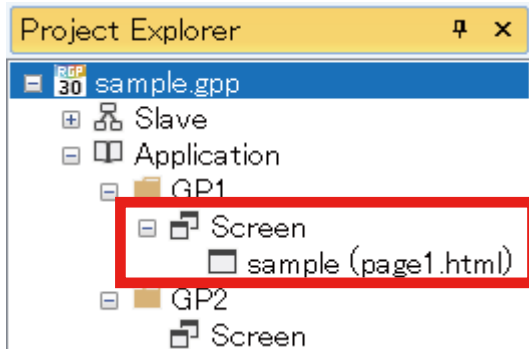
2) Enter 'http://192.168.13.13/GP1/html/page1.html' in the address bar and confirm that the Screen as shown below is displayed.
If the Screen is not displayed, check the address, and try again.
When the proxy server is used, confirm that the browser settings are properly configured.
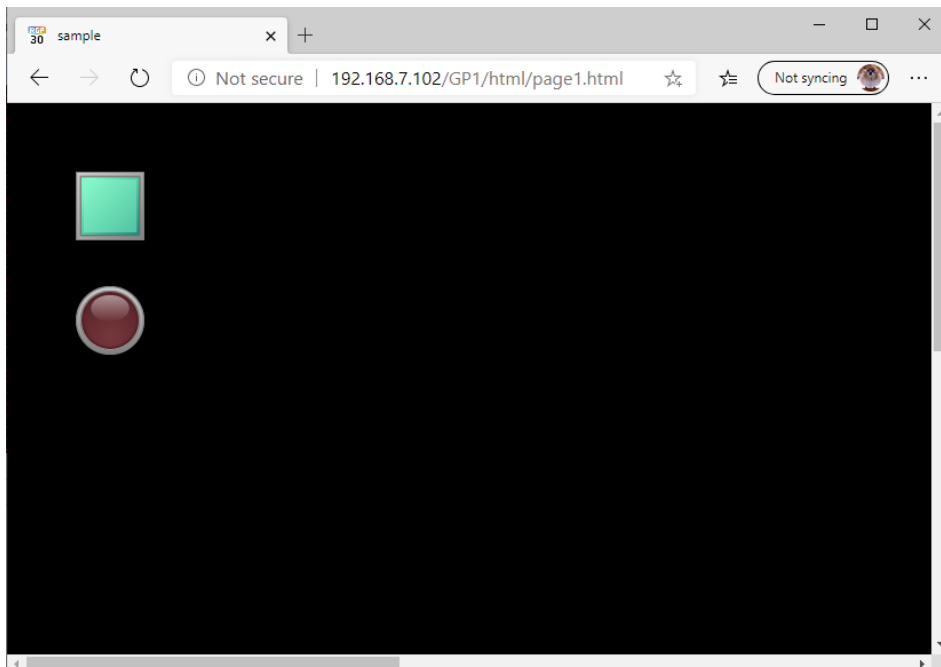
5.4.2 Display Screen on Browser of RGP30

1) Connect RGP30 unit with an LCD monitor, etc. via an HDMI cable.

2) On the RGP30 unit, click [Start] > [Windows Accessories] > [Internet Explorer].

3) Enter 'http://192.168.13.13/GP1/html/page1.html' in the address bar of Internet Explorer.
    Alternatively, using the loopback address, enter 'http://127.0.0.1/GP1/html/page1.html'.

4) Confirm that the Screen as shown on the previous page is displayed.

> **NOTE**
>
> When there is an HTTP or HTTPS in a URL, set the [Http Protocol] property on "3.8.3 Application" on page 55 to enable the HTTP and HTTPS.

5.4.3 Manipulate the Switch

1) Click the green Switch to perform an ON/OFF operation.

2) Confirm that the Lamp turns ON/OFF in conjunction with the ON/OFF operation.
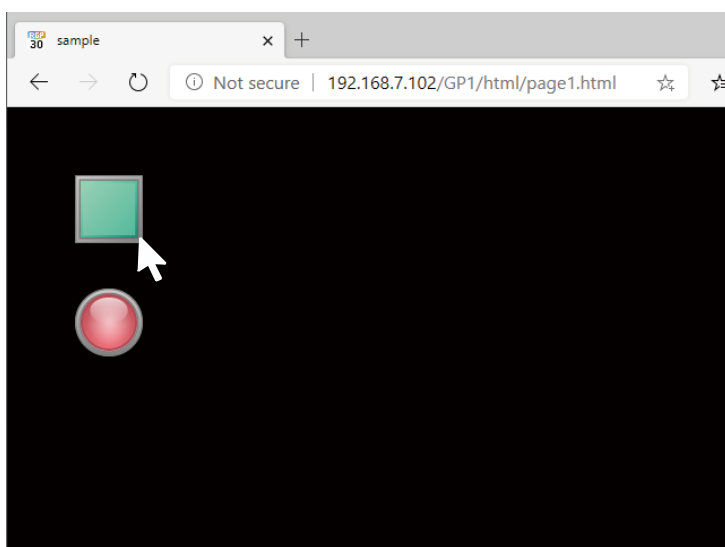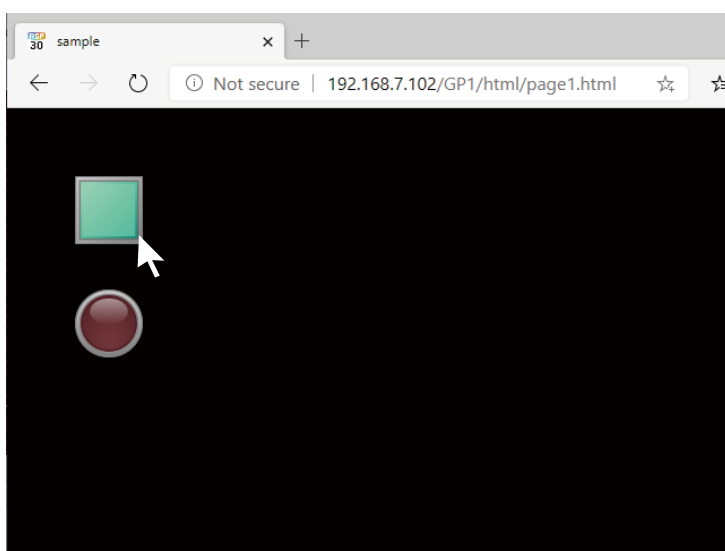
5.4.4 Set a switch action

1) Go back to RGP-Designer, double-click the Switch icon allocated on the Base Screen to display the [Lamp/Switch] dialog.

2) Click the [Switch] tab, and click [Edit Action] to display the [Switch Action] setting window for registering and defining actions performed when the [Switch] part is clicked.
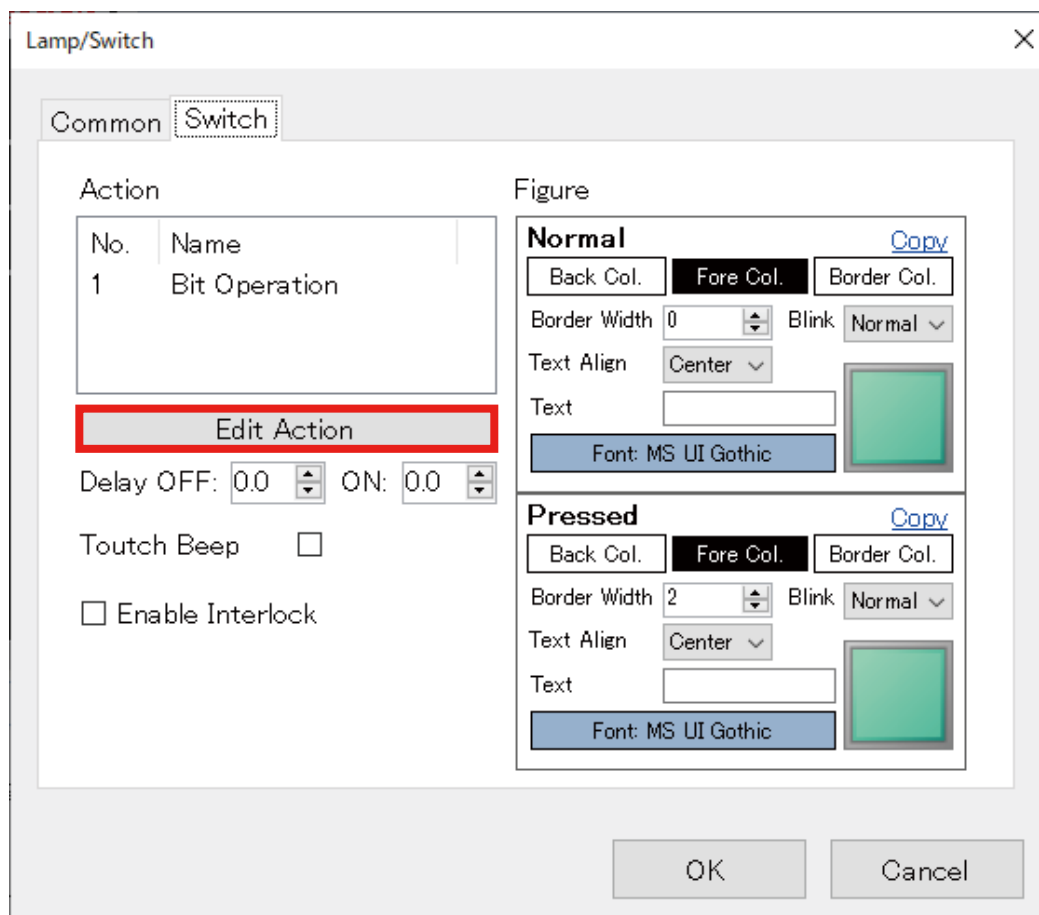
3) Register 'No.1: Bit Operation' as a switch action.
   In addition, select 'Alternate' as [BitActionType] so that the value of 'B\S0:GB0' set as [TargetAddress] is inverted every time the [Switch] part is clicked.
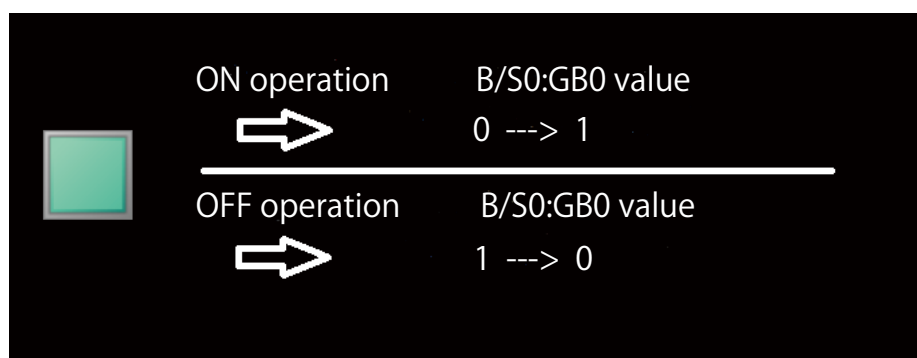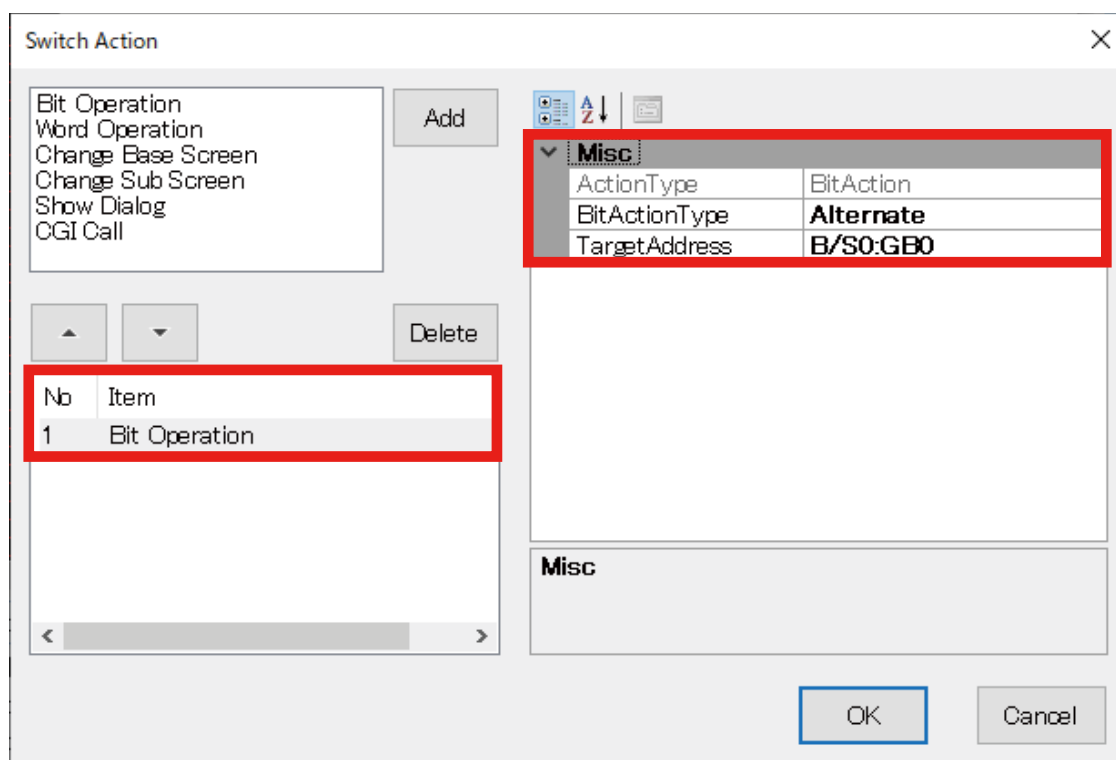
[BitActionType] includes 'Set', 'Reset', and 'Momentary' in addition to 'Alternate'.
For details, refer to "8. SWITCH ACTION" on page 160.

In the above example, the Slave No. S0 represents a virtual slave in the internal memory of RGP unit, and GB0 represents a Bit Device.
For details, refer to "15.3.1 Common internal device" on page 203.

5.4.5 Configure the Lamp

1) On RGP-Designer, double-click the Lamp icon allocated on the Base Screen to display the [Lamp/Switch] dialog.
   Click the [Lamp] tab.
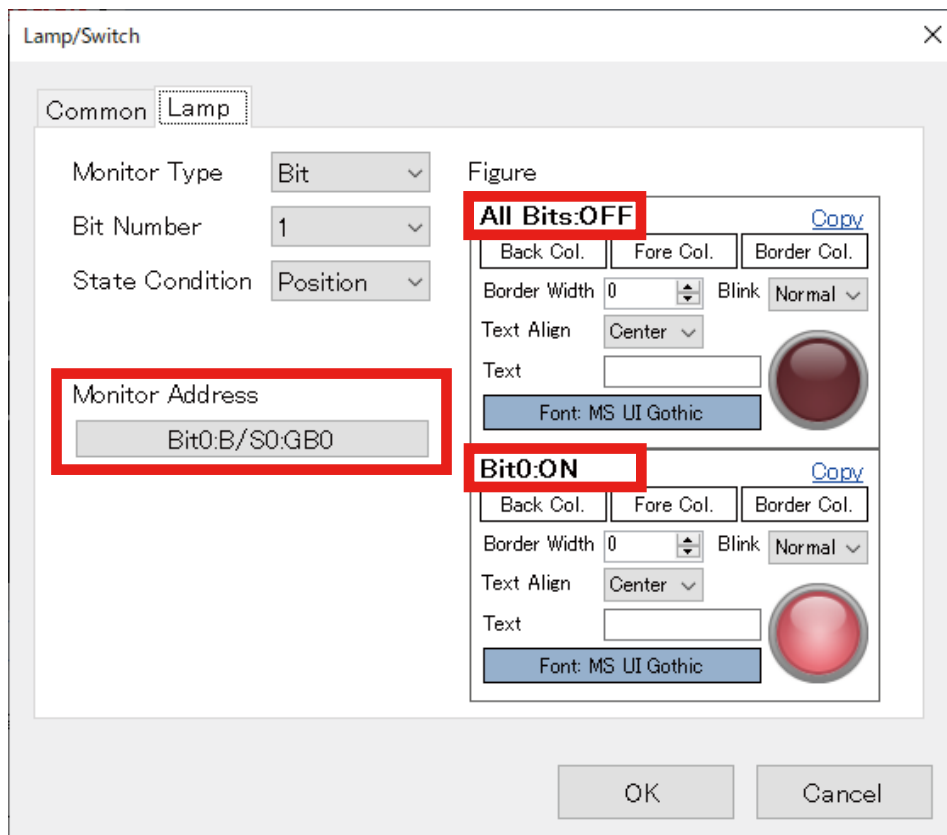
2) Select 'Bit' as [Monitor Type], select '1' as [Bit Number], and specify [Monitor Address] as 'B/S0:GB0'.
   The target monitor address is monitored at every data scan interval and display of the [Lamp] part changes according to the data status.

3) Confirm that, by this setting, the displayed image is changed based on the value of Bit No.GB0 in the Bit area of the Slave No. S0.
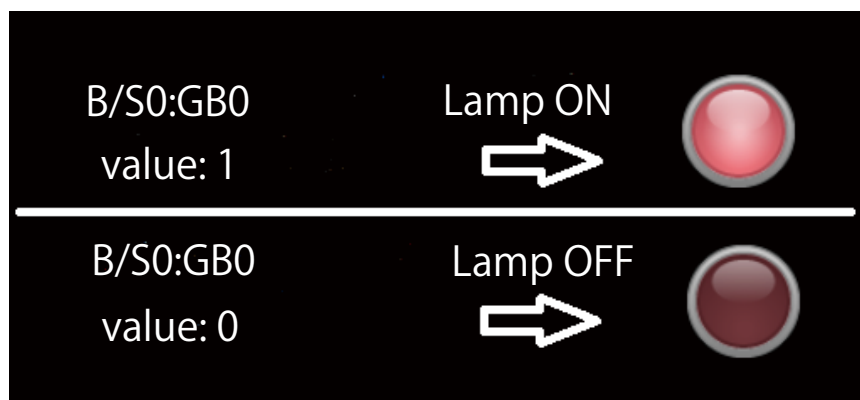
5.5 CREATE SECOND BASE SCREEN

5.5.1 Allocate parts

1) In the same manner as the first Base Screen, right-click on [Screen] in the "GP1" folder, and select [Add] to display the [Add] dialog.

2) Enter 'sample2 ' in the [Screen name] field, check [Base Screen], and click [OK].

In this example, one [Switch] part. two [Numerical Display] parts. and two [Label] parts are to be allocated on the second Base Screen.

■ Switch

1) Allocate a Switch on the Base Screen.

2) Register 2 types of WordActions (W/S0:GW0; Increment, W/S0:GW1; Decrement) for the Switch.
   For details of Switch Action settings, refer to "8.2 REGISTER SWITCH ACTIONS" on page 161.

Action

No.	Name
1	Word Operation
2	Word Operation

Edit Action

Switch Action 1 setting

∨	**Misc**	
	ActionType	WordAction
	TargetAddress	**W/S0:GW0**
	WordActionType	**Increment**

Switch Action 2 setting

∨	**Misc**	
	ActionType	WordAction
	TargetAddress	**W/S0:GW1**
	WordActionType	**Decrement**

■ [Numerical Display] Parts

1) Allocate two [Numerical Display] parts on the Base Screen.

2) Respectively register 'W/S0:GW0' and 'W/S0:GW1' as [MonitorAddress] of which to display values.
For details of [Numerical Display] parts, refer to "7.5 [NUMERIC DISPLAY] PART" on page 124.

Property	⊓ ✕
∨ Common	
DataType	I16
EnableInput	False
MonitorAddress	W/S0:GW0
Name	DD0001
∨ Display	
> Figure	(Display Format)
∨ Layout	
> Location	280, 60
> Size	120, 30
∨ Scale	
Scale	False

Property	⊓ ✕
∨ Common	
DataType	I16
EnableInput	False
MonitorAddress	W/S0:GW1
Name	DD0002
∨ Display	
> Figure	(Display Format)
∨ Layout	
> Location	280, 100
> Size	120, 30
∨ Scale	
Scale	False

■ Label

1) Allocate two [Label] parts on the Base Screen.

2) Enter the values of [MonitorAddress], respectively for the [Label] parts.
For details of [Label] parts, refer to "7.10 SHAPE ([RECTANGLE], [CIRCLE], [LINE], [LABEL], [PICTURE]) PARTS" on page 145.

3) Once the allocation of parts has been completed, transfer the Project to the RGP unit.

→ "3.4.5 Transfer Project(T)" on page 39

5.5.2 Preview to check operation

1) Enter 'http://192.168.13.13/GP1/html/page2.html' in the address bar of Web browser.

2) Confirm that each value is incremented or decremented each time either [Switch] part is clicked.
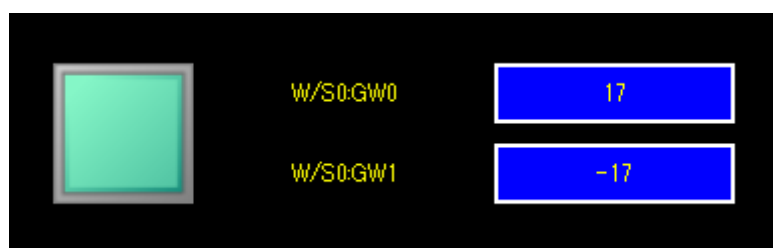
5.6 SWITCH BETWEEN BASE SCREENS

In this section, the method of switching between Base Screens ('sample' and 'sample2') will be described.

5.6.1 Allocate [ChangeScreen] switch

1) Allocate a [Change Base Screen] switch on each of 'sample' Base Screen and 'sample2' Base Screen.
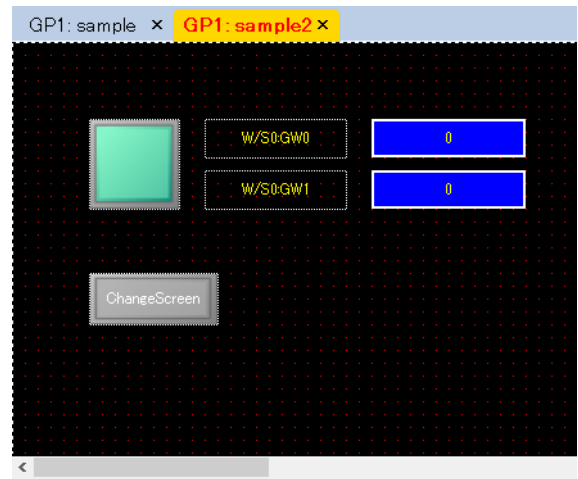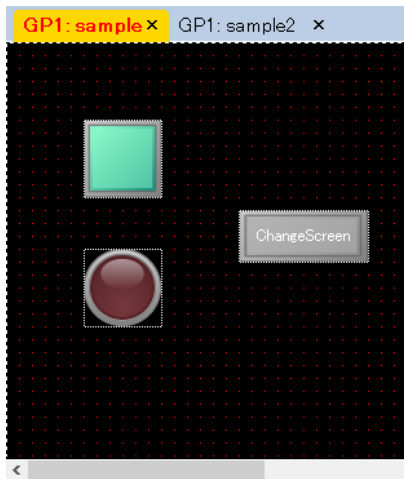
2) Double-click the switch icon to display the [Lamp/Switch] dialog on each Base Screen.
   Confirm that the 'Change Base Screen' switch action is registered to the [Change Base Screen] switch as standard.

5.6.2 Edit Switch Action

1) Click [Edit Action] to display the [Switch Action] setting window.

2) Specify the Screen name in the [DisplayScreen] field to which to switch so that the Screen changes from 'sample' to 'sample2' and from 'sample2' to 'sample'.

'sample1' setting

Misc	
ActionType	ScreenChangeAction
DisplayScreen	0002: sample2
ScreenNo	2

'sample2' setting

Misc	
ActionType	ScreenChangeAction
DisplayScreen	0001: sample
ScreenNo	1

5.6.3 Transfer Project / Preview to check operation

1) Transfer the Project to the RGP unit. ➜

2) Enter 'http://192.168.13.13/GP1/html/page1.html' or 'http://192.168.13.13/GP1/html/page2.html' in the address bar of Web browser to preview each Base Screen.

3) Confirm that the Screen switches to one another each time the [Change Base Screen] switch is clicked.

6. TUTORIAL (Slave Communication)

6.1 REGISTER SLAVE DEVICES

Slave devices which are connected with RGP unit need to be registered on RGP-Designer.
Before registration, make sure that RGP unit, slave devices, and PC are connected with each other via a hub, etc.

Parameters items differ depending on the type of slave device.
Refer to each of the following sections in this chapter which applies to the slave device type.

The following is the general procedure for registering a slave device.

1) Go to the [Project Explorer] window.

2) Right-click or double-click the slave number to configure to display the [Property] menu.

3) Click [Property] to display the [Slave Settings] window.
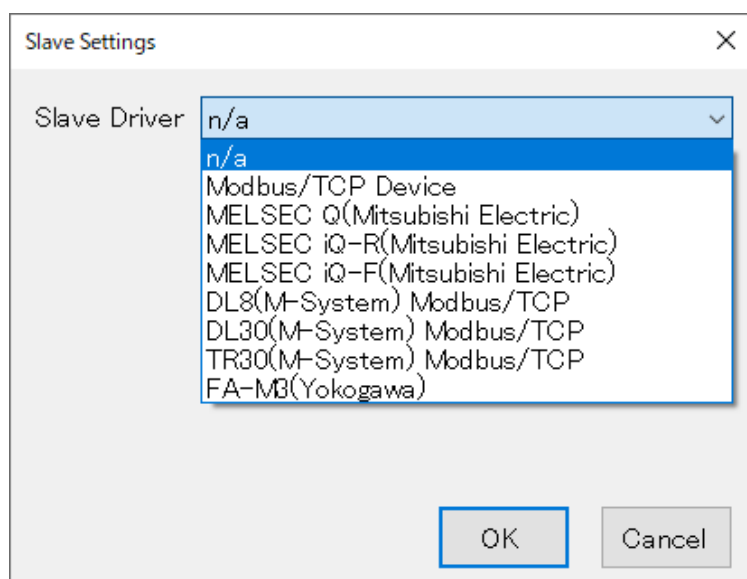
4) In the initial state, 'n/a' is displayed indicating that no slave device is set.
   To register a Modbus/TCP slave device, select 'Modbus/TCP Device', for example, and click [OK].

5) After the completion of slave device registration, proceed to .

6.1.1 Modbus/TCP Device

RGP unit communicates with each Modbus slave device using the Modbus master function.
Follow the procedure below to register Modbus/TCP slaves.

1) Go to the [Project Explorer] window.

2) Right-click or double-click the slave number to configure to display the [Property] menu.

3) Click [Property] to display the [Slave Settings] window.

4) Select 'Modbus/TCP Device' as [Slave Driver].

5) Configure the parameters referring to the table below for Modbus/TCP communication.

ITEM	DESCRIPTION
IP Address	IP Address (TCP/IPv4) Enter IP Address of the slave device.
Port No.	Set the Port number for Modbus/TCP. Default: 502 (Standard port No. for Modbus/TCP) Port number other than 502 can be set, if necessary on account of the system.
Timeout (sec.)	No response time is detected. Timeout error occurs after a predetermined time period has elapsed. Setting range: 1 to 10 sec.
Unit ID	Enter Modbus node No. of the slave device. For the device with no node No. setting, refer to the instruction manual of the device and set the number as appropriate.

6.1.2 MELSEC Q / iQ-R / iQ-F Series (Mitsubishi Electric)

RGP unit communicates with each SLMP-compatible device using the SLMP client function.
Follow the procedure below to register SLMP-compatible devices as slaves.

1) Go to the [Project Explorer] window.

2) Right-click or double-click the slave number to configure to display the [Property] menu.

3) Click [Property] to display the [Slave Settings] window.

4) Select 'MELSEC Q(Mitsubishi Electric)', 'MELSEC iQ-R(Mitsubishi Electric)' or 'MELSEC iQ-F(Mitsubishi Electric)' as [Slave Driver].

5) Configure the parameters referring to the table below for SLMP communication.

ITEM	DESCRIPTION
IP Address	IP Address (TCP/IPv4) Enter IP Address of the MELSEC device.
Port No.	Set the Port number for SLMP. Default: 8192 (in decimal)
Timeout (sec.)	No response time is detected. Timeout error occurs after a predetermined time period has elapsed. Setting range: 1 to 10 sec.
Network No.	Set the SLMP network No. Set to '0' (in decimal). [*1]
Node No.	Set the SLMP node No. Set to '255' (in decimal). [*1]
PC No.	Set the SLMP processor No. Set to '1023' (in decimal). [*1]
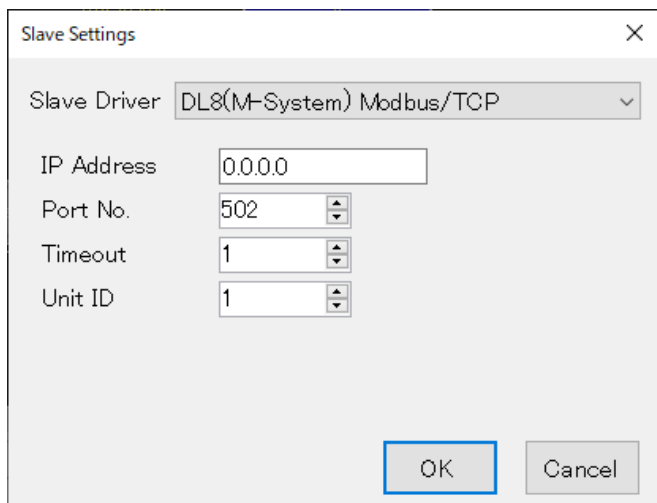
*1 Basically, the number is to be set in decimal.
    If the number is in hexadecimal, convert it to decimal.
    For details, refer to "SLMP Reference Manual" of Mitsubishi Electric.

6.1.3 DL8 / DL30 / TR30

RGP unit communicates with our DL8, DL30, or TR30 unit using the Modbus master function.

Follow the procedure below to register the devices as Modbus/TCP slaves.

1) Go to the [Project Explorer] window.

2) Right-click or double-click the slave number to configure to display the [Property] menu.

3) Click [Property] to display the [Slave Settings] window.

4) Select 'DL8(M-System) Modbus/TCP', 'DL30(M-System) Modbus/TCP', or 'TR30(M-System) Modbus/TCP' as [Slave Driver].

5) Configure the parameters referring to the table below for Modbus/TCP communication.

ITEM	DESCRIPTION
IP Address	IP Address (TCP/IPv4) Enter IP Address of the DL8, DL30, or TR30 unit.
Port No.	Set the Port number for Modbus/TCP. Default: 502 (Standard port No. for Modbus/TCP) Port number other than 502 can be set, if necessary on account of the system.
Timeout (sec.)	No response time is detected. Timeout error occurs after a predetermined time period has elapsed. Setting range: 1 to 10 sec.
Unit ID	Set to '1' (default).
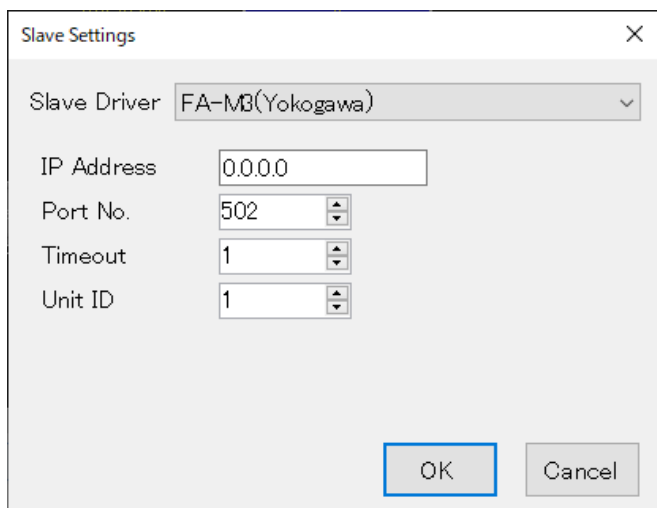
Note: Be sure to enable Modbus slave function of the DL8, DL30, or TR30 unit on PC configurator software.

6.1.4 FA-M3 (Yokogawa Electric)

RGP unit communicates with Yokogawa Electric's FA-M3 using the Modbus master function.

Follow the procedure below to register FA-M3 as a Modbus/TCP slave.

1) Go to the [Project Explorer] window.

2) Right-click or double-click the slave number to configure to display the [Property] menu.

3) Click [Property] to display the [Slave Settings] window.

4) Select 'FA-M3(Yokogawa)' as [Slave Driver].

5) Configure the parameters referring to the table below for Modbus/TCP communication.

ITEM	DESCRIPTION
IP Address	IP Address (TCP/IPv4) Enter IP Address of the slave device.
Port No.	Set the Port number for Modbus/TCP. Default: 502 (Standard port No. for Modbus/TCP) Port number other than 502 can be set, if necessary on account of the system.
Timeout (sec.)	No response time is detected. Timeout error occurs after a predetermined time period has elapsed. Setting range: 1 to 10 sec.
Unit ID	Set the Modbus node number of FA-M3.

6.2 DATA DISPLAY

Taking an our remote I/O (model: R7E-SV4) for Modbus/TCP with 4 analog input points as an example, follow the procedure below for displaying analog input data (0 to 10000) on a Screen.

■ Parameter setting of R7E-SV4

IP Address: 192.168.13.7 (set on PC configurator software model: R7CON)
Port No.: 502 (default)
Unit ID: 1 (fixed)

6.2.1 Register / Configure Slave Devices

■ Register slave device

1)   Go to the [Project Explorer] window.

2)   Right-click or double-click the slave No. 'S1' to configure to display the [Property] menu.

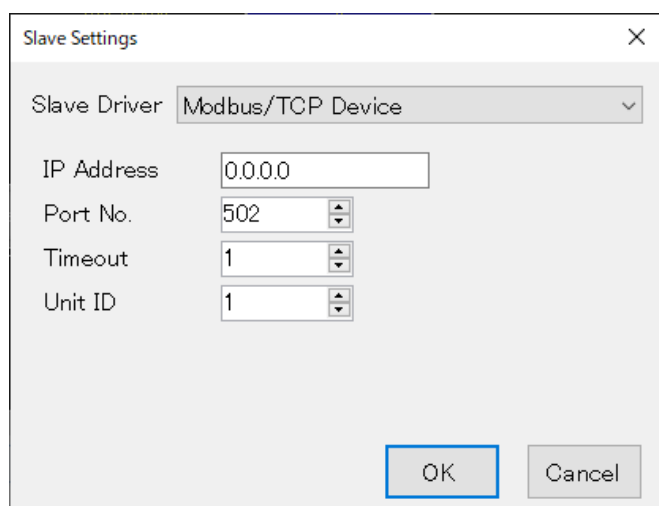3)   Click [Property] to display the [Slave Settings] window.
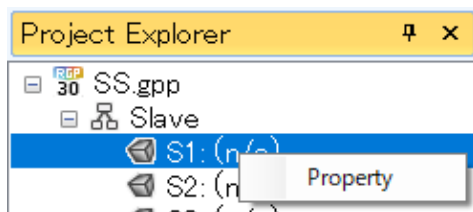
4)   Select 'Modbus/TCP Device' as [Slave Driver].

5)   Enter the parameter values for R7E-SV4, and click [OK].
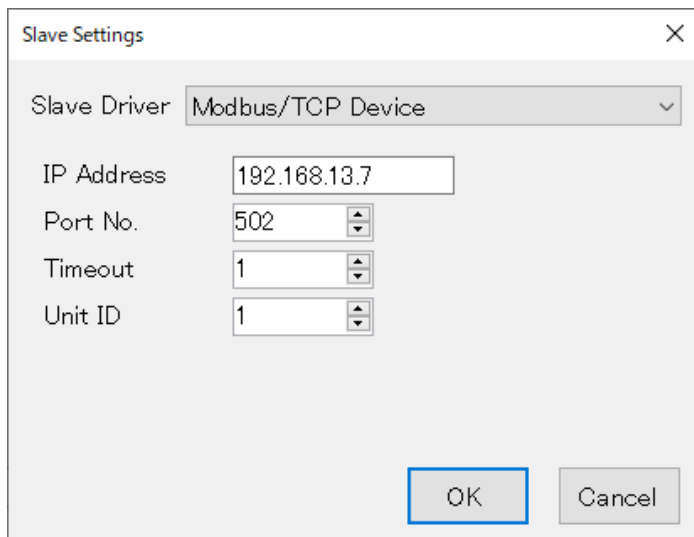
■ Associate data and monitor device

Analog data (Word data) of the R7E-SV4 unit can be accessed from the following Device addresses.

R7E-SV4 DATA	DEVICE ADDRESS for S1
Analog input (CH1)	W/S1:3X1
Analog input (CH2)	W/S1:3X2
Analog input (CH3)	W/S1:3X3
Analog input (CH4)	W/S1:3X4

6.2.2 Allocate Parts for Data Display

■ Allocate a [Numeric Display] part

1) Go to the [Project Explorer] window.

2) Right-click on [Screen] in the "GP1" folder, and select [Add] to display the [Add] dialog.

3) Enter 'sample3 ' in the [Screen name] field, check [Base Screen], and click [OK].
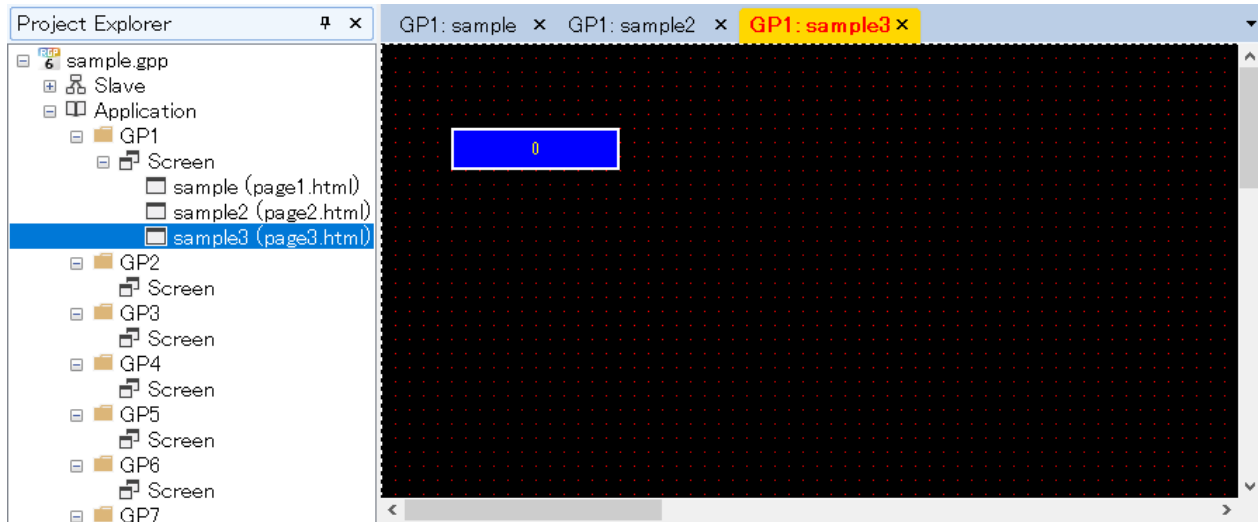
4) Allocate 4 [Numeric Display] parts and 4 [Label] parts on the Base Screen.
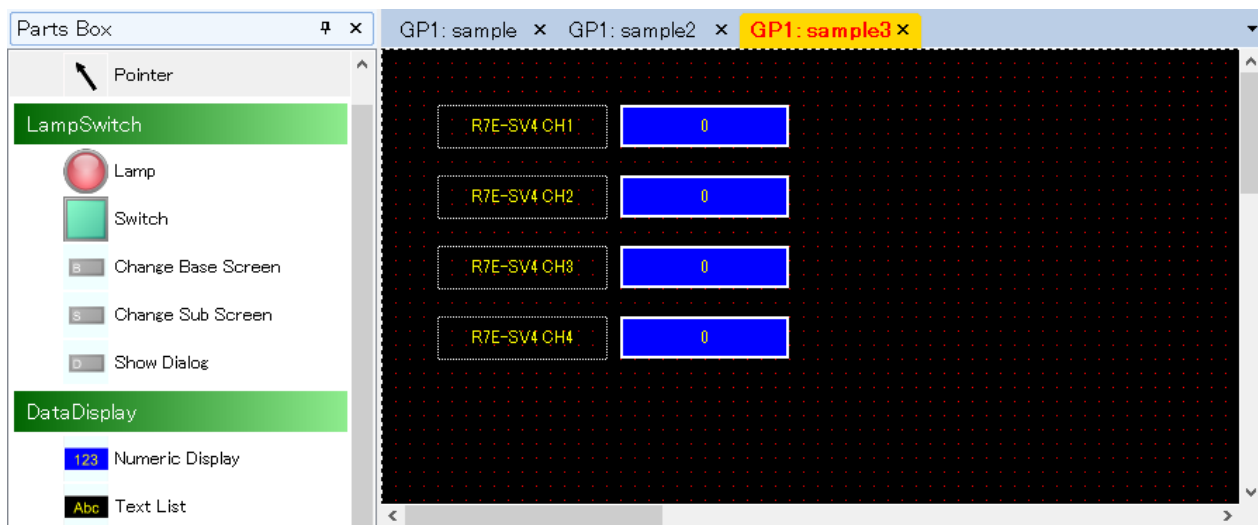
■ Associate parts and Device Addressesv

1) With the [Numeric Display] part for CH1 on the top being selected, confirm the [Property] window. In the initial state, 'W/S1:3X1' is set as [MonitorAddress].
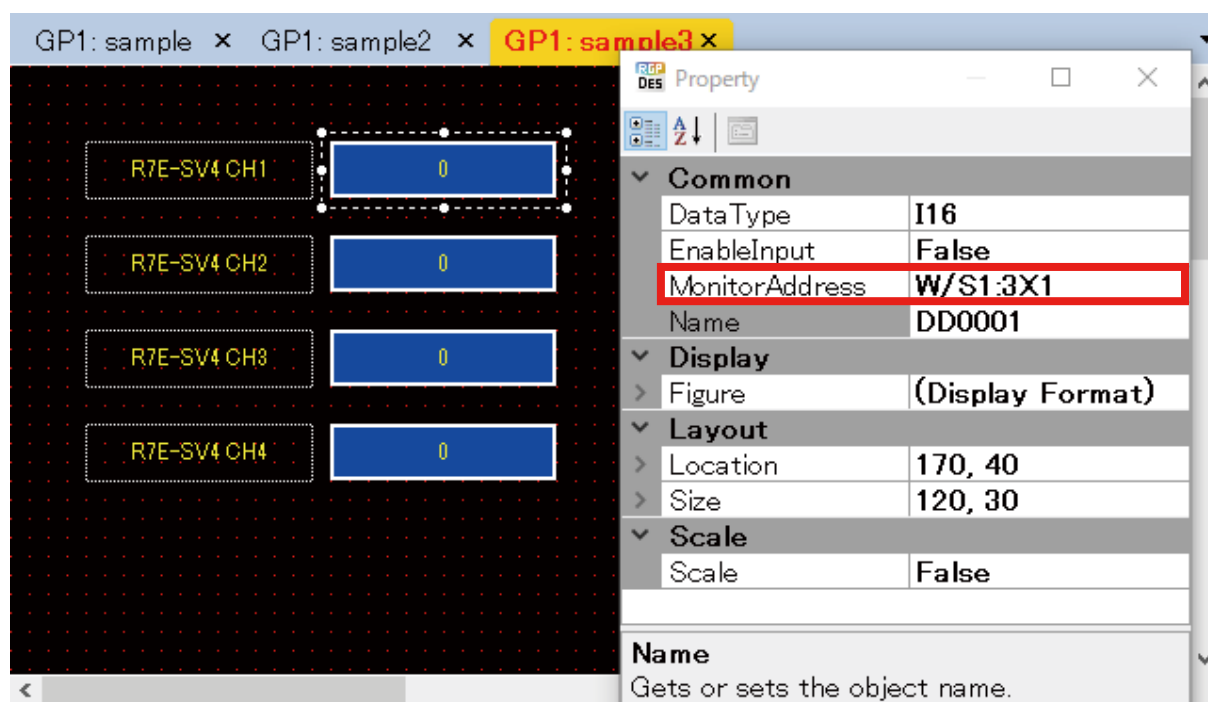
By the above settings, word data of Address 1 in 3X (analog input area) of Slave No. S1 is used.
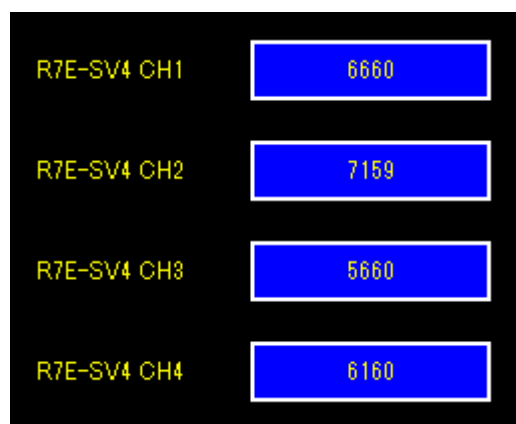
2) With the [Numeric Display] part for CH2 being selected, confirm the [Property] window.

3) The initial state for CH2 is the same as S1.
To change the value of [MonitorAddress], click the row of [MonitorAddress] to display the [Device Address] dialog.

4) Click ▲ in the [Address] field to change the value to '0002', and click [OK].
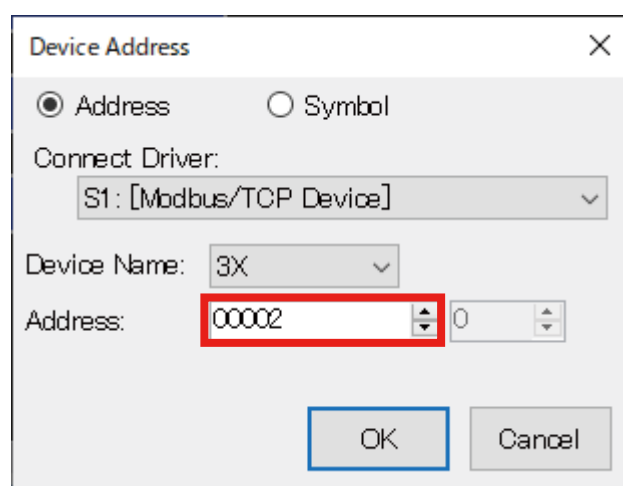
5) In the same manner, change the values of [Address] to '0003' and '0004', respectively for CH3 and CH4.

■ Preview Data Display

1) Transfer the Project.

2) Enter 'http://192.168.13.13/GP1/html/page3.html' in the address bar of Web browser.

3) Confirm that input data of R7E-SV4 is displayed.
   0 to 10000 values are displayed in accordance with analog input change.

7. FUNCTIONS OF EACH PART

In this section, the functions and role of each part to be allocated on a Screen will be described.

For details of the following functions mentioned in this chapter, also refer to the followings.

- Edit Action
- Monitor Address
- Interlock function
- Figure

7.1 LAMP / SWITCH

7.1.1 Appearance on the [Parts Box] window
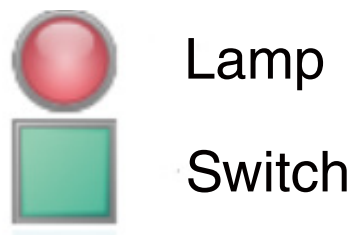
 Lamp

 Switch

Select a [Lamp] or [Switch] part on the [Parts Box] window, allocate it on Base Screen, and resize the part as needed by dragging the corner of the frame.
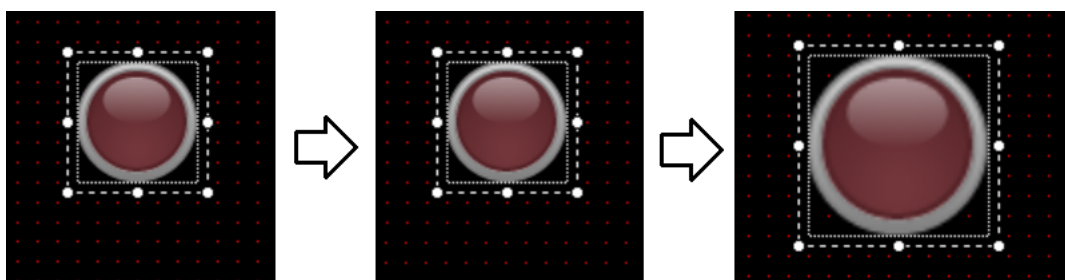
On the Base Screen, a [Lamp] part is displayed in a dotted square.
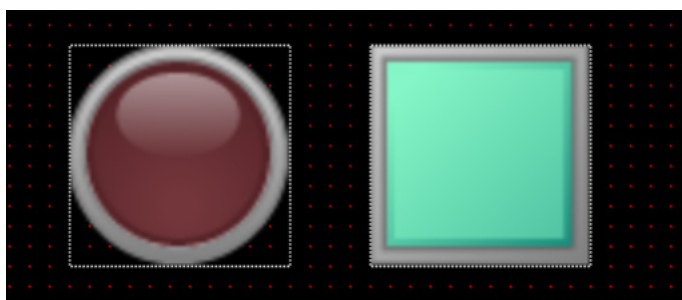
By changing parameter values on the [Lamp/Switch] dialog or the [Property] window, Lamps and Switches in various shapes and appearances can be created.
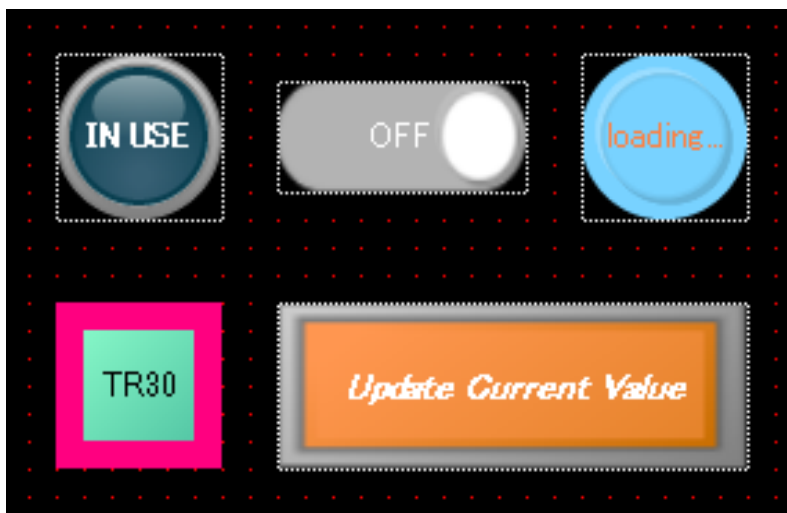
7.1.2 Function

Lamp is a part whose image changes in accordance with change in value (Bit Device: ON(1)/OFF(0), word device: 0 to 15) of the monitored device.

Switch is a part which functions as an operation switch on a Screen.

7.1.3 Parameter items

In order to edit parameter values, click the Lamp or Switch allocated on Base Screen to display the [Property] window showing the parameter items and values.

Property	
Common	
EnableLamp	True
EnableSwitch	True
Name	LS0002
PictureText	False
Lamp	
BitNumber	1
Figure	Disp□ Array
MonitorAddress	DevAddress□ Array
MonitorType	Bit
StateCondition	Position
Layout	
Location	40, 130
Size	60, 60
Switch	
EnableInterlock	False
OffDelayTime(Sec)	0.0
OnDelayTime(Sec)	0.0
TouchBeep	False
SwitchAction	
SwitchAction	SwitchAction□ Array

SwitchAction

Parts List   Property

Alternatively, double-click on the part to display the [Lamp/Switch] dialog, on which [Common], [Lamp], and/or [Switch] tabs are shown depending on the settings on the [Common] tab.

For details, refer to [Common] Tab, [Lamp] Tab (appears when [Enable Lamp] is checked), and [Switch] Tab (appears when [Enable Switch] is checked) in this section.

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. 　Width: Max. size: 7680; Min. size: 0 　Height: Max. size: 7680; Min. size: 0
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not dis-
　　　played at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

■ [Common] Tab

Lamp/Switch

Common　Lamp　Switch

Name　　LS0002

☑ Enable Lamp　　　☑ Enable Switch

☑ Enable Picture Text

OK　　Cancel

ITEM	DESCRIPTION
Name	Enter an optional name for the Lamp/Switch using up to 16 characters.
Enable Lamp	Check to enable the Lamp function.
Enable Switch	Check to enable the Switch function.
Enable Picture Text	Check to display a caption as an image of [Text] and [Font]. Note: This setting is ignored when using Internet Explorer 11.

■ [Lamp] Tab (appears when [Enable Lamp] is checked)

ITEM	DESCRIPTION	
Monitor Type	Bit	Part's image is changed in accordance with a bit data value. Specify [Bit Number] and [State Condition].
	Word	Part's image is changed in accordance with values of lower 4 bits of word data. (Value: 0 to 15)
Bit Number (the number of bits)	Set the number of bits to be used. 1: 1 bit 2: 2 bits 3: 3 bits 4: 4 bits	
State Condition	Specify the condition for determining the appearance of the part, Position: The appearance is determined based on the bit position to be ON. Refer to the table below (BIT COMBINATION (State Condition: Position) for correlation between Device Address and Bit Status for determining the appearance. Combination: The appearance is determined based on combination of values of Device Address. For details, refer to the table on the next page (BIT COMBINATION (State Condition: Combination) for correlation between Device Address and Bit Pattern for determining the appearance.	
Monitor Address	For details, refer to "12. DEVICE ADDRESS" on page 192. On the [Property] window, the value of [MonitorAddress] is shown as below. Click ... to display the [Device Address Collection Editor] dialog. ➔ P103	
Figure	For details, refer to "14. FIGURE" on page 196.	

■ BIT COMBINATION (State Condition: Position)

MONITORED DEVICE ADDRESS				BIT NO.	BIT STATUS
3	2	1	0		
OFF	OFF	OFF	OFF	1 to 4	ALL Bits: OFF
OFF	OFF	OFF	ON		Bit 0: ON
OFF	OFF	ON	ON or OFF	2 to 4	Bit 1: ON
OFF	ON	ON or OFF	ON or OFF	3 to 4	Bit 2: ON
ON	ON or OFF	ON or OFF	ON or OFF	4	Bit 3: ON

■ BIT COMBINATION (State Condition: Combination)

MONITORED DEVICE ADDRESS				BIT NO.	BIT PATTERN
3	2	1	0		
OFF	OFF	OFF	OFF	1 to 4	Bit Pattern: 0 Bit Pattern: 00 Bit Pattern: 000 Bit Pattern: 0000
OFF	OFF	OFF	ON		Bit Pattern: 1 Bit Pattern: 01 Bit Pattern: 001 Bit Pattern: 0001
OFF	OFF	ON	OFF	2 to 4	Bit Pattern: 10 Bit Pattern: 010 Bit Pattern: 0010
OFF	OFF	ON	ON		Bit Pattern: 11 Bit Pattern: 011 Bit Pattern: 0111
OFF	ON	OFF	OFF	3 to 4	Bit Pattern: 100 Bit Pattern: 0100
OFF	ON	OFF	ON		Bit Pattern: 101 Bit Pattern: 0101
OFF	ON	ON	OFF		Bit Pattern: 110 Bit Pattern: 0110
OFF	ON	ON	ON		Bit Pattern: 111 Bit Pattern: 0111
ON	OFF	OFF	OFF	4	Bit Pattern: 1000
ON	OFF	OFF	ON		Bit Pattern: 1001
ON	OFF	ON	OFF		Bit Pattern: 1010
ON	OFF	ON	ON		Bit Pattern: 1011
ON	ON	OFF	OFF		Bit Pattern: 1100
ON	ON	OFF	ON		Bit Pattern: 1101
ON	ON	ON	OFF		Bit Pattern: 1110
ON	ON	ON	ON		Bit Pattern: 1111

Note: When [Bit Number] is set to '2 to 4', 'Bit Pattern: 0000' is displayed on the [Figure] window on the [Lamp/Switch] dialog.
The rightmost one is the least significant bit.
The below figure shows the correlation between the Monitored Device Address and Bit Pattern.
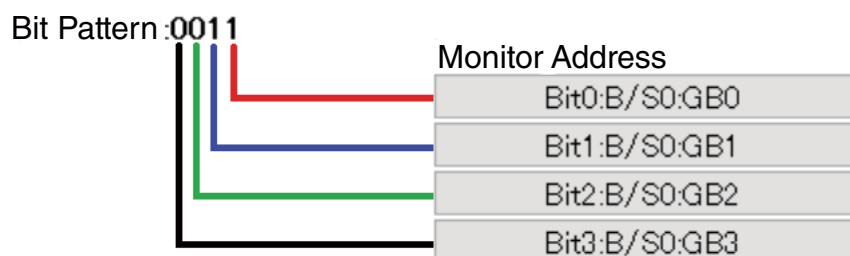
■ [Device Address Collection Editor] dialog.
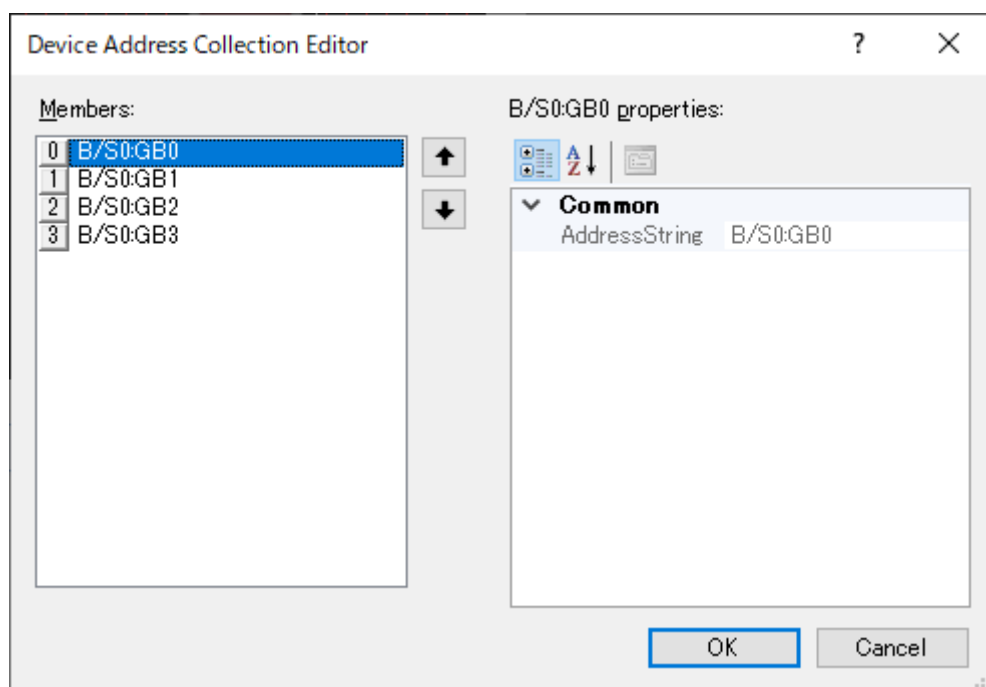
The below figure shows correlation between Members on [Device Address Collection Editor] and Monitored Device Address.

Bit0, Bit1, Bit2, and Bit3 correspond to Member[0], Member[1], Member[2], and Member[3], respectively.

■ [Switch] Tab (appears when [Enable Switch] is checked)

ITEM	DESCRIPTION
Action	Select the Switch Action from: Bit Operation; Word Operation; Change Base Screen; Switch Sub Screen; Show Dialog; and CGI Call. Max. 8 actions can be registered. For details, refer to "8. SWITCH ACTION" on page 160.
Delay OFF (sec.)	Set the delay time until the Switch is turned OFF. Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Delay ON (sec.)	Set the delay time until the Switch is turned ON. Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Touch Beep	Enable or disable the switch operation sound for the terminal with the sound function. False: No sound True: Output sound by touch/click operation *1
Enable Interlock	Enable or disable Interlock function. When enabled, [Monitor Address] and [Interlock Condition] fields are displayed. For details of Monitor Address, refer to "12. DEVICE ADDRESS" on page 192. For details of Interlock Function, refer to "13. INTERLOCK FUNCTION" on page 194.
Figure	For details, refer to "14. FIGURE" on page 196.

*1 Operation sound will not be output when the switch action is not executed due to Interlock, etc.

7.2 [CHANGE BASE SCREEN] SWITCH

7.2.1 Appearance on the [Parts Box] window

 Change Base Screen

Allocate the [Change Base Screen] switch on Base Screen, and resize the part as needed by dragging the corner of the frame.

[Change Base Screen] switch can be allocated only on Base Screens.
In the same manner as a [Lamp] or [Switch] part, the [Change Base Screen] switch can be displayed in different ways by changing values of its property attributes.

7.2.2 Function

The [Change Base Screen] switch is used for switching Base Screens from one to the other when it is clicked.

1) Double-click the Switch icon to display the [Lamp/Switch] dialog.

2) Click the [Switch] tab, and click [Edit Action] to display the [Switch Action] setting window.

3) Click the down arrow to the right of the [DisplayScreen] field to display the drop-down list, and select which Base Screen to switch to.
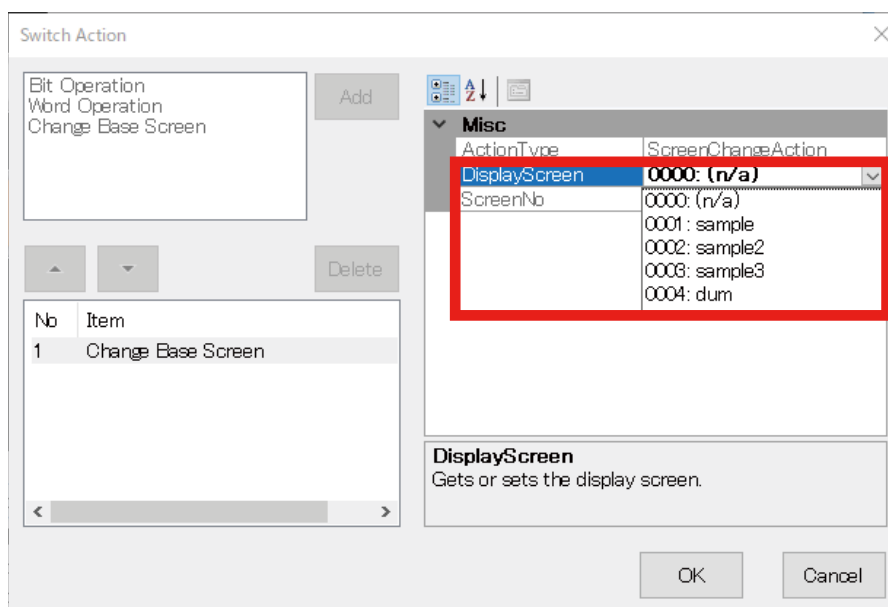
7.2.3 Parameter items

1) Click the [Change Base Screen] switch allocated on the Base Screen to display property attributes on the [Property] window.

2) Edit each parameter value, as necessary.
   For details, refer to [Common] Tab and [Switch] Tab in this section.

Property		
Common		
Name	LS0005	
PictureText	True	
Layout		
Location	480, 230	
X	480	
Y	230	
Size	100, 70	
Width	100	
Height	70	
Switch		
EnableInterlock	True	
InterlockAddress	B/S1:1X1	
InterlockEnableConditions	Hi	
NormalFigure	(Display Format)	
BackgroundColor	0, 255, 255, 255	
BackgroundImage	(Image)	
Blink	Normal	
BorderColor	255, 255, 255	
BorderWidth	0	
Font	MS UI Gothic, 9pt	
FontColor	255, 255, 255	
Text	ChangeScreen	
TextAlign	Center	
OffDelayTime(Sec)	0.0	
OnDelayTime(Sec)	0.0	
TouchBeep	False	

TouchedFigure	(Display Format)	
BackgroundColor	0, 255, 255, 255	
BackgroundImage	(Image)	
Blink	Normal	
BorderColor	255, 255, 255	
BorderWidth	2	
Font	MS UI Gothic, 9pt	
FontColor	255, 255, 255	
Text	ChangeScreen	
TextAlign	Center	
SwitchAction		
ChangeScreenAction	Change Base Screen	
ActionType	ScreenChangeAction	
DisplayScreen	0000: (n/a)	
ScreenNo	0	

Name
Gets or sets the object name.

Parts List   Property

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. Width: Max. size: 7680; Min. size: 0 Height: Max. size: 7680; Min. size: 0
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not dis-
       played at executing (browser-dependent).

* Variable by the screen size. Max. 3840, 3840.

3)   Double-click the Switch icon to display the [Lamp/Switch] dialog.
      Confirm that this dialog has [Common] tab and [Switch] tab.

4)   Edit parameter values on each tab as necessary.

■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the [Change Base Screen] switch using up to 16 characters.
Enable Lamp	Grayed out and cannot be checked.
Enable Switch	Grayed out and cannot be unchecked.
Enable Picture Text	Check to display a caption as an image of [Text] and [Font]. Note: This setting is ignored when using Internet Explorer 11.

■ [Switch] Tab

ITEM	DESCRIPTION
Action	Switch Action is fixed to 'Change Base Screen'.
Delay OFF (sec.)	Set the delay time until the Switch is turned OFF. *1 Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Delay ON (sec.)	Set the delay time until the Switch is turned ON.*1 Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Touch Beep	Enable or disable the switch operation sound for the terminal with the sound function. False: No sound True: Output sound by touch/click operation *2
Enable Interlock	Enable or disable Interlock function. When enabled, [Monitor Address] and [Interlock Condition] fields are displayed. For details of Monitor Address, refer to "12. DEVICE ADDRESS" on page 192. For details of Interlock Function, refer to "13. INTERLOCK FUNCTION" on page 194.
Figure	For details, refer to "14. FIGURE" on page 196.

*1 Delay time is set to prevent erroneous operation and chattering.
*2 Operation sound will not be output when the switch action is not executed due to Interlock, etc.

7.3 [CHANGE SUB SCREEN] SWITCH

7.3.1 Appearance on the [Parts Box] window

 Change Sub Screen

Allocate the [Change Sub Screen] switch on Base Screen, and resize the part as needed by dragging the corner of the frame.
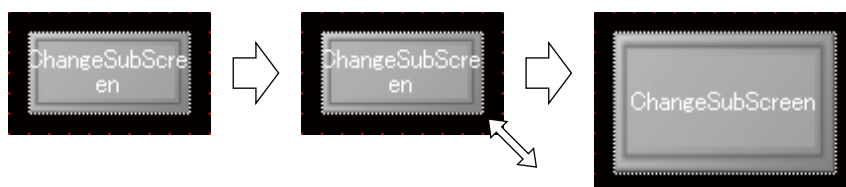
[Change Sub Screen] switch can be allocated only on Base Screens.

In the same manner as a [Lamp] or [Switch] part, the [Change Sub Screen] switch can be displayed in different ways by changing values of its property attributes.

7.3.2 Function

The [Change Sub Screen] switch is used for displaying a Sub Screen on a [Sub Screen Frame] or switching the Sub Screen being displayed to another Sub Screen when it is clicked.

The [Change Sub Screen] switch is used also for hiding a Sub Screen being displayed.

7.3.3 Parameter items

1) Click the [Change Sub Screen] switch on the Base Screen to display parameter items to configure on the [Property] window.

2) Edit each parameter value, as necessary.
   For details, refer to [Common] Tab and [Switch] Tab in this section.

Property	
Common	
Name	LS0006
PictureText	False
Layout	
Location	640, 520
X	640
Y	520
Size	80, 40
Width	80
Height	40
Switch	
EnableInterlock	False
NormalFigure	(Display Format)
BackgroundColor	☐ 0, 255, 255, 255
BackgroundImage	(Image)
Blink	Normal
BorderColor	☐ 255, 255, 255
BorderWidth	0
Font	MS UI Gothic, 9pt
FontColor	☐ 255, 255, 255
Text	ChangeSubScreen
TextAlign	Center
OffDelayTime(Sec)	0.0
OnDelayTime(Sec)	0.0
TouchBeep	False
TouchedFigure	(Display Format)
BackgroundColor	☐ 0, 255, 255, 255
BackgroundImage	(Image)
Blink	Normal
BorderColor	☐ 255, 255, 255
BorderWidth	2
Font	MS UI Gothic, 9pt
FontColor	☐ 255, 255, 255
Text	ChangeSubScreen
TextAlign	Center

SwitchAction	
ChangeSubScreenAction1	Change Sub Screen
ActionType	FrameOpenAction
DisplayScreen	0000: (n/a)
ObjectFrame(Frame)	0000: (n/a)
Scale	1.0
ScreenNo	0
ScreenTransitionMethod	ChangeScreen
ChangeSubScreenAction2	Change Sub Screen
ActionType	FrameOpenAction
DisplayScreen	0000: (n/a)
ObjectFrame(Frame)	0000: (n/a)
Scale	1.0
ScreenNo	0
ScreenTransitionMethod	ChangeScreen
ChangeSubScreenAction3	Change Sub Screen
ActionType	FrameOpenAction
DisplayScreen	0000: (n/a)
ObjectFrame(Frame)	0000: (n/a)
Scale	1.0
ScreenNo	0
ScreenTransitionMethod	ChangeScreen

Common

Parts List | Property

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. 　Width: Max. size: 7680; Min. size: 0 　Height: Max. size: 7680; Min. size: 0
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

3)　Double-click the Switch icon to display the [Lamp/Switch] dialog.
　　Confirm that this dialog has [Common] tab and [Switch] tab.

4)　Edit parameter values on each tab as necessary.

■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the [Change Sub Screen] switch using up to 16 characters.
Enable Lamp	Grayed out and cannot be checked
Enable Switch	Grayed out and cannot be unchecked
Enable Picture Text	Check to display a caption as an image of [Text] and [Font]. Note: This setting is ignored when using Internet Explorer 11.

■ [Switch] Tab

ITEM	DESCRIPTION
Action	Max. 3 Sub Screen Display Frames can be allocated on a Base Screen. 3 'Change Sub Screen' Actions are registered as standard and not editable. For details of Switch Actions, refer to "8. SWITCH ACTION" on page 160.
Delay OFF (sec.)	Set the delay time until the Switch is turned OFF. *1 Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Delay ON (sec.)	Set the delay time until the Switch is turned ON. *1 Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Touch Beep	Enable or disable the switch operation sound for the terminal with the sound function. False: No sound True: Output sound by touch/click operation *2
Enable Interlock	Enable or disable Interlock function. When enabled, [Monitor Address] and [Interlock Condition] fields are displayed. For details of Monitor Address, refer to "12. DEVICE ADDRESS" on page 192. For details of Interlock Function, refer to "13. INTERLOCK FUNCTION" on page 194.
Figure	For details, refer to "14. FIGURE" on page 196.

*1 Delay time is set to prevent erroneous operation and chattering.
*2 Operation sound will not be output when the switch action is not executed due to Interlock, etc.

7.3.4 How to Use Sub Screens

Description will be made on the premise that Sub Screens have already been created.

1) First, determine the display location of a Sub Screen.

Click to select [Sub Screen Frame] on the [Part Box] window, and allocate the frame in an optional location on Base Screen.
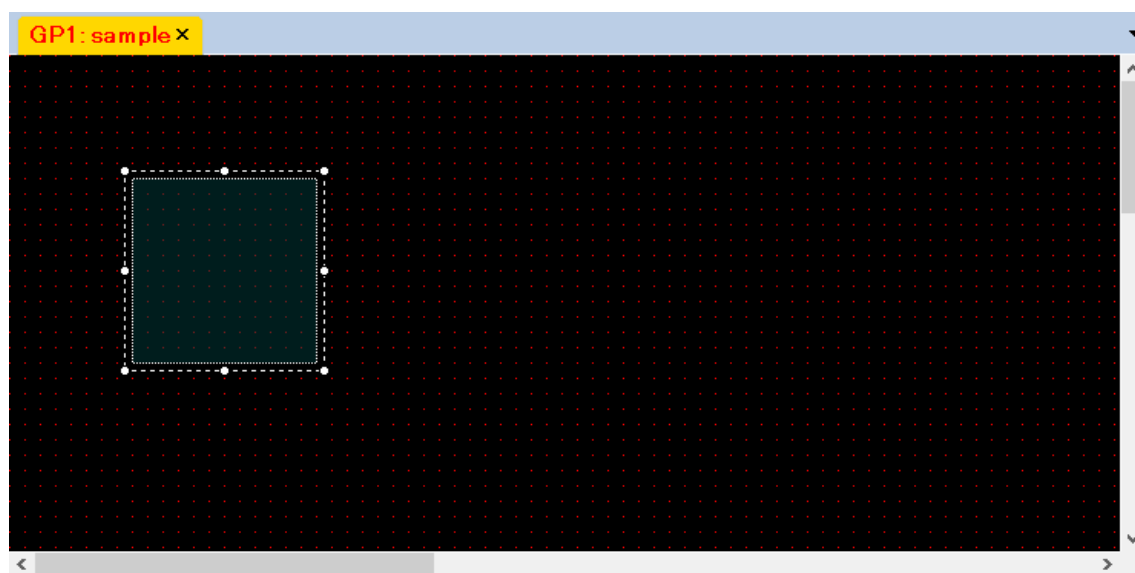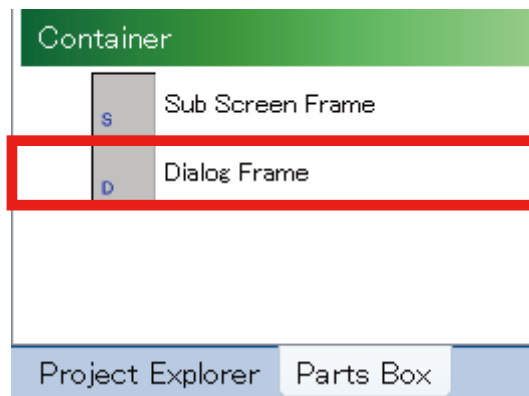
2) Click to select [Change Sub Screen] switch on the [Part Box] window and allocate the switch in an optional location on the Base Screen so as not to overlap the [Sub Screen Frame].
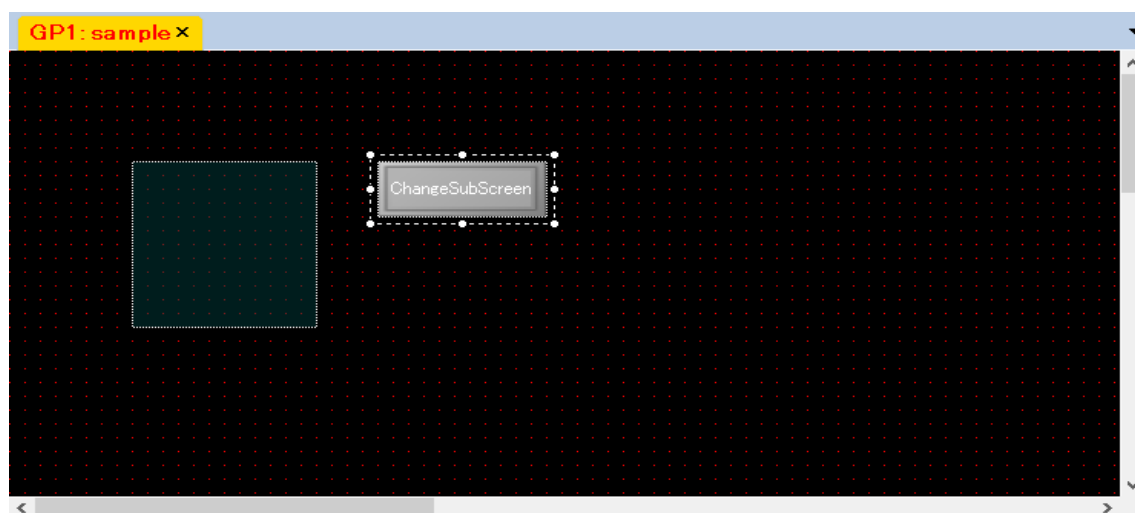
3) Double-click the Switch icon to display the [Lamp/Switch] dialog.

4) Click the [Switch] tab, and click [Edit Action] to display the [Switch Action] setting window.

5) Select 'ChangeScreen' as [ScreenTransitionMethod].

6) As [TargetFrame(Frame)], select the Sub Screen Frame having been allocated.
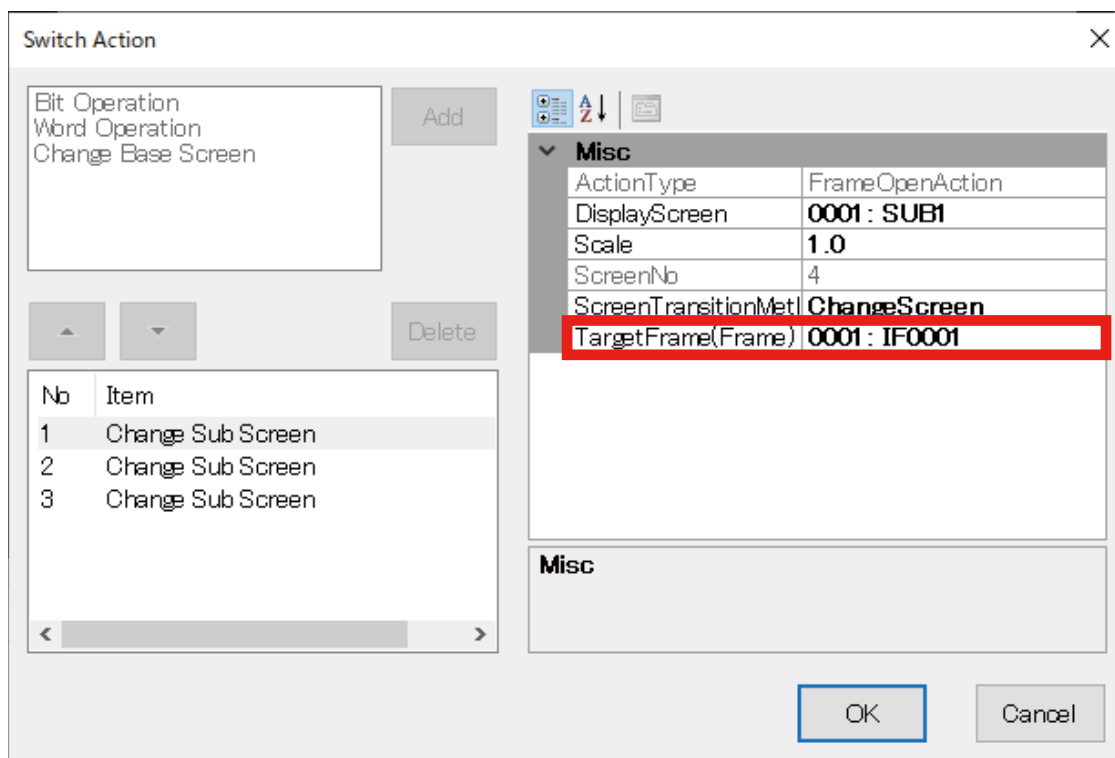
7) Click the down arrow to the right of the [DisplayScreen] field to display the drop-down list, and select which Sub Screen to display.
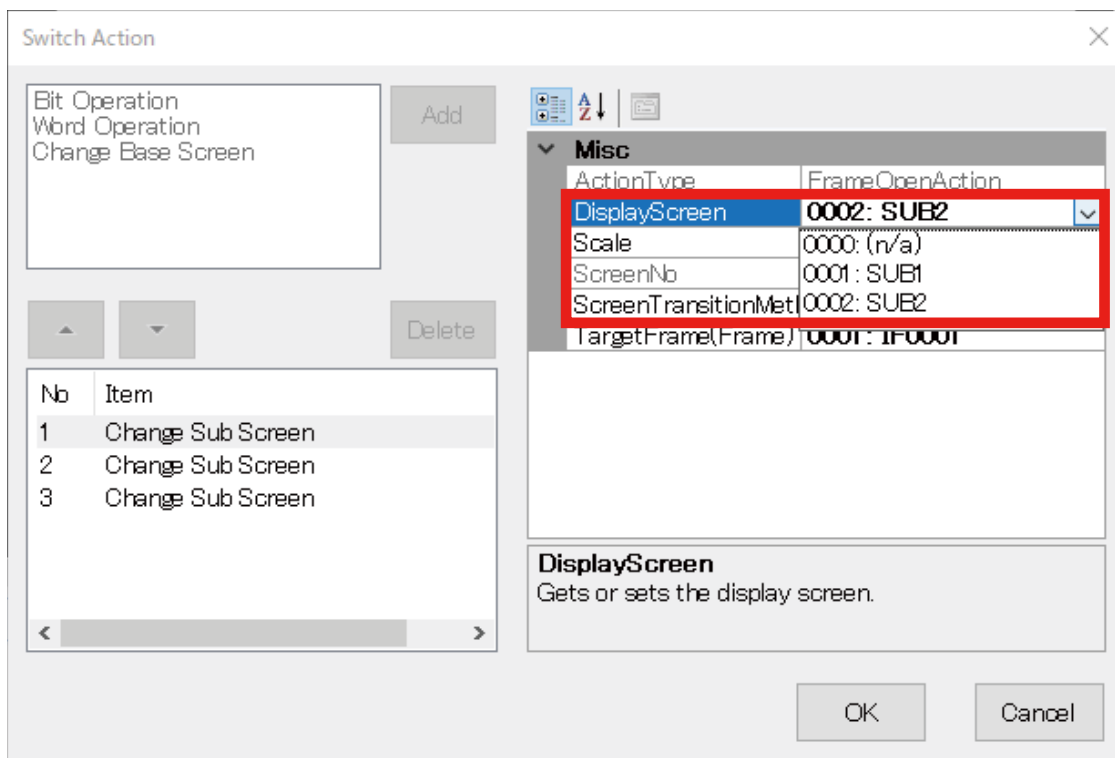
The Sub Screen being displayed will not be automatically hidden.
To hide the Sub Screen, follow the procedure below.

1) Allocate another [Change Sub Screen] switch so as not to overlap the [Sub Screen Frame].
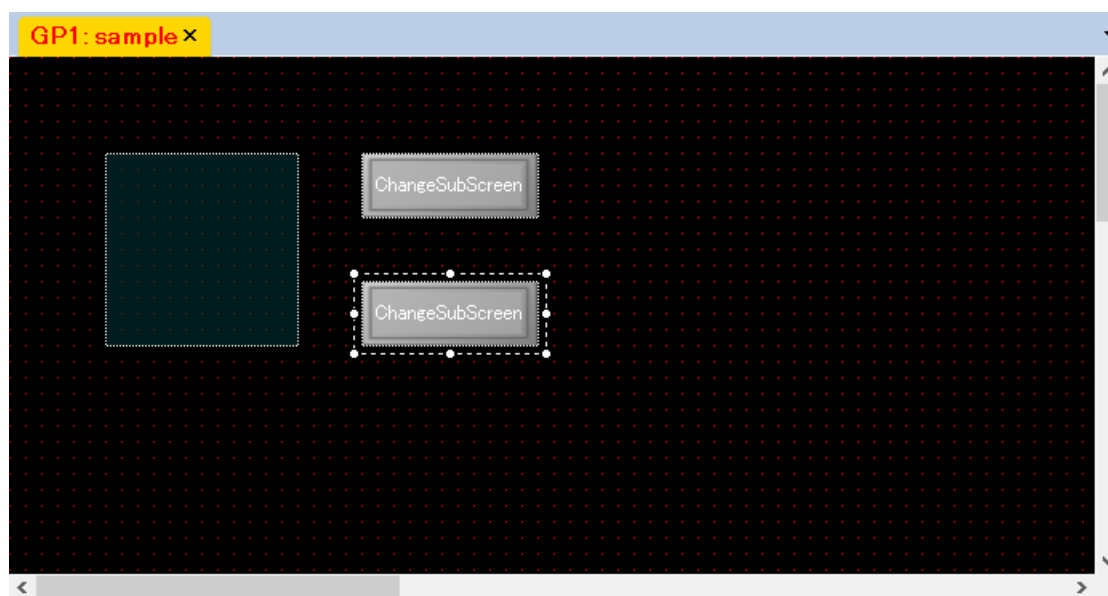
3) Double-click the newly allocated Switch to display the [Lamp/Switch] dialog.

4) Click the [Switch] tab, and click [Edit Action] to display the [Switch Action] setting window.

5) Select the Sub Screen Frame to be hidden as [TargetFrame(Frame)], leave [DisplayScreen] as '0000: n/a', and click [OK].
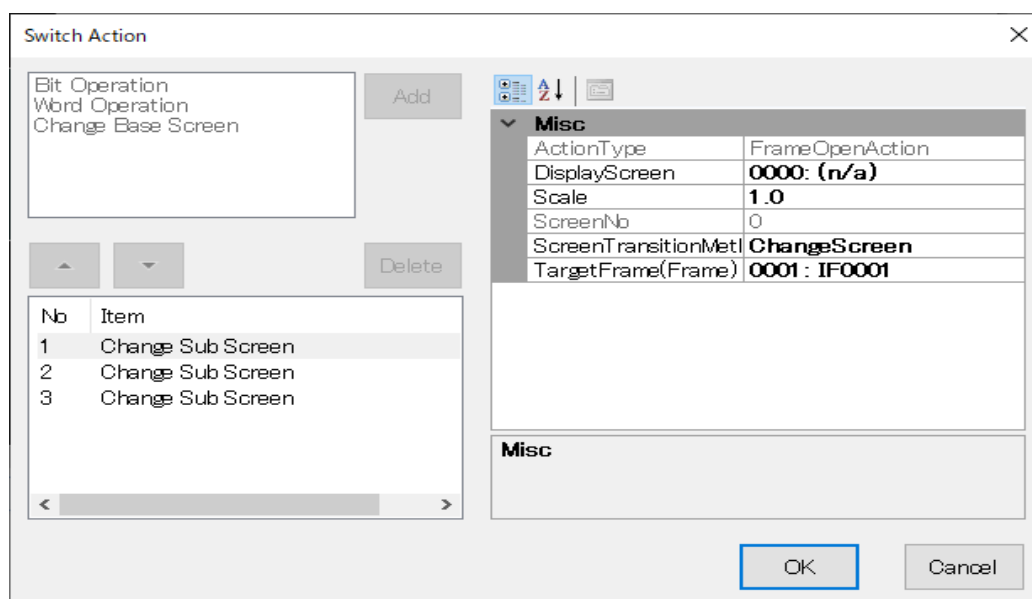
[Sub Screen Frame] can be used to display external contents.
To do so, select 'NavigateByURL' as [ScreenTransitionMethod], and enter a URL of the contents to display in the [TransitionDestination] field.

Misc	
ActionType	FrameOpenAction
Scale	1.0
ScreenNo	0
ScreenTransitionMethod	**NavigateByURL**
TargetFrame(Frame)	**0001 : IF0001**
TransitionDestination	**http://192.168.13.15/**

Note: In order to display the information about the power measuring devices on RGP30-W sub screen, specify 'NavigateByURL'.
For details, refer to Users Manual of RGP30-W (EM-8581-D).

7.4 [SHOW DIALOG] SWITCH

7.4.1 Appearance on the [Parts Box] window

Show Dialog

Allocate a [Show Dialog] switch, and resize the part as needed by dragging the corner of the frame.
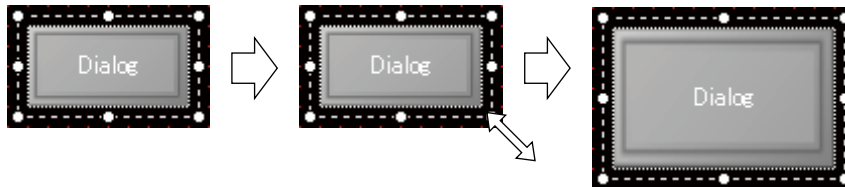
[Show Dialog] switch can be allocated only on Base Screens.
In the same manner as a [Lamp] or [Switch] part, the [Show Dialog] switch can be displayed in different ways by changing values of its property attributes.

7.4.2 Function

The [Show Dialog] switch is used for displaying a Dialog Screen on a [Dialog Frame] when it is clicked.

1) Double-click the Switch icon to display the [Lamp/Switch] dialog.

2) Click the [Switch] tab, and click [Edit Action] to display the [Switch Action] setting window.

3) Click the down arrow to the right of the [DisplayScreen] field to display the drop-down list, and select which Dialog Screen to display.
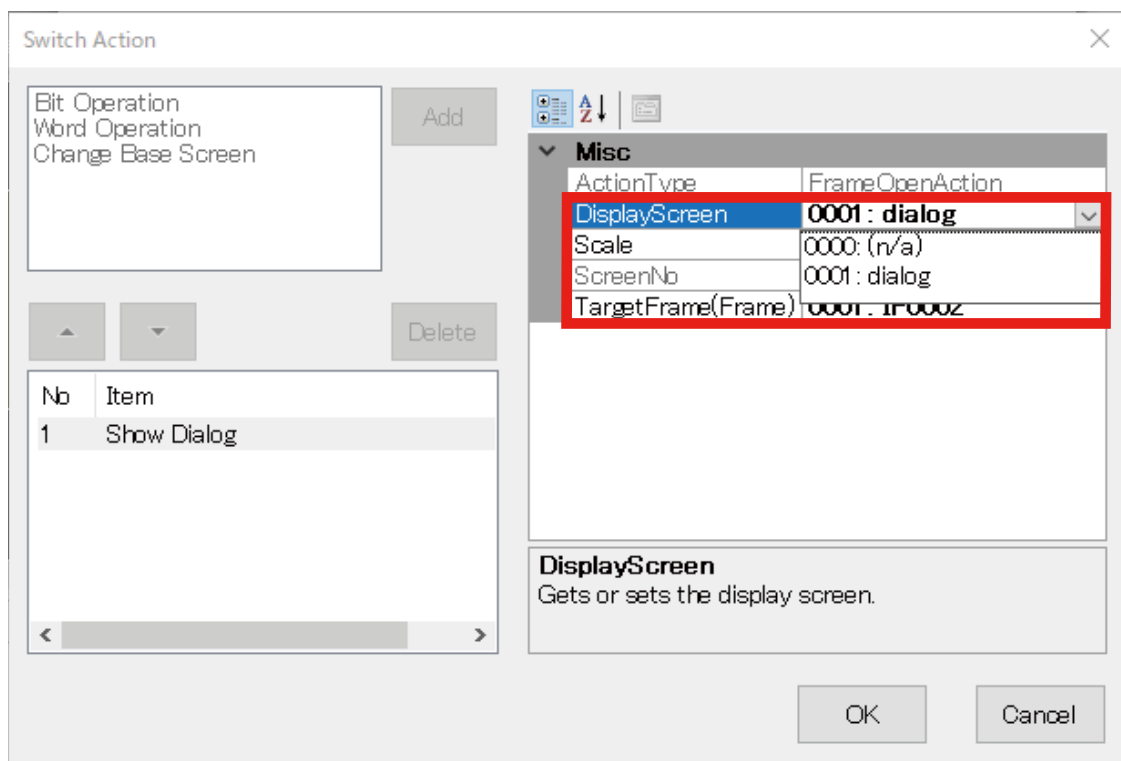
7.4.3 Parameter items

1) Click the [Show Dialog] switch on the Base Screen to display parameter items to configure on the [Property] window.

2) Edit each parameter value, as necessary.
For details, refer to [Common] Tab and [Switch] Tab in this section.

Property	⚲ ✕
∨ Common	
Name	LS0005
∨ Layout	
⟩ Location	50, 20
⟩ Size	80, 40
∨ Switch	
EnableInterlock	True
InterlockAddress	B/S1:DI1
InterlockEnableConditions	Hi
⟩ NormalFigure	(Display Format)
OffDelayTime(Sec)	0.0
OnDelayTime(Sec)	0.0
⟩ PressedFigure	(Display Format)
∨ SwitchAction	
⟩ ChangeDialogAction	Show Dialog

Common

Property | Parts List

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. 　Width: Max. size: 7680; Min. size: 0 　Height: Max. size: 7680; Min. size: 0
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

3) Double-click the Switch icon to display the [Lamp/Switch] dialog.
Confirm that this dialog has [Common] tab and [Switch] tab.

4) Edit parameter values on each tab as necessary.

■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the [Show Dialog] switch using up to 16 characters.
Enable Lamp	Grayed out and cannot be checked.
Enable Switch	Grayed out and cannot be unchecked.
Enable Picture Text	Check to display a caption as an image of [Text] and [Font]. Note: This setting is ignored when using Internet Explorer 11.

■ [Switch] Tab

ITEM	DESCRIPTION
Action	Switch Action is fixed to 'Show Dialog'.
Delay OFF (sec.)	Set the delay time until the Switch is turned OFF. *1 Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Delay ON (sec.)	Set the delay time until the Switch is turned ON. *1 Setting range: 0.0 to 30.0 sec. Default: 0.0 sec.
Touch Beep	Enable or disable the switch operation sound for the terminal with the sound function. False: No sound True: Output sound by touch/click operation *2
Enable Interlock	Enable or disable Interlock function. When enabled, [Monitor Address] and [Interlock Condition] fields are displayed. For details of Monitor Address, refer to "12. DEVICE ADDRESS" on page 192. For details of Interlock Function, refer to "13. INTERLOCK FUNCTION" on page 194.
Figure	For details, refer to "14. FIGURE" on page 196.

*1 Delay time is set to prevent erroneous operation and chattering.

*2 Operation sound will not be output when the switch action is not executed due to Interlock, etc.

7.4.4 How to Use Dialog Screens

Description will be made on the premise that Dialog Screens have already been created.

1) First, determine the display location of a Dialog Screen.
   Click to select [Dialog Frame] on the [Part Box] window, and allocate the frame in an optional location on Base Screen.
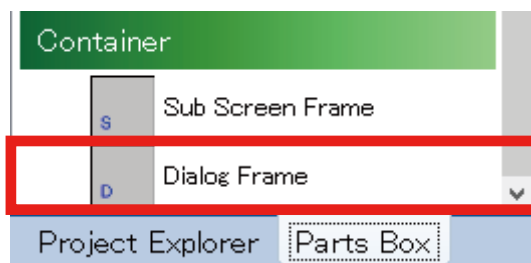

2) Click to select [Show Dialog] switch on the [Part Box] window, and allocate the switch in an optional location on the Base Screen.

Unlike Sub Screens, Dialog Screens are each provided with a [Close] button, and thus a [Show Dialog] switch can be allocated so as to overlap a [Dialog Frame].

The below figure shows a state where the [Show Dialog] switch is allocated so as to overlap the Dialog Frame.
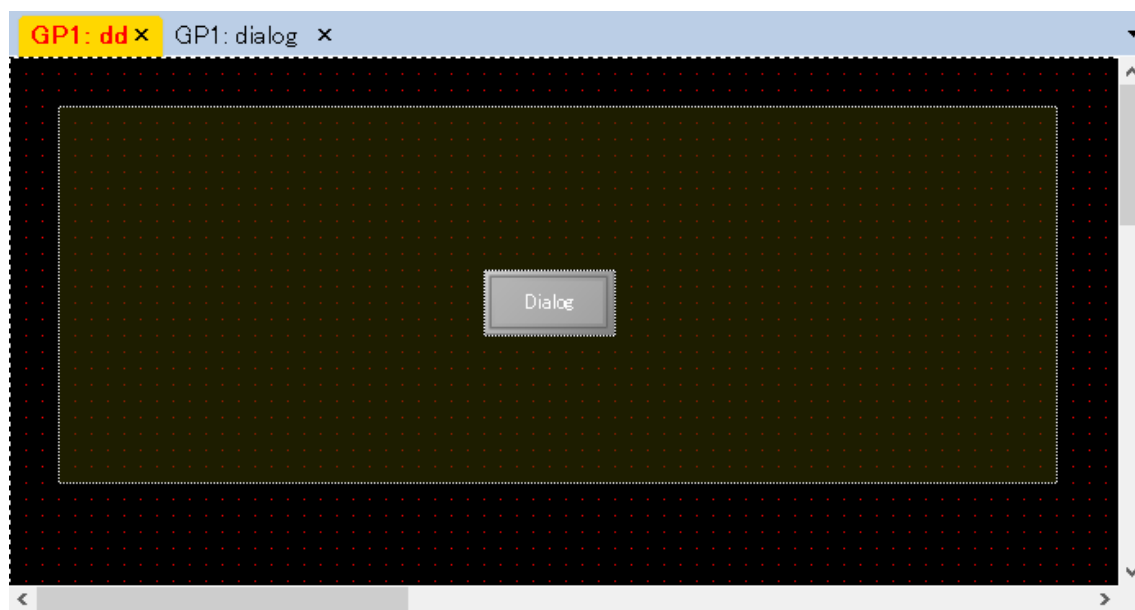
3) Double-click the Switch icon to display the [Lamp/Switch] dialog.
   Click the [Switch] tab, and click [Edit Action] to display the [Switch Action] setting window.

4) Select the [Dialog Frame] having been allocated as [TargetFrame(Frame)].

5) Click the down arrow to the right of the [DisplayScreen] field to display the drop-down list, and select which Dialog Screen to display.

7.5 [NUMERIC DISPLAY] PART

7.5.1 Appearance on the [Parts Box] window

The below figure shows a [Numeric Display] part allocated on a Base Screen.
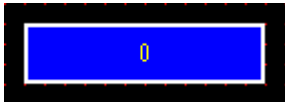
7.5.2 Function

[Numerical Display] parts are used not only for displaying values of monitored Device Address but also for entering a value from a Screen and output the value to the Device.

On the [Property] window, select 'True' or 'False' for [EnableInput] under [Common] to enable or disable numeric input.
The appearance (color, font) of the part can be changed according to the displayed value.

■ Points to Note for Numeric Input

• Input Dialog is used for numeric input.
  While Input Dialog is displayed, a switch operation for Screen transition performed on another terminal will not be applied even in Sync Mode.

• Some Web browsers have an option to forbid to display Input Dialog.
  If this option is checked, numeric input will be invalid.
  In such a case, close the Web browser, open the Web browser, and access the same page again.

■ Input method

The input method differs between RGP30 to RGP6 as described in the table below.

INPUT METHOD	RGP30	RGP6
Start Input	Touch/Click [Numeric Display] Part.	Touch/Click [Numeric Display] Part.
Input	Input in prompt dialog.	Directly input in <Input> tag of the Part.
Determine Input	Click [OK] on prompt dialog.	Enter key is pressed or the focus is lost. Click [OK] on confirm dialog.
Check Input	After [OK] is clicked on prompt dialog.	Before confirm dialog is displayed.

7.5.3 Parameter items

Edit parameter values on the [Property] window to change the content and mode of numeric display.

AlarmDisplay		
AlarmDisplay(HH)	True	
Alarm Value(HH)	10000	
Figure(HH)	(Display Format)	
AlarmDisplay(H)	True	
Alarm Value(H)	9000	
Figure(H)	(Display Format)	
AlarmDisplay(L)	True	
Alarm Value(L)	−9000	
Figure(L)	(Display Format)	
AlarmDisplay(LL)	True	
Alarm Value(LL)	−10000	
Figure(LL)	(Display Format)	
Common		
DataType	I16	
EnableInput	True	
EnableInterlock	True	
HL	([−32768.000] − [327	
InputRange	True	
InterlockAddress	B/S0:GB0	
InterlockEnableC	Hi	
MonitorAddress	W/S0:GW0	
Name	DD0001	
Display		
DecimalPlaces	3	
Figure	(Display Format)	
BackgroundCo	0, 0, 255	
BorderColor	255, 255, 255	
BorderWidth	2	
DataAlign	Center	
Font	MS UI Gothic, 9pt	
FontColor	255, 255, 0	
Layout		
Location	100, 130	
Size	120, 30	
Scale		
Scale	True	
ScaleType	Zero Span	
Span(Display)	10000	
Span(Input)	10000	
Zero(Display)	0	
Zero(Input)	0	

Name
Gets or sets the object name.

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. 　　Width: Max. size: 7680; Min. size: 0 　　Height: Max. size: 7680; Min. size: 0
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

7.5.4 Scaling

On the [Property] window, select 'True' for [Scale] to scale Device data to engineering unit values.

ITEM	DESCRIPTION
False (Disable)	Device data is displayed as it is without being scaled.
True (Enable)	Device data is scaled. Select [Scale type] from the followings. 　· Fixed Point 　· Offset Gain 　· Zero Span When 'FixedPoint' is selected, set the decimal point position (1 to 3). When 'Offset Gain' or 'Zero Span' is selected, set the number of decimal places (0 to 3). See the table below. When an engineering unit value is input, the entered value is scaled in reverse and rounded to be written in the Device.

The table below shows available combinations.

VARIABLE TYPE	SCALING	FIXED POINT POSITION	NO. OF DECIMAL PLACES
I8, U8, I16, U16, I32, U32	FixedPoint	1 to 3 (default: 1)	Not available
	Offset Gain	Not available	0 to 3 (default: 3)
	Zero Span	Not available	0 to 3 (default: 3)
F32	Offset Gain	Not available	0 to 3 (default: 3)
	Zero Span	Not available	0 to 3 (default: 3)

The table below shows Input range for each variable type when [Fixed point] is selected as [Scaling type].

VARIABLE TYPE	FIXED POINT POSITION		
	1	2	3
I8	-12.8 to 12.7	-1.28 to 1.27	-0.128 to 0.127
U8	0.0 to 25.5	0.00 to 2.55	0.000 to 0.255
I16	-3276.8 to 3276.7	-327.68 to 327.67	-32.768 to 32.767
U16	0.0 to 6553.5	0.00 to 655.35	0.000 to 65.535
I32	-214748364.8 to 214748364.7	-21474836.48 to 21474836.47	-2147483.648 to 2147483.647
U32	0.0 to 429496729.5	0.00 to 42949672.95	0.000 to 4294967.295

7.5.5 Offset Gain

When [Offset Gain] is selected as [Scaling type], configure the parameters according to the table below.

ITEM	DESCRIPTION	
Equation	$Y = AX + B$ $X = Y / A - B$	
Parameter	A	Gain: Property (default: 1.0)
	B	Offset: Property (default: 0.0)
	X	Value before scaling (input value)
	Y	Value after scaling (display value)

7.5.6 Zero Span

When [Zero Span] is selected as [Scaling type], configure the parameters according to the table below.

ITEM	DESCRIPTION	
Equation	$Y = Zr + (Sr - Zr) * (X - Zb) / (Sb - Zb)$ $X = (Y - Zr) * (Sb - Zb) / (Sr - Zr) + Zb$	
Parameter	Zb	Zero (input) property (default: 0)
	Sb	Span (input) property (default: 10000)
	Zr	Zero (display) property (default: 0)
	Sr	Span (display) property (default: 10000)
	X	Value before scaling (input value)
	Y	Value after scaling (display value)

7.5.7 Alarms

Set each of Alarm display HH, H, L, and LL to True (Enable) to change the form of the part according to the displayed value.
Configure the parameters referring to the table below.

ITEM	DESCRIPTION
Alarm display HH	Enable Alarm display HH. Default: False (Disable)
Alarm setpoint HH	Specify the setpoint for Alarm display HH. Default: 10000 Form of part changes according to the set Alarm figure HH as the displayed value becomes ≥ Alarm setpoint HH.
Alarm figure HH	Set the figure for Alarm display HH.
Alarm display H	Enable Alarm display H. Default: False (Disable)
Alarm setpoint H	Specify the setpoint for Alarm display H. Default: 9000 Form of part changes according to the set Alarm figure H as the displayed value becomes ≥ Alarm setpoint H..
Alarm figure H	Set the figure for Alarm display H.
Alarm display L	Enable Alarm display L. Default: False (Disable)
Alarm setpoint L	Specify the setpoint for Alarm display L. Default: -9000 Form of part changes according to the set Display format L.
Alarm figure L	Set the figure for Alarm display L. Form of part changes according to the set Alarm figure L as the displayed value becomes ≤ Alarm setpoint L.
Alarm display LL	Enable Alarm display LL. Default: False (Disable)
Alarm setpoint LL	Specify the setpoint for Alarm display LL. Default: -10000 Form of part changes according to the set Alarm figure LL as the displayed value becomes ≤ Alarm setpoint LL.
Alarm figure LL	Set the figure for Alarm display LL.

> **NOTE**
>
> - Alarm setpoints should be set so as to be HH>H>L>LL.
>   No error occurs even if the above condition is not met, however, an error message will appear when a build process is executed.
>
> - The priority of alarm display is HH>H, and LL>L (when Alarm setpoint H is higher than Alarm setpoint HH.

7.6 [TEXT LIST] PART

7.6.1 Appearance on the [Parts Box] window

The below figure shows a [Text List] part allocated on a Base Screen.

7.6.2 Function

[Text List] is a part for displaying a character string which is assigned to the part from the String Table, or displaying a different character string from the String Table according to Device data.
When the value of Device data is not on the String Table, nothing will be displayed.

The String Table is commonly used within one Project.
For details of the String Table, refer to 3.4 TOOL MENU > "3.4.9 String Table Settings" on page 44.

7.6.3 Parameter items

Shown below is the [Property] window of [Text List].

■ Layout

ITEM	DESCRIPTION

Size	Specify the size of the part.
	    Width: Max. size: 7680; Min. size: 0
	    Height: Max. size: 7680; Min. size: 0

Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
∗ Variable by the screen size. Max. 3840, 3840.

■ Common

ITEM	DESCRIPTION	
Monitor Address	Set the Monitor Address.	
Monitor Type	Select the Monitor Type.	
	Bit	The value of Device data is '0' or '1'.

	Word	When [StringTableEnable] is set as 'True': 0 to 255
		    Data is acquired from the String Table according to the value.
		When [StringTableEnable] is set as 'False': 0 to 15
		    Data of the character string assigned to the part is acquired.

Name	Enter an optional name for the [Text List] part using up to 16 characters.	

Figure	When [StringTableEnable] is 'True': Indicated as '(DisplayFormat)'.
	    Data is acquired from the String Table.
	
	When [StringTableEnable] is 'False': Indicated as 'StringDisp[] Array'
	    The [Disp Collection Editor] dialog is used. (See the Figure below.)	

StringTableEnable	Select between 'True' and 'False' to enable or disable the String Table. Default: True	
	True	The String Table is used.
	False	The Disp Collection Editor is used. (See the Figure on the next page.)

The figure below shows the [Disp Collection Editor] dialog.
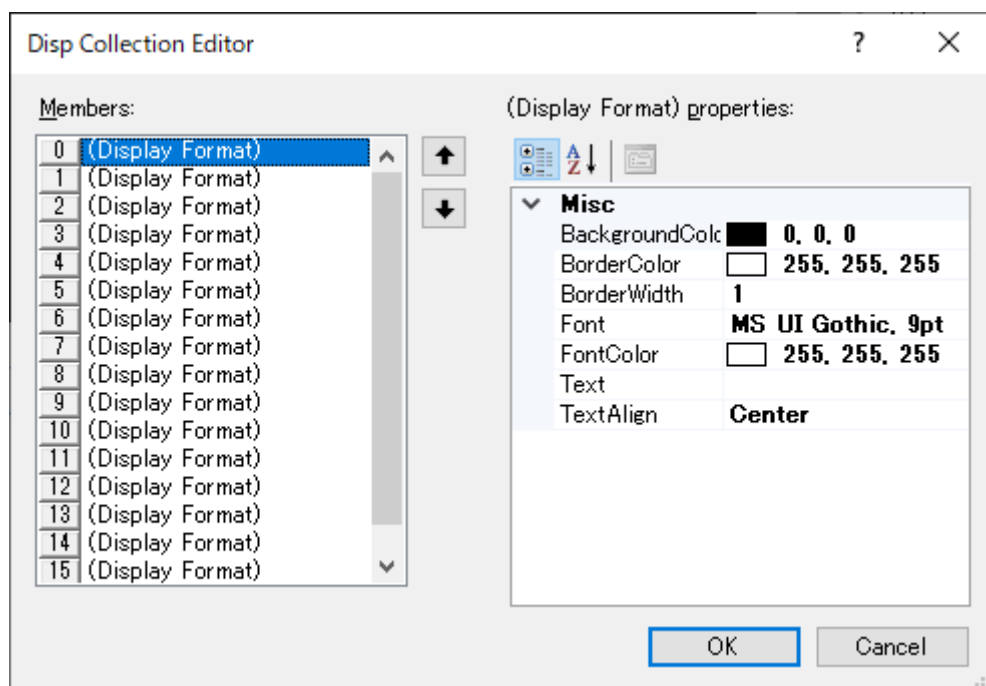
ITEM	DESCRIPTION
Members	When the Monitor Type is 'Bit': '0' or '1' can be registered. When the Monitor Type is 'Word': '0 to 15' can be registered.
BackgroundColor	Set the background color.
BorderColor	Set the border color.
BorderWidth	Set the border width. Setting range: 0 to 10
Font	Select the font.
FontColor	Set the font color.
Text	Define a text string using up to 256 characters.
TextAlign	Select the text align to: 'Left', 'Center', or 'Right'. Default: Center

7.7 GAUGE ([TANK], [METER], [BAR GAUGE]) PARTS

7.7.1 Appearance on the [Parts Box] window
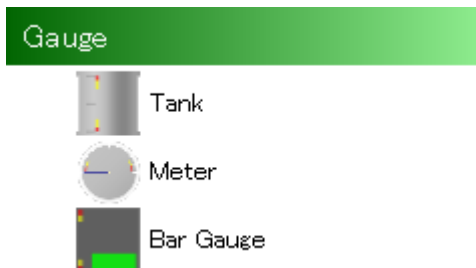
The below figure shows [Tank], [Meter], and [Bar Gauge] parts allocated on a Base Screen.
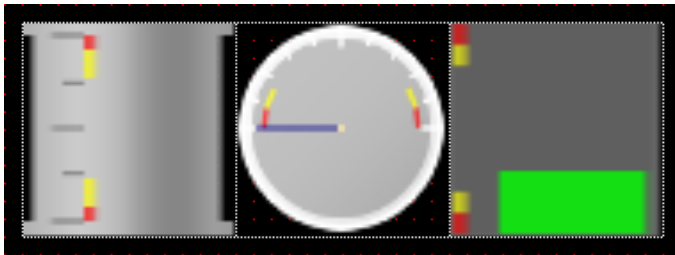
7.7.2 Function

[Gauge] is a part for visualizing and displaying analog data with a meter or a scale.

The indicator of [Gauge] can be changed to red or yellow when the value enters any of the alarm zones (HH, H, L, LL) which can be arbitrary set.

That is, the color of indicator can be changed according to whether the input value is Normal or has entered H/L or HH/LL alarm zone.
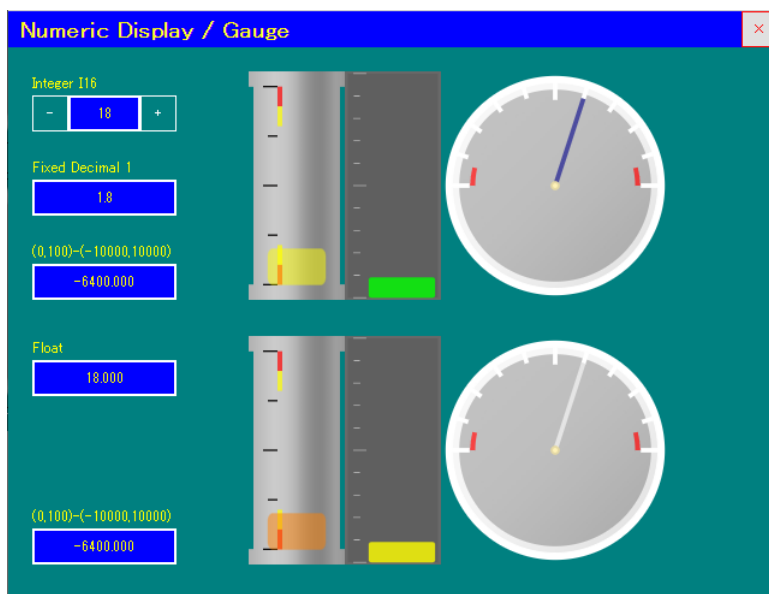
NOTE

• The indicator color is translucently displayed, and the specified color may appear differently when viewed on Web browser.

7.7.3 Parameter items

1) Click the [Gauge] part allocated on the Base Screen to display the [Property] window showing parameter items to configure.

2) Edit parameter values as necessary.
   The edited values are reflected on the corresponding items on each tab of the [Gauge] window.
   For details, refer to [Common] Tab and [Data] Tab in this section.

Property		
Common		
DataType	I16	
MonitorAddress	W/S0:GW0	
Name	GG0001	
Display		
IndicatorColor	■ 0, 0, 139	
Limit	Max:10000, Min:0, HH:Disabl	
H	Disable	
HH	Disable	
L	Disable	
LL	Disable	
Max	10000	
Min	0	
Layout		
Location	220, 200	
X	220	
Y	200	
Size	120, 120	
Width	120	
Height	120	

Common

■ **Layout**

ITEM	DESCRIPTION

Size	Specify the size of the part.
	   Width: Max. size: 7680; Min. size: 0
	   Height: Max. size: 7680; Min. size: 0

Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

3) Double-click the [Gauge] part on the Base Screen to display the [Gauge] window.
   Confirm that the [Gauge] window has [Common] tab and [Data] tab.

■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the [Gauge] part using up to 16 characters.

■ [Data] Tab

ITEM	DESCRIPTION
Data Type	Select the type of data to display.
Monitor Address	Set the Monitor Address. For details, refer to "12. DEVICE ADDRESS" on page 192.
Max	Set the upper limit of data.
Min	Set the lower limit of data.
HH	Check [HH] to enable input of HH setpoint value.
H	Check [H] to enable input of H setpoint value.
L	Check [L] to enable input of L setpoint value.
LL	Check [LL] to enable input of LL setpoint value.

Note:

• When viewed on Web browser, data exceeding HH or LL is indicated in red and data exceeding H or L is indicated in yellow.
  On RGP-Designer, only the image of the Gauge part is displayed without data indication.

• Setting range differs depending on the data type.
  For details, refer to "15.2.1 Data Type" on page 202.

7.8 SIMPLE GAUGE

7.8.1 Appearance on the [Parts Box] window

The below figure shows a [Simple Gauge] part allocated on a Base Screen.
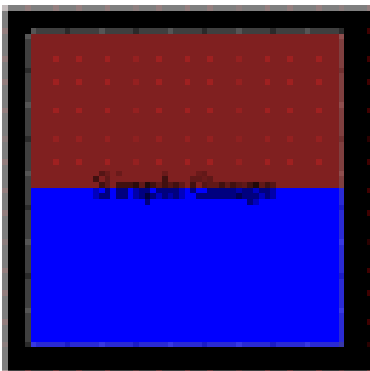
7.8.2 Function

[Simple gauge] is a part for visualizing and displaying analog data with a meter or a scale in the same manner as [Tank], [Meter], and [Bar Gauge] parts. ➔ "7.7 GAUGE ([TANK], [METER], [BAR GAUGE]) PARTS" on page 132

Unlike those parts, [Simple gauge] does not have a background image and can be represented by any form by combining with a [Picture] part, for example.
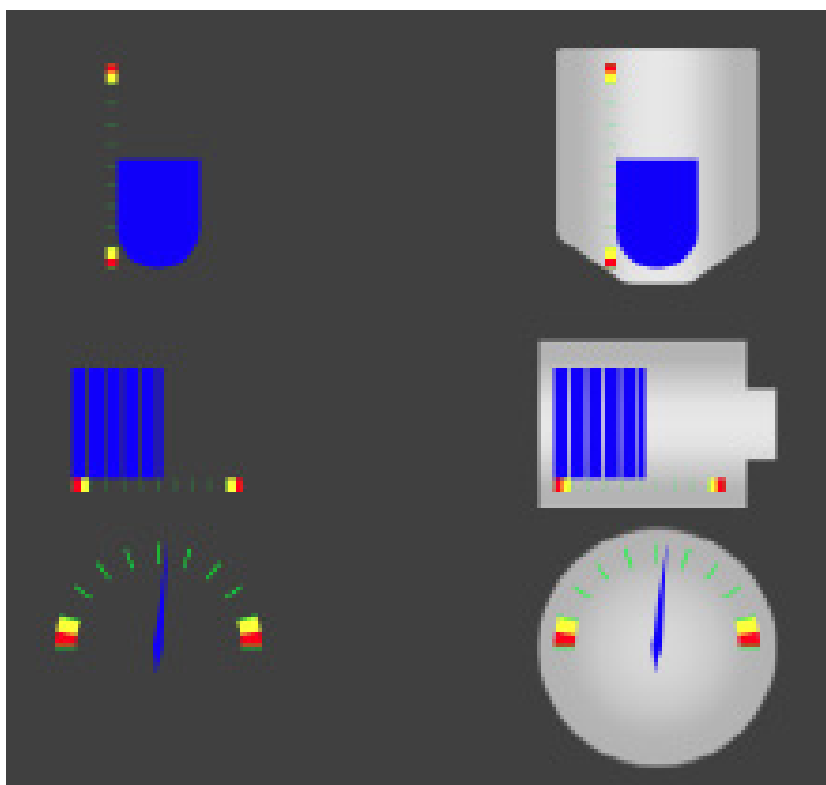
7.8.3 Parameter items

1) Click the [Simple gauge] part allocated on the Base Screen to display the [Property] window showing parameter items to configure.

2) Edit parameter values as necessary.
   The edited values are reflected on the corresponding items on each tab of the [Simple gauge] window.
   For details, refer to [Common] Tab and [Display] Tab in this section.

RGP DES Property	— ☐ ✕
⊞ ᴬᴢ↓ 🖼	
∨ Common	
Name	SG0001
Datatype	I16
MonitorAddress	W/S0:GW0
GaugeType	Meter
∨ Display	
∨ Limit	Max:10000, Min:−10000, HH
Max	10000
Min	−10000
EnableHH	True
HH	9000
EnableH	True
H	8000
EnableL	True
L	−8000
EnableLL	True
LL	−9000
∨ Gauge Indicator	
IndicatorColor	■ 0, 0, 255
StartAngle	270
Delta	210
IndicatorType	B
∨ Gauge Scale	
ShowScale	False
ScalePitch	I10
ScaleColor	☐ 128, 128, 255, 255
LH_Color	☐ 255, 255, 0
LLHH_Color	■ 255, 0, 0
∨ Layout	
› Location	800, 420
› Size	120, 120
Name	
Gets or sets the object name.	

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. 　Width: Max. size: 7680; Min. size: 0 　Height: Max. size: 7680; Min. size: 0
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).

* Variable by the screen size. Max. 3840, 3840.

■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the [Simple gauge] part using up to 16 characters.
Datatype	Select the Data type to display.
MonitorAddress	Specify Device address as a source of Simple gauge. For details, refer to "12. DEVICE ADDRESS" on page 192.
GaugeType	Select Gauge type from the following. • Vertical : Vertical gauge • Horizontal: Horizontal gauge • Meter : Meter gauge

■ Display

ITEM	DESCRIPTION
Limit	Set the upper limit, lower limit, and alarm setpoints for data assigned to [Simple gauge] part. These parameters can be configured only on [Display] tab of the [SimpleGauge] window.
Max	Set the upper limit of data.
Min	Set the lower limit of data.
EnableHH	Enable Alarm display HH.
Alarm setpoint HH	Specify the setpoint for Alarm display HH.
EnableH	Enable Alarm display H.
Alarm setpoint H	Specify the setpoint for Alarm display H.
EnableL	Enable Alarm display L.
Alarm setpoint L	Specify the setpoint for Alarm display L.
EnableLL	Enable Alarm display LL.
Alarm setpoint LL	Specify the setpoint for Alarm display LL.

Note:

• Be sure to enable [ShowScale], or alarms will not be displayed even when they are enabled.

• When data falls within each set point, the color of Gauge indicator changes according to [HL_LimitColor] and [HHLL_LimitColor] settings under [Gauge Indicator] on the Property window.

• Setting range of each setpoint differs according to Data type.
  For details, refer to "15.2.1 Data Type" on page 202.

Example of alarm display

Alarm display HH
Alarm display H
Alarm display L
Alarm display LL
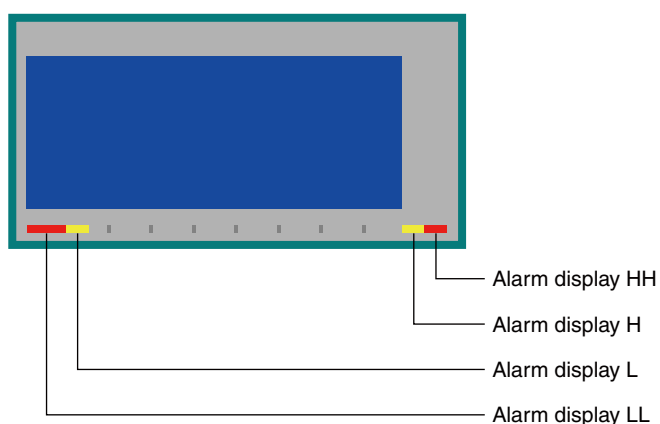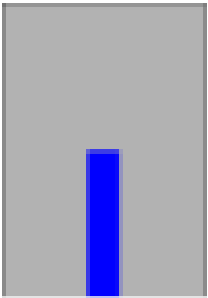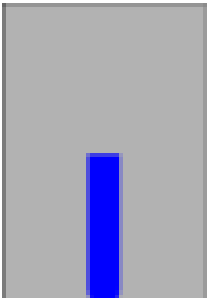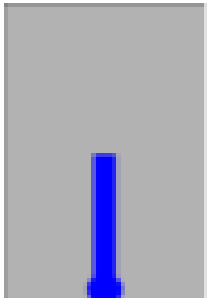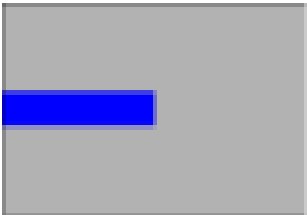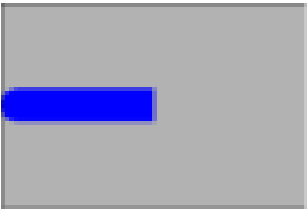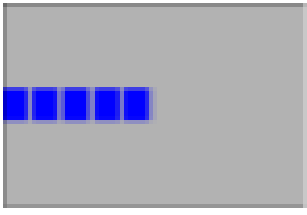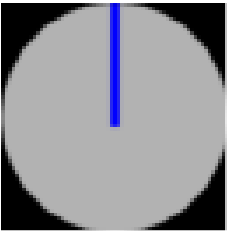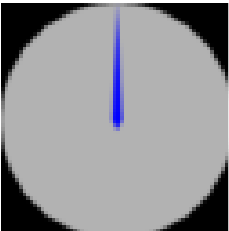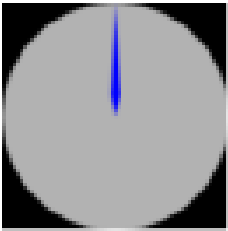
■ Gauge scale

ITEM	DESCRIPTION
ScalePitch	Select the scale intervals from the followings. None : No scale is shown. I10 : Scale between Max and Min is divided into 10% intervals. I25 : Scale between Max and Min is divided into 25% intervals. I50 : Scale between Max and Min is divided into 50% intervals.
ShowScale	Specify whether to show the scale and alarms.
ScaleColor	Set the color of scale.
LH_Color	Set the color for H and L.
LLHH_Color	Set the color for HH and LL.

■ Gauge Indicator

ITEM	DESCRIPTION
IndicatorColor	Set the color of Gauge Indicator.
StartAngle	Set the starting angle (angle at Min) of indicator of Meter in the range of 0 to 360°. * The angle starts at the 12 o'clock position and increases in clockwise direction. * This parameter is available only when the gauge type is Meter.
Delta	Set the angle between the starting angle and final angle (angle at Max) of indicator of Meter in the range of 90 to 360°. * This parameter is available only when the gauge type is Meter.
IndicatorType	Select the form of indicator referring to the table below.

• Forms of Indicator

Gauge Type	Indicator Type		
	A	B	C
Vertical			
Horizontal			
Meter			

7.8.4 Setting Window

1) Double-click the [Simple gauge] part allocated on the Base Screen to display the [Simple Gauge] window with [Common] Tab and [Display] Tab.

2) Edit parameter values as necessary.
   The parameters on this window are the same as those on the [Property] window.
   For details, refer to "7.8.3 Parameter items" on page 137.

■ **[Common] Tab**

CATEGORY	ITEM	PARAMETER NAME	REMARK
COMMON	Name	Name	Configurable on [Property] window and [Simple Gauge] window
	Gauge Type	Gauge Type	
DISPLAY	Data Type	Data Type	
	Monitor Address Button	Monitor Address	
	Upper limit	Max	Configurable only on [Simple Gauge] window
	Lower limit	Min	
	HH check box	EnableHH	
	HH setpoint	HH setpoint	
	H check box	EnableH	
	H setpoint	H setpoint	
	L check box	EnableL	
	L setpoint	L setpoint	
	LL check box	EnableLL	
	LL setpoint	LL setpoint	

■ [Display] Tab

CATEGORY	ITEM	PARAMETER NAME	REMARK
Gauge Scale	Scale Pitch	Interval	
	LL&HH Color Button	LLHH_Color	
	L&H Color Button	LH_Color	
	Scale Line Color Button	Scale line color	
	Show Scale check box	ShowScale	
Gauge Indicator	Gauge form	Type	
	Starting angle	Start ∠	
	Delta	Delta	
	Indicator Color Button	Indicator color	
Preview	Simple gauge preview	Preview	Confirm the appearance of Simple gauge.

7.9 QR CODE

7.9.1 Appearance on the [Parts Box] window

Data Display

QR Code

The below figure shows a [QR Code] part allocated on a Base Screen.

QR Code

7.9.2 Function

[QR Code] is a part which encodes a character string from the String Table (commonly used within one Project) or a character string assigned to each part, which corresponds to the value of the set Monitor Address, and represents the encoded character string as a QR code.

For details of how to use String Table, refer to "3.4.9 String Table Settings" on page 44.

Sample of QR code

7.9.3 Parameter items

Click the [QR Code] part allocated on the Base Screen to display the [Property] window showing parameter items to configure.

Property		
Common		
Name	QC0001	
InputMode	Text	
Text	https://www.m-syste	
Display		
BackgroundColor	255, 255, 255	
ForegroundColor	0, 0, 0	
Layout		
Location	440, 100	
Size	120, 120	

Text
Gets or sets the Text.

■ Layout

ITEM	DESCRIPTION
Size	Specify the size of the part. 　Width: Max. size: 7680;　Min. size: 0 　Height: Max. size: 7680;　Min. size: 0 * When the specified size is a rectangle, QR Code will be displayed as a square at the center of the part.
Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

7.9.4 NOTE

- RGP-Designer supports QR Code Model 2.
  We assume that created codes can be read by general two-dimensional barcode readers in e.g. smartphones but we do not guarantee that they can be read by any barcode reader.
- Be reminded the the character string is held in utf-8 for [QR Code] part.

■ **[Common] Tab**

ITEM	DESCRIPTION
Name	Enter an optional name for the [QR Code] part using up to 16 characters.
Input Mode	Select data type of the QR code source. Text : Enter the source of character string for the QR code in the [Text] field. Number : Specify the source of character string for the QR code from the String Table. Enter a value that corresponds to the Number of String Table in the [Number] field. Address : Specify the source of character string for the QR code from the String Table. Enter a Device address which represents the Number of String Table in the [MonitorAddress] field.
Text	Specify a character string using up to 255 characters for the QR code source.
Number	Specify Number of String Table.
MonitorAddress	Specify Monitor address.
BackgroundColor *	Set the color of the background cell of QR code.
ForegroundColor *	Set the color of the foreground cell of QR code.

* When [Input Mode] is set to Address, settings of [BackgroundColor] and [ForegroundColor] are ignored and they are displayed in black and white, respectively.

* In [Input Mode], the models where Address can be selected are RGP30-N2, RGP30-W and RGP6-N2.

* QR code may not be recognized correctly when the density of [BackgroundColor] and that of [ForegroundColor] are close to each other.

7.10 SHAPE ([RECTANGLE], [CIRCLE], [LINE], [LABEL], [PICTURE]) PARTS

7.10.1 Appearance on the [Parts Box] window
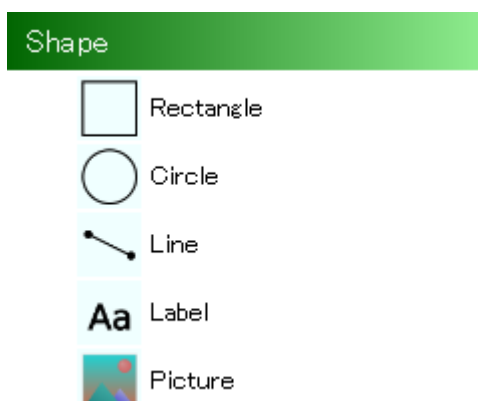
The below figure shows [Rectangle], [Circle], [Line], and [Label] parts allocated on a Base Screen.
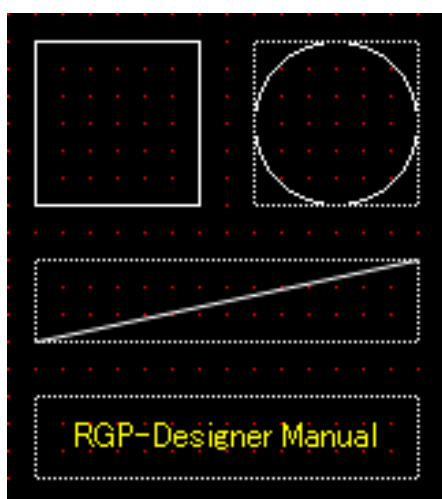
The below figure shows a picture frame and a picture when allocated in the picture frame on the Base Screen.
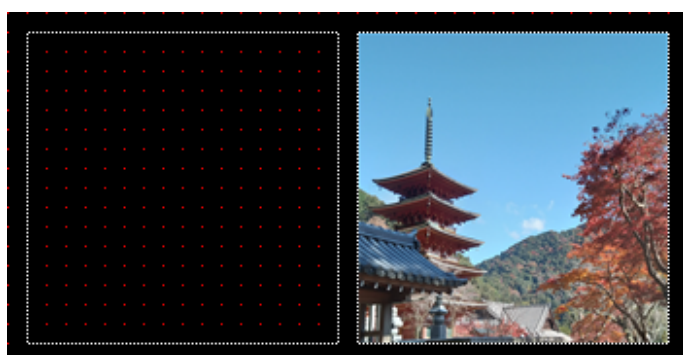
7.10.2 Function

Shape ([Rectangle], [Circle], [Line], [Label], [Picture]) parts are to be allocated on Base Screen, Sub Screen, Dialog Screen, or Popup Screen.

Various Figures and symbols can be created using the Shape parts in combination, enabling functional screen display.

7.10.3 Parameter items

Click the Shape part allocated on the Screen to display the [Property] window showing parameter items to configure.
The below figure shows the parameter items of a [Line] part.

∨ Common	
Name	SP0001
∨ Layout	
› Location	20, 20
› Size	60, 60
∨ Misc	
FillColor	☐ 0, 255, 255, 255
LineColor	☐ 255, 255, 255
LineWidth	1

Items under [Common] and [Layout] are common to all Shape parts, and items under [Misc] vary depending on the type of Shape part.

■ Layout

ITEM	DESCRIPTION

Size	Specify the size of the part.
	    Width: Max. size: 7680; Min. size: 0
	    Height: Max. size: 7680; Min. size: 0

Location	Specify the position from the range (0,0) to (3840,-3840) X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the Shape part using up to 16 characters.

■ Misc: Rectangle

Common	
Name	SP0001
Layout	
Location	20, 20
Size	60, 60
Misc	
FillColor	☐ 0, 255, 255, 255
LineColor	☐ 255, 255, 255
LineWidth	1

ITEM	DESCRIPTION	REMARK
FillColor	Set the color to fill the part. [Select Color] dialog appears.	The dialog may look different depending on OS.
LineColor	Set the color of the outline of the part. [Select Color] dialog appears.	The dialog may look different depending on OS.
LineWidth	Set the width of the outline. Setting range: 0 to 10 pixels	–

■ Misc: Circle

Common	
Name	SP0002
Layout	
Location	100, 20
Size	60, 60
Misc	
CenterCoordinates	130, 50
FillColor	☐ 0, 255, 255, 255
HorizontalRadius	30
LineColor	☐ 255, 255, 255
LineWidth	1
VerticalRadius	30

ITEM	DESCRIPTION	REMARK
CenterCoordinates	Set the center coordinates of the part.	–
FillColor	Set the color to fill the part. [Select Color] dialog appears.	The dialog may look different depending on OS.
HorizontalRadius	Set the horizontal radius of the part.	–
LineColor	Set the color of the outline of the part. [Select Color] dialog appears.	The dialog may look different depending on OS.
LineWidth	Set the width of the outline. Setting range: 0 to 10 pixels	–
VerticalRadius	Set the vertical radius of the part.	–

■ Misc: Line

Common	
Name	SP0003
Layout	
Location	20, 100
Size	140, 30
Misc	
LineColor	☐ 255, 255, 255
LineWidth	1

ITEM	DESCRIPTION	REMARK
LineColor	Set the color of the outline of the part. [Select Color] dialog appears.	The dialog may look different depending on OS.
LineWidth	Set the width of the outline. Setting range: 0 to 10 pixels	–

■ Misc: Label

Common	
Name	SP0004
Display	
BackgroundColor	☐ 0, 255, 255, 255
BorderColor	☐ 0, 255, 255, 255
BorderWidth	1
Font	MS UI Gothic, 9pt
FontColor	☐ 255, 255, 0
PictureText	False
Text	RGP-Designer Manual
TextAlign	Center
Layout	
Location	20, 150
Size	140, 30

ITEM	DESCRIPTION	REMARK
BackgroundColor	Set the background color. [Select Color] dialog appears.	The dialog may look different depending on OS.
BorderColor	Set the border color. [Select Color] dialog appears.	The dialog may look different depending on OS.
BorderWidth	Set the border width. Setting range: 0 to 10 pixels	–
Font	Select the font. [Select Font] dialog appears.	The dialog may look different depending on OS.
FontColor	Set the font color. [Select Color] dialog appears.	Set the border color. [Select Color] dialog appears.
PictureText	Select 'True' to display a caption as an image of [Text] and [Font]. True: display as an image False: display as a text	This setting is ignored when using Internet Explorer 11.
Text	Define a text string using up to 80 characters.	–
TextAlign	Select the text align to: 'Left', 'Center', or 'Right'.	–

■ **Misc: Picture**

ITEM	DESCRIPTION	REMARK
BackgroundColor	Set the background color. [Select Color] dialog appears.	The dialog may look different depending on OS.
BackgroundImage	Set an image. [Select Image] dialog appears.	The dialog may look different depending on OS.
BorderColor	Set the border color. [Select Color] dialog appears.	The dialog may look different depending on OS.
BorderWidth	Set the border width. Setting range: 0 to 10 pixels	–

EnablePictureTable	Specify the source of [BackgroundImage].
	  False: Image set as [BackgroundImage] is used.
	  True: Image of Number in Picture Table that corresponds to the value of [MonitorAddress] is used.	

MonitorAddress	Specify the Monitor Address.	

7.11 CONTAINER ([SUB SCREEN FRAME], [DIALOG FRAME]) PARTS

7.11.1 Appearance on the [Parts Box] window
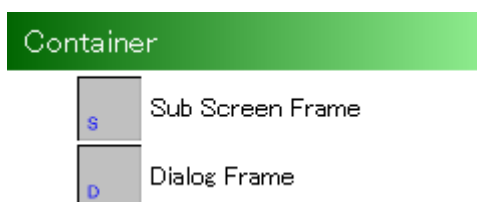
The below figure shows a [Container] part allocated on a Base Screen.
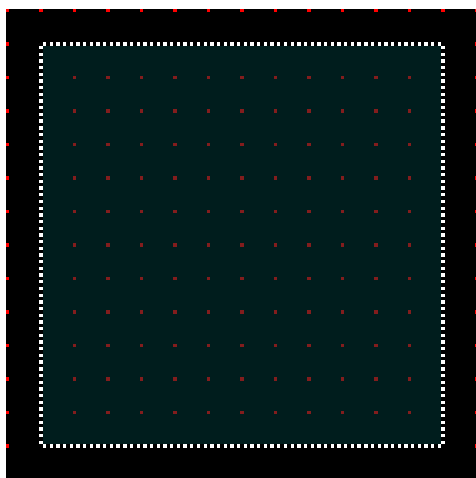
7.11.2 Function

[Sub Screen Frame] and [Dialog Frame] are parts used for specifying the location and size of another Screen when displaying the Screen on the Base Screen.

7.11.3 Parameter items

1) Click the [Sub Screen Frame] part or [Dialog Frame] part allocated on the Base Screen to display the [Property] window showing parameter items to configure.

2) Edit the parameter values as necessary, to change the size of the Frame part or define the location to display on the Base Screen.

Property	📌 ✕
Behavior	
DisplayScreen	0001: SUB1
FrameDisplayMethod	Switch
InitialFrameTransition	Screen No
Common	
FrameType	WindowScreenFrame
Name	IF0001
Layout	
Location	170, 60
X	170
Y	60
Scale	1.0
Size	120, 120
Width	120
Height	120

Behavior

■ **Layout**

ITEM	DESCRIPTION
Location	Specify the position from the range (0,0) to (3840,-3840). X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.
Scale	Specify the display scale (ratio) of contents within the frame. Setting range: 0.5 to 1.0 in 0.1 increments

Size	Specify the size of the part.
	     Width: Max. size: 7680; Min. size: 0
	     Height: Max. size: 7680; Min. size: 0

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.

■ [Common] Tab

ITEM	DESCRIPTION
FrameType	The type of frame is indicated.
Name	Enter an optional name for the Container part using up to 255 characters.

■ Behavior

Parameter items differ depending on whether [InitialFrameTransition] is set as 'Screen No' or 'URL'.

1) When [InitialFrameTransition] is set as 'Screen No'

ITEM	DESCRIPTION
DisplayScreen	Specify which Sub Screen or Dialog Screen to display.
FrameDisplayMethod	Fixed to 'Switch'.

2) When [InitialFrameTransition] is set as 'URL'

ITEM	DESCRIPTION
URL	Enter the URL of the contents to display.
FrameDisplayMethod	Fixed to 'Switch'.

NOTE

- When [InitialFrameTransition] is set to 'Screen No' and a Sub Screen is specified as [DisplayScreen], the specified Sub Screen is displayed from the start when the Base Screen is displayed on Web browser.
- When [InitialFrameTransition] is set to 'URL' and the 'URL' field is left blank, the space for Sub Screen is blank when the Base Screen is first displayed on Web browser.

7.12 IP CAMERA DISPLAY FRAME

7.12.1 Appearance on the [Parts Box] window

The below figure shows an [IP Camera Display Frame] part allocated on a Base Screen.

Up to 3 [IP Camera Display Frame] parts can be allocated on one Screen.
[IP Camera Display Frame] part cannot be displayed on Internet Explorer.
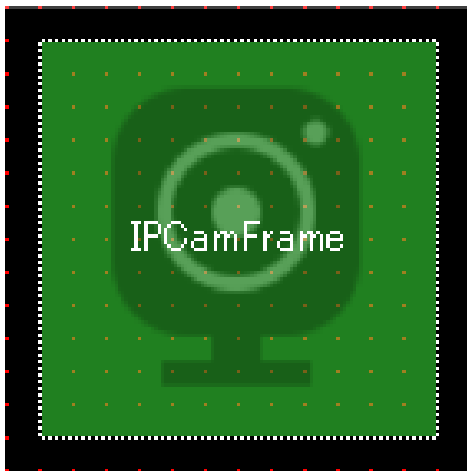
7.12.2 Function

[IP Camera Display Frame] is a part for displaying live video from an IP camera on the Base Screen.
Note that the IP camera must be able to obtain Jpeg images via HTTP(S) protocol.

7.12.3 Parameter items

Click the [IP Camera Display Frame] part allocated on the Base Screen to display the [Property] window showing parameter items to configure for obtaining live video.

■ Layout

ITEM	DESCRIPTION
Location	Specify the position from the range (0,0) to (3840,-3840). X: X coordinate of the left end of the part. Y: Y coordinate of the top end of the part.

Size	Specify the size of the part.
	
	   Width: Max. size: 7680; Min. size: 0
	   Height: Max. size: 7680; Min. size: 0

Note: Values protruding from the screen size can also set as Size and Location, but the protruded part may be not displayed at executing (browser-dependent).
* Variable by the screen size. Max. 3840, 3840.
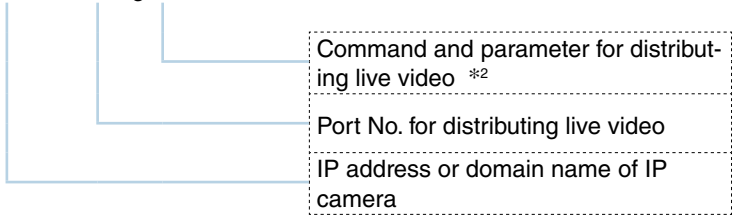
■ [Common] Tab

ITEM	DESCRIPTION
Name	Enter an optional name for the [IP Camera Display Frame] part using up to 255 characters.

■ Camera

Configure parameters such as the format and Protocol for distributing the video.

ITEM	DESCRIPTION
LiveMode *1	Select the video format. JPEG : Live video is obtained as JEG images. STREAM : Live video is obtained as an H.264 stream

LiveProtocol *2	Select the Protocol for distributing video from IP camera.
	
	NONE : Protocol Not specified.
	           No live video is displayed.
	
	HTTP : Live video is obtained via HTTP.
	        * Enabled when [LiveMode] is set as JPEG.
	
	HTTPS : Live video is obtained via HTTPS.
	        * Enabled when [LiveMode] is set as STREAM.
	
	RTSP+WS : Live video is obtained over RTSP over Websocket.
	        * Enabled when [LiveMode] is set as STREAM.
	
	RTSP+WSS : Live video is obtained over RTSP over Websocket Secure.
	        * Enabled when [LiveMode] is set as STREAM.

LivePath *2	Specify URI for distributing the live video from IP camera. 192.168.13.74:80/cgi-bin/camera?resolution=1280 Command and parameter for distributing live video *2 Port No. for distributing live video IP address or domain name of IP camera
SendIntervalTime	Set the interval for obtaining live video in mseconds. Setting range: 67 to 60000 * Enabled when [LiveMode] is set as JPEG.

*1 [STREAM] option is available for AXIS® IP cameras only.

*2 Refer to the instruction manual of your IP camera for details.

If the camera conforms to ONVIF (Open Network Video Interface Forum), these parameters can be automatically set with [Query by HTTP] button. ➜"7.12.5 Camera Parameter Auto-Setting" on page 157

■ Communication

Click the [IP Camera Display Frame] part allocated on the Base Screen to display the [IPCameraFrame] window. ➜"7.12.4 IP Camera Display Frame Setting Window" on page 156

[Communication] settings are required for obtaining parameters from IP camera.

ITEM	DESCRIPTION
Host	Enter IP address or domain name of IP camera.
Port	Specify Port No. to be used for [Query by HTTP].

7.12.4 IP Camera Display Frame Setting Window

Double-click the [IP Camera Display Frame] part allocated on the Base Screen to display the [IPCameraFrame] window.

The parameters on this window respectively correspond to those on the [Property] window.

For details, refer to "7.12.3 Parameter items" on page 154.

CATEGORY	ITEM	PARAMETER NAME	REMARK
Common	Name	Name	
Communication	Host	Host	
	Port	Port	
Camera	Live mode	Live Type	
	Live protocol	Protocol	Auto-setting available.
	Live video path	Live Path	Auto-setting available.
	Port	Port	Auto-setting available. When Port No. for distributing live video is set to "-1", the value is specified based on the Live protocol. HTTP RTSP+WS : 80 HTTPS RTSP+WSS : 443
	Update interval	Interval	
	[Query by HTTP] button	[Query by HTTP]	Click the button to send a query for camera parameters via HTTP. Clicking the button with pressing down [Ctrl] key sends the query via HTTPS.

7.12.5 Camera Parameter Auto-Setting

If the IP camera supports ONVIF (Open Network Video Interface Forum), camera parameters can be automatically acquired by clicking [Query by HTTP] button on the [IPCameraFrame] window.

The procedure of auto-setting is as described below.

■ Preparation
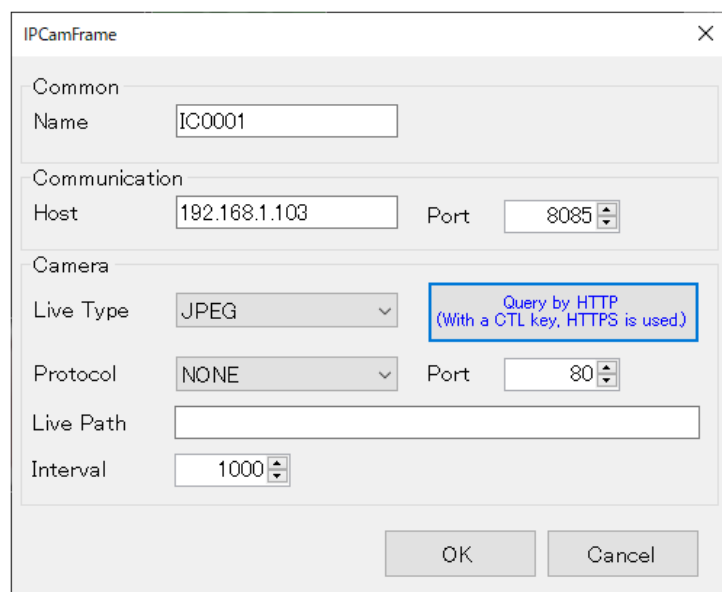
1) In prior to auto-setting, set the video profile (video settings such as resolution, encoding method, bit rate, etc.) for ONVIF using a setting tool of the IP camera.

2) Connect the PC on which RGP-Designer is running and the IP camera via Ethernet (or Wi-Fi) so as to communicate with each other.

Note)
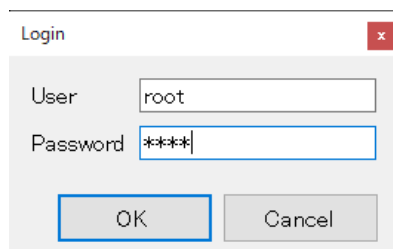
• Consult the IP camera manufacturer for how to set the video profile for ONVIF.

• Most of ONVIF-compliant IP cameras have a pre-defined video profile.
  Configure or change the settings only if necessary.

■ Procedure

1) Double-click the [IP Camera Display Frame] part allocated on the Base Screen to display the [IPCameraFrame] window.

2) Enter the IP address or domain name in the [Host] field, specify the Port No., and select Live type.
   Set "-1" if the Com Port No. is unknown.

3) Click [Query by HTTP] to start query.
   If the IP camera supports HTTPS only, click [Query by HTTP] with pressing down [Ctrl] key to send query via HTTPS.

4) As the login dialog appears, enter user name and password and click [OK].

5) Wait until the [Profiles] dialog showing a list of profiles appears.
   Select a profile from the list and click [OK].
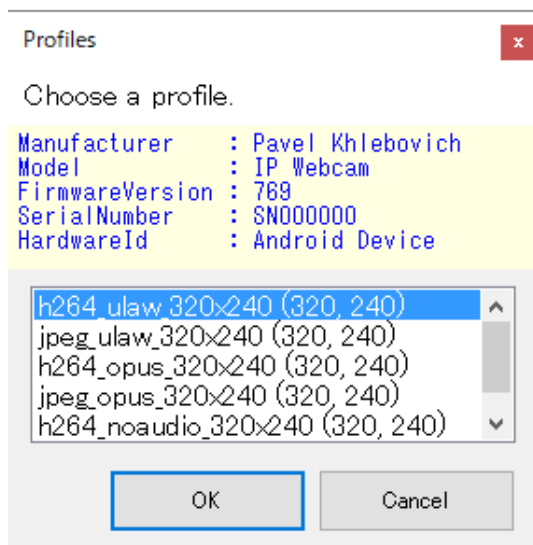
6) Confirm that the [IPCameraFrame] window shows the camera parameters, and click [OK].
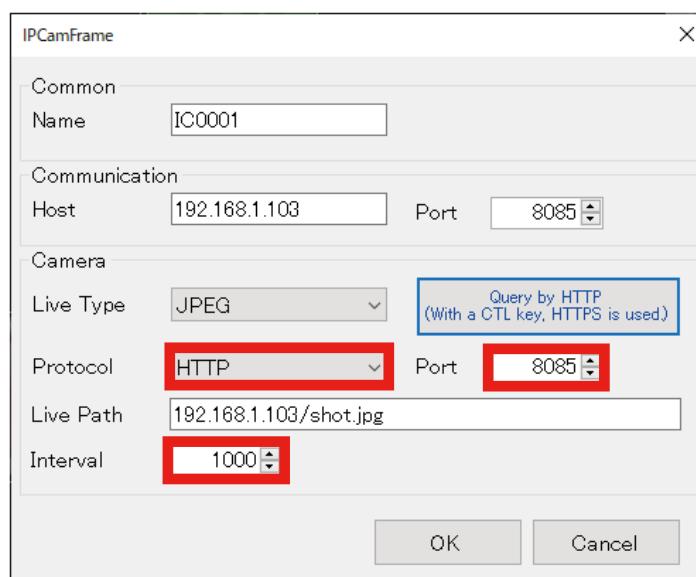
■ Query error

When a query error occurs, troubleshoot referring to the table below.

Error content	Troubleshooting
"Failed to connect with remote server"	IP camera is powered-off. Not connected with the network. [Host] and/or [Port] settings are wrong.
"Request failed with HTTP status 400"	IP camera does not support ONVIF.
"Request failed with HTTP status 401: Unauthorized"	User name and/or password are wrong.
"The underlying connection was closed: An unexpected error occurred on a send"	IP camera closed the connection. Protocol may be wrong (try starting query with pressing down [Ctrl] key.
"Request failed with HTTP status 50: Service unavailable" "Remote server returns error 503 Server Unavailable"	IP camera does not support ONVIF. IP camera is currently unavailable for receiving query. There may be problem with settings of router, proxy, or firewall.
No profile is shown on the [Profiles] dialog	No profile for ONVIF is set on IP camera.

7.12.6 IP Camera Display Frame Operation

[IP Camera Display Frame] part displayed on Web browser can be operated as described below.
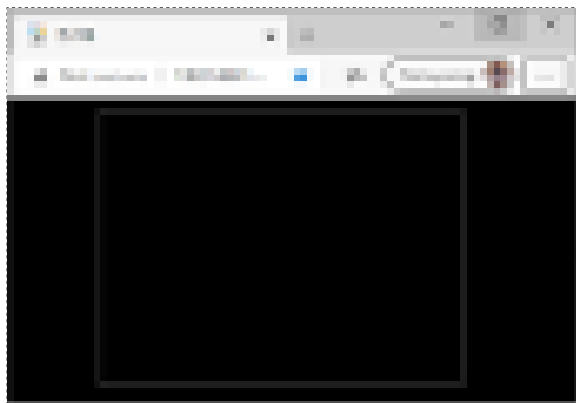
[IP Camera Display Frame] does not auto play.
When the page on which the [IP Camera Display Frame] part is allocated is opened, only the frame is displayed as in the left figure.
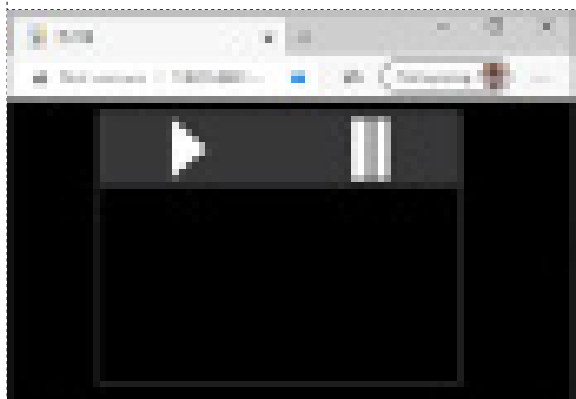
Click inside the frame to display Play ▶ and Pause ❚❚ buttons.
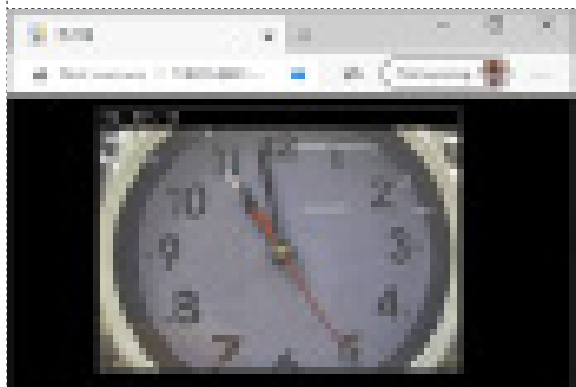
Click ▶ button to play live video. *

Click inside the frame to display Play ▶ and Pause ❚❚ buttons again.

Click ❚❚ button to pause the video.

* If authentication of IP camera is enabled, the browser will request user name and password.

7.12.7 Cautions and Limitations

There are cautions and limitations to using [IP Camera Display Frame] as follows.

• Live video cannot be displayed on Internet Explorer.

• Live video which requires authentication cannot be displayed on iOS.

• [STREAM] option for Live Mode is available for AXIS® IP cameras only.

• When [STREAM] option is selected for Live Mode, video data is cached by each of IP camera and browser, which can cause video delay. What is more, video flickers about once every ten minutes.

• When [JPEG] option is selected for Live Mode, a great amount of network bandwidth will be consumed. Set [SendIntervalTime] adequately longer, or set the resolution to a lower resolution on IP camera setting, if necessary.

8. SWITCH ACTION

8.1 OVERVIEW

RGP-Designer has a feature called switch actions.

Switch action is a function of automatically changing data in the internal memory, etc. in accordance with an operation such as a mouse click performed on a part allocated on a Screen.

Switch actions include: 'BitOperation', 'WordOperation', 'ChangeBaseScreen', 'ChangeSubScreen', 'Displayedialog', and 'CallCGI'.

For some parts, two or more switch actions can be executed with a single operation.

The table below shows switch actions to be executed by the respective parts.

PART NAME	SWITCH ACTION	NO. OF ACTIONS

Lamp/Switch	• Bit Operation
	• Word Operation
	• Change Base Screen
	• Change Sub Screen
	• Display Dialog
	• Call CGI
		Max. 8 actions with exceptions below:
		  Max. 1 Change Base Screen
		  Max. 3 Change Sub Screen
		  Max. 1 Display Dialog

Change Base Screen	• Change Base Screen	1 (fixed)
Change Sub Screen	• Change Sub Screen	3 (fixed)
Display Dialog	• Display Dialog	1 (fixed)

8.2 REGISTER SWITCH ACTIONS

1) In order to register (set/edit) switch actions, double-click the Lamp or Switch allocated on Base Screen to display the [Lamp/Switch] window, and click the [Switch] tab.

> **NOTE**
>
> • When setting switch actions, make sure that the target part is allocated on the Base Screen, [Enable Switch] is checked on the [Common] tab, and the [Switch] tab is displayed on the [Lamp/Switch] window.
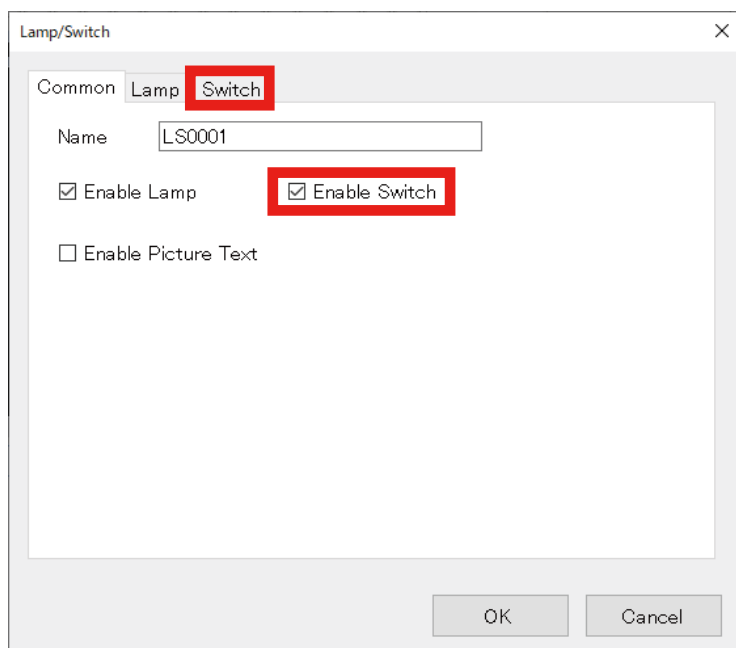
2) The below figure shows the initial state of the [Lamp/Switch] window.
    Confirm that 'Bit Operation' is registered.
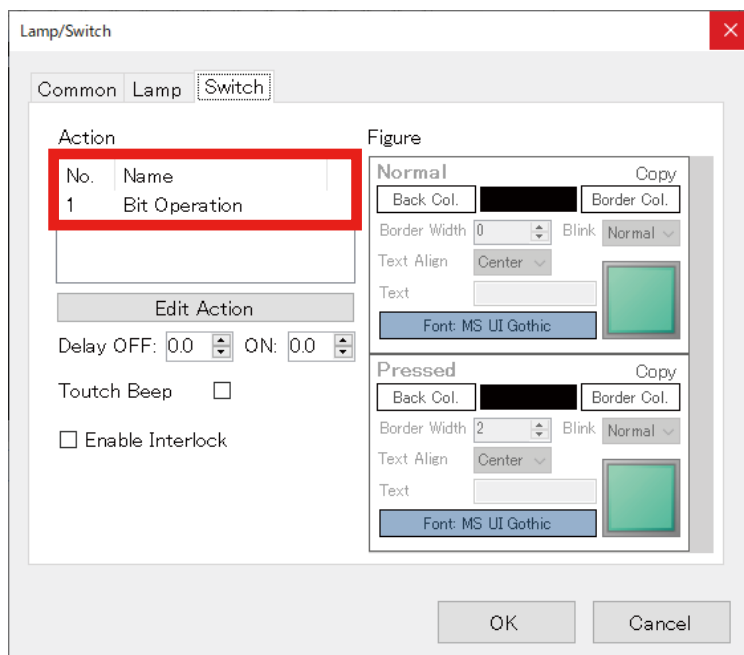
3) Click the [Edit Action] button on the [Lamp/Switch] window to display the [Switch Action] setting window.
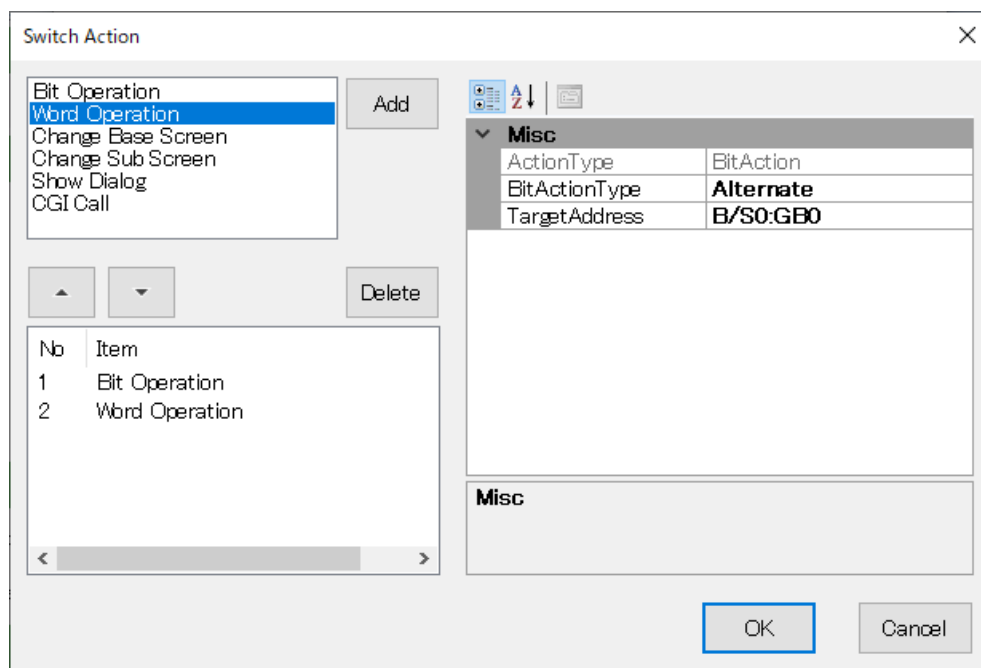
As an example of switch action registration,

4) Select 'Word Operation'.

5) Click [Add] button.

6) Confirm that 'Word Operation' is added to the Item list.
    For details of settings of 'Word operation', refer to "8.4 WORD OPERATION" on page 166.
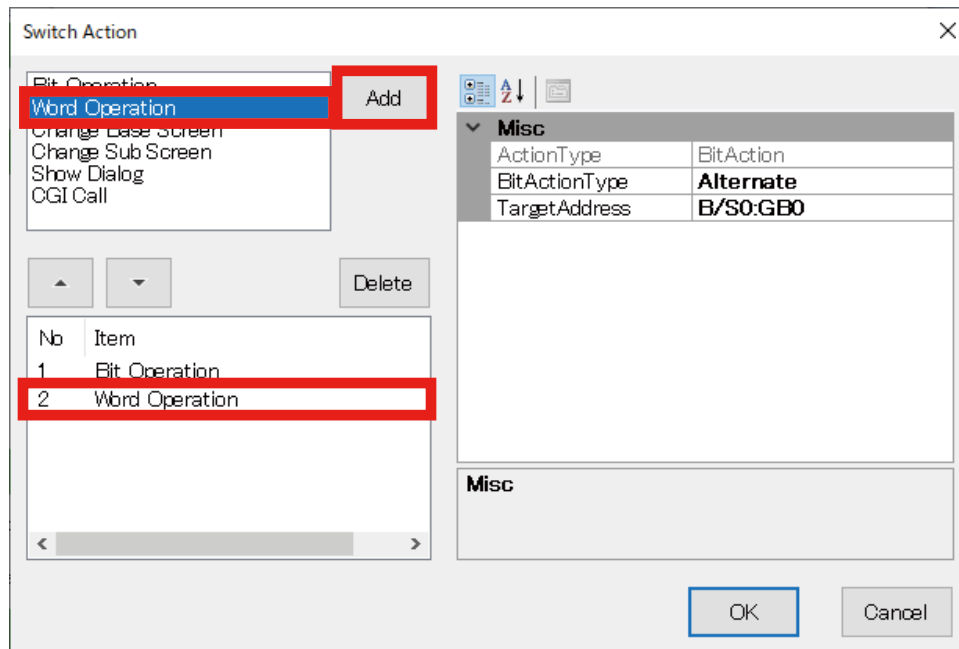
8.3 BIT OPERATION

'Bit Operation' is an operation of causing the target [Lamp] or [Switch] part to turn ON/OFF, to invert, etc. when the part is clicked.

The operation target is 1 bit of the RGP internal memory or 1 bit in address of a registered slave device.

Specify the location of the target bit and the expected operation when registering a 'Bit Operation'.

In order to register a 'Bit Operation',

1) Select 'Bit Operation' on the [Switch Action] setting window.

2) Click [Add] button and confirm that 'Word Operation' is added to the Item list.
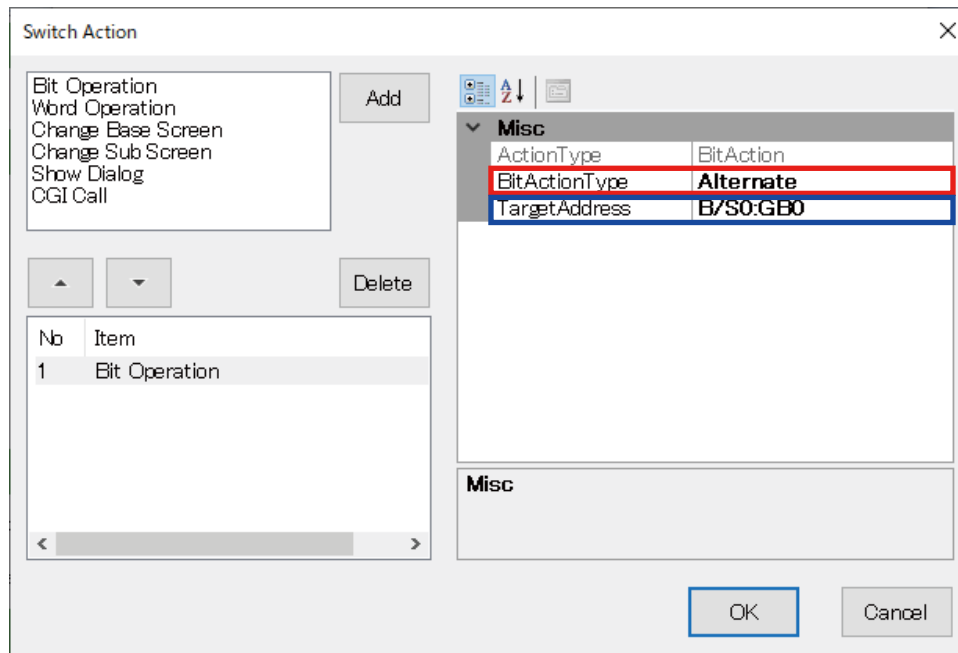
8.3.1 Target Address setting

1) Click to select [TargetAddress] and click ⌊…⌋ at the right end of the row to display the [Device Address] dialog.
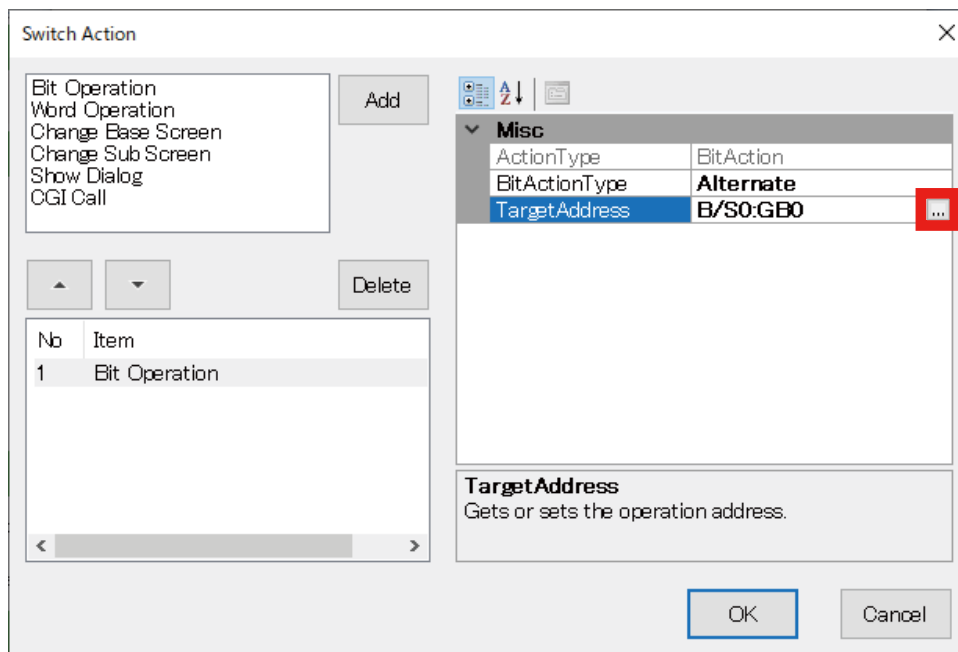
2) Check [Address].

3) Select the Slave No. to connect from the drop-down list.

4) Select the Device Name from the drop-down list.

5) Specify the Address.

6) Select the Bit position No.

7) Click [OK].
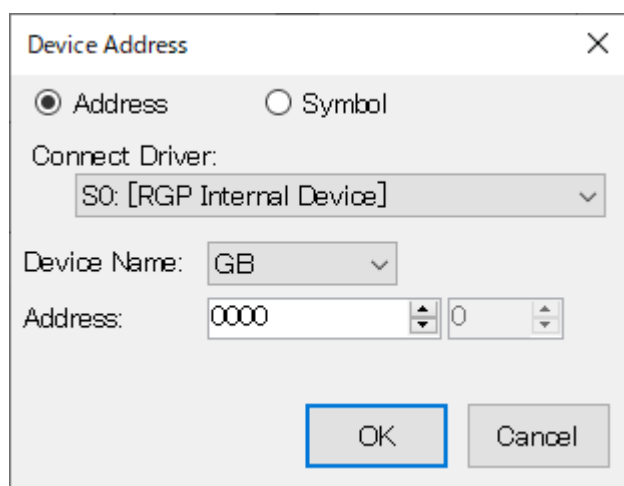
For details of the [Device Address] dialog, refer to "12. DEVICE ADDRESS" on page 192.

8.3.2 Bit Action Type setting

1) On the [Switch Action] setting window, click to select [BitActionType] and select the action type from the drop-down list.
2) Click [OK].
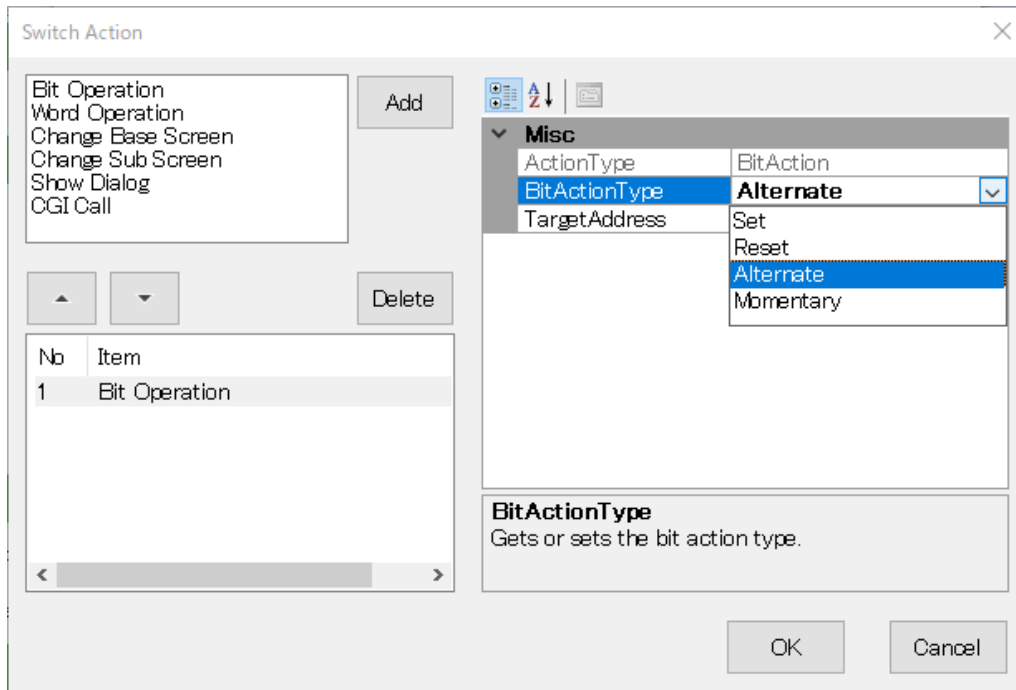
Bit Action Type	DESCRIPTION
Set	Writes '1' in the bit of [TargetAddress].
Reset	Writes '0' in the bit of [TargetAddress].
Alternate	Inverts the bit of [TargetAddress].
Momentary	Sets the bit of [TargetAddress] to '1' while the Switch is pressed. Returns the bit to '0', when the Switch is released.

8.4 WORD OPERATION

'Word Operation' is an operation of causing data of the target [Lamp] or [Switch] part to be written, incremented/decremented, etc. when the part is clicked.
The target is 1 word of the RGP internal memory or 1 word in address of a registered slave device.

Specify the location of the target word and the expected operation when registering a 'Word Operation'.

8.4.1 Word Action Type setting

1) On the [Switch Action] setting window, click to select [WordActionType] and select the action type from the drop-down list.
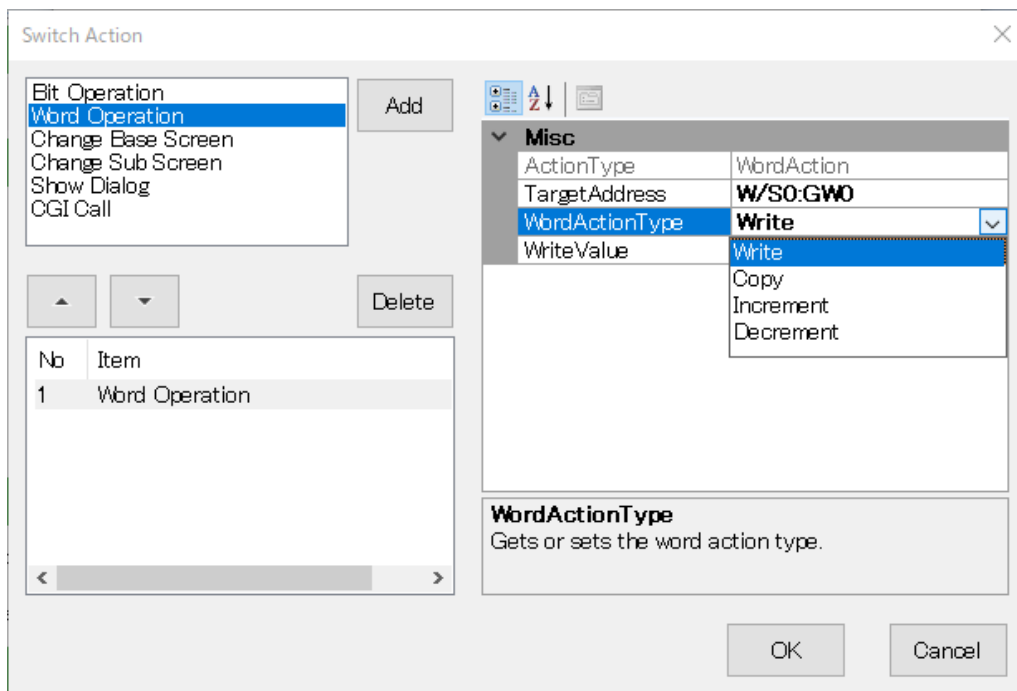
WORD ACTION TYPE	DESCRIPTION	PARAMETER
Write	Writes data in [TargetAddress]	TargetAddress, Data
Copy	Copies data of the source address to [TargetAddress]	TargetAddress, SourceAddress
Increment	Increments data of [TargetAddress] by 1. When the data reaches the upper limit, returns the value to the lower limit value. The upper limit and lower limit values differ depending on the data type of [TargetAddress].	TargetAddress
Decrement	Decrements data of [TargetAddress] by 1. When the data reaches the lower limit, returns the value to the upper limit value. The upper limit and lower limit values differ depending on the data type of [TargetAddress].	TargetAddress

2) Specify the [TargetAddress] and [WriteValue].

3) Click [OK].
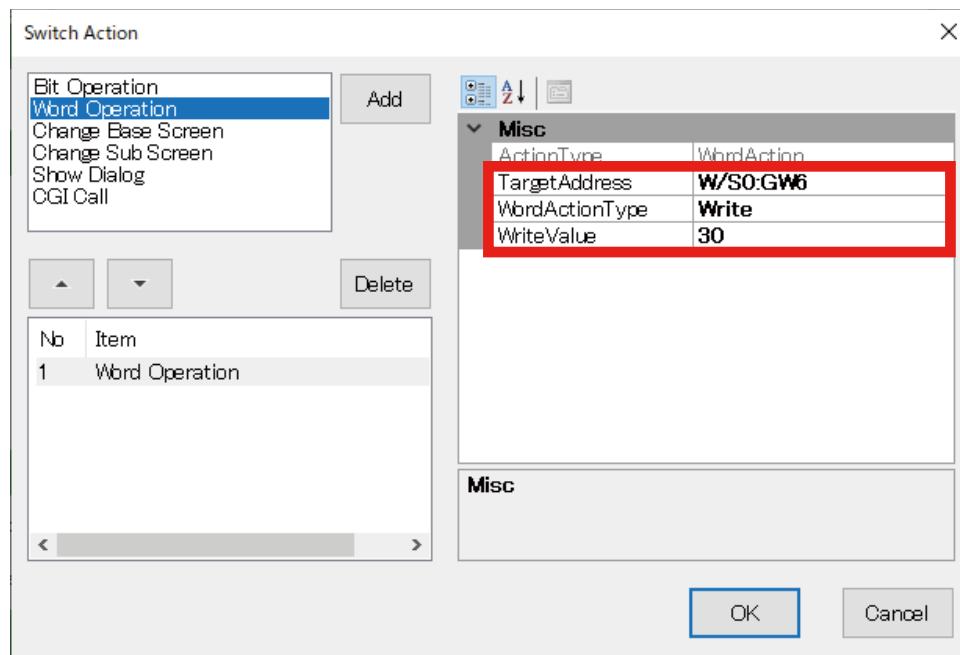
By the above settings, an operation of writing '30' in 'W/S0:GW6' (i.e. the 6th word of RGP internal device) is performed when the Switch is clicked.

8.5 CHANGE BASE SCREEN

'Change Base Screen' is an operation of switching the Base Screen when a [Lamp] part, [Switch] part, or a [Change Base Screen] switch is clicked.

8.5.1 Parameter Settings

[DisplayScreen] is the only parameter item to configure for [Change Base Screen].

1)　Select which Base Screen to switch to.

2)　Click [OK].
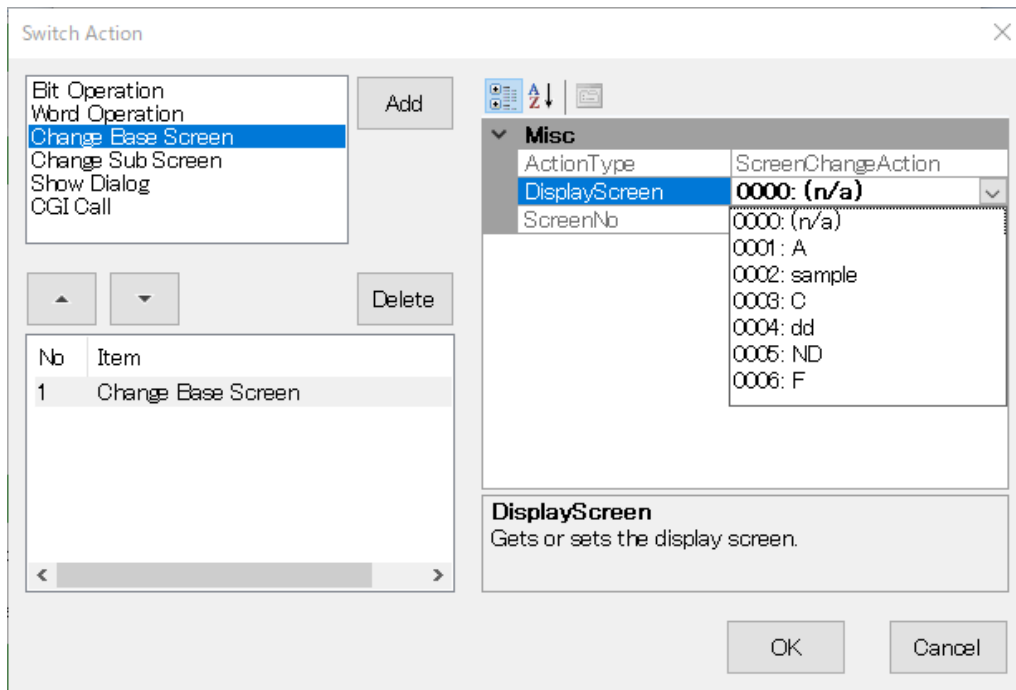
8.6 CHANGE SUB SCREEN

'Change Sub Screen' is an operation of displaying a Sub Screen when a [Lamp] part, [Switch] part, or a [Change Sub Screen] switch is clicked.

External contents can be displayed on the Sub Screen by selecting 'NavigateByURL' as [ScreenTransition-Method] and specifying the URL of the contents.

8.6.1 Parameter Settings

Edit the parameter values referring to the table below.

ITEM	DESCRIPTION	REMARKS
DisplayScreen	Select a Sub Screen to display.	–
Scale	Specify the display scale (ratio) of contents within the frame. Setting range: 0.5 to 1.0	Default: 1.0
ScreenTransitionMethod	ChangeScreen: Displays the Sub Screen specified as [DisplayScreen]. NavigateByURL: Displays external contents of the specified URL.	Default: ChangeScreen
TargetFrame(Frame)	Select the Sub Screen Frame in which to display the Sub Screen.	–

Note: In order to display the information about the power measuring devices on RGP30-W sub screen, specify 'NavigateByURL'.
For details, refer to Users Manual of RGP30-W (EM-8581-D).

8.7 SHOW DIALOG

'Show Dialog' is an operation of displaying a Dialog Screen when a [Lamp] part, [Switch] part, or a [Show Dialog] switch is clicked.

8.7.1 Parameter Settings

Edit the parameter values referring to the table below.

ITEM	DESCRIPTION	REMARKS
DisplayScreen	Select the screen to display as Dialog Screen.	–
Scale	Specify the display scale (ratio) of contents within the frame. Setting range: 0.5 to 1.0	Default: 1.0
TargetFrame	Select the Dialog Frame in which to display the Dialog Screen.	–

8.8 CLOSE DIALOG

'Close Dialog' is a switch action of closing the Dialog Screen and can be registered only to a switch allocated on the Dialog Screen.

8.8.1 Parameter Settings

'Close Dialog' has no parameter to configure.
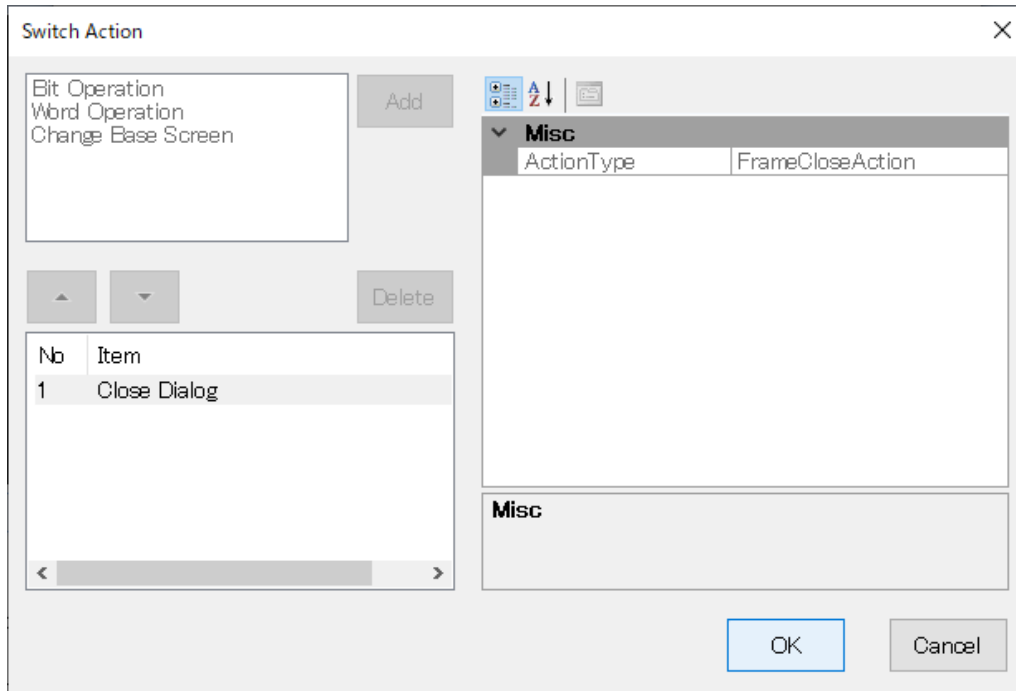
8.9 CGI CALL

'CGI Call' is an operation of transmitting an operation command to CGI-compatible devices.

8.9.1 Parameter Settings

Edit the parameter values referring to the table below.

ITEM	SETTING	REMARKS
HttpMethodType	GET	GET method is used to invoke a CGI command.
	POST	POST method is used to invoke a CGI command.
ParameterString	Character string	Parameter for CGI command (QueryString)
Uri	Character string	URL for CGI command

■ Parameter Setting Example: For zooming in with an Axis IP camera

ParameterString: without

ITEM	SETTING VALUE
HttpMethodType	GET or POST (Axis supports both methods)
ParameterString	Blank
Uri	http://192.168.13.73/axis-cgi/com/ptz.cgi?zoom=999&camera=1

ParameterString: with

ITEM	SETTING VALUE
HttpMethodType	GET or POST (Axis supports both methods)
ParameterString	zoom=9999&camera=1
Uri	http://192.168.13.73/axis-cgi/com/ptz.cgi

9. TRIGGER AND TRIGGER ACTION

9.1 OVERVIEW

Trigger and trigger action are a function of executing a specified movement (trigger action) automatically by an event (trigger) which is assigned to a GP folder or Base Screen.

Specifically, trigger and trigger action are used for switching between screens at a certain cycle, at the designated time, or when the designated bit turns ON.

9.2 TRIGGER

Trigger is the definition of the start of executing a trigger action. ➔
Trigger is an attribute of Folder property or Base Screen property.
Upon generation of the set trigger, the trigger action associated with the trigger is executed.

9.2.1 Trigger conditions

Trigger conditions are as described in the table below.

TRIGGER TYPE	FOLDER	BASE SCREEN	ACTION
OnCycle	✓	✓	Trigger is generated at intervals of time (seconds) designated in the [Interval] field.
OnTime	✓	✓	Trigger is generated at the time designated in the [TriggerTime] field. Ex) Set to "13:20:05" to generate the trigger every day at 13 o'clock 20 minutes 5 minutes.
OnBit	✓	✓	Trigger is generated when the bit address designated in the [TriggerAddress] field turns ON. When the [TurnoffTriggerAddress] is set as True, the set bit address is reset to OFF before executing the trigger action. Note: Expression symbols cannot be used as [TriggerAddress].

9.2.2 Trigger Setup

Trigger settings can be configured from the [Triggers] field on the [Property] window of GP Folder or Base Screen. Click to select the [Triggers] field and click [⋯] at the right of the field to display the [Triggers] Collection Editor window.

Add, delete, or edit triggers on this window.

FOLDER PROPERTY   BASE SCREEN PROPERTY

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

Property — □ ×

Behavior	
FitToGrid	True
ChangeScreen	
NextScreen	0000: (n/a)
Common	
Name	MAIN
ScreenType	Base Screen
Execution of Actions	
Triggers	RGPTrigger[] Array ⋯
Layout	
ScreenSize	1920, 1080
SizeName	FHD_1920_1080
ViewportAttribute	True

Triggers
Gets or sets the Triggers.

</td><td colspan="2">

Property — □ ×

Behavior	
FitToGrid	True
ChangeScreen	
NextScreen	0000: (n/a)
Common	
Name	MAIN
ScreenType	Base Screen
Execution of Actions	
Triggers	RGPTrigger[] Array ⋯
Layout	
ScreenSize	1920, 1080
SizeName	FHD_1920_1080
ViewportAttribute	True

Triggers
Gets or sets the Triggers.

</td></tr>
</table>

9.2.3 Configuration on [Triggers] Collection Editor

■ **How to configure**

Configure triggers referring to the table below.

ITEM	DESCRIPTION
Type	Select the trigger type. Refer to "9.2.1 Trigger conditions" on page 173 for details of trigger types.
Member	List of registered triggers.
[Add] button	Click the button to add the trigger designated as [Type] to [Member]. Up to 8 triggers can be registered.
[Delete] button	Click the button to delete the selected trigger from [Member].

■ **Parameter items**

Click to select a trigger from the list of [Member] to display parameter items under the [Property].

ITEM	DESCRIPTION
Actions	Configure a list of trigger actions to be executed when a trigger is generated. Click to select the [Actions] field and click [···] at the right of the field to display the [Actions] Collection Editor window. Add, delete, or edit trigger actions on this window.
Interval	Set the generation interval of trigger in seconds. Setting range: 00:00:00 to 23:59:59 * This parameter is available only when [Type] is set to OnCycle.
TriggerTime	Set the time at which the trigger is generated in HH:MM:SS format. Setting range: 0 to 600 * This parameter is available only when [Type] is set to OnTime.
TriggerAddress	Set the Bit address to monitor. The trigger is generated when this Bit turns ON. * This parameter is available only when [Type] is set to OnBit.
TurnoffTriggerAddress	Specify whether to reset the Bit of the set [TriggerAddress]. When the OnBit trigger is generated, the Bit is reset to OFF. * This parameter is available only when [Type] is set to OnBit.

9.3 TRIGGER ACTION

Trigger action is the definition of action to be executed when the trigger is generated.

In this version of RDP-Designer, only ChangeScreen action (set to GP folder) and ChangeSubScreen Action (set to Base Screen) are available.

9.3.1 Trigger action type

Trigger action types are as described in the table below.

Action type	Trigger set to Folder	Trigger set to Base Screen	Action
ChangeScreen	✓	–	Shifts to the page designated in the [DisplayScreen] field. When [DisplayScreen] is blank, shifts to the page designated in the [NextScreen] field of the property of the currently displayed Base Screen. If [NextScreen] field is also blank, this action is ignored.
ChangeSubScreen	–	✓	Displays the Sub Screen of the Sub Screen Frame designated in the [TargetFrame(Frame)] field on the Screen designated in the [DisplayScreen] field at the set [Scale]. When [DisplayScreen] is blank, shifts to the Screen designated in the [NextScreen] field of the property of the currently displayed Base Screen. If [NextScreen] field is also blank, this action is ignored.

9.3.2 Trigger action setup

Trigger actions can be added, deleted, or edited on the [Actions] Collection Editor window.

Click to select the [Actions] field on the [Triggers] Collection Editor window, and click [⋯] at the right of the field to display the [Actions] Collection Editor window.

Click to select a trigger action from the list of [Member] to display parameter items under the [Property].

9.3.3 Configuration on [Actions] Collection Editor
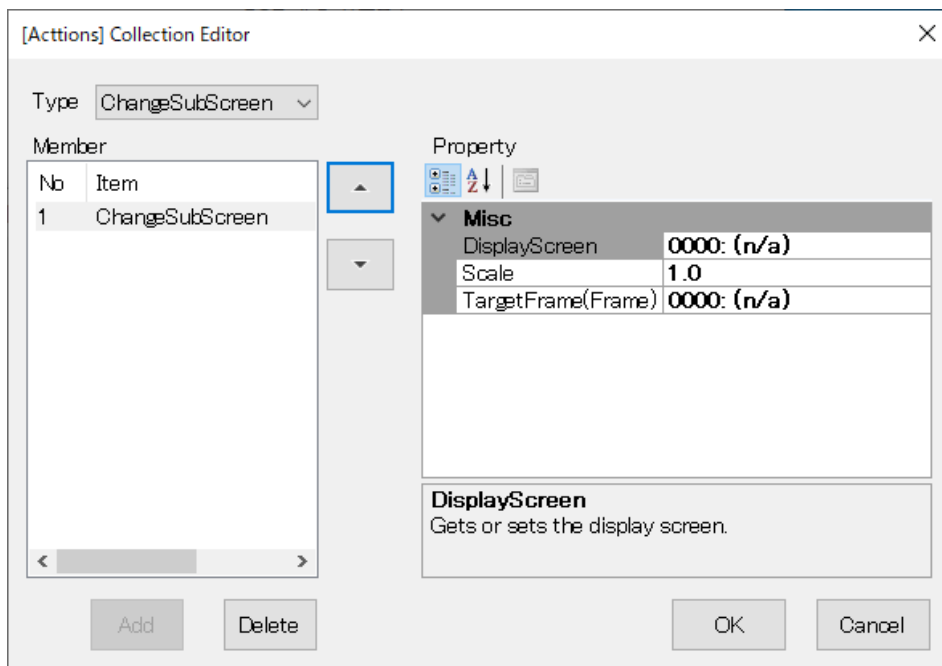
■ How to configure

Configure triggers referring to the table below.

ITEM	DESCRIPTION
Type	Select the trigger action type. Refer to "9.3.1 Trigger action type" on page 176 for details of trigger action types.
Member	List of registered trigger actions.
[Add] button	Click the button to add the trigger action designated as [Type] to [Member]. Only 1 trigger action can be registered.
[Delete] button	Click the button to delete the selected trigger action from [Member].

■ Parameter items

Click to select a trigger action from the list of [Member] to display parameter items under the [Property].

ITEM	DESCRIPTION
DisplayScreen	Specify the Bas Screen or Sub Screen to switch to.
TargetFrame(Frame)	Specify the Sub Screen Frame subject to ChangeSubScreen Action. * This parameter is available only when [Type] is set to ChangeSubScreen.
Scale	Set the scale of displaying Sub Screen in the range of 0.5 to 1.0. * This parameter is available only when [Type] is set to ChangeSubScreen.

10. SYSTEM SYMBOLS

10.1 OVERVIEW

System symbols are special variables which are defined in the RGP unit, and can be used where Device address can be used.

> **NOTE**
>
> - System symbols are available for RGP30-N2 (v1.1. or later), RGP30-W and RGP6-N2 (v1.1 or later) only.
> - If your RGP unit is RGP30-N or RGP-6, update the firmware to enable System symbols.

10.2 SYSTEM SYMBOL TYPES

SYMBOL TYPE	ACCESS TYPE	ATTRIBUTE	DESCRIPTION
\SW\COUNTER	I16_U16	Read/Write	Internal counter which counts up every 100 msec. The count starts when the page is displayed. Counting range: 0 to 32767
\SB\COUNTER00 | \SB\COUNTER15	Bit	Read/Write	Represents each Bit of \SB\COUNTER.
\SB\ALWAYSOFF	Bit	Read	Always OFF Bit.
\SB\ALWAYSON	Bit	Read	Always ON Bit.
\SW\REBOOT	I16_U16	Read/Write	Write "1" to start the RGP unit. Reading is enabled but the read value has no meaning.
\SW\SHUTDOUN	I16_U16	Read/Write	Write "1" to shut down the RGP unit. Reading is enabled but the read value has no meaning.

Note: Writing using system symbols is enabled only when HTTPS protocol is used.

11. EXPRESSIONS

11.1 OVERVIEW

Numeric expressions can be user-defined and used as symbol variables.

11.2 EDITING EXPRESSIONS

Expressions can be edited by the following procedure.

■ **Procedure**

1)   Select [Expression Settings(E)] from Tool menu or Tool bar to display the [Symbol Settings] window.

2)   Edit parameter items referring to the table below.

ITEM	DESCRIPTION
Symbol Name	Enter an optional name. * For prohibited characters and character codes, refer to "16.1 PROHIBITED CHARACTERS" on page 210.
Access Type	Specify the data type for the expression result. This parameter setting is applied only to the result and not to the operations of expression. Ex) Access Type: I16_U16 (16 bit integer) Expression: 1.423 * 2.900 Result (wrong): 1 * 3 = 3 (converted to integer before calculation) Result (correct): 1.423 * 2.900 = 4.127 ➜ 4 (converted to integer after calculation)

ITEM	DESCRIPTION
Expression	Enter an expression using up to 255 characters. Double-click the cell to display the [Expression Editor] window which facilitates the entry of expression. For details, refer to "11.4 EXPRESSION EDITOR" on page 189
Comment	Enter a description for the symbol variable using up to 255 characters. This parameter item is optional and can be left blank.

3)   Click [OK] to save the expressions.

11.3 EXPRESSION SPECIFICATIONS

Expressions must be described in accordance with the specifications as shown in the table below.

ITEM	DESCRIPTION
Operator	Allowable operator type: binary operators only.
Associativity / Precedence	Associativity and operator precedence must follow the rules of JavaScript. Refer to: ECMAScript https://tc39.es/ecma262/#sec-multiplicative-operators
Operator description	Descriptions of operators are unique to RGP-Designer and may be different from those of JavaScript.
Length	Define an expression using 1 to 255 characters.
Data type	Expression result has the same Data type as that of Device Address i.e., Bit, (U)Int8, (U)Int6, (U)Int32, or Float.
Internal representation	Expressions are represented internally as double-precision floating-point values. Note that (1/3)*3 may not necessarily be 1, for example.

Error representation	When a result cannot be represented as a numerical value, either of the following constants is used to represent the result.
	
	NaN : Result is indeterminate or erroneous.
	       Ex) 0/0
	Infinity: Result is indefinite.
	       Ex) 1/0

Usable elements	Elements which can be used in expressions are as follows. {{subtable}}

Usable elements subtable:

Element	Description
Literal values	: Real values such as 1, 0.25, etc. Setting range: -10000000000 to 10000000000
Constants / internal variables	: Constants or variables defined in RGP-Designer.

Symbol variables	: Symbol variables pre-defined on the [Symbol Settings] window.
	   Note)
	   - Symbol variable must be enclosed in parenthesis [ ] .
	   - Expression symbols are not allowed as they can cause circular reference.

Functions	: Built-in function defined in RGP-Designer.
	   Note)
	   - Buil-in function must take at least one argument.

■ Elements and Descriptions

ELEMENT	DESCRIPTION	EXAMPLE
Literal	Actual value	200 -1.23
Parenthesis	Used to control the order of operations in the expression.	(20-100)/PI

Symbol	System symbol or a symbol assigned to Device Address.
	Symbol must be enclosed in parenthesis.
	  Note)
	  - Expression symbols cannot be used.
		[PRODUCTION Q'TY]*[/SW/COUNTER]

Constant	Pre-defined constant	2*PI/[RADIUS]
Internal variable	Pre-defined variable	DD + 1

Built-in function	Pre-defined built-in function
	  Note)
	  - Built-in function must take at least one argument.
		ABS([PRODUCTION Q'TY] - [DEFECTIVE Q'TY])

11.3.1 Operator types

Table below shows the operations which can be used in expressions.

NOTATION	FUNCTION	NOTATION IN JavaScript	DESCRIPTION
^	Exponentiation	** or Math.pow(x,Y)	*4
*	Multiplication	*	*4
/	Division	/	*4
%	Surplus count	%	*4
+	Addition	+	
-	Subtraction	-	
LSHIFT	Left shift	<<	Shift bit to the left regardless of sign.
RSHIFT	Right shift	>>	Shift bit to the right regardless of sign.
<	Less than	<	Comparison operator *1
>	Greater than	>	Comparison operator *1
<=	Less than or equal	<=	Comparison operator *1
>=	Greater than or equal	>=	Comparison operator *1
!=	Inequality	!=	Comparison operator *1
==	Equality	==	Comparison operator *1
&	Bitwise AND	&	Bit operator *2
XOR	Bitwise XOR	^	Bit operator *2
|	Bitwise OR	|	Bit operator *3
&&	Logical AND	&&	Boolean operator *3
||	Logical OR	||	Boolean operator *3

*1 Result of comparison operation; false: 0, true: 1
*2 Operation is performed on each bit. Only the integral part is evaluated for a floating point value.
*3 Result is false: 0, true: other than 0.
4 Signed literal value described in the right term of an operator must be enclosed parenthesis. (i.g. 1(-2)).

11.3.2 Constant values and Internal variables

Table below shows the operations which can be used in expressions.

■ Constant values

NOTATION	FUNCTION	DESCRIPTION
PI	Pi	Corresponds to Math.PI in JavaScript. 3.141592653589793
E	Base of the natural logarithm	Corresponds to Math.E in JavaScript. 2.718281828459045

■ Internal variables

NOTATION	FUNCTION	DESCRIPTION
PAGE	Page number	Page number of the Screen currently being displayed.
DY	Year	Year of the current time and date. *
DM	Month	Month of the current time and date.
DD	Day	Day of the current time and date.
DW	Day of week	Day of the week of the current time and date. 0: Sunday to 6: Saturday
TH	Hours	Hours of the current time and date. 0 to 23
TM	Minutes	Minutes of the current time and date.
TS	Seconds	Seconds of the current time and date
TL	Milliseconds	Milliseconds of the current time and date.

* The allowable range of current time and date (year) depends on the user's system.

11.3.3 Built-in functions

RGP has the following pre-defined built-in functions.

■ ABS

NOTATION	ABS(x)
FUNCTION	Returns the absolute value of Argument x.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to Math.abs in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : 0

■ ROUND

NOTATION	ROUND(x)
FUNCTION	Returns the value obtained by rounding Argument x.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to Math.round in JavaScript. Returns one of the following values when Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : 0

■ FLOOR

NOTATION	FLOOR(x)
FUNCTION	Returns the value obtained by truncating Augment x to an integer.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to Math.floor in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : 0

■ CEIL

NOTATION	CEIL(x)
FUNCTION	Returns the value obtained by rounding up Argument x to an integer.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to Math.ceil in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : 0

■ RANDOM

NOTATION	RANDOM(x)
FUNCTION	Returns a random value among 0 and values smaller than Argument x.
ARGUMENT	Numerical value greater than 0.
DESCRIPTION	Corresponds to Math.random in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : undefined NaN : undefined Infinity : Infinity null : undefined

■ SIN

NOTATION	SIN(x)
FUNCTION	Returns the sine of Argument x.
ARGUMENT	Numerical value (radian)
DESCRIPTION	Corresponds to Math.sin in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : NaN null : 0

■ COS

NOTATION	COS(x)
FUNCTION	Returns the cosine of Argument x.
ARGUMENT	Numerical value (radian)
DESCRIPTION	Corresponds to Math.cos in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : NaN null : 1

■ TAN

NOTATION	TAN(x)
FUNCTION	Returns the tangent of Argument x.
ARGUMENT	Numerical value (radian)
DESCRIPTION	Corresponds to Math.tan in JavaScript. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : NaN null : 0

■ LOG

NOTATION	LOG(x)
FUNCTION	Returns the natural logarithm (base e) of Argument x.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to Math.log in JavaScript. Always returns NaN when x is a negative value. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : -Infinity

■ LOGB

NOTATION	LOGB(x)
FUNCTION	Returns the logarithm (base 2) of Argument x.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to the following expression in JavaScript. Math.log(x)/Math.LN2 Always returns NaN when x is a negative value. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : -Infinity

■ LOGD

NOTATION	LOGD(x)
FUNCTION	Returns the logarithm (base 10) of Argument x.
ARGUMENT	Numerical value
DESCRIPTION	Corresponds to the following expression in JavaScript. Math.log(x)/Math.LN10 Always returns NaN when x is a negative value. Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : -Infinity

■ RAD

NOTATION	RAD(x)
FUNCTION	Converts Argument x from degree to radian.
ARGUMENT	Numerical value (degree)
DESCRIPTION	Corresponds to the following expression in JavaScript. x*Math.PI/180 Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : 0

■ DEG

NOTATION	DEG(x)
FUNCTION	Converts Argument x from radian to degree.
ARGUMENT	Numerical value (radian)
DESCRIPTION	Corresponds to the following expression in JavaScript. x*180/Math.PI Returns one of the following values when the Argument is other than numerical value. undefined : NaN NaN : NaN Infinity : Infinity null : 0

■ NOT

NOTATION	NOT(x)
FUNCTION	Returns the logical negation of Argument x.
ARGUMENT	Numerical value Note) - Value other than 0 is regarded as true and operation is processed.
DESCRIPTION	Corresponds to the following expression in JavaScript. (!(x)?1:0) Returns one of the following values when the Argument is other than numerical value. undefined : 1 NaN : 1 Infinity : 0 null : 1

■ SINWAVE

NOTATION	SINWAVE(x)
FUNCTION	Returns a sine wave (-1 to 1) whose period is Argument x (seconds).
ARGUMENT	Numerical value 1 to 32767
DESCRIPTION	Time start point is when the page is loaded. Returns one of the following values when the Argument is other than numerical value. undefined : undefined NaN : undefined Infinity : undefined null : Operation is processed as 1 second.

■ RCTWAVE

NOTATION	RCTWAVE(x)
FUNCTION	Returns a rectangular wave (-1 to 1) whose period is Argument x (seconds).
ARGUMENT	Numerical value 1 to 32767
DESCRIPTION	Time start point is when the page is loaded. Returns one of the following values when the Argument is other than numerical value. undefined : undefined NaN : undefined Infinity: : undefined null : Operation is processed as 1 second.

■ SAWWAVE

NOTATION	SAWWAVE(x)
FUNCTION	Returns a sawtooth wave (-1 to 1) whose period is Argument x (seconds).
ARGUMENT	Numerical value 1 to 32767
DESCRIPTION	Time start point is when the page is loaded. Returns one of the following values when the Argument is other than numerical value. undefined : undefined NaN : undefined Infinity: : undefined null : Operation is processed as 1 second.

■ COUNTER

NOTATION	COUNTER(x)
FUNCTION	Returns the count of 100 Milliseconds from the time when the page is loaded.
ARGUMENT	Numerical value 0 to 15 Returns the value of the specified bit of the count value as 1/0. Other than the above, returns the count value as is.
DESCRIPTION	Time start point is when the page is loaded. Note) - Symbol variable: /SW/COUNTER has the same effect as this function. - The counter is reset every time the page is switched. Returns one of the following values when the Argument is other than numerical value. undefined : Returns the count value as is. NaN : Returns the count value as is. Infinity: : Returns the count value as is. null : Returns the count value as is.

11.4 EXPRESSION EDITOR

Expressions can be entered directly to the table on [Expression] tab of the [Symbol Settings] window.
Alternatively, click the cell of expression on the table to display the [Expression Editor] window for ease of expression entry.

Expression pane
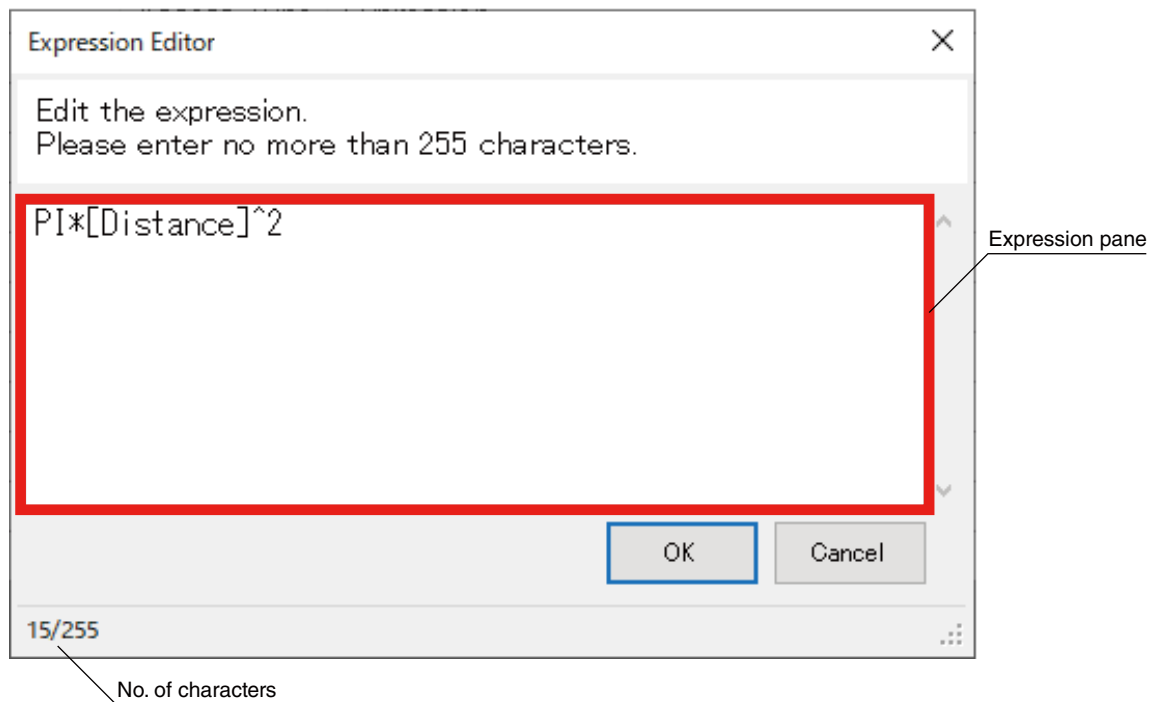
No. of characters

11.4.1 Parameter items

ITEM	DESCRIPTION	RESTRICTION
Expression pane	Enter an expression.	Expression must consist of 1 to 255 characters. Refer to "11.3 EXPRESSION SPECIFICATIONS" on page 180 for details of grammar of expressions.
Number of characters	No. of currently entered characters / Allowable No. of characters	

11.4.2 Input Assist

[Expression Editor] has a function of assisting construction of expressions.

■ Symbol Input Assist

[Expression Editor] assists entry of symbols.
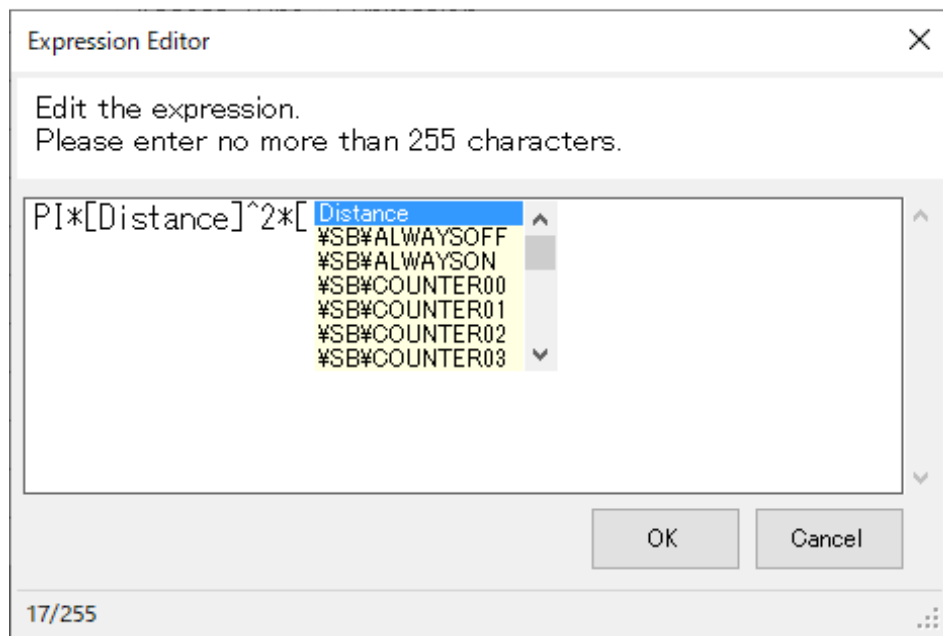
1) Enter a square bracket to display Symbol Input Assist.

2) Confirm that a drop-down list of candidates, i.e., device symbols and system symbols is displayed.
   The list does not include expression symbols as they cannot be used for expressions.

3) Select a symbol from the list, perform key/button operation, and close the [Expression Editor] window refer-
   ring to the table below.

KEY/BUTTON OPERATION	FUNCTION
Pressing [Enter]	Applies the candidate to the Editor.
Double-clicking a candidate	Applies the candidate to the Editor.
Entering]	Applies the candidate to the Editor.
Pressing [Esc] key	Ignores the candidate and displays [only.
Clicking on the Expression pane	Ignores the candidate and displays [only.
Clicking [OK]	Closes the Editor if the candidate is applied properly. "Syntax errors" message will be displayed when no candidate is applied and only [is displayed.
Clicking [Cancel]	Ignores the candidate and closes the Editor.

■ Element input assist

[Expression Editor] assists entry of operators and built-in functions.
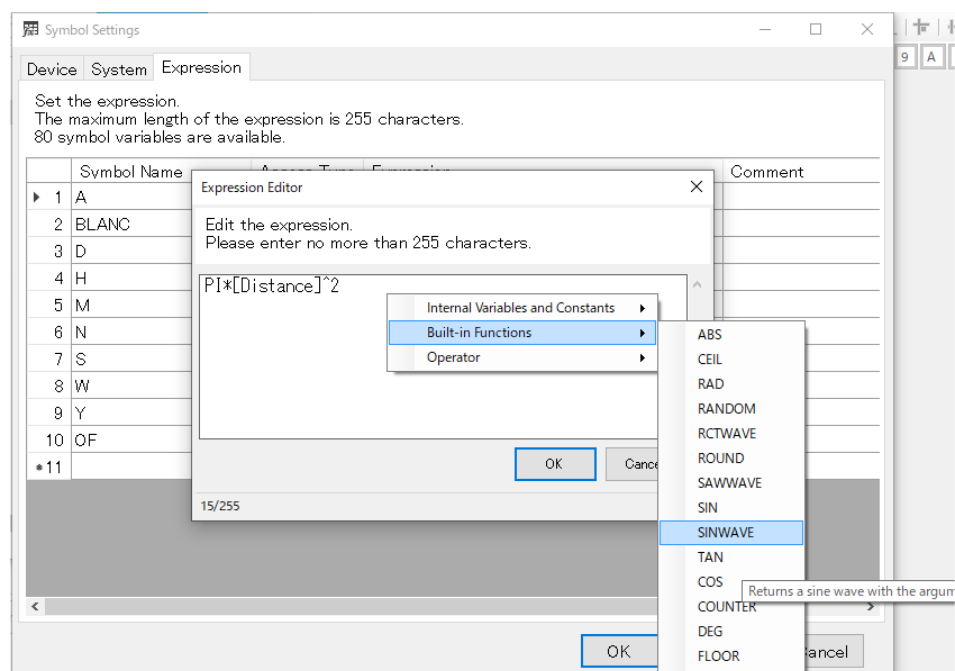
1) Right-click the Editor pane to display a context menu showing a list of usable elements.

2) Point each element menu to display a brief description of the element.

3) Select an element and confirm that the element is inserted to the cursor position or the selected area in the Editor pane.

12. DEVICE ADDRESS

12.1 OVERVIEW

RGP and RGP-Designer employ Device Addresses each of which is an identifier assigned to a relay, register, or memory of external device such as PLC.

This identifier consists of Data type and Slave number which do not depend on the model of the slave device.

Shown below is an example of Device Address.

W / S1 : DO
(1)   (2)   (3)

(1) Data type

Indicates one of the following data types.

ITEM	DATA TYPE
B	1 Bit
H	Signed 8-bit integer, Unsigned 8-bit integer
W	Signed 16-bit integer, Unsigned 16-bit integer
L	Unsigned 32-bit integer
F	Single precision floating point (32-bit)

(2) Slave number

Indicates a slave number (S1 to S32) shown on the [Project Explorer] window.

(3) Device name and address
    Indicates a device name and an address number.
    For details, refer to "15.4 DEVICE LIST" on page 204.

12.2 PARAMETER ITEMS FOR DEVICE ADDRESS

Device address as an operation target can be specified easily on the [Device Address] dialog.

The [Device Address] dialog is opened by clicking, for example, the [Monitor Address] field on the [Property] window of a part, the [Target Address] field on the [Lamp/Switch] window, or the [Device Address] field on the [Symbol Settings] window.

Configure the parameter values referring to the table below for specifying the Device Address.

ITEM	DESCRIPTION	REMARKS
Address tab	The method of setting Device Address by specifying [Connect Driver], [Device Name], and [Address].	–
Symbol	Device Address is specified by selecting a symbol variable from the symbol variables set in advance.	Symbol variables can be used instead of the actual Device address. For details, refer to 3.4 TOOL MENU > "3.4.7 Symbol Settings(S) and Expression Settings(E)" on page 40.
Connect Driver (Slave device)	Select from: S0: RGP internal device *1; and S1 to S32 (only the registered slave device numbers appear on the drop-down list).	For details of slave registration, refer to 3.8 PROJECT EXPLORER WINDOW > "3.8.2 Slave" on page 54.
Device Name	Device name corresponding to [Connect Driver] is displayed.	For details of device names, refer to "15.4 DEVICE LIST" on page 204.
Address	Set the Address number of the Slave device. For a Bit Device, specify the Bit position from 0 to 15.	–
Filter	Select an option to filter the drop-down list on the [Symbol] tab. | Option	Displayed symbols
---	---
All	All usable symbols
Device	Symbols assigned to the internal device or external devices
System	Symbols assigned to specialized internal memory of RGP unit
Expression	Symbols assigned to expressions		–

*1 For details of RGP internal device, refer to "15.3.1 Common internal device" on page 203.

13. INTERLOCK FUNCTION

13.1 OVERVIEW

RGP unit is equipped with a simplified interlock function, which is implemented by software.

We do not guarantee correct operation of the interlock function when a problem such as network device error, communication error, etc. occurs.

We strongly recommend the user to build your system with interlock control using physical I/O devices which function as safety instrumentation.

13.2 FUNCTION

1)   Enable or disable the Interlock function on the [Switch] tab of the [Lamp/Switch] window.
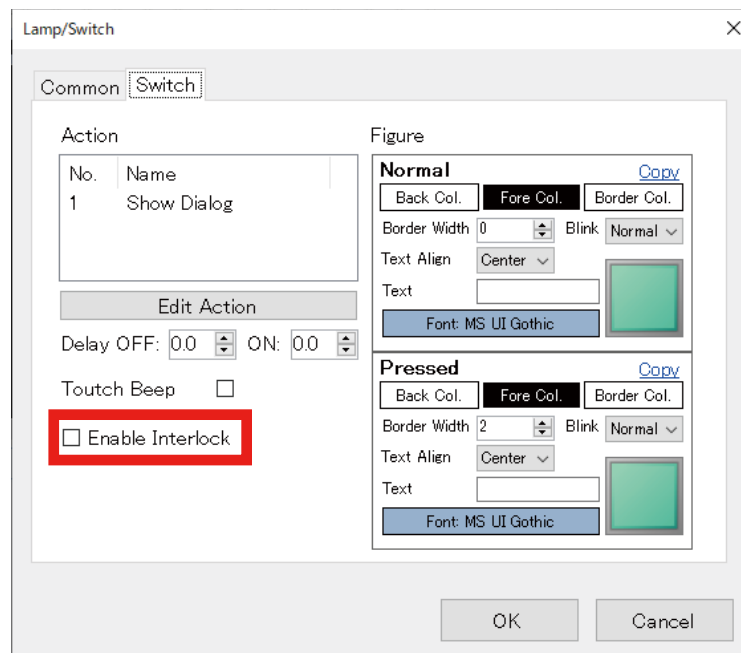
2)   When [Enable Interlock] is checked, confirm that the fields for specifying the Bit and the interlock condition appear.
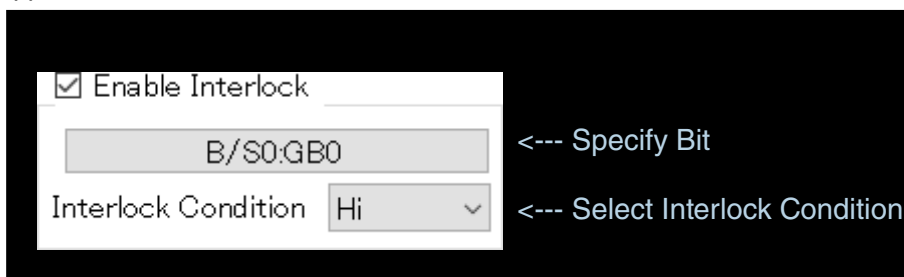
3)   Specify the Bit on the [Device Address] dialog.

→ "12. DEVICE ADDRESS" on page 192

4)   Select the Interlock Condition between 'Hi' and 'Lo(Low)'.

By this setting, the Switch is disabled when the specified Bit meets the set Interlock Condition.

14. FIGURE

14.1 OVERVIEW

The Figure or appearance of a [Lamp] or [Switch] part can be changed by configuring image, text, display position of the text, color, etc.

NOTE

- When both [Enable Lamp] and [Enable Switch] are checked, edit parameter values on the [Lamp] tab as the parameter are grayed out on the [Switch] tab as shown below.

14.2 PARAMETERS FOR FIGURE

Edit the parameter values for specifying the figure of the part referring to the table below.
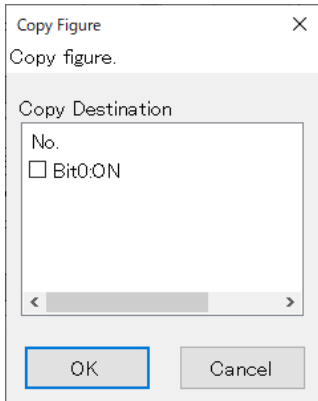
ITEM	DESCRIPTION	REMARKS
BackgroundColor	Set the background color of the part. Click to display [Select Color] dialog. *1	The dialog may look different depending on OS.
FontColor	Set the font color of the text to be displayed on the part. Click to display [Select Color] dialog.	The dialog may look different depending on OS.
BorderColor	Set the border color. Click to display [Select Color] dialog.	The dialog may look different depending on OS.
BorderWidth	Set the border width. Range: 0 to 10 (pixels)	–
TextAlign	Set the text align to: 'Left', 'Center', or 'Right'.	–
Text	Set text to be displayed on the part using 0 to 80 characters.	–
Font	Set the font for text. Click to display [Font] dialog. *2	The dialog may look different depending on OS.
Icon	Set an image to display as the part. Double-click the image of the part to display [Select Image] dialog.	The dialog may look different depending on OS.
Blink	Set 'Blink' / 'Heartbeat' as display status. Normal : Static display Blink : Blinking Heartbeat : Heart-beating Both :Blinking & heart-beating	–
Copy	Click [Copy] to display [Copy Figure] dialog. Check the destination to copy to, and click [OK] to reflect the set values on the destination.	–

*1 In order to make the background transparent, manually enter '0, 255, 255, 255' in the [BackgroundColor] field on the [Property] window.
Go to [Figure] and select '0' or '1' to display [BackgroundColor] when the Monitor Type is Bit, or select '0' to '15' when the Monitor Type is Word.

*2 Due to the specifications of Windows, the font size will be 9.75 pt even when set to 10 pt.
The upper limit of Font size is 240 pt.

15. MASTER-SLAVE COMMUNICATION

In this section, registration of slave devices to be connected with RGP unit and types of devices of the slave devices will be explained.

A maximum of 32 slave devices can be connected to a single RGP unit.

15.1 COMMUNICATION WITH SLAVE DEVICES

15.1.1 Register slave devices

Slave devices are assigned to respective slave numbers (S1 to S32).
Configure each slave device assigned to a slave number (Sx) on RGP-Designer.

RGP unit has a virtual device in the internal memory, which is preregistered as 'S0'.
For details of the internal memory, refer to .

ITEM	DESCRIPTION
Max. No. of slave devices	32
Slave No.	S1 to S32
Common parameter items	• IP Address • Protocol (Modbus/TCP or SLMP)
Modbus/TCP parameter items	• Port No. (0 to 65535 default: 502) • Unit ID (0 to 255 default: 1) • Timeout (1 to 10 sec. default: 1 sec.) • Frame size (256; fixed) • Driver (depends on each slave device or the standard Modbus/TCP driver)
SLMP parameter items	• Port No. (0 to 65535 default: 8192) • Network No. (0 to 255 default: 0) [1] • Station No. (1 to 255 default: 255) [2] • Processor No. (0 to 65534 default: 1023) [3] • Timeout (1 to 10 sec. default: 1 sec.) • Driver (MELSEC Q/ iQ-R/ iQ-F)

[1] Basically, set to '0' in decimal.
[2] Basically, set to '255' in decimal.
[3] Basically, set to '1023' in decimal.

15.1.2 Modbus/TCP

The table below shows Modbus function codes supported by RGP-Designer.

CODE	REGISTER TYPE	DESCRIPTION
01	Read Coil Status	Reads the ON/OFF status of a single or multiple coils.
02	Read Input Status	Reads the ON/OFF status of a single or multiple inputs.
03	Read Holding Register	Reads the value(s) of a single or multiple holding registers.
04	Read Input Register	Reads the value(s) of a single or multiple input registers.
05	Force Single Coil	Writes a value (ON/OFF) in a single coil.
06	Preset Single Register	Presets a value in a single holding register.
15	Force Multiple Coils	Writes a value (ON/OFF) in each of multiple coils.
16	Preset Multiple Registers	Presets values in respective multiple holding registers.

The table below shows devices assigned to Modbus/TCP-compatible slaves.

ITEM	DESCRIPTION
Device Address	1 to 65536
Bit Device	Input : Coil (0X), Input (1x) Output: Coil (0X)
Word Device	Input : Input Register (3X), Holding Register (4X) Output: Holding Register (4X) (Bit-access allowed)
Long-word Device	Input : Input Register (3X), Holding Register (4X) Output: Holding Register (4X) (Two devices connectable; upper and lower registers invertible; Bit-access allowed)
Float Device	Input : Input Register (3X), Holding Register (4X) Output: Holding Register (4X) (Two devices connectable; upper and lower registers invertible)
Device to be connected	Yokogawa Electric FA-M3 Sequence CPU Module (F3SP71/-4S, F3SP76/-7S)
	Mitsubishi Electric Modbus/TCP Interface Module (QJ71MT91)
	Our devices - Web Data Logger (DL30-N, DL8) - Paperless Recorder (TR30-G) - Remote I/O (R3-NE1, R7E series, R9EWTU, R6-NE1, R6-NE2, R5-NE1, R30-NE1) - D3/D5 series Interface module (D3-NE1, D3-NE2, D5-NE1) - Wireless Gateway (IB10W2(4), WL40EW2, ITxSW5) - Ethernet Communication Adaptor (72EM2-M4, GR8-EM) - Tower Light IT series

15.1.3 SLMP

The table below shows commands and devices assigned to SLMP-compatible slaves.

ITEM	DESCRIPTION
Protocol	TCP (UDP not supported)
Code	Binary (ASCII not supported)
Command	Read, Read Random, Write Random
Device	SM, SD, X, Y, M, L, F, V, B, D, W, TS, TC, TN, LTS, LTC, LTN, STS, STC, STN, LSTS, LSTC, LSTN, CS, CC, CN, LCN, SW, Z, LZ, R, ZR, RD (Bit-access allowed)
Device to be connected	Mitsubishi Electric MELSEC Q, iQ-R, iQ-F series

Device Address is represented in decimal (e.g. D, M) or in hexadecimal (e.g. X, Y) depending on the type of Device.

For details, refer to 'SLMP Reference Manual" of Mitsubishi Electric.

Convert the Device Address represented in hexadecimal into decimal when setting the address on RGP-Designer.

■ **SLMP-compatible devices that can be connected to RGP unit**

• MELSEC iQ-R Series CPU units (Mitsubishi Electric)

• MELSEC iQ-F Series CPU units (Mitsubishi Electric)

• MELSEC Q Series CPU units (Mitsubishi Electric)

(Tested and verified)

• R04CPU

• FX5U-32M

• Q03UDECPU

15.2 ACCESS TYPE

15.2.1 Data Type

The table below shows the data types of the devices.

The data types of devices of slaves connected to RGP unit are predefined.

ITEM	DATA TYPE
Bit	1 Bit
I8	Signed 8-bit integer
U8	Unsigned 8-bit integer
I16	Signed 16-bit integer
U16	Unsigned 16-bit integer
I32	Signed 32-bit integer
U32	Unsigned 32-bit integer
Float	Single precision floating point (32-bit)

15.3 COMMON INTERNAL DEVICE

15.3.1 Common internal device

RGP unit has a virtual slave No. S0 defined in the internal memory so that the user can freely use its devices (memory area).

The device assigned to Slave No. S0 is reset to 0 when RGP unit is started and a Project is transferred to the RGP unit.

Note that data is not retained when power supply is interrupted.

Slave No. S0 operates as an internal device which is commonly used among Graphic Panels GP1 to GP8.

The table below shows devices of the virtual slave.

ITEM	NO. OF BITS	RANGE
Bit Device	1	GB0 to 9999
Word Device	16	GW0 to 9999 (Bit-access allowed)
Long-word Device	32	GL0 to 9999 (Bit-access allowed)
Float Device	32	GF0 to 9999

15.4 DEVICE LIST

The tables below show details of devices of respective slaves.

15.4.1 RGP

The table below shows devices of RGP unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
GB	1	0 to 9999	R/W	---	Bit
GW	16	0 to 9999	R/W	---	Bit, I16, U16
GL	32	0 to 9999	R/W	---	Bit, I32, U32
GF	32	0 to 9999	R/W	---	Float

15.4.2 Modbus/TCP

The table below shows devices of general Modbus/TCP devices.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
0X	1	1 to 65536	R/W	---	Bit, I8, U8, I16, U16, I32, U32
1X	1	1 to 65536	R	---	Bit, I8, U8, I16, U16, I32, U32
3X	16	1 to 65536	R	LE	Bit, I8, U8, I16, U16, I32, U32, Float
4X	16	1 to 65536	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
3X(S)	16	1 to 65536	R	BE	Bit, I8, U8, I16, U16, I32, U32, Float
4X(S)	16	1 to 65536	R/W	BE	Bit, I8, U8, I16, U16, I32, U32, Float

15.4.3 DL8 (Modbus/TCP)

The table below shows devices of DL8 unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
AI	16	1 to 32	R	---	Bit, I16, U16
DI	1	1 to 64	R	---	Bit, I16, U16
PI	32	1 to 32	R	---	Bit, I32, U32, Float
CI *1	32	1 to 64	R	---	Bit, I32, U32
AO	16	1 to 32	R/W	---	Bit, I16, U16
DO	1	1 to 64	R/W	---	Bit, I16, U16

*1 CI: Counter of DI

15.4.4 DL30 (Modbus/TCP)

The table below shows devices of DL30 unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
AI	16	1 to 128	R	---	Bit, I16, U16
DI	1	1 to 256	R	---	Bit, I16, U16
PI	32	1 to 128	R	---	Bit, I32, U32, Float
MA	32	1 to 256	R/W	---	Float
MD	1	1 to 256	R/W	---	Bit, I16, U16
AO	16	1 to 64	R/W	---	Bit, I16, U16
DO	1	1 to 128	R/W	---	Bit, I16, U16
AIS [*1]	16	1 to 128	R/W	---	Bit, I16, U16
DIS [*2]	1	1 to 256	R/W	---	Bit, I16, U16
PIS [*3]	32	1 to 128	R/W	---	Bit, I32, U32, Float

*1 AIS: AI control input
*2 DIS: DI control input
*3 PIS: PI control input

15.4.5 TR30 (Modbus/TCP)

The table below shows devices of TR30 unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
AI	16	1 to 64	R	---	Bit, I16, U16
DI	1	1 to 64	R	---	Bit, I16, U16
PI	32	1 to 32	R	---	Bit, I32, U32, Float
OI	32	1 to 32	R	---	Bit, I32, U32, Float
IREG [*1]	1	1 to 3	R/W	---	Bit
STS [*2]	1	1 to 2	R	---	Bit
ERR [*3]	1	1 to 3	R	---	Bit
AIS [*4]	16	1 to 64	R/W	---	Bit, I16, U16
DIS [*5]	1	1 to 64	R/W	---	Bit, I16, U16
PIS [*6]	32	1 to 32	R/W	---	Bit, I32, U32, Float

*1 IREG: Internal register ([1]: Record [2]: Transfer [3]: Comment)
*2 STS: Status ([1]: SD card error [2]: FTP transmission)
*3 ERR: Error status ([1]: SD card error [2]: R30 module error [3]: Modbus/TCP error)
*4 AIS: AI control input
*5 DIS: DI control input
*6 PIS: PI control input

15.4.6 FA-M3 (Modbus/TCP)

The table below shows devices of FA-M3 unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
I	1	1 to 65535	R/W	---	Bit, I8, U8, I16, U16, I32, U32
X	1	201 to 71664	R	---	Bit, I8, U8, I16, U16, I32, U32
M	1	1 to 9984	R	---	Bit, I8, U8, I16, U16, I32, U32
Z	16	1 to 1024	R	LE	Bit, I8, U8, I16, U16, I32, U32
D	16	1 to 65535	R/W	LE	Bit, I8, U8, I16, U16, I32, U32

Note: Address of X-device is configured as following table, thus the device number is discontinuous.
      Address not existing is also configurable but an error message will be indicated when executing build process.
      Refer to the users manual of Yokogawa FA-M3 series for details.

```
X    0    02    01
          │     └──── Terminal Number (01 - 64)
          └────────── Slot Number (02 - 16)
     └──────────────── Unit Number (0 - 7)
```
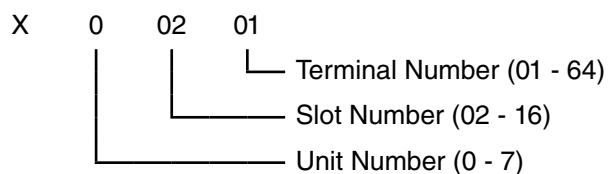
15.4.7 MELSEC-iQR (SLMP)

The table below shows devices of MELSEC-iQR CPU unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
M	1	0 to 161882111	R/W	---	Bit, I8, U8, I16, U16, I32, U32
X	1	0 to 0x2fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
Y	1	0 to 0x2fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
D	16	0 to 10117631	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
SM	1	0 to 4095	R/W	---	Bit, I8, U8, I16, U16, I32, U32
SD	16	0 to 4095	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
L	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
F	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
V	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
B	1	0 to 0x9a61fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
W	16	0 to 0x9a61ff *1	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
TS	1	0 to 8993439	R/W	---	Bit
TC	1	0 to 8993439	R/W	---	Bit
TN	16	0 to 8993439	R/W	---	U16
LTS	1	0 to 2529407	R/W	---	Bit
LTC	1	0 to 2529407	R/W	---	Bit
LTN	32	0 to 2529407	R/W	---	U32
STS	1	0 to 8993439	R/W	---	Bit
STC	1	0 to 8993439	R/W	---	Bit
STN	16	0 to 8993439	R/W	---	U16
LSTS	1	0 to 2529407	R/W	---	Bit
LSTC	1	0 to 2529407	R/W	---	Bit
LSTN	32	0 to 2529407	R/W	---	U32
CS	1	0 to 8993439	R/W	---	Bit
CC	1	0 to 8993439	R/W	---	Bit
CN	16	0 to 8993439	R/W	---	U16
LCS	1	0 to 4761215	R/W	---	Bit
LCC	1	0 to 4761215	R/W	---	Bit
LCN	32	0 to 4761215	R/W	---	U32
SB	1	0 to 0x9a61fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
SW	16	0 to 0x9a61ff *1	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
Z	16	0 to 23	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
LZ	32	0 to 11	R/W	LE	U32
ZR	16	0 to 5832703	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float

*1 '0x' denotes hexadecimal.

Note:
- Word-access to a Bit device is supported for reading only with a single command when the device number is a multiple of 16.
- Long-word-access to a Bit device is supported for reading only with a single command when the device number is a multiple of 32.
- Long-word-access to a Word device is supported for reading only with a single command when the device number is a multiple of 2.

15.4.8 MELSEC-iQF (SLMP)

The table below shows devices of MELSEC-iQF CPU unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
M	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
X *1	1	0 to 1023	R/W	---	Bit, I8, U8, I16, U16, I32, U32
Y *1	1	0 to 1023	R/W	---	Bit, I8, U8, I16, U16, I32, U32
D	16	0 to 7999	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
SM	1	0 to 9999	R/W	---	Bit, I8, U8, I16, U16, I32, U32
SD	16	0 to 11999	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
L	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
F	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
B	1	0 to 0x7fff *2	R/W	---	Bit, I8, U8, I16, U16, I32, U32
S	1	0 to 4095	R/W	---	Bit, I8, U8, I16, U16, I32, U32
W	16	0 to 0x7fff *2	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
TS	1	0 to 1023	R/W	---	Bit
TC	1	0 to 1023	R/W	---	Bit
TN	16	0 to 1023	R/W	---	U16
STS	1	0 to 1023	R/W	---	Bit
STC	1	0 to 1023	R/W	---	Bit
STN	16	0 to 1023	R/W	---	U16
CS	1	0 to 1023	R/W	---	Bit
CC	1	0 to 1023	R/W	---	Bit
CN	16	0 to 1023	R/W	---	U16
SB	1	0 to 0x7fff *2	R/W	---	Bit, I8, U8, I16, U16, I32, U32
SW	16	0 to 0x7fff *2	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
LCS	1	0 to 1023	R/W	---	Bit
LCC	1	0 to 1023	R/W	---	Bit
LCN	32	0 to 1023	R/W	---	U32
Z	16	0 to 23	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
LZ	32	0 to 11	R/W	---	U32
R	16	0 to 32767	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float

*1 'X' and 'Y' devices are denoted in octal.
*2 '0x' denotes hexadecimal.

Note:
- Word-access to a Bit device is supported for reading only with a single command when the device number is a multiple of 16.
- Long-word-access to a Bit device is supported for reading only with a single command when the device number is a multiple of 32.
- Long-word-access to a Word device is supported for reading only with a single command when the device number is a multiple of 2.

15.4.9 MELSEC-Q (SLMP)

The table below shows devices of MELSEC-Q CPU unit.

CODE	NO. OF BITS	DEVICE NUMBER	ACCESS	ENDIAN	ACCESS TYPE
M	1	0 to 61439	R/W	---	Bit, I8, U8, I16, U16, I32, U32
X	1	0 to 0x1fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
Y	1	0 to 0x1fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
D	16	0 to 4910079	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
SM	1	0 to 2047	R/W	---	Bit, I8, U8, I16, U16, I32, U32
SD	16	0 to 2047	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
L	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
F	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
V	1	0 to 32767	R/W	---	Bit, I8, U8, I16, U16, I32, U32
B	1	0 to 0xbfff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
W	16	0 to 0x4aebff *1	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
TS	1	0 to 32767	R/W	---	Bit
TC	1	0 to 32767	R/W	---	Bit
TN	16	0 to 32767	R/W	---	U16
STS	1	0 to 32767	R/W	---	Bit
STC	1	0 to 32767	R/W	---	Bit
STN	16	0 to 32767	R/W	---	U16
CS	1	0 to 32767	R/W	---	Bit
CC	1	0 to 32767	R/W	---	Bit
CN	16	0 to 32767	R/W	---	U16
SB	1	0 to 0x7fff *1	R/W	---	Bit, I8, U8, I16, U16, I32, U32
SW	16	0 to 0x6fff *1	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
Z	16	0 to 19	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float
ZR	16	0 to 4849663	R/W	LE	Bit, I8, U8, I16, U16, I32, U32, Float

*1 '0x' denotes hexadecimal.

Note:
- Word-access to a Bit device is supported for reading only with a single command when the device number is a multiple of 16.
- Long-word-access to a Bit device is supported for reading only with a single command when the device number is a multiple of 32.
- Long-word-access to a Word device is supported for reading only with a single command when the device number is a multiple of 2.

16. APPENDIX

16.1 PROHIBITED CHARACTERS

The table below shows characters which are prohibited to use on RGP-Designer.
An error occurs if operators (such as +, -, XOR, etc.) are included.

PROHIBITED CHARACTER	UNICODE
"	0x0022
'	0x0027
¥	0x005c

Make sure NOT to use these characters when entering in the fields in relation to the followings.

- String Table

- Symbol variables

- Parts names

- Comments (in the Property of GP folder)

16.2 ERROR HANDLING

16.2.1 RGP error

■ Error types

There are two major error types with regard to RGP unit.

- Setting file error (cleared when a normal file is retransferred), EEPROM error

- Communication error with a slave (cleared when normal communication is restored or communication with the slave is terminated)

■ Error notification

Error is indicated by the following methods.

- **LED lamp of RGP unit**
  RGP30: ERROR LED blinks.
  RGP6 : Status indicator LED turns ON Red.

- **System log**
  Error is written in the system log.
  System log is recorded in 'LOG.txt' and 'LOG1.txt' in the LOG folder.
  When the file size of 'LOG.txt' exceeds 1 MB, the file is renamed 'LOG1.txt' and a new 'LOG.txt' file is created to record System log.

  System log can be viewed from Web browser.
  Enter an address of each file in the address bar of Web browser.

  http://(IP Address of RGP)/LOG/LOG.txt

  http://(IP Address of RGP)/LOG/LOG1.txt


```
                      192.168.13.14/LOG/LOG.txt        ×        +

     ←   →   C        192.168.13.13/LOG/LOG.txt

2018-07-11 14:38:20 RGP30 Start Ver 0.0.8.7
2018-07-23 10:16:52 RGP30 Start Ver 0.0.8.7
2018-07-23 10:18:28 RGP30 SHUTDOWN
2018-08-08 18:39:26 RGP30 Start Ver 0.0.10.6
2018-08-10 10:51:53 RGP30 Start Ver 0.0.10.6
2018-09-04 10:29:50 Error COM Connect  0x2
2018-09-04 10:30:20 RGP30 Start Ver 0.0.12.0
2018-09-04 13:57:48 RGP30 Start Ver 0.0.12.0
2018-09-05 09:30:24 RGP30 Start Ver 0.0.12.0
2018-10-01 12:11:48 RGP30 Start Ver 0.0.12.0
2018-10-01 17:26:35 RGP30 Start Ver 0.0.12.0
2018-10-01 17:28:12 Error COM Connect  0x2
2018-10-01 17:30:23 RGP30 Start Ver 1.0.5.0
2018-10-01 17:35:21 Error COM Connect  0x2
```

Note that the access level of LOG folder is set to '0' at default.

Refer also to Users Manual (NM-8582-B; currently available in Japanese only) of RGP6 for details of System log.

16.2.2 Browser

When an communication error between RGP unit and a slave device occurs, an error message as shown below is displayed at the top of the screen when either of the following conditions is met.

- When the slave device has failed to respond to a read request from the RGP unit within 5 seconds for 5 times in a row.
  Once an error message is displayed, it will not be refreshed while the slave device repeats the failure.
  The error state is cleared when the slave device has responded to a read request next time.
  Alert dialog of read request recovers automatically by normal response.

- When a slave device does not respond to a write request from the RGP unit.
  Or when an error code is received from the RGP, displays the message in the upper red band of each screen.
  Click the message to delete the alert dialog of write request.
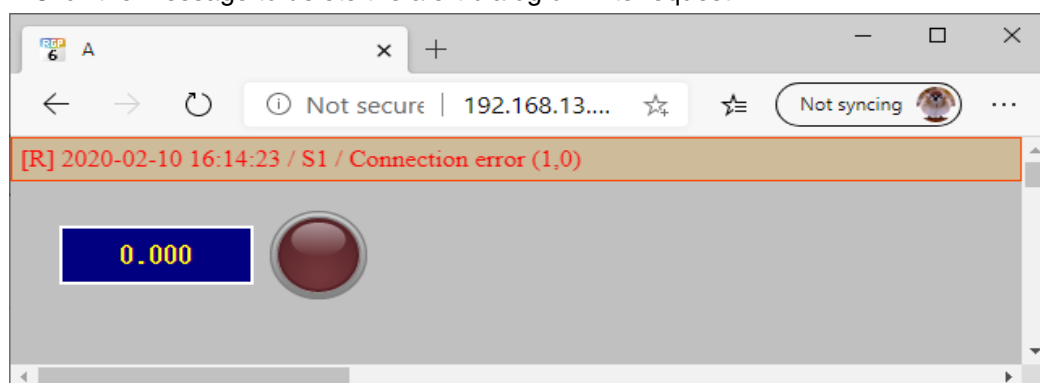
16.3 USER REGISTRATION

■ Free User Registration

We strongly recommend to sign up as a user and receive information on the version upgrade of the RGP firmware or RGP-Designer software.

Go to our web site, then to the User Registration Page (currently available from Japanese site only) and register your details.

16.4 TROUBLESHOOTING

16.4.1 Status indicator LEDs

■ RGP30

Problem faced	What to check	Method of handling
PWR LED does not turn ON.	Is the RGP unit powered ON?	Check the power supply. Turn OFF and ON the power supply. Consult us if the problem persists.
RUN LED does not turn ON.	Is the RGP unit powered ON?	Check the power supply. Turn OFF and ON the power supply. Consult us if the problem persists.
ERROR LED is blinking.	Communication error with a slave?	See "16.2 ERROR HANDLING" on page 211

■ RGP6

Problem faced	What to check	Method of handling
Status Indicator LED does not turn ON Green.	Is the RGP unit powered ON?	Check the power supply. Turn OFF and ON the power supply. Consult us if the problem persists.
Status Indicator LED turns ON Red.	Communication error with a slave?	See "16.2 ERROR HANDLING" on page 211.

16.4.2 RGP-Designer

Problem faced	What to check	Method of handling
Unable to connect with the RGP unit. (via the LAN)	Is the IP Address correct?	Connect using a USB cable, and check the IP Address. See "2.5 SETTING/CHANGING RGP IP ADDRESS" on page 22.
	Has the LAN cable come out of the HUB?	Connect the LAN cable securely.
	Has the same network address been specified in the IP Address of the RGP and PC?	Check the IP Address. Issue the ping command from the PC and check whether there is a response from the RGP unit. [Example] RGP : 192.168.0.1 PC : 192.168.0.2 Subnet mask : 255.255.255.0
	Are the user ID and password correct?	Confirm the user ID and password. See 3.4 TOOL MENU > "3.4.12 Setup Target Unit" on page 49.
Unable to connect with the RGP (via the Internet)	Is the port No. on the router used by RGP-Designer (default: 30559) open?	Set the IP Address of the RGP and port No. manually in the NAT setting of the router. (See the User Manual of the router.)
Unable to transfer Project to the RGP unit	Has the build process been successful?	Confirm the build process result on the [Output] window. See "3.13 OUTPUT WINDOW" on page 63.

16.4.3 Displaying the Web browser via LAN connection

Problem faced	What to check	Method of handling
Unable to display the Web browser view via the LAN.	Is the URL correct?	Confirm the URL and try again. See "5.4 ACCESS RGP VIA WEB BROWSER" on page 80.
	Has the LAN cable come out of the HUB?	Connect the LAN cable securely.
	Is the IP Address of the RGP overlapping with another device?	Check the IP Address.

	Has the same network address been specified in the IP Address of the RGP and PC?	Check the IP Address.
		Issue the ping command from the PC and check whether there is a response from the RGP unit.
		[Example]
		    RGP : 192.168.0.1
		    PC : 192.168.0.2
		    Subnet mask: 255.255.255.0

	Has firewall or proxy server setting been configured on the PC?	Check the contents of the firewall and proxy server setting with the network administrator.
	Are you using a compatible terminal and compatible browser?	Check the version of the terminal/browser software. See "1.9 OTHERS" on page 16.
	Is there a problem with the terminal or PC being used?	Use a different terminal/PC.

16.4.4 Wi-Fi connection

Problem faced	What to check	Method of handling
Unable to connect to the access point from a terminal/PC.	Is the password to the access point correct?	Check the password to the access point. (See the User Manual of the access point)
	Has an IP Address been assigned to the terminal/PC?	Check that the access point has a DHCP server function. If not, enter the IP Address manually. (See the User Manual of the access point)

16.4.5 Internet

Problem faced	What to check	Method of handling
Unable to connect to the Internet (provider).	Does the information used to connect to the provider match the setting in the router? (User name, password, etc.)?	Check the provider-related settings on the router. (See the provider information and the User Manual of the router)
	If a mobile router is being used, is the signal weak?	Check the signal strength. Try again in a location where the signal is strong.
	Have the IP Address and default gateway of the RGP been correctly set?	Check the IP Address and default gateway setting for the RGP. See "2.5 SETTING/CHANGING RGP IP ADDRESS" on page 22.
Unable to display the RGP Graphic Panels via the Internet.	Is the URL correct?	Check the fixed IP Address or domain name of the WAN as per the agreement with the provider. (See the contents of the agreement with the provider.)
	If the IP Address of the RGP is manually set, is the port open?	Set the IP Address of the RGP and port No. (default: 80) manually in the NAT setting of the router. (See the User Manual of the router.)
	If the IP Address of the RGP is set as [Automatic setting (DHCP)], has the IP Address been assigned by the router?	Obtain the IP Address from the router and set the IP Address and port No. (default: 80) from the NAT setting manually. (See the User Manual of the router.)

16.4.6 Modbus/TCP (Master)

Problem faced	What to check	Method of handling
Unable to connect to the Modbus slave device from the RGP unit.	Is the LAN cable disconnected or has it come out from the HUB?	Connect the LAN cable securely. Check the connection status indicator lamp on the HUB.
	Has the IP Address of the RGP been manually set?	Set the IP Address manually. See "2.5 SETTING/CHANGING RGP IP ADDRESS" on page 22.
	Has the same network address been specified in the RGP and Modbus slave device?	Check the network address. [Example] RGP: 192.168.0.1 Slave: 192.168.0.2 Subnet mask: 255.255.255.0
	Does the IP Address of the Modbus slave device coincide with the one registered on RGP-Designer?	Check the IP Address of the Modbus slave device.
	Has the IP Address been set for the slave device?	Set the IP Address for the Modbus slave device. For our remote I/O, disconnect and restart the power supply after setting the IP Address. (See the respective remote I/O Users Manuals for how to set the IP Address.)

16.4.7 SLMP (Master)

Problem faced	What to check	Method of handling
Unable to connect to the SLMP slave device from the RGP unit.	Is the LAN cable disconnected or has it come out from the HUB?	Connect the LAN cable securely. Check the connection status indicator lamp on the HUB.
	Has the IP Address of the RGP been manually set?	Set the IP Address manually. See "2.5 SETTING/CHANGING RGP IP AD-DRESS" on page 22.

	Has the same network address been specified in the RGP and SLMP slave device?	Check the network address.
		[Example]
		    RGP: 192.168.0.1
		    Slave: 192.168.0.2
		    Subnet mask: 255.255.255.0

	Does the IP Address of the SLMP slave device coincide with the one registered on RGP-Designer?	Check the IP Address of the SLMP slave device.
	Has the IP Address been set for the slave device?	Check the IP Address of the SLMP slave device and set the IP Address, if necessary.
	Do the Network No., Station No., and Processor No. coincide with the ones registered on RGP-Designer?	Check the Network No., Station No., and Processor No. of the SLMP slave device. See "6.1.2 MELSEC Q / iQ-R / iQ-F Series (Mitsubishi Electric)" on page 90.

16.4.8 INTERNET BROWSER

Problem faced	What to check	Method of handling
The browser is forcibly terminated.	Is the browser the latest version?	Update the browser to the latest version.
	Are brouser add-on programs used?	Some add-on programs interfere with communication between RGP and the browser. Uninstall the add-on program and try it again.
	Is the Internet Explorer used?	Internet Explorer is out of support and no fixed version will be released. Use another browser.
	Is the Firefox for Windows used? Firefox is a registered trademark of the Mozilla Foundation in the United States and other countries.	Firefox consumes a lot of memory to prioritizes processing speed. Thus, the system may become unstable after long-term use. If the system becomes unstable or the browser quits, try the following: Uncheck Firefox's [Settings]-[Options]-[Performance]-[Use Recommended Performance Settings]. Uncheck [Use hardware acceleration when available]. Close the Options tab and restart Firefox.

16.5 VERSION HISTORY

16.5.1 Rev.1

• Revised to reflect upgrades of products.

PRODUCT	UPGRADED VERSION
RGP-Desinger	ver. 1.5
RGP30	ver. 1.1
RGP6	ver. 1.1

16.5.2 Rev.2

• The time zone setting of the RGP was added.

16.5.3 Rev.3

• The R30-NE1 was added to the device to be connected of Modbus/TCP.

16.5.4 Rev.4

• The company name was changed from M-System Co., Ltd. to MG Co., Ltd.

16.5.5 Rev.5

• Cautions and notes were added.

16.5.6 Rev.6

• RGP30-W was supported.
• Windows 11 was added to OS in the system requirement.

17. LICENSE

exPat (http://expat.sourceforge.net/) is built into RGP/RGP-Designer.
This license is the same as the MIT/X Consortium License.

Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006 Expat maintainers.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.
IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

RGP/RGP-Designer contains software to which the following Camellia license is applicable.

camellia.c ver 1.2.0

Copyright (c) 2006,2007
NTT (Nippon Telegraph and Telephone Corporation). All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer as the first Lines of this file unmodified.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY NTT ''AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL NTT BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The terms HDMI, HDMI High-Definition Multimedia Interface, and the HDMI Logo are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer as the first Lines of this file unmodified.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.